



**...offers YOU...**

**... qualified & experienced team**

- we are an independent stocking distributor of electronic components with more than 15 years experiences on the European market
- we operate a Quality Management System which has been approved to the ISO 9001:2001 Standard

**... international operating & multilanguage support**

- we are members of e-tech group – an international distribution group which consist of four companies in Germany, Czech Republic, Hungary and Slovakia
- we have sales representatives in Poland and Romania
- we communicate in English, German, Hungarian, Russian, Polish, Romanian, Czech and Slovak languages

**... strong relationships with business partners**

- we have forged strong relationships with more than 3000 OEMs, but our products are also sold to R&D companies and resellers
- we cooperate with more than 50 important manufacturers and the largest distributors of electronic components worldwide

**... innovative & wide assortment**

- more than 15 000 types of electronic components direct from our warehouse
- more than 200 000 types of electronic components on offer
- we are able to service the ever increasing needs of the electronics industry and varied demands of our customers

**... excellent customer service & flexible approach**

- personal service and a flexible approach are at the heart of our business, which is why each customer can expect a dedicated sales contact to understand their business and their requirements and provide a fast, effective solutions
- product and service quality are paramount and customer feedback is always welcomed
- technical support for customers (datasheets, catalogues, instructions of use...)

**... competitive prices & fast delivery**

- daily actualized prices, stock information, technical parameters, datasheets, customer order histories, etc... are available on-line at [www.soselectronic.com](http://www.soselectronic.com)
- 24 hour delivery for most EU destinations, 2-7 days to the rest of the world

**... value added services**

- catalog of electronic components in four languages
- fast and customer oriented on-line shop in 8 languages
- SOSnews magazine
- technical support
- flyers
- e-mail newsletters

**... exclusive referencies**

- electronic industry: Sony, Samsung, Panasonic, Hengstler, Emerson, Punch, Invensys, Whirlpool, BSH
- automotive: Volkswagen, Kia Motors, Valeo, Yazaki, Leoni

**...more than just components...**

**Passive Components**

Passive Bauelemente

**A**

**Discrete Semiconductors**

Diskrete Halbleiter

**B**

**Integrated Circuits**

Integrierte Schaltungen

**C**

**Power Supplies and RF Modules**

DC/DC und AC/DC Wandler, RF Module

**D**

**Optoelectronic Components**

Optoelektronische Komponenten

**E**

**Connectors & Terminals**

Steckverbinder und Anschlüsse

**F**

**Cables & Cords**

Kabel und Litzen

**G**

**Switches, Relays & Fuses**

Schalter, Relais und Sicherungen

**H**

**Fans & Heatsinks**

Lüfter und Kühlkörpern

**I**

**Enclosures & Assembling Materials**

Gehäuse und Zubehör

**J**

**Tools**

Werkzeuge

**K**

**Soldering Equipment**

Lötgeräte

**L**

**Chemistry, PCBs**

Lötmittel, Chemische Produkte, Leiterplatten

**M**

**Measuring Devices**

Messgeräte

**N**

**Power Supplies**

Akkus, Stromversorgung

**O**

**Electronic Kits**

Bausätze

**P**

**Electroacoustic Components**

Elektroakustische Komponenten

**R**

**Industry Automation**

Industrielle Automatisierung

**S**

**Home Automation**

Haus-Automatisierung

**T**

*Detailed Chapter Contents is placed at the beginning of each part of the Catalogue (5 parts separated by colour).*

*Der detaillierte Inhalt der Kapitel ist immer am Anfang jedes Kapitels im Katalog zu ersehen (farblich getrennt).*

# Thank you

... for choosing our new catalogue!

We are pleased to present you with our qualities.



*Personal service and a flexible approach to provide fast and effective solutions.*



*Fast delivery - 24 hour for most EU destinations, 2-7 days to the rest of the world.*



*Customer focused internal information system.*

*We do our best for customers satisfaction - our qualified staff offers quality customers service by identifying and understanding customers needs.*



*Technical support and free samples for your projects available.*



## Our customers:

### Large manufacturers

**We know the importance of reliability and quality in manufacturing process.**

Our goal is to assure the connection with 25 large manufacturers and provide all needed information, free samples, technical support in different languages up to deliveries to manufacturing process according to specific requirements.

### Small manufacturing companies and developers

**We learned from experience how many cumulative tasks you deal with.**

We offer the opportunity to ensure the complex supply of components upon the specifications of your products, or developed projects as well as technical support.

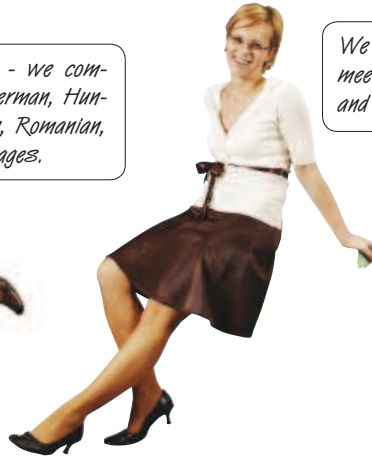
### Dealers

**You require complex assortment, bargain prices, regular offers and special sales along with fast delivery.**

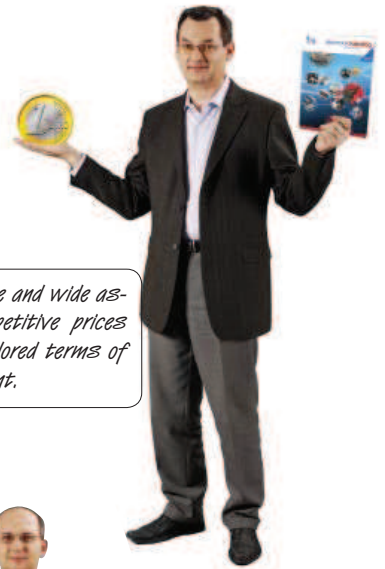
These are the attributes, we are able to provide with right now.



*Multilanguage support - we communicate in English, German, Hungarian, Russian, Polish, Romanian, Czech and Slovak languages.*



*We are looking forward to meeting you on exhibitions and fairs.*



*We offer innovative and wide assortment at competitive prices and customers tailored terms of delivery and payment.*

*We are regularly trained to keep our knowledge up to date.*



*8 000 satisfied customers in Slovakia, Czech Republic, Hungary, Poland, Romania and other countries of EU and worldwide.*

*50 important manufacturers, distributors and more than 200 suppliers worldwide.*



*Excellent customer focused on-line shop in 8 languages.*



*We provide you with multilanguage catalogues and e-mail newsletters about the novelties in our range of products.*

### Schools, hobby groups

**We know many involved pedagogues with limited working conditions.**

We can offer our catalogue assortment, equipments for classrooms, support for electronics competitions under favorable conditions.

### Services, maintenance, technology

**We know how important is to have all your components for continuous production, what kind of tools are needed for effective work and what stands for soldering and measuring.**

For all this and many other purposes, you will find hundreds of products in this catalogue or at [www.soselectronic.com](http://www.soselectronic.com)

### Radio amateurs, electronic fans

**We appreciate a favour of end-users and "small" customers, because many of us started as radio amateurs as well.**

However we are not able to serve you effectively upon all your requirements, therefore we have set specific conditions and minima. If you fulfil all the conditions we will be happy to deliver desired products from our catalogue to your address.

Main product group

Product group

Type symbol

Novelty

Chapter

Technical parameters

Type symbol

Ordering number

Prices

The prices shown in the catalog are informative, quoted in EUR, excluding VAT. Current prices can be found at [www.soselectronic.com](http://www.soselectronic.com).

Page number

## Lighting Connectors

Connectors and Terminals

Lighting Connectors

222-412

**NEW!**

222-413

222-415

Technical Parameters	222-412	222-413	222-415
Number of Wires	2	3	5
Stranded Wire	0,08-4mm <sup>2</sup>	0,08-4mm <sup>2</sup>	0,08-4mm <sup>2</sup>
Solid Wire	0,08-2,5mm <sup>2</sup>	0,08-2,5mm <sup>2</sup>	0,08-2,5mm <sup>2</sup>
Stripping Length	10mm	10mm	10mm
Maximum Voltage	400V	400V	400V
Maximum Current	32A	32A	32A
Maximum Temperature	85°C	85°C	85°C
Colour	grey	grey	grey

Type	Ord. No.	1+	10+	50+
o 222-412	62793	<b>0,260</b>	<b>0,237</b>	<b>0,222</b>
s 222-413	45933	<b>0,286</b>	<b>0,269</b>	<b>0,252</b>
s 222-415	52689	<b>0,448</b>	<b>0,422</b>	<b>0,392</b>

224-101  
224-104

224-112

Technical Parameters	224-101 / 224-104	224-112
Number of Wires	1	2
Stranded Wire	0,5-2,5mm <sup>2</sup>	0,5-2,5mm <sup>2</sup>
Solid Wire	1-2,5mm <sup>2</sup>	2 x 1-2,5mm <sup>2</sup>
Stripping Length	11mm	11mm
Maximum Voltage	400V	400V
Maximum Current	24A	24A
Maximum Temperature	105°C	105°C
Colour	grey	white

Type	Ord. No.	1+	10+	50+
o 224-101	41789	<b>0,166</b>	<b>0,146</b>	<b>0,136</b>
s 224-112	41791	<b>0,188</b>	<b>0,172</b>	<b>0,161</b>

273-112  
273-252

273-100  
273-153

273-104  
273-253

Technical Parameters	273-112/ 273-252	273-100/ 273-153	273-104/ 273-253
Number of Wires	2	3	3
Wire Section	1-2,5mm <sup>2</sup>	0,75-1,5mm <sup>2</sup>	1-2,5mm <sup>2</sup>
Stripping Length	13mm	13mm	13mm
Maximum Voltage	400V	400V	400V
Maximum Current	24A	18A	24A
Maximum Temperature	105°C	105°C	105°C
Colour	dark grey/ water clear	grey/ water clear	dark grey/ water clear

Type	Ord. No.	Description	1+	25+	100+
s 273-100	42431	grey 1,5mm <sup>2</sup> 3P	<b>0,133</b>	<b>0,096</b>	<b>0,091</b>
s 273-153	48423	plexi 1,5mm <sup>2</sup> 3P	<b>0,133</b>	<b>0,099</b>	<b>0,094</b>
s 273-112	42122	grey 2,5mm <sup>2</sup> 2P	<b>0,166</b>	<b>0,111</b>	<b>0,104</b>
s 273-252	42125	plexi 2,5mm <sup>2</sup> 2P	<b>0,166</b>	<b>0,110</b>	<b>0,103</b>
s 273-104	42119	grey 2,5mm <sup>2</sup> 3P	<b>0,166</b>	<b>0,119</b>	<b>0,112</b>
s 273-253	42126	plexi 2,5mm <sup>2</sup> 3P	<b>0,166</b>	<b>0,120</b>	<b>0,112</b>

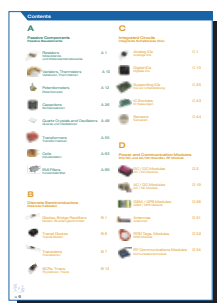
F 77

s - in-stock product o - on order product. Prices are quoted in EUR excluding VAT and transport costs.

## How to find products fast and easily



According to the short contents at the back.



According to more detailed contents in front of the catalogue.







According to the manufacturer brand in front of the catalogue.







## A

### Passive Components Passive Bauelemente

	Resistors Widerstände und Widerstandsnetzwerke	A 1
	Varistors, Thermistors Varistoren, Thermistoren	A 10
	Potentiometers Potentiometer	A 12
	Capacitors Kondensatoren	A 26
	Quartz Crystals and Oscillators Quarze und Oszillatoren	A 48
	Transformers Transformatoren	A 55
	Coils Induktivitäten	A 63
	EMI Filters Funkentstörfilter	A 69

## B

### Discrete Semiconductors Diskrete Halbleiter

	Diodes, Bridge Rectifiers Dioden, Brückengleichrichter	B 1
	Transil Diodes Transil-Dioden	B 6
	Transistors Transistoren	B 7
	SCRs, Triacs Thyristoren, Triacs	B 13

## C

### Integrated Circuits Integrierte Schaltkreise (ICs)

	Analog ICs Analoge ICs	C 1
	Digital ICs Digitale ICs	C 13
	Supporting ICs ICs zur Unterstützung	C 35
	IC Sockets IC Fassungen	C 43
	Sensors Sensoren	C 44

## D

### Power and Communication Modules DC/DC und AC/DC Wandler, RF Module

	DC / DC Modules DC / DC Module	D 2
	AC / DC Modules AC / DC Module	D 19
	GSM / GPS Modules GSM / GPS Module	D 26
	Antennas Antennen	D 31
	RFID Tags, Modules RFID Module	D 32
	RF Communications Modules Kommunikationsmodule	D 34

# E





## Optoelectronic Components Optoelektronische Komponenten

	Optocouplers, SSR Relays Optokoppler, SSR Relais	E 1
	Optical Sensors, IR LEDs Optische Sensoren und Infra LED Dioden	E 6
	LEDs LED Dioden	E 8
	Displays (LCD, LED) Anzeigen (LCD, LED)	E 22
	Bulbs Lampen	E 39
	Videocameras Videokameras	E 40

# F

## Connectors & Terminals Steckverbinder und Anschlüsse

	Audio, Video Connectors Audio, Video Steckverbinder	F 1
	IEC Connectors Netz-Steckverbinder	F 12
	Modular Connectors Telefonstecker	F 16
	RF Connectors HF Steckverbinder	F 18
	Signal Connectors Steckverbinder für Datentechnik	F 23
	Industry Connectors Industriestecker	F 33
	PIN Headers Stift- und Buchsenleisten	F 41
	PC IEC Connectors	F 45

	PC Netz-Steckverbinder	
	Smart Card Connectors Smartcards Steckverbinder	F 47
	Cable Lugs Kabelschuhe	F 48
	Terminals Anreihklemmen	F 50




# G

## Cables & Cords Kabel und Litzen

	Cables Kabel	G 3
	Cords Litzen	G 10
	Test Equipments Labor-Zubehör	G 21

# H

## Switches, Relays & Fuses Schalter, Relais und Sicherungen

	Switches and Push-buttons Schalter und Taster	H 1
	Relays Relais	H 12
	Fuses Sicherungen	H 22

<b>I</b>			Exhausting Equipments Saughauben	L 16	
<b>Fans &amp; Heatsinks</b> Lüfter und Kühlkörpern			Solders Lötmaterial	L 18	
	Fans Lüfter	I 1			
	Heatsinks Kühlkörpern	I 9			
	Peltiers Modules Peltier Module	I 9			
<b>J</b>		<b>M</b>			
<b>Enclosures &amp; Accessories</b> Gehäuse und Zubehör		<b>Chemistry, PCBs</b> Lötmittel, chemische Produkte, Leiterplatten			
	Enclosures Gehäuse	J 1		Chemicals Chemische Produkte	M 1
	Assembling Materials Montagematerial	J 29		Sprays Sprays	M 2
	Insulating Tapes, Shrink Tubes Schrumpfschläuche, Isolierbänder	J 39		Printed Circuit Boards Leiterplatten	M 8
<b>K</b>		<b>N</b>			
<b>Tools</b> Werkzeuge		<b>Measuring Devices</b> Messgeräte			
	Hand Tools Handwerkzeuge	K 1		Oscilloscopes Oszilloskope	N 1
	Tool Kits Werkzeuge Set	K 1		Multimeters Multimeter	N 4
	Drills and accessories Bohrer und Zubehör	K 22		Voltage Testers Spannungsprüfer	N 17
				Miscellaneous Measuring Equipments Verschiedene Messgeräte	N 20
				Thermometers Thermometer	N 22
				Panel Meters Panel Meter	N 23
<b>L</b>		<b>O</b>			
<b>Soldering Equipment</b> Lötgeräte		<b>Power supplies</b> Akkus, Stromversorgung			
	Soldering Stations and Accessories Lötstationen und Zubehör	L 1		Accumulators, Batteries Akkus, Batterien	O 1





**Chargers and Testers**  
Lade- und Prüfgeräte

O 7



**Temperature Controllers**  
Temperaturregler

S 3



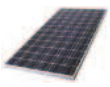
**Solar Cells**  
Solarzellen

O 10



**Relays**  
Relais

S 4



**Adapters, Converters**  
Adapters und Wandler

O 12



**Counters, Timers**  
Zähler, Zeitrelais

S 7



**Laboratory Power Supplies**  
Netzgeräte und Netzteile

O 16



**Switches**  
Schalter

S 7

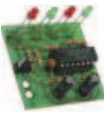


**Panel Meters**  
Panel Messgeräte

S 9

## P

### Electronic Kits Bausätze



**Electronic Kits**  
Bausätze

P 1

## T

### Home Automation Haus-Automatisierung

## R

### Electroacoustic Components Elektroakustische Komponenten



**Buzzers & Transducers**  
Summer

R 1



**Security Protection Devices**  
Sicherheitstechnik

T 1



**Speakers**  
Lautsprecher

R 9



**Measuring and Regulation**  
Regulation und Messtechnik

T 4



**Audio Amplifiers**  
Audio Verstärker

R 21



**Power Switch and Protection**  
Funksteckdosen und  
Überspannungsschutz

T 5



**Speaker Accessories**  
Lautsprecher Zubehör

R 23



**Home Powerline Network  
Components**  
Komponenten für Datenübertragung  
über die Stromleitung

T 13



**Car Speakers**  
Lautsprecher für Pkw

R 26



**PC Accessories**  
PC Zubehör

T 16



**Vacuum Tubes**  
Vakuumröhre

R 28



**Weather Stations**  
Wetterstationen

T 17

## S

### Industrial Automation Industrielle Automatisierung



**Sensors**  
Sensoren

S 1



**Label Makers**  
Beschriftungsgeräte

T 22



**Lighting Devices**  
Lampen

T 23



**"EURO" Products**  
"EURO" Produkte












T 24














































**Thermal Printers**  
Thermo Drucker























T 24

Brand	Products' group	Chapter
	GSM, GPS, WiFi antennas <i>Antennen GSM, GPS, WiFi</i>	D
	Printservers, interfaces and other modules <i>Deviceservern, Printservern, Embedded moduls und Interfacelösungen</i>	D
	Rotary and slide potentiometres, encoders <i>Drehpotentiometer, Encoder</i>	A
<b>ALPS</b>	Potentiometres, encoders <i>Potentiometer, Encoder</i>	A
ARCOTRONICS	RFI filters - panelboard, chassis or PCB mount <i>Funkentstörfilter</i>	A
	D-SUB, Western Modular, USB, DIN, audio/video connectors, sockets <i>Steckverbinder D-SUB, Western Modular, USB, DIN, Audio/Video, Sockel</i>	F
	Heatsinks and accessories <i>Kühlkörper und Zubehör</i>	I
	Modules for wireless data transmission <i>Module für die drahtlose Datenübertragung über kurze Distanzen</i>	D
	MagJack - integrated connector modules (ICM) <i>MagJack - integriert Anschlussmodule (ICM)</i>	F
	Good-quality multimeters and testers <i>Prüf-, Mess- und Sicherheitstechnik</i>	N
	Electromechanical display modules, complementary displays - interface, cables, complete modules - temperature, time, score measurement <i>Elektromechanische Display-Module, zusätzliche Module - Schnittstelle, Kabel, fertige Module - Temperatur, Zeit</i>	E

Brand	Products' group	Chapter
	Alpha-numeric and graphic LCD modules, PLED modules <i>Alphanumerische und grafische LCD Module, PLED Module</i>	E
	Solder products - lead or lead free solders <i>Lötdrähte, Stangenlote - bleifreie und bleihaltige</i>	L
	Laboratory power supplies <i>Netzgeräte und Netzteile</i>	O
	Soldering equipments <i>Lötgeräte</i>	L
	Discrete semiconductors - diodes, bridge rectifiers, transil diodes <i>Diskrete Halbleiter - Dioden, Brückengleichrichter, Transil-Dioden</i>	B
	LCD displays and modules <i>LCD Anzeigen und Module</i>	E
	High-speed rotary tools <i>Mikro-Werkzeuge für Heimwerker und Profis</i>	K
	Alphanumeric and graphic LCD modules and accessories <i>Alphanumerische und grafische LCD Module und Zubehör</i>	E
	Ferrites, capacitors, coils, ceramic and SAW components <i>Ferritkerne, Kondensatoren, Spulen, keramische und SAW Komponente</i>	A
	Soldering equipments <i>Lötgeräte</i>	L
	Assembling material - screws, nuts, washers, end-sleeves, space-offs <i>Montagematerial - Schrauben, Muttern, Unterlegscheiben, Aderendhülsen, Abstandsbolzen</i>	J

Brand	Products' group	Chapter	Brand	Products' group	Chapter
 euroclamp	PCB/Plug-in terminal blocks <i>Anreihklemmen und Steckbarer Klemmen</i>	F	 HARTING	Self-cutting, DIN 41612 connectors <i>Selbstschneidend Steckverbinder, DIN 41612 Steckverbinder</i>	F
 Fine Inductors <i>Fasttron</i>	Coils, chokes and inductors <i>Spulen, Drosseln und induktiven Produkte</i>	A	 HARTING	Heavy Duty connectors <i>Steckverbinder Heavy Duty</i>	F
 finder	Power, industrial and time relays and accessories <i>Power-, Industrie- und Zeit-Relais und Zubehör</i>	H	 HIRSCHMANN <i>A Belden Company</i>	Industrial connectors <i>Industriestecker</i>	F
 fischer elektronik	Heatsinks <i>Kühlkörper</i>	I	 HIRSCHMANN <i>TEST &amp; MEASUREMENT</i>	Laboratory cords and kits <i>Messleitungen und Sätze</i>	G
 fischer elektronik	Male, female headers, jumpers <i>Stift- und Buchsenleisten, Codier- und Adressierungsbrücken</i>	F	 HIRSCHMANN <i>TEST &amp; MEASUREMENT</i>	Measuring and testing equipments <i>Testgeräte - Stecker, Buchsen, Krokodilklemmen, Prüfköpfe</i>	G
 FTDI Chip	ICs for USB interface <i>ICs für USB-Schnittstelle</i>	C	 Jauch <i>The pulse of progress</i>	Quartz crystals and oscillators <i>Quarze und Oszillatoren</i>	A
 FTDI Chip	Development tools <i>Entwicklungswerkzeuge</i>	C		Electronic tubes and tube bases <i>Elektronenröhren und Sockel</i>	R
 FUJITSU	Signal, power and automotive relays <i>Signalrelais, Stromrelais und Kfz-Relais</i>	H	 KEYSTONE	Battery carriers (holders) <i>Batteriehalter</i>	O
 FUJITSU	Thermal printer mechanisms <i>Thermodrucker</i>	T	 KEYSTONE	Fast-on, Fast-in - cable-lugs, PCB test terminals <i>Kabelschuhe, Faston</i>	F
 GAMA <i>aluminium</i>	Heatsinks <i>Kühlkörper</i>	I	 KEYSTONE	Plastic and metallic space-offs <i>Metallisch- und Kunststoff Abstandsbolzen</i>	J
 MANOCH MANUFACTURING	Metallic and plastic enclosures and accessories <i>Metallische- und Kunststoff-Gehäuse und Zubehör</i>	J	 Kingbright	LEDs <i>LED Dioden</i>	E

Brand	Products' group	Chapter	Brand	Products' group	Chapter
 Kingbright	LED displays <i>LED-Anzeigen</i>	E	 omeq	Potentiometers <i>Potentiometer</i>	A
 CONSTANT RESISTOR	Sprays for all electronic maintenance applications <i>Sprays für alle elektronischen Anwendungen</i>	M	 OMRON	Relays, process control, timers and counters <i>Relais, Zeitrelais, Signalrelais, Taktschalter</i>	S
 LAPP KABEL	Shielded and unshielded cables <i>Geschirmtes und ungeschirmtes Kabel</i>	G	 OMRON	Switches, push-buttons, relays <i>Schalter, Taster, Relais</i>	H
 LINEAR TECHNOLOGY	AC/DC converters <i>AC/DC-Wandler</i>	C	 OMRON	Industrial sensors <i>Induktive und optische Sensoren</i>	S
 LINEAR TECHNOLOGY	Power management ICs <i>ICs für Stromversorgung</i>	C	 PEPPERL+FUCHS	Industrial sensors - inductive, optical and ultrasonic <i>Industrielle Sensoren - induktiv, optisch und ultraschall</i>	S
 LINEAR TECHNOLOGY	Interface ICs <i>ICs Schnittstellen</i>	C	 PIHER	Trimming potentiometers, Potentiometers <i>Trimpotentiometer</i>	A
 MARQUARDT	Switches, sensors and push-buttons <i>Schalter, Sensoren und Taster</i>	H	 poschel <i>Feldsicherungstechnik</i>	Standard fuses and fuse holders <i>Standardsicherungen, G-Sicherungseinsätze</i>	H
 MEDER elektronik	Reed relays and reed sensors <i>Reed-Relais und Sensoren</i>	H	 Ito an	Accessories for potentiometers - knobs, caps <i>Potentiometer, Zubehör</i>	A
 MW	AC/DC power supplies, chargers and testers <i>Stromversorgung, Lade- und Prüfgeräte</i>	O	 SA WHA	Electrolytic capacitors <i>Elektrolytkondensatoren</i>	A
 myrra	PCB mount transformers, transformers for switching power supplies <i>Printransformatoren, Transformatoren für Schaltnetzteile</i>	A	 SCHURTER	Switches, push-buttons, fuses <i>Schalter, Taster, Sicherungen</i>	H
 NEUTRIK	Audio-video connectors <i>Steckverbinder audio-video</i>	F	 SCHURTER	RFI filters <i>Funkentstörfilter</i>	A

Brand	Products' group	Chapter	Brand	Products' group	Chapter
 <b>SCHURTER</b>	<b>Power supply connectors</b> <i>Netzteilsteckverbinder</i>	F	 <b>TEKO</b>	<b>Metallic and plastic enclosures</b> <i>Metallisch-und Kunststoff-Gehäuse und Zubehör</i>	J
 <b>SOLARTEC</b>	<b>Solar cells</b> <i>Solarzellen</i>	O	 <b>TFA</b>	<b>Weather-stations and thermometers</b> <i>Elektronische Wetterstationen und thermometer</i>	T
 <b>SOLARTEC</b>	<b>Solar chargers and testers</b> <i>Solar Lade- und Prüfgeräte</i>	O	 <b>TRACO POWER</b>	<b>AC/DC Power supplies</b> <b>AC/DC Module und Stromversorgungen</b>	D
 <b>sonitron</b>	<b>Sirens and speakers</b> <i>Sirenen, Lautsprecher</i>	R	 <b>TRACO POWER</b>	<b>DC/DC Converters</b> <i>DC/DC Module</i>	D
 <b>sonitron</b>	<b>Transducers and buzzers</b> <i>Piezoelektrische Wandler ohne Treiber und Summer mit Treiber</i>	R	 <b>TRUMETER</b>	<b>Panel measuring devices, time relays</b> <i>Prozesssteuerung und Anzeige, Zeitrelais</i>	S
 <b>PRODUCTS</b>	<b>Soldering equipments</b> <i>Lötgeräte</i>	L	 <b>acoustic TVM</b>	<b>HiFi speakers, car-speakers, 100V speakers and sets of speakers</b> <i>HiFi-, Kfz-Lautsprecher, 100V Lautsprecher und Sätze</i>	R
 <b>ST</b>	<b>Diodes, SCRs, triacs, transistors</b> <i>Dioden, Thyristoren, Triacs, Transistoren</i>	B	 <b>Tyco Electronics</b>	<b>Passive electronic components</b> <i>Passive Bauelemente</i>	A
 <b>ST</b>	<b>Analog ICs, A/D converters</b> <i>Analoge ICs, A/D Wandler</i>	C	 <b>Tyco Electronics</b>	<b>Connectors</b> <i>Steckverbinder</i>	F
 <b>ST</b>	<b>Processors, memories, peripheral circuits</b> <i>Prozessoren, Speicher-ICs, Peripherie-ICs</i>	C	 <b>Tyco Electronics</b>	<b>Relays</b> <i>Relais</i>	H
 <b>SUNON</b>	<b>DC and AC fans</b> <i>DC und AC Lüfter</i>	I	 <b>UNI-T</b>	<b>Testing meters and instruments</b> <i>Multimeter, Klemm-Multimeter</i>	N
 <b>tailema</b>	<b>Coils and toroidal transformers</b> <i>Spulen und Ringkerntransformatoren</i>	A	 <b>UNI-T</b>	<b>Measuring cables and wires</b> <i>Kabel und Litzen</i>	G

Brand	Products' group	Chapter
 <b>VARIOLAB+</b>	Laboratory tables <i>Labortische</i>	O
 <b>VISATON</b>	HiFi, industrial speakers and accessories <i>HiFi und Industrielle Lautsprecher, Zubehör</i>	R
 <b>WAGO</b>	Terminal blocks, connectors, accessories <i>Anreihklemmen, Steckverbinder, Zubehör</i>	F
<b>Weller</b> <sup>®</sup>	Soldering equipments <i>Lötgeräte</i>	L
<b>WENS</b>	Oscilloscopes, scopemeters, measuring devices and accessories <i>Oszilloskope, Messgeräte und Zubehör</i>	N
 <b>WET. PROTECT</b>	Sprays to protect electrical/electronic equipments, products and metals against moisture <i>Der Feuchtigkeitsschutz für Elektrik, Elektronik und Metalle</i>	M
 <b>Wiha</b>	Pliers and screwdrivers <i>Zangen und Schraubendreher</i>	K
 <b>Wiha</b>	Tweezers and sets of tools <i>Pinzetten, Werkzeugtaschen und Sätze</i>	K
 <b>WIMA</b>	Foil capacitors <i>Folienkondensatoren</i>	A
<b>YAGEO</b>	Resistors, resistor networks, capacitors <i>Widerstände und Widerstandsnetzwerke, MLCC Kondensatoren</i>	A
 <b>XENO ENERGY</b>	Lithium batteries <i>Lithiumbatterien</i>	O

## Passive Components

Resistors



A 1

Resistor Networks



A 8

Resistor Kits



A 9

Varistors



A 10

Thermistors



A 11

Trimmers



A 12

Potentiometers



A 17

Capacitors



A 26

Quartz Crystals



A 48

Crystal Oscillators



A 51

Transformers



A 55

Inductors



A 67

Chokes



A 71

Ferrites



A 72

EMC-RFI Filters



A 73

## CHIP RESISTORS



### RC/RGC Series

**Resistance Range:** 1R0 to 10M  
**Rated Power @ 70°C:**  
 1/16W to 1W  
**Temp. Coefficient:**  
 ±100 to ±200ppm/°C  
**Resistance Tolerance:** ±1%, ±5%  
**Max. Working Voltage:**  
 25Vdc to 200Vdc  
**Max. Overload Voltage:** 50Vdc to 400Vdc  
**Case Sizes:** 0402, 0603, 0805, 1206, 1210, 2010, 2512



### RL Series

**Resistance Range:** R010 to 1R0  
**Rated Power @ 70°C:**  
 1/8W to 1W  
**Temp. Coefficient:**  
 ±600ppm/°C  
**Resistance Tolerance:**  
 ±1%, ±2%, ±5%  
**Case Sizes:** 0603, 0805, 1210, 2010, 2512  
**Low Values for Current Sensing Applications**



### RT Series

**Resistance Range:** 1R0 to 10M  
**Rated Power @ 70°C:**  
 1/16W to 1/8W  
**Temp. Coefficient:**  
 ±25 to ±100ppm/°C  
**Resistance Tolerance:** ±0,1%, 0,5%  
**Max. Working Voltage:**  
 50Vdc to 100Vdc  
**Max. Overload Voltage:** 100Vdc to 200Vdc  
**Case Sizes:** 0603, 0805, 1206,



### RJ Series

**Resistance Range:** 1R0 to 10M  
**Rated Power @ 70°C:**  
 1/16W to 1/8W  
**Temp. Coefficient:**  
 ±50ppm/°C  
**Resistance Tolerance:** ±1%,  
**Max. Working Voltage:**  
 50Vdc to 100Vdc  
**Max. Overload Voltage:** 100Vdc to 200Vdc  
**Case Sizes:** 0603, 0805, 1206,

## RESISTOR NETWORKS



### TC16 Series

*Concave 1206*  
**Resistance Range :** 10R to 1M0  
**Number of Resistors:** 4  
**Rated Power Per Element:** 1/16W  
**Temp. Coefficient:** ±200ppm/°C  
**Resistance Tolerance:** ±5%  
**Max. Working Voltage:**  
 50Vdc to 100Vdc  
**Circuit Types:** Isolated



### YC12 Series

*Convex 0804*  
**Resistance Range:** 10R to 1M0  
**Number of Resistors:** 4  
**Rated Power Per Element:** 1/16W  
**Temp. Coefficient:** ±200ppm/°C  
**Resistance Tolerance:** ±5%  
**Max. Working Voltage:**  
 50Vdc  
**Circuit Types:** Isolated



### YC16 Series

*Convex 1206*  
**Resistance Range:** 10R to 1M0  
**Number of Resistors:** 4  
**Rated Power Per Element:** 1/16W  
**Temp. Coefficient:** ±200ppm/°C  
**Resistance Tolerance:** ±5%  
**Max. Working Voltage:**  
 50Vdc  
**Circuit Types:** Isolated



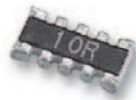
### YC32 Series

*Convex 2012*  
**Resistance Range:** 10R to 1M0  
**Number of Resistors:** 4  
**Rated Power Per Element:** 0,125W  
**Temp. Coefficient:** ±200ppm/°C  
**Resistance Tolerance:** ±5%  
**Max. Working Voltage:**  
 200Vdc  
**Circuit Types:** Isolated



### YC24 Series

*Convex 1604*  
**Resistance Range:** 10R to 1M0  
**Number of Resistors:** 8  
**Rated Power:** 1/16W  
**Temp. Coefficient:**  
 ±200ppm/°C  
**Resistance Tolerance:** ±5%  
**Max. Working Voltage:** 50Vdc  
**Circuit Types:** Isolated



### YC15 Series

*Convex 1206*  
**Resistance Range:** 33R to 100K  
**Number of Resistors:** 8  
**Rated Power:** 1/32W  
**Temp. Coefficient:**  
 ±200ppm/°C  
**Resistance Tolerance:** ±5%  
**Max. Working Voltage:**  
 25Vdc  
**Circuit Types:** Dual



### YC35 Series

*Convex 2512*  
**Resistance Range:** 33R to 100K  
**Number of Resistors:** 8  
**Rated Power:** 1/16W  
**Temp. Coefficient:**  
 ±200ppm/°C  
**Resistance Tolerance:** ±5%  
**Max. Working Voltage:**  
 50Vdc  
**Circuit Types:** Dual



### RN/NWL Series

**Resistance Range:** 10R to 1M0  
**Number of Resistors:**  
 4 to 14  
**Rated Power Per Element:**  
 1/8W, 1/4W  
**Temp. Coefficient:**  
 ±100/°C alebo ±250ppm/°C  
**Resistance Tolerance:** ±2%  
**Max. Working Voltage:**  
 100Vdc to 200Vdc  
**Circuit Types:** Dual Common

## LEADED RESISTORS



### CFR/DC Series

**CARBON FILM**  
*Std. & Reduced Sizes Axial Lead*  
**Resistance Range:** 10R to 1M0/0R0  
**Rated Power:** 1/16W to 2W  
**Temp. Coefficient:**  
 +350ppm to -1,000ppm/°C  
**Resistance Tolerance:** ±5%  
**Max. Working Voltage:**  
 250Vdc to 500Vdc  
**Packaging:** Tape/ Box



### CF Series

**POWER CARBON FILM**  
*Std. & Reduced Size Axial Lead*  
**Resistance Range:** 10R to 10M  
**Rated Power:** 2/5W to 3/5W  
**Temp. Coefficient:**  
 +350ppm to -1000ppm/°C  
**Resistance Tolerance:** ±5%  
**Max. Working Voltage:**  
 200Vdc to 300Vdc  
**Package:** Tape/ Box



### MFR Series

**METAL FILM**  
*Std. & Reduced Size Axial Lead*  
**Resistance Range:** 10R to 1M0  
**Rated Power:** 1/8W to 2W  
**Temp. Coefficient:**  
 ±15ppm to ±100ppm/°C  
**Resistance Tolerance:** ±0,1%,  
 ±0,25%, ±0,5%, ±1%  
**Max. Working Voltage:**  
 200Vdc to 500Vdc  
**Package:** Tape/ Box



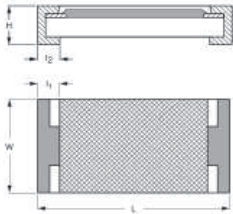
### MF/GP Series

**METAL FILM**  
*Std. & Reduced Size Axial Lead*  
**Resistance Range:** 1R0 to 10M  
**Rated Power:** 2/5W to 3/5W  
**Temp. Coefficient:**  
 ±50ppm/°C  
**Resistance Tolerance:** ±1%  
**Max. Working Voltage:**  
 200Vdc to 300Vdc  
**Package:** Tape/ Box



## Surface Mount Chip Resistors

Technical parameters	R0402	R0603	R0805	R1206
Case Size	0402	0603	0805	1206
Power Rating @ 70°C	0,063 W	0,1 W	0,125 W	0,25 W
Resistance Tolerance	1%	1%	1%	1%
Temperature Coefficient	10 Ω < R Ω < 10 M Ω ±100 ppm R Ω < 10 Ω R > 10 M Ω ±200 ppm	10 Ω < R Ω < 10 M Ω ±100 ppm R Ω < 10 Ω R > 10 M Ω ±200 ppm	10 Ω < R Ω < 10 M Ω ±100 ppm R Ω < 10 Ω R > 10 M Ω ±200 ppm	10 Ω < R Ω < 10 M Ω ±100 ppm R Ω < 10 Ω R > 10 M Ω ±200 ppm
Max. Working Voltage	50 V	50V	150 V	200 V
Insulation Voltage	100 V	100 V	300 V	500 V
Insulation Resistance	≥ 10 GΩ	>10 GΩ	>10 GΩ	>10 GΩ
Package: Tape&Reel	10000 pcs	5000 pcs	5000 pcs	5000 pcs
Manufact. Part Number	RC0402	RC0603	RC0805	RC1206
How to order	R0402 1% 2,2K	R0603 1% 2,2K	R0805 1% 2,2K	R1206 1% 2,2K



	0402	0603	0805	1206
L [mm]	1.00	1.60	2.00	3.10
W [mm]	0.50	0.80	1.25	1.60
H [mm]	0.35	0.45	0.50	0.55
l <sub>1</sub> [mm]	0.20	0.25	0.35	0.45
l <sub>2</sub> [mm]	0.25	0.25	0.35	0.40

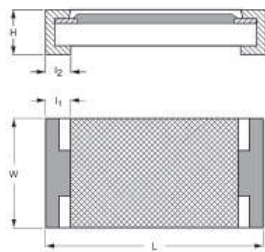
Case
R0402
R0603
R0805
R1206

Minimum ordering quantity 500pcs is intended for items which are marked by "O"

Ohmic Value	0402	0603	0805	1206
0 R	O 52681	S 39627	S 25800	S 33764
1 R	O 68541	S 49995	S 8140	S 41106
1,2 R	O 68542	O 57885	S 50221	S 50479
1,5 R	O 68543	O 57925	S 8141	S 33612
1,8 R	O 68544	O 57931	S 50243	S 33614
2,2 R	O 68546	O 57926	S 41093	S 41107
2,7 R	O 68546	O 57932	S 50222	S 33618
3,3 R	O 68547	O 57889	S 41094	S 33620
3,9 R	O 68548	O 57933	S 50223	S 33622
4,7 R	O 68549	O 57927	S 41095	S 41108
5,6 R	O 68550	O 57934	S 48276	S 41109
6,8 R	O 68551	O 57928	S 8142	S 41110
7,5 R	O 68552	S 48141	S 57954	S 43783
8,2 R	O 68553	O 57930	S 50224	S 33630
10 R	O 56450	S 48144	S 40252	S 33952
12 R	O 63470	S 49997	S 40253	S 35038
13 R	O 63473	O 49998	O 55744	S 33980
15 R	O 63476	S 49999	S 40254	S 33987
18 R	O 63484	S 50001	S 50225	S 35040
22 R	O 55333	S 50003	S 40255	S 35041
27 R	O 63500	S 48738	S 50226	S 35043
33 R	O 63512	S 50007	S 40256	S 35045
39 R	O 63518	S 50009	S 40257	S 35047
47 R	O 63526	S 44744	S 40258	S 35049
51 R	O 63530	O 50011	O 50759	S 35050
56 R	O 63533	S 57929	S 50389	S 35051
68 R	O 63542	S 50013	S 40259	S 35053
75 R	O 63546	O 50014	S 40260	S 33653
82 R	O 63550	S 48737	S 50227	S 35054
100 R	O 63464	S 44634	S 37918	S 34108
120 R	O 63471	S 48145	S 37920	S 35056
150 R	O 63478	S 50018	S 37922	S 34148
180 R	O 63486	S 50021	S 37924	S 35058
220 R	O 63495	S 49954	S 37926	S 35059
270 R	O 63502	S 50023	S 37928	S 35061
300 R	O 63510	O 50024	O 37929	S 35062
330 R	O 56451	S 50025	S 37930	S 35063
390 R	O 63520	S 50027	S 37932	S 35065
470 R	O 63527	S 44745	S 37934	S 35067
510 R	O 63532	O 50029	O 37935	S 35068
560 R	O 63535	S 48506	S 37936	S 35069
680 R	O 63543	S 49944	S 37938	S 35071
820 R	O 63552	S 50033	S 37940	S 35072
1 K	O 63456	S 44746	S 37942	S 34376
1,2 K	O 55331	S 49947	S 37944	S 35074
1,5 K	O 61103	S 50038	S 37946	S 34393
1,8 K	O 63463	S 50040	S 37948	S 35076

Ohmic Value	0402	0603	0805	1206
2,2 K	O 63488	S 44747	S 37950	S 35077
2,7 K	O 63490	S 44749	S 37952	S 35079
3,3 K	O 63504	S 50043	S 37954	S 35081
3,9 K	O 63506	S 50044	S 37956	S 35083
4,7 K	O 52337	S 44751	S 37958	S 35085
5,1 K	O 63528	O 50045	O 37959	S 35086
5,6 K	O 63529	S 50046	S 37960	S 35087
6,8 K	O 56533	S 49959	S 37962	S 35089
8,2 K	O 62810	S 49960	S 37964	S 35090
10 K	O 55328	S 44260	S 37966	S 34472
12 K	O 63469	S 49952	S 37968	S 35092
15 K	O 62806	S 44753	S 37970	S 34489
18 K	O 63483	S 49961	S 37972	S 35094
22 K	S 62812	S 44755	S 37974	S 35095
27 K	O 63499	S 42498	S 37976	S 35097
33 K	O 63511	S 49945	S 37978	S 35099
39 K	O 63517	S 44757	S 37980	S 35101
47 K	O 55330	S 50057	S 37982	S 35103
56 K	O 56453	S 50059	S 37984	S 35105
68 K	O 63541	S 50061	S 37986	S 35107
82 K	O 63549	S 42497	S 37988	S 35108
100 K	S 55326	S 44758	S 37990	S 34579
120 K	O 62807	S 50066	S 37992	S 35110
150 K	O 63477	S 50068	S 37994	S 34596
180 K	O 63485	S 48510	S 37996	S 35112
200 K	O 63493	O 48508	O 37997	S 34608
220 K	O 62808	S 50069	S 37998	S 35113
270 K	O 63501	S 50070	S 38000	S 35115
330 K	O 56452	S 49956	S 38002	S 35117
390 K	O 63519	S 50073	S 38004	S 35119
470 K	O 55329	S 50075	S 38006	S 35121
560 K	O 63534	S 50077	S 38008	S 35123
680 K	O 62809	S 49946	S 38010	S 35125
820 K	O 63551	S 50080	S 38012	S 35126
1 M	O 56454	S 49953	S 38014	S 34680
1,2 M	O 80527	O 57935	S 50233	S 50478
1,5 M	O 80528	O 57936	S 8143	S 41111
1,8 M	O 80529	O 57937	S 50234	S 41112
2,2 M	O 80530	O 57938	S 8144	S 41113
2,7 M	O 80531	O 49983	S 50229	S 41114
3,3 M	O 76399	O 53640	S 41101	S 41115
3,9 M	O 80532	O 57939	S 50230	S 41116
4,7 M	O 80533	O 51975	S 41102	S 41117
5,6 M	O 80534	O 57950	S 50235	S 33756
6,8 M	O 80535	O 57951	S 50231	S 33758
8,2 M	O 80536	O 57952	S 50232	S 33760
10 M	O 80537	O 57953	S 42740	S 41118

## Surface Mount Chip Resistors



Technical parameters	R2010	R2512
Case Size	2010	2512
Power Rating @ 70°C	0,75 W	1 W
Resistance Tolerance	5%	5%
Temperature Coefficient	10 Ω < R Ω < 10 M Ω ±100 ppm/°C	10 Ω < R Ω < 10 M Ω ±100 ppm/°C
	R Ω < 10 Ω; R > 10 M Ω ±200 ppm/°C	R Ω < 10 Ω; R > 10 M Ω ±200 ppm/°C
Max. Working Voltage	200 V	200V
Insulation Voltage	500 V	500 V
Insulation Resistance	≥ 10 GΩ	≥ 10 GΩ
Package Tape&Real	4000 pcs	4000 pcs
Manufact. Part Number	RC2010	RC2512
How to order	R2010 2,2K 5%	R2512 2,2K 5%

	2010	2512
L [mm]	5.00	6.35
W [mm]	2.50	3.10
H [mm]	0.55	0.55
l <sub>1</sub> [mm]	0.45	0.60
l <sub>2</sub> [mm]	0.50	0.50

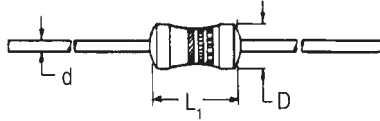
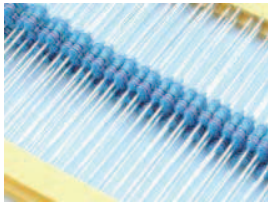
Minimum ordering quantity 500pcs is intended for items which are marked by "O"

Ohmic Value	2010	2512
0 R	O 68149	O 68271
10 R	S 68159	S 68281
11 R	O 68163	O 68285
12 R	O 68167	O 68289
13 R	O 68171	O 68293
15 R	O 68175	O 68297
16 R	O 68179	O 68301
18 R	O 68183	O 68305
20 R	O 68191	O 68313
22 R	S 68195	S 68317
24 R	O 68199	O 68321
27 R	O 68203	O 68325
30 R	O 68211	O 68333
33 R	O 68215	O 68337
36 R	O 68219	O 68341
39 R	O 68223	O 68345
43 R	O 68229	O 68351
47 R	S 68233	S 68355
51 R	O 68239	O 68361
56 R	O 68243	O 68365
62 R	O 68249	O 68370
68 R	O 68253	O 68374
75 R	O 68258	O 68379
82 R	O 68263	O 68384
91 R	O 68268	O 68389
100 R	S 68161	S 68283
110 R	O 68165	O 68287
120 R	O 68169	O 68291
130 R	O 68173	O 68295
150 R	O 68177	O 68299
160 R	O 68181	O 68303
180 R	O 68185	O 68307
200 R	O 68193	O 68315
220 R	S 68197	S 68319
240 R	O 68201	O 68323
270 R	O 68205	O 68327
300 R	O 68213	O 68335
330 R	O 68217	O 68339
360 R	O 68221	O 68343
390 R	O 68225	O 68347
430 R	O 68231	O 68353

Ohmic Value	2010	2512
470 R	S 68235	S 68357
510 R	O 68241	O 68363
560 R	O 68245	O 68367
620 R	O 68251	O 68372
680 R	O 68255	O 68376
750 R	O 68260	O 68381
820 R	O 68265	O 68386
910 R	O 68270	O 68391
1 K	S 68150	S 68272
1,1 K	O 68152	O 68717
1,2 K	O 68153	O 68275
1,3 K	O 68154	O 68276
1,5 K	O 68155	O 68277
1,6 K	O 68156	O 68278
1,8 K	O 68157	O 68279
2 K	O 68186	O 68308
2,2 K	S 68187	S 68309
2,4 K	O 68188	O 68310
2,7 K	O 68189	O 68311
3 K	O 68206	O 68328
3,3 K	O 68207	O 68329
3,6 K	O 68208	O 68330
3,9 K	O 68209	O 68331
4,3 K	O 68226	O 68348
4,7 K	S 68227	S 68349
5,1 K	O 68236	O 68358
5,6 K	O 68237	O 68359
6,2 K	O 68246	O 68718
6,8 K	O 68247	O 68368
7,5 K	O 68256	O 68377
8,2 K	O 68261	O 68382
9,1 K	O 68266	O 68387
10 K	S 68158	S 68280
11 K	O 68162	O 68284
12 K	O 68166	O 68288
13 K	O 68170	O 68292
15 K	O 68174	O 68296
16 K	O 68178	O 68300
18 K	O 68182	O 68304
20 K	O 68190	O 68312
22 K	S 68194	S 68316

Ohmic Value	2010	2512
24 K	O 68198	O 68320
27 K	O 68202	O 68324
30 K	O 68210	O 68332
33 K	O 68214	O 68336
36 K	O 68218	O 68340
39 K	O 68222	O 68344
43 K	O 68228	O 68350
47 K	S 68232	S 68354
51 K	O 68238	O 68360
56 K	O 68242	O 68364
62 K	O 68248	O 68369
68 K	O 68252	O 68373
75 K	O 68257	O 68378
82 K	O 68262	O 68383
91 K	O 68267	O 68388
100 K	S 68160	S 68282
110 K	O 68164	O 68286
120 K	O 68168	O 68290
130 K	O 68172	O 68294
150 K	O 68176	O 68298
160 K	O 68180	O 68302
180 K	O 68184	O 68306
200 K	O 68192	O 68314
220 K	S 68196	S 68318
240 K	O 68200	O 68322
270 K	O 68204	O 68326
300 K	O 68212	O 68334
330 K	O 68216	O 68338
360 K	O 68220	O 68342
390 K	O 68224	O 68346
430 K	O 68230	O 68352
470 K	S 68234	S 68356
510 K	O 68240	O 68362
560 K	O 68244	O 68366
620 K	O 68250	O 68371
680 K	O 68254	O 68375
750 K	O 68259	O 68380
820 K	O 68264	O 68385
910 K	O 68269	O 68390
1 M	O 68151	O 68273

## Metal Film Resistors



	0207	0204
L <sub>1</sub> [mm]	6,3 ±0,3	3,4 ±0,3
D [mm]	2,4 ±0,2	1,9 ±0,2
d [mm]	0,6 ±0,05	0,5 ±0,05

Technical parameters:	RM	RMM
Case Size	0207	0204
Power Rating at 70°C	0,6W	0,4W
Resistance Tolerance	1%(<1R:5%)	1%(<1R:5%)
Temperature Coefficient	50ppm	50ppm
Max. Working Voltage	300 V	200 V
Insulation Voltage	500 V	500 V
Insulation Resistance	> 10GΩ	> 10GΩ
Marking	IEC colour code-5bands	
Package	bandoliered on tape: 5000 pcs	
Manufact. Part Number	MF0207	MF0204
How to order	RM 1% 2,2K	RMM 1% 2,2K

Minimum ordering quantity 500pcs is intended for items which are marked by "O"

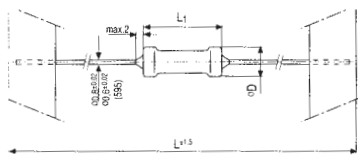
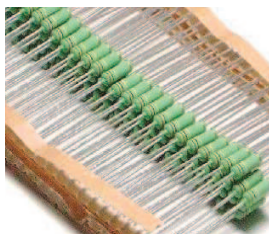
Ohmic Value	RM	RMM
0 R	S 20004	
0,22 R	S 22954	
0,33 R	S 22958	
0,47 R	S 22962	
1 R	S 30615	O 57955
1,2 R	S 30617	O 57956
1,5 R	S 30619	O 57957
1,8 R	S 30621	O 57960
2,2 R	S 30623	O 57961
2,7 R	S 30625	O 57962
3,3 R	S 30627	O 57963
3,9 R	S 30629	O 57964
4,7 R	S 30631	O 57965
5,6 R	S 30633	O 26818
6,8 R	S 30635	O 26820
8,2 R	S 30637	S 26822
10 R	S 30639	S 26236
12 R	S 30647	O 26238
13 R	O 30651	O 26239
15 R	S 30657	S 26240
16 R	O 30660	O 26241
18 R	S 30666	O 26242
20 R	S 30671	O 26243
22 R	S 30675	S 26244
24 R	S 30680	O 26245
27 R	S 30686	O 26246
33 R	S 30696	S 26248
39 R	S 30705	O 26250
47 R	S 30715	S 26252
51 R	S 30719	O 26253
56 R	S 30724	S 26254
62 R	S 30730	O 26255
68 R	S 30734	S 26256
75 R	S 30739	O 26257
82 R	S 30743	S 26258
91 R	S 30749	O 26259
100 R	S 30753	S 26260
110 R	S 30757	O 26261
120 R	S 30761	S 26262
130 R	S 30765	O 26263
150 R	S 30771	S 26264
160 R	S 30774	O 26265
180 R	S 30780	S 26266
200 R	S 30785	O 26267
220 R	S 30789	S 26268

Ohmic Value	RM	RMM
240 R	S 30794	O 26269
270 R	S 30800	S 26270
300 R	S 30805	O 26271
330 R	S 30810	S 26272
360 R	S 30815	O 26273
390 R	S 30819	S 26274
430 R	S 30824	O 26275
470 R	S 30829	S 26276
499 R	S 30832	O 68555
510 R	S 30833	O 26277
560 R	S 30838	S 26278
620 R	S 30844	O 26279
680 R	S 30848	S 26280
750 R	S 30853	O 26281
820 R	S 30857	S 26282
910 R	S 30863	O 26283
1 K	S 30867	S 26284
1,1 K	S 30871	O 26285
1,2 K	S 30875	S 26286
1,3 K	S 30879	O 26287
1,5 K	S 30885	S 26288
1,6 K	S 30888	O 26289
1,8 K	S 30894	S 26290
2 K	S 30899	O 26291
2,2 K	S 30903	S 26292
2,4 K	S 30908	O 26293
2,7 K	S 30914	S 26294
3 K	S 30919	O 26295
3,3 K	S 30924	S 26296
3,6 K	S 30929	O 26297
3,9 K	S 30933	S 26298
4,3 K	S 30938	O 26299
4,7 K	S 30943	S 26300
5,1 K	S 30947	O 26301
5,6 K	S 30952	S 26302
6,2 K	S 30958	O 26356
6,8 K	S 30962	S 26303
7,5 K	S 30967	O 26304
8,2 K	S 30971	S 26305
9,1 K	S 30977	O 26306
10 K	S 30981	S 26307
11 K	S 30985	O 26308
12 K	S 30989	S 26309
13 K	S 30993	O 26310
15 K	S 30999	S 26311

Ohmic Value	RM	RMM
22 K	S 31017	S 26315
24 K	S 31022	O 26316
27 K	S 31028	S 26317
30 K	S 31033	O 26318
33 K	S 31038	S 26319
36 K	S 31043	O 26320
39 K	S 31047	S 26321
43 K	S 31052	O 26322
47 K	S 31057	S 26323
51 K	S 31061	O 26324
56 K	S 31066	S 26325
62 K	S 31072	O 26326
68 K	S 31076	S 26327
75 K	S 31081	O 26328
82 K	S 31085	S 26329
91 K	S 31091	O 26330
100 K	S 31095	S 26331
110 K	S 31099	O 26332
120 K	S 31103	S 26333
150 K	S 31113	S 26335
180 K	S 31122	O 26337
200 K	S 31127	O 26338
220 K	S 31131	S 26339
270 K	S 31142	O 26341
330 K	S 31152	S 26343
390 K	S 31161	O 26345
470 K	S 31171	S 26347
560 K	S 31180	O 26349
680 K	S 31190	S 26351
750 K	S 31195	O 26352
820 K	S 31199	O 26353
910 K	S 31205	O 26354
1 M	S 31209	S 26355
1,2 M	S 31211	
1,5 M	S 31213	
1,8 M	S 31215	
2,2 M	S 31217	
2,7 M	S 31219	
3,3 M	S 31221	
3,9 M	S 31223	
4,7 M	S 31225	
5,6 M	S 31227	
6,8 M	S 31229	
8,2 M	S 31231	
10 M	S 31233	

## Power Metaloxide Film Resistors

Passive Components



	595-0	593-0	590-0
L <sub>1</sub> [mm]	6,3-1	12-1,5	16,5-1,5
D [mm]	2,5-0,5	4,1-0,5	6,0-0,5
L±1.5 [mm]	65	85	95

Technical Parameters	595-0	593-0	590-0
Case Size	0207	0414	0617
Power Rating at 70°C	1W	2W	3W
Resistance Tolerance	5%	5%	5%
Temperature Coefficient	200 ppm	200 ppm	2000 ppm
Max. Working Voltage	500 V	500 V	750 V
Insulation Voltage	500 V	500 V	500 V
Insulation Resistance	> 1GΩ	> 1GΩ	> 1GΩ
Thermal Resistance	< 140K/W	< 130K/W	< 70K/W
Marking	595/593: DIN-IEC-colour code, 4/5 bands 590: printed in clear		
Package:	2000 pcs	1000 pcs	1000 pcs
Manufact. Part Number	PO595-0	PO593-0	PO590-0
How to order	595-0 1R 5%	593-0 1R 5%	590-0 1R 5%

Minimum ordering quantity 10pcs is intended for items which are marked by "O"

Ohmic Value	595-0	593-0	590-0
1R	S 27809	S 21008	S 19593
1,2 R	S 27811	S 21009	O 19594
1,5 R	O 27813	S 21010	S 19595
2,2 R	S 27817	S 21012	S 19597
2,7 R	S 27819	S 21013	O 19598
3,3 R	S 27821	S 21014	S 19599
3,9 R	O 27823	S 21015	O 19600
4,7 R	S 27825	S 21016	S 19601
5,6 R	O 27827	S 21017	O 19602
6,8 R	S 27829	S 21018	S 19603
8,2 R	O 27831	S 21019	O 19604
10 R	S 27833	S 21020	S 19605
12 R	S 27835	S 21021	S 19606
15 R	S 27837	S 21022	S 19607
18 R	O 27839	S 21023	O 19608
22 R	S 27841	S 21024	S 19609
27 R	S 27843	S 21025	O 19610
33 R	S 27845	S 21026	S 19611
39 R	S 27847	S 21027	S 19612
47 R	S 27849	S 21028	S 19613
56 R	O 27851	S 21029	O 19614
68 R	S 27853	S 21030	S 19615
82 R	O 27855	S 21031	O 19616
100 R	S 27857	S 21032	S 19617
120 R	S 27859	S 21033	S 19618
150 R	S 27861	S 21034	S 19619
180 R	S 27863	S 21035	O 19620
220 R	S 27865	S 21036	S 19621
270 R	O 27867	S 21037	O 19622
330 R	S 27869	S 21038	S 19623
390 R	O 27871	S 21039	O 19624
470 R	S 27873	S 21040	S 19625
560 R	S 27875	S 21041	S 19626

Ohmic Value	595-0	593-0	590-0
680 R	S 27877	S 21042	S 19627
820 R	S 27879	S 21043	O 19628
1 K	S 27881	S 21044	S 19629
1,2 K	S 27883	S 21045	O 19630
1,5 K	S 27885	S 21046	S 19631
1,8 K	O 27887	S 21047	O 19632
2,2 K	S 27889	S 21048	S 19633
2,7 K	O 27891	S 21049	O 19634
3,3 K	S 27893	S 21050	O 19635
3,9 K	O 27894	S 21051	O 19636
4,7 K	S 27896	S 21052	S 19637
5,6 K	O 27898	S 21053	O 19638
6,8 K	S 27900	S 21054	S 19639
8,2 K	O 27902	S 21055	O 19640
10 K	S 27904	S 21056	S 19641
12 K	S 27906	S 21057	O 19642
15 K	S 27908	S 21058	O 19643
18 K	S 27910	S 21059	O 19644
22 K	S 27912	S 21060	O 19645
33 K	S 27916	S 21062	O 19647
39 K	S 27918	S 21063	S 19648
47 K	S 27920	S 21064	O 19649
56 K	O 27922	S 21065	O 19650
68 K	S 27924	S 21066	O 19651
100 K	S 27928	S 21068	S 19653
120 K	O 27930	S 21069	O 19654
150 K	O 27932	S 21070	S 19655
180 K	O 27934	S 21071	O 19656
220 K	S 27936	S 21072	O 19657
270 K	S 27938	O 21073	O 19658
470 K	S 27944	S 21076	O 19661
1 M	S 27952	S 21080	
10 M		21092	



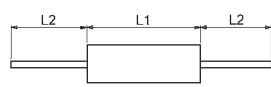
# VITROHM

OUR PRODUCTS FOR YOUR SUCCESS

- Wirewound Resistors, coated
- Wirewound Resistors, ceramic case
- Wirewound Resistors, moulded, insulated
- SMD Resistors
- Low Ohm Resistors
- Metalglaze / Metaloxide Metalfilm Resistors
- Wirewound Resistors, aluminium-cased



## Wire Wound Resistors



	208-8	214-8
L1 [mm]	25,0	38,0
L2 [mm]	36,0	35,0
D [mm]	6,4	9,0

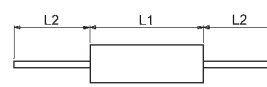
Technical parameters	208-8	214-8
Power Rating @ 70°C	5W	9W
Resistance Tolerance	10%	10%
Temperature Coefficient	< 400ppm	400ppm
Max. Working Voltage	$\sqrt{5R}$	$\sqrt{5R}$
Insulation Voltage	2000V	2000V
Insulation Resistance	> 10 GΩ	> 10 GΩ
Thermal Resistance	< 50 KW <sup>-1</sup>	< 30 KW <sup>-1</sup>
Marking	printed in clear	
Manufact. Part Number	KH208-8	KH214-8
How to order	208-8 1R 10%	214-8 1R 10%

Ohmic Value	208-8	214-8
0,1 R	S 28101	
0,15 R	O 15009	
0,22 R	S 15012	O 29239
0,33 R	O 15014	O 15104
0,47 R	S 15016	O 15108
1 R	S 15026	O 15115
1,2 R	S 15028	O 15116
1,5 R	O 15029	O 15118
1,8 R	O 15031	O 15119
2,2 R	S 15032	S 15121
3,3 R	S 15035	O 15124
4,7 R	S 15038	S 15126
5,1 R	O 15039	O 15127
5,6 R	S 15041	S 15128
6,8 R	S 15043	S 15129
10 R	S 15046	S 15131
12 R	O 15047	O 15132
15 R	S 15049	O 15133
22 R	S 15051	S 15135
27 R	O 15053	O 15136
33 R	S 15054	O 15138
47 R	S 15057	S 15140
56 R	O 15060	O 15225
68 R	S 15062	S 15226
82 R	O 15063	O 15227
100 R	S 15064	S 15228
120 R	O 15065	O 15230
150 R	S 15068	O 15231
220 R	S 15071	S 15233
330 R	S 15074	S 15236
390 R	S 15075	O 15237
470 R	S 15076	S 15238
560 R	S 15078	O 15241
680 R	S 15079	O 15243
820 R	S 15080	O 15244
1 K	S 15082	S 15245
1,5 K	S 15085	O 15249
10 K	S 15101	S 15267

Minimum ordering quantity 500pcs is intended for items which are marked by "O"

## Wire Wound Resistors

ECONOMIC



	R5W	R10W
L1 [mm]	22,0	48,0
L2 [mm]	35,0	35,0
D [mm]	10x9	10x9

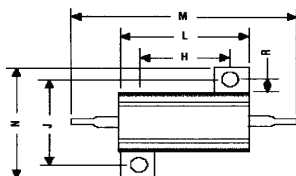
Technical parameters	R5W	R10W
Power Rating @ 70°C	5W	10W
Resistance Tolerance	5%	5%
Temperature Coefficient	300ppm	400ppm
Max. Working Voltage	350V	750V
Insulation Resistance	> 1 GΩ	> 1 GΩ
How to order	R5W 10R	R10W 10R

Ohmic Value	R5W	R10W
0,1 R	S 5231	S 53625
0,15 R	S 6004	S 53626
0,22 R	S 6005	S 53627
0,33 R	S 6006	S 53628
0,47 R	S 6003	S 53629
1 R	S 6007	S 53630
1,2 R	O 57966	O 57976
1,5 R	S 6008	O 57977
1,8 R	S 6009	O 57978
2,2 R	S 6010	S 53631
3,3 R	S 6011	S 53632
4,7 R	S 6012	S 53633
5,1 R	S 6013	O 57979
5,6 R	S 6014	S 53634
6,8 R	S 6015	S 53635
10 R	S 6016	S 53636
12 R	S 6017	O 57980
15 R	S 6018	O 57981
18 R	S 68554	S 53637
22 R	S 6019	O 68577
27 R	S 6020	O 68596
33 R	S 6021	O 68578
47 R	S 6022	O 68579
56 R	O 57967	O 68580
68 R	O 57968	O 68581
82 R	S 6023	O 68582
100 R	S 6024	O 68586
120 R	S 6025	O 68584
150 R	S 6026	O 68585
220 R	S 6027	O 68586
330 R	S 6028	O 68587
390 R	O 57971	O 68588
470 R	S 6029	O 68589
560 R	O 57972	O 68590
680 R	O 57973	O 68591
820 R	O 57974	O 68592
1 K	S 6030	O 68593
1,5 K	S 6031	O 68594
10 K	O 57975	O 68595

Minimum ordering quantity 500pcs is intended for items which are marked by "O"

## Aluminium Housed Power Resistors

tyco



	HSA10	HSA25	HSA50
H±0,3 [mm]	14,3	18,3	39,7
J±0,3 [mm]	15,9	19,8	21,4
K±0,3 [mm]	2,4	3,3	3,3
L [mm]	21	29	51
M [mm]	36,5	51,8	72,5
N [mm]	21	28	30,8
P [mm]	11	15	17
R [mm]	1,9	2,8	2,8
T±0,5 [mm]	5,2	7,2	7,9
U [mm]	3,2	3,2	3,2

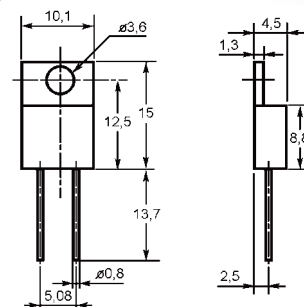
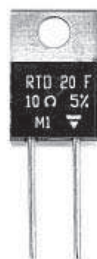
2 x Mounting Hole  
 HSA5 - 2.4mm  
 HSA10 - 2.4mm  
 HSA25 - 3.3mm  
 HSA50 - 3.3mm

Technical parameters	HSA10	HSA25	HSA50
Power Rating @25°C	16W with heatsink 8W without heatsink	25W with heatsink 12,5W without heatsink	50W with heatsink 20W without heatsink
Standard Heatsink-Area at Thickness 1mm	415 cm <sup>2</sup>	535 cm <sup>2</sup>	535 cm <sup>2</sup>
Resistance Tolerance	5%	5%	5%
Max. Working Voltage	265V	550V	1250V
Dielectric Strength	1400V AC	2500V AC	2500V AC
Package	Loose Piece- Tray	Loose Piece- Tray	Loose Piece- Tray
Manufact. Part Numb.	HSA10xxxJ	HSA25xxxJ	HSA50xxxJ
How to order	HSA 10 1K	HSA 25 1K	HSA 50 1K

Ohmic Value	HSA10	HSA25	HSA50
0,1 R	S 67432	S 67447	S 67461
0,22 R	S 67475	S 67448	S 67462
0,47 R	S 67433	S 67449	S 67463
1 R	S 67434	S 67450	S 67464
2,2 R	S 67435	S 67451	S 46852
4,7 R	S 67436	S 56945	S 67465
10 R	S 67437	S 67452	S 60860
22 R	S 67438	S 67453	S 67466
47 R	S 67439	S 67454	S 67467
100 R	S 67440	S 67455	S 67468
220 R	S 67441	S 67456	S 67469
470 R	S 67442	S 67457	S 67470
1 K	S 67443	S 67458	S 67471
2,2 K	S 67444	S 59736	S 67472
4,7 K	S 67445	S 67459	S 67473
10 K	S 67446	S 67460	S 67474

## Thick Film Power Resistors TO220 Package

VISHAY



Technical parameters	RTO20	RTO50
Thermal Resistance and Nominal Power	20W at + 25 °C RTH(j-c): 6.5 °C/W free air 2W at + 25 °C	50W at + 25 °C RTH (j-c): 2.6 °C/W free air 2.25W at + 25 °C
Resistance Tolerance	5%	5%
Temperature Coefficient	150-300ppm	150-300ppm
Max. Working Voltage	250V	300V
Operating Temp. Range	-55°C...+155°C	-55°C...+155°C
Package	50 pcs	50 pcs
Manufact. Part Numb.	RTO20F	RTO50F
How to order	RTO20FE 5% 100R	RTO50FE 5% 100R

Ohmic Value	RTO20	RTO50
1 R	S 50903	S 50906
10R	S 49247	S 50905
47 R	S 783	S 11739
100 R	S 50904	S 11740

## Resistance Wires

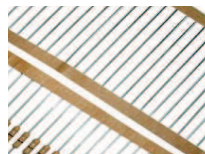


Varnished resistance wire is supplied in length 5m. It is usually used for the production of precision resistors - low resistance values. It can be also used for current measurement as the shunt, but also as heating elements.

Part No.	Ord.No	Description
S ISOTAN 2,5	940	2,5 Ω/m, D=0,5mm, L=5m
S ISOTAN 10	941	10 Ω/m, D=0,25mm, L=5m
S ISOTAN 28	942	28 Ω/m, D=0,15mm, L=5m

## Zero Ohm Jumper Wire

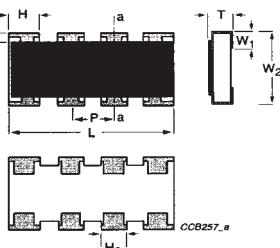
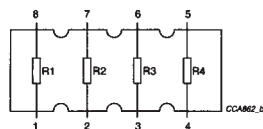
YAGEO



Material of Jumper Wire: Soft Copper Wire with Tin Plating  
 Diameter: φ=0,6mm  
 Conductor resistance: 0,005Ω/cm  
 Current Rating: 7,5A at 70 °C  
 Length: 52,4±1mm

Part No.	Ord.No
S JPW-06	14710
S JPW-08	14712

## Array Chip Resistors



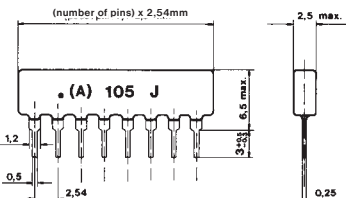
	YC124	YC164	YC324
B [mm]	0.20	0.30	0.50
H [mm]	0.45	0.65	1.10
P [mm]	0.50	0.80	1.27
L [mm]	2.00	3.20	5.08
H <sub>1</sub> [mm]	0.30	0.50	0.90
T [mm]	0.45	0.60	0.60
W <sub>1</sub> [mm]	0.30	0.30	0.50
W <sub>2</sub> [mm]	1.00	1.60	3.20

Technical parameters	YC124	YC164	YC324
Case Size	0804	1206	2012
Number of Resistors	4x0402	4x0603	4x1206
Power Rating @ 70°C	1/16W	1/16W	1/8W
Resistance Tolerance	5%	5%	5%
Temperature Coefficient	±200ppm/°C	±200ppm/°C	±200ppm/°C
Max. Working Voltage	50V	50V	200V
Diels.Withstand.Voltage	100V	100V	500V
Operating Temp. Range	-55°C ... +155°C		
Marking	EIA-marking code:3 digits		
Package: Tape&Reel	10 000 pcs	5000 pcs	4000 pcs
Manufact. Part Number	YC124	YC164	YC324
How to order	YC124 1K	YC164 1K	YC324 1K

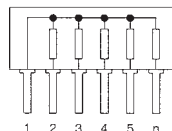
Ohmic Value	YC124	YC164	YC324
10R	O 68433	O 54170	O 68489
15R	O 68437	O 68465	O 68492
22R	O 68442	O 56398	O 68497
33R	O 68447	O 64512	O 68502
47R	O 68452	O 68480	O 68507
68R	O 68457	O 68484	O 68512
100R	O 68435	O 68463	O 64586
150R	O 68439	O 68467	O 68494
220R	O 68444	O 68471	O 68499
330R	O 68449	O 66174	O 68504
470R	O 68454	O 51392	O 68509
680R	O 68459	O 51393	O 68514
1K	O 68430	S 54171	S 66207
1,5K	O 68432	O 68462	O 68487
2,2K	O 68440	O 68468	O 68495
3,3K	O 68445	O 54173	O 68500
4,7K	O 68450	S 54174	S 68505
6,8K	O 68455	O 68482	O 68510
10K	O 53842	S 51394	S 68488
15K	O 68436	O 68464	O 68491
22K	O 68441	O 68469	O 68496
33K	O 68446	O 68473	O 68501
47K	O 68451	S 68479	S 68506
68K	O 68456	O 68483	O 68511
100K	O 68434	S 57267	S 68490
150K	O 68438	O 68466	O 68493
220K	O 68443	O 68470	O 68498
330K	O 68448	O 68474	O 68503
470K	O 68453	O 68481	O 68508
680K	O 68458	O 68485	O 68513
1M	O 68431	O 68461	O 68486

Minimum ordering quantity 500pcs is intended for items which are marked by "O"

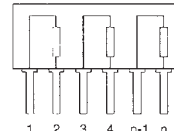
## Resistor Networks



Lxx-1 (A)  
1 common terminal



Lxx-3 (B)  
separate resistors



Example>  
(A) 105 J  
10.10<sup>5</sup>=1MΩ,  
(A) - 1 common terminal  
J=5%

Technical parameters	L05-1, L06-1, L09-1	L08-3
Case Size	SIL	SIL
Power Rating @70°C	0,125 W	0,2 W
Resistance Tolerance	5%	5%
Temperature Coefficient	±50ppm	±50ppm
Max. Working Voltage	100 V	100 V
Dielectric Strength	250 V	250 V
Insulation Resistance	> 10GΩ	> 10GΩ
Marking	A MILCode	B MIL Code
Package	1000 pcs, bag = 100 pcs	
How to order	L05-1 5% 10K	L08-3 5% 10K

Ohmic Value	L05-1 4xR	L06-1 5xR	L09-1 8xR	L08-3 4xR
47 R	O 21121	O 21196	S 18367	S 21446
100 R	O 21126	O 21200	O 18371	S 21450
220 R	S 21130	O 21204	S 18375	S 21454
330 R	O 21132	O 21206	O 18377	S 21497
470 R	S 21151	O 21208	S 18379	S 21499
560 R	S 21152	O 21209	O 18380	O 21500
680 R	S 21153	O 21210	S 18381	S 21501
820 R	O 21154	O 21211	S 18382	O 21502
1 K	S 21155	O 21212	S 18383	S 21503
1,2 K	S 21156	O 21213	S 18384	O 21504
1,5 K	S 21157	O 21214	S 18385	S 21505
1,8 K	O 21158	O 21215	S 18386	O 21506
2,2 K	S 21159	O 21216	S 18387	S 21507
2,7 K	O 21160	O 21217	S 18388	O 21508
3,3 K	S 21161	S 21218	S 18389	S 21509
3,9 K	O 21162	O 21218	O 18390	O 21510
4,7 K	S 21163	S 21220	S 18391	S 21511
5,6 K	O 21164	O 21221	S 18392	O 21512
6,8 K	S 21165	O 21222	S 18393	S 21513
8,2 K	S 21166	O 21223	O 18394	O 21514
10 K	S 21167	S 18860	S 18395	S 21515
12 K	S 21168	O 21224	S 18396	O 21516
15 K	O 21169	O 21225	S 18397	S 21517
22 K	S 21171	O 21227	S 18399	S 21519
33 K	S 21173	O 21229	S 18401	S 21521
47 K	S 21175	O 21231	S 18403	S 21523
68 K	S 21177	O 21233	S 18405	O 21525
100 K	S 21179	O 21299	S 18407	S 21527
220 K	S 21183	O 21303	S 18411	S 21531
470 K	S 21187	O 21307	S 18415	S 21535
1 M	S 21191	O 21311	S 18419	O 21539

Minimum ordering quantity 10pcs is intended for items which are marked by "O"



## Carbon Resistors Kit



Assortment of 610 numbers carbon film resistors.  
10 pieces/value  
Belted as per values

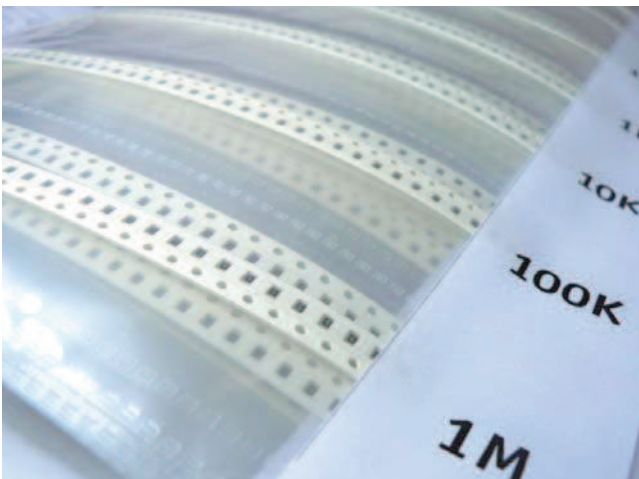
<b>Technical parameters:</b>	<b>SET RC-E12</b>
Case Size	0207
Max. Voltage	250 V
Resistance Tolerance	5%
Power Rating	0,25 W
Operating Temperature Range	-55°C ... +155°C
How to order	SET RC
<b>Part No.</b>	<b>Ord.No</b>
S SET RC-E12	54785

## Surface Mount Resistor Kits



Ring binder surface mount resistor kits  
0603, 0805 and 1206 case sizes  
1% tolerance option  
Available in E6 and E12 series values  
Kits contain 50 pieces of each ohmic value from  
10R to 1M plus OR  
All resistors are individually marked and supplied on tapes.

Part No.	Ord.No	Description
S SMD SET R0603	51875	E6 Series, 1R - 10M, 0R à 50pcs
S SMD SET R0805	49903	E12 Series, 1R - 10M, 0R à 50pcs
S SMD SET R1206	50902	E12 Series, 1R - 10M, 0R à 50pcs



# Order online

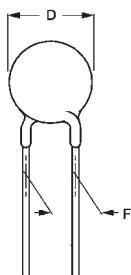


**electroniconline**

[www.soselectronic.com](http://www.soselectronic.com)



## Varistors



Varistor is a voltage dependent resistor with symmetrical voltage-current characteristics that is designed to protect all kinds of electronic devices or elements from switching and induced lightning surges. Its non linear exponent characteristics with broad using range and mass production is gradually being used by various level of electric engineering.

**Features:**

- Fast response time.
- Low leakage current.
- Excellent voltage ratio.
- Wide voltage & energy ratio.
- Low standby power and no follow on current
- High performance in surge current handling capability.
- High performance in clamping voltage characteristics.

### JVR Series

Part No.	Ord.No.	Uvar[V]	Urms[Vac]	Umax[Vdc]	Pmax [mW]	I <sub>max</sub> [A]	D [mm]	F [mm]
S JVR05N180K	6200	18	11	14	10	100	5	5
S JVR07N220K	6202	22	14	18	20	250	7	5
S JVR05N390K	6204	39	25	31	10	100	5	5
S JVR07N390K	6205	39	25	31	20	250	7	5
S JVR05N101K	6198	100	60	85	100	400	5	5
S JVR07N101K	6199	100	60	85	250	1200	7	5
S JVR07N201K	6201	200	130	170	250	1200	7	5
S JVR05N391K	6206	390	250	320	100	400	5	5
S JVR07N391K	6207	390	250	320	250	1200	7	5
S JVR14N391K	55759	390	250	320	600	4500	14	7,5
S JVR07N431K	6209	430	275	350	250	1200	7	5
S JVR10N431K	6210	430	275	350	400	2500	10	5
S JVR07N471K	6211	470	300	385	250	1200	7	5
S JVR10N471K	6212	470	300	385	400	2500	10	7,5

### 59x Series

Part No.	Ord. No.	Uvar[V]	Urms[Vac]	Umax[Vdc]	Pmax[mW]	I <sub>max</sub> [A]	D [mm]	F [mm]
S 593-30	20469	47	30	38	250	250	9	5
S 593-60	20470	100	60	85	250	1200	9	5
S 593-250	20472	390	250	320	250	1200	9	5
S 592-275	20468	430	275	350	100	400	7	5
S 593-275	20473	430	275	350	250	1200	9	5
S 594-275	20481	430	275	350	400	2500	13,5	7,5
S 595-275	20485	430	275	350	600	4500	17	7,5
S 593-300	20474	470	300	385	250	1200	9	5
S 595-300	20486	470	300	385	600	4500	17	7,5
S 593-420	20492	680	420	560	250	1200	9	5

### SIOV Series

Part No.	Ord. No.	Uvar[V]	Urms[Vac]	Umax[Vdc]	Pmax[A]	I <sub>max</sub> [A]	D [mm]	F [mm]
O SIOV-S05K25	68677	39	25	31	0,01	100	7	5
O SIOV-S05K30	68678	47	30	38	0,01	100	7	5
O SIOV-S05K60	68679	100	60	85	0,1	400	7	5
O SIOV-S05K250	68681	390	250	320	0,1	400	7	5
O SIOV-S07K25	56585	39	25	31	0,02	250	9	5
O SIOV-S07K60	68680	100	60	85	0,25	1200	9	5
S SIOV-S07K130	11201	205	130	170	0,25	1200	9	5
O SIOV-S07K250	8403	390	250	320	0,25	1200	9	5
O SIOV-S07K275	50724	430	275	350	0,25	1200	9	5
O SIOV-S10K250	4042	390	250	320	0,4	2500	12	7,5
O SIOV-S10K275	4310	430	275	350	0,4	2500	12	7,5
O SIOV-S10K300	68682	470	300	385	0,4	2500	12	5,0
O SIOV-S14K250	6379	390	250	320	0,6	4500	20	7,5
O SIOV-S14K275	1531	430	275	350	0,8	4500	15,2	7,5
O SIOV-S14K300	68683	470	300	385	0,6	4500	15,5	7,5

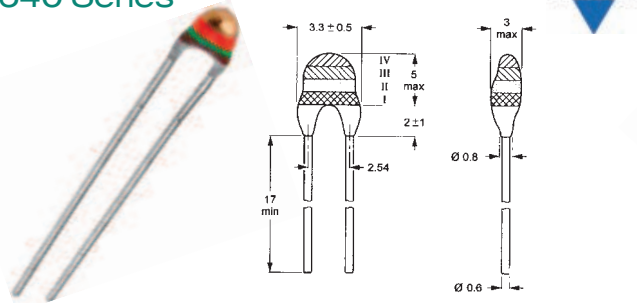
### Cross-References

	JoyIn	Vishay	Epcos	LittleFuse	Panasonic	AVX
100mW	JVR05	592	SIOV S05K		ERZV05	VE07M
250mW	JVR07	593	SIOV S07K		ERZV07	VE09M
400mW	JVR10	594	SIOV S10K	VxxLA 10	ERZV10	VE13M
600mW		595	SIOV S14K	VxxLA 20	ERZV14	VE17M
1W			SIOV S20K	VxxLA 40	ERZV20	



## NTC Thermistors

### 640 Series



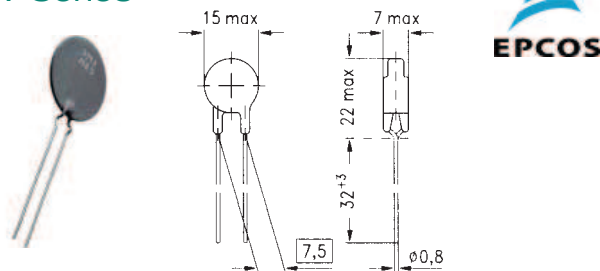
These thermistors have a negative temperature coefficient. The device consists of a chip with two tinned solid copper-plated leads. It is grey lacquered and colour coded, but not insulated. FEATURES: accuracy over a wide temperature range, high stability over a long life, excellent price/performance ratio. APPLICATIONS: temperature sensing and control

Technical parameters	640 Series
Resistance value at 25 °C	680 Ω ... 470 kΩ
Maximum dissipation	0,5 W
Operating temperature range	-40°C ... 125°C
Response time	1,2 s

Part No.	Ord.No	R25
O 640-680R	7189	680Ω
S 640-1K	7186	1kΩ
S 640-2,2K	35674	2,2kΩ
S 640-2,7K	26804	2,7kΩ
S 640-3,3K	35675	3,3kΩ
S 640-4,7K	26805	4,7kΩ
S 640-6,8K	35676	6,8kΩ
S 640-10K	26806	10kΩ
S 640-12K	26807	12kΩ
S 640-15K	35677	15kΩ
S 640-33K	35678	33kΩ
S 640-47K	26809	47kΩ
S 640-68K	35679	68kΩ
S 640-100K	26810	100kΩ
O 640-150K	35949	150kΩ
O 640-220K	26811	220kΩ
O 640-330K	35680	330kΩ
O 640-470K	26812	470kΩ

R25 -Resistance value at 25°C.

### 237 Series



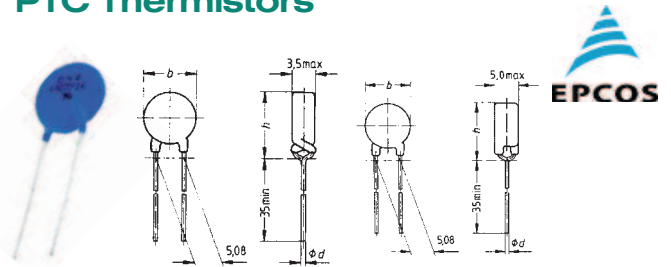
NTC thermistors for inrush current limiting, as all NTCs, are made of polycrystalline mixed oxide ceramics. They suppress high inrush current surges, which occur when, for example, low impedance smoothing capacitors are charged.

**Why inrush current limiting?** In many items of electrical equipment, switched mode power supplies, motors, transformers or amplifiers etc., high inrush currents occur, when the devices are turned on. These can damage individual components or entire assemblies or blow fuses in error. Such high currents are caused by extremely low impedance of smoothing capacitors or coils which produce nearly short circuits at the moment of switching on. However, if NTC thermistors are used as inrush current limiters, this problem can be solved without elaborate circuitry at low cost.

Part No.	Manuf.Part.No	Ord.No	R25	I25
S S 237/1	B57237-S0109-M	7058	1Ω	9A
S S 237/2,5	B57237-S0259-M	7059	2,5Ω	6,5A
S S 237/5	B57237-S509-M	7060	5Ω	5A
S S 237/10	B57237-S100-M	7061	10Ω	3,7A
S S 237/22	B57237-S220-M	7062	22Ω	2,8A

R25 -Resistance value at 25°C, I25 - Current value at 25°C.

## PTC Thermistors



Positive temperature coefficient thermistors designed for over current and short-circuit protection applications

FEATURES: lead-free terminals, manufacturer's logo and type designation stamped on in white, low resistance, for rated currents of up to 1,8 A, UL approval and VDE approval

Technical parameters	PTC30	PTC265
Max. operating voltage	30 V	265 V
Temperature	120°C	80 °C
Switching Time	< 10 s	< 6 s
Resistance Tolerance	25 %	25 %

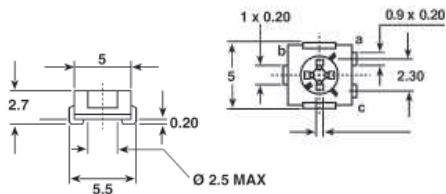
Part No.	Manuf. Part No.	b [mm]	Rn	In	Is
PTC 30V1,8	B59975C0120A070	9,0	1,8Ω	450mA	900mA
PTC 30V4,6	B59985C0120A070	6,5	4,6Ω	250mA	500mA
PTC 265V10	B59850C0120A070	13,5	10Ω	200mA	400mA
PTC 265V25	B59870C0120A070	9,0	25Ω	100mA	200mA
PTC 265V70	B59880C0120A070	6,5	70Ω	55mA	110mA

Part No.	Ord.No
S PTC 30V1,8	6041
S PTC 30V4,6	6042
S PTC 265V10	6034
S PTC 265V25	6036
S PTC 265V70	6037

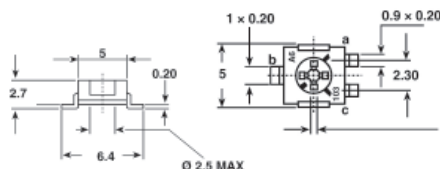
## Surface Mount Trimmers - Single Turn Cermet Sealed



TS53YJ



TS53YL

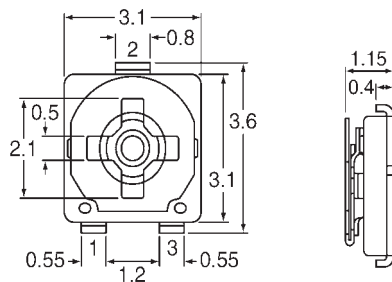


Technical parameters	TS53YJ	TS53YL
Power Rating at 70°C	0,25W	0,25W
Mechanical Travel	270°±10°	270°±10°
Electrical Travel	220°±15°	220°±15°
Resistance Tolerance	±20%	±20%
Limiting Element Voltage	200V	200V
Temperature Coefficient	±100ppm/°C	±100ppm/°C
Temperature Range	-55...+125°C	-55...+125°C
Dimensions	5,5x5x2,7mm	6,4x5x2,7mm
Package	500pcs Tape & Real	
Terminals design	J - inside	L - outside
How to order	TS53YJ 1K	TS53YL 1K

Ohmic Value	TS53YL	TS53YJ
100R	S 68112	O 72427
200R	S 68113	O 68101
500R	S 68114	O 68102
1K	S 68115	O 68103
2K	S 68116	O 68104
5K	S 68117	O 68105
10K	S 68118	O 68106
20K	S 68119	O 68107
50K	S 68120	O 68108
100K	S 68121	O 68109
200K	S 68122	O 68110
500K	S 68123	O 68111
1M	S 68124	O 80580

Minimum ordering quantity 5pcs is intended for items marked by "O"

## Surface Mount Trimmers - Single Turn Carbon Type



LOW PROFILE

Technical parameters	PVZ3G
Power Rating	0,1W (pri 50°C)
Numb. of Turns (Effective Rotation Angle)	1(230°±10°)
Resistance Tolerance	±30%
Max. operating voltage	50Vdc
Temperature Coefficient	±500ppm/°C
Temperature Range	-25°C to 85 °C
Dimensions	3.1×3.6×1.15mm
Package	1000pcs
How to order	PVZ3G 1K

Ohmic Value	PZV3G	Ohmic Value	PZV3G
220R	S 68749	33K	S 68756
330R	S 68754	47K	S 68760
470R	S 68758	68K	S 68764
680R	S 68762	100K	S 68743
1K	S 68741	150K	S 68747
1,5K	S 68745	220K	S 68752
2,2K	S 68750	330K	S 68757
3,3K	S 68755	470K	S 68761
4,7K	S 68759	680K	S 68765
6,8K	S 68763	1M	S 68744
10K	S 68742	1,5M	O 68748
15K	S 68746	2,2M	O 68753
22K	S 68751		

Minimum ordering quantity 5pcs is intended for items marked by "O"

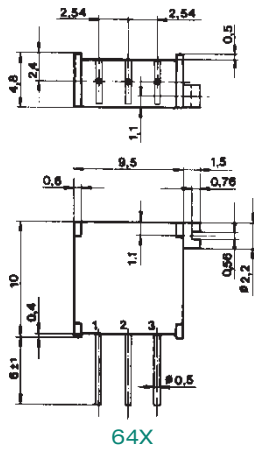
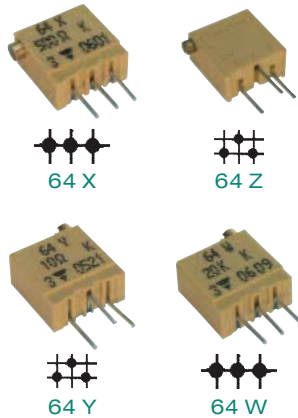






Multi - Turn Cermet Trimmers

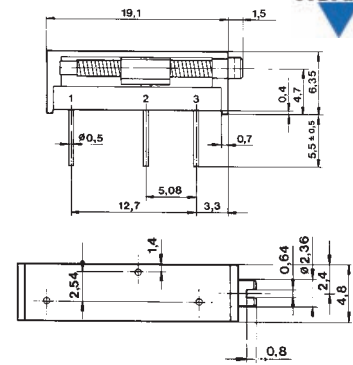
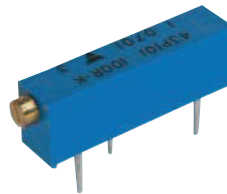
64 Series



Technical parameters	64
Number of Turns - mechanical	23±5
Number of Turns - electrical	21±2
Power Rating at 70°C	0,5W
Max. Working Voltage	250V
Range of Values	10R...2M0
Tolerance	±10%
Temperature Coefficient	±100ppm/°C
Insulation Voltage	1000Vef
Temperature Range	-55...+125°C
Package	50 pcs (tube)
How to order	64 X 100 R

Value	64 X	64 Y	64 Z	64 W
10R	O 57984	S 18022		O 18021
50R	O 57985	S 18024		O 18040
100R	O 30157	S 18025	O 57986	O 18041
200R	O 30158	S 18026	O 57987	O 18042
500R	S 30159	S 18027	O 20452	S 18043
1K	O 30160	S 18028	S 20453	S 18044
2K	O 30161	S 18029	S 20665	S 18045
5K	S 30162	S 18030	O 20454	S 18046
10K	S 30163	S 18031	S 20455	S 18047
20K	S 30164	S 18032	O 20456	S 18048
50K	O 30165	S 18033	S 20457	S 18049
100K	O 30166	S 18034	S 20458	S 18050
200K	O 30167	S 18035	O 20459	S 18051
500K	O 30168	S 18036	O 20460	S 18052

43P Series

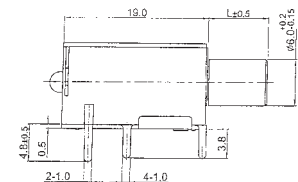
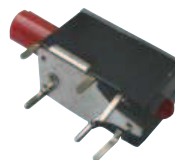


Technical parameters	43 P
Number of Turns - mechanical	18±5
Number of Turns - electrical	15±1
Power Rating at 70°C	0,5W
Max. Working Voltage	250V
Range of Values	10R...2M0
Resistance Tolerance	±10%
Temperature Coefficient	100ppm/°C
Insulation Voltage	1000Vef
Temperature Range	-55...+125°C
Package	25 pcs (tube)
How to order	43 P 100 R

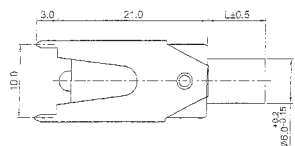
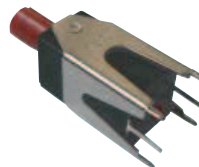
Value	43 P	Value	43 P	Value	43 P
10R	S 19877	1K	S 19883	50K	S 19888
50R	S 19879	2K	S 19884	100K	S 19889
100R	S 19880	5K	S 19885	200K	S 19890
200R	S 19881	10K	S 19886	500K	S 19891
500R	S 19882	20K	S 19887	1M	S 19892

RF Attenuators

Type AT10PHF



Type AT10VYF



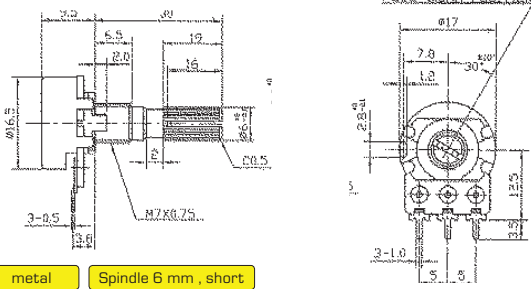
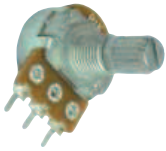
Technical parameters	AT10PHF	AT10VYF
Nominal Attenuation	20dB	20dB
Impedance	75 Ω	75 Ω
Max. frequency	800 MHz	800 MHz
Number of Turns	endless	endless
Max. Voltage	50V	50V
Power Rating	0,02W	0,02W
Shaft diameter	9mm	9mm
Colour	red	red
Manufact. Part Number	AT10PHF-B-9SRB-3,5Y-20	AT10PVYF-B-9SRB-3,5Y-20
How to order	AT PHF	AT VYF

Part No.	Ord.No
S AT10PHF	52520
S AT10VYF	52522





## POM1615 Series - single



metal Spindle 6 mm, short

Technical parameters	POM 1615 LIN	POM 1615 LOG	POM1615 EXP
Spindle (diameter/length)	6mm/15mm, 18-teeth, metal		
Rotation Angle	300° ± 5°		
Resistance Taper	linear (LIN)B	logarith. (LOG)A	exponen. (EXP)
Power Rating	0,2W	0,1W	
Tolerance	±30%		
Insulation Resistance	min. 100 MΩ @ 500VDC		
Rotational Life	> 15000 cycles		
Operating Temperature	-10°C ... +70°C		
Mounting	PCB pins, horizontal		
Package	200 pcs		
How to order	POS 1615 LIN 10K		

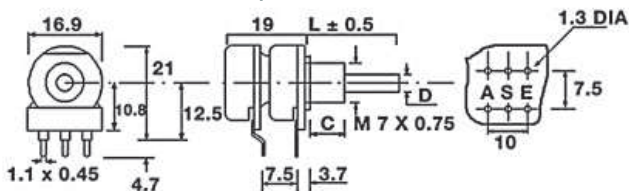
Ohmic Value	LIN	LOG	EXP
1K	S 61185		
5K	S 61188		
10K	S 61184	S 61541	
50K	S 61187		
100K	S 61182		S 61542
500K	S 61186		

## Double Carbon Rotary Potentiometers - 16mm size

### PC2G 16 BU Series - double



NEW!



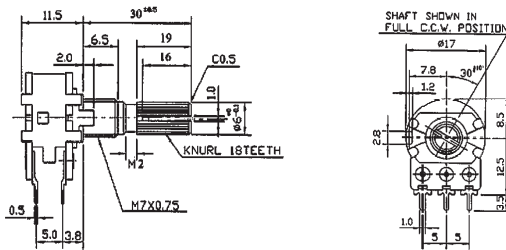
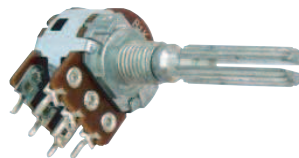
Spindle 4 mm

	L [mm]	C [mm]	D [mm]
PC2G16BU	35	6	4

Technical parameters	PC2G 16 BU A	PC2G 16 BU B
Spindle	4mm, plastic	
Rotation Angle - mechanical	270°±5°C	
Resistance Taper	linear (LIN) A	logarithmic (LOG)B
Rated Dissipation	2x0,25W	2x0,12W
Tolerance	±20%	
Limiting Element Voltage	350V	
Insulation Voltage	500Vac	
Mounting	PCB pins	
How to order	PC2G 16 BU 22K A	PC2G 16 BU 22K B

Ohmic Value	LIN	LOG
1K	O 76007	
2,2K		O 76017
4,7K	O 76008	O 76018
10K	S 76009	S 76019
22K	S 76010	O 76020
47K	S 76011	
100K	S 76012	O 76021
220K	O 76013	O 76022
470K	O 76014	
1M	O 76015	O 76023
4,7M	O 76016	

## POS 16 Series - double



metal Spindle 6 mm

Technical parameters	POS 16 LIN	POS 16 LOG
Spindle (diameter/length)	6mm /30mm, 18-teeth, metal	
Rotation Angle - mechanical	300° ± 5°	
Resistance Taper	linear (LIN)B	logarithmic (LOG)A
Power Rating	0,2W	0,1W
Tolerance	±30%	
Insulation Resistance	min. 100 MΩ @ 500VDC	
Rotational Life	> 15000 cycles	
Operating Temperature	-10°C ... +70°C	
Mounting	PCB pins, horizontal	
Package	200 pcs	
How to order	POS 16 LIN 10K	POS 16 LOG 10K

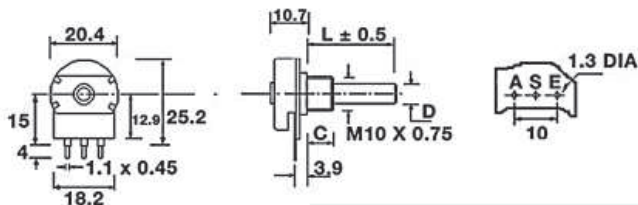
Ohmic Value	LIN	LOG
1K	S 54020	S 54012
5K	S 54021	S 54013
10K	S 54022	S 54014
50K	S 54023	S 54015
100K	S 54024	S 54016
200K	S 54025	S 54017
500K	S 54026	S 54018
1M	S 54027	S 54019

## Carbon Rotary Potentiometers - 20mm size

### PC 20 BU Series - Single



**NEW!**



Spindle 6 mm

	L [mm]	C [mm]	D [mm]
PC20BU	50	8	6

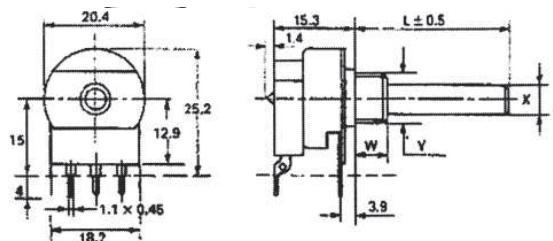
Technical parameters	PC 20 BU A	PC 20 BU B
Spindle	6mm, plastic	
Rotation Angle- mechanical	300°±5°	
Resistance Taper	linear (LIN)A	logarithmic (LOG)B
Power Rating at 40°C	0,4W	0,2W
Tolerance	±20%	
Limiting Element Voltage	500V	
Insulation Voltage	1000Vac	
Mounting	PCB pins	
How to order	PC20 BU 47K A	

Ohmic Value	LIN	LOG
100 R	S 76024	
220 R	S 76025	
470 R	S 76026	
1 K	S 76027	O 76039
2,2 K	S 76028	O 76040
4,7 K	O 76029	S 76041
10 K	S 76030	S 76042
22 K	S 76031	S 76043
47 K	S 76032	S 76044
100 K	S 76033	S 76045
220 K	S 76034	S 76046
470 K	S 76035	S 76047
1 M	S 76036	S 76048
2,2 M	O 76037	O 76049
4,7 M	O 76038	

## PC 20 BU / PC1S Series - Single with Rotary Switch



**NEW!**



Spindle 6 mm

	L [mm]	Y [mm]	W [mm]	X [mm]
PC20BU/PC1S	35	M10x0,75	8	4

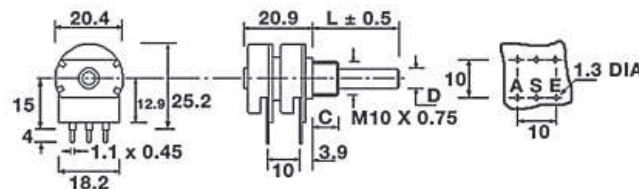
Technical parameters	PC20BU/PC1S A	PC20BU/PC1S B
Spindle	6mm, plastic	
Rotation Angle - mechanical	270°±5°	
Resistance Taper	linear (LIN)A	logarithmic (LOG)B
Power Rating at 40°C	0,4W	0,2W
Tolerance	±20%	
Limiting Element Voltage	500V	
Insulation Voltage	1000Vac	
Switch	1A/24Vdc (0,3A/250 Vac)	
Mounting	PCB pins	
Package	25 pcs	
How to order	PC20BU/PC1S 1KA	

Ohmic Value	LIN	LOG
470R	O 76071	
1K	O 76072	O 76082
2,2K	O 76073	O 76083
4,7K	S 76074	O 76084
10K	O 76075	O 76085
22K	O 76076	O 76086
47K	O 76077	O 76087
100K	S 76078	O 76088
220K	O 76079	O 76089
470K	S 76080	O 76090
1M	S 76081	O 76091

## PC2G 20 BU Series - Double



**NEW!**



Spindle 6 mm

	L [mm]	C [mm]	D [mm]
PC2G20BU	50	8	6

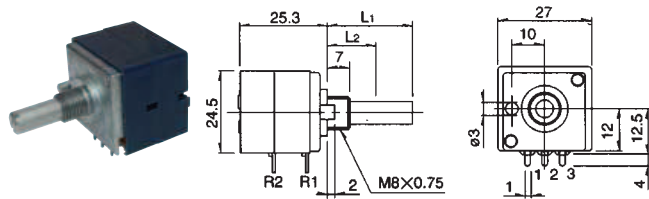
Technical parameters	PC2G 20 BU A	PC2G 20 BU B
Spindle	6mm, plastic	
Rotation Angle - mechanical	300°±5°	
Resistance Taper	linear (LIN)A	logarithmic (LOG)B
Power Rating at 40°C	2x0,4W	2x0,2W
Tolerance	±20%	
Limiting Element Voltage	500V	
Insulation Voltage	1000Vac	
Mounting	PCB pins, horizontal	
How to order	PC2G20BU 1K A	

Ohmic Value	LIN	LOG
470R	O 76050	
1K	O 76051	O 76061
2,2K	O 76052	O 76062
4,7K	O 76053	O 76063
10K	S 76054	S 76064
22K	O 76055	O 76065
47K	S 76056	O 76066
100K	S 76057	S 76067
220K	O 76058	O 76068
470K	O 76059	O 76069
1M	O 76060	O 76070

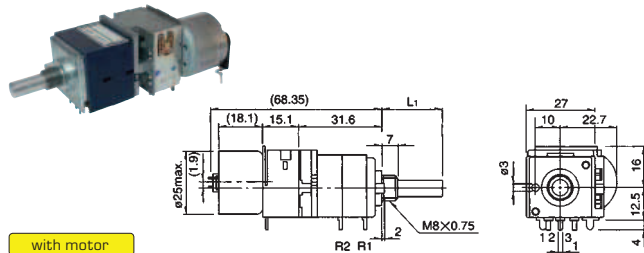
## High-Grade Rotary Audio Potentiometers **ALPS**

These high-grade potentiometer offers comfortable operation and possesses high precision characteristics (gang error, resistance taper, etc.) ideal for audio applications. Applications : volume and level controls in high-grade audio sets We offer two models: version with motor (MC) and without motor.

### RK 27112 Series



### RK 27112 MC Series



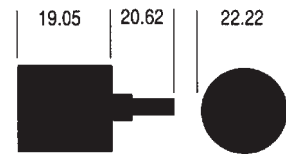
Technical parameters	RK 27112	RK 27112 MC
Total Resistance Tolerance	20%	20%
Rated Power	0,5W	0,5W
Max. Operating Voltage	30V AC	30V AC
Insulation Resist. (500VDC)	100 MΩ	100 MΩ
Total Rotation Angle	300°±5°	300°±5°
Spindle $\varnothing$ /L1	6mm/20mm	6mm/20mm
Motor Voltage	-	4-6V DC
Max. Operating Current (at rotation)	-	max. 100mA
Rotational Speed	-	12 sec/300°
How to order	RK27112 2x10K LIN RK27112MC 2x10K LIN	

RK27112	LIN	LOG
2x10K	○ 7172	○ S 5595
2x50K	○ 8312	○ S 2751
2x100K	○ 8313	○ S 6576
RK27112 MC	LIN	LOG
2x10K	○ 5593	○ S 5592
2x50K	○ 8315	○ S 5594
2x100K	○ 8315	○ S 2752

## Precision Wirewound Multi - Turn Potentiometer



### 534 Series

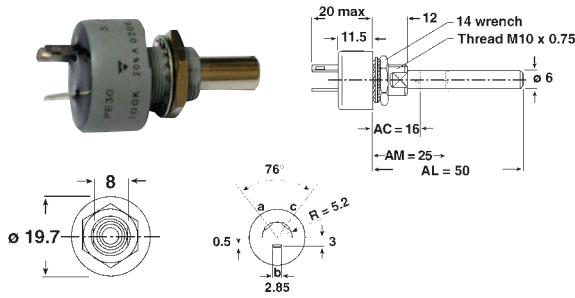


Technical parameters	534
Spindle	6,35 mm
Number of Turns	10/3600°+10%
Resistance Taper	linear
Power Rating	3W/40°C, 2W/70°C
Resistance Tolerance	±5 %
Temperature Coefficient	20ppm
Temperature Range	-55...+125°C
Package	10 pcs
Suitable Knob	KNOFF 635
How to order	534 100R

Ohmic Value	LIN	Ohmic Value	LIN
100R	S 16226	5K	S 16231
200R	S 16227	10K	S 16232
500R	S 16228	20K	S 16233
1K	S 16229	50K	S 16234
2K	S 16230	100K	S 16235

## Power Potentiometers

### PE30K Series - Cermet



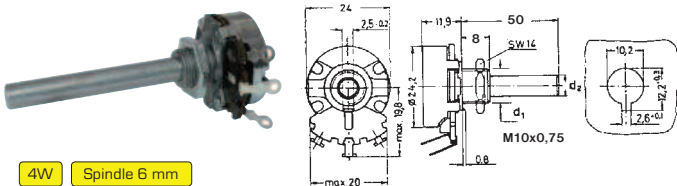
IP 67 3W Spindle 6 mm

Technical parameters		PE30K	
Spindle		6mm	
Resistance Taper		linear	
Power Rating		3W	
Electrical Travel		278±10°	
Mechanical Travel		300±5°	
Maximum Working Voltage		300V at 70°C	
Tolerance		±20%	
Manufact. Part Number		PE30 AL	
How to order		PE30K 1K	

Ohmic Value	LIN
1K	o 68795
4,7K	o 52025
10K	o 9568

Ohmic Value	LIN
47K	o 68794
100K	o 64845

### PD5W Series - Wirewound



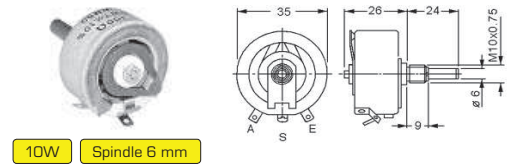
4W Spindle 6 mm

Technical parameters		PD5W	
Spindle		6mm	
Resistance Taper		linear	
Power Rating		4W at 40°C	
Electrical Travel		280±5°	
Mechanical Travel		300±10°	
Maximum Working Voltage		500V	
Resistance Tolerance		±10 (<10 Ohm ±20%)	
Package		5 pcs	
Manufact. Part Number		AW	
How to order		PD5W 1K	

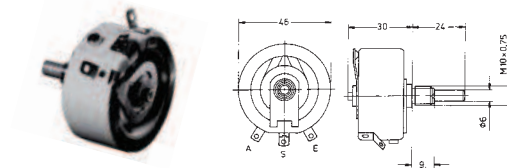
Ohmic Value	LIN
2,5R	o 68526
5,0R	o 68527
10R	o 60589
25R	o 68528
50R	o 68529
100R	o 6125
250R	o 9490

Ohmic Value	LIN
500R	o 9042
1K	s 6339
2,5K	s 2815
5K	s 3546
10K	s 3788
25K	o 8854

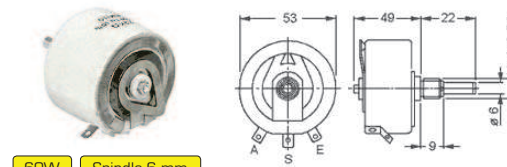
## PZD Series - Wirewound



10W Spindle 6 mm



30W Spindle 6 mm



60W Spindle 6 mm

Technical parameters		PZD10	PZD30	PZD60
Spindle Ø/l		6mm/15mm	6mm/15mm	6mm/13mm
Resistance Taper			linear	
Power Rating at 40°C		10W	30W	60W
Electrical Travel		250°	270°	262°
Mechanical Travel		266°	287°	282°
Maximum Working Voltage			2000V	
Resistance Tolerance			±10%	
Dimensions		D35xM10mm	D46xM10mm	D53xM10
Manufact. Part Number		E10W	E30W	E60W
How to order		PZD10W 1K	PZD30W 1K	PZD560W 1K

Ohmic Value	PZD10	PZD30	PZD60
10R	o 68777	o 60312	o 68786
22R	o 68778	o 68783	o 68787
47R	o 68779	o 68784	o 68788
100R	o 55512	o 45459	o 61423
220R	o 65561	o 7816	o 68789
470R	o 68780	o 59374	o 68790
1K	o 59775	o 3479	o 68791
2,2K	o 68781	o 68785	o 68792
4,7K	o 59405	o 44754	o 68793
10K	o 68782	o 4649	

## Encoders with Push-On Switch

# ALPS

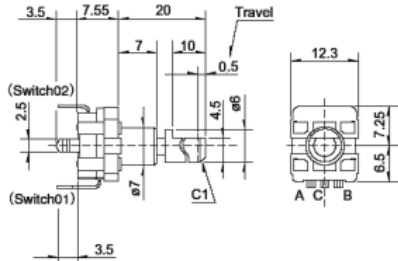
### Features:

- Compact and highly reliable, sliding contact type.
- 4.5mm-body height with a 1.5mm-travel push switch is available.
- Incremental type.

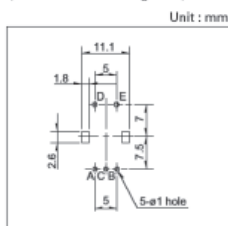
### Applications:

- Level controls for car audio and car navigation system.
- Various controls for devices in automotive
- Controls for image/sound devices, including DVD players, mini component stereos, CD players and portable audio players

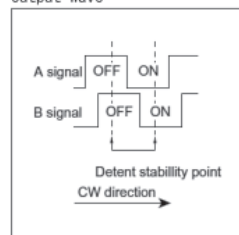
### EC11B15244A7



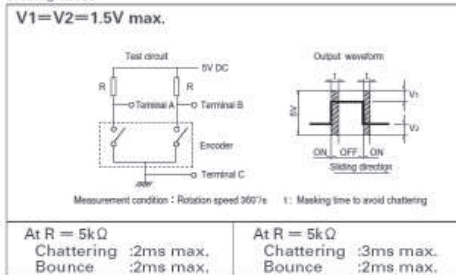
PC board Mounting Hole Dimensions (Viewed from Mounting Face)



Output Wave



Sliding Noise



Technical parameters	EC11B15244A7
Spindle (diameter/length)	6mm/20mm, metal
Number of detent	30
Resolution	15
Travel	0,5mm
Rating	5Vdc/10mA
Rating of Switch	16Vdc/3A
Operating life	15000 cycles

Part No.	Ord.No
S EC11B15244A7	56494

## STEC Series - 11mm



B01...02

B03...04

B09

B13

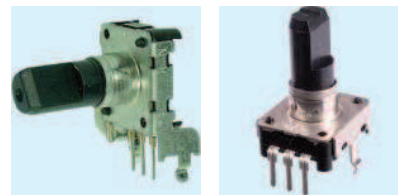
Technical parameters	STEC 11B
Size	11x11mm
Travel	0,5mm
Rating	5Vdc/ 10mA
Rating of Switch	16Vdc/3A

Part No.	Description
STEC11B01	Horiz. 15pulses/30detens, Spindle:6/25mm-slotted, Push-On Switch
STEC11B02	Horiz. 15pulses/30detens, Spindle:6/25mm-slotted
STEC11B03	Vertic.15pulses/30detens, Spindle:6/25mm-slotted, Push-On Switch
STEC11B04	Vertical 115pulses/30detens, Spindle:6/25mm-slotted
STEC11B09	Horiz. 20pulses/20detens, Spindle: 6/20mm flat, Push-On Switch
STEC11B13	Vertical 20pulses/20detens, Spindle: 6/20mm flat

Part No.	Ord.No
S STEC11B01	70226
S STEC11B02	70227
S STEC11B03	70228
S STEC11B04	70229
S STEC11B09	70230
S STEC11B13	70231

## STEC Series -12mm

# ALPS



Technical parameters	STEC 12E
Size	12x12mm
Travel	0,5mm
Rating	5Vdc/ 0,5mA
Rating of Switch	5Vdc/1mA

Part No.	Description
STEC12E05	Horiz. 24pulses/24detens, Spindle: 6/20mm flat
STEC12E06	Horiz. 24pulses/24detens, Spindle: 6/20mm flat, Push-On Switch
STEC12E07	Vertical 24pulses/24detens, Spindle: 6/20mm flat
STEC12E08	Vertical 24pulses/24detens, Spindle: 6/20mm flat, Push-On Switch

Part No.	Ord.No
O STEC12E05	70232
O STEC12E06	70233
S STEC12E07	70234
S STEC12E08	70235

## Knobs

### KN 1 Series



4 mm

Technical parameters	KN 1-H	KN 1-V
Description	push-on plastic knob	
for Spindle	4mm	
Diameter	16mm	
Height	15mm	
Version	smooth	knurled
Colour	black	
Package	50 pcs	

Part No.	Ord. No.
S KN 1-H	48419
S KN1-V	48420

### GDK1404 Series

Technical parameters	GDK-1404	GDK-1406
Description	push-on plastic knob	
for Spindle	4mm	6mm
Diameter	14,5mm/10,5mm	
Height	12,5mm	



4 mm

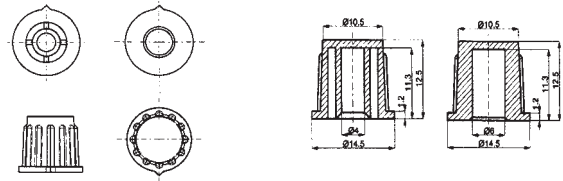
Part No.	Ord.No	Spindle	Body	Cap	Line
S GDK-1404BK	5883	4mm	black	black	-
S GDK-1404BU	5882	4mm	blue	blue	-
S GDK-1404RD	5884	4mm	red	red	-
O GDK-1404GR	64592	4mm	grey	grey	-



4 mm

Part No.	Ord.No	Spindle	Body	Cap	Line
O GDK-1404BK/GR-L	64594	4mm	black	black	grey
O GDK-1404BK/GR-C	64596	4mm	black	grey	black
O GDK-1404BK/BU-L	64598	4mm	black	black	blue
O GDK-1404BK/BU-C	64600	4mm	black	blue	black
O GDK-1404BK/RD-L	64602	4mm	black	black	red
O GDK-1404BK/RD-C	64604	4mm	black	red	black
O GDK-1404BK/YE-L	64606	4mm	black	black	yellow
O GDK-1404BK/YE-C	64608	4mm	black	yellow	black
O GDK-1404BK/GN-L	64610	4mm	black	black	green
O GDK-1404GR/BK-L	64614	4mm	grey	grey	black
O GDK-1404BK/GN-C	64612	4mm	black	green	black
O GDK-1404GR/BK-C	64616	4mm	grey	black	grey
O GDK-1404BU/BK-L	64618	4mm	blue	blue	black
O GDK-1404BU/BK-C	64620	4mm	blue	black	blue
O GDK-1404RD/BK-L	64622	4mm	red	red	black
O GDK-1404RD/BK-C	64624	4mm	red	black	red

### GDK1406 Series

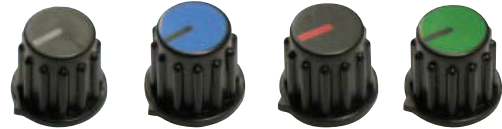


Technical parameters	GDK-1404	GDK-1406
Description	push-on plastic knob	
for Spindle	4mm	6mm
Diameter	14,5mm/10,5mm	
Height	12,5mm	



6 mm

Part No.	Ord.No	Spindle	Body	Cap	Line
O GDK-1406BK	48130	6mm	black	black	-
O GDK-1406RD	48129	6mm	red	red	-
O GDK-1406BU	64591	6mm	blue	blue	-
O GDK-1406GR	64593	6mm	grey	grey	-



6 mm

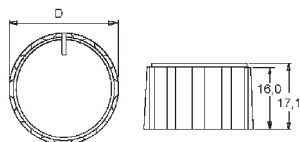
Part No.	Ord.No	Body	Cap	Line
O GDK-1406BK/GR-L	64595	black	black	grey
O GDK-1406BK/GR-C	64597	black	grey	black
O GDK-1406BK/BU-L	64599	black	black	blue
O GDK-1406BK/BU-C	64601	black	blue	black
O GDK-1406BK/RD-L	64603	black	black	red
O GDK-1406BK/RD-C	64605	black	red	black
O GDK-1406BK/YE-L	64607	black	black	yellow
O GDK-1406BK/YE-C	64609	black	yellow	black
O GDK-1406BK/GN-L	64611	black	black	green
O GDK-1406BK/GN-C	64613	black	green	black
O GDK-1406GR/BK-L	64615	grey	grey	black
O GDK-1406GR/BK-C	64617	grey	black	grey
O GDK-1406BU/BK-L	64619	blue	blue	black
O GDK-1406BU/BK-C	64621	blue	black	blue
O GDK-1406RD/BK-L	64623	red	red	black
O GDK-1406RD/BK-C	64625	red	black	red

### Reducer 6mm/4mm



Part No.	Ord.No
S KR6-4	5825

## DKN Series

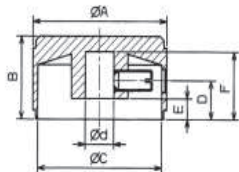


6 mm

Technical parameters		DKN...
Description	push-on plastic knob, 2-piece set	
Spindle	6 mm	
Diameter	see the table	
Height	17,1mm	
Colour	black with white line	
Package	100 pcs	

Part No.	Ord.No	Diameter
S DKN1301SW	5242	13,5mm
S DKN1501SW	5245	15,5mm
S DKN1801SW	5249	18,5mm
S DKN2101SW	5255	21,5mm
S DKN2801SW	5254	28,5mm
S DKN3601SW	5253	36,5mm
S DKN4301SW	5252	43,5mm

## ADK Series - anodized

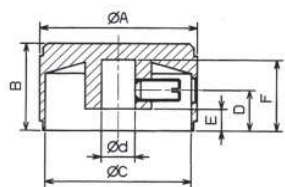
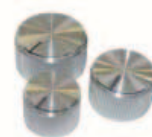


6 mm

Technical parameters		ADK20	ADK28
Description	solid aluminium, fluted sides, grub screw fixing		
Spindle Ø d	6 mm		
Knob Diameter Ø A	20mm	28mm	
Diameter Ø C	18mm	26mm	
Height (B)	14mm	16mm	
Dimensions D/E/F	7,5/3,5/12mm	7,5/4/13mm	
Colour	silver with black line black with silver line (SW)		

Part No.	Orig.part No	Ord.No
S ADK 20 M	507.611	29422
S ADK 20 MSW	507.6131	29424
S ADK 28 M	509.611	68827
S ADK 28 MSW	509.6131	68828

## MADK Series - protective finish

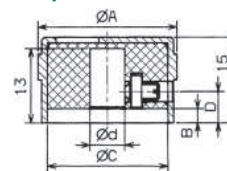
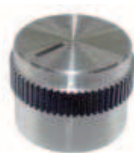


6 mm

Technical parameters		MADK20	MADK24	MADK28
Description	solid aluminium, fluted sides, grub screw fixing			
Spindle Ø d	6 mm			
Knob Diameter Ø A	20mm	24mm	28mm	
Diameter Ø C	18mm	21,5mm	26mm	
Height (B)	14mm	15mm	16mm	
Dimensions D/E/F	7,5/3,5/12mm	7,5/4/12mm	7,5/4/13mm	
Colour	silver with black line			

Part No.	Orig.part No	Ord.No
S MADK 20	5553.6612	68818
S MADK 24	5554.6612	68819
S MADK 28	5555.6612	68820

## MADK\_SR Series - protective finish



6 mm

Technical parameters		MADK20	MADK24
Description	solid aluminium, grub screw fixing		
Spindle Ø d	5,5 mm		
Knob Diameter Ø A	20mm	24mm	
Diameter Ø C	17mm	21mm	
Height	15mm		
Dimensions B/D	2,5/6mm		
Colour	silver with black line		

Part No.	Orig.part No	Ord.No
S MADK 20 SR	5616.6614	68822
S MADK 24 SR	5617.6614	68823

## Knob Set 11



11- Piece Knob Set for 6mm Spindle.  
Diameter x Height:  
10x16mm 13x17mm  
15x17mm 17x17mm  
21x17mm 23x17mm  
26x17mm 30x17mm  
32x17mm 40x17mm  
48x17mm  
KNOB SET 11 - silver  
KNOB SET 11 BK - black

6 mm

Part No.	Ord.No
S KNOB SET 11	72017
S KNOB SET 11 BK	72016

## AKK Series

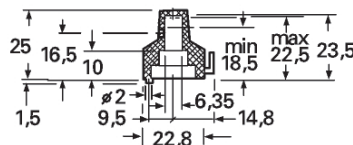


6 mm

Technical parameters		AKK20	AKKK24
Description	aluminium knob with wing		
Spindle Ø d	6 mm		
Knob Diameter Ø A	20,5mm	24,5mm	
Height	17,3mm	19mm	
Colour	silver with black line or black with silver line		

Part No.	Ord.No
S AKK 20 (silver)	70599
S AKK 20 BK (black)	70600
S AKK 24 (silver)	70601
S AKK 24 BK (black)	70602

## KNOPF 635 Series



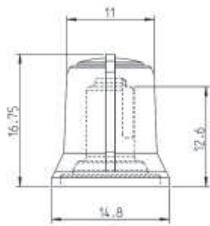
6,35 mm

Technical parameters		KNOPF 636
Description	5-turn, with locking device and bushing	
Spindle	6,35mm	
Diameter	22,8mm	
Height	25mm	
Colour	black	
Package	5 pcs	

Part No.	Ord.No
S KNOPF635	29799

## Knobs (continued)

### P300 Series



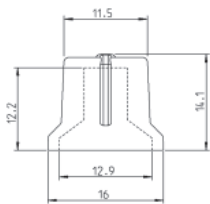
6 mm

One Piece /Three color knob in hard or soft-touch plastics with a raised solid marker line Fit on D flat or 6mm spline shafts.  
Package 1000 pcs

Part No.	Diameter	Body	Cap	Line
P300-S-028-S6	14.8mm	black	grey	red
P300-S-098-S6	14.8mm	black	grey	white

Part No.	Ord.No
S P300-S-098-S6	52986
S P300-S-028-S6	52987

### P670 Series



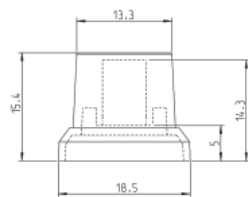
6 mm

One Piece /Low-profile, two color control knob with integral nut cover Fit on D flat or 6mm spline shafts.  
Package 1000 pcs.

Part No.	Diameter	Body	Line
P670-S-02-S6	16mm	black	red
P670-S-09-S6	16mm	black	white
P670-S-82-S6	16mm	grey	red
P670-S-89-S6	16mm	grey	white

Part No.	Ord.No
S P670-S-09-S6	4255
S P670-S-82-S6	4256
S P670-S-89-S6	4257
S P670-S-02-S6	4423

### P890 Series

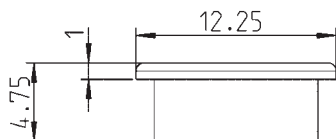


6 mm

Two Pieces /Low-profile, control knob Fit on 6mm spline shaft. Siutable Cap - see T861 Series  
Package 1000 pcs.

Part No.	Ord.No
S P890-H-0-S6	52988

### T861 Series



Slightly raised (domed) top - cap. Siutable for P890 Series.  
Package 1000 pcs.

Part No.	Diameter	Body	Line
T861-H-09	12,5mm	black	white
T861-H-29	12,5mm	red	white
T861-H-0X	12,5mm	black	-

Part No.	Ord.No
S T861-H-09	53059
S T861-H-29	53060
S T861-H-0X	53061

## Sliders

### KNOPF LK151 Series

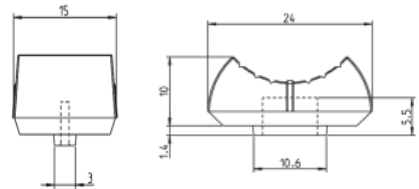


6x2 mm

Technical parameters	KNOPF LK151
Description	15mm wide, two color slider knob, plastic
For Shaft	6x2mm
Dimensions (LxWxH)	24x15x10mm
Colour	black with white line
Package	25 pcs

Part No.	Ord.No
S KNOPFLK151	29434

### S778 Series



8x1,2 mm

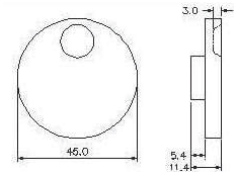
Technical parameters	S778-H-29-K	S778-H-90-K
Description	15mm wide slider knob	
For Shaft	8x1,2 mm	
Dimensions (LxWxH)	24x15x10mm	
Colour	red with white line	white with red line
Package	5 pcs	

Part No.	Ord.No
S S778-H-29-K	4418
S S778-H-90-K	4419

## Rotary Knobs for Encoders

### DK 45-114 Series

## ALPS



6 mm

Technical parameters	DK45-114
Description	6mm flatted round knob with Top Indicator, plastic ABS
For Shaft	6mm
Diameter / Height	45mm/11,5mm
Colour	black
Package	25 pcs

Part No.	Ord.No
S DK45-114	70943



## Ceramic Chip Capacitors

Temperature characteristics codes for class I ceramic capacitors.

**COG**

Temperature coefficient value

Multiplier

Temperature coefficient tolerance

PPM	Symbol	Multiplier	Symbol	PPM	Symbol
0.0	C	-1	0	±30	G
0.3	B	-10	1	±60	H
0.9	A	-100	2	±120	J
1.0	M	-1000	3	±250	K
1.5	P	-100000	4	±500	L
2.2	R	+1	5	±1000	M
3.3	S	+10	6	±2500	N
4.7	T	+100	7		
7.5	U	+1000	8		
		+10000			

Temperature characteristics codes for class II and III ceramic capacitors.

**Y5V**

Minimum limit temperature

Maximum limit temperature

Maximum capacitance change

°C	Symbol	°C	Symbol	%	Symbol
+10°C	Z	+45°C	2	±1,0%	A
-30°C	Y	+60°C	4	±1,5%	B
-55°C	X	+85°C	5	±2,2%	C
		+105°C	6	±3,3%	D
		+125°C	7	±4,7%	E
		+150°C	8	±7,5%	F
		+200°C	9	±10,0%	P
				±15,0%	R
				±22,0%	S
				+22/-33%	T
				+22/-56%	U
				+22/-82%	V

SOS electronic - distributor of

# YAGEO

**NPO**  
Ceramic Chip Capacitors

**GENERAL PURPOSE CAPACITORS**  
Size: from 0402 to 1812  
Capacitance range: from 0,47pF to 33nF  
Capacitance tolerance:  
C<10pF: 0,1pF, 0,25pF, 0,5pF  
C>10pF: ±1%, ±2%, ±5%  
Max. rated voltage:  
16Vdc up to 4000Vdc  
Operating temp. range: -55°C to +125°C

**Y5V**  
Ceramic Chip Capacitors

**GENERAL PURPOSE CAPACITORS**  
**HIGH CAPACITANCE**  
Size: from 0402 to 1210  
Capacitance range: from 10nF to 47uF  
Capacitance tolerance:  
±20%, ±20% to 80%  
Max. rated voltage:  
6,3Vdc, 50Vdc  
Operating temp. range: -25°C to +85°C

**SMD capacitor arrays**

Size :0405, 0508, 0612  
Capacitance range: from 10pF to 100nF  
Capacitance tolerance:  
NPO: ±5%, ±10%  
X7R: ±10%, ±20%  
Y5V: -20% to 80%  
Max. rated voltage:  
16Vdc up to 50Vdc

**X5R**  
Ceramic Chip Capacitors

**HIGH CAPACITANCE**  
Size: from 0402 to 1812  
Capacitance range: from 100nF to 100uF  
Capacitance tolerance:  
±10%, ±20%  
Max. rated voltage:  
6,3Vdc up to 25Vdc  
Operating temp. range: -55°C to +85°C

**X7R**  
Ceramic Chip Capacitors

**GENERAL PURPOSE CAPACITORS**  
**HIGH CAPACITANCE**  
**LOW INDUCTANCE**  
Size: from 0402 to 1812  
Capacitance range: from 100nF to 4,7uF  
Capacitance Tolerance:  
±5%, ±10%, ±20%  
Max. rated voltage:  
10Vdc up to 3000Vdc  
Operating temp. range: -55°C to +125°C

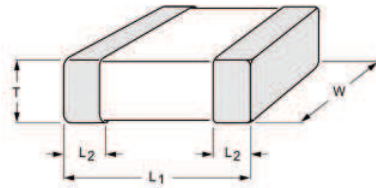
**Ultra small**  
Chip Capacitors

Size :01005, 0201  
Capacitance range: from 1pF to 100nF  
Capacitance tolerance:  
NPO: ±2%, ±5%  
X5R/X7R: ±10%, ±20%  
Y5V: -20% to 80%  
Max. rated voltage:  
6,3Vdc up to 50Vdc

## Ceramic SMD Capacitors

### 0402 Series

**YAGEO**

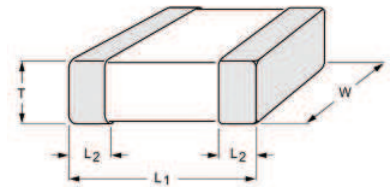


Technical parameters	K0402
Size	0402
Tolerance	±10%
Operating temp. range	-55°C to +125°C
Rated voltage	10V, 16V, 25V, 50V
Dimensions L <sub>1</sub> xWxT, L <sub>2</sub>	1x0,5x0,5mm, 0,225mm
Package	reel : 10 000 pcs
Ordering code	K0402 22pF 50V NPO

Capacitance	Dielectric	Ord.No.
<b>50V</b>		
○ 1pF	NPO	68125
○ 1,5pF	NPO	68126
○ 2,2pF	NPO	68128
○ 3,3pF	NPO	64117
○ 4,7pF	NPO	68130
○ 6,8pF	NPO	68131
○ 10pF	NPO	55345
○ 15pF	NPO	64118
○ 22pF	NPO	55340
○ 33pF	NPO	64119
○ 47pF	NPO	64120
○ 68pF	NPO	68132
○ 100pF	NPO	52339
○ 150pF	NPO	68127
○ 220pF	NPO	68129
○ 220pF	X7R	68139
○ 330pF	X7R	68140
○ 470pF	X7R	68142
○ 680pF	X7R	68144
○ 1000pF	X7R	68138
○ 1500pF	X7R	63329
○ 2200pF	X7R	62724
○ 3300pF	X7R	68141
○ 4700pF	X7R	68143
○ 6800pF	X7R	68145
○ 0,01uF	X7R	64122
<b>25V</b>		
○ 0,022uF	X7R	68137
<b>16V</b>		
○ 0,015uF	X7R	68135
○ 0,033uF	X7R	68136
○ 0,1uF	X7R	64123
○ 0,1uF	Y5V	68148
<b>10V</b>		
○ 0,047uF	X7R	68133
○ 0,068uF	X7R	68134
○ 0,22uF	Y5V	68146
○ 0,47uF	Y5V	68147

### 0603 Series

**YAGEO**



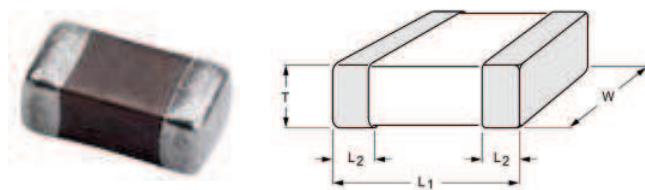
Technical parameters	K0603
Size	0603
Tolerance	±10%
Operating temp. range	-55°C to +125°C
Rated voltage	10V, 16V, 50V
Dimensions L <sub>1</sub> xWxT, L <sub>2</sub>	1,6x0,8x0,8mm, 0,35mm
Package	reel : 4000 pcs
Ordering code	K0603 22pF 50V NPO

Capacitance	Dielectric	Ord.No.
<b>50V</b>		
S 1pF	NPO	36807
S 1,5pF	NPO	41074
S 2,2pF	NPO	36811
S 3,3pF	NPO	36813
S 4,7pF	NPO	36815
S 6,8pF	NPO	41075
S 10pF	NPO	36819
S 15pF	NPO	36821
S 22pF	NPO	36823
S 33pF	NPO	36825
S 47pF	NPO	36827
S 68pF	NPO	36829
S 100pF	NPO	36831
S 150pF	NPO	36833
S 220pF	NPO	36835
S 330pF	NPO	36837
S 470pF	NPO	36839
S 680pF	NPO	46199
S 1nF	X7R	36927
S 1,5nF	X7R	36929
S 2,2nF	X7R	36931
S 3,3nF	X7R	36933
S 4,7nF	X7R	36935
S 6,8nF	X7R	36937
S 10nF	X7R	41078
S 15nF	X7R	46207
S 22nF	X7R	46209
S 100nF	X7R	56749
<b>16V</b>		
S 33nF	X7R	46201
S 47nF	X7R	46203
S 68nF	X7R	46205
S 100nF	X7R	44762
S 470nF	Y5V	46214
<b>10V</b>		
S 220nF	X7R	46200

Descriptions of the particular dielectrics are available on page A28.

## 0805 Series

# YAGEO



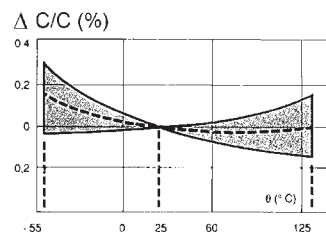
Technical parameters	K0805
Size	0805
Dimensions L <sub>1</sub> xWxT, L <sub>2</sub>	2x1,25x0,5+1,35mm, 0,4mm
Tolerance	NPO: ±5%, X7R: ±10%
Operating temperature range	-55°C to +125°C
Rated voltage	50V
Package	reel : 4000 pcs
Ordering code	K0805 22pF 50V NPO

Capacitance	Dielectric	Ord.No.
<b>50V</b>		
S 1pF	NPO	36840
S 1,2pF	NPO	36841
S 1,5pF	NPO	36842
S 1,8pF	NPO	36843
S 2,2pF	NPO	36844
S 2,7pF	NPO	36845
S 3,3pF	NPO	36846
S 3,9pF	NPO	36847
S 4,7pF	NPO	36848
S 5,6pF	NPO	36849
S 6,8pF	NPO	36850
S 8,2pF	NPO	36851
S 10pF	NPO	36852
S 12pF	NPO	36853
S 15pF	NPO	36854
S 18pF	NPO	36855
S 22pF	NPO	36856
S 27pF	NPO	36857
S 33pF	NPO	36858
S 39pF	NPO	36859
S 47pF	NPO	36860
S 56pF	NPO	36861
S 68pF	NPO	36862
S 82pF	NPO	36863
S 100pF	NPO	36864
S 120pF	NPO	36865
S 150pF	NPO	36866
S 180pF	NPO	36867
S 220pF	NPO	36868
S 270pF	NPO	36869
S 330pF	NPO	36870
S 390pF	NPO	36871
S 470pF	NPO	36872
S 560pF	NPO	36873
S 680pF	NPO	36874
S 820pF	NPO	36875
S 1nF	X7R	36945
S 1,2nF	X7R	36946
S 1,5nF	X7R	36947
S 2,2nF	X7R	36949
O 2,7nF	X7R	36950
S 3,3nF	X7R	36951
O 3,9nF	X7R	36952
S 4,7nF	X7R	36953
S 6,8nF	X7R	36955
S 10nF	X7R	36957
S 15nF	X7R	36959
S 22nF	X7R	36961

S 33nF	X7R	36963
S 47nF	X7R	36965
S 68nF	X7R	41010
S 100nF	X7R	40466

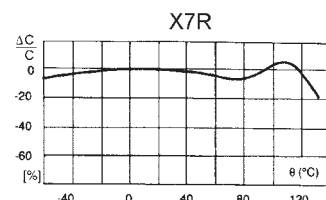
### NPO (COG)

Suitable for HF devices, oscillating circuits, filters, timing circuits and fast rise time circuits.  
Features: temperature stability, high insulation resistance, low insertion loss.



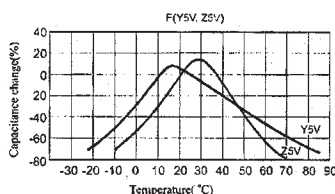
### X7R

Suitable for applications requiring stable electrical properties. These chips are designed for surface mount application with nickel barrier terminations suitable for solder wave, vapor phase or reflow solder board attachment. They are used as decoupling, bypass, filtering.  
Features: high volume capacitance, nonlinear capacitance change, high insulation resistance



### Y5V

Y5V dielectric offers the highest volumetric efficiency. Applications would include bypass and decoupling circuits where temperature dependence is not of major importance.

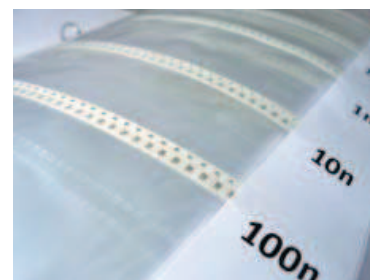


### CAPACITANCE CONVERSION TABLE

0,000 001 μF	=	0,001 nF	=	1 pF
0,000 01 μF	=	0,01 nF	=	10 pF
0,000 1 μF	=	0,1 nF	=	100 pF
0,001 μF	=	1 nF	=	1 000 pF
0,01 μF	=	10 nF	=	10 000 pF
0,1 μF	=	100 nF	=	100 000 pF
1 μF	=	1 000 nF	=	1 000 000 pF
10 μF	=	10 000 nF	=	10 000 000 pF
100 μF	=	100 000 nF	=	100 000 000 pF

We supply SMD capacitor kits for designing purposes.  
If you are interested, do not hesitate to contact us.

### SMD SET K0805



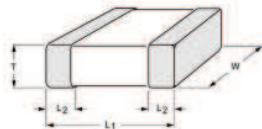
Set of 49 most common SMD capacitors 0805 size at 50 pcs each:  
1pF up to 820pF - E12 NPO  
1nF up to 100nF - E6 X7R  
All the capacitors are reel packed.

Part No.	Ord.No.	Description
S SMD SET K0805	51165	MLCC Designer Kit K0805

## Ceramic SMD Capacitors

(continued)

### 1206 Series



# YAGEO

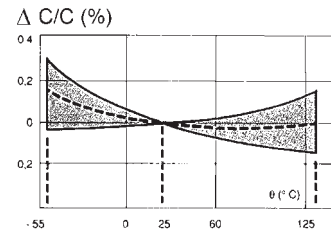
Technical parameters	K1206
Size	1206
Tolerance	NPO: ±5% , X7R: ±10%
Operating temp. range	-55°C to +125°C
Rated voltage	50V
Dimensions L <sub>1</sub> xWxT, L <sub>2</sub>	3,20x1,60x0,5±1,25mm, 0,4mm
Package	reel : 4000 pcs
Ordering code	K1206 22pF 50V NPO

Capacitance	Ord.No.	Dielectric
<b>50V</b>		
S 1pF	36877	NPO
S 1,5pF	36879	NPO
S 1,8pF	36880	NPO
S 2,2pF	36881	NPO
S 2,7pF	36882	NPO
S 3,3pF	36883	NPO
S 3,9pF	31544	NPO
S 4,7pF	36884	NPO
S 5,6pF	36885	NPO
S 6,8pF	36886	NPO
S 8,2pF	36887	NPO
S 10pF	36888	NPO
S 12pF	36889	NPO
S 15pF	36890	NPO
S 18pF	36891	NPO
S 22pF	36892	NPO
S 27pF	36893	NPO
S 33pF	36894	NPO
S 39pF	36895	NPO
S 47pF	36896	NPO
S 56pF	36897	NPO
S 68pF	36898	NPO
S 82pF	36899	NPO
S 100pF	36900	NPO
S 120pF	36901	NPO
S 150pF	36902	NPO
S 180pF	36903	NPO
S 220pF	36904	NPO
S 270pF	36905	NPO
S 330pF	36906	NPO
S 390pF	36907	NPO
S 470pF	36908	NPO
S 560pF	36909	NPO
S 680pF	36910	NPO
S 820pF	36911	NPO
S 1nF	36972	X7R
O 1,2nF	36973	X7R
S 1,5nF	36974	X7R
S 1,8nF	36975	X7R
S 2,2nF	36976	X7R
S 3,3nF	36978	X7R
O 3,9nF	36979	X7R
S 4,7nF	36980	X7R
S 6,8nF	36982	X7R
S 10nF	36984	X7R
S 15nF	36986	X7R
S 22nF	36988	X7R
S 33nF	36990	X7R
S 47nF	36992	X7R

S 68nF	36994	X7R
S 100nF	36996	X7R
S 220nF	37009	Y5V
S 470nF	40719	Y5V
S 680nF	53950	Y5V
S 1uF	36797	Y5V
S 1uF (16V)	41312	X7R
S 2,2uF(10V)	46009	X7R

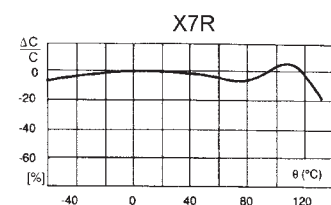
### NPO (COG)

**Class I capacitors:** Temperature compensating capacitors, suitable for resonant circuit application or other applications where high Q and stability of capacitance characteristics are required. Class I capacitors have predictable temperature coefficients and are not effected by voltage, frequency or time. They are made from materials which are not ferro-electric, yielding superior stability but low volumetric efficiency. Class I capacitors are the most stable type available, but have the lowest volumetric efficiency.



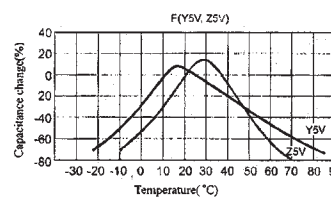
### X7R

**Class II capacitors:** Stable capacitors, suitable for bypass or coupling applications or frequency discriminating circuits where Q and stability of capacitance characteristics are not of major importance. Class II capacitors have temperature characteristics of ± 15% or less. They are made from materials which are ferro-electric, yielding higher volumetric efficiency but less stability. Class II capacitors are affected by temperature, voltage, frequency and time.



### Y5V

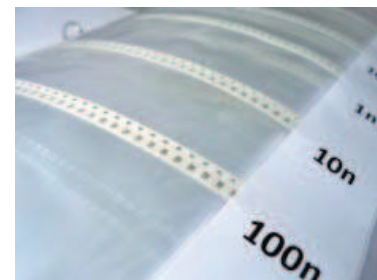
**Class III capacitors:** General purpose capacitors, suitable for by-pass coupling or other applications in which dielectric losses, high insulation resistance and stability of capacitance characteristics are of little or no importance. Class III capacitors are similar to Class II capacitors except for temperature characteristics, which are greater than ± 15%. Class III capacitors have the highest volumetric efficiency and poorest stability of any type.



### CAPACITANCE CONVERSION TABLE

0,000 001 μF	=	0,001 nF	=	1 pF
0,000 01 μF	=	0,01 nF	=	10 pF
0,000 1 μF	=	0,1 nF	=	100 pF
0,001 μF	=	1 nF	=	1 000 pF
0,01 μF	=	10 nF	=	10 000 pF
0,1 μF	=	100 nF	=	100 000 pF
1 μF	=	1 000 nF	=	1 000 000 pF
10 μF	=	10 000 nF	=	10 000 000 pF
100 μF	=	100 000 nF	=	100 000 000 pF

### SMD SET K1206



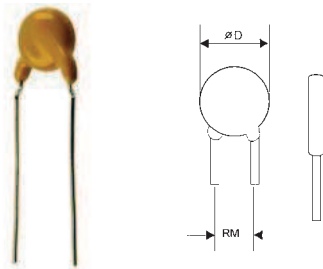
Set of 49 most common SMD capacitors 1206 size at 50 pcs each:  
 1pF up to 820pF - E12 NPO  
 1nF up to 100nF - E6 X7R  
 All the capacitors are reel packed.

Part No.	Ord.No.	Description
S SMD SET K1206	51166	MLCC Designer Kit K1206

## Ceramic Capacitors Leaded 2,54mm

### CDC Series

ECONOMIC



Technical parameters	CDC
Pitch	2,54mm
Lead length	17 up to 20 mm
Rated voltage	50V
Tolerance:	
1pF-4,7pF	$\pm 0,5pF$
10pF-47pF	$\pm 5\%$
100pF-4700pF	$\pm 10\%$
Package	1000 pcs bulk
Ordering code	CDC 1pF NPO

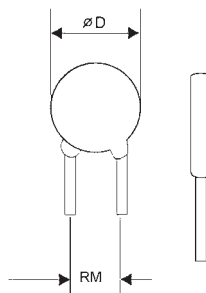
Capacitance	Ord.No.	Dielectric
S 1pF	43519	NPO
S 1,2pF	47681	NPO
S 1,5pF	43520	NPO
S 2,2pF	43521	NPO
S 2,7pF	47682	NPO
S 3,3pF	46661	NPO
S 3,9pF	48691	NPO
S 4,7pF	43522	NPO
S 5,6pF	48692	NPO
S 6,8pF	46662	NPO
S 8,2pF	47683	NPO
S 10pF	43523	NPO
S 12pF	53798	NPO
S 22pF	43524	NPO
S 27pF	53800	NPO
S 47pF	43525	NPO
S 82pF	48693	NPO
S 100pF	43526	Y5E
S 120pF	53799	NPO
S 150pF	48694	NPO
S 220pF	43527	Y5E
S 470pF	43528	Y5E
S 1000pF	43529	Y5P
S 2200pF	43530	Y5P
S 4700pF	43531	Y5P

For the latest information visit  
[www.soselectronic.com](http://www.soselectronic.com).

## Ceramic Chip Capacitors Leaded 5,08mm

### CDC5 Series

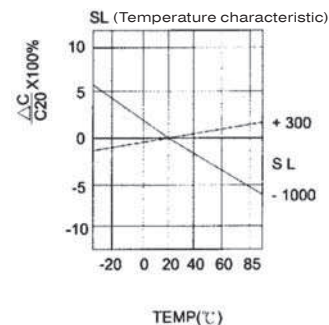
ECONOMIC



500V

Technical parameters	CDC5
Pitch	5,08 mm
Rated voltage	500 V
Tolerance	$\pm 20\%$
Packaging	1000 pcs
Ordering code	CDC5 1pF NPO

Capacitance	Ord.No.	Dielectric
S 1pF	56200	P100
S 1,5pF	56201	P100
S 2,2pF	56202	NPO
S 3,3pF	56203	NPO
S 4,7pF	56204	NPO
S 6,8pF	56205	NPO
S 10pF	56206	NPO
S 15pF	56207	NPO
S 22pF	56208	NPO
S 33pF	56209	SL
S 47pF	56210	SL
S 68pF	56211	SL
S 100pF	56213	SL
S 150pF	56214	Y5P
S 220pF	56215	Y5P
S 330pF	56216	Y5P
S 470pF	56217	Y5P
S 680pF	56218	Y5P
S 1000pF	56219	Y5P



More information  
needed?

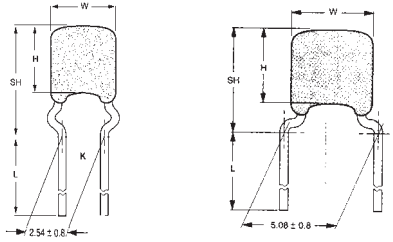
**S03**  
electronic  
europe

**electroniconline**

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## Multilayer Ledged Ceramic Capacitors

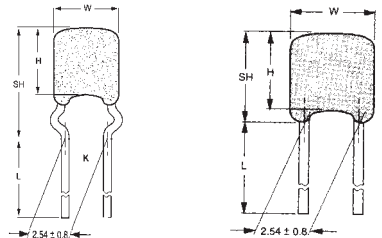
### KDPU Series



Technical parameters	KDPU
Rated voltage (DC)	50V
Tolerance	±20%
Insulation Resistance	100GΩ
Dissipation Factor	<4%
Operating temperature range	Y5V: -30°C ... +85°C Z5U: +10°C ... +85°C
Packaging	1000 pcs
Ordering code	KDPU Y5V RM5 0,22uF

Capacitance	Dielectric	Size	Ord.No.
<b>RM=2,54mm</b>			
S 10nF	Y5V	15	19862
S 15nF	Y5V	15	25038
S 22nF	Y5V	15	19863
S 33nF	Y5V	15	25039
S 47nF	Y5V	15	19864
S 68nF	Y5V	15	25040
S 100nF	Y5V	15	33068
S 100nF	X7R	15	19859
S 220nF	Y5V	15	19866
<b>RM=5,08mm</b>			
S 10nF	Y5V	15	19867
S 15nF	Y5V	15	25035
S 22nF	Y5V	15	19868
S 33nF	Y5V	15	25036
S 47nF	Y5V	15	19869
S 68nF	Y5V	15	25037
S 100nF	Y5V	15	33069
S 100nF	X7R	20	25034
S 220nF	Y5V	15	19871
S 470nF	Y5V	20	19872
S 1uF	Z5U	30	19873

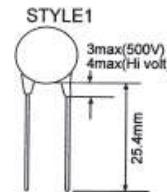
### KERKO Series



Technical parameters	KERKO
Dielectric type	Y5V
Rated voltage (DC)	50V
Tolerance	± 20%
Operating temperature range	-30°C ... +85°C
Packaging	1000 pcs
Ordering code	KERKO 0,22uF Y5V RM2,5

Capacitance	Dielectric	Ord.No.
<b>RM=2,54mm</b>		
S 10nF	Y5V	43901
S 15nF	Y5V	46650
S 22nF	Y5V	46651
S 33nF	Y5V	49023
S 47nF	Y5V	46652
S 68nF	Y5V	46653
S 100nF	Y5V	43900
S 220nF	Y5V	46654
<b>RM=5,08mm</b>		
S 10nF	Y5V	43898
S 22nF	Y5V	46655
S 33nF	Y5V	46656
S 47nF	Y5V	46657
S 68nF	Y5V	46658
S 100nF	Y5V	43899
S 220nF	Y5V	46659
S 470nF	Y5V	46660

## High Voltage Ledged Ceramic Capacitors



Technical parameters	DISC 3000
Rated voltage	3000V DC
Dielectric	Z5U
Operating temperature range	-30 ... +85°C
Packaging	1000 pcs
Ordering code	DISC 3000 100pF

Capacitance	RM	Toler.	Ord.No.
O 100pF	5	±10%	45289
O 150pF	5	±10%	44574
O 220pF	5	±10%	45413
O 270pF	5	±10%	45414
O 330pF	5	±10%	44980
O 470pF	7,5	±10%	45288
O 680pF	7,5	±10%	45415
O 1000pF	7,5	±20%	43845
O 1200pF	7,5	±20%	45416
S 1500pF	7,5	±20%	45417
O 3300pF	7,5	±20%	45419
O 4700pF	9,5	±20%	32390
S 0,01uF	9,5	±20%	42813



capacitors



**SMD Capacitors**

Size codes 1812-6054 and capacitance values from 0.01  $\mu\text{F}$  through 6.8  $\mu\text{F}$  with PET, PEN and PPS dielectric.



**SNUBBER Capacitors**

Developed for high-power converter technology, WIMA Polypropylene snubber capacitors are available in manifold connecting configurations.



**SUBMINIATURE Capacitors in PCM 2.5 mm**

WIMA subminiature capacitors are available in metallized or film/foil version with capacitances up to 1.0  $\mu\text{F}$ .



**GTO Capacitors**

WIMA Polypropylene GTO capacitors are especially designed to attenuate voltage spikes on GTO-Thyristors and IGBT.



**Capacitors in PCM 5 mm**

With capacitances up to 22  $\mu\text{F}$  and voltage ranges up to 1000 VDC the WIMA capacitors in PCM 5 mm covers a wide field of applications.



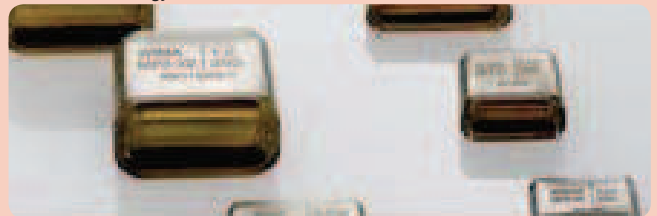
**DC-LINK Capacitors**

Intermediate circuit capacitors in manifold connecting configurations with capacitances up to 4500  $\mu\text{F}$  and voltage ranges up to 1600 VDC for applications in high-power converter technology.



**FILM/FOIL Capacitors in PCM 7.5 - 15 mm**

Polyester, Polypropylene and Mixed Dielectric capacitors for pulse applications with capacitances up to 0.22  $\mu\text{F}$  and voltage ranges up to 1000 VDC.



**RFI Capacitors**

Interference suppression capacitors with Polypropylene or Metallized Paper dielectric classes X2, X1 or Y2.



**METALLIZED Capacitors in PCM 7,5 mm to 37,5mm**

Self-healing Polyester, Polypropylene and Mixed Dielectric capacitors up to 220  $\mu\text{F}$  with voltage ranges up to 2000 VDC



**SUPER CAP**

Double-layer storage capacitors with highest capacitance values in the Farad range suitable for support, protection or replacement of batteries in traction systems.



**PULSE Capacitors**

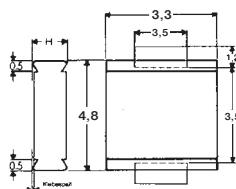
Designed for extremely high pulse loads this reliable, self-healing Polypropylene capacitors are available with voltage ranges up to 6000 VDC.

## Foil SMD Capacitors



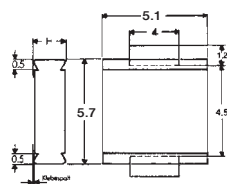
Technical parameters	FS
Dielectric	polyester film
Capacitance	0,01uF up to 6,8uF
Rated voltage	63V <sub>dc</sub> 100V <sub>dc</sub> 250V <sub>dc</sub> 400V <sub>dc</sub> 630V <sub>dc</sub> 1000V <sub>dc</sub>
Tolerance	±20%, ±10%
Operating temp. range	-55...+100°C
Test voltage	1,6Ur, 2s
Operational life	> 300 000 hours
Features	self-healing
Applications	DC-applications, by-pass, coupling, decoupling
Packaging	reel: 3000 pcs
Ordering code	FS 1uF 63V 2824

## FS 1812 Series



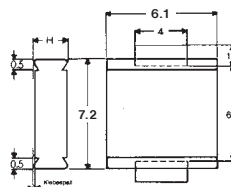
Capacitance	Dimensions	Ord.No.
<b>63V</b>		
0,01uF	4,8x3,3x3mm	51057
0,015uF	4,8x3,3x3mm	68392
0,022uF	4,8x3,3x3mm	68393
0,033uF	4,8x3,3x3mm	68394
0,047uF	4,8x3,3x3mm	68395
0,068uF	4,8x3,3x3mm	68396
0,1uF	4,8x3,3x3mm	68397
0,15uF	4,8x3,3x3mm	68398
0,22uF	4,8x3,3x3mm	68399
0,33uF	4,8x3,3x3mm	68400
0,47uF	4,8x3,3x3mm	68401

## FS 2220 Series



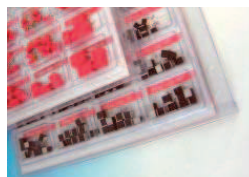
Capacitance	Dimensions	Ord.No.
<b>63V</b>		
1uF	5,7x5,1x4,5mm	51058
<b>100V</b>		
0,01uF	5,7x5,1x3,5mm	68402
0,015uF	5,7x5,1x2,5mm	68403
0,015uF	5,7x5,1x3,5mm	68516
0,022uF	5,7x5,1x3,5mm	58131
0,033uF	5,7x5,1x3,5mm	68404
0,047uF	5,7x5,1x3,5mm	58132
0,068uF	5,7x5,1x3,5mm	68405
0,1uF	5,7x5,1x3,5mm	58133
0,15uF	5,7x5,1x3,5mm	68406
0,22uF	5,7x5,1x3,5mm	68407
0,47uF	5,7x5,1x3,5mm	68408

## FS 2824 Series



Capacitance	Dimensions	Ord.No.
<b>63V</b>		
0,1uF	7,2x6,1x3mm	68422
0,15uF	7,2x6,1x3mm	68423
0,22uF	7,2x6,1x3mm	68424
0,33uF	7,2x6,1x3mm	40128
0,47uF	7,2x6,1x3mm	68425
1uF	7,2x6,1x3mm	68426
1,5uF	7,2x6,1x5mm	68427
2,2uF	7,2x6,1x5mm	68428
<b>100V</b>		
0,015uF	7,2x6,1x2mm	68409
0,015uF	7,2x6,1x3mm	68515
0,022uF	7,2x6,1x2mm	68410
0,022uF	7,2x6,1x3mm	68411
0,033uF	7,2x6,1x3mm	68412
0,047uF	7,2x6,1x2mm	68413
0,047uF	7,2x6,1x3mm	68414
0,068uF	7,2x6,1x3mm	68415
0,1uF	7,2x6,1x3mm	68416
0,15uF	7,2x6,1x3mm	68417
0,22uF	7,2x6,1x3mm	68418
0,47uF	7,2x6,1x5mm	68419
0,68uF	7,2x6,1x5mm	68420
1uF	7,2x6,1x5mm	68421

## SMD Set - WIMA



Wima set of foil SMD capacitors with capacitance from 0,01uF to 6,8uF (voltage from 63VDC to 1000VDC) and size codes 1812, 2220, 2824, 4030, 5040 and 6054

Part No.	Ord.No.	Description
0 SMD1812/2220/2824	70342	set 16x10 pcs
0 SMD4030/5040/6054	70343	set 15x5 + 2x3 pcs

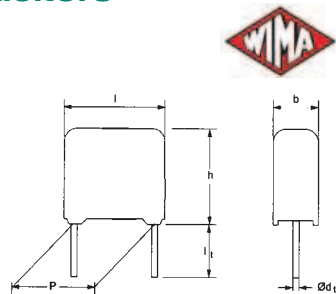
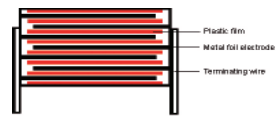
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## Foil Leaded Capacitors

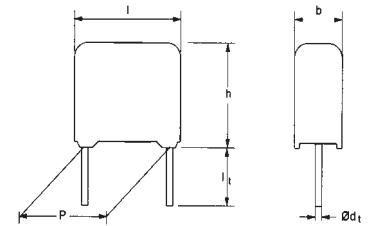
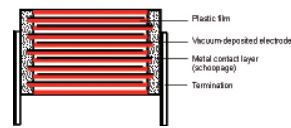
### FKS Series



Technical parameters	FKS2	FKS3
Dielectric	polyester	
Capacitance	1000 pF up to 0,015 µF	
Pitch	5mm	10mm
Max. operating voltage	100V <sub>dc</sub> /63V <sub>ac</sub> , 400V <sub>dc</sub> /200V <sub>ac</sub>	400V <sub>dc</sub> /250V <sub>ac</sub>
Tolerance	± 20%	
Operating temp. range	-55...+100°C	
Test voltage	2Ur, 2s	
Operational life	> 300 000 hours	
Features	Construction resistant to pulse loads	
Applications	DC-applications - coupling, decoupling	
Packaging	1000 pcs	
Ordering code	FKS2 100pF/100V	

Capacitance	Dimensions	Ord.No.
<b>FKS2: 100V</b>		
b x h x l		
S 1000pF	2,5x6,5x7,2mm	14324
S 1500pF	2,5x6,5x7,2mm	14325
S 2200pF	2,5x6,5x7,2mm	14326
S 3300pF	2,5x6,5x7,2mm	14327
S 4700pF	2,5x6,5x7,2mm	14328
S 6800pF	3,0x7,5x7,2mm	14329
<b>FKS2: 400V</b>		
S 1000pF	2,5x6,5x7,2mm	27052
S 1500pF	2,5x6,5x7,2mm	27053
S 2200pF	2,5x6,5x7,2mm	27054
S 3300pF	2,5x6,5x7,2mm	27055
S 4700pF	2,5x6,5x7,2mm	27056
S 6800pF	3,0x7,5x7,2mm	27057
<b>FKS3: 400V</b>		
S 6800pF	3,0x9,0x13mm	14682

### MKS4 Series



Technical parameters	MKS4
Dielectric	
Capacitance	1000 pF up to 220 µF
Rated voltage	63V <sub>dc</sub> , 250V <sub>dc</sub> , 400V <sub>dc</sub> , 1000V <sub>dc</sub>
Tolerance	± 10%
Operating temp. range	-55...+100°C
Test voltage	1,6Ur, 2s
Operational life	> 300 000 hours
Features	self-healing
Applications	By-pass, blocking coupling and decoupling, timing
Packaging	500 pcs
Ordering code	MKS4 2,2µF/250V

Capacitance	P	Dimensions	Ord.No.
<b>63V</b>			
b x h x l			
S 0,47µF	7,5	4x9x10mm	18632
S 1µF	10	4x9x13mm	14361
S 2,2µF	15	6x12,5x18mm	14364
S 4,7µF	15	7x14x18mm	41044
S 10µF	20,5	11x21x31,5mm	20398
<b>250V</b>			
S 0,01µF	7,5	2,5x7x10mm	25399
S 0,022µF	7,5	2,5x7x10mm	25401
S 0,047µF	7,5	3x8,5x10mm	25403
S 0,1µF	7,5	4x9x10mm	25405
S 0,22µF	7,5	5x10,5x10,3mm	14472
S 2,2µF	27,5	9x19x31,5mm	14491
S 3,3µF	27,5	11x21x31,5mm	14495
<b>400V</b>			
S 0,022µF	10	4x9x13mm	65366
<b>630V</b>			
S 0,01µF	7,5	3x8,5x10mm	14565
S 0,022µF	7,5	3x8,5x10mm	14572
S 0,047µF	7,5	5,7x12,5x10,3mm	14578
S 0,1µF	15	6x12,5x18mm	40576
S 0,22µF	15	8x15x18mm	63111
S 0,47µF	22,5	10,5x19x26,5mm	40579
S 1µF	27,5	11x21x31,5mm	63112
<b>1000V</b>			
S 0,1µF	22,5	7x16x26,5mm	14606

### MKS2 Set- WIMA

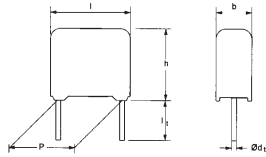


Wima set of foil capacitors MKS02, MKS2 and MKS2-XL in PCM 2,5mm and 5mm. Capacitance range from 1000pF to 22µF

Part No.	Ord.No.	Description
O WIMA MKS02/MKS2/MKS2XL	70344	set of 131 pcs

## Foil Ledged Capacitors for Pulse Applications

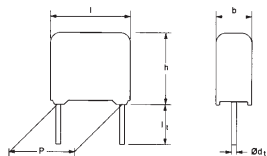
### MKP Series



Technical parameters	MKP10
<b>Dielectric</b>	polypropylene (PP) film
<b>Capacitance</b>	1000 pF up to 15 uF
<b>Rated voltage</b>	400V <sub>dc</sub> , 630V <sub>dc</sub> , 1600V <sub>dc</sub>
<b>Tolerance</b>	± 10%
<b>Operating temp. range</b>	-55...+100°C
<b>Test voltage</b>	1,6Ur, 2s
<b>Operational life</b>	> 300 000 hours
<b>Features</b>	Pulse duty construction, self-healing, very low dissipation factor, negative capacitance change versus temperature
<b>Applications</b>	pulse applications e.g. switch mode power supplies, TV and monitor sets, lighting, Audio/video equipment
<b>Packaging</b>	300 pcs
<b>Ordering code</b>	MKP101600V, 0,01u RM 15

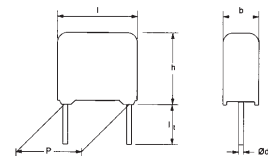
Capacitance P	Dimensions	Ord.No.
<b>400V</b>		
S 0,01uF 7,5	4x9x10mm	55017
S 0,022uF 10	4x9x13mm	14796
S 0,1uF 15	7x14x18mm	14808
S 0,22uF 22,5	7x16,5x26,5mm	14821
S 1uF 27,5	13x24x31,5mm	14832
<b>630V</b>		
S 0,01uF 10	4x9x13mm	51908
S 0,1uF 22,5	7x16,5x26,5mm	50333
S 0,22uF 22,5	8,5x18,5x26,5mm	14860
S 0,47uF 27,5	11x21x31,5mm	63106
S 1uF 27,5	17x29x31,5mm	62644
S 2,2uF 37,5	20x39,5x41,5mm	63105
<b>1600V</b>		
S 1000pF 10	4x9x13mm	63101
S 2200pF 10	4x9x13mm	27121
S 3300pF 10	4x9x13mm	63102
S 0,01uF 15	5x11x18mm	63099
S 0,1uF 22,5	11x21x26mm	54748
S 0,22uF 27,5	15x26x31,5mm	27129
S 1uF 37,5	24x45,5x41,5mm	26410

### FKM Series



Technical parameters	FKM
<b>Dielectric</b>	Mixed film (polyester - polypropylene)
<b>Capacitance</b>	1000 pF up to 6800pF
<b>Rated voltage</b>	63V <sub>dc</sub> , 100V <sub>dc</sub> , 250V <sub>dc</sub> , 400V <sub>dc</sub>
<b>Tolerance</b>	±20%, ±10%, ±5%
<b>Pitch</b>	FKM02 = 2,5mm, FKM2 = 5mm, FKM3=7,5 up to 15mm
<b>Operating temp. range</b>	-55...+100°C
<b>Test voltage</b>	2Ur, 2s
<b>Operational life</b>	> 300 000 hours
<b>Features</b>	Pulse duty construction, PCM 2,5 mm, constant capacitance value versus temperature (similar to the obsolete Polycarbonate), low dissipation factor
<b>Applications</b>	DC-applications requiring a high capacitance stability versus temperature e.g. automotive electronics, lighting

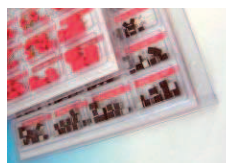
### FKP Series



Technical parameters	FKP1
<b>Dielectric</b>	polypropylene (PP) film
<b>Capacitance</b>	100 pF up to 0.22 uF
<b>Rated voltage</b>	1250V <sub>dc</sub> , 1600V <sub>dc</sub> , 2000V <sub>dc</sub>
<b>Tolerance</b>	±5%
<b>Operating temp. range</b>	-55...+100°C
<b>Test voltage</b>	2Ur, 2s
<b>Operational life</b>	> 300 000 hours
<b>Features</b>	extremely high pulse duty, self-healing, internal series connection, very low dissipation factor, negative capacitance change versus temperature
<b>Applications</b>	For high pulse and high frequency applications e.g. switch mode power supplies, converter in drives and power electronics, deflection systems in monitors and TV-sets, electronic ballasts
<b>Packaging</b>	200 pcs
<b>Ordering code</b>	FKP1 1250V 0,01uF

Capacitance P	Dimensions	Ord.No.
<b>1250V</b>		
S 4700pF 15	7x14x18	15030
S 0,01uF 22,5	7x16,5x26,5	15037
S 0,022uF 22,5	10,5x20,5x26,5	15042
S 0,047uF 27,5	13x24x31,5	15048
S 0,1uF 37,5	15x26x41,5	15061
S 0,22uF 37,5	19x32x41,5	15072
<b>1600V</b>		
S 220pF 15	5x11x18	25466
S 470pF 15	5x11x18	18285
S 1000pF 15	6x12,5x18	26720
S 2200pF 22,5	5x14x26,5	15083
S 4700pF 22,5	7x16,5x26,5	15090
S 0,01uF 22,5	10,5x20,5x26,5	15096
S 0,022uF 27,5	11x21x31,5	15110
S 0,047uF 37,5	13x24x41,5	25470
S 0,1uF 37,5	17x29x41,5	25472
<b>2000V</b>		
S 100pF 15	5x11x18	25473
S 220pF 15	5x11x18	25475
S 470pF 15	6x12,5x18	25477
S 1000pF 15	7x14x18	63098
S 2200pF 22,5	7x16,5x26,5	15120
S 4700pF 22,5	8,5x18,5x26,5	26766
S 0,01uF 27,5	11x21x31,5	15137
S 0,022uF 27,5	15x26x31,5	25480
S 0,047uF 37,5	17x29x41,5	25482

### FKP Set- WIMA

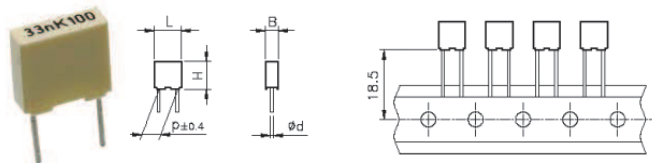


Wima set of foil capacitors FKP02 and FKP2 in PCM 2,5mm and 5mm. Capacitance range from 100pF to 0,033uF

Part No.	Ord.No.	Description
0 WIMA FKP2/FKP02L	70345	set 115 pcs

## Foil Ledged Capacitors

### R82 Series

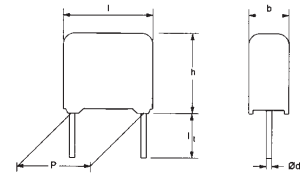


ARCOTRONICS

Technical parameters	R82
Dielectric	polyester film
Tolerance	5%
Pitch	5 mm
Rated voltage	63V <sub>dc</sub> /40V <sub>ac</sub> , 100V <sub>dc</sub> /63V <sub>ac</sub> , 250V <sub>dc</sub> /160V <sub>ac</sub> , 400V <sub>dc</sub> /200V <sub>ac</sub>
Test voltage	1,4 x Un
Operating temp. range	-55...+105°C
Dissipation Factor	<0,008 (1kHz)
Insulation Resistance	15GΩ
Features	low self inductance
Packaging	ammopack: A:3500 pcs C:1900 pcs B:2500 pcs.....D:1700 pcs E:1400 pcs
Ordering code	R82 1uF 100V

Capacitance	BxHxL [mm]	Ord.No.
<b>63V</b>		
S 100nF	2,5x6,5x7,2 A	49353
S 150nF	2,5x6,5x7,2 A	49354
S 220nF	2,5x6,5x7,2 A	49355
S 330nF	3,5x7,5x7,2 B	49356
S 470nF	3,5x7,5x7,2 B	49357
S 680nF	4,5x9,5x7,2 C	49358
S 1uF	5x10x7,5 D	49359
<b>100V</b>		
S 1nF	2,5x6,5x7,2 A	49331
S 1,5nF	2,5x6,5x7,2 A	49334
S 2,2nF	2,5x6,5x7,2 A	49335
S 3,3nF	2,5x6,5x7,2 A	49336
S 4,7nF	2,5x6,5x7,2 A	49337
S 6,8nF	2,5x6,5x7,2 A	49339
S 10nF	2,5x6,5x7,2 A	49340
S 15nF	2,5x6,5x7,2 A	49341
S 22nF	2,5x6,5x7,2 A	49342
S 33nF	2,5x6,5x7,2 A	49343
S 47nF	2,5x6,5x7,2 A	49344
S 68nF	2,5x6,5x7,2 A	49345
S 100nF	2,5x6,5x7,2 A	49346
S 150nF	3,5x7,5x7,2 B	49347
S 220nF	3,5x7,5x7,2 B	49348
S 330nF	4,5x9,5x7,2 C	49349
S 470nF	4,5x9,5x7,2 C	49350
S 1uF	6x11x7,2 E	49351
<b>250V</b>		
S 10nF	2,5x6,5x7,2 A	50345
S 15nF	2,5x6,5x7,2 A	49360
S 33nF	3,5x6,5x7,2 B	49361
S 100nF	6x11x7,2 E	49363
<b>400V</b>		
S 1nF	2,5x6,5x7,2 A	49364
S 1,5nF	2,5x6,5x7,2 A	49365
S 10nF	3,5x6,5x7,2 B	49366
S 15nF	4,5x9,5x7,2 C	49367
S 22nF	4,5x9,5x7,2 C	49368
S 33nF	5x10x7,2 D	49369

### MKT Series



ARCOTRONICS

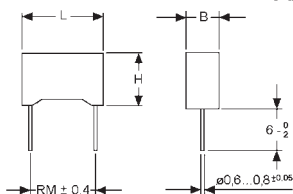
Technical parameters	MKT37x
Dielectric	polyester film
Tolerance	10%
Rated voltage	63V <sub>dc</sub> /40V <sub>ac</sub> , 100V <sub>dc</sub> /63V <sub>ac</sub> , 250V <sub>dc</sub> /160V <sub>ac</sub> , 400V <sub>dc</sub> /200V <sub>ac</sub>
Test voltage	1,6 x Un
Operating temp. range	-55...+100°C
Dissipation Factor	<0,01
Insulation Resistance	15GΩ
Features	low self inductance, self-healing
Pulse rise time:	
63V	18V/us
100V	36V/us
250V	70V/us
400V	190V/us
Ordering code	MKT 1uF 250V RM22,5

Capacitance P	Dimensions	Ord.No.
<b>63V</b>		
O 0,33uF	7,5 4x9x10	23723
<b>100V</b>		
S 0,1uF	5 3,5x8x7,2	40538
S 0,22uF	10 4x9x12,5	28639
S 0,47uF	15 5x11x17,5	28641
S 4,7uF	22,5 10x19,5x26	40545
<b>250V</b>		
S 0,01uF	7,5 2,5x6,5x10	23733
S 0,033uF	7,5 3x8x10	23736
S 0,33uF	15 6x12x17,5	28654
S 0,47uF	15 6x12x17,5	40547
S 0,68uF	15 7x13,5x17,5	40548
S 1uF	22,5 7x17x26	28657
<b>400V</b>		
S 0,01uF	10 4x9x12,5	28660
S 0,22uF	15 7x13,5x18	40552
S 0,47uF	22,5 9x18x26	28670

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## R60 Series

ARCOTRONICS

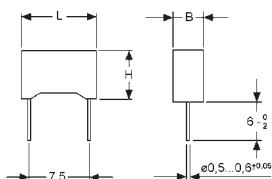


Technical parameters		R60
Dielectric		polyester film
Tolerance		10%
Rated voltage		100V <sub>dc</sub> /63V <sub>ac</sub> , 250V <sub>dc</sub> /160V <sub>ac</sub> , 400V <sub>dc</sub> /200V <sub>ac</sub>
Test voltage		1,6 x Un
Operating temp. range		-55...+105°C
Dissipation Factor		<0,01 (1kHz)
Insulation Resistance		>30GΩ
Features		self-healing
Ordering code		R60 1uF 100V

Capacitance P	Dimensions BxHxL	Ord.No.
<b>100V</b>		
S 1uF	15 5x11x18	49384
S 2,2uF	15 8,5x14,5x18	49383
S 10uF	27,5 11x20x32	47127
<b>250V</b>		
S 0,1uF	10 4x9x13	49388
S 1uF	15 8,5x14,5x18	49389
<b>400V</b>		
S 0,1uF	15 5x11x18	49390
S 1uF	27,5 9x17x32	49391

## R66 Series

ARCOTRONICS



7,5 mm

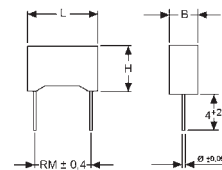
Technical parameters		R66
Dielectric		polyester film
Tolerance		10%
Rated voltage		63V <sub>dc</sub> /40V <sub>ac</sub> , 100V <sub>dc</sub> /63V <sub>ac</sub> , 250V <sub>dc</sub> /160V <sub>ac</sub>
Test voltage		1,6 x Un
Operating temp. range		-55...+105°C
Dissipation Factor		<0,01 (1kHz)
Insulation Resistance		>30GΩ
Features		self-healing
Ordering code		R66 1uF 100V

Capacitance P	Dimensions BxHxL	Ord.No.
<b>63V</b>		
S 1uF	7,5 6x12x10,5	49386
<b>100V</b>		
S 0,1uF	7,5 3,5x8,5x10,5	49385
<b>250V</b>		
S 0,022uF	7,5 2,5x7x10	49387

## Interference Suppression Capacitors

### R46 Series

ARCOTRONICS



X2

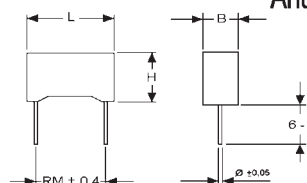
Typical applications: interference suppression and «across-the-line» applications. Suitable for use in situations where failure of the capacitor would not lead to danger of electric shock. X1 sub-class is intended for high pulse application, X2 sub-class is for general purposes applications, with peak pulse in service ≤ 2,5kV.

Technical parameters		R46
Dielectric		polypropylene (PP) film
Capacitance		10nF-1uF
Rated voltage		275 V AC
Tolerance		±20%
Operating temp. range		-40°C ... +100°C
Sub-class		X2
Features		self-healing
Ordering code		R41 10nF RM15

Capacitance P	Dimensions BxHxL	Ord.No.
S 10nF	15 5x11x18	40840
S 15nF	15 5x11x18	40841
S 22nF	15 5x11x18	40842
S 33nF	15 5x11x18	40843
S 47nF	15 5x11x18	40844
S 68nF	15 5x11x18	40845
S 100nF	15 6x12x18	40846
S 150nF	22,5 6x15x26,5	40896
S 220nF	22,5 6x15x26,5	40847
S 330nF	22,5 7x16x26,5	40848
S 470nF	22,5 7x16x26,5	39807
S 680nF	27,5 9x17x32	40850
S 680nF	22,5 10x18,5x26,5	49376
S 1uF	27,5 13x22x32	40851
S 1uF	22,5 11x20x26,5	49377

### R41 Series

ARCOTRONICS



Y2

Typical applications: Interference suppression and «across-the-line» and «line to ground» applications. Suitable for use in situations where failure of the capacitor could lead to danger of electric shock.

Type of insulation bridged/Rat. voltage/Peak impulse before end test/Sub-class

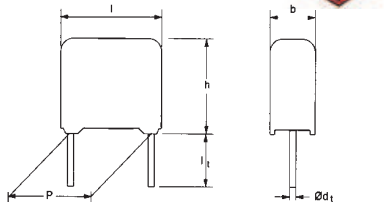
- Double or reinforced insulation ≤500Vac/ 8 kV/ Y1
- Basic or supplementary insulation ≥150Vac; ≤300Vac/ 5 kV/ Y2
- Basic or supplementary insulation ≥150Vac; ≤250Vac/ None/ Y3
- Basic or supplementary insulation <150Vac/ 2.5kV/ Y4

Technical parameters		R41
Dielectric		polypropylene (PP) film
Capacitance		2,2-10 nF
Rated voltage		300 V AC
Tolerance		±20%
Operating temp. range		-40°C ... +100°C
Sub-class		Y2
Features		self-healing
Ordering code		R41 10nF RM15

Capacitance P	Dimensions BxHxL	Ord.No.
S 2,2nF	10 4x9x13	9334
S 3,3nF	10 5x11x13	49970
S 4,7nF	10 5x11x13	49971
S 10nF	15 5x11x18	49972

## Interference Suppression Capacitors

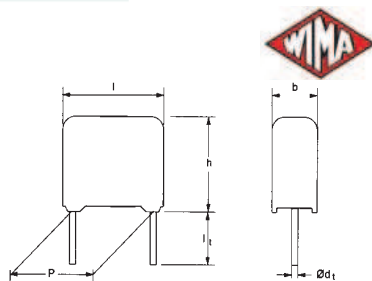
### MKP-X2 Series



Technical parameters		MKP-X2
Dielectric		polypropylene (PP) film
Capacitance		1000 pF up to 2,2 µF
Pitch		7,5-27,5mm
Rated voltages		275 VAC
Tolerance		± 20%
Operating temp. range		-55...+105°C
Operational life		> 300 000 hours
Features		reliable self-healing
Applications		Class X2 RFI applications to meet EMC regulations
Ordering code		MKP-X2 0,1µF

Capacitance P	Dimensions bxhxl	Ord.No.
0 1nF	7,5 4x9x10	70261
0 2,2nF	7,5 4x9x10	68896
0 3,3nF	7,5 4x9x10	68897
0 4,7nF	7,5 4x9x10	68898
0 0,022µF	10 5x11x13	68891
0 0,1µF	15 6x12,5x18	68892
0 0,15µF	15 7x14x18	68893
0 0,68µF	22,5 11x21x26,5	68894
0 1µF	27,5 13x24x31,5	68895

### MP3-X2 Series

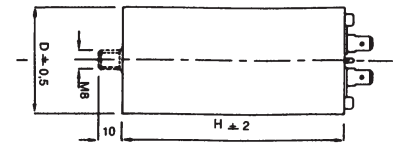


Technical parameters		MP3-X2
Dielectric		metallized paper
Capacitance		1000 pF up to 1,0 µF
Pitch		10-27,5mm
Rated voltages		250VAC, 275 VAC
Tolerance		± 20%
Operating temp. range		-40...+110°C
Operational life		> 300 000 hours
Features		excellent self-healing and high voltage strength, high reliability against active/passive flammability
Applications		class X2 RFI applications to meet EMC regulations
Ordering code		MP3-X2 0,1µF

Capacitance P	Dimensions bxhxl	Ord.No.
0 1nF	10 4x8,5x13,5	68910
0 2,2nF	10 4x8,5x13,5	68911
0 3,3nF	10 4x8,5x13,5	68912
0 4,7nF	10 5x10x13,5	68913
0 0,01µF	15 5x13x19	68899
0 0,022µF	15 5x13x19	68900
0 0,033µF	15 6x14x19	68901
0 0,047µF	15 7x15x19	68902
0 0,1µF	15 10x18x19	68903
0 0,15µF	22,5 8x20x28	68904

0,22µF	22,5	10x22x28	68905
0,33µF	22,5	12x24x28	68906
0,47µF	27,5	13x25x33	68907
0,68µF	27,5	15x26x33	68908
1µF	27,5	20x32x33	68909

## Motor Run Capacitors



The dielectric is polypropylene film, the electrodes consist of an extremely thin metal coating obtained by vacuum evaporation. Case and cover are made with self-extinguishing plastic material, the capacitive element is sealed with polyurethane resin. M8 stud.

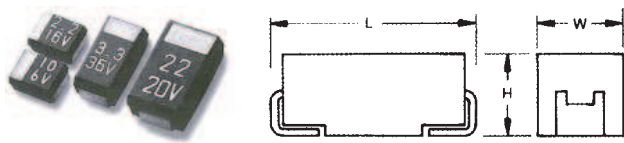
The main characteristics of these capacitors are:

- Low losses non-inductive winding
- Self-healing property avoiding short circuits
- Small size and limited weight
- No leakage risk.
- Class of safety protection: P0

Technical parameters		CMOT
Dielectric		polypropylene (PP) film
Capacitance		1µF-50µF
Rated voltage		450V AC
Tolerance		±5%
Operating temp. range		-25°C ... +70°C
Terminals		4xFASTON 6,3mm, (2+2)
Applications		electric motors
Ordering code		CMOT 1µF

Capacitance M	Dimensions	Ord.No.
S 1µF	M8 D30x56mm	64535
S 2,5µF	M8 D30x56mm	64547
S 3µF	M8 D30x56mm	64545
S 3,5µF	M8 D30x56mm	64549
S 6µF	M8 D30x56mm	64282
S 8µF	M8 D36x65mm	64544
S 10µF	M8 D36x65mm	64281
S 11µF	M8 D36x65mm	64548
S 12µF	M8 D40x75mm	64280
S 14µF	M8 D40x75mm	64279
S 16µF	M8 D40x75mm	64541
S 18µF	M8 D40x75mm	63369
S 20µF	M8 D40x83mm	64542
S 25µF	M8 D40x83mm	64543
S 30µF	M8 D40x92mm	64278
S 40µF	M8 D45x104mm	64277
S 50µF	M8 D50x104mm	64276

## Tantalum Chip Capacitors

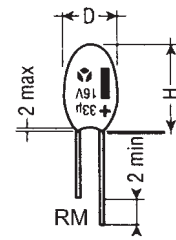


Dimensions	EIA code S	L[mm]	W[mm]	H[mm]
A	3216	3,2	1,6	1,6
B	3528	3,5	2,8	1,9
C	6032	6,0	3,2	2,6
D	7343	7,3	4,3	2,9

Technical parameters	CTS
Rated voltage (DC)	10/16/20/25/35V
Tolerance	±20%
Operating temp. range	-55...+125°C
Packaging	A, B: 2000 pcs C, D: 500 pcs
Ordering code	CTS 10uF 35V

Capacitance	Dimensions	Ord.No.
<b>10V</b>		
LxWxH		
S 10uF	3,2x1,6x1,6	A 8377
S 100uF	7,3x4,3x2,9	D 41302
<b>16V</b>		
S 2,2uF	3,2x1,6x1,6	A 41262
S 3,3uF	3,2x1,6x1,6	A 41292
S 4,7uF	3,2x1,6x1,6	A 41060
S 6,8uF	3,2x1,6x1,6	A 41061
S 10uF	3,5x2,8x1,9	B 41293
S 22uF	3,5x2,8x1,9	B 41338
S 47uF	7,3x4,3x2,9	D 41275
<b>20V</b>		
S 22uF	7,3x4,3x2,9	D 41274
S 33uF	7,3x4,3x2,9	D 41304
<b>25V</b>		
S 1uF	3,2x1,6x1,6	A 41278
S 2,2uF	3,5x2,8x1,9	B 41264
S 4,7uF	6,0x3,2x2,6	C 41265
S 10uF	6,0x3,2x2,6	C 41270
<b>35V</b>		
S 1uF	3,5x2,8x1,9	B 41263
O 2,2uF	6,0x3,2x2,6	C 41267
S 3,3uF	6,0x3,2x2,6	C 41268
S 4,7uF	6,0x3,2x2,6	C 41269
S 10uF	7,3x4,3x2,9	D 41272
<b>50V</b>		
S 1uF	6,0x3,2x2,6	C 62370

## Tantalum Leaded Capacitors



Technical parameters	CT
Rated voltage (DC)	6,3/10/16/25/35V
Tolerance	±20%
Operating temp. range	-55...+125°C
Terminals	radial, Ø 0,5mm
Packaging	1000 pcs
Ordering code	CT 10uF 10V

Capacitance	Dimensions	RM	Ord.No.
<b>6,3V</b>			
DxH			
S 10uF	5x8,5	2,5	15784
S 22uF	5x9	2,5	15785
S 47uF	6x10	2,5	15786
<b>10V</b>			
S 10uF	5x8,5	2,5	15789
S 33uF	6,5x11	2,5	15792
<b>16V</b>			
S 2,2uF	4,5x7	2,5	15796
S 3,3uF	4,5x7	2,5	15797
S 4,7uF	5x8,5	2,5	15798
S 6,8uF	5x8,5	2,5	15799
S 10uF	5x9	2,5	15800
S 22uF	6x10	2,5	15802
S 47uF	7,5x10,5	2,5	15804
O 100uF	8,5x14	5	15807
<b>25V</b>			
S 2,2uF	4,5x7	2,5	15809
S 4,7uF	5x8,5	2,5	15811
S 10uF	6x10	2,5	15813
S 15uF	6x10	2,5	63988
S 22uF	7,5x10	2,5	15815
<b>35V</b>			
S 0,1uF	4,5x7	2,5	15818
S 0,22uF	4,5x7	2,5	15820
S 0,33uF	4,5x7	2,5	15821
S 0,47uF	4,5x7	2,5	15822
S 1uF	4,5x7	2,5	15824
S 1,5uF	5x8,5	2,5	15825
S 2,2uF	5,5x9	2,5	15826
S 4,7uF	5,5x9	2,5	15828
O 10uF	6x10	2,5	15830
O 22uF	8,5x13	2,5	69284
O 47uF	9,5x16,5	5	15834

For the current prices visit  
[www.soselectronic.com](http://www.soselectronic.com)

 [info@soselectronic.com](mailto:info@soselectronic.com)

## Electrolytic SMD Capacitors



Chip type aluminium electrolytic capacitors in vertical housing. Designed for surface mounting on high density PC board. Complied to the RoHS directive.

### ES-SC Series



Technical drawings for ES-SC capacitors showing top, side, and end views with dimensions and labels for capacitance, series code, lot number, and voltage.

Dimensions	D	L	W	A	B	C	E	R
4 x 5.3	4.8	4.3	4.3	1.0	0.5	0.8		
5 x 5.3	6.0	5.3	5.3	1.4	0.5	0.8		
6.3 x 5.8	7.1	6.6	6.6	2.2	0.5	0.8		
6.3 x 7.7		2.4	6.6	6.6	2.2	0.5	0.8	
8 x 6.2	3.3	8.3	8.3	2.3	0.5	0.8		
8 x 10	2.9	8.3	8.3	3.1	0.8	1.1		
10 x 10	3.2	10.3	10.3	4.5	0.8	1.1		
12.5 x 13.5	4.6	12.8	12.8	4.5	1.1	1.4		
16 x 16.5	5.6	16.8	16.8	6.5	1.1	1.4		
16 x 21.5	5.6	16.8	16.8	6.5	1.1	1.4		
18 x 16.5	6.6	18.8	18.8	6.5	1.1	1.4		
18 x 21.5	6.6	18.8	18.8	6.5	1.1	1.4		

STANDARD / 85°C

Technical parameters	ES - SC
Capacitance	4,7uF-1000uF
Rated voltage	10-63V DC
Tolerance	±20% at 120Hz, 20°C
Operating temp. range	-40°C ... +85°C
Operational life	1000 hours/85°C
Ordering code	ES 10uF 35V SC

Capacitance	Dimensions	Ord.No.
<b>10V</b>		
S 330uF	6,3x7,7mm	69610
S 1000uF	10x10mm	69611
<b>16V</b>		
S 10uF	4x5,3mm	69612
S 22uF	4x5,3mm	69613
S 47uF	5x5,3mm	69614
S 100uF	6,3x5,3mm	69615
S 220uF	6,3x7,7mm	69616
S 330uF	8x10mm	69617
S 470uF	8x10mm	69618
<b>25V</b>		
S 10uF	4x5,3mm	69619
S 22uF	5x5,3mm	69620
S 47uF	6,3x5,8mm	69621
S 100uF	6,3x7,7mm	69622
S 220uF	8x10mm	69623
S 330uF	8x10mm	69624
S 470uF	10x10mm	69625
<b>35V</b>		
S 10uF	4x5,3mm	69626
S 22uF	5x5,3mm	69627
S 47uF	6,3x5,8mm	69628
S 100uF	6,3x7,7mm	69629
S 220uF	8x10mm	69630
S 330uF	10x10mm	69631
<b>50V</b>		
S 10uF	5x5,3mm	69632
S 22uF	6,3x5,3mm	69633
S 47uF	6,3x7,7mm	69634
S 100uF	8x10mm	69635
S 220uF	10x10mm	69636
<b>63V</b>		
S 4,7uF	6,3x5,8mm	69637
S 10uF	6,3x5,3mm	69638
S 22uF	6,3x7,7mm	69639
S 47uF	8x10mm	69640
S 100uF	10x10mm	69641

## ESR - CK Series



Technical drawings for ESR-CK capacitors showing top, side, and end views with dimensions and labels for capacitance, series code, lot number, and voltage.

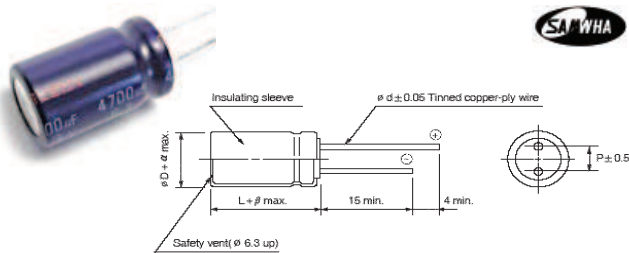
LOW IMPEDANCE / 105°C

Technical parameters	ESR - CK
Capacitance	4,7uF-1000uF
Rated voltage	6,3-50V DC
Tolerance	±20% at 120Hz, 20°C
Operating temp. range	-55°C ... +105°C
Operational life	1000 hours/105°C
Ordering code	ESR 10uF 35V CK

Capacit.	Dimensions	Ord.No.	Z [Ω]
<b>6,3V</b>			
<b>DxL</b>			
S 22uF	4x5,3mm	69948	1,8
S 47uF	5x5,3mm	69949	0,9
S 220uF	6,3x5,8mm	69950	0,44
S 470uF	8x10mm	69951	0,17
S 1000uF	10x10mm	69952	0,09
<b>10V</b>			
S 100uF	6,3x5,8mm	69953	0,44
S 220uF	6,3x7,7mm	69954	0,34
S 1000uF	10x10mm	69955	0,09
<b>16V</b>			
S 47uF	5x5,3mm	69956	0,9
S 100uF	6,3x5,8mm	69957	0,44
S 220uF	6,3x7,7mm	69958	0,34
S 470uF	8x10mm	69959	0,17
<b>25V</b>			
S 22uF	5x5,3mm	69960	0,9
S 47uF	6,3x5,8mm	69961	0,44
S 100uF	6,3x7,7mm	69962	0,34
S 220uF	8x10mm	69963	0,17
S 470uF	10x10mm	69964	0,09
<b>35V</b>			
S 4,7uF	4x5,3mm	69965	1,8
S 10uF	4x5,3mm	69966	1,8
S 22uF	6,3x5,3mm	69967	0,76
S 47uF	6,3x5,8mm	69968	0,44
S 100uF	8x10mm	69969	0,17
S 220uF	10x10mm	69970	0,09
S 330uF	10x10mm	69971	0,09
<b>50V</b>			
S 1uF	4x5,3mm	69972	8,0
S 2,2uF	4x5,3mm	69973	8,0
S 4,7uF	6,3x5,8mm	69974	0,88
S 10uF	6,3x5,8mm	69975	0,88
S 22uF	6,3x5,8mm	69976	0,88
S 47uF	6,3x7,7mm	69977	0,68
S 100uF	8x10mm	69978	0,34

Z - impedance at 20°C and 100KHz

## Radial Electrolytic Capacitors



Miniature aluminium electrolytic capacitors for general purposes.  
 ELRA - SD - standard series  
 E105 - RD - wide temperature range series: 105°C

### ELRA-SD Series

STANDARD / 85°C

Technical parameters	ELRA-SD
Capacitance	1uF-4700uF
Rated voltage	10-100V DC
Tolerance	±20% at 120Hz, 20°C
Operating temp. range	-40°C ... +85°C
Operational life	2000 hours/85°C
Ordering code	ELRA 10uF 35V SD

Capacitance	Ord.No.	P[mm]	DxL [mm]
<b>10V</b>			
S 470 uF	64408	2,5	6,3x11
<b>16V</b>			
S 330 uF	64889	2,5	6,3x11
S 470 uF	64521	3,5	8x11,5
S 1000 uF	64410	5	10x12,5
S 2200 uF	64411	5	10x20
S 4700 uF	64412	7,5	12,5x25
<b>25V</b>			
S 100 uF	64413	2	5x11
S 220 uF	64409	2,5	6,3x11
S 1000 uF	65281	5	10x16
S 2200 uF	65285	5	12,5x20
S 4700 uF	64414	7,5	16x25
<b>35V</b>			
S 47 uF	64415	2	5x11
S 100 uF	71075	2,5	6,3x11
S 220 uF	65267	3,5	8x11
S 1000 uF	64416	5	12,5x20
S 2200 uF	64417	7,5	16x27
S 3300 uF	64418	7,5	16x31,5
S 4700 uF	64419	7,5	16x35,5
<b>50V</b>			
S 33 uF	64420	2	5x11
S 4700 uF	64893	7,5	18x40
<b>63V</b>			
S 22 uF	64421	2	5x11
S 47 uF	64422	2,5	6,3x11
S 100 uF	64423	3,5	8x11
S 220 uF	64424	5	10x16
S 330 uF	64890	5	10x20
S 470 uF	64425	5	12,5x20
S 1000 uF	64426	7,5	16x25
S 2200 uF	64891	7,5	18x31,5
S 3300 uF	64892	7,5	18x40
<b>100V</b>			
S 1 uF	64884	2	5x11
S 2,2 uF	64885	2	5x11
S 3,3 uF	64886	2	5x11
S 4,7 uF	64887	2	5x11
S 10 uF	64427	2	5x11
S 22 uF	64428	2,5	6,3x11
S 33 uF	64888	3,5	8x11,5
S 47 uF	64429	3,5	8x11,5

## E105-RD Series



STANDARD / 105°C

Technical parameters	E105-RD
Capacitance	2,2uF-4700uF
Rated voltage	10-450V DC
Tolerance	±20% at 120Hz, 20°C
Operating temp. range	-55°C ... +105°C
Operational life	2000 hours/105°C
Ordering code	E105 47uF 35V RD

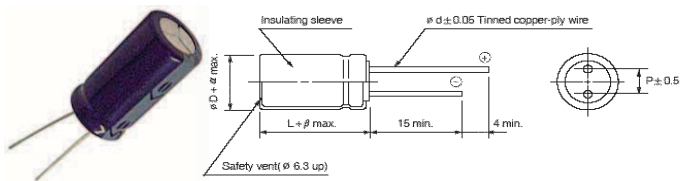
Capacitance	Ord.No.	P[mm]	DxL [mm]
<b>10V</b>			
S 4700 uF	64373	5	12,5x25
<b>16V</b>			
S 220 uF	64877	2,5	6,3x11
S 470 uF	64374	3,5	8x11,5
S 1000 uF	64375	5	10x16
S 2200 uF	64376	5	12,5x20
S 3300 uF	64881	5	12,5x25
S 4700 uF	64377	7,5	16x25
<b>25V</b>			
S 330 uF	64879	3,5	8x11,5
S 470 uF	64378	5	10x12,5
S 1000 uF	64379	5	10x20
S 2200 uF	64380	5	12,5x25
S 3300 uF	64381	7,5	16x25
<b>35V</b>			
S 100 uF	64382	2,5	6,3x11
S 220 uF	64383	3,5	8x11,5
S 470 uF	64384	5	10x16
S 1000 uF	64385	5	12,5x20
S 2200 uF	64386	7,5	16x25
S 4700 uF	64883	7,5	16x35,5
<b>50V</b>			
S 220 uF	64387	5	10x12,5
S 470 uF	64388	5	10x20
S 1000 uF	64389	5	12,5x25
S 2200 uF	64390	7,5	16x31,5
S 3300 uF	64882	7,5	16x35,5
<b>63V</b>			
S 22 uF	64391	2	5x11
S 47 uF	64392	2,5	6,3x11
S 100 uF	64393	3,5	8x11,5
S 220 uF	64394	5	10x16
S 330 uF	64395	5	10x20
S 470 uF	64396	5	12,5x20
S 1000 uF	64397	7,5	16x25
<b>100V</b>			
S 2,2 uF	64871	2	5x11
S 4,7 uF	64872	2	5x11
S 10 uF	64398	2	5x11
S 22 uF	64399	2,5	6,3x11
S 47 uF	64400	5	10x12,5
S 100 uF	64001	5	10x20
S 220 uF	64402	5	12,5x25
S 470 uF	64880	7,5	16x25
<b>250V</b>			
S 10 uF	64403	5	10x12,5
S 22 uF	64873	5	10x20
S 47 uF	64875	5	12,5x25
S 100 uF	64876	7,5	16x31,5
S 220 uF	64878	7,5	18x40
<b>450V</b>			
S 2,2 uF	64404	5	10x12,5
S 4,7 uF	64405	5	10x16
S 10 uF	64406	5	12,5x20
S 22 uF	64874	7,5	16x25
S 47 uF	64407	7,5	16x35



## Radial Electrolytic Capacitors

(continued)

### ER-RZ Series



LOW IMPEDANCE / 105°

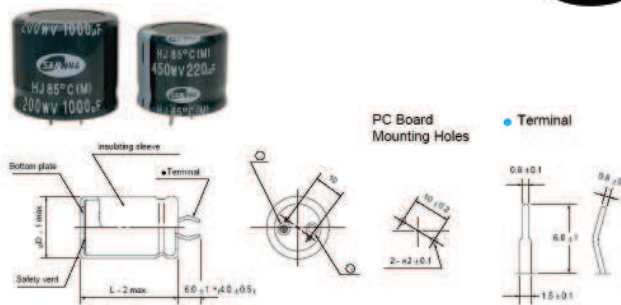
Miniature aluminium electrolytic capacitors - extremely low impedance series at high frequency. High reliability withstanding 5000 hours load life at 105°C (2000/3000 hours for smaller case sizes). Ideally suited for use in switching power supplies. Complied to the RoHS directive.

Technical parameters	ER-RZ
Capacitance	10uF-4700uF
Rated voltage	16-63V DC
Tolerance	±20% at 120Hz, 20°C
Operating temp. range	-55°C ... +105°C
Operational life	at 105°: 5000 hours (Ø8: 3000 hours, Ø5, 6.3: 2000 hours)
Ordering code	ER 470uF 165V RZ

Capacit.	Ord.No.	DxLxP [mm]	I [Ohm]
<b>16V</b>			
S 22uF	70006	5x11x2	
S 220uF	70007	8x11,5x3,5	0,16
S 470uF	70008	10x12,5x5	0,09
S 1000uF	70009	10x20x5	0,047
S 2200uF	70010	10x25x5	0,033
S 4700uF	70011	16x31,5x7,5	0,02
<b>25V</b>			
S 10uF	70012	5x11x2	
S 47uF	70013	5x11x2	0,55
S 100uF	70014	6,3x11x2,5	0,24
S 220uF	70015	10x12,5x5	0,13
S 470uF	70016	10x16x5	0,065
S 1000uF	70017	12x25x5	0,036
S 2200uF	70018	16x25x7,5	0,028
S 3300uF	70019	16x31,5x7,5	0,02
<b>35V</b>			
S 100uF	70020	8x11,5x3,5	0,16
S 220uF	70021	10x12,5x5	0,09
S 470uF	70022	10x16x5	0,046
S 1000uF	70023	16x20x7,5	0,034
S 2200uF	70024	16x31,5x7,5	0,02
<b>50V</b>			
S 1uF	70025	5x11x2	4
S 22uF	70026	5x11x2	0,65
S 220uF	70027	10x20x5	0,075
S 470uF	70028	12x20x5	0,044
S 1000uF	70029	16x25x7,5	0,03
<b>63V</b>			
S 47uF	70030	8x11,5x3,5	0,25
S 100uF	70031	10x12,5x5	0,12
S 220uF	70032	12x20x5	0,065
S 470uF	70033	12x25x5	0,042
S 1000uF	70034	16x31,5x7,5	0,029

For the current prices visit  
[www.soselectronic.com](http://www.soselectronic.com)

## ESHC Series



SNAP-IN/B5°

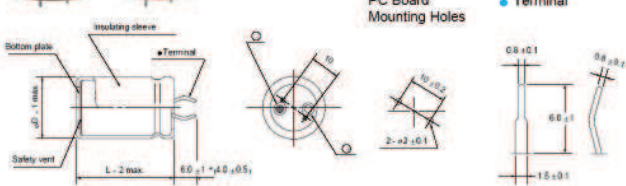
Standard snap-in terminal type large aluminium electrolytic capacitors. Including height 20mm products, low profile sized (Voltage range of 160 ~ 450V). Complied to the RoHS directive

Technical parameters	ESI-HC
Capacitance	100uF-4700uF
Rated voltage	16-450V DC
Tolerance	±20% at 120Hz, 20°C
Operating temp. range	-40°C ... +85°C
Operational life	2000 hours/85°C
Ordering code	ESI 470uF 350V HC

Capacitance	Ord.No.	DxL [mm]
<b>16V</b>		
S 4700uF	70038	22x20mm
<b>25V</b>		
S 3300uF	70039	22x25mm
S 4700uF	70040	22x25mm
<b>35V</b>		
S 3300uF	70041	22x30mm
S 4700uF	70042	22x25mm
<b>50V</b>		
S 2200uF	70043	22x25mm
S 3300uF	70044	22x30mm
S 4700uF	70045	30x25mm
<b>63V</b>		
S 2200uF	70046	25,4x25mm
S 3300uF	70047	25,4x25mm
S 4700uF	70048	30x30mm
<b>80V</b>		
S 4700uF	70049	35x30mm
S 6800uF	70050	35x40mm
S 10000uF	70051	35x50mm
<b>250V</b>		
S 100uF	70052	22x25mm
S 220uF	70053	22x25mm
S 330uF	70054	22x30mm
S 470uF	70055	25,4x30mm
S 1000uF	70056	35x40mm
<b>350V</b>		
S 100uF	70057	22x25mm
S 220uF	70058	30x30mm
S 330uF	70059	35x30mm
S 470uF	70060	35x40mm
<b>450V</b>		
S 47uF	70061	22x25mm
S 100uF	70062	22x25mm
S 220uF	70063	35x25mm
S 330uF	70064	35x30mm
S 470uF	70065	35x40mm

Overview of capacitors from other manufacturers -  
see pages A45 - A47.

## E105SI-HE Series



### SNAP-IN/105°

Standard snap-in terminal type large aluminium electrolytic capacitors. Wide temperature range of -40(-25) ~ +105°C. Including height 20mm products, low profile sized (Voltage range of 160 ~ 500V). Complied to the RoHS directive.

Technical parameters	E105SI-HE
Capacitance	22uF-4700uF
Rated voltage	16-450V DC
Tolerance	±20% at 120Hz, 20°C
Operating temp. range	-40°C ... +105°C
Operational life	2000 hours/105°C
Ordering code	E105 SI 470uF 350V HC

Capacitance	Ord.No.	DxL [mm]
<b>16V</b>		
S 3300uF	70068	22x20mm
S 4700uF	70069	22x25mm
<b>25V</b>		
S 2200uF	70070	22x25mm
S 3300uF	70071	22x25mm
S 4700uF	70072	22x25mm
<b>35V</b>		
S 2200uF	70073	22x25mm
S 3300uF	70074	22x25mm
S 4700uF	70075	22x30mm
<b>50V</b>		
S 2200uF	70076	22x25mm
S 3300uF	70077	25,4x25mm
S 4700uF	70078	25,4x30mm
<b>63V</b>		
S 1000uF	70079	22x25mm
S 2200uF	70080	22x35mm
S 3300uF	70081	30x30mm
S 4700uF	70082	35x25mm
<b>250V</b>		
S 100uF	70083	22x20mm
S 220uF	70084	30x20mm
S 330uF	70085	30x25mm
S 470uF	70086	30x25mm
S 1000uF	70087	35x35mm
<b>350V</b>		
S 100uF	70088	22x25mm
S 220uF	70089	35x25mm
S 330uF	70090	35x35mm
S 470uF	70091	35x40mm
<b>450V</b>		
S 22uF	70092	22x20mm
S 47uF	70093	22x20mm
S 100uF	70094	25,4x30mm
S 220uF	70095	35x25mm
S 330uF	70096	35x35mm
S 470uF	70097	35x40mm

SOS electronic official distributor of branded capacitors



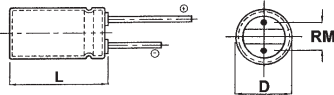
- aluminium electrolytic capacitors
- electric double layer capacitors



Overview of capacitors from other manufacturers - see pages A44 - A46.

## Radial Electrolytic Capacitors (continued)

### ELRA-SK Series



**JAMICON**

STANDARD / 85°

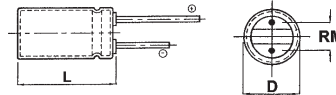
Miniature aluminium electrolytic capacitors with radial leads for general purposes.

Technical parameters	ELRA-SK
Capacitance	0.47uF-4700uF
Rated voltage	16-450V DC
Operating temp. range	-40°C ... +85°C
Operational life	2000 hours/85°C
Manufacturer's marking	SKR
Ordering code	ELRA 10uF 35V SK

Capacitance	Ord.No.	P[mm]	DxL [mm]
<b>16V</b>			
S 220 uF	49257	2,5	6,3x11
S 330 uF	15742	3,5	8x11
S 470 uF	15743	3,5	8x11
S 2200 uF	15745	5,1	13x26
S 3300 uF	15746	5	13x26
S 4700 uF	22974	7,5	16x25
<b>25V</b>			
S 47 uF	49479	2	5x11
S 100 uF	39820	2,5	6,3x11
S 220 uF	15748	3,5	8x11
S 470 uF	15749	5	10x13
S 1000 uF	15750	5	10x21
S 2200 uF	21941	5	13x26
S 4700 uF	36204	7,5	18x35
<b>35V</b>			
S 33 uF	15754	2	5x11
S 100 uF	15756	2,5	6,3x11
S 220 uF	49259	3,5	8x11
S 330 uF	15758	5	10x13
S 470 uF	15759	5	10x16
S 1000 uF	15762	5	13x21
S 2200 uF	15764	7,5	16x25
S 3300 uF	15766	7,5	16x35
S 4700 uF	22975	7,5	18x35
<b>50V</b>			
S 100 uF	26212	3,5	8x11
S 220 uF	26213	5	10x13
S 470 uF	26214	5	13x21
S 1000 uF	26215	5	13x26
S 2200 uF	36217	7,5	18x35
<b>63V</b>			
S 10 uF	15773	2	5x11
S 22 uF	15774	2	5x11
S 47 uF	15776	2,5	6,3x11
S 100 uF	15777	5	10x13
S 220 uF	15778	5	10x16
S 470 uF	15780	5	13x21
S 1000 uF	20335	7,5	16x25
<b>100V</b>			
S 0,47 uF	15781	2	5x11
S 1 uF	15782	2	5x11
S 2,2 uF	26216	2	5x11
S 4,7 uF	26217	2	5x11
S 10 uF	26218	2,5	6,3x11
S 22 uF	26219	2,5	6,3x11
S 47 uF	26220	5	10x17
S 100 uF	26221	5	13x21
<b>200V</b>			
S 10 uF	25227	5	10x16

Capacitance	Ord.No.	P[mm]	DxL [mm]
<b>400V</b>			
4,7 uF	25230	5	10x20
10 uF	25231	5	12,5x20
<b>450V</b>			
4,7 uF	40280	5	10x18
10 uF	40281	5	13x21
22 uF	40722	7,5	16x25

### E105-TK Series



**JAMICON**

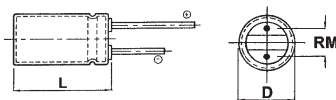
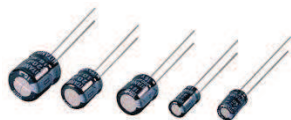
STANDARD / 105°

Miniature aluminium electrolytic capacitors with radial leads for general purposes. Wide temperature range.

Technical parameters	E105-TK
Capacitance	1uF-4700uF
Rated voltage	16-450V DC
Operating temp. range	-40°C ... +105°C
Operational life	2000 hours/85°C
Manufacturer's marking	TKR (bulk), TKP (reel)
Ordering code	E105 47uF 25V TK

Capacitance	Ord.No.	P[mm]	DxL [mm]
<b>16V</b>			
S 1000 uF	60813	5	10x16
S 4700 uF	49508	3,5	8x12
<b>25V</b>			
S 47 uF	48590	2	5x11
S 100 uF	39708	2,5	6x12
S 1000 uF	49701	5	10x20
<b>50V</b>			
S 22 uF	49702	2	5x11
S 47uF	39729	5	6,3x11
S 100 uF	49500	3,5	8x12
S 220 uF	39731	5	10x16
S 470 uF	39733	5	10x20
S 1000 uF	39734	5	12,5x25
S 2200 uF	53371	7,5	16x35,5
<b>63V</b>			
S 4,7uF	39744	5	5x11
S 10 uF	49497	2	5x11
S 22 uF	39746	5	6x11
S 1000 uF	39753	7,5	16x25
<b>100V</b>			
S 1 uF	39741	2	5x11
S 2,2 uF	39742	2	5x11
S 220 uF	48635	5	12,5x25
S 470 uF	39769	7,5	16x25
<b>450V</b>			
S 1uF	53179	5	10x12,5
S 2,2 uF	53180	5	10x20
S 4,7uF	53181	5	12,2x20

## ELMIN Series

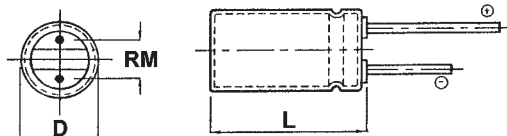


SUBMINIATURE / 85° 7 mm

Technical parameters		ELMIN
Capacitance		0,1uF-100uF
Rated voltage		10-63V DC
Operating temp. range		-40°C ... +85°C
Manufacturer's marking		SSR
Ordering code		ELMIN 16V 22uF

Capacitance	Ord.No.	RM[mm]	DxL [mm]
<b>10V</b>			
S 22 uF	19457	1,5	4x7
S 33 uF	60376	1,5	4x7
S 47 uF	40743	2	5x7
<b>16V</b>			
S 6,8 uF	19459	1,5	4x7
S 22 uF	40744	1,5	4x7
S 47uF	40745	2,5	6,3x7
S 100 uF	40746	2,5	6,3x7
<b>25V</b>			
S 10 uF	40747	1,5	4x7
S 22 uF	60380	2	5x7
S 33 uF	44975	2,5	6,3x7
<b>35V</b>			
S 10 uF	40748	2	5x7
S 22 uF	60382	2,5	6,3x7
<b>50V</b>			
S 2,2 uF	19461	1,5	4x7
S 3,3 uF	19462	1,5	4x7
S 4,7 uF	19463	1,5	4x7
S 10 uF	40749	2,5	6,3x7
<b>63V</b>			
S 0,1uF	19464	1,5	4x7
S 0,22 uF	19466	1,5	4x7
S 0,33 uF	19467	1,5	4x7
S 0,47 uF	19468	1,5	4x7
S 1 uF	19470	1,5	4x7
S 2,2 uF	60384	1,5	4x7
S 3,3 uF	60386	2	5x7
S 4,7 uF	60388	2,5	6,3x7

## ELLOW -RVI Series



LOW IMPEDANCE / 105°

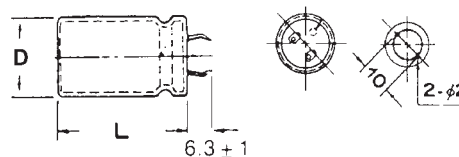
Features: very long operational life 4000 to 10000 hours at 105°C, very high reliability, low impedance (ESR), excellent ripple current capability.

Applications: power supplies (SMPS, DC/DC converters) for general industrial, EDP, audio-video, automotive and telecommunications. Smoothing, filtering, buffering.

Technical parameters		ELLOW
Capacitance		47uF-2200uF
Rated voltage		10-63V DC
Operating temp. range		-55°C ... +105°C
Manufacturer's marking		RVI
Ordering code		ELLOW 220uF 35V

Capacitance	Ord.No.	l[mΩ]	DxL [mm]
<b>10V</b>			
O 1000uF	40049	62	10x20 x5
S 2200uF	40050	34	12,5x25x5
<b>16V</b>			
S 470uF	40051	84	10x16x5
<b>25V</b>			
S 470uF	40053	76	10x20x5
S 1000uF	40054	34	12,5x25x5
<b>35V</b>			
S 220uF	40056	84	10x16x5
O 2200uF	40057	22	16x35x5
<b>50V</b>			
S 470uF	40058	44	12,5x25x5
S 1000uF	40059	30	16x31x5
<b>63V</b>			
S 47uF	40060	300	10x12x5
S 100uF	40061	190	10x16x5
S 220uF	40062	110	12,5x20x5

## ELPW -LP Series



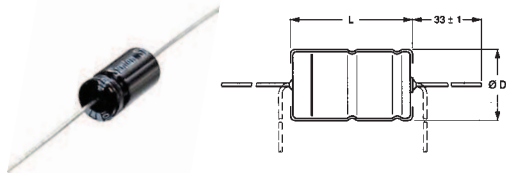
SNAP-IN/ 85°

Technical parameters		ELPW
Capacitance		47uF-10000uF
Rated voltage		50-450V DC
Operating temp. range		-40°C ... +85°C
Operational life		2000 hours/85°C
Manufacturer's marking		TKR
Ordering code		ELPW 4700uF 63V TK

Capacitance	Ord.No.	DxL [mm]
<b>50V</b>		
S 4700uF	40988	35x25x10
S 10000uF	40989	35x35x10
<b>63V</b>		
S 2200uF	21931	30x25x10
S 1000uF	40990	22x25x10
S 4700uF	40992	35x30x10
S 3300uF	40208	35x25x10
<b>80V</b>		
S 10000uF	2616	35x50x10
<b>100V</b>		
S 1000uF	40993	30x25x10
S 3300uF	40996	35x35x10
S 4700uF	40997	35x45x10
<b>200V</b>		
S 1000uF	36297	35x40x10
<b>250V</b>		
S 330uF	40218	30x25x10
S 220uF	41001	25x25x10
S 470uF	41002	30x35x10
<b>400V</b>		
S 150uF	40224	30x25x10
S 100uF	41003	22x30x10
S 220uF	41004	25x40x10
S 470uF	41005	35x45x10
S 47uF	41006	22x25x10
<b>450V</b>		
S 330uF	41007	35x45x10
S 47uF	40228	22x25x10

## Axial Electrolytic Capacitors

### ELAX - B41 Series



Technical parameters	ELAX
Capacitance	1uF-1000uF
Rated voltage	16-35V DC
Operating temp. range	-40°C ... +85°C
Manufacturer's marking	B41
Ordering code	ELAX 16V 470uF

Capacitance	Ord.No.	DxL [mm]
<b>16V</b>		
S 470uF	15642	8x18
S 1000uF	15643	10x25
<b>25V</b>		
S 22uF	15651	4,5x10
S 100uF	21934	6x17
S 220uF	21935	6,5x18
<b>40V</b>		
S 22uF	15684	4,5x10
S 47uF	18126	6x10
S 220uF	15692	10x18
<b>63V</b>		
S 1uF	15707	4,5x10
S 2,2uF	18129	4,5x10
S 4,7uF	15709	4,5x10
S 10uF	15710	4,5x10
S 47uF	15712	6,5x18
S 100uF	15713	8x18
S 220uF	15714	10x25
S 470uF	15715	12,5x30
<b>100V</b>		
S 4,7uF	15723	4,5x10
S 47uF	15726	8x18
S 220uF	15727	12,5x30
<b>350V</b>		
S 4,7uF	15731	12,5x30

## BIP Series



**BIPOLAR**

Features: polarized, switch proofed, welded axial leads, high reliability, high ripple current, all contacts welded

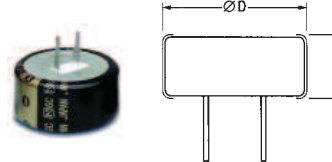
Applications: standard- and switch mode power supplies, computer, telecommunications, general industrial, consumer - electronic.

Technical parameters	BIP
Capacitance	1uF-68uF
Rated voltage	100V DC
Operating temp. range	-40°C ... +85°C
Operational life	5000h/40°C, 2500h/85°C
Manufacturer's marking	ATBI
Ordering code	BIP 4,7uF/100V

Capacitance	Ord.No.	DxL [mm]
S 1uF	4879	10x30
S 2,2uF	4880	10x30
S 3,3uF	15584	10x30
S 4,7uF	4881	10x30
S 6,8uF	4626	10x30
S 10uF	15621	10x30
S 15uF	4670	10x30
S 22uF	4632	12x30
S 33uF	15627	12x30
S 47uF	4882	14x37
S 68uF	4883	16x39

## Electric Double Layer Capacitors

### GOLDCAP



Features: endurance at 70°C 1000 hours, RoHS directive compliant.  
Recommended applications: memory back-up for video and audio equipment, cameras, telephones, printers, data terminals, rice cookers and intelligent remote controls.

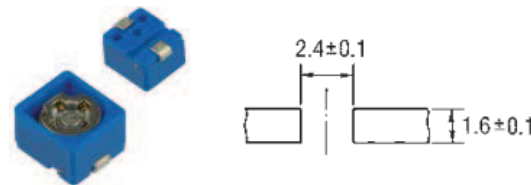
Technical parameters	GOLDCAP
Capacitance	0,1F-1F
Rated voltage	5,5V
Operating temp. range	-25°C ... +70°C
Ordering code	GOLDCAP 5,5V 0,1F

Capacitance	Ord.No.	DxL [mm]
S 0,1 F	31803	13x7
S 0,22 F	31804	13x7
S 0,47 F	31806	21x7,5
S 1 F	31807	21x7,5

## SMD Trimming Capacitors



### TZB4 Series



MURATA TZB4 series of SMD trimming capacitors. Color coded case facilitates identification of capacitance range. Designed for automatic placement in surface mount applications.

Applications: car audio systems, cordless telephones, hybrid ICs, pagers, remote keyless entry systems, tuner packs, surveillance cameras, DVD, burglarproof devices.  
Operating temperature range: -25°C to +85°C.

Miniature rectangular shape: (LxWxH) 4,5 x 4,0 x 3,0mm.

Part No.	Capacitance	Temp. coeff.	Q <sub>min</sub> @1MHz	Voltage	Colour
TZB4Z060	2-6pF	200ppm/K	500	100V	blue
TZB4Z100	3-10pF	300ppm/K	500	100V	white
TZB4Z250	4-25pF	300ppm/K	300	50V	black

Capacitance	Ord.No.
S 2-6pF	4242
S 3-10pF	11806
S 4-25pF	11807

## Foil Trimming Capacitors







Technical parameters	808-1
Test voltage	500V <sub>DC</sub> /1min
Minimum insulation resistance	10 000 MOhm
Operating temp. range	-40°C ... +70°C
Diameter	7,5 mm
RM	3,5/7,1 mm



Part No./Capacitance	Colour	Ord.No.
S 808-1 1,4-5,5pF	grey	20211
S 808-1 2-15pF	blue	20213
S 808-1 2,5-22pF	green	20214
S 808-1 2,5-27pF	red	20215
S 808-1 3-50pF	black	24916



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
fax:  
+421 55 78 604 45

technical support:  
technik@soselectronic.com

SMD • JXG Series			
	Type	Frequency range	Size
	<b>JXG32P4</b> 4 Pad Version	13.0 ~ 50.0 MHz	3.2 x 2.5 x 1.0 mm
	<b>JXG53P4</b> 4 Pad Version	8.0 ~ 60.0 MHz	5.0 x 3.2 x 1.5 mm
	<b>JXG53P2</b> 2 Pad Version preferred type	8.0 ~ 60.0 MHz	5.0 x 3.2 x 1.5 mm
	<b>JXG75P4</b> 4 Pad Version	5.0 ~ 70.0 MHz	7.0 x 5.0 x 1.8 mm
	<b>JXG75P2</b> 2 Pad Version preferred type	5.0 ~ 70.0 MHz	7.0 x 5.0 x 1.8 mm
	<b>JXG84P2</b> 2 Pad Version	6.0 ~ 60.0 MHz	8.0 x 4.5 x 1.4 mm

SMD • JXS Series			
	Type	Frequency range	Size
	<b>NEW</b> <b>JXS21</b>	26.0 ~ 50.0 MHz	2.0 x 1.6 x 0.5 mm
	<b>JXS22</b>	16.0 ~ 50.0 MHz	2.5 x 2.0 x 0.5 mm
	<b>JXS32</b>	13.0 ~ 50.0 MHz	3.2 x 2.5 x 0.7 mm
	<b>JXS53</b>	10.0 ~ 55.0 MHz	5.0 x 3.2 x 0.8 mm
	<b>JXS75</b>	5.53 ~ 170.0 MHz	7.5 x 5.0 x 1.0 mm


SMD • JXE Series			
	Type	Frequency range	Size
	<b>JXE32</b> 4 Pad Version	16.0 ~ 50.0 MHz	3.2 x 2.5 x 0.7 mm <i>NRFND</i>
	<b>JXE42</b> 4 Pad Version	13.0 ~ 50.0 MHz	4.0 x 2.5 x 0.8 mm <i>NRFND</i>
	<b>JXE53</b> 2 Pad Version	12.0 ~ 67.0 MHz	5.0 x 3.2 x 1.0 mm <i>NRFND</i>
	<b>JXE63</b> 2 Pad Version	10.0 ~ 67.0 MHz	6.0 x 3.5 x 1.2 mm <i>NRFND</i>
	<b>JXE75</b> 2 Pad Version und 4 Pad Version	6.0 ~ 170.0 MHz	7.0 x 5.0 x 1.3 mm <i>NRFND</i>
	<b>JXE115</b> 4 Pad Version	3.579 ~ 5.999 MHz	11.8 x 5.5 x 2.1 mm <i>NRFND</i>


SMD • SMU Series			
	Type	Frequency range	Size
	<b>SMU2</b> 2 Pad Version	4.194 ~ 60.0 MHz	11.5 x 4.8 x 3.0 mm
	<b>SMU3</b> 2 Pad Version	3.277 ~ 60.0 MHz	11.5 x 4.8 x 4.0 mm
	<b>SMU4</b> 2 Pad Version	3.277 ~ 60.0 MHz	11.5 x 4.8 x 4.0 mm
	<b>SMU5</b> 4 Pad Version	3.579 ~ 60.0 MHz	13.1 x 5.0 x 5.0 mm

*NRFND* - Not recommended for new design




**SOS electronic - official distributor of JAUCH components**


SMD • Tuning Fork Crystal			
	Type	Frequency range	Size
	<b>NEW</b> <b>JTX310</b>	32.768 kHz	3.2 x 1.5 x 0.9 mm
	<b>JTX410</b>	32.786 kHz	4.1 x 1.5 x 0.8 mm
	<b>JTX520</b>	32.768 kHz	4.8 x 1.9 x 0.8 mm <i>NRFND</i>
	<b>SMO32SL</b>	32.768 kHz	8.0 x 3.8 x 2.4 mm
	<b>SMO32S</b>	32.768 kHz	9.0 x 3.4 x 3.0 mm <i>NRFND</i>
	<b>SMO32</b>	32.768 kHz	13.2 x 4.9 x 4.5 mm <i>NRFND</i>
	<b>SM26F</b>	32.768 kHz	6.0 x 2.0 x 2.0 mm

SMD • MG3A			
	Type	Frequency range	Size
	<b>MG3A</b> 4 Pad Version	3.571 ~ 91.175 MHz	13.1 x 5.0 x 5.0 mm

SMD • Special types			
	Type	Frequency range	Size
	<b>JXS42</b>	12.0 ~ 12.99 MHz	4.0 x 2.5 x 0.8 mm

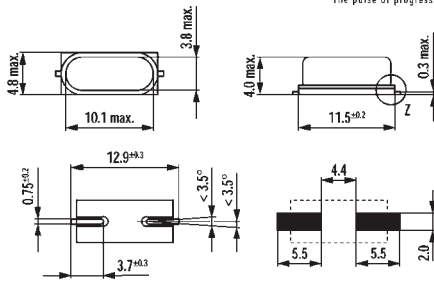
Pin Type • Metal Package			
	Type	Frequency range	Size
	<b>SS2</b>	8.0 ~ 70.0 MHz	11.3 x 4.7 x 2.5 mm
	<b>SS3</b>	3.276 ~ 70.0 MHz	11.3 x 4.7 x 3.6 mm
	<b>SS4</b>	3.276 ~ 64.0 MHz	11.3 x 4.7 x 3.6 mm
	<b>HC49U</b>	0.921 ~ 250.0 MHz	10.8 x 4.5 x 13.0 mm
	<b>HC49U SMC</b> SMD Version	0.921 ~ 250.0 MHz	17.5 x 10.8 x 5.3 mm
	<b>MO1</b> (UM-1)	0.921 ~ 250.0 MHz	7.9 x 3.3 x 8.0 mm
	<b>MO1 SMC</b> SMD Version	0.921 ~ 250.0 MHz	11.7 x 7.8 x 3.4 mm
	<b>MO5</b> (UM-5)	10.0 ~ 250.0 MHz	7.7 x 3.1 x 5.8 mm
	<b>MO5 SMC</b> SMD Version	10.0 ~ 250.0 MHz	9.7 x 7.7 x 3.4 mm
	<b>MTF38</b>	3.579 ~ 91.0 MHz	3.0 x 3.0 x 8.9 mm

Tuning Fork Crystal			
	Type	Frequency range	Size
	<b>MMTF32</b>	32.768 kHz	2.0 x 2.0 x 6.0 mm
	<b>MTF32</b>	32.768 kHz	3.0 x 3.0 x 8.0 mm <i>NRFND</i>

*NRFND* - Not recommended for new design

## SMD Quartz Crystals

### SMU4 Series

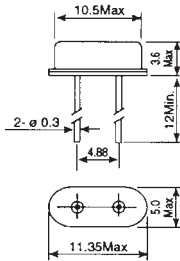


Technical parameters	SMU4
Frequency at 25 °C	±30ppm
Temperature coefficient	±50ppm
Temperature range	-20°C up to +70°C
Load capacitance	30pF
Dimensions	11,5x4,8x4mm

Part No.	Ord.No.
S Q 3,579545-SMU4-30-30/50	8056
S Q 3,6864-SMU4-30-30/50	8831
O Q 4,0-SMU4-30-30/50	8057
S Q 6,0-SMU4-30-30/50	9410
S Q 7,68-SMU4-30-30/50	43797
S Q 10,0-SMU4-30-30/30	9227
S Q 11,05920-SMU4-30-30/30	8058
S Q 12,0-SMU4-30-30/30	8055
S Q 18,432-SMU4-30-30/30	43974

## Pin Type Crystals - low-profile types

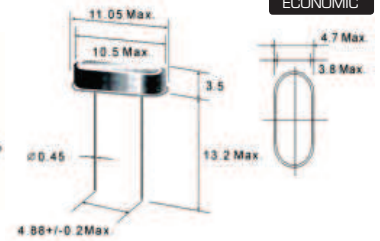
### SS4 Series



Technical parameters	SS4
Temperature coefficient	±30ppm/±50ppm
Temperature range	-20°C up to +70°C
Frequency at 25 °C	±30ppm
Load capacitance	30pF

Part No.	Ord. No.
S Q 24,576-SS4-30-30/30	3229
S Q-24-SS4-30-30/50	8272
S Q 3,6864-SS4-30-30/50	8921
S Q-22.1184-SS4-30-30/30	9270
S Q-3.57954-SS4-30-30/50	28530
S Q-4-SS4-30-30/50	28531
S Q 4,194304-SS4-30-30/50	28533
S Q 4,332-SS4-30-30/50	28534
S Q 4,433619-SS4-30-30/50	28535
S Q-4.9152-SS4-30-30/50	28536
S Q-6-SS4-30-30/50	28540
S Q 7,3728-SS4-30-30/50	28543
S Q-8-SS4-30-30/50	28544
S Q-9.216-SS4-30-30/50	28547
S Q-10,0-SS4-30-30/50	28549
S Q-11.0592-SS4-30-30/30	28550
S Q-12-SS4-30-30/50	28551
S Q-16-SS4-30-30/30	28556
S Q-20-SS4-30-30/30	28559
S Q 7,68-SS4-30-30/50	39931
S Q-14,7456-SS4-30-30/50	39933
S Q-18.432-SS4-30-30/50	39936
S Q-25-SS4-30-30/30	45169

## 6B Series



ECONOMIC

Technical parameters	6B
Temperature coefficient	±50ppm
Temperature range	-20°C up to +70°C
Frequency at 25 °C	±30ppm
Load capacitance	30pF

Part No.	Ord.No.
S Q 4,0 MHz U-4/6B	56231
S Q 6,0 MHz U-4/6B	56232
S Q 10,0 MHz U-4/6B	56233
S Q 11,0592 MHz U-4/6B	56234
S Q 12,0 MHz U-4/6B	56235
S Q 16,0 MHz U-4/6B	56236
S Q 20,0 MHz U-4/6B	56237
S Q 22,1184 MHz U-4/6B	56238

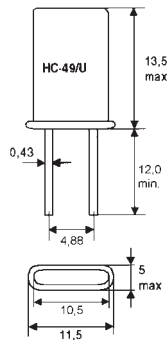
Wide range of different frequencies are available on offer. Samples and technical support from the manufacturer for announced projects.

As the official distributor of Jauch we are able to supply also other series of SMD quartz crystals, shown on page A48.



## Pin Type Crystals - high types

### HC49/U Series

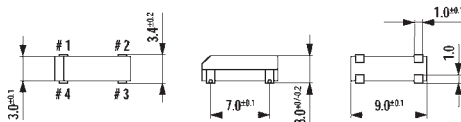


Technical parameters	HC49/U
Temperature coefficient	±30ppm
Temperature range	-20°C up to +70°C
Frequency at 25°C	±50ppm (to 3MHz), ±30ppm (above 3MHz)
Load capacitance	30pF

Part No.	Ord.No.
S Q 2,0 MHz HC-49/U	13723
S Q 3,2768 MHz HC-49/U	13726
S Q-3.579545-S-30-30/30	13733
S Q-4-S-30-30/30	13736
S Q 4,433619 MHz HC-49/U	13739
S Q 4,9152 MHz HC-49/U	13740
S Q-6-S-30-30/30	13747
S Q-8-S-30-30/30	13755
S Q-10-S-30-30/30	13759
S Q-16-S-30-30/30	13766
S Q-18.432-S-30-30/30	13772
S Q-20-S-30-30/30	13775
S Q-22.1184-S-30-30/30	13777
S Q-12-S-30-30/30	17929
S Q-7.3728-S-30-30/30	18284
S Q-2.4576-S-30-30/30	18286
S Q-3.6864-S-30-30/30	18454
S Q-1.8432-S-30-30/30	24804
S Q-11.0592-S-30-30/30	24809
S Q-24-S-30-30/30	24812
S Q 1,0 MHz HC-49/U	28529
S Q-14.7456-S-30-30/30	39920

## SMD Tuning Fork Crystals

### SMQ32S Series



Technical parameters	SMQ32S
Temperature range	-20°C up to +70°C
Frequency at 25°C	±30ppm
Load capacitance	12,5pF

Part No.	Ord.No.
S Q-0.032768-SMQ32S-12.5-30	50926

## Tuning Fork Crystals

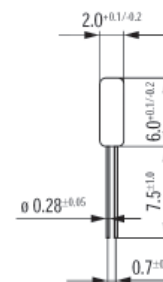
### MTF32 Series



Technical parameters	MTF32
Temperature range	-20°C up to +70°C
Frequency at 25°C	±20ppm
Load capacitance	12,5pF standard

Part No.	Ord.No.
S Q-0.032768-MTF32-12.5-20	13719

### MMTF32 Series



Technical parameters	MMTF32
Temperature range	-20°C up to +70°C
Frequency at 25°C	±20ppm
Load capacitance	12,5pF standard

Part No.	Ord.No.
S Q-0.032768-MMTF32-12.5-20	6344

Wide range of different frequencies are available on offer. Samples and technical support from the manufacturer for announced projects.

As the official distributor of Jauch we are able to supply also other series of SMD quartz crystals, shown on page A48.

## Accessories

### Insulator








RM=4,9mm

Technical parameters	ISQ 04
Foil	MYLAR
Thickness	0,127mm
Dimensions	11,8x5,6mm
Heat resistance	250°C
Dielectric strength	9kV

Part No.	Ord.No.
S ISQ 04	4488

VX3 Series • XO			
	Type	Frequency range	Size
	VX3 (5.0 V) Tristate Function	0.5 ~ 107.0 MHz	7.0 x 5.0 x 1.6 mm
	VX3 (3.3 V) Tristate Function	0.5 ~ 70.0 MHz	7.0 x 5.0 x 1.6 mm
	VX3 (3.3 V) Stop Function	0.5 ~ 165.0 MHz	7.0 x 5.0 x 1.6 mm
	<b>NEW</b> VX3 (2.8 V) Stop Function	0.5 ~ 165.0 MHz	7.0 x 5.0 x 1.6 mm
	<b>NEW</b> VX3 (2.5 V) Stop Function	0.5 ~ 125.0 MHz	7.0 x 5.0 x 1.6 mm
	<b>NEW</b> VX3 (1.8 V) Stop Function	0.5 ~ 50.0 MHz	7.0 x 5.0 x 1.6 mm





JO75 Series • XO			
	Type	Frequency range	Size
	JO75 (5.0 V)	0.5 ~ 107.0 MHz	7.0 x 5.0 x 1.8 mm
	<b>NEW</b> JO75H (5.0 V)	1.8 ~ 50.0 MHz	7.0 x 5.0 x 1.4 mm
	JO75 (3.3 V)	0.5 ~ 170.0 MHz	7.0 x 5.0 x 1.8 mm
	<b>NEW</b> JO75H (3.3 V)	1.8 ~ 50.0 MHz	7.0 x 5.0 x 1.4 mm
	JO75 (3.3 V)	0.012 ~ 1.85 MHz	7.0 x 5.0 x 1.8 mm
	JO75 (2.8 V)	0.5 ~ 165.0 MHz	7.0 x 5.0 x 1.8 mm
	JO75 (2.5 V)	0.5 ~ 160.0 MHz	7.0 x 5.0 x 1.8 mm
	<b>NEW</b> JO75 (1.8 V)	0.5 ~ 160.0 MHz	7.0 x 5.0 x 1.8 mm






JO53 Series • XO			
	Type	Frequency range	Size
	JO53 (5.0 V)	0.5 ~ 110.0 MHz	5.0 x 3.2 x 1.4 mm
	JO53 (3.3 V)	0.5 ~ 125.0 MHz	5.0 x 3.2 x 1.4 mm
	<b>NEW</b> JO53H (3.3V)	4.0 ~ 54.0 MHz	5.0 x 3.2 x 1.1 mm
	JO53 (3.0V)	0.5 ~ 125.0 MHz	5.0 x 3.2 x 1.4 mm
	JO53 (2.8 V)	0.5 ~ 80.0 MHz	5.0 x 3.2 x 1.4 mm
	JO53 (2.5 V)	0.5 ~ 80.0 MHz	5.0 x 3.2 x 1.4 mm
	<b>NEW</b> JO53H (2.5V)	4.0 ~ 54.0 MHz	5.0 x 3.2 x 1.1 mm
	<b>NEW</b> JO53 (1.8 V)	0.5 ~ 40.0 MHz	5.0 x 3.2 x 1.4 mm






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
JO32 Series • XO			
	Type	Frequency range	Size
	JO32 (3.3 V)	0.75 ~ 80.0 MHz	3.2 x 2.5 x 1.1 mm
	<b>NEW</b> JO32H (3.3V)	4.0 ~ 54.0 MHz	3.2 x 2.5 x 0.9 mm
	JO32 (3.0V)	0.75 ~ 80.0 MHz	3.2 x 2.5 x 1.1 mm
	JO32 (2.8 V)	0.75 ~ 80.0 MHz	3.2 x 2.5 x 1.1 mm
	JO32 (2.5 V)	0.75 ~ 80.0 MHz	3.2 x 2.5 x 1.1 mm
	<b>NEW</b> JO32H (2.5V)	4.0 ~ 54.0 MHz	3.2 x 2.5 x 0.9 mm
	JO32 (1.8 V)	0.75 ~ 40.0 MHz	3.2 x 2.5 x 1.1 mm

JO22 Series • XO			
	Type	Frequency range	Size
	JO22 (3.3 V)	0.75 ~ 50.0 MHz	2.5 x 2.0 x 0.8 mm
	JO22 (3.0V)	0.75 ~ 50.0 MHz	2.5 x 2.0 x 0.8 mm
	JO22 (2.8 V)	0.75 ~ 50.0 MHz	2.5 x 2.0 x 0.8 mm
	JO22 (2.5 V)	0.75 ~ 50.0 MHz	2.5 x 2.0 x 0.8 mm
	<b>NEW</b> JO22 (1.8V)	0.75 ~ 50.0 MHz	2.5 x 2.0 x 0.8 mm

VX7 • XO programmed			
	Type	Frequency range	Size
	VX7 programmed	1.0 ~ 200.0 MHz	7.0 x 5.0 x 1.6 mm

JPO75 • XO programmed			
	Type	Frequency range	Size
	<b>NEW</b> JPO75 (3.3V)	3.0 ~ 200.0 MHz	7.0 x 5.0 x 1.9 mm
	<b>NEW</b> JPO75 (2.5V)	3.0 ~ 130.0 MHz	7.0 x 5.0 x 1.9 mm

JPO53 • XO programmed			
	Type	Frequency range	Size
	<b>NEW</b> JPO53 (3.3V)	3.0 ~ 200.0 MHz	5.0 x 3.2 x 1.3 mm
	<b>NEW</b> JPO53 (2.5V)	3.0 ~ 130.0 MHz	5.0 x 3.2 x 1.3 mm

JPO32 • XO programmed			
	Type	Frequency range	Size
	<b>NEW</b> JPO32 (3.3V)	3.9 ~ 200.0 MHz	3.2 x 2.5 x 1.2 mm
	<b>NEW</b> JPO32 (2.5V)	3.9 ~ 130.0 MHz	3.2 x 2.5 x 1.2 mm
	<b>NEW</b> JPO32 (1.8V)	3.9 ~ 100.0 MHz	3.2 x 2.5 x 1.2 mm

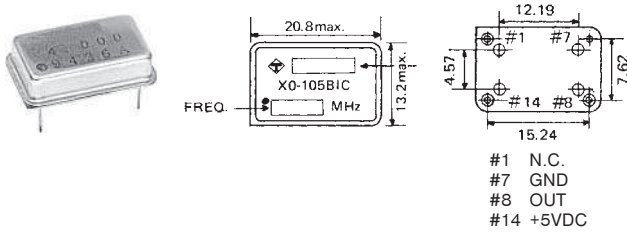
JPO22 • XO programmed			
	Type	Frequency range	Size
	<b>NEW</b> JPO22 (3.3V)	3.9 ~ 200.0 MHz	2.5 x 2.0 x 0.9 mm
	<b>NEW</b> JPO22 (2.5V)	3.9 ~ 130.0 MHz	2.5 x 2.0 x 0.9 mm
	<b>NEW</b> JPO22 (1.8V)	3.9 ~ 100.0 MHz	2.5 x 2.0 x 0.9 mm
JV75 Series • VCXO			
	Type	Frequency range	Size
	JV75 (5.0 V)	1.0 ~ 80.0 MHz	7.5 x 5.0 x 1.8 mm
	JV75 (3.3 V)	1.0 ~ 125.0 MHz	7.5 x 5.0 x 1.8 mm
JV53 Series • VCXO			
	Type	Frequency range	Size
	JV53 (5.0 V)	2.0 ~ 54.0 MHz	5.0 x 3.2 x 1.0 mm
	JV53 (3.3 V)	2.0 ~ 54.0 MHz	5.0 x 3.2 x 1.0 mm
JT75 • (VC)TCXO			
	Type	Frequency range	Size
	JT75(V)	10.0 ~ 26.0 MHz	7.0 x 5.0 x 1.6 mm
JT53 • (VC)TCXO			
	Type	Frequency range	Size
	JT53L(V)	5.0 ~ 45.0 MHz	5.0 x 3.2 x 1.1 mm
JT75 • (VC)TCXO			
	Type	Frequency range	Size
	JT75(V)	10.0 ~ 26.0 MHz	7.0 x 5.0 x 1.6 mm
JT53 • (VC)TCXO			
	Type	Frequency range	Size
	JT53L(V)	5.0 ~ 45.0 MHz	5.0 x 3.2 x 1.1 mm
JT32 • (VC)TCXO			
	Type	Frequency range	Size
	JT32(V)	8.0 ~ 45.0 MHz	3.2 x 2.5 x 1.1 mm
JOE75 • PECL			
	Type	Frequency range	Size
	JOE75 (3.3 V)	50.0 ~ 170.0 MHz	7.5 x 5.2 x 1.6 mm
	JOE75 (2.5 V)	62.5 ~ 165.0 MHz	7.5 x 5.2 x 1.6 mm
SMD • VCXO • PECL			
	Type	Frequency range	Size
	JVE75A (3.3V)	50.0 ~ 700.0 MHz	7.5 x 5.0 x 2.0 mm
	JVE75B (3.3V)	12.0 ~ 800.0 MHz	7.5 x 5.0 x 2.0 mm


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JOD75 • LVDS			
	Type	Frequency range	Size
	<b>NEW</b> JOD75 (3.3 V or 2.5 V)	80.0 ~ 170.0 MHz	7.5 x 5.2 x 1.6 mm
JVD Serie • VCXO • LVDS			
	Type	Frequency range	Size
	<b>NEW</b> JVD75A (3.3V)	12.0 ~ 700.0 MHz	7.5 x 5.0 x 1.6 mm
	<b>NEW</b> JVD75B (3.3V)	12.0 ~ 800.0 MHz	7.5 x 5.0 x 1.6 mm
JSS53 • Spread Spectrum			
	Type	Frequency range	Size
	<b>NEW</b> JSS53 (3.3V)	12.0 ~ 168.0 MHz	5.0 x 3.2 x 1.1 mm
JCO8 / JCO14 • Pin Type			
	Type	Frequency range	Size
	JCO8 (5.0 V)	1.0 ~ 160.0 MHz	12.8 x 12.8 x 5.3 mm
	JCO14 (5.0 V)	1.0 ~ 160.0 MHz	20.4 x 12.8 x 5.3 mm
	JCO8 (3.3 V)	1.0 ~ 160.0 MHz	12.8 x 12.8 x 5.3 mm
	JCO14 (3.3 V)	1.0 ~ 160.0 MHz	20.4 x 12.8 x 5.3 mm
JCO9xx Series • VCXO			
	Type	Frequency range	Size
	JCO925 (5.0 V)	1.843 ~ 40.0 MHz	12.8 x 12.8 x 5.3 mm
	JCO923 (5.0 V)	1.843 ~ 125.0 MHz	20.4 x 12.8 x 5.3 mm
	JCO926 (3.3 V)	1.843 ~ 40.0 MHz	12.8 x 12.8 x 5.3 mm
	JCO924 (3.3 V)	1.843 ~ 125.0 MHz	20.4 x 12.8 x 5.3 mm
SMD • JO42 Serie 32.768kHz			
	Type	Frequency range	Size
	<b>NEW</b> JO42 (3.3V)	32.768 kHz	4.0 x 2.5 x 0.9 mm
	<b>NEW</b> JO42 (2.8V)	32.768 kHz	4.0 x 2.5 x 0.9 mm
	<b>NEW</b> JO42 (2.5V)	32.768 kHz	4.0 x 2.5 x 0.9 mm
	<b>NEW</b> JO42 (1.8V)	32.768 kHz	4.0 x 2.5 x 0.9 mm
	<b>NEW</b> JO42 (1.5V)	32.768 kHz	4.0 x 2.5 x 0.9 mm

## Quartz Crystal Oscillators

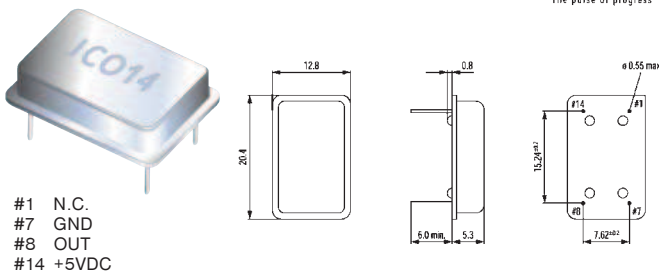
### QO105BIC Series



Technical parameters	QO 105 BIC
Frequency Stability Code	±50ppm
Temperature range	0°C up to +70°C
Power supply	5VDC
Output	CMOS/TTL
How to order	QO 105 BIC 40MHz

Part No.	Ord.No.
S QO 105 BIC 10MHz	19254
S QO 105 BIC 20MHz	19268
O QO 105 BIC 40MHz	24816
S QO 105 BIC 60MHz	24817
S QO 105 BIC 100MHz	39965

### JCO 14 Series

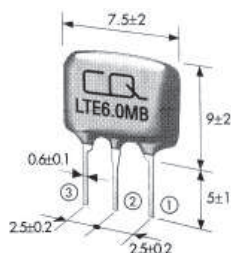


Technical parameters	JCO14
Frequency Stability Code	±50ppm
Temperature range	-10°C up to +70°C
Power supply	5VDC
Output	HCMOS - 3 phases
How to order	QO 33,0-JCO14-3-B

Part No.	Ord.No.
S O 33,0-JCO14-3-B	8060

As the official distributor of JAUCH we are able to supply also other quartz crystal oscillators series, shown on pages A51-A52.

## Ceramic Filters (band-pass filters)



Part No.	Description
KF 6,5MHz	6,5MHz, BW = 160kHz (3dB)
SFE 10,7 MA 5-A	10,7MHz, BW = 280kHz (3dB)

Part No.	Ord.No.
S KF 6,5 MHz	28890
S SFE 10,7 MA 5-A	39530

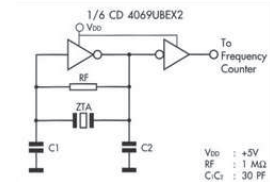
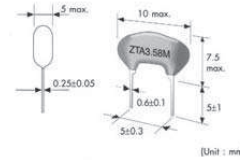
## Ceramic Resonators

### ZTA Series

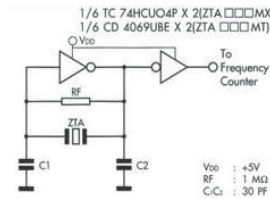
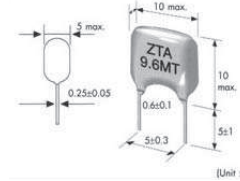


MG: 10x7,5x5  
MT: 10x10x5

#### ZTA 2...6MHz



#### ZTA 8...12MHz



Technical parameters	ZTA
Frequency tolerance	±0,5%
Temperature range	-20°C up to +80°C
Voltage sustaining capability	100VDC
How to order	ZTA 2,00 MG

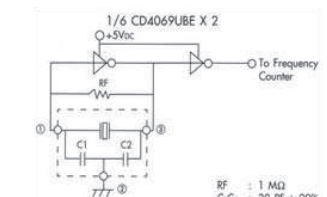
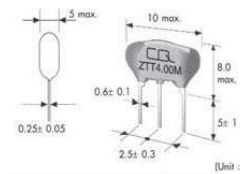
Part No.	Ord.No.
O ZTA2,00MG 2,00MHz	68796
O ZTA3,58MG 3,58MHz	60576
S ZTA4,00MG 4MHz	9005
O ZTA6,00MG 6MHz	68797
O ZTA8,00MT 8MHz	57465
O ZTA10,00MT 10MHz	68798
O ZTA12,00MT 12MHz	68799

### ZTT Series

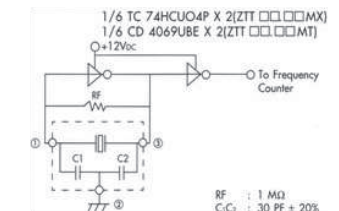
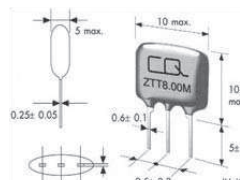


MG: 10x8x5  
MT: 10x10x5

#### ZTT 2...6MHz



#### ZTT 8...12MHz

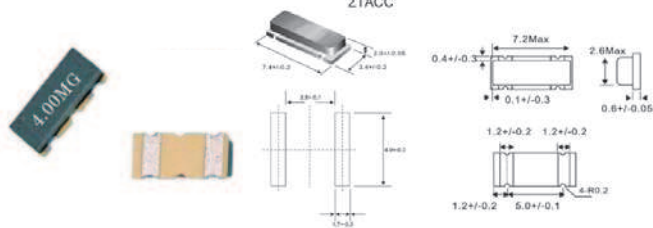


Technical parameters	ZTT
Frequency tolerance	±0,5%
Temperature range	-20°C up to +80°C
Voltage sustaining capability	100VDC
How to order	ZTT 2,00 MG

Part No.	Ord.No.
O ZTT2,00MG 2MHz	68808
O ZTT4,00MG 4MHz	62713
O ZTT6,00MG 6MHz	58409
O ZTT8,00MT 8MHz	72421
O ZTT12,00MT 12MHz	68885

## SMD Ceramic Resonators

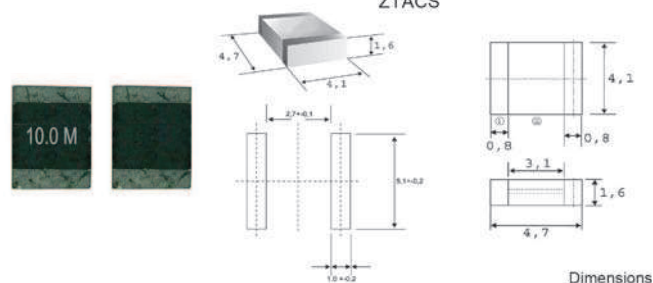
### ZTACC Series



Technical parameters	ZTACC
Frequency tolerance	±0,5%
Temperature range	-20°C up to +80°C
Voltage sustaining capability	30pF
How to order	ZTACC 2,00 MG

Part No.	Ord.No.
o ZTACC2,00MG 2MHz	68770
o ZTACC3,58MG 3,58MHz	68771
o ZTACC4,00MG 4MHz	51980
o ZTACC6,00MG 6MHz	68800

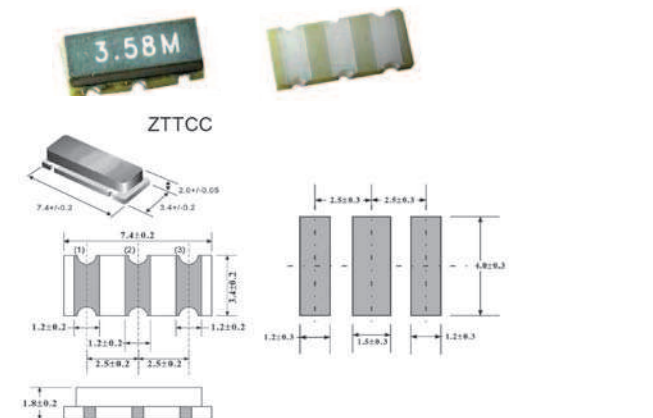
### ZTACS Series



Technical parameters	ZTACC
Frequency tolerance	±0,5%
Temperature range	-20°C up to +80°C
How to order	ZTACS 12,00 MT

Part No.	Ord.No.
o ZTACS8,00MT 8MHz	68801
o ZTACS10,00MT 10MHz	68802
o ZTACS12,00MT 12MHz	68803

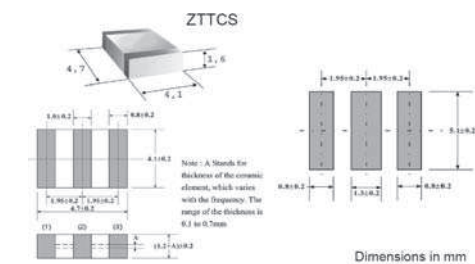
### ZTCC Series



Technical parameters	ZTCC
Frequency tolerance	±0,5%
Temperature range	-20°C up to +80°C
Load capacitance	22pF
How to order	ZTCC 2,00 MG

Part No.	Ord.No.
o ZTCC2,00MG 2MHz	68772
o ZTCC3,58MG 3,58MHz	68773
o ZTCC4,00MG 4MHz	68774
o ZTCC6,00MG 6MHz	68804

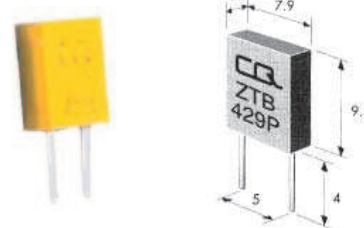
### ZTTCS Series



Technical parameters	ZTTCS
Frequency tolerance	±0,5%
Temperature range	-20°C up to +80°C
How to order	ZTTCS 12,00 MT

Part No.	Ord.No.
o ZTTCS8,00MT 8MHz	68805
o ZTTCS10,00MT 10MHz	68806
o ZTTCS12,00MT 12MHz	68807

### KR Series



Technical parameters	KR
Frequency tolerance	±0,3%
Temperature range	-20°C up to +80°C
How to order	KR 429 kHz

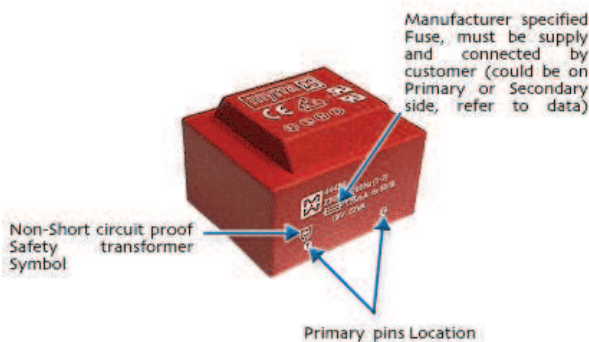
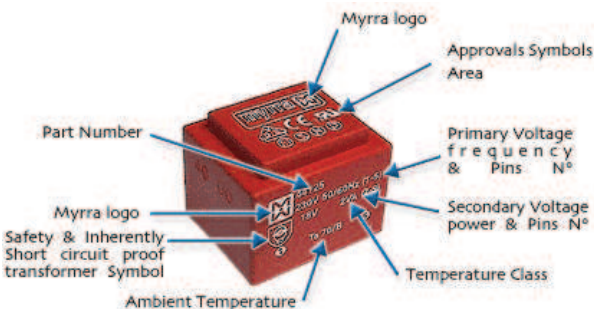
Part No.	Ord.No.
S KR 429 KHZ (CSB429P)	30181
S KR 455 KHZ (CSB455)	30182
S KR 485 KHZ (CSB485)	30183
O KR 500 KHZ (RS500KHZ)	30184

## More information needed?

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## SOS electronic - the official distributor of Myrra transformers



### RATED PRIMARY VOLTAGE (V)

This is the supply voltage assigned to the transformer by the manufacturer.

### RATED SECONDARY VOLTAGE (V)

This is the secondary output voltage assigned to the transformer when supplied with the rated primary voltage, frequency range, rated secondary current, all assigned by the manufacturer for the specified operating conditions of the transformer.

### RATED POWER (VA)

The specified power levels in this catalogue are the secondary power levels, in other words, those available when the transformer is loaded. It is the product of the RMS rated secondary voltage by the RMS rated current. If the transformer has more than one output winding, the rated power denotes the maximum sum of the products of RMS rated secondary voltage by the RMS rated secondary current, respectively. This rated power is defined for rated ambient temperature conditions.

**example** :  $P = 3,2 \text{ VA T70/B}$

The transformer can deliver 3.2VA at maximum ambient (70°C), the load consisting of a resistor load defined by  $R(\text{load}) = U(\text{sec}) / I(\text{sec})$  (assigned U sec & P values), heating does not exceed the relevant limit for Class B components used in this construction.

**NOTE** : When the transformer is intended to supply DC voltage and current in conjunction with rectifiers and smoothing capacitors, the VA power required from the transformer is far higher than the  $U(\text{DC})$  and  $I(\text{DC})$  product. To help you to determine the true transformer power, our Technical Department is at your disposal.

### AMBIENT TEMPERATURE (ta)

The maximum temperature at which the transformer may be operated continuously under nominal conditions of use. It is the air temperature measured close to the transformer after thermal stabilization when operating at rated conditions.

### HEATING

The increase of the winding temperature when operating at rated conditions and maximum ambient temperature. The heating must be determined by the resistance method.

### TEMPERATURE CLASS

The international classification of temperature classes is as follows :

A	105°C	H	180°C
E	120°C	200	200°C
B	130°C	220	220°C
F	155°C	250	250°C

It defines the maximum temperature the transformer components must withstand in continuous operation, in compliance with the N° 85 IEC publication classification. There insulating materials are therefore certified for the thermal index corresponding to the declared class in accordance with N° 216 IEC standard.

### PARTICULAR POINTS OF EN 61558-2-6 STANDARD FOR SAFETY TRANSFORMERS

On-load secondary voltage tolerance.

This should not differ from the rated value by more than :

10% for transformers with build-in resistance to short-circuits (a supplement of 5% is granted on the 2nd secondary for transformers with 2 secondaries).

Off-load secondary voltage.

**NOTE** : For safety transformers, this should never exceed 50 V rms. In the case of a transformer with several secondaries, the sum of the secondary voltages should be less than 50 V rms.

## Moulded Transformer for PCB

### 44000 Series



- Vacuum filling
- Two compartments bobbins
- Self-extinguishing plastics UL 94 V0
- Degree of protection IP 00
- 40 grams weight
- Resin class B CEI 85 (20 000 h testing to CEI 126)
- Inherently short-circuits proof
- Insulation voltage 4 KV (6 KV MYRRA test)
- 100% tested production
- Certification: CCA procedure on request

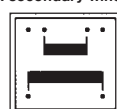
### 0,35VA

Please, find this series of transformers on page A59.

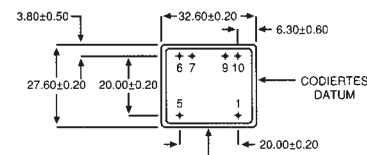
### 0,6VA - EI 30-5



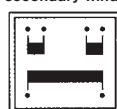
1x secondary winding



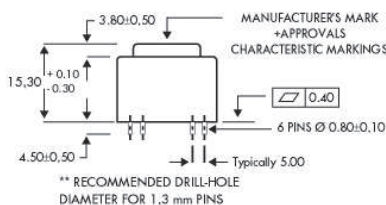
1x primary winding



2x secondary windings



1x primary winding



Original mark.	$U_{\text{sek}}$ [V]	$I_{\text{sek}}$ [mA]	$U_{\text{no-load}}$ [V]	Amb.temp.	Protection
M44013	6	100	9,94	T 70 B	
M44014	9	66	14,95	T 70 B	
M44015	12	50	19,9	T 70 B	
M44019	2 x 6	2 x 50	2 x 9,94	T 70 B	short-circuit proof
M44020	2 x 9	2 x 33	2 x 14,95	T 70 B	
M44021	2 x 12	2 x 25	2 x 19,90	T 70 B	

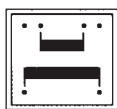
Weight 40g  
Packaging 25pcs

Part No.	Ord.No.
S 1X6V 0,6VA 230V	11600
S 1X9V 0,6VA 230V	11602
S 1X12V 0,6VA 230V	11603
O 2X6V 0,6VA 230V	11606
S 2X9V 0,6VA 230V	11607
S 2X12V 0,6VA 230V	48924

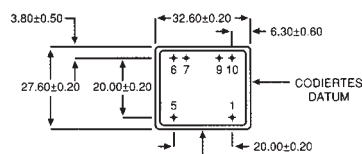
### 1VA - EI30-10,5



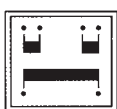
1secondary winding



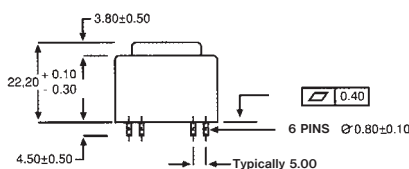
1x primary winding



2 secondary windings



1x primary winding



Original mark.	U <sub>sec</sub> [V]	I <sub>sec</sub> [mA]	U <sub>no-load vol.</sub> [V]	Amb.tem.	Protection
M44049	6	167	8,6	T 70 B	
M44050	9	111	12,9	T 70 B	
M44051	12	83	17,2	T 70 B	
M44052	15	67	21,6	T 70 B	
M44055	2 x 6	2 x 83	2 x 8,6	T 70 B	short-circuit proof
M44056	2 x 9	2 x 56	2 x 12,9	T 70 B	
M44057	2 x 12	2 x 42	2 x 19	T 70 B	
M44058	2x15	2 x 33	2 x 23,6	T 70 B	
M44060	2x24	2 x 21	2 x 37,9	T 70 B	

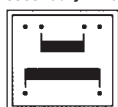
**Weight** 70g  
**Packaging** 25pcs

Part No.	Ord.No.
S 1x6V 1VA 230V	12848
S 1x9V 1VA 230V	12849
S 1x12V 1VA 230V	12850
S 1x15V 1VA 230V	12851
S 2x6V 1VA 230V	12852
S 2x9V 1VA 230V	12853
S 2x12V 1VA 230V	12854
S 2x15V 1VA 230V	12855
O 2x24V 1VA 230V	54676

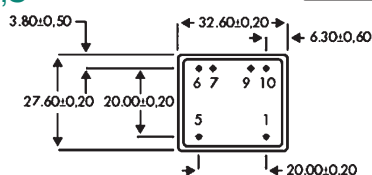
## 1,5VA - EI 30-12,5



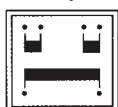
1x secondary winding



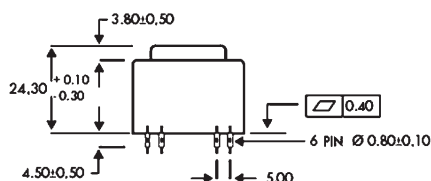
1x primary winding



2x secondary windings



1x primary winding



Original mark.	U <sub>sec</sub> [V]	I <sub>sec</sub> [mA]	U <sub>no-load vol.</sub> [V]	Amb. temp.	Protection
M44085	6	250	10,1	ta 70/B	
M44087	12	125	20,2	ta 70/B	short-circuit proof
M44089	18	83	29,8	ta 70/B	

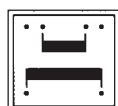
**Weight** 80g  
**Packaging** 25pcs

Part No.	Ord.No.
S 1X6V 1,5VA 230V	12856
S 1X12V 1,5VA 230V	12857
S 1X18V 1,5VA 230V	53041

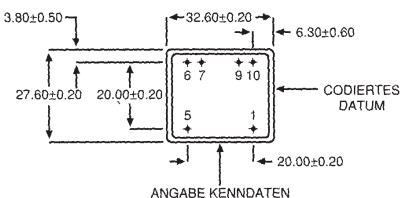
## 2VA - EI 30-15,5



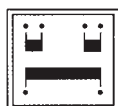
1x secondary winding



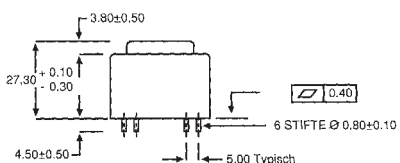
1x primary winding



2x secondary windings



1x primary winding



Original mark.	U <sub>sec</sub> [V]	I <sub>sec</sub> [mA]	U <sub>no-load vol.</sub> [V]	Amb.tem.	Protection
M44121	6	333	10,4	T 70 B	
M44122	9	222	15,5	T 70 B	
M44123	12	167	20,7	T 70 B	short-circuit proof
M44124	15	133	25,8	T 70 B	
M44125	18	111	30,8	T 70 B	
M44126	24	83	41,4	T 70 B	
M44127	2 x 6	2 x 167	2 x 10,4	T 70 B	
M44128	2 x 9	2 x 111	2 x 15,4	T 70 B	
M44129	2 x 12	2 x 83	2 x 20,7	T 70 B	
M44130	2 x 15	2 x 67	2 x 25,8	T 70 B	
M44131	2 x 18	2 x 56	2 x 30,8	T 70 B	
M44132	2 x 24	2 x 42	2 x 41,4	T 70 B	

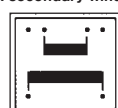
**Weight** 100g  
**Packaging** 25pcs

Part No.	Ord.No.
S 1X6V 2VA 230V	12858
S 1X9V 2VA 230V	12859
S 1x12V 2VA 230V	12860
S 1X15V 2VA 230V	12861
S 1X18V 2VA 230V	12862
S 1x24V 2VA 230V	12863
S 2X6V 2VA 230V	12864
S 2X9V 2VA 230V	12865
S 2X12V 2VA 230V	12866
S 2X15V 2VA 230V	12867
S 2X18V 2VA 230V	12868
S 2X24V 2VA 230V	12869

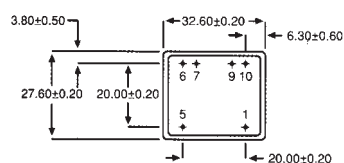
## 2,3 VA - EI30-18



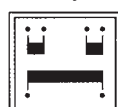
1x secondary winding



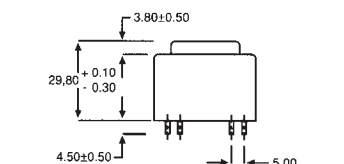
1x primary winding



2x secondary windings



1x primary winding



Original mark.	U <sub>sec</sub> [V]	I <sub>sec</sub> [mA]	U <sub>no-load vol.</sub> [V]	Amb.tem.	Protection
M44157	6	383	10,5	T 70 B	
M44158	9	256	15,7	T 70 B	
M44159	12	192	21	T 70 B	
M44160	15	153	25,9	T 70 B	short-circuit proof
M44162	24	96	41,9	T 70 B	
M44163	2 x 6	2 x 192	2 x 10,5	T 70 B	
M44164	2 x 9	2 x 128	2 x 15,7	T 70 B	
M44165	2 x 12	2 x 96	2 x 21	T 70 B	
M44166	2 x 15	2 x 77	2 x 25,9	T 70 B	

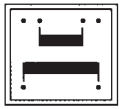
**Weight** 125g  
**Packaging** 25pcs

Part No.	Ord.No.
S 1X6V 2,3VA 230V	12870
S 1X9V 2,3VA 230V	12871
S 1x12V 2,3VA 230V	12872
S 1X15V 2,3VA 230V	12873
S 1X24V 2,3VA 230V	54824
O 2X6V 2,3VA 230V	12874
O 2X9V 2,3VA 230V	12875
S 2X12V 2,3VA 230V	12876
S 2X15V 2,3VA 230V	12877

## 3,2 VA - EI 38-13,6

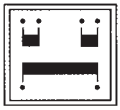


1x secondary winding

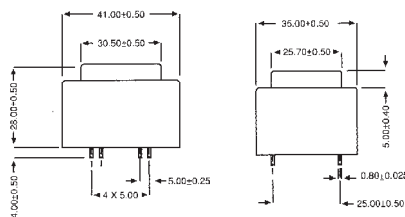


1x primary winding

2x secondary windings



1x primary winding



Original mark.	U <sub>sek</sub> [V]	I <sub>sek</sub> [mA]	U <sub>no-load vol.</sub> [V]	Amb.temp.	Sec. fuse
M44193	6	533	8	T 70 B	630 mA
M44194	9	356	12	T 70 B	400 mA
M44195	12	267	16	T 70 B	315 mA
M44196	15	213	20	T 70 B	250 mA
M44199	2 x 6	2 x 267	2 x 8	T 70 B	315 mA
M44200	2 x 9	2 x 178	2 x 12	T 70 B	200 mA
M44201	2 x 12	2 x 133	2 x 16	T 70 B	160 mA
M44202	2 x 15	2 x 107	2 x 20	T 70 B	125 mA
M44204	2 x 24	2 x 67	2 x 32,1	T 70 B	80 mA

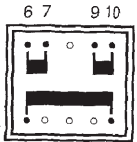
**Weight** 150g  
**Packaging** 25pcs

Part No.	Ord.No.
S 1X6V 3,2VA 230V	12878
S 1X9V 3,2VA 230V	12879
S 1X12V 3,2VA 230V	12880
S 1X15V 3,2VA 230V	12881
S 2X6V 3,2VA 230V	12882
S 2x9V 3,2VA 230V	12883
S 2X12V 3,2VA 230V	12884
S 2X15V 3,2VA 230V	12885
S 2X24V 3,2VA 230V	12887

## 5 VA - EI 42-14,8

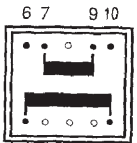


2x secondary windings

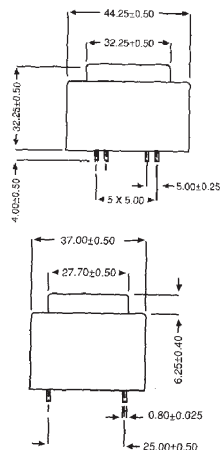


1x primary winding

1x secondary winding



1x primary winding



Original mark.	U <sub>sek</sub> [V]	I <sub>sek</sub> [mA]	U <sub>no-load vol.</sub> [V]	Amb.temp.	Sec. fuse
M44229	6	833	8,4	T 50 B	800mA
M44230	9	556	12,6	T 50 B	630mA
M44231	12	417	16,9	T 50 B	400mA
M44232	15	333	21	T 50 B	315mA
M44233	18	278	25,3	T 50 B	315mA
M44234	24	208	33,7	T 50 B	200mA
M44235	2 x 6	2 x 417	2 x 8,4	T 50 B	400mA
M44236	2 x 9	2 x 278	2 x 12,6	T 50 B	315mA
M44237	2 x 12	2 x 208	2 x 16,9	T 50 B	200mA
M44238	2 x 15	2 x 167	2 x 21	T 50 B	160mA
M44239	2 x 18	2 x 139	2 x 25,3	T 50 B	160mA
M44240	2 x 24	2 x 104	2 x 33,7	T 50 B	100mA

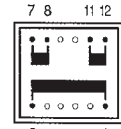
**Weight** 200g  
**Packaging** 20pcs

Part No.	Ord.No.
S 1X6V 5VA 230V	12889
S 1X9V 5VA 230V	12890
S 1x12V 5VA 230V	12891
S 1X15V 5VA 230V	12892
S 1X18V 5VA 230V	12893
S 1X24V 5VA 230V	12894
S 2X6V 5VA 230V	12895
S 2X9V 5VA 230V	12896
S 2X12V 5VA 230V	12897
S 2X15V 5VA 230V	12898
S 2X18V 5VA 230V	12899
S 2X24V 5VA 230V	12900

## 10 VA - EI 48-16,8

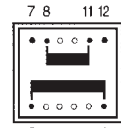


2x secondary windings

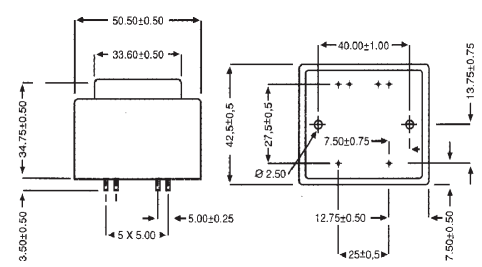


1x primary winding

1x secondary winding



1x primary winding



Original mark.	U <sub>sek</sub> [V]	I <sub>sek</sub> [mA]	U <sub>no-load vol.</sub> [V]	Amb.temp.	Prim. fuse
M44265	6	1667	7,2	T 50 B	63mA
M44266	9	1111	10,8	T 50 B	63mA
M44267	12	833	14,4	T 50 B	63mA
M44268	15	667	18,1	T 50 B	63mA
M44269	18	556	21,6	T 50 B	63mA
M44270	24	417	28,9	T 50 B	63mA
M44271	2 x 6	2 x 833	2 x 7,2	T 50 B	63mA
M44272	2 x 9	2 x 556	2 x 10,8	T 50 B	63mA
M44273	2 x 12	2 x 417	2 x 14,4	T 50 B	63mA
M44274	2 x 15	2 x 333	2 x 18,1	T 50 B	63mA
M44275	2 x 18	2 x 278	2 x 21,6	T 50 B	63mA
M44276	2 x 24	2 x 208	2 x 28,9	T 50 B	63mA

**Weight** 300g  
**Packaging** 20pcs

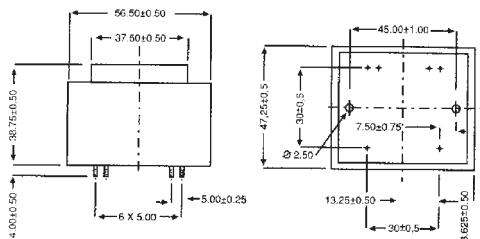
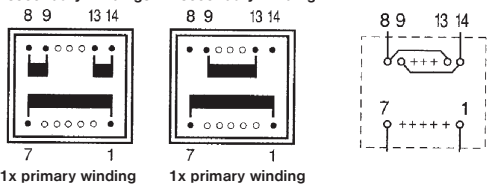
Part No.	Ord.No.
S 1X6V 10VA 230V	12901
S 1X9V 10VA 230V	12902
S 1X12V 10VA 230V	12903
S 1X15V 10VA 230V	12904
S 1X18V 10VA 230V	12905
S 1X24V 10VA 230V	12906
S 2X6V 10VA 230V	12907
S 2X9V 10VA 230V	12908
S 2X12V 10VA 230V	12909
S 2X15V 10VA 230V	12910
S 2X18V 10VA 230V	12911
S 2X24V 10VA 230V	12912



## 16 VA - EI 54-18,8



2x secondary windings 1x secondary winding



Original mark.	U <sub>sec</sub> [V]	I <sub>sec</sub> [mA]	U <sub>no-load vol.</sub> [V]	Amb. temp.	Sec. fuse
M44302	9	1778	11,1	T 50 B	2A
M44303	12	1333	14,7	T 50 B	1,25A
M44304	15	1067	18,4	T 50 B	1A
M44305	18	889	22,1	T 50 B	1A
M44306	24	667	29,3	T 50 B	0,63A
M44308	2 x 9	2 x 889	2 x 11,1	T 50 B	1A
M44309	2 x 12	2 x 667	2 x 14,7	T 50 B	0,63A
M44310	2 x 15	2 x 533	2 x 18,4	T 50 B	0,5A
M44311	2 x 18	2 x 444	2 x 22	T 50 B	0,5A
M44312	2 x 24	2 x 333	2 x 29,3	T 50 B	0,315A

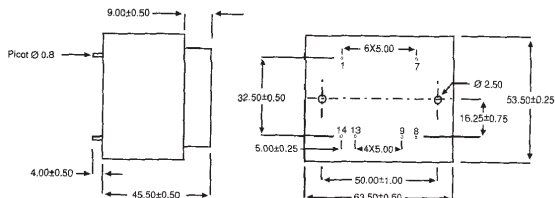
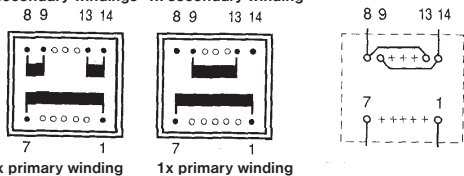
Weight 400g  
Packaging 10pcs

Part No.	Ord.No.
S 1X9V 16VA 230V	12913
S 1X12V 16VA 230V	12914
S 1X15V 16VA 230V	12915
S 1X18V 16VA 230V	12916
S 1X24V 16VA 230V	12917
S 2X9V 16VA 230V	12919
S 2X12V 16VA 230V	12920
S 2X15V 16VA 230V	12921
S 2X18V 16VA 230V	12922
O 2X24V 16VA 230V	12923

## 22 VA - EI 60-21



2x secondary windings 1x secondary winding



Original mark.	U <sub>sec</sub> [V]	I <sub>sec</sub> [mA]	U <sub>no-load vol.</sub> [V]	Amb. temp.	Prim. fuse
M44433	9	2444	10,3	T 50 B	125mA
M44434	12	1833	13,7	T 50 B	125mA
M44435	15	1467	17,1	T 50 B	125mA
M44436	18	1222	20,5	T 50 B	125mA
M44437	24	917	27,3	T 50 B	125mA
M44439	2 x 9	2 x 1222	2 x 10,3	T 50 B	125mA
M44440	2 x 12	2 x 917	2 x 13,7	T 50 B	125mA

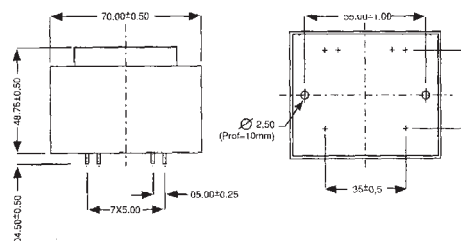
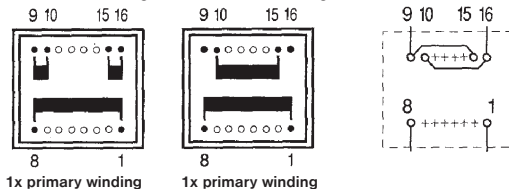
Weight 550g  
Packaging 10pcs

Part No.	Ord.No.
S 1X9V 22VA 230V	12932
S 1X12V 22VA 230V	12933
S 1X15V 22VA 230V	12934
S 1X18V 22VA 230V	12935
S 1X24V 22VA 230V	12936
S 2X9V 22VA 230V	12938
S 2X12V 22VA 230V	12939

## 30 VA - EI 66-23



2x secondary windings 1x secondary winding



Original mark.	U <sub>sec</sub> [V]	I <sub>sec</sub> [mA]	U <sub>no-load vol.</sub> [V]	Amb. temp.	Prim. fuse
M44375	12	2500	13,8	T 50 B	160mA
M44376	15	2000	17,2	T 50 B	160mA
M44378	24	1250	27,7	T 50 B	160mA
M44379	2 x 6	2 x 2500	2 x 6,9	T 50 B	160mA
M44380	2 x 9	2 x 1667	2 x 10,3	T 50 B	160mA
M44381	2 x 12	2 x 1250	2 x 13,8	T 50 B	160mA
M44382	2 x 15	2 x 1000	2 x 17,2	T 50 B	160mA
M44383	2 x 18	2 x 833	2 x 20,8	T 50 B	160mA
M44384	2 x 24	2 x 625	2 x 27,7	T 50 B	160mA

Weight 700g  
Packaging 5pcs

Part No.	Ord.No.
S 1X12V 30VA 230V	12924
S 1x15V 30VA 230V	12925
S 1X24V 30VA 230V	12926
S 2X6V 30VA 230V	59967
S 2X9V 30VA 230V	12927
S 2x12V 30VA 230V	12928
S 2X15V 30VA 230V	12929
S 2X18V 30VA 230V	12930
O 2x24V 30VA 230V	12931

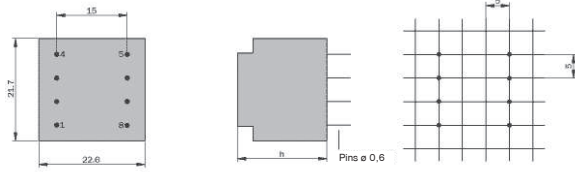
Please, find more information at  
[www.soselectronic.com](http://www.soselectronic.com)

## BV201 Series



An extremely small low-voltage transformer for PCB installation. Vacuum cast. Its dimensions make it particularly suitable in applications where a low height is required. With double secondary windings which can be connected in series or in parallel. The transformer is short-circuit-proof.

### 0,35VA - EE20-6



Original mark.	$U_{sec}$ [V]	$I_{sec}$ [mA]	$U_{no-load vol.}$ [V]	Amb.tem.	Protection
BV2010128	6	58	10	ta 70/B	
BV2010136	9	39	36,8	ta 70/B	short-circuit proof
BV2010145	12	29	20,8	ta 70/B	
BV2010146	2x12	2x15	2x19,7	ta 70/B	
<b>Weight</b>	25g				
<b>Packaging</b>	50pcs				

Part No.	Ord.No.
S BV2010128	3810
S BV2010136	42531
S BV2010145	12842
O BV2010146	49310

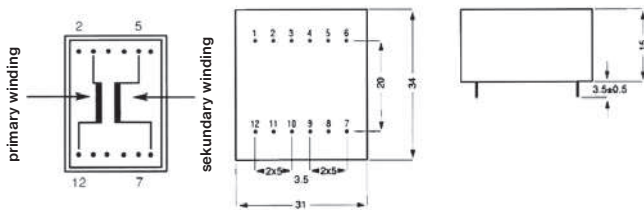
## Flat Core Transformers

### 45000 Series



- 115V-230V supply voltage by serie/parallel connection
- Vacuum filling
- One compartment housing
- Degree of protection IP 00
- 50 grams weight
- Resin UL 94 VO
- Design protection against short-circuits
- Insulation voltage 4 KV (6 KV MYRRA test)
- 100% tested production

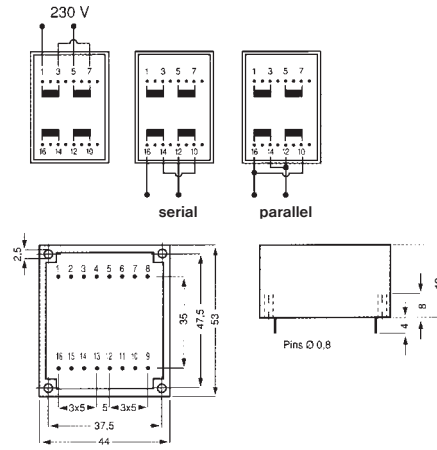
### 1VA - UI21



Original mark.	$U_{sec}$ [V]	$I_{sec}$ [mA]	$U_{no-load vol.}$ [V]	Amb.tem.	Protection
M45002	9	111	17	T70B	
M45003	12	83	22,8	T70B	short-circuit proof
M45005	18	56	34,2	T70B	
M45006	24	42	45,6	T70B	
<b>Weight</b>	50g				
<b>Packaging</b>	9pcs				

Part No.	Ord.No.
S 1X9V 1VA 230V	54943
O 1x12V 1VA 230V	49720
S 1X18V 1VA 230V	12948
O 1x24V 1VA 230V	12949

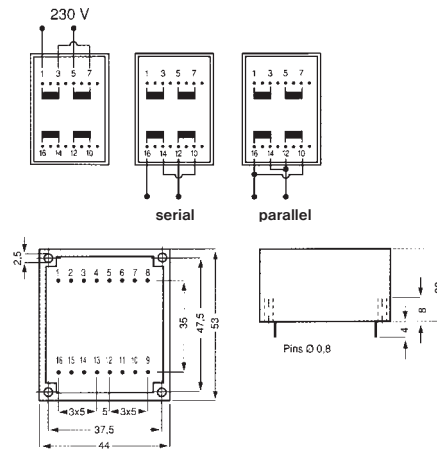
## 4VA - UI30x7,5



Original mark.	$U_{sec}$ [V]	$I_{sec}$ [mA]	$U_{no-load vol.}$ [V]	Amb.tem.	Sec. fuse
M45020	2x9	2x222	2x14	T70B	250mA
M45021	2x12	2x167	2x18,6	T70B	160mA
<b>Weight</b>	150g				
<b>Packaging</b>	9pcs				

Part No.	Ord.No.
S 2X9V 4VA 2x115V	12951
O 2X12V 4VA 2x115V	12952

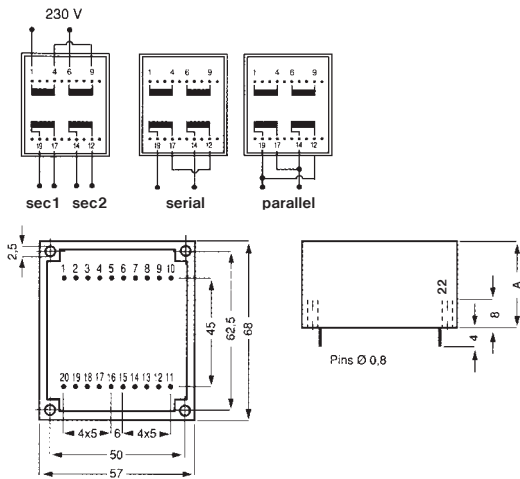
## 6VA - UI30x10,5



Original mark.	$U_{sec}$ [V]	$I_{sec}$ [mA]	$U_{no-load vol.}$ [V]	Amb.tem.	Sec. fuse
M45025	2x6	2x500	2x8,1	T70B	500mA
M45026	2x9	2x333	2x12,1	T70B	315mA
M45027	2x12	2x250	2x16,2	T70B	250mA
M45028	2x15	2x200	2x20,2	T70B	200mA
<b>Weight</b>	185g				
<b>Packaging</b>	9pcs				

Part No.	Ord.No.
O 2X6V 6VA 2x115V	12953
S 2X9V 6VA 2x115V	12954
S 2X12V 6VA 2x115V	12955
O 2X15V 6VA 2x115V	47090

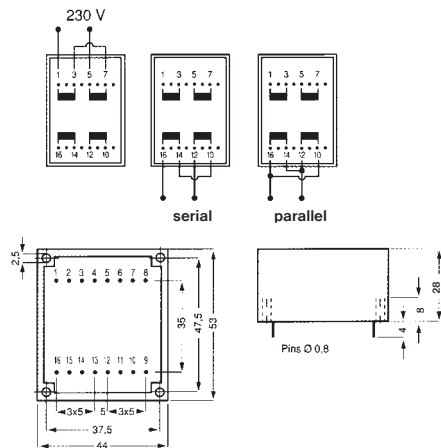
## 10VA - UI39x8



Original mark.	$U_{sec}$ [V]	$I_{sec}$ [mA]	$U_{no-load vol.}$ [V]	Amb.temp.	Prim. fuse
M45038	2x9V	2x555	2x12,7	T50B	63mA
M45039	2x12	2x416	2x16,9	T50B	63mA
<b>Weight</b>	285g				
<b>Packaging</b>	9pcs				

Part No.	Ord.No.
S 2X9V 10VA 2x115V	12958
S 2X12V 10VA 2x115V	12959

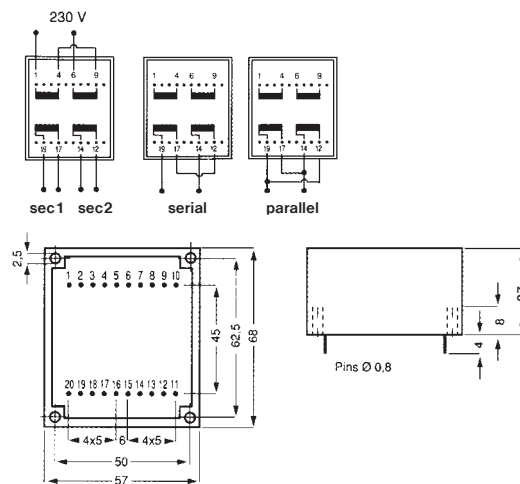
## 10VA - UI30x16,5



Original mark.	$U_{sec}$ [V]	$I_{sec}$ [mA]	$U_{no-load vol.}$ [V]	Amb.temp.	Prim. fuse
M45033	2x12	2x417	2x15,9	T50B	63mA
<b>Weight</b>	260g				
<b>Packaging</b>	9pcs				

Part No.	Ord.No.
S 2X12V 10VA 2x115V	12956

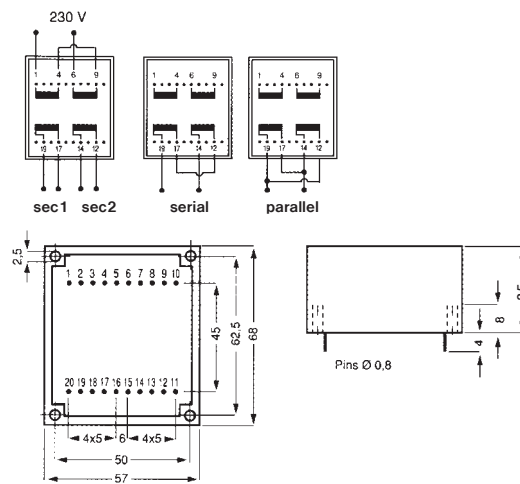
## 18VA - UI39x13,5



Original mark.	$U_{sec}$ [V]	$I_{sec}$ [mA]	$U_{no-load vol.}$ [V]	Amb.temp.	Prim. fuse
M45051	2x12	2x750	2x14,7	T50B	100mA
<b>Weight</b>	405g				
<b>Packaging</b>	9pcs				

Part No.	Ord.No.
S 2X12V 18VA 2X115V	12961

## 30VA - UI39x21



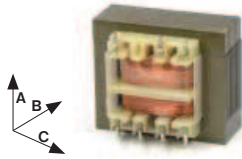
Original mark.	$U_{sec}$ [V]	$I_{sec}$ [mA]	$U_{no-load vol.}$ [V]	Amb.temp.	Prim. fuse
M45062	2x9	2x1667	2x10,15	T50B	160mA
M45063	2x12	2x1250	2x13,5	T50B	160mA
<b>Weight</b>	550g				
<b>Packaging</b>	9pcs				

Part No.	Ord.No.
S 2X9V 30VA 2x115V	12965
S 2X12V 30VA 2x115V	12966

## Low Power Mains Transformers

### TS - Series

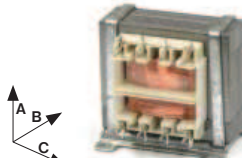
#### 2VA - EI 36/12,8



Core	A [mm]	B [mm]	C [mm]
EI 36/12,8	30	28,5	36

Solderable eyelets

Part No.	U <sub>sec</sub> [V]	I <sub>sec</sub> [A]	Ord.No.
S TS 2/15	1x10,1	1x0,22	78704
S TS 2/18	2x5,5	2x0,14	78705
S TS 2/012	2x8,5	2x0,1	78706

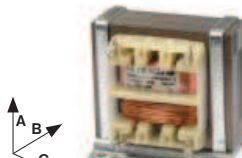


Core	A [mm]	B [mm]	C [mm]
EI 36/12,8	34	28,5	36

Solderable eyelets

Part No.	U <sub>sec</sub> [V]	I <sub>sec</sub> [A]	Ord.No.
S TS 2/035	1x12	1x0,17	78707
S TS 2/037	2x12	2x0,08	78708

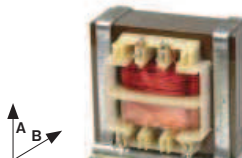
#### 4 - 5VA - EI 42/14



Core	A [mm]	B [mm]	C [mm]
EI 42/14	40	34	42

Solderable eyelets

Part No.	U <sub>sec</sub> [V]	I <sub>sec</sub> [A]	Ord.No.
S TS 4/33	1x9	1x0,3	78710
S TS 4/30	2x12	2x0,15	78709

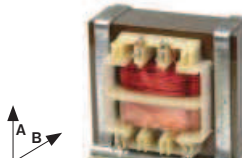


Core	A [mm]	B [mm]	C [mm]
EI 42/14	40	34	42

Solderable eyelets

Part No.	U <sub>sec</sub> [V]	I <sub>sec</sub> [A]	Ord.No.
S TS 4/023	1x12	1x0,33	78712
S TS 5/004	2x6	2x0,4	78713
S TS 4/011	2x9	2x0,25	78711

#### 6 - 8VA - EI 48/16

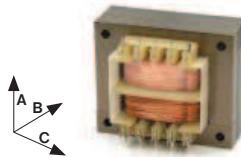


Core	A [mm]	B [mm]	C [mm]
EI 48/16	45,5	37	48

Solderable eyelets

Part No.	U <sub>sec</sub> [V]	I <sub>sec</sub> [A]	Ord.No.
S TS 6/34	1x10	1x0,5	78715
S TS 6/40	1x15,5	1x0,3	78786
S TS 8/022	2x6	2x0,65	78717
S TS 6/21	2x8,5	2x0,3	78714
S TS 8/018	2x12	2x0,33	78716

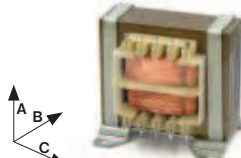
#### 12VA - EI 54/18



Core	A [mm]	B [mm]	C [mm]
EI 54/18	45	40,5	54

Solderable eyelets

Part No.	U <sub>sec</sub> [V]	I <sub>sec</sub> [A]	Ord.No.
S TS 12/006	2x9	2x0,65	78720
S TS 12/004	2x12	2x0,5	78718

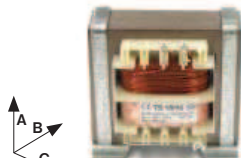


Core	A [mm]	B [mm]	C [mm]
EI 54/18	51,5	40,5	54

Solderable eyelets

Part No.	U <sub>sec</sub> [V]	I <sub>sec</sub> [A]	Ord.No.
S TS 12/013	1x9	1x1,3	78722
S TS 12/007	2x9	2x0,65	78721
S TS 12/005	2x12	2x0,5	78719

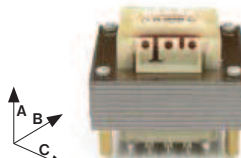
#### 12 - 20VA - EI60/20



Core	A [mm]	B [mm]	C [mm]
EI60/20	55	44	60

Solderable eyelets

Part No.	U <sub>sec</sub> [V]	I <sub>sec</sub> [A]	Ord.No.
S TS 18/16	1x12	1x1,4	78724
S TS 20/026	1x15,4	1x1,5	78727
S TS 18/12	2x6	2x1,3	78723
S TS 20/10	2x9	2x1	78725
S TS 20/023	2x12	2x0,8	78726



Core	A [mm]	B [mm]	C [mm]
EI60/20	44	50	60

PCB mount pins

Part No.	U <sub>sec</sub> [V]	I <sub>sec</sub> [A]	Ord.No.
S TS 20/036	1x12	1x1,7	78728

#### 25VA - EI 66/22



Core	A [mm]	B [mm]	C [mm]
EI 66/22	60	49	66

Solderable eyelets

Part No.	U <sub>sec</sub> [V]	I <sub>sec</sub> [A]	Ord.No.
S TS 25/010	1x12	1x2	78729
S TS 25/026	2x12	2x1,05	78730

#### 40VA - EI 66/33



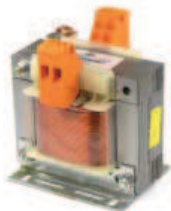
Core	A [mm]	B [mm]	C [mm]
EI 66/33	60	60	66

Solderable eyelets

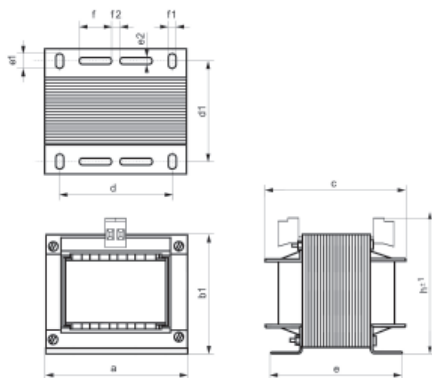
Part No.	U <sub>sec</sub> [V]	I <sub>sec</sub> [A]	Ord.No.
S TS 40/024	1x12	1x3,3	78734
S TS 40/030	1x16,3	1x2,5	78736
S TS 40/027	1x24	1x1,5	78735
S TS 40/016	2x6	2x3,3	78731
S TS 40/022	2x9	2x2,2	78733
S TS 40/018	2x12	2x1,65	78732
S TS 40/041	2x15	2x1,35	78737

## Mains Transformers with Mounting

### TMB Series



A series of mains transformers made on EI profile cores for panel mounting. Designed for DIN rail mounting in electronic devices, power equipment, and industrial installations.  
Manufactured in the power range of: 20 - 1000VA



Dimensions	a	b1	c	d	d1	e	e1	e2	f	f1	h
TMB 60	60	54	46	44	36	47	7	3,6	35	3,6	78
TMB 100	84	74	60	64	46	59	9	3,6	24	4,8	98
TMB 160	96	84	70	84	60	76	11	3,6	35	5,8	108
TMB 250	96	84	94	84	84	100	11	3,6	35	5,8	108

Part No.	Power [VA]	U <sub>sec</sub> [V]	I <sub>sec</sub> [A]	Core	Weight [Kg]
TMB 60/001M/1	60VA	1x12V	1x5A	EI78/27	1,2
TMB 60/002M/1	60VA	1x24V	1x2,5A	EI78/27	1,2
TMB 100/001M/1	100VA	1x12V	1x8,33A	EI84/29	1,3
TMB 100/002M/1	100VA	1x24V	1x4,17A	EI84/29	1,3
TMB 160/001M/1	160VA	1x12V	1x13,33A	EI96/36	2,0
TMB 160/002M/1	160VA	1x24V	1x6,67A	EI96/36	2,0
TMB 250/002M/1	250VA	1x24V	1x10,4A	EI96/60	3,2

Part No.	Ord.No.
S TMB 60/001M/1	80329
S TMB 60/002M/1	78738
S TMB 100/001M/1	78741
S TMB 100/002M/1	80144
S TMB 160/001M/1	78742
S TMB 160/002M/1	78739
S TMB 250/002M/1	78740

## Mains Transformers Sealed and Cased with Mounting



### TSZZM Series

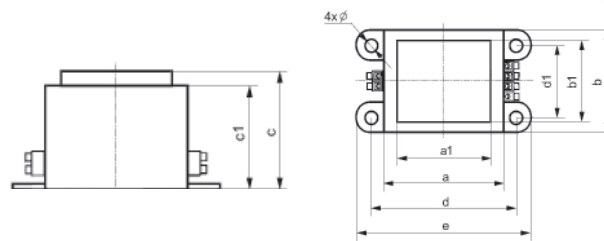
Series of mains transformers made on EI cores in enclosures. The housing fully protects transformer against humidity. These series of transformers are usually used as safety transformers.  
Cover the power output range: 0,6 - 100VA.  
Temperature class: T40B.



TSZZM 25



TSZZM 160



Dimensions	a	a1	b	b1	c	c1	d	d1	e	Ø
TSZZM 25	63,6	41,8	53,6	35,8	47,2	37,7	72,5	43,5	81,8	4,4
TSZZM 160	102	83	85	76	84	70	115	70	130	6,1

Part No.	Power [VA]	U <sub>sec</sub> [V]	I <sub>sec</sub> [A]	Core	Weight [Kg]
TSZZM 25/005M/1	25VA	1x12V	1x2,08A	EI60/21	0,60
TSZZM 25/013M/1	25VA	1x24V	1x1,04A	EI60/21	0,60
TSZZM 25/006M/1	25VA	2x12V	2x1,04A	EI60/21	0,60
TSZZM 160/007M	160VA	1x24V	1x6,7A	EI102/34	3,05

Part No.	Ord.No.
S TSZZM 25/005M/1	78743
S TSZZM 25/013M/1	80147
S TSZZM 25/006M/1	78744
S TSZZM 160/007M	78745

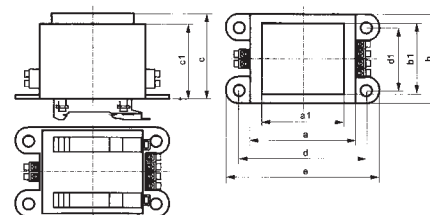
## Mains Transformers Sealed and Cased with DIN Rail Mounting



### TSZS Series



Series of mains transformers made on EI cores in enclosures. They are designed for DIN rail mounting. The housing fully protects transformer against humidity. These series of transformers are usually used as safety transformers.  
Cover the power output range: 16 up to 200VA.  
Temperature class: T40B.



Dimensions	a	a1	b	b1	c	c1	d	d1	e	s
TSZS 016	58	39,6	49	42,7	43,2	33,4				18
TSZS 035	70	47,2	61,2	41,2	49,5	40	77,5	47,5	88	18
TSZS 070	80,6	55,7	67,5	48,3	60,5	50	90	57,50	100,00	18
TSZS 100	89,8	61,4	75,8	52	63	51,4	97,5	60,00	107,50	18

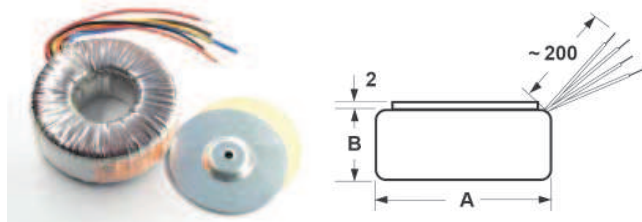
Part No.	Description	Core	I <sub>sec</sub> [A]	Weight
TSZS 016 / 005M	1X12V 16VA	EI54-18	1,33	0,5kg
TSZS 016 / 013M	1X24V 16VA	EI54-18	0,66	0,5kg
TSZS 030 / 005M	1X12V 30VA	EI60-25	2,5	0,75kg
TSZS 035 / 027M	1X24V 35VA	EI66-23	1,46	0,8kg
TSZS 070 / 003M	1X12V 70VA	EI78-27,5	5,83	1,2kg
TSZS 070 / 011M	1X24V 70VA	EI78-27,5	2,91	1,2kg
TSZS 100 / 002M	1X12V 100VA	EI84-29	8,33	1,3kg
TSZS 100 / 010M	1X24V 100VA	EI84-29	4,16	1,3kg

Part No.	Ord.No.
S TSZS 016 / 005M	68093
S TSZS 016 / 013M	68094
S TSZS 030 / 005M	68095
S TSZS 035 / 027M	70220
S TSZS 070 / 003M	68097
S TSZS 070 / 011M	68098
S TSZS 100 / 002M	68099
S TSZS 100 / 010M	68100

## Toroidal Transformers

### Standard Toroidal Transformers

Basic types suitable for industrial purposes and dry environments either. Transformer is snapped by thrust metal ring and two rubber rings. One of the rubber rings is used as the bearing under the transformer and ensures the separation from a surface mounted with transformer. The second rubber ring is inserted between thrust metal ring and transformer and is screwed altogether with a screw, which is not supplied in a delivery.



### 15 VA

Part No.	Power [W]	U <sub>sec</sub> [V]	A [mm]	B [mm]	Weight [kg]
55 100-P1S2	15VA	2x12V	62	32	0,31
55 101-P1S2	15VA	2x15V	62	32	0,31
55 103-P1S2	15VA	2x25V	62	32	0,31

Part No.	Ord.No.
o 55 100-P1S2	75665
o 55 101-P1S2	75666
o 55 103-P1S2	75667

### 30 VA

Part No.	Power [W]	U <sub>sec</sub> [V]	A [mm]	B [mm]	Weight [kg]
55 110-P1S2	30VA	2x12V	74	34	0,44
55 111-P1S2	30VA	2x15V	74	34	0,44
55 112-P1S2	30VA	2x18V	74	34	0,44
55 113-P1S2	30VA	2x25V	74	34	0,44

Part No.	Ord.No.
o 55 110-P1S2	75668
o 55 111-P1S2	75669
o 55 112-P1S2	75670
o 55 113-P1S2	75671

### 50 VA

Part No.	Power [W]	U <sub>sec</sub> [V]	A [mm]	B [mm]	Weight [kg]
55 120-P1S2	50VA	2x12V	84	34	0,63
55 121-P1S2	50VA	2x15V	84	34	0,63
55 122-P1S2	50VA	2x18V	84	34	0,63
55 123-P1S2	50VA	2x25V	84	34	0,63
55 129-P1S2	50VA	2x55V	84	34	0,63

Part No.	Ord.No.
o 55 120-P1S2	75672
o 55 121-P1S2	75673
o 55 122-P1S2	75674
o 55 123-P1S2	75675
o 55 129-P1S2	75676

### 80 VA

Part No.	Power [W]	U <sub>sec</sub> [V]	A [mm]	B [mm]	Weight [kg]
55 130-P1S2	80VA	2x12V	95	36	0,87
55 131-P1S2	80VA	2x15V	95	36	0,87
55 132-P1S2	80VA	2x18V	95	36	0,87
55 133-P1S2	80VA	2x25V	95	36	0,87
55 139-P1S2	80VA	2x55V	95	36	0,87

Part No.	Ord.No.
s 55 130-P1S2	75677
s 55 131-P1S2	75678
s 55 132-P1S2	75679
o 55 133-P1S2	75680
o 55 139-P1S2	75681

### 120 VA

Part No.	Power [W]	U <sub>sec</sub> [V]	A [mm]	B [mm]	Weight [kg]
55 140-P1S2	120VA	2x12V	96	47	1,20
55 141-P1S2	120VA	2x15V	96	47	1,20
55 142-P1S2	120VA	2x18V	96	47	1,20
55 143-P1S2	120VA	2x25V	96	47	1,20
55 149-P1S2	120VA	2x55V	96	47	1,20

Part No.	Ord.No.
s 55 140-P1S2	75682
o 55 141-P1S2	75683
o 55 142-P1S2	75684
s 55 143-P1S2	75685
o 55 149-P1S2	75686

### 160 VA

Part No.	Power [W]	U <sub>sec</sub> [V]	A [mm]	B [mm]	Weight [kg]
55 150-P1S2	160VA	2x12V	110	46	1,50
55 151-P1S2	160VA	2x15V	110	46	1,50
55 152-P1S2	160VA	2x18V	110	46	1,50
55 153-P1S2	160VA	2x25V	110	46	1,50
55 154-P1S2	160VA	2x30V	110	46	1,50
55 159-P1S2	160VA	2x55V	110	46	1,50

Part No.	Ord.No.
s 55 150-P1S2	75687
o 55 151-P1S2	75688
o 55 152-P1S2	75689
s 55 153-P1S2	75690
s 55 154-P1S2	75691
o 55 159-P1S2	75692

### 225 VA

Part No.	Power [W]	U <sub>sec</sub> [V]	A [mm]	B [mm]	Weight [kg]
55 160-P1S2	225VA	2x12V	118	50	1,90
55 161-P1S2	225VA	2x15V	118	50	1,90
55 162-P1S2	225VA	2x18V	118	50	1,90
55 163-P1S2	225VA	2x25V	118	50	1,90
55 164-P1S2	225VA	2x30V	118	50	1,90
55 169-P1S2	225VA	2x55V	118	50	1,90

Part No.	Ord.No.
s 55 160-P1S2	75693
o 55 161-P1S2	75694
o 55 162-P1S2	75695
s 55 163-P1S2	75696
s 55 164-P1S2	75697
o 55 169-P1S2	75698

### 300 VA

Part No.	Power [W]	U <sub>sec</sub> [V]	A [mm]	B [mm]	Weight [kg]
55 173-P1S2	300VA	2x25V	118	60	2,40
55 174-P1S2	300VA	2x30V	118	60	2,40
55 175-P1S2	300VA	2x35V	118	60	2,40
55 179-P1S2	300VA	2x55V	118	60	2,40

Part No.	Ord.No.
s 55 173-P1S2	75699
s 55 174-P1S2	75700
s 55 175-P1S2	75701
o 55 179-P1S2	75702

## 500 VA

Part No.	Power [W]	U <sub>sec</sub> [V]	A [mm]	B [mm]	Weight [kg]
55 183-P1S2	500VA	2x25V	140	62	3,50
55 184-P1S2	500VA	2x30V	140	62	3,50
55 185-P1S2	500VA	2x35V	140	62	3,50
55 186-P1S2	500VA	2x40V	140	62	3,50
55 187-P1S2	500VA	2x45V	140	62	3,50
55 188-P1S2	500VA	2x50V	140	62	3,50
55 189-P1S2	500VA	2x55V	140	62	3,50

Part No.	Ord.No.
o 55 183-P1S2	75703
o 55 184-P1S2	75704
o 55 185-P1S2	75705
o 55 186-P1S2	75706
o 55 187-P1S2	75707
o 55 188-P1S2	75708
o 55 189-P1S2	75709

## 625 VA

Part No.	Power [W]	U <sub>sec</sub> [V]	A [mm]	B [mm]	Weight [kg]
55 196-P1S2	625VA	2x40V	140	75	4,40
55 197-P1S2	625VA	2x45V	140	75	4,40
55 198-P1S2	625VA	2x50V	140	75	4,40
55 199-P1S2	625VA	2x55V	140	75	4,40

Part No.	Ord.No.
o 55 196-P1S2	75710
o 55 197-P1S2	75711
o 55 198-P1S2	75712
o 55 199-P1S2	75713

## 800 VA

Part No.	Power [W]	U <sub>sec</sub> [V]	A [mm]	B [mm]	Weight [kg]
55 206-P1S2	800VA	2x40V	165	65	5,30
55 207-P1S2	800VA	2x45V	165	65	5,30
55 208-P1S2	800VA	2x50V	165	65	5,30
55 209-P1S2	800VA	2x55V	165	65	5,30

Part No.	Ord.No.
o 55 206-P1S2	75714
o 55 207-P1S2	75715
o 55 208-P1S2	75716
o 55 209-P1S2	75717

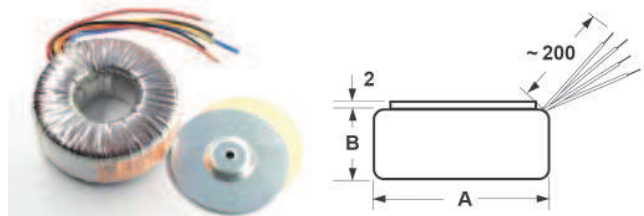
## 1000 VA

Part No.	Power [W]	U <sub>sec</sub> [V]	A [mm]	B [mm]	Weight [kg]
55 216-P1S2	1000VA	2x40V	165	75	6,40
55 217-P1S2	1000VA	2x45V	165	75	6,40
55 218-P1S2	1000VA	2x50V	165	75	6,40
55 219-P1S2	1000VA	2x55V	165	75	6,40

Part No.	Ord.No.
o 55 216-P1S2	75718
o 55 217-P1S2	75719
o 55 218-P1S2	75720
o 55 219-P1S2	75721

## Toroidal Transformers for Halogen Lamps

Transformer is snapped by thrust metal ring and two rubber rings. One of the rubber rings is used as the bearing under the transformer and ensures the separation from a surface mounted with transformer. The second rubber ring is inserted between thrust metal ring and transformer and is screwed altogether with a screw, which is not supplied in a delivery.



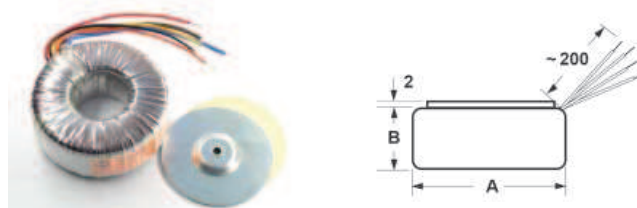
Part No.	Power [W]	U <sub>sec</sub> [V]	A [mm]	B [mm]	Weight [kg]
56 021-P1S1	15VA	1x11,8V	62	32	0,31
56 022-P1S1	30VA	1x11,8V	74	34	0,44
56 001-P1S1	50VA	1x11,8V	84	34	0,63
56 002-P1S1	80VA	1x11,8V	95	36	0,87
56 003-P1S1	120VA	1x11,8V	96	47	1,20
56 004-P1S1	160VA	1x11,8V	110	46	1,50
56 005-P1S1	200VA	1x11,8V	116	48	1,90
56 006-P1S1	250VA	1x11,8V	118	55	2,20
56 007-P1S1	300VA	1x11,8V	118	60	2,40
56 008-P1S1	400VA	1x11,8V	140	55	3,10
56 009-P1S1	500VA	1x11,8V	140	62	3,50

Part No.	Ord.No.
o 56 021-P1S1	75731
o 56 022-P1S1	75732
o 56 001-P1S1	75733
o 56 002-P1S1	75734
o 56 003-P1S1	75735
o 56 004-P1S1	75736
o 56 005-P1S1	75737
o 56 006-P1S1	75738
o 56 007-P1S1	75739
o 56 008-P1S1	75740
o 56 009-P1S1	75741

## Safety Toroidal Transformers with Thermal Recoverable Protection 110°C



Transformer is snapped by thrust metal ring and two rubber rings. One of the rubber rings is used as the bearing under the transformer and ensures the separation from a surface mounted with transformer. The second rubber ring is inserted between thrust metal ring and transformer and is screwed altogether with a screw, which is not supplied in a delivery.



Part No.	Power	U <sub>sec</sub> [V]	A [mm]	B [mm]	Weight [kg]
56 031-P1S1	15VA	1x11,8V	62	32	0,31
56 032-P1S1	30VA	1x11,8V	74	34	0,44
56 011-P1S1	50VA	1x11,8V	84	34	0,63
56 012-P1S1	80VA	1x11,8V	95	36	0,87
56 012024-P1S2	100VA	1x12V 1x24V	96	40	1,00
56 013-P1S1	120VA	1x11,8V	96	47	1,20
56 014-P1S1	160VA	1x11,8V	110	46	1,50
56 015-P1S1	200VA	1x11,8V	116	48	1,90
56 016-P1S1	250VA	1x11,8V	118	55	2,20
56 017-P1S1	300VA	1x11,8V	118	60	2,40

Part No.	Ord.No.
o 56 031-P1S1	75722
o 56 032-P1S1	75723
o 56 011-P1S1	75724
o 56 012-P1S1	75725
o 56 012024-P1S2	75927
o 56 013-P1S1	75726
o 56 014-P1S1	75727
o 56 015-P1S1	75728
o 56 016-P1S1	75729
o 56 017-P1S1	75730

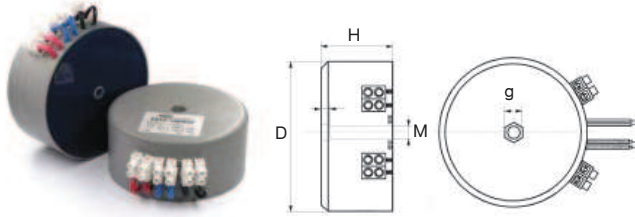
## Toroidal Mains Transformers Sealed and Cased



### TSTZ Series

A series of mains transformers made on toroidal cores, sealed and cases. Resistant to moisture and aggressive external factors. Commonly used in professional and amateur electronics. Designed for incorporation into supply systems of electronic devices and power equipment.

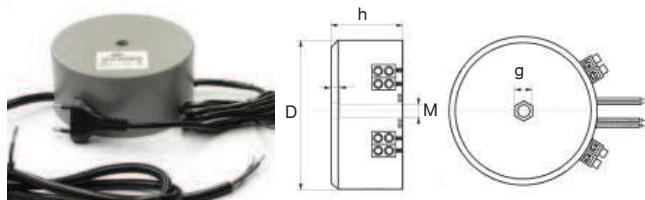
Manufactured in the power range of: 20 - 1000VA



Part No.	Power [VA]	U <sub>sec</sub> [V]	H [mm]	D [mm]	g/M [mm]	Weight [Kg]
TSTZ 50/001	50VA	1x12V	39	72	7/5,1	0,7
TSTZ 50/003	50VA	1x24V	39	72	7/5,1	0,7
TSTZ 50/002	50VA	2x12V	39	72	7/5,1	0,7
TSTZ 100/001	100VA	1x12V	44	95	10/6,1	1,4
TSTZ 100/003	100VA	1x24V	44	95	10/6,1	1,4
TSTZ 100/002	100VA	2x12V	44	95	10/6,1	1,4
TSTZ 150/001	150VA	1x12V	52	103	10/6,1	2,0
TSTZ 150/003	150VA	1x24V	52	103	10/6,1	2,0

Part No.	Ord.No.
S TSTZ 50/001	78746
S TSTZ 50/003	78752
S TSTZ 50/002	78747
S TSTZ 100/001	78748
S TSTZ 100/003	78753
S TSTZ 100/002	78749
S TSTZ 150/001	78750
S TSTZ 150/003	78751

### Toroidal Transformers for Halogen Lamps



Part No.	Power [VA]	U <sub>sec</sub> [V]	H [mm]	D [mm]	g/M [mm]	Weight [Kg]
TSTZ 100/001H	100VA	1x11,5V	44	95	10/6,1	1,4
TSTZ 200/001H	200VA	1x11,5V	75	103	10/6,1	3,0

Part No.	Ord.No.
S TSTZ 100/001H	78746
S TSTZ 200/001H	78752

### Electronic Transformers for Halogen Lamps



A series of electronic transformers designed for supplying low voltage halogen bulbs with rated voltage of 12V. Commonly used for total enclosed halogen bulb sockets. Through to their modern design, especially low weight and size, other technical advantages, they create special possibilities of designing modern and power saving illumination systems.



Dimensions	A [mm]	B [mm]	C [mm]
	71,5	35	23,4

Part No.	Power [VA]	U <sub>out</sub> [V]	I <sub>in</sub> [A]	Core	Weight [g]
YT 50	0-50VA	11,5V	0,22A	EI78/27	75
YT 60	0-60VA	11,5V	0,27A	EI78/27	75

Part No.	Ord.No.
S YT 50	78755
S YT 60	78756



Dimensions	A [mm]	B [mm]	C [mm]
	173	54	38

Part No.	Power [VA]	U <sub>out</sub> [V]	I <sub>in</sub> [A]	Weight [g]
YT 70	0-70VA	11,5V	0,33A	115
YT 105	0-105VA	11,5V	0,46A	120
YT 150	0-150VA	11,5V	0,65A	235
YT 210	0-210VA	11,5V	0,93A	285
YT 250	0-250VA	11,5V	1,10A	285

Part No.	Ord.No.
S YT 70	78757
S YT 105	78758
S YT 150	80136
S YT 210	80138
S YT 250	80139

### Autotransformers 230ac/110Vac



A series of mains autotransformers with fixed taps made on toroidal and EI profile cores in complete casings with sockets and connections to the mains. Designed for supplying electronic devices and power supplying American or Canadian equipment in Europe. Manufactured in the power range of: 25-3500VA



Dimensions	A [mm]	B [mm]	C [mm]
ATS25	64	82	73

Part No.	Ord.No.
S ATS25-230V/115V	78759



Dimensions	A [mm]	B [mm]	C [mm]
ATST0100	47	110	90

Part No.	Ord.No.
S ATST0100-230V/115V	78760



Dimensions	A [mm]	B [mm]	C [mm]
ATST0200	50	120	149

Part No.	Ord.No.
S ATST0200-230V/115V	78761



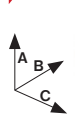
**NEW!**



Dimensions	A [mm]	B[mm]	C[mm]
ATST400	59	138	159
ATST600	90	178	149

Part No.	Ord.No.
S ATST0400-230V/115V	78762

**NEW!**

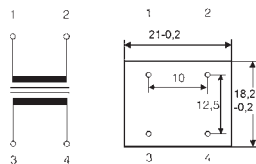


Dimensions	A [mm]	B[mm]	C[mm]
ATST1000	80	195	160
ATST1500	80	195	160

Part No.	Ord.No.
S ATST1000-230V/115V	78764
S ATST1500-230V/115V	80143

## Safety Transformers

### SV Series



Part No.	Ratio	Rprim./Rsec. [Ω]
SV1500	1:1	4,6 / 4,6
SV1503	1:4	4,6 / 115
SV1505	1:10	4,6 / 340

Part No.	Ord.No.
S SV1500	6955
S SV1503	6956
S SV1505	6957

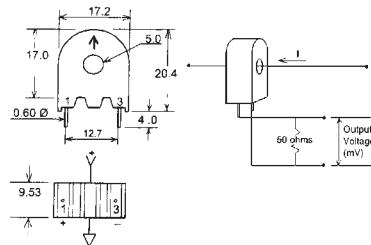
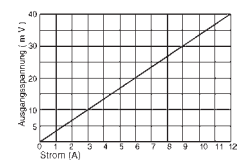
## Current Transformers

### ASM Series

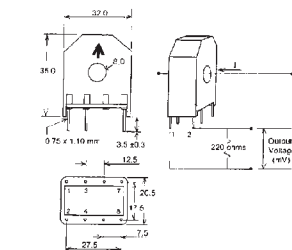
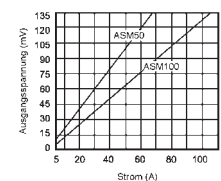


- Fully encapsulated for optimal PC board mounting
- Mains frequency of 50/60 Hz
- Primary current ratings from 1 to 100 Amps
- Primary to secondary isolated to 2500 VAC
- Allowance: 10%

#### ASM 10



#### ASM 50, 100

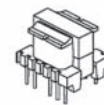


Part No.	Ord.No.
S ASM 10	7705
S ASM 50	9337
S ASM 100	9181

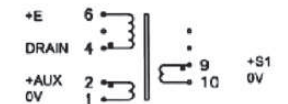
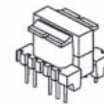
## Transformers for Power Switching Supplies



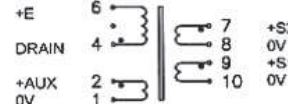
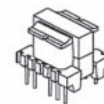
### 74000



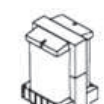
### 74001



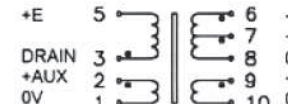
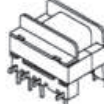
### 74010



### 74023



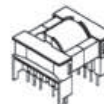
### 74030



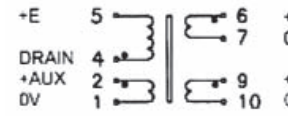
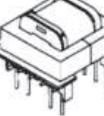
### 74040



### 74050



### 74080



Part No.	Core	Max. power	Rated output voltage V <sub>DC</sub>			Control IC P/N		
74000	E16	5W	5V	12V		VIPer20		
74001	E16	6W	5V			TDA16831		
74010	E16	12W	5V	12V		TDA16831		
74023	EL19	16W	3.3V	5V	12V	18V	30V	TOP243P
74030	E25	30W	5V	12V	12V		TDA16832	
74040	ETD29	60W	5V	12V	5V	12V	TDA16834	
74050	ETD34	90W	5V	12V	5V	12V	TDA16834	
74080	EF20	24W	12V	12V			TOP243P	

Part No.	Ord.No.
S 74000	48842
S 74001	48844
S 74010	48847
S 74023	48852
S 74030	48853
S 74040	48855
S 74050	48857
S 74080	48860

## SMD Coils

### LQH32MN Series

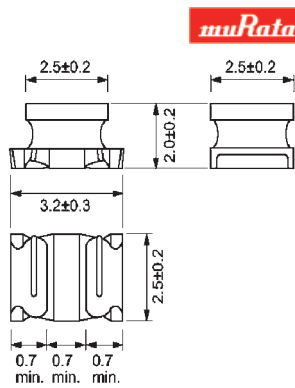


LQH 3 N series of SMD chip coils in case size - 1210 have special ferrite core and are characterized by high value of Q at high frequencies and by low value of DC resistance. They are suitable for audio, video and communication equipments.

Packaging: 2000 pcs

Part No.	L [uH]	I <sub>n</sub> [mA]	Q[ <i>min</i> ]	F <sub>rez</sub> [MHz]	RDC [Ohm]
LQH32MN3R3K23L	3,3	300	20	38	1
LQH32MN4R7K23L	4,7	270	20	31	1,2

Part No.	Ord.No.
S LQH32MN3R3K23L	32679
O LQH32MN4R7K23L	32681



### LQH32CN Series

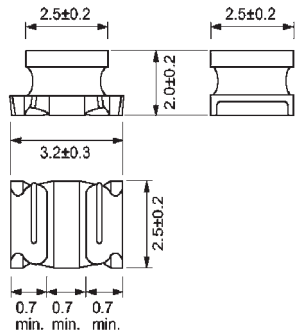


LQH 3 C series of SMD coils in compact 1210 case size are typical by low DC resistance and high current capacity. They are ideal as power supply inductors.

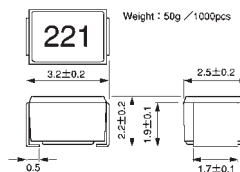
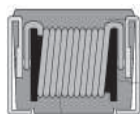
Packaging: 2000 pcs

Part No.	L [uH]	I <sub>n</sub> [mA]	F <sub>rez</sub> [MHz]	RDC [Ohm]
LQH32CN1R0M23L	1	800	96	0,09
LQH32CN2R2M23L	2,2	600	64	0,13
LQH32CN4R7M23L	4,7	450	43	0,20
LQH32CN100K23L	10	300	26	0,44
LQH32CN220K23L	22	250	19	0,71
LQH32CN470K23L	47	170	15	1,3
LQH32CN101K23L	100	100	10	3,5
LQH32CN221K23L	220	70	6,8	8,4

Part No.	Ord.No.
S LQH32CN1R0M23L 1 uH	32657
S LQH32CN2R2M23L 2,2 uH	32658
S LQH32CN4R7M23L 4,7 uH	32659
S LQH32CN100K23L 10 uH	32660
S LQH32CN220K23L 22 uH	32661
S LQH32CN470K23L 47 uH	32662
S LQH32CN101K23L 100 uH	32663
S LQH32CN221K23L 220 uH	32664



### LFC 32 Series



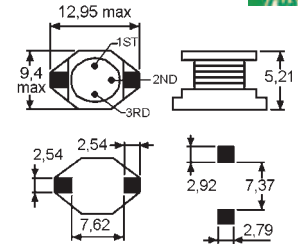
LFC32 series of SMD coils from KOA manufacturer in compact 1210 case size reach high values of Q because of wounded wire. They are high thermal and mechanical resistant.

Part No.	L [uH]	I <sub>n</sub> [mA]	Quality Factor	F <sub>rez</sub> [MHz]	RDC [Ohm]
LFC 32 TTE 1,0 uH	1	400	30	120	0,70

Part No.	Ord.No.
S LFC 32 TTE 1,0 uH	47974



## PISM Series



FASTRON power inductors can withstand a wide temperature range. The inductance values range from 1.0 uH to 10000 uH and they are suitable for high rated currents. They have a high reliability and can be assembled by surface mount technology. Their low DC resistance keeps power losses to a minimum.

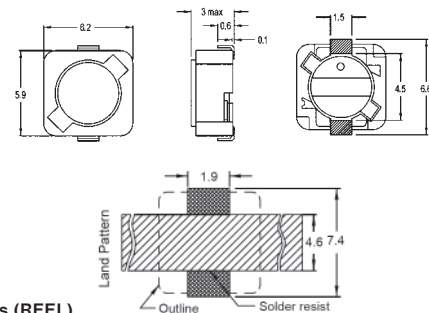
They are suitable for Filtering of supply voltages, Coupling, Decoupling, Automotive electronics and Network switching systems. These components are widely used in power supplies for VTR, LCD TV, notebooks, PC and DC/DC converters.

Packaging: 1000 pcs (REEL)

Part No.	L [uH]	D <sub>CRmax</sub> [W]	I <sub>n</sub> [A]
PISM-100M-04	10	0,036	3,9
PISM-150M-04	15	0,05	3,2
PISM-220M-04	22	0,06	2,7
PISM-330M-04	33	0,1	2,1
PISM-470M-04	47	0,14	1,7
PISM-101M-04	100	1,28	1,2

Part No.	Ord.No.
S PISM-100M-04	50981
S PISM-150M-04	53036
S PISM-220M-04	50982
S PISM-330M-04	50983
S PISM-470M-04	50984
S PISM-101M-04	50985

## PIS 2408 Series



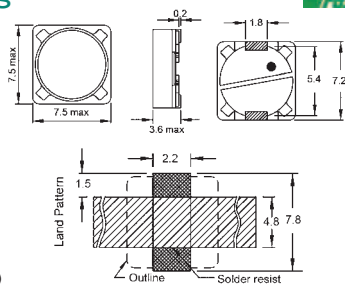
SHIELDED

Packaging: 1200 pcs (REEL)

Part No.	L [uH]	D <sub>CRmax</sub> [W]	I <sub>n</sub> [A]
PIS2408-100M-04	10	0,15	1,1
PIS2408-150M-04	15	0,23	0,9
PIS2408-220M-04	22	0,34	0,74
PIS2408-270M-04	27	0,38	0,66
PIS2408-470M-04	47	0,69	0,5
PIS2408-680M-04	68	1,07	0,42
PIS2408-101M-04	100	1,39	0,34
PIS2408-151M-04	150	2,18	0,28
PIS2408-221M-04	220	3,12	0,23
PIS2408-271M-04	270	4,38	0,22
PIS2408-331M-04	330	4,94	0,19

Part No.	Ord.No.
S PIS2408-100M-04	61750
O PIS2408-150M-04	61752
S PIS2408-220M-04	61753
O PIS2408-270M-04	61754
S PIS2408-470M-04	61755
O PIS2408-680M-04	61757
S PIS2408-101M-04	61759
O PIS2408-151M-04	61761
S PIS2408-221M-04	61762
O PIS2408-271M-04	61763
O PIS2408-331M-04	61764

## PIS 2812 Series



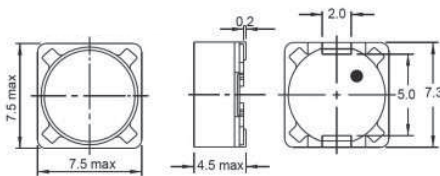
SHIELDED

Packing: 1200 pcs (REEL)

Part No.	L [uH]	D <sub>CRmax</sub> [mW]	I <sub>n</sub> [A]
PIS2812-100M-04	10	72	1,68
PIS2812-150M-04	15	130	1,33
PIS2812-220M-04	22	190	1,07
PIS2812-270M-04	27	210	0,96
PIS2812-330M-04	33	240	0,91
PIS2812-470M-04	47	360	0,76
PIS2812-680M-04	68	520	0,61
PIS2812-101M-04	100	790	0,5
PIS2812-151M-04	150	1270	0,43
PIS2812-221M-04	220	1650	0,35
PIS2812-271M-04	270	2310	0,32
PIS2812-331M-04	330	2620	0,28
PIS2812-471M-04	470	4180	0,24
PIS2812-681M-04	680	5730	0,19
PIS2812-102M-04	1000	9440	0,16

Part No.	Ord.No.
S PIS2812-100M-04	61681
O PIS2812-150M-04	61683
S PIS2812-220M-04	61685
O PIS2812-270M-04	61686
O PIS2812-330M-04	61687
S PIS2812-470M-04	61692
O PIS2812-680M-04	61701
S PIS2812-101M-04	61703
O PIS2812-151M-04	61705
S PIS2812-221M-04	61707
O PIS2812-271M-04	61708
O PIS2812-331M-04	61709
S PIS2812-471M-04	61712
O PIS2812-681M-04	61714
O PIS2812-102M-04	61716

## PIS 2816 Series



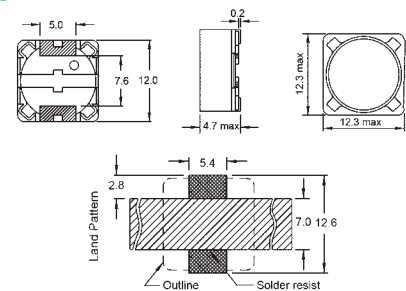
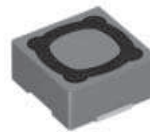
SHIELDED

Packing: 1000 pcs (REEL)

Part No.	L [uH]	D <sub>CRmax</sub> [mW]	I <sub>n</sub> [A]
PIS2816-100M-04	10	49	1,84
PIS2816-150M-04	15	81	1,47
PIS2816-220M-04	22	110	1,23
PIS2816-270M-04	27	150	1,12
PIS2816-330M-04	33	170	0,96
PIS2816-470M-04	47	260	0,88
PIS2816-680M-04	68	380	0,69
PIS2816-101M-04	100	610	0,6
PIS2816-151M-04	150	880	0,46
PIS2816-221M-04	220	1170	0,36
PIS2816-271M-04	270	1640	0,34
PIS2816-331M-04	330	1860	0,32
PIS2816-471M-04	470	3010	0,26
PIS2816-681M-04	680	4630	0,22
PIS2816-102M-04	1000	6000	0,18

Part No.	Ord.No.
O PIS2816-100M-04	62172
O PIS2816-150M-04	62944
O PIS2816-220M-04	62945
O PIS2816-270M-04	62946
O PIS2816-330M-04	61048
O PIS2816-470M-04	62947
O PIS2816-680M-04	62951
O PIS2816-101M-04	62940
O PIS2816-151M-04	62942
O PIS2816-221M-04	62943
O PIS2816-271M-04	62952
O PIS2816-331M-04	62941
O PIS2816-471M-04	62948
O PIS2816-681M-04	62949
O PIS2816-102M-04	62950

## PIS 4716 Series



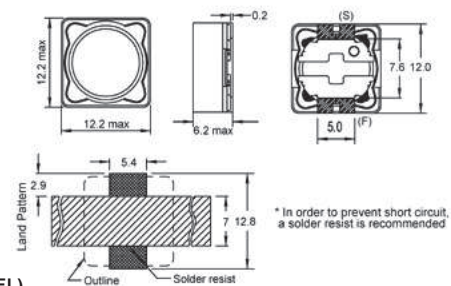
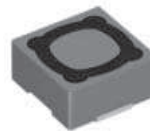
SHIELDED

Packing: 700 pcs (REEL)

Part No.	L [uH]	D <sub>CRmax</sub> [mW]	I <sub>n</sub> [A]
PIS4716-100M-04	10	28	4,5
PIS4716-220M-04	22	66	2,9
PIS4716-470M-04	47	150	1,9
PIS4716-101M-04	100	308	1,2
PIS4716-221M-04	220	700	0,8

Part No.	Ord.No.
S PIS4716-100M-04	61656
S PIS4716-220M-04	61660
S PIS4716-470M-04	61664
S PIS4716-101M-04	61668
S PIS4716-221M-04	61672

## PIS 4720 Series



SHIELDED

Packing: 500 pcs (REEL)

Part No.	L [uH]	D <sub>CRmax</sub> [mW]	I <sub>n</sub> [A]
PIS4720-100M-04	10	25	4
PIS4720-150M-04	15	30	3,3
PIS4720-220M-04	22	36	2,8
PIS4720-270M-04	27	51	2,3
PIS4720-330M-04	33	57	2,1
PIS4720-470M-04	47	75	1,8
PIS4720-680M-04	68	120	1,5
PIS4720-101M-04	100	160	1,3
PIS4720-151M-04	150	230	1
PIS4720-221M-04	220	400	0,8
PIS4720-271M-04	270	460	0,75
PIS4720-331M-04	330	510	0,68
PIS4720-471M-04	470	770	0,58
PIS4720-681M-04	680	1200	0,48

\* In order to prevent short circuit, a solder resist is recommended

## PIS 4720 Series (continued)

Part No.	Ord.No.
○ PIS4720-100M-04	62955
○ PIS4720-150M-04	62956
○ PIS4720-220M-04	62957
○ PIS4720-270M-04	62958
○ PIS4720-330M-04	61049
○ PIS4720-470M-04	62959
○ PIS4720-680M-04	62960
○ PIS4720-101M-04	62961
○ PIS4720-151M-04	62962
○ PIS4720-221M-04	62963
○ PIS4720-271M-04	62965
○ PIS4720-331M-04	62953
○ PIS4720-471M-04	62954
○ PIS4720-681M-04	62964

## SMD L1210 SET

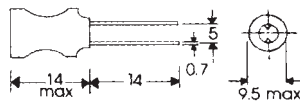


Set of SMD coils 1210 LQH 32 CN size.  
Range from 2,2uH to 220uH values (20pc from each - 140pcs altogether)

Part No.	Ord.No.
S SET SMD L1210	51684

## Coils - Leaded, Radial

### 09P Series (ferrite core)



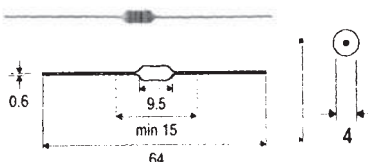
Part No.	L [uH]	I <sub>n</sub> [mA]	Q[min]	F <sub>rez</sub> [MHz]	Toler. [%]
09 P-470 K-50	47	1100	30	7,0	10
09 P-331 K-50	330	490	35	2,7	10
09 P-471 K-50	470	420	35	2,3	10
09 P-681 K-50	680	350	35	1,9	10
09 P-102 J-50	1000	280	70	1,6	5
09 P-152 J-50	1500	220	70	1,2	5
09 P-332 J-50	3300	150	70	0,8	5
09 P-472 J-50	4700	130	70	0,65	5
09 P-103 J-50	10000	90	70	0,41	5
09 P-333 J-50	33000	50	70	0,26	5

L=rated inductance, Q=quality factor, frez=self-resonance frequency.

Part No.	Ord.No.
S 09 P-470 K-50	44885
S 09 P-331 K-50	28755
S 09 P-471 K-50	28757
S 09 P-681 K-50	28759
S 09 P-102 J-50	28761
S 09 P-152 J-50	28763
S 09 P-332 J-50	28767
S 09 P-472 J-50	28769
S 09 P-103 J-50	28773
S 09 P-333 J-50	28779

## Coils - Leaded, Axial

### SMCC Series



FASTRON SMCC (Small Choke Coil) leaded inductors come with high Q values. They are available in ammpack packing.

These components are suitable for decoupling and interference suppression.

**Packing:**  
1200pcs ammpack

Part No.	L[uH]	Q[min.]	F <sub>rez</sub> [MHz]	In[mA]	Toler.[%]
SMCC-R10 M-02	0,1	45	380	1600	20
SMCC-R22 M-02	0,22	45	300	1450	20
SMCC-R47 M-02	0,47	45	220	1280	20
SMCC-1R0 K-02	1	45	205	1200	10
SMCC-1R5 K-02	1,5	50	165	1100	10
SMCC-2R2 K-02	2,2	55	140	1000	10
SMCC-4R7 K-02	4,7	60	95	820	10
SMCC-100 K-02	10	65	35	680	10
SMCC-220 K-02	22	50	13	560	10
SMCC-330 K-02	33	55	9	500	10
SMCC-390 K-02	39	55	8	470	10
SMCC-470 J-02	47	40	7,5	450	5
SMCC-101 J-02	100	30	5	370	5
SMCC-151 J-02	150	50	4,2	280	5
SMCC-221 J-02	220	50	3,7	250	5
SMCC-331 J-02	330	65	2,7	190	5
SMCC-471 J-02	470	55	2,2	170	5
SMCC-102 J-02	1000	50	1,6	130	5
SMCC-152 J-02	1500	40	1,25	100	5
SMCC-222 J-02	2200	40	1,1	80	5
SMCC-392 K-02	3900	40	0,8	59	10

Part No.	Ord.No.
S SMCC-R10M-02	28726
S SMCC-R22M-02	28728
S SMCC-R47M-02	28730
S SMCC-1R0K-02	28732
S SMCC-1R5K-02	28733
S SMCC-2R2K-02	28734
S SMCC-4R7K-02	28736
S SMCC-100K-02	28738
S SMCC-220K-02	28740
S SMCC-330K-02	28741
S SMCC-390K-02	53343
S SMCC-470J-02	28742
S SMCC-101J-02	28744
S SMCC-151J-02	28745
S SMCC-221J-02	28746
S SMCC-331J-02	28747
S SMCC-471J-02	28748
S SMCC-102J-02	28750
S SMCC-152J-02	28751
S SMCC-222J-02	28752
S SMCC-392K-02	28754

## COLOUR CODING

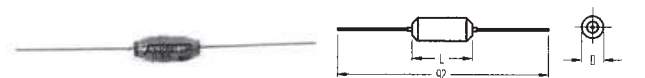
Colour	1.band	2.band	3.band	4.band= Tolerance
Clear	-	-	-	±20%
Silver	-	-	x 0,01	±10%
Gold	-	-	x 0,1	±5%
Black	-	0	x 1,0	-
Brown	1	1	x 10	-
Red	2	2	x 100	-
Orange	3	3	x 1000	-
Yellow	4	4	-	-
Green	5	5	-	-
Blue	6	6	-	-
Violet	7	7	-	-
Grey	8	8	-	-
White	9	9	-	-

Example: brown, black, red, gold band = 1000 μH ±5%.



## Supression Coils

### 77A Series



Suppression coils 77A series are axial with ferrite core. They come with high rated currents and low DC resistance characteristics. Inductance tolerance is 20%.

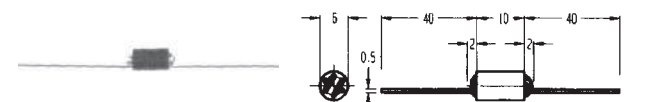
Applications: in communication: RF blocking, filtering and decoupling, and others: entertainment electronics and interference suppression

Part No.	L [uH]	I <sub>max</sub> [A]	R <sub>dc</sub> [Ohm]	Dimensions DxL
77 A-680 M	68	3	0,1	10x26mm
77 A-101 M	100	2,5	0,15	11x26mm
77 A-151 M	150	1,8	0,3	11x26mm
77 A-331 M	330	1,4	0,5	11x26mm

L=inductance, I<sub>max</sub>=rated DC current, R<sub>dc</sub>=direct resistance

Part No.	Ord.No.
S 77A-680M-00	28837
S 77A-101M-00	28838
S 77A-151M-00	28839
S 77A-331M-01	28840

### 06H Series



FASTRON wide band chokes are ferrite beads wound with a thin copper wire. These 6 hole beads provide a constant current. They are commonly use in burner and signal filtering applications and protect against radio frequency interface s of components on PCB's

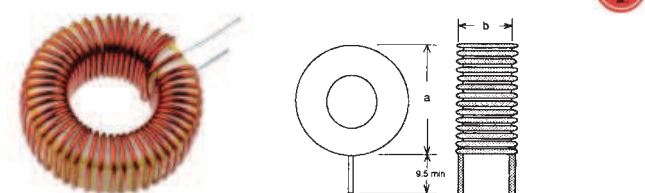
Applications: to filter external EMI; reduction of radiated interference and TV receivers; voltage supply for high load currents

Part No.	Turns	I <sub>max</sub> [A]	Z <sub>10</sub> [Ohm]	Z <sub>50</sub> [Ohm]
06 H-851	2 1/2	1	320	800

I<sub>max</sub>=rated DC current, Z<sub>10</sub>=impedance at 10MHz, Z<sub>50</sub>=impedance at 50MHz

Part No.	Ord.No.
S 06H-851	28848

### DPU Series



This series of chokes is made with a toroid core in iron powder (IP). Used in EMI filtering and energy storage, these compact, low radiation inductors are extremely effective in controlling AC output ripple of Switch Mode Power Supplies. Designed for supression up to 200kHz.

Part No.	L[uH]	I <sub>max</sub> [A]	R <sub>dc</sub> [Ω]	Dimensions AxB [mm]
DPU 100 A1	100	1	0,097	15 x 8
DPU 150 A1	150	1	0,123	15 x 9
DPU 220 A1	220	1	0,196	15 x 9
DPU 330 A1	330	1	0,193	20 x 9
DPU 1000 A1	1000	1	0,426	26 x 13
DPU 100 A3	100	3	0,066	25 x 12
DPU 330 A3	330	3	0,142	30 x 14
DPU 100 A5	100	5	0,059	30 x 13

L=inductance, I<sub>max</sub>=rated DC current, R<sub>dc</sub>=direct resistance

Part No.	Ord.No.
S DPU 100 A1	7519
S DPU 150 A1	5897
S DPU 220 A1	5578
S DPU 330 A1	8207
S DPU 1000 A1	8630
S DPU 100 A3	5581
S DPU 330 A3	44898
S DPU 100 A5	8302

### SFT Series



These suppression chokes are made with a toroid core and are designed for sup-  
pression of interfering frequencies up to 10MHz.

Part No.	L [uH]	I <sub>max</sub> [A]	R <sub>dc</sub> [Ω]	Dimensions DxH [mm]
SFT 850 D	125	2	0,1	17x12,5
SFT 1030	40	3	0,04	22x12,5
SFT 1240	64	5	0,04	26x12,5

L=inductance, I<sub>max</sub>=rated DC current, R<sub>dc</sub>=direct resistance

Part No.	Ord.No.
S SFT 850 D	6189
S SFT 1030	8206
S SFT 1240	7424

### DTP Series

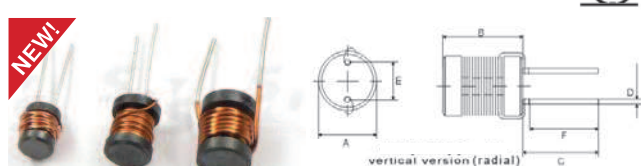


DTP chokes, used as a EMI suppression and energy storage chokes, are wound on toroidal iron powder cores. Energy storage chokes are based on iron powder cores, whose individual powder particles are insulated from one another, allowing the cores to have inherently distributed air gaps for energy storage in an inductor. Distributed air gap property ensures that the energy are stored evenly through the core. This makes the core have a better temperature stability.

Part No.	L [uH]	I <sub>max</sub> [A]	R <sub>dc</sub> [Ω]	Dimensions AxB
DTP16/0,33/2,0	0,33	2,0	0,171	4x19mm
DTP20,2/0,068/7,8	0,068	7,8	0,013	8x23mm
DTP20/1,00/1,9	1,00	1,9		
DTP27/0,47/6,3	0,47	6,3	0,076	9,5x30mm

Part No.	Ord.No.
S DTP16/0,33/2,0	78780
S DTP20,2/0,068/7,8	78781
S DTP20/1,00/1,9	78782
S DTP27/0,47/6,3	78783

### DSZ Series



Bobbin chokes on Ni Zn ferrite cores.

Part No.	L [uH]	I <sub>max</sub> [A]	R <sub>dc</sub> [Ω]	Dimensions AxB [mm]
DSZ-6/22/1,5	22	1,5	0,051	6x8
DSZ-6/33/1,2	33	1,2	0,081	6x8
DSZ-8/47/1,2	47	1,2	0,1	8x10
DSZ-9/15/5,0	15	5,0	0,013	9x12
DSZ-9/170/1,9	170	1,9		9x12

Part No.	Ord.No.
S DSZ-6/22/1,5	78775
S DSZ-6/33/1,2	78774
S DSZ-8/47/1,2	78776
S DSZ-9/15/5,0	78777
S DSZ-9/170/1,9	78778

## Current Compensated Chokes

CA Series common mode toroidal chokes provide an efficient means of filtering supply lines having in-phase signals of equal amplitude thus allowing equipment to meet stringent electrical radiation specifications. Wide frequency ranges can be filtered by using high and low inductance Common Mode Toroids in series. Differential mode signals can be attenuated substantially then used together with input and output capacitors.

### CAF Series



Size	cx dx e [mm]
2	17,5x17x12,5
3	22,5x22x15

Part No.	Size	L [mH]	I <sub>max</sub> [A]	R <sub>dc</sub> [mΩ]	gxf RM (mm)
CAF-1,2-10	3	2x10	2	280	20x12,5
CAF-1,5-2,7	2	2x2,7	1,5	172	15x10
CAF-2,2-2,7	3	2x2,7	2,2	83	20x12,5
CAF-2,3-2,2	3	2x2,2	2,3	75	20x12,5
CAF-3,1-1,2	3	2x1,2	3,1	44	20x12,5

Part No.	Ord.No.
S CAF-1,2-10	74336
S CAF-1,5-2,7	74364
S CAF-2,2-2,7	74365
S CAF-2,3-2,2	74370
S CAF-3,1-1,2	74385

### CAV Series

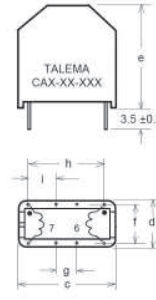


Size	cx dx e [mm]
2	17,8x12,8x20
3	23x15,5x25
4	27x18x30
4A	32,5x18x35
9	43x28x47,5

Part No.	Size	L [mH]	I <sub>max</sub> [A]	R <sub>dc</sub> [mΩ]	gxf RM (mm)
CAV-1,0-27	4	2x27	1	537	12,5x15
CAV-1,2-10	3	2x10	1,2	285	10x12,5
CAV-1,5-22	4A	2x22	1,5	227	12,5x15
CAV-10-0,15	4	2x0,15	10	3	12,5x15
CAV-2,0-1,0	2	2x1,0	2	65	5x10
CAV-2,3-2,2	3	2x2,2	2,3	75	10x12,5
CAV-2,6-6,8	4A	2x6,8	2,6	79	12,5x15
CAV-3,1-1,2	3	2x1,2	3,1	44	10x12,5
CAV-6,0-0,47	3	2x0,47	6	11	10x12,5
CAV-6,8-3,9	9	2x3,9	6,8	19	25x25

Part No.	Ord.No.
S CAV-1,0-27	74459
S CAV-1,2-10	74483
S CAV-1,5-22	74465
S CAV-10-0,15	74564
S CAV-2,0-1,0	74537
S CAV-2,3-2,2	74518
S CAV-2,6-6,8	74490
S CAV-3,1-1,2	74533
S CAV-6,0-0,47	74548
S CAV-6,8-3,9	74506

## CAX Series



Size	cx dx e [mm]
2	17,8x12,8x20
4	27x18x30

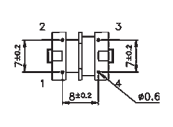
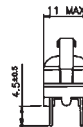
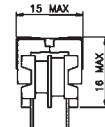
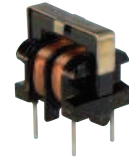
Part No.	Size	L [uH]	I <sub>max</sub> [A]	R <sub>dc</sub> [mΩ]	hxf RM (mm)
CAX-0,4-39	2	2x39	0,4	1769	15x10
CAX-1,1-6,8	2	2x6,8	1,1	342	15x10
CAX-1,3-3,9	2	2x3,9	3	230	15x10
CAX-2,1-3,9	4	2x3,9	2,1	81	22,5x15

Part No.	Ord.No.
S CAX-0,4-39	73454
S CAX-1,1-6,8	74622
S CAX-1,3-3,9	71945
S CAX-2,1-3,9	74636

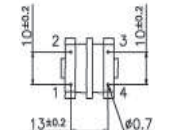
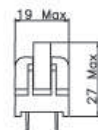
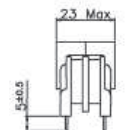
## 743xx Series



74330, 74332



74311



Common mode chokes range for EMI suppression. Mainly used to reduce noise conducted through power or signal lines. The common mode inductance filters symmetrical noise, associated with Y-type safety capacitors connected to ground. The differential mode inductance filters asymmetrical noise, associated with X-type capacitor connected between Line and Neutral.

- ambient temperature 3/4 50°C
- dielectric strength „ 1.5 kV between windings
- electrical characteristics at 25°C

Part No.	Original mark.	L [mH]	I <sub>max</sub> [A]	R <sub>dc</sub> [Ω]
74330 U9,8	M74330	33-56	0,18	7,000
74311 U16	M74311	15-25	0,9	0,75
74332 U9,8	M74332	10-17	0,35	2

L=inductance common mode min - max, I<sub>max</sub>=rated current arms, R<sub>dc</sub>=resistance per winding

Part No.	Ord.No.
S 74330 U9,8 0,18A 33-56mH	49441
S 74311 U16 0,9A 15-25mH	49434
S 74332 U9,8 0,35A 10-17mH	49442

## DUS Series



Part No.	L [uH]	I <sub>max</sub> [A]	R <sub>dc</sub> [Ω]
DUS9,8/22/0,3	2x22	0,30	1,0
DUS9,8/47/0,25	2x47	0,25	2,8

Part No.	Ord.No.
S DUS9,8/22/0,3	78784
S DUS9,8/47/0,25	78785

## Feritte Cores

### Feritte Cores - toroidal



Kerntyp	Maße		
	d <sub>a</sub> mm	d <sub>i</sub> mm	h mm
R2,5	2,5±0,12	1,5±0,1	1,0±0,1
R4	4,50max.	1,9min.	2,1 max.
R6,3	7,25max.	2,85min.	3,4 max.
R9,5	10,5max.	3,8min.	4,1 max.
R10	11,0max.	5,05min.	4,95max.
R12,5	13,6max.	6,5min.	5,95max.
R13,3	14,4max.	7,2min.	5,95max.
R16	17,2max.	8,5min.	7,3 max.
R20/7	21,2max.	9,7min.	8,2 max.
R25/10	26,8max.	13,5min.	11,0max.
R29	31,0max.	17,7min.	16,1max.
R34/10	35,5max.	19,2min.	11,1max.
R34/12,5	35,5max.	19,2min.	13,6max.
R36	37,5max.	21,7min.	16,2max.
R40	41,8max.	22,5min.	17,2max.
R42	43,6max.	24,8min.	13,6max.
R50	51,8max.	28,5min.	21,3max.
R59	60,1max.	29,2min.	18,8max.
R63	65,3max.	36,0min.	28,6max.
R100	104,8max.	63,7min.	116,3max.

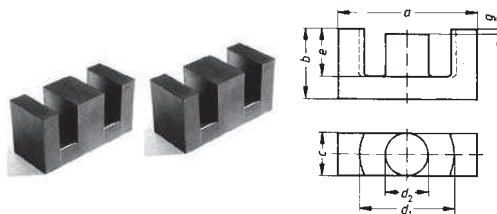
Feritte cores are made from a Siferit material (soft-magnetic, ceramicoxide ferrite material-based on MnZn and NiZn). Coating - Polyamide (0,2 to 0,4 mm), R2,5 and R4 cores are varnished (0,1 mm).

Toroids are used principally as EMC chokes to suppress RF interference in the MHz region and in signal transformers. Double-aperture cores are particularly suitable for low-leakage storage chokes, pulse and broadband transformers.

Part No.	Dimensions	Inductance Factor
<b>MATERIAL N27</b>		
B64290-L44-X27	R 12,5	1020 nH
B64290-L45-X27	R16	1290 nH
B64290-L632-X27	R 20/7	1450 nH
B64290-L618-X27	R 25/10	2150 nH
<b>MATERIAL N30</b>		
B64290-P35-X830	R 2,5	440 nH
B64290-P36-X830	R 4	700 nH
B64290-P37-X830	R 6,3	1090 nH
B64290-L38-X830	R 10	1760 nH
B64290-L44-X830	R 12,5	2200 nH
B64290-L644-X830	R 13,3	2020 nH
B64290-L45-X830	R 16	2770 nH
B64290-L632-X830	R 20/7	4160 nH
B64290-L618-X830	R 25/10	4620 nH
B64290-L58-X830	R 34/10	4360 nH
B64290-L48-X830	R 34/12,5	5460 nH
B64290-L674-X830	R 36	5750 nH
B64290-L659-X830	R 40	7000 nH
B64290-L22-X830	R 42	5000 nH
B64290-L82-X830	R 50	8700 nH
B64290-L40-X830	R 58	5400 nH
B64290-L699-X830	R 63	10800 nH
B64290-L84-X830	R 100	5500 nH
B64290-A84-X830	R 100	5500 nH
B64290-A711-X830	R 202/153/25	5200 nH
<b>MATERIAL T35</b>		
B64290-L62-X35	R 9,5	2650 nH
B64290-L632-X35	R 20/7	5000 nH
B64290-L618-X35	R 25/10	5400 nH
<b>MATERIAL T37</b>		
B64290-L647-X37	R 29	8500 nH
<b>MATERIAL T38</b>		
B64290-P37-X38	R 6,3	2530 nH
B64290-L38-X38	R 10	4090 nH
B64290-L44-X38	R 12,5	5110 nH
B64290-L45-X38	R 16	6440 nH



## Ferrites - ETD Cores



Typ type	Hauptmaße (mm) Main dimensions (mm)					
	a	b	c	d	d <sub>1</sub>	e
ETD 29	30,6 - 1,6	16,0 - 0,4	9,8 - 0,6	22,0 + 1,4	9,8 - 0,6	10,7 + 0,6
ETD 39	34,0 + 1,7 - 0,6	17,5 - 0,4	11,1 - 0,6	25,6 + 1,4	11,1 - 0,6	11,8 + 0,6
ETD 39	38,9 + 1,7 - 0,7	20,0 - 0,4	12,8 - 0,6	29,3 + 1,6	12,8 - 0,6	14,2 + 0,8
ETD 44	43,8 + 1,7 - 0,8	22,5 - 0,4	15,2 - 0,8	32,5 + 1,6	15,2 - 0,8	16,1 + 0,8
ETD 49	48,5 + 1,3 - 0,9	24,9 - 0,4	16,7 - 0,8	36,1 + 1,8	16,7 - 0,8	17,7 + 0,8
ETD 54	54,5 ± 1,3	27,8 - 0,4	19,3 - 0,8	40,1 + 2,2	19,3 - 0,8	19,8 + 0,8
ETD 59	59,8 ± 1,4	31,2 - 0,4	22,1 - 0,9	43,6 + 2,2	22,1 - 0,9	22,0 + 0,9

ETD cores with flattened and recessed center leg permit a particularly flat transformer design. They are used for DC/DC converters.

Cores are made from the Siferit material.

The AL value applies to a core set comprising one core without air gap (dim. "g" = 0) and one core with air gap (dim. "g" > 0).

The Mg value applies to air gap size.

### ETD29 CORES

Part No.	Air Gap	A <sub>L</sub> -Inductance Factor	Material
B66358-G-X127	Mg 0 mm	2000 nH	N27
B66358-G200-X127	Mg 0,2 mm	380 nH	N27
B66358-G500-X127	Mg 0,5 mm	200 nH	N27
B66358-G1000-X127	Mg 1,0 mm	125 nH	N27
B66358-G-X167	Mg 0 mm	2100 nH	N67
B66358-G200-X167	Mg 0,2 mm	380 nH	N67
B66358-G500-X167	Mg 0,5 mm	200 nH	N67
B66358-G1000-X167	Mg 1,0 mm	125 nH	N67

### Coilformers

B66359-B1013-T1	1 K, Wq 97 mm <sup>2</sup> , 13 P, horizontal
B66359-J1014-T1	1 K, Wq 97 mm <sup>2</sup> , 14 P, vertical

### ETD34 Cores

Part No.	Air Gap	A <sub>L</sub> -Inductance Factor	Material
B66361-G-X127	Mg 0 mm	2400 nH	N27
B66361-G200-X127	Mg 0,2 mm	480 nH	N27
B66361-G500-X127	Mg 0,5 mm	250 nH	N27
B66361-G1000-X127	Mg 1 mm	155 nH	N27
B66361-G-X167	Mg 0 mm	2450 nH	N67
B66361-G200-X167	Mg 0,2 mm	480 nH	N67
B66361-G500-X167	Mg 0,5 mm	250 nH	N67
B66361-G1000-X167	Mg 1 mm	155 nH	N67

### Coilformers

B66362-B1014-T1	1 K, Wq 122 qmm, 14 P, horizontal
B66362-L1014-T1	1 K, Wq 122 qmm, 14 P, vertical

### ETD35 Cores

Part No.	Air Gap	A <sub>L</sub> -Inductance factor	Material
B66365-G-X127	Mg 0 mm	3300 nH	N27
B66365-G500-X127	Mg 0,5 mm	440 nH	N27
B66365-G1000-X127	Mg 1,0 mm	260 nH	N27
B66365-G-X167	Mg 0 mm	3350 nH	N67
B66365-G500-X167	Mg 0,5 mm	440 nH	N67
B66365-G1000-X167	Mg 1,0 mm	260 nH	N67

### Coilformers

B66366-B1018-T1	1 K, Wq 210 qmm, 18 P
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Above mentioned ferrites and also other series are available on request.

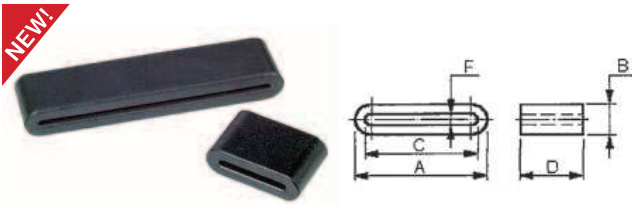
## Ferittes -2-Hole Cores (balun cores)



Part No.	Description	Dimensions
R6 RID	2-hole ferrite core Al=1800	2,65x3x5,35(1,2)

Part No.	Ord.No.
S R6 RID 2,65x3x5,35(1,2)	50655

## Flat Ferrites - SSC Series



Part No.	Description
SSC4012	for flat cable AWG28,26 wires, 27R/25MHz, 60R/100MHz
SSC5012	for flat cable AWG28,34 wires, 25R/25MHz, 64R/100MHz
SSC5812	for flat cable AWG28,40wires, 25R/25MHz, 63R/100MHz

Part No.	Ord.No.
S SSC4012	77092
S SSC5012	77093
S SSC5812	77094

## Ferrite Rods



Part No.	Description
R3A R 2x4	Ferrit stick D2xL4mm Al=300
R5B R 2x7	Ferrit stick D2xL7mm Al=700
R5C R 5x20	Ferrit stick D5xL20mm Al=850

Part No.	Ord.No.
S R3A R 2x4	47401
S R5B R 2x7	47402
S R5C R 5x20	52420

Wide range of coilformers for different applications on [www.norwe.eu](http://www.norwe.eu)



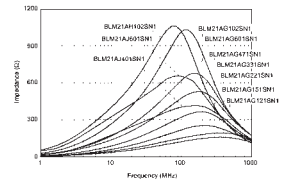
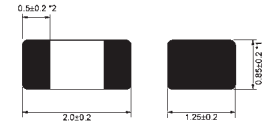
## SMD RFI Filters

### BLM Series

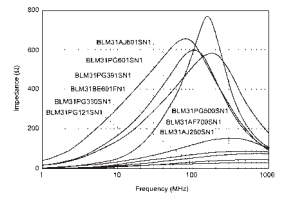
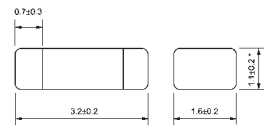


The chip ferrite bead BLM series comprises ferrite bead inductors in the shape of a chip. This inductor generates a high impedance which at high frequencies mainly consists of a resistance element. The BLM series is effective in circuits without stable ground lines because the BLM series does not need a connection to ground. BLM series is essential for noise suppression in high speed signal lines and DC power lines. RFI filters from BLM series are inductive, double-pole ferrite core filters which are connected in a series with protected equipments.

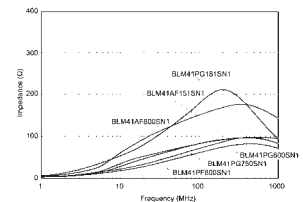
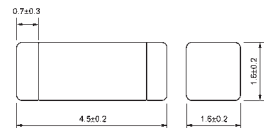
#### BLM 21 - size 0805



#### BLM 31 - size 1206



#### BLM 41 - size 1806



Part No.	Description
BLM 21 AJ 601 SN1D	EMI SMD0805 Filter 100MHz 600R 0,2A
BLM 21 PG 300 SN1D	EMI SMD0805 Filter 100MHz 30R 3A
BLM 31 AF 700 SN1L	EMI SMD1206 Filter 100MHz 70R 0,2A
BLM 31 PG 500 SN1L	EMI SMD1206 Filter 100MHz 50R 3A
BLM 41 AF 151 SN1L	EMI SMD1806 Filter 100MHz 150R 0,2A
BLM 41 PG 750 SN1L	EMI SMD1806 Filter 100MHz 75R 3A

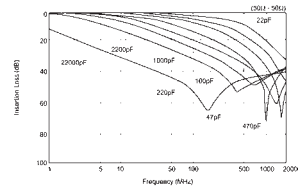
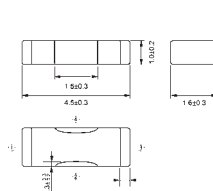
Part No.	Ord.No.
O BLM 21 AJ 601 SN1D	48385
S BLM 21 PG 300 SN1D	40416
S BLM 31 AF 700 SN1L	38273
S BLM 31 PG 500 SN1L	40417
O BLM 41 AF 151 SN1L	38275
O BLM 41 PG 750 SN1L	40419

## NFM Series



The chip solid "EMIFIL" series is a chip type three-terminal EMI suppression filter. It can reduce residual inductance to an extremely low level making it excellent for noise suppression at high frequencies. An electrostatic capacitance range of 22pF to 22,000pF enables suppression of noise at specific frequencies.

#### NFM 41



Part No.	Description
NFM 41 PC 204 F1H3L	EMI SMD1806 3-terminal filter 200nF/50V 2A
NFM 3 DCC 221 R1H3L	EMI SMD1806 3-terminal filter 220pF/25V 0,3A
NFM 41 CC 222 R2A3L	EMI SMD1806 3-terminal filter 2200pF/100V 0,3A

Part No.	Ord.No.
S NFM 41 PC 204 F1H3L	40425
O NFM 3 DCC 221 R1H3L	50894
O NFM 41 CC 222 R2A3L	50893



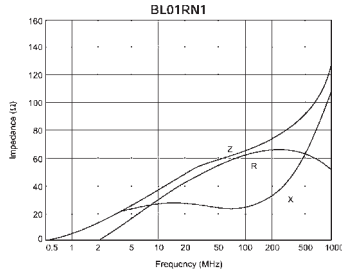
RFI Filters - leaded

BL Series

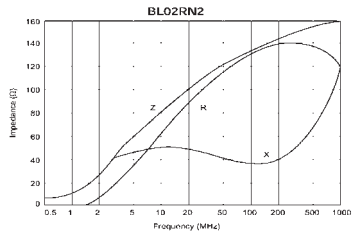
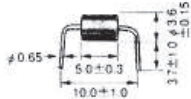


These ferrite bead inductors are useful because they can suppress noise only by inserting them in circuit lines. They are suitable for the circuit with unstable ground because they do not need the connection to ground line. Ferrite core filters from BL series are inductive, 2-terminal and are connected in series with protected equipments.

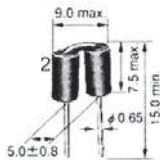
BL01 RN1-A62



BL01 RN1-A62B1



BL02 RN2-R62



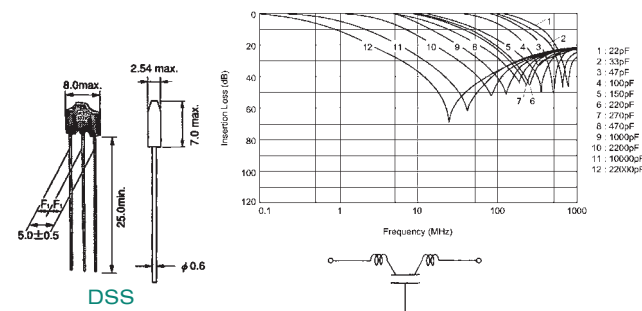
Part No.	Description
BL01RN1A1F1J	EMI filter 100MHz 70R 7A 2-pin axial
BL01RN1A2A2B	EMI filter 100MHz 70R 7A 2-pin axial
BL02RN2R1N1A1	EMI filter 100MHz 130R 7A 2-pin radial

Part No.	Ord.No.
S BL01RN1A1F1J	38271
S BL01RN1A2A2B	40413
S BL02RN2R1N1A1	38272

DSS Series



DSS series is compact, high performance lead type EMI suppression filters which can be mounted 2.54mm pitch. Its three-terminal structure enables nice high frequency performance.



Part No.	Description
DSS 6NZ 82A 103 Q55B	EMI filter 10000pF/100V 6A 3pin radial
DSS 6NF 31C 223 Q55B	EMI filter 22000pF/16V 6A 3pin radial
DSS 6NC 52A 102 Q55B	EMI filter 1000pF/100V 6A 3pin radial

Part No.	Ord.No.
S DSS 6NZ 82A 103 Q55B	38276
S DSS 6NF 31C 223 Q55B	40264
S DSS 6NC 52A 102 Q55B	40265

BNX Series



The "EMIFIL" BNX002 incorporates a through-type barrier layer capacitor and a four-terminal capacitor which are interconnected. This combination enables the BNX002 to achieve a significantly large insertion loss throughout the extremely wide frequency range of 0.5MHz to 1GHz which covers the AM and UHF-TV broadcast frequency bands.

The filter is extremely compact since only one filter block is needed to completely eliminate noise from both the positive and negative lines.

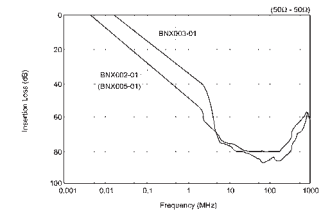
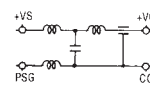
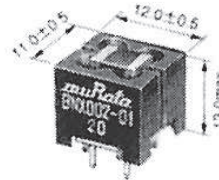
There are no connection routes in the current circuits, thus ensuring highly reliable performance.

Both the input/output terminals and the grounding terminal are aligned in the same direction, permitting fast and easy installation on any type of P.C. board.

Applications:

Noise elimination from DC power sources in a variety of switching power sources, engine control units, digital equipment and computer terminals.

BNX 002/01



Part No.	Description
BNX 002-01	EMI filter 1MHz-1GHz 10A/50V 4pin radial

Part No.	Ord.No.
S BNX 002-01	38270

Table of Product Numbers:



Old Product Number	Current Product Number
<b>BLM Series</b>	
BLM 21 A 601 S PT	BLM 21 AJ 601 SN1D
BLM 21 P 300 S PT	BLM 21 PG 300 SN1D
BLM 31 A 700 S PT	BLM 31 AF 700 SN1D
BLM 31 P 500 S PT	BLM 31 PG 500 SN1D
BLM 41 A 151 S PT	BLM 41 AF 151 SN1L
BLM 41 P 750 S PT	BLM 41 PG 750 SN1L
<b>NFM Series</b>	
NFM 41 P11 C 204 T1	NFM 41 PC 204 F1H3L
NFM 40 R11 C 221 T1	NFM 3D CC 221 R1H3L
NFM 41 R11 C 222 T1	NFM 41 CC 222 R2A3L
<b>BL Series</b>	
BL 01 RN1-A62	BL 01 RN 1A 1F1J
BL 01 RN1-A62B1	BL 01 RN 1A 2A2B
BL 02 RN2-R62	BL 02 RN 2R 1N1A
<b>DSS Series</b>	
DSS 306-55 FZ 103 N100	DSS 6NZ 82A 103 Q55B
DSS 306-55 F 223 Z16 PBF	DSS 6NF 31C 223 Q55B
DSS 306-55 Y5S 102 M100	DSS 6NC 52A 102 Q55B

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- engineering characteristic
- data sheets
- replacements...




## RFI Filters 230VAC

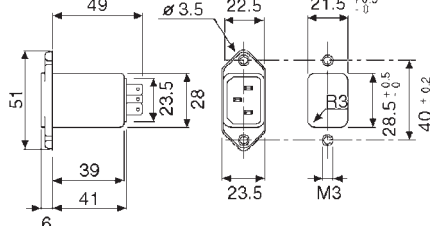
A comprehensive range of chassis mount IEC 60320 inlet power entry modules housed in a compact and lightweight enclosure. Offers a low cost form of protection from mains borne interference in applications such as business, consumer, medical equipment, VDU's, computers, vending machines and many other general purpose applications.

- Current ratings from 1A to 10A
- Component value combinations to suit requirements
- Low cost design
- Medical versions available
- Metal case with built-in power line connector
- Temperature range: -25°C to +85°C

### F.BN Series

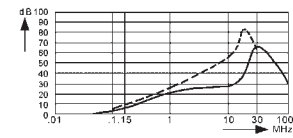


**FASTIN 6,3x0,8**

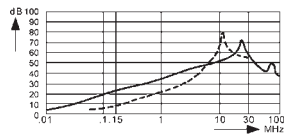


Dimensions: 51, 49, 39, 41, 6, 23.5, 28, 21.5 ±0.5, 28.5 ±0.5, 40 ±0.2, 23.5, M3, R3, 3.5, 22.5, 23.5, 28, 33, 33<sup>+0.9</sup>, 23.9<sup>+0.3</sup>, 35, 46, 57, 6, 32.

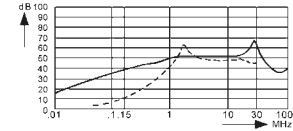
### FIL 2470



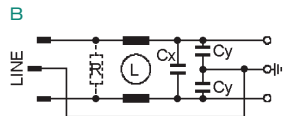
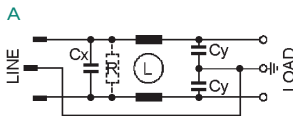
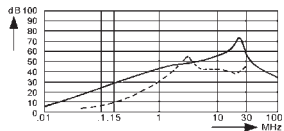
### FIL 2680-3



### FIL 3100-1



### FIL 3100-6




Part No.	Original mark.	Ir[A]	L[mH]	Cx[nF]	Cy[nF]	C.D.
FIL 2470	F.BN.AB.2470.ZG.110	10	2 x 0,13	47	2 x 2,5	A
FIL 2680-3	F.BN.AB.2680.ZD.000	3	2 x 2,5	68	2 x 2,5	A
FIL 3100-1	F.BN.AB.3100.BZ.000	1	2 x 10	100	2 x 2,5	B
FIL 3100-6	F.BN.AB.3100.FZ.000	6	2 x 1	100	2 x 2,5	B

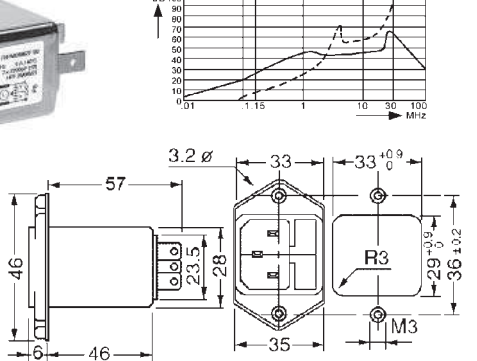
Part No.	Ord.No.
S FIL2470	6903
S FIL2680-3	6904
S FIL3100-1	50184
S FIL3100-6	50185

### F.BP Series

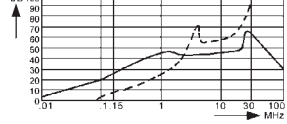


**FASTIN 6,3x0,8**

WITH FUSE HOLDERS 5x20



Dimensions: 57, 46, 46, 6, 46, 3.2, 33, 33<sup>+0.9</sup>, 23.5, 28, 21.5 ±0.5, 28.5 ±0.5, 40 ±0.2, 23.5, M3, R3, 3.5, 22.5, 23.5, 28, 35, 36 ±0.2, 29<sup>+0.9</sup>.



Attenuation graph showing dB vs MHz for F.BP Series RFI Filter. The x-axis is logarithmic from 0.01 to 100 MHz. The y-axis is linear from 0 to 100 dB. The curve shows a peak attenuation of approximately 80 dB at 30 MHz.


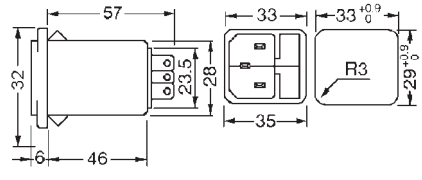
Part No.	Producer's mark	Ir[A]	L[mH]	Cx[nF]	Cy[nF]	C.D.
FIL 2680 BP	F.BP.AB.2680.ZF.100	6	2 x 0,8	68	2 x 2,2	C

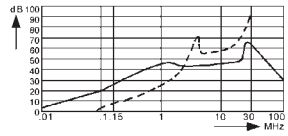
Part No.	Ord.No.
S FIL2680BP	50186

## F.CP/F.CQ Series

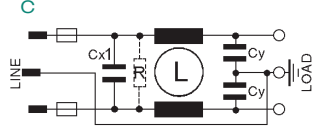
## ARCOTRONICS

Dimensions: 57, 33, 33<sup>+0.9</sup>, 23.9<sup>+0.3</sup>, 35, 46, 6, 32, 23.5, 28, 21.5 ±0.5, 28.5 ±0.5, 40 ±0.2, 23.5, M3, R3, 3.5, 22.5, 23.5, 28, 35, 46, 57, 6, 32.



Attenuation graph showing dB vs MHz for F.CP/F.CQ Series RFI Filter. The x-axis is logarithmic from 0.01 to 100 MHz. The y-axis is linear from 0 to 100 dB. The curve shows a peak attenuation of approximately 80 dB at 30 MHz.



Circuit diagram C showing a pi-network with a series inductor L and two shunt capacitors Cx and Cy.

**FASTIN 6,3x0,8**

WITH FUSE HOLDERS 5x20

Part No.	Producer's mark.	Ir[A]	L[mH]	Cx[nF]	Cy[nF]	Sch.
FIL 2680 CP	F.CP.AB.2680.ZF.100	6	2 x 0,8	68	2 x 2,2	C
FIL 2680 CQ	F.CQ.AB.2680.ZF.100	6	2 x 0,8	68	2 x 2,2	C


Part No.	Ord.No.
S FIL2680CP (1x držiak poistky)	50187
S FIL2680CQ (2x držiak poistky)	50188

## Chassis Mount Filters

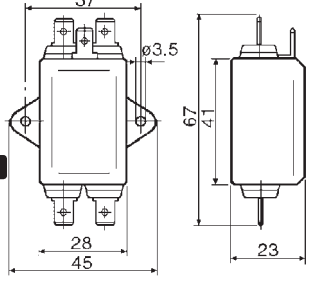
Comprehensive family of single and multi-stage chassis mount filters. Throughout the power range, a high level of performance is provided within various sizes and styles of metal enclosure and termination options. Designed to provide economic solutions to a multitude of general purpose filtering requirements; industrial power equipment, office, business and medical equipments. The two stage FAS series is specifically designed to suppress RFI generated by switch mode power supply applications.

- Current ratings from 0.5A to 40A
- High symmetric and asymmetric attenuation
- Earth line choke and medical versions available
- Custom designs to client specifications
- Connections: faston 6.3 x 0.8mm (≤16A)
- Rated voltage (VR): max 250V, 50/60Hz
- Rated current (IR): referred to room temperature = 40°C
- Leakage current (IL): at 220V, 50Hz, max value
- Voltage test (2S.): line to ground 3000Vdc or 1800Vac line to line 1700Vdc
- Temperature range: -25°C to +85°C

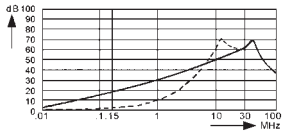
### F.AI Series



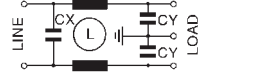
**FASTIN 6,3x0,8**



Dimensions: 37, 3.5, 67, 41, 23, 28, 45, 28, 37, 3.5, 67, 41, 23, 28, 45.



Attenuation graph showing dB vs MHz for F.AI Series RFI Filter. The x-axis is logarithmic from 0.01 to 100 MHz. The y-axis is linear from 0 to 100 dB. The curve shows a peak attenuation of approximately 80 dB at 30 MHz.



Circuit diagram showing a pi-network with a series inductor L and two shunt capacitors Cx and Cy.

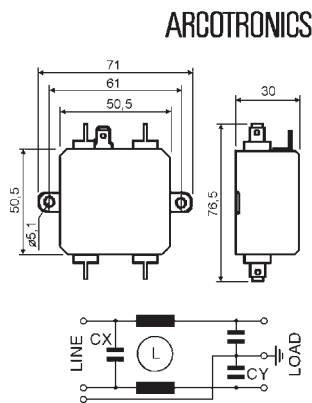
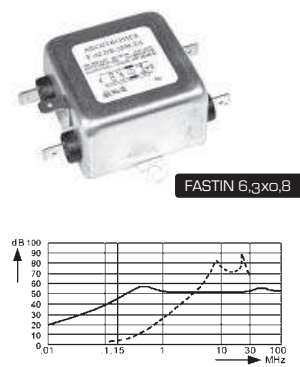
**FASTIN 6,3 x 0,8**

Part No.	Producer's mark	Ir[A]	L[mH]	Cx[uF]	Cy[pF]
FIL 2150	F.AI.DB.2150.ZA.000	1,5	2 x 10	0,015	2 x 2200
FIL 2150-3	F.AI.DB.2150.ZC.000	3	2 x 2,0	0,015	2 x 2200
FIL 2150-6,5	F.AI.DB.3100.ZD.000	6,5	2 x 1,0	0,015	2 x 2200

Part No.	Ord.No.
S FIL2150	50189
S FIL2150-3	50190
S FIL2150-6,5	50191

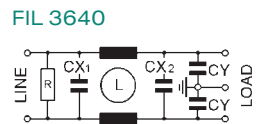
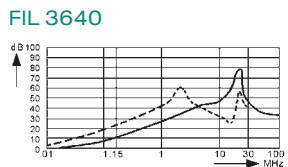
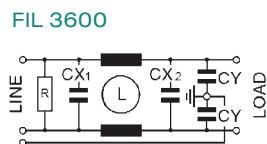
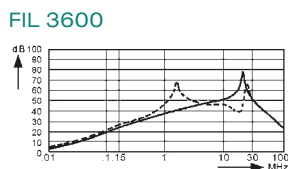
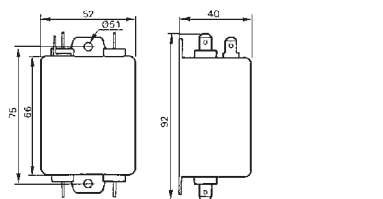
## F.AI Series (continued)



Part No.	Producer's mark.	Ir[A]	L[mH]	Cx[ $\mu$ F]	Cy[pF]	I <sub>L</sub> [mA]
FIL 2150 - 10	F.AI.DB.2330.ZA.000	1,5	2 x 10	0,015	2 x 2200	

Part No.	Ord.No.
S FIL2150-10	50192

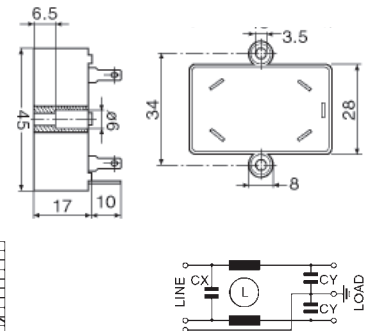
## F.AM Series



Part No.	Producer's mark.	Ir[A]	L[mH]	Cx <sub>1</sub> [ $\mu$ F]	Cx <sub>2</sub> [ $\mu$ F]	Cy[pF]
FIL 3600	F.AM.DB.3600.ZC	16	2x1	-	0,6	2x2500
FIL 3640	F.AM.DB.3600.ZF.000	40	2x0,23	-	0,6	2x4700

Part No.	Ord.No.
S FIL3600	7830
S FIL3640	50193

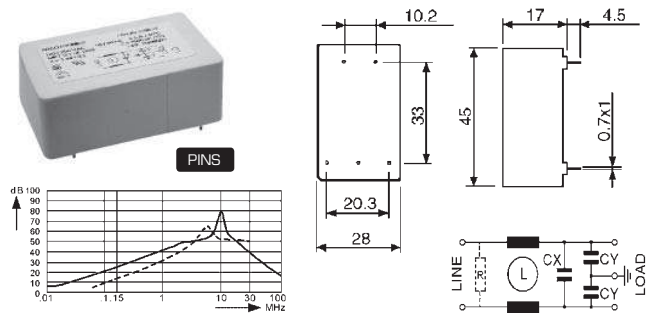
## F.AH Series



Part No.	Producer's mark	Ir[A]	L[mH]	Cx <sub>1</sub> [ $\mu$ F]	Cy[pF]	I <sub>L</sub> [mA]
FIL 3100 ZF	F.AH.DA.3100.ZF	6,5	2x1	0,1	2x2500	2x0,23

Part No.	Ord.No.
S FIL3100 ZF	47712

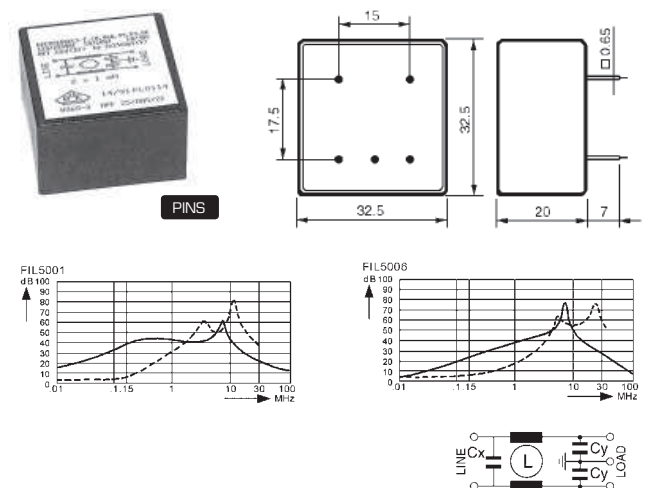
## ARCOTRONICS



Part No.	Producer's mark	Ir[A]	L[mH]	Cx <sub>1</sub> [ $\mu$ F]	Cy[pF]	I <sub>L</sub> [mA]
FIL 3100	F.AH.AV.3100.ZF	6,5	2x1	0,1	2x2500	2x0,23

Part No.	Ord.No.
S FIL3100	6905

## F.LH Series



Part No.	Producer's mark	Ir[A]	L[mH]	Cx <sub>1</sub> [ $\mu$ F]	Cy[pF]	I <sub>L</sub> [mA]
FIL 5001	F.LH.01A.02.03.AK.00	1	2x10	0,033	2x2500	2x0,23
FIL 5006	F.LH.06A.04.03.AK.00	6	2x1	0,033	2x2500	2x0,23

Part No.	Ord.No.
S FIL5001	50194
S FIL5006	50195

## ARCOTRONICS

SOS electronic  
- distributor of

# ARCOTRONICS

SOS electronic - official distributor of

**SCHURTER**

on Slovak, Czech and Hungarian market.

## Overview of RFI 230V Filters from SCHURTER

5500



FPP-01



FPP-02



FMAB-72



FMLB-41



Technical parameters	5500	FPP-01	FPP-02	FMAB-72	FMLB-41
Operating current/voltage	1-6A/250V AC	0.5-6.5A/250V AC	0.5-6.5A/250V AC	2-16A/250V AC	1-10A/250V AC
Breakdown voltage L-N, L/N-PE	1.7kVAC, 2.7kVAC	2.7kVAC, 1.7kVAC	2.7kVAC, 1.7kVAC	2.7kVAC, 1.7kVAC	2.7kVAC, 1.7kVAC
Filter stage	1	1	1	1	1
Type of terminals	in PCB	in PCB	in PCB	in PCB	FASTIN 6,3x0,8 mm
Operating temperature range	-25°C up to 85°C	-25°C up to 85°C	-25°C up to 85°C	-25°C up to 100°C	-25°C up to 100°C
Dimensions WxLxH	26,6x30x23,2 mm	-	24x45x17,5 mm	34,5x55x25,5 mm	46x67x25 mm

FMLB-09



FMLB-51



FMW-150



FMW-41



FMW-52



Technical parameters	FMLB-09	FMLB-51	FMW-150	FMW-41	FMW-52
Operating current/voltage	6-20A/250V AC	6-20A/250V AC	4-30A/250V AC	1-10A/250V AC	2-6A/250V AC
Breakdown voltage L-N, L/N-PE	1.7kVAC, 2.7kVAC	2.7kVAC, 1.7kVAC	2.7kVAC, 1.7kVAC	2.7kVAC, 1.7kVAC	2.7kVAC, 1.7kVAC
Filter stage	1	1	3	1	2
Typ of terminals	FASTIN 6,3x0,8 mm	FASTIN 6,3x0,8 mm	in PCB	FASTIN 6,3x0,8 mm	FASTIN 6,3x0,8 mm
Operating temperature range	-25°C up to 100°C	-25°C up to 100°C	-25°C up to 100°C	-25°C up to 100°C	-25°C up to 100°C
Dimensions WxLxH	45x75x28,6 mm	51x75x32 mm	127x173x56 mm	46x67x25 mm	46x77x31 mm

FMW-55



FSS



FSW



FMAB



FMBB



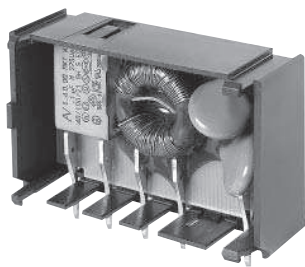
Technical parameters	FMW-55	FSS	FSW	FMAB	FMW-52
Operating current/voltage	10-20A/250V AC	1-10A/250V AC	3-10A/250V AC	12-30A/250V AC	8-25A/250V AC
Breakdown voltage L-N, L/N-PE	2.7kVAC, 1.7kVAC	2.7kVAC, 1.7kVAC	2.7kVAC, 1.7kVAC	2.7kVAC, 1.7kVAC	2.7kVAC, 1.7kVAC
Filter stage	1	2	2	1	2
Type of terminals	FASTIN 6,3x0,8 mm	FASTIN 6,3x0,8 mm	FASTIN 6,3x0,8 mm	Screw terminals	Screw terminals
Operating temperature range	-25°C up to 100°C	-25°C up to 100°C	-25°C up to 100°C	-25°C up to 100°C	-25°C up to 100°C
Dimensions WxLxH	41x81x33 mm	54x116x44 mm	51x91x32 mm	106x137x58 mm	54x100x47 mm

We will provide all this sortiment on order - ask for a price request, please.

s - in-stock product o - on order product

## Overview of Power Entry Modules with Line Filter

KPF



KFB1



KFB2



DC12

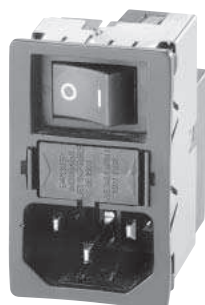


Technical parameters	KPF	KFB1	KFB2	DC12
Max. current/voltage	10A/250V AC	10A/250V AC	10A/250V AC	10A/250V AC
Breakdown voltage L-N, L/N-PE	1,7kVAC, 2,7kVAC	1,7kVAC, 2,7kVAC	1,7kVAC, 2,7kVAC	1,7kVAC, 2,7kVAC
Type of terminals	do DPS	FASTIN 6,3x0,8 mm	FASTIN 6,3x0,8 mm	FASTIN 6,3x0,8 mm
Line switch	-	1-pole	2-pole	1, 2-pole
Operating temperature range	-25°C up to 70°C	-25°C up to 85°C	-25°C up to 85°C	-25°C up to 85°C
Front panel protection	IP40	IP40	IP40	IP40
Mounting hole dimensions	53,3x32 mm	29x33 mm	28,5x43 mm	29x33 mm

DC22



KMF



GRM



CD



Technical parameters	DC22	KMF	GRM	CD
Max. current/voltage	10A/250V AC	10A/250V AC	10A/250V AC	10A/250V AC
Breakdown voltage L-N, L/N-PE	1,7kVAC, 2,7kVAC	1,7kVAC, 2,7kVAC	1,7kVAC, 2,7kVAC	1,7kVAC, 2,7kVAC
Type of terminals	FASTIN 6,3x0,8 mm	FASTIN 4,8x0,8 mm	FASTIN 4,8x0,8 mm	FASTIN 4,8x0,8 mm
Line switch	1, 2-pole	2-pole	2-pole	2-pole
Operating temperature range	-25°C up to 85°C	-25°C up to 85°C	-25°C up to 85°C	-25°C up to 85°C
Front panel protection	IP40	IP40	IP40	IP40
Mounting hole dimensions	30,4x34,4 mm	28,8x47,8 mm	34,2x40,9 mm	28,5x67,5 mm

CG



FKH; FKI



FKHD; FKID



Felcom 54



Technical parameters	CG	FKH; FKI	FKHD; FKID	CD
Max. current/voltage	10A/250V AC	10A/250V AC	10A/250V AC	6A/250V AC
Breakdown voltage L-N, L/N-PE	1,7kVAC, 2,7kVAC	1,7kVAC, 2,7kVAC	1,7kVAC, 2,7kVAC	1,7kVAC, 2,7kVAC
Type of terminals	FASTIN 4,8x0,8 mm	FASTIN 6,3x0,8 mm	FASTIN 6,3x0,8 mm	FASTIN 3,5x0,8 mm
Line switch	2-pole	2-pole	2-pole	2-pole
Operating temperature range	-25°C up to 85°C	-25°C up to 85°C	-25°C up to 85°C	-25°C up to 85°C
Front panel protection	IP40	IP40	IP40	IP40
Mounting hole dimensions	28,5x81 mm	29,5x61 mm	29,5x61 mm	111x30 mm

We will provide all this sortiment on order - ask for a price request, please.

## Overview of Power Entry Modules with Line Filter

Passive Components

**5145**

**EC12**

**EF12**

**GRF**


Technical parameters	5145	EC12	EF12	GRF
Max. current/voltage	10A/250V AC	16A/250V AC	10A/250V AC	10A/250V AC
Breakdown voltage L-N, L/N-PE	1,7kVAC, 2,7kVAC	1,7kVAC, 2,7kVAC	1,7kVAC, 2,7kVAC	1,7kVAC, 2,7kVAC
Type of terminals	FASTIN 6,3x0,8 mm	FASTIN 6,3x0,8 mm	FASTIN 6,3x0,8 mm	FASTIN 6,3x0,8 mm
Line switch	2-pole	2-pole	2-pole	-
Operating temperature range	-10°C up to 55°C	-25°C up to 85°C	-10°C up to 55°C	-25°C up to 85°C
Front panel protection	IP40	IP40	IP40	IP40
Mounting hole dimensions	29x72 mm	33,9x48 mm	33,9x81 mm	30,5x20,8 mm

**KFA**

**KFC**

**CE**

**5200; 5220**


Technical parameters	KFA	KFC	CE	5200; 5220
Max. current/voltage	10A/250V AC	10A/250V AC	10A/250V AC	10A/250V AC
Breakdown voltage L-N, L/N-PE	1,7kVAC, 2,7kVAC	1,7kVAC, 2,7kVAC	1,7kVAC, 2,7kVAC	1,7kVAC, 2,7kVAC
Type of terminals	FASTIN 6,3x0,8 mm	FASTIN 4,8x0,8 mm	FASTIN 4,8x0,8 mm	FASTIN 6,3x0,8 mm
Operating temperature range	-25°C up to 85°C	-25°C up to 85°C	-25°C up to 85°C	-25°C up to 85°C
Front panel protection	IP40	IP40	IP40	IP40
Mounting hole dimensions	33x36 mm	28,5x42 mm	28,5x53,5 mm	29x32 mm

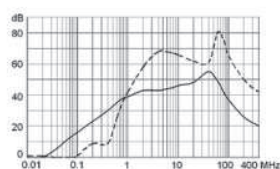
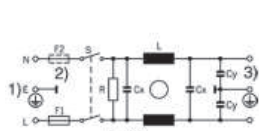
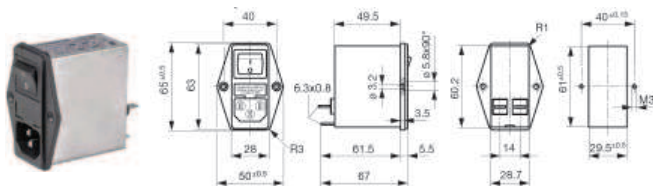
**5110**

**KFS; KFX**

**C20F**


Technical parameters	5110	KFS; KFX	C20F
Max. current/voltage	10A/250V AC	10A/250V AC	16A/250V AC
Breakdown voltage L-N, L/N-PE	1,7kVAC, 2,7kVAC	4kVAC, 5kVAC (KFX)	1,7kVAC, 2,7kVAC
Type of terminals	FASTIN 6,3x0,8 mm	FASTIN 6,3x0,8 mm	FASTIN 6,3x0,8 mm
Operating temperature range	-25°C up to 85°C	-25°C up to 85°C	-25°C up to 85°C
Front panel protection	IP40	IP40	IP40
Mounting hole dimensions	29x21 mm	21,5x28,5 mm	26,8x34,8 mm

### FKH, FKI Series



1-stage inlet filter, front side mounting, line switch 2-pole, fuseholder 5x20 mm 1-pole.

**Description:**

- Panel Mount - screw-on from front side
- 4 Functions:
  1. Appliance Inlet Protection class I,
  2. Line switch 2-pole,
  3. Fuseholder for fuse-links 5 x 20 mm 1-pole,
  4. Line-filter in standard version.
- Quick connect terminals 6.3 x 0.8 mm
- Medical version M80 on request

Part No.	Prod. mark	I <sub>r</sub> [A]	L[mH]	C <sub>x</sub> [nF]	C <sub>y</sub> [nF]	Poistka
FKH2-50-6/I-A	4304.4044	6	2x0,8	68	2,2	1
FKI2-50-6/I-A	4304.4064	6	2x0,8	68	2,2	2

Part No.	Ord.No.
S FKH2-50-6/I-A	699999
S FKI2-50-6/I-A	699998

## Discrete Semiconductors

Diodes



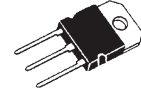
B 1

TVS Diodes



B 6

Transistors

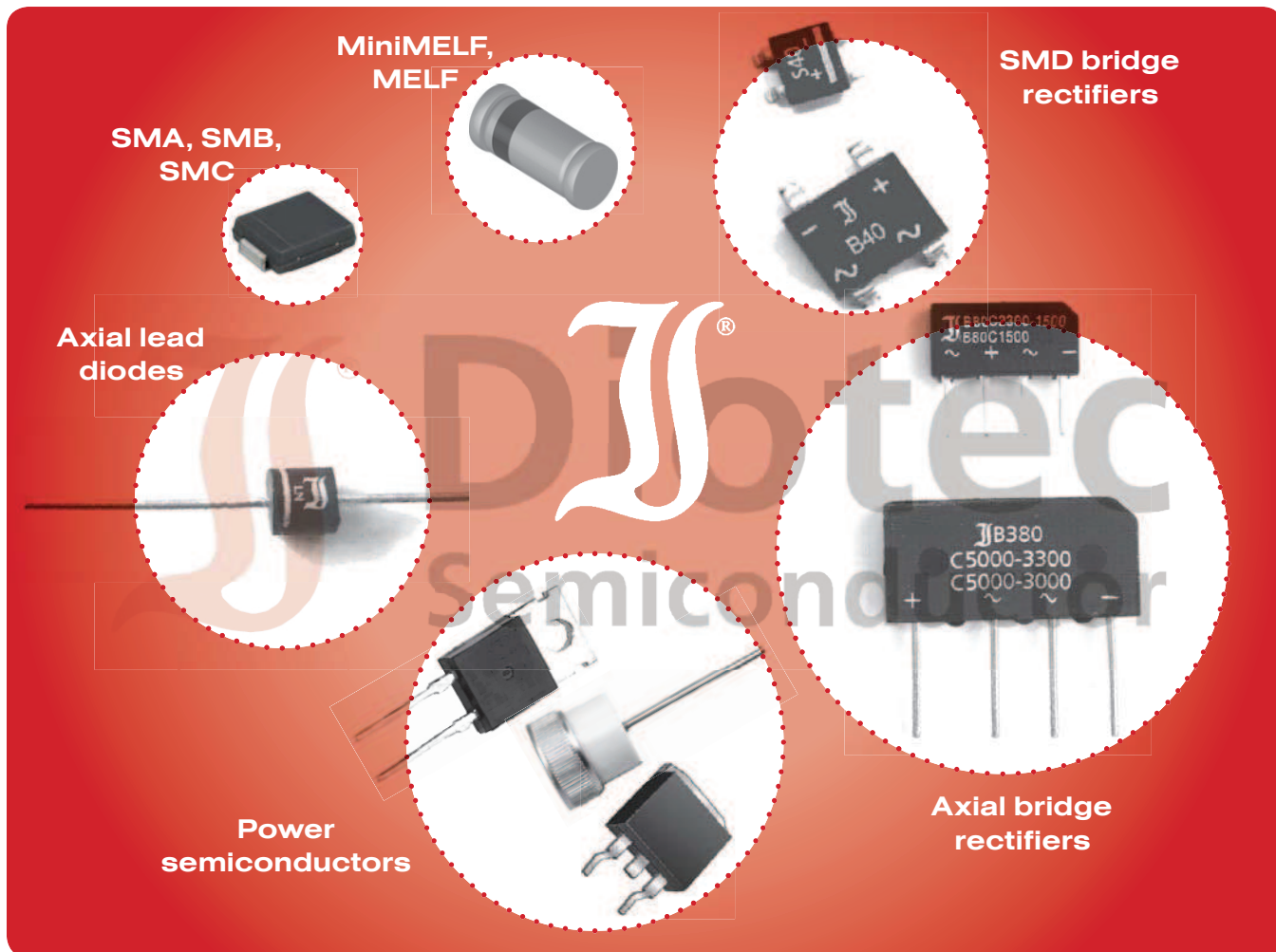


B 7

Thyristors, Triacs, Diacs



B 13

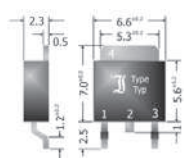


New in our assortment - a great performance on a small area

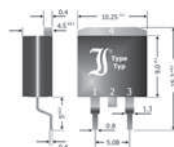
Part No.	I [A]	U [V]	Housing	Diodes Characteristics
P1200A ... G	12	50 ... 400	P600	low-loss rectifier diode
F1200A ... G	12	50 ... 400	P600	low-loss switching diode with trr < 200 ns
SB1220 ... 12100	12	20 ... 100	D5A	power schottky barrier diode
SK1020D1 ... 10100D1	10	20 ... 100	D-PAK	power schottky barrier diode
SK1020D2 ... 10100D2	10	20 ... 100	D2-PAK	power schottky barrier diode
SK2020CD2 ... 20100CD2	2x10	20 ... 100	D2-PAK	power schottky barrier diode
PT800A ... 800M	8	50 ... 1000	TO220AC	low-loss rectifier diode
SBT0120 ... SBT10100	10	20 ... 100	TO220AC	power schottky barrier diode
PST1600A ... 1600M	2x8	50 ... 1000	TO220AB	low-loss rectifier
PCT1600A-PCT1600M	2x8	50 ... 1000	TO220AB	2x standard diode - in parallel
SBCT1020-SBCT10100	2x5	20 ... 100	TO220AB	2x schottky diode - in parallel
SBCT2020-SBCT20100	2x10	20 ... 100	TO220AB	2x schottky diode - in parallel
<b>Super-MicroDIL surface mount Si - bridge rectifier</b>				
MS40 ... 500	0.5	80 ... 1000	Super MicroDIL	

Complete range of Zener diodes in SOT-23, SOD-123, SOT-323 and SOD-323 housings.

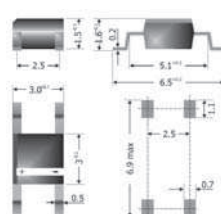
D-PAK



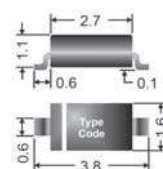
D2-PAK



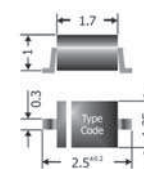
SUPER microDIL



SOD-123



SOD-323





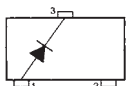
## Switching Diodes

Part No.	Ord.No.	Manufact.	I <sub>max</sub> [A]	U <sub>max</sub> [V]	t <sub>rr</sub> [ns]	Housing
S 1 N 4148	14088		0,1	75	4	DO-35
S 1 N 4448	14098		0,1	75	4	DO-35
S BAS 16	19977		0,215	75	6	SOT-23 (A6)
S BAV 21 AMMO	13593	DIOTEC	0,25	200	50	DO-35
S BAV 70	19978		0,25	70	6	SOT-23 (A4)
S BAV 99 INF	19979		0,25	70	6	SOT-23 (A7)
S BAW 56	20420		0,25	70	6	SOT-23 (A1)
S LL4148	20172	DIOTEC	0,2A	75V	4	MINIMELF
S LL 4448	28100	DIOTEC	0,2	75	4	MINIMELF
S TS 4148-0805	47849		0,3	100	4	0805
S TS 4148-1206	47850		0,3	100	4	1206

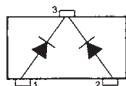
t<sub>rr</sub> = reverse recovery time

Housing dimensions can be found in the back of the catalogue. The housing SOT - 23, the expression in parentheses (A6 ...) stands for marking on housing.

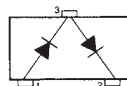
BAS 16,19,21



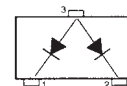
BAV 70, BAS 45



BAV 99



BAW 56



## Rectifier Diodes

Part No.	Ord.No.	Manufacturer	I <sub>max</sub> [A]	U <sub>max</sub> [V]	Housing
S 1 N 4002	14090		1	100	DO41
S 1 N 4007	14095		1	1000	DO41
S 1 N 5402	14104	DIOTEC	3	200	DO201
S 1 N 5408	14109	DIOTEC	3	1000	DO201
S GL 1 M	48832	DIOTEC	1	1000	MINIMELF
S P 1000 M	55060	DIOTEC	10	1000	P600
S P 600 D	14052	DIOTEC	6	200	P600
S P 600 K	14055	DIOTEC	6	800	P600
S P 600 M	32790	DIOTEC	6	1000	P600
S S 1 B	45857	DIOTEC	1	100	DO214AC
S S 1 M	45858	DIOTEC	1	1000	DO214AC
S S 2 B	45860	DIOTEC	2	100	DO214 AA
S S 2 M	45859	DIOTEC	2	1000	DO214 AA
S S 3 M	45872	DIOTEC	3	1000	DO214 AB
S SM 4002	23944	DIOTEC	1	100	MELF
S SM 4007	23949	DIOTEC	1	1000	MELF
S SM 5408	55156	DIOTEC	3	1000	DO213 AB
S BY 500-800V	14019	DIOTEC	5	800	Ø 5.4 x 7.5 [mm]
O 40 HF 20 DO5	9119		40	200	DO5
O 40 HFR 20	9120		40	200	DO5

## Fast Rectifier Diodes

Part No.	Ord.No.	Manufact.	I <sub>max</sub> [A]	U <sub>max</sub> [V]	t <sub>rr</sub> [ns]	Housing
S BA 157	13585		1	400	300	DO-41
S BA 159	13585	DIOTEC	1	400	300	DO-41
S BY 228	14005		3	1500	20000	SOD-64
S BY 299	14014		2	800	500	DO-201
S BY 329-1200	24184		8	1200	135	TO220AC
S BY 399	19362	DIOTEC	3	800	500	DO-201
S BYV 27-200	14021		2	200	25	SOD-57
S BYV 28-200	14023		3,5	200	30	SOD-64
S BYV 32 E-200	24192		2x10	200	25	TO-220
S BYV 79 E-200	24201		14	200	30	DO-220AB
S BYW 29-200	14030		8	200	35	DO-220AB
S BYW 80-200	27176		8	200	35	DO-220AB
S FUF 5407	6967		3	200	75	DO201AD
S STTH 6002 CW	63119		2x30	200	22	TO247
S UF 4007	4058	DIOTEC	1	1000	75	DO-41
S UF 5408	42613	DIOTEC	3	1000	75	DO-201

Housing dimensions can be found in the back of the catalogue.

DO201



DO214AA



DO214AC



DO220AB



DO34



DO35



DO41



DO5



MELF  
D2,5xL5 mm



MINIMELF



P600  
D8xL7,5mm



SOD-64



SOT23



TO220



TO220AC

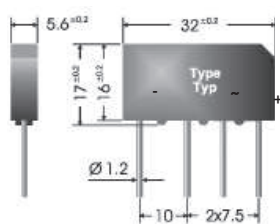


## Bridge Rectifiers

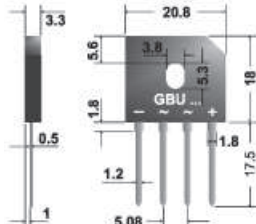
Part No.	Ord.No.	Manufact.	$I_{max}$ [A]	$V_{rms}$ [V]	$V_{rrm}$ [V]	Housing
S B 80 C 1000 SMD	22662	DIOTEC	1	80	160	SMD
S B 80 C 800 SMD MINI	40604	DIOTEC	0,8	110	160	SMD mini
S B 380 C 1000 SMD	40932	DIOTEC	1	380	800	SMD
S S 250 = HD06	40606	DIOTEC	0,8	250	500	SMD
S S 380 = HD08	40607	DIOTEC	0,8	380	800	SMD
S B 80 C 1000 DIL	19431	DIOTEC	1	80	160	DIP-4
S B 80 C 1500/1000 FL	13215	DIOTEC	1,5	80	160	FB 1F
S B 80 C 1500 RD	13226	DIOTEC	1,5	80	160	RB 1F
S B 80 C 3700/2200	13204	DIOTEC	3,7	80	160	FB 4F
S B 80 C 4000 SIL (GBU4B)	18946	DIOTEC	4	70	100	FB 5D
S B 80 C 5000/3300	13208		5	80	160	FB 4F
S B 80 C 6000 SIL (GBU6B)	18953	DIOTEC	6	70	100	FB 5D
S B 80 C 7000/4000	13212	DIOTEC	7	80	160	FB 4F
S B 80 C 8000 SIL (GBU8B)	18960	DIOTEC	8	70	100	FB 5D
S B 250 C 1000 DIL	19433	DIOTEC	1	250	600	DIP-4
S B 250 C 1500/1000 FL	13216	DIOTEC	1,5	250	600	FB 1F
S B 250 C 1500 A	74044	DIOTEC	1,5	250	600	FB1F
S B 250 C 1500 RD	13227	DIOTEC	1,5	250	600	RB 1F
S B 250 C 3700/2200	13205		3,7	250	600	FB 4F
S B 250 C 5000/3300	13209	DIOTEC	5	250	600	FB 4F
S B 250 C 8000 SIL (GBU8G)	18962	DIOTEC	8	280	400	FB 5D
S B 380 C 1000 DIL	23198	DIOTEC	1	380	800	DIP-4
S B 380 C 1500 RD	13228	DIOTEC	1,5	380	800	RB 1F
S KBPC 1006 W	13222	DIOTEC	10	420	600	RB 3W
S B 380 C 4000 SIL (GBU4J)	18949	DIOTEC	4	420	600	FB 5D
S B 380 C 6000 SIL (GBU6J)	18956	DIOTEC	6	420	600	FB 5D
S B 380 C 8000 SIL (GBU8J)	18963	DIOTEC	8	420	600	FB 5D
S KBPC 1506 F	29174	DIOTEC	15	420	600	RB 3F
S KBPC 2506 W	13233	DIOTEC	25	420	600	RB 3W
S KBPC 2506 F	13243	DIOTEC	25	420	600	RB 3F
S KBPC 2510 F	13245	DIOTEC	25	700	1000	RB 3F
S KBPC 3506 F (B350C35000)	13249	DIOTEC	35	420	600	RB 3F
S KBPC 3506 W	13252	DIOTEC	35	420	600	RB 3W
S KBPC 3510 F	13251	DIOTEC	35	700	1000	RB 3F
S KBPC 5006 F	29180	DIOTEC	50	250	600	RB 3F

$V_{rms}$  = recom. alternating input voltage,  $V_{rrm}$  = repetitive peak reverse voltage.  
The last letter in component's type marking: W - wire, F - faston.

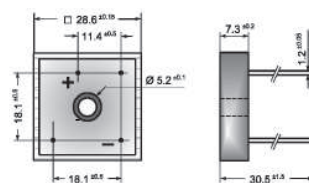
FB4F



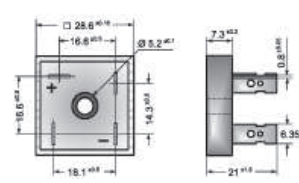
FB5D



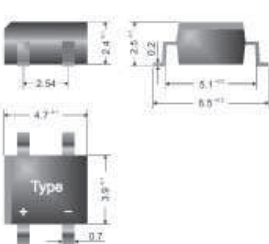
RB3W



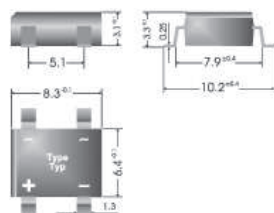
RB3F



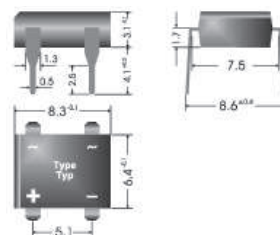
SMD-mini



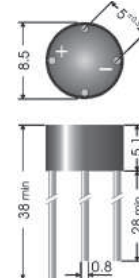
SMD



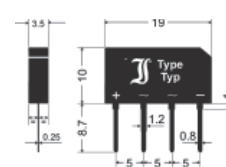
DIP-4



RB1F



FB1F



We also supply SMD bridge rectifiers in SuperMicroDIL housing.

More information on request.

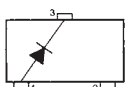
[info@soselectronic.com](mailto:info@soselectronic.com)

## Schottky Diodes

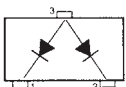
Part No.	Ord.No.	Manuf.	$I_{max}$ [A]	$U_{max}$ [V]	$UF_{max}$ @IF[V/A]	Housing
S BAR 43	32774		0,1	30	0,33 / 0,002	SOT-23 (D95)
S BAR 43 A	32775		0,1	30	0,33 / 0,002	SOT-23 (DB1)
S BAR 43 C	32776		0,1	30	0,33 / 0,002	SOT-23 (DB2)
S BAR 43 S	32777		0,1	30	0,33 / 0,002	SOT-23 (DA5)
S BAS 85	28679		0,2	30	0,32 / 0,001	MINIMELF
S BAT 41	19339		0,1	100	0,45 / 0,001	DO-35
S BAT 42	19340		0,2	30	0,40 / 0,01	DO-35
S BAT 43	19341		0,2	30	0,33 / 0,002	DO-35
S BAT 46	19343		0,15	100	0,45 / 0,01	DO-35
S BAT 48	19345		0,35	40	0,50 / 0,05	DO-35
S BAT 85	24112		0,2	30	0,40 / 0,01	DO-35
S LL 103 A	61215	DIOTEC	0,2	20	0,37 / 0,02	MINIMELF
O LL 5819	50338		1	40	0,6/0,001	MELF
S MBR 1045	29531	ON SEMI	10	45	0,84 / 20,0	DO-220
S MBR 1060	6970	ON SEMI	10	60	0,95 / 20,0	DO-220
S MBR 1545 CT	29536	ON SEMI	2 x 7,5	45	0,84 / 15	TO-220
S MBR 1645	29527	ON SEMI	16	45	0,63 / 16,0	DO-220
S MBR 20100 CT	40718	ON SEMI	2 x 10	100	0,95 / 20	TO-220
O MBR B 20100 CTT4G	62861	ON SEMI	2 x 10	100	0,95 / 10	TO-262AB
S MBR 20200 CT	6973	ON SEMI	2 x 10	200	0,95 / 20	TO-220
S MBR 2045 CT	29537	ON SEMI	2 x 10	45	0,84 / 20	TO-220
S MBR 2545 CT	32829	ON SEMI	2 x 15	45	0,57 / 15	TO-220
S MBR 4045 CT	6974	ON SEMI	2 x 20	45	0,70 / 20	TO-218
S MBR 745	29529	ON SEMI	7,5	45	0,84 / 15,0	DO-220
S MBR 760	6717	ON SEMI	7,5	60	0,75 / 15,0	DO-220
O MBRS 340 T3G	47559	ON SEMI	3	40	0,525 / 3,0	DO-214AB (SMC)
S SB 1100	61196	DIOTEC	1	100	0,85 / 1,0	DO-15
S SB 120 = 1 N 5817	29520	DIOTEC	1	20	0,45 / 1,0	DO-41
S SB 130 = 1 N 5818	29521	DIOTEC	1	30	0,55 / 1,0	DO-41
S SB 140 = 1 N 5819	29522	DIOTEC	1	40	0,60 / 1,0	DO-41
S SB 160	5106	DIOTEC	1	60	0,67 / 1,0	DO-41
S SB 3100	61198	DIOTEC	3	100	0,79 / 3,0	DO-201AD
S SB 340 = 1 N 5822	36408	DIOTEC	3	40	0,39 / 1,0	DO-201AD
S SB 360	5107	DIOTEC	3	60	0,74 / 3,0	DO-201AD
S SB 540	4570	DIOTEC	5	40	0,67 / 5,0	DO-201AD
S SB 560	14059	DIOTEC	5	60	0,67 / 5,0	DO-201AD
S SGL 1-100	61216	DIOTEC	1	100	0,82 / 1,0	MINIMELF
S SGL 1-40	55059	DIOTEC	1	40	0,5 / 1,0	MINIMELF
S SK 110	61221	DIOTEC	1	100	0,85 / 3	DO-214AC (SMA)
S SK 15	54890	DIOTEC	1	50	0,70 / 3	DO-214AC (SMA)
O SK 1540 PQ	72489	DIOTEC	15	40	0,45/5	POWER QFN
S SK 310 A	53638	DIOTEC	3	100	0,85 / 3	DO-214AC (SMA)
S SK 34	73735	DIOTEC	3	40	0,5/3	DO-214AB (SMC)
S SK 54	58750	DIOTEC	5	40	0,55 / 5	DO-214AB (SMC)
S STPS 340 S = B340	29519		3	40	0,63 / 3,0	DO-214AB (SMC)
O STPS2H100U	61099		2	100	0,6 / 2,0	DO-214AA (SMB)
O TMM BAT 41	26982		0,1	100	0,45 / 0,001	MINIMELF
S TMM BAT 43	26984		0,2	30	0,33 / 0,002	MINIMELF
S TMM BAT 46	26985		0,15	100	0,45 / 0,01	MINIMELF
S TMM BAT 48 SMD	26986		0,35	40	0,3/0,01	MINIMELF

Housing dimensions can be found in the back of the catalogue.

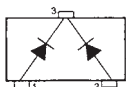
BAR 43



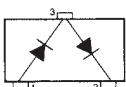
BAR 43A



BAR 43C



BAR 43S



## Capacitance Diodes

Part No.	Ord.No.	$U_{max}/I_{max}$	$C[pF]@U$	Housing
S BBY 40	23897	28V/20mA	4,6/28V - 45/1V	SOT-23 (S2)
S BBY 51	34985	7V/20mA	3,1/4V - 5,3/1V	SOT-23 (S3s)

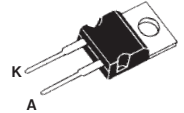
DO - 201AD



DO-214AB



DO - 220



DO - 35



DO - 41



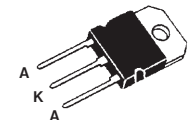
MiniMELF



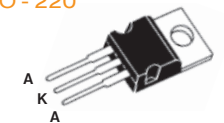
SOT-23



TO - 218








TO - 220



SOT-23



## Zener Diodes

Part No.	ZD SOT (BZX 84 C) 0,3 W	ZD MM (BZV 55 C) 0,5 W	ZD 0,5W (BZX 79 C) 0,5 W	ZD 1,3W (BZX 85 C) 1,3 W	ZD 2W 2 W
					
	<b>SOT-23</b> package of 3000 pcs	<b>MINIMELF</b> (SOD80) package of 2500 pcs	<b>DO-35</b> package of 2500 pcs	<b>DO-41</b> package of 5000 pcs	<b>DO-15</b> package of 5000 pcs

Uz[V]	Ord.No.	Ord.No.	Ord.No.	Ord.No.	Ord.No.
2,4			S 14165		
2,7	S 19567	S 22574	S 14166	O 4415	
3,0	O 19568	S 22575	S 14167		
3,3	S 19569(Z14)	S 22576	S 14168		
3,6	O 26991(Z15)	O 26992	S 14169	S 14202	
3,9	O 22886	S 26993	S 14170		
4,3	O 19570	O 22577	S 14171	S 14204	O 7347
4,7	S 19571(Z1)	S 22578	S 14172	S 14205	O 7420
5,1	S 19572(Z2)	S 22579	S 14173	S 14206	O 51898
5,6	O 19573(Z3)	S 22580	S 14174	S 14207	O 4468
6,2	O 19574(Z4)	S 22581	S 14175	S 14208	O 4694
6,8	O 19575(Z5)	S 22582	S 14176	S 14209	O 8895
7,5	O 19576(Z6)	S 22583	S 14177	S 14210	O 4704
8,2	O 19577	S 22584	S 14178	S 14211	O 6310
9,1	O 19578	S 22585	S 14179	S 14212	O 5907
10	O 19579(Z9)	S 22586	S 14180	S 14213	O 4703
11	O 19580(Y1)	O 22587	S 14181	S 14214	O 4702
12	S 19581(Y2)	S 22588	S 14182	S 14215	O 9459
13	O 19582(Y3)	O 22589	S 14183	S 14216	O 2559
15	O 19583(Y4)	S 22590	S 14184	S 14217	O 51897
16	O 19584(Y5)	O 22591	S 14185	S 14218	O 4701
18	O 19585(Y6)	S 22592	S 14186	S 14219	O 2576
20	O 19586(Y7)	O 22593	S 14187	S 14220	S 5906
22	O 19587(Y8)	O 22594	O 14188	S 14221	O 50340
24	O 19588(Y9)	O 22595	O 14189	S 14222	S 5260
27	O 25111(Y10)	O 25123	S 14190	S 14223	O 5506
30	O 25112(Y11)	O 25124	S 14191	S 14224	O 4675
33	O 25113(Y12)	O 25125	S 14192	S 14225	O 4963
36	O 25114(Y13)	O 25126	O 14193	O 14226	
39	O 25115(Y14)	O 25127	O 14194	S 14227	O 2236
43	O 25116(Y15)	O 25128	O 14195	S 14228	
47	O 25117(Y16)	O 25129	O 14196	O 14229	O 4700
51	O 25118	O 25130	O 14197	S 14230	
56	O 25119	O 25131	O 14198	O 14231	O 4964
62	O 25120	O 25132	O 14199	O 14232	
68	O 25121	O 25133	O 14200	O 14233	O 8896
75	O 25122	O 25134	O 14201	O 14234	O 4699
82				O 7179	O 5552
91				O 6768	
100				O 5646	O 4695
120				O 45443	O 7926
150				S 2310	O 4696
180				S 3892	O 4697
200				S 2884	O 4698

We supply also SMA (1W), SMB (2W), SMC (3W) diodes and 5W Zener diodes.

### Comparison table

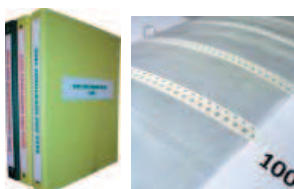
ZD SOT	ZD MM	ZD 0,5W	ZD 1,3W	ZD 2W
BZX 84C	BZV 55C	BZX 79C	BZX 85C	ZY
	ZMM	BZX 55C	BZX 85C	
	BZT 55C	ZPD	ZPY	
	TZMC	BZX 83		

### Housing

ZD SOT
ZD MM
ZD 0,5W
ZD 1,3W
ZD 2W

## SMD Diodes SET

SMD diodes SET suitable for developers. 7 types of diodes, 50 pcs each.



Type	Ord.No.	Description
S SET DSMD	51653	SMD diodes SET, 7 types/50 pcs

Housing dimensions can be found in the back of the catalogue.

S - in-stock product O - on order product

## Transil Suppressor Diodes

are passive electronic components used to protect sensitive electronics from voltage spikes induced on connected wires. Their wide range of application is in the protection of computer and telecommunication technology, in automobile industry, but also in the 230V network distribution.

They are produced in two versions:

### 1) Unidirectional



### 2) Bidirectional

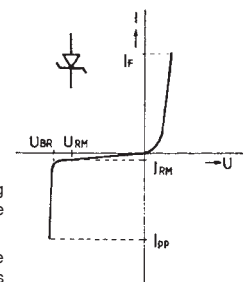


The device operates by shunting excess current when the induced voltage exceeds the avalanche breakdown potential. It is a clamping device, suppressing all overvoltages above its breakdown voltage. Like all clamping devices, it automatically resets when the overvoltage goes away, but absorbs much more of the transient energy internally than a similarly rated crowbar device.

A transient voltage suppression diode may be either unidirectional or bidirectional. An unidirectional device operates as a rectifier in the forward direction like any other avalanche diode, but is made and tested to handle very large peak currents. The popular 1.5KE series allows 1500 W of peak power, for a short time.

A bidirectional transient voltage suppression diode can be represented by two mutually opposing avalanche diodes in series with one another and connected in parallel with the circuit to be protected. While this representation is schematically accurate, physically the devices are now manufactured as a single component.

A transient voltage suppression diode can respond to over-voltages faster than other common over-voltage protection components such as varistors or Zener diodes. The actual clamping occurs in roughly one picosecond, but in a practical circuit the inductance of the wires leading to the device imposes a higher limit. This makes transient voltage suppression diodes useful for protection against very fast and often damaging voltage transients. These fast over-voltage transients are present on all distribution networks and can be caused by either internal or external events, such as lightning or motor arcing.



$U_{BR}[V]$  = breakdown voltage

$U_{RM}[V]$  = stand-off voltage

Part No.	Ord.No.	Manufact.	Original marking	Ubr[V]	Urm[V]	Housing
<b>600W/1ms Transil diodes, unidirectional = A suffix, bidirectional = CA suffix</b>						
S P 6 SMB 6,8 A	6464	DIOTEC	P6SMBJ5V8A	6,8	5,8	DO-214AA
S P 6 SMB 15 A	6977	DIOTEC	P6SMBJ13A	15	12,8	DO-214AA
S P 6 SMB 18 A	6978	DIOTEC	P6SMBJ15A	18	15,3	DO-214AA
S P 6 SMB 33 A	6979	DIOTEC	P6SMBJ28A	33	28,2	DO-214AA
S P 6 SMB 6,8 CA	5525	DIOTEC	P6SMBJ5V8CA	6,8	5,8	DO-214AA
S P 6 SMB 15 CA	6975	DIOTEC	P6SMBJ13CA	15	12,8	DO-214AA
S P 6 SMB 18 CA	6250	DIOTEC	P6SMBJ15CA	18	15,3	DO-214AA
S P 6 SMB 33 CA	6976	DIOTEC	P6SMBJ28CA	33	28,2	DO-214AA
<b>600W/1ms Transil diodes, unidirectional = without suffix, bidirectional = B suffix</b>						
S BZW 06-5V8	29451	DIOTEC	P6KE6,8A	6,8	5,8	DO-15
S BZW 06-5V8 B	29460	DIOTEC	P6KE6,8CA	6,8	5,8	DO-15
S BZW 06-13	5317	DIOTEC	P6KE15A	15	13	DO-15
S BZW 06-15	29453	DIOTEC	P6KE18A	18	15	DO-15
S BZW 06-26	29456	DIOTEC	P6KE30A	30	26	DO-15
S BZW 06-33	29459	DIOTEC	P6KE39A	39	33	DO-15
S BZW 06-10 B	29484	DIOTEC	P6KE12CA	12	10	DO-15
S BZW 06-13 B	29485	DIOTEC	P6KE15CA	15	13	DO-15
S BZW 06-15 B	29486	DIOTEC	P6KE18CA	18	15	DO-15
S BZW 06-23 B	29488	DIOTEC	P6KE27CA	27	23	DO-15
S BZW 06-26 B	29489	DIOTEC	P6KE30CA	30	26	DO-15
S BZW 06-33 B	29491	DIOTEC	P6KE39CA	39	33	DO-15
S BZW 06-48 B	29496	DIOTEC	P6KE56CA	56	48	DO-15
S BZW 06-376 B	29504	DIOTEC	P6KE440CA	440	376	DO-15
<b>1500W/1ms Transil diodes, unidirectional = A suffix, bidirectional = CA suffix</b>						
S 1,5 KE 6,8 A	6429	DIOTEC		6,8	5,8	DO-201
S 1,5 KE 6,8 CA	6433	DIOTEC		6,8	5,8	DO-201
S 1,5 KE 18 A	29468	DIOTEC		18	15,3	DO-201
S 1,5 KE 33 A	29473	DIOTEC		33	28,2	DO-201
S 1,5 KE 47 A	29476	DIOTEC		47	40,2	DO-201
S 1,5 KE 18 CA	29494	DIOTEC		18	15,3	DO-201
S 1,5 KE 33 CA	29499	DIOTEC		33	28,2	DO-201
S 1,5 KE 36 CA	29500	DIOTEC		36	30,8	DO-201
O 1,5 KE 39 CA	29501	DIOTEC		39	33	DO-201
S 1,5 KE 47 CA	2640	DIOTEC		47	40,2	DO-201
S 1,5 KE 400 A	5315	DIOTEC		400	342	DO-201
S 1,5 KE 400 CA	5316	DIOTEC		400	342	DO-201
S 1,5 KE 440 CA	9287	DIOTEC		440	376	DO-201
S DVIULC6-4SC6	68080			6	5	SOT23-6L

### DO-214AA



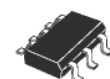
### DO-15



### DO-201



### SOT23



Housing dimensions can be found in the back of the catalogue. Above presented Transil diodes are 5%, we are able to supply also cost effective 10% Transil diodes on order.

We supply 150W Transil diodes TGL34, 400W Transil diodes BZW 04 (P4KE) and P4 SMA, 1500W Transil diodes 1.5 SMCJ. 5000W Transil diodes 5KP are supplied on order.

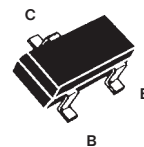
Alternatively we also supply P6KE Transil diode series.

Please, inquire about the prices and minimum quantities.

## Bipolar Low Power Transistors

Part No.	Ord.No.	Polarity	Ic[A]	Uce[V]	hFE	Housing
S 2 N 3440	14130	NPN	1	250	40/160	TO39
S 2 N 3904 = ST 3904	6781	NPN	0,2	40	max.300	TO92
S BC 107 B	13597	NPN	0,1	45	200/450	TO18
S BC 141-16	13608	NPN	1	60	100/250	TO39
S BC 161-16	13614	PNP	-1	-60	100/250	TO39
S BC 327-40, 112	65432	PNP	-0,5	-45	250/600	TO92
S BC 327-40, 126	13633	PNP	0,5	45	250/600	TO92
S BC 327-40-BK	75748	PNP	0,5	45	250/600	TO92 (SOT54A)
S BC 327-40, TAPE	75746	PNP	0,5	45	250/600	TO92 (SOT54A)
S BC 337-40, 126	13639	NPN	0,5	45	250/600	TO92
S BC 337-40-BK	75750	NPN	0,5	45	250/600	TO92 (SOT54A)
S BC 337-40 TAPE	75749	NPN	0,5	45	250/600	TO92 (SOT54A)
S BC 546 B	13648	NPN	0,1	65	200/450	TO92
S BC 546 B, 112	29683	NPN	0,1	65	200/450	TO92
S BC 546 B TAPE	75752	NPN	0,1	65	200/450	TO92
S BC 547 B	13650	NPN	0,1	45	200/450	TO92
S BC 547 B-BK	75754	NPN	0,1	45	200/450	TO92
S BC 547 B BULK	73137	NPN	0,1	45	200/450	TO92
S BC 547 C	19349	NPN	0,1	45	420/800	TO92
S BC 547 C, 112	73138	NPN	0,1	45	420/800	TO92
S BC 548 B	13652	NPN	0,1	30	200/450	TO92
S BC 548 C	13653	NPN	0,1	30	420/800	TO92
S BC 549 C	13655	NPN	0,1	30	420/800	TO92
S BC 550 C*	13657	NPN	0,1	45	420/800	TO92
S BC 550 C BULK	73139	NPN	0,1	45	420/800	TO92
S BC 556 B	13659	PNP	-0,1	-65	220/475	TO92
S BC 556 B TAPE	75755	PNP	-0,1	-65	220/475	TO92
S BC 557 B	13661	PNP	-0,1	-45	220/475	TO92
S BC 557 B, 112	29687	PNP	-0,1	-45	220/475	TO92
S BC 557 B-BK	75757	PNP	-0,1	-45	220/475	TO92
S BC 557 B TAPE	75756	PNP	-0,1	-45	220/475	TO92
S BC 557 C	38037	PNP	-0,1	-45	420/800	TO92
S BC 560 C*	13669	PNP	-0,1	-45	420/800	TO92
S BC 560 C BULK	73147	PNP	-0,1	-45	420/800	TO92
S BC 639	13674	NPN	1	80	40/250	TO92
S BC 639 ZL1G	60941	NPN	1	80	40/250	TO92 REEL
S BC 640	60942	PNP	-1	-80	40/250	TO92 REEL
S BC 640	13675	PNP	-1	-80	40/250	TO92
S BC 807-40	22749	PNP	-0,5	-45	250/600	SOT23
S BC 817-40	22753	NPN	0,5	45	250/600	SOT23
S BC 846 B	34787	NPN	0,1	65	200/450	SOT23
S BC 847 B	19592	NPN	0,1	45	200/450	SOT23
S BC 848 B	20433	NPN	0,1	30	200/450	SOT23
S BC 850 B*	23899	NPN	0,1	45	200/450	SOT23
S BC 856 B	19556	PNP	-0,1	-65	220/475	SOT23
S BC 857 B	20434	PNP	-0,1	-45	220/475	SOT23
S BC 858 B	20435	PNP	-0,1	-30	220/475	SOT23
S BC 860 B*	23901	PNP	-0,1	-45	220/475	SOT23
O BC 868	25058	NPN	1	20	85/375	SOT89
S BCP 53-16	28977	PNP	-1	-80	100/250	SOT223
S BCP 56-16	28979	NPN	1	80	100/250	SOT223
S BCW 66 H	34874	NPN	0,8	45	250/630	SOT23
S BCX 53-16	23918	PNP	-1	-80	100/250	SOT89
S BCX 56-16	23922	NPN	1	80	100/250	SOT89
S BDP 949	8229	NPN	3	60	85/475	SOT223
S BDP 950	8230	PNP	-3	-60	85/475	SOT223
O MPSA 06	22449	NPN	0,5	80	min.100	TO92
S MPSA 42*	22452	NPN	0,5	300	min.40	TO92
S MPSA 92*	22455	PNP	-0,5	-300	min.40	TO92
S SMBTA 42	34955	NPN	0,5	300	min.25	SOT23
O SMBTA 92	34958	PNP	-0,5	-300	min.25	SOT23

SOT23



SOT223



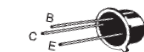
SOT89



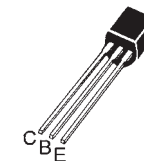
TO18



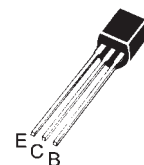
TO39



TO92



TO92 for BC 639, 640



\* Developed for AF audio - low-noise

Some of the electronic components have fixed minimum order quantity.  
For more information please visit [www.soselectronic.com](http://www.soselectronic.com)

## Bipolar Power Transistors

Part No.	Ord.No.	Polarity	Ic[A]	Uce[V]	Ptot[W]	Housing
S 2 N 3055*	14129	NPN	15	100	115	TO-3
S BD 139	9104	NPN	1,5	80	12,5	TO-126
S BD 139-16	18101	NPN	1,5	80	8	TO-126
S BD 140	70827	PNP	-1,5	-80	12,5	TO-126
S BD 140-16	18103	PNP	-1,5	-80	8	TO-126
S BD 237	13729	NPN	2	80	25	TO-126
S BD 238	13730	PNP	-2	-80	25	TO-126
S BD 239 C	13734	NPN	2	100	30	TO-220
S BD 240 C	6795	PNP	-2	-100	30	TO-220
S BD 241 C	13746	NPN	3	100	40	TO-220
S BD 242 C	13751	PNP	-3	-100	40	TO-220
S BD 243 C	13757	NPN	6	100	65	TO-220
S BD 244 C	13762	PNP	-6	-100	65	TO-220
S BD 245 C	13768	NPN	10	100	80	TO-218
S BD 246 C	13774	PNP	-10	-100	80	TO-218
S BD 249 C	13779	NPN	25	100	125	TO-218
S BD 250 C	13782	PNP	-25	-100	125	TO-218
S BD 441	13800	NPN	4	80	36	TO-126
S BD 442	13801	PNP	-4	-80	36	TO-126
S BD 649	13807	NPN	8	100	63	TO-220
S BD 650	13808	PNP	-8	-100	63	TO-220
S BD 711	13824	NPN	12	100	75	TO-220
S BD 911	13835	NPN	15	100	90	TO-220
S BD 912	13836	PNP	-15	-100	90	TO-220
S BUL 38 D	35683	NPN	10	450	70	TO-220
S MJ 15003*	14042	NPN	20	140	250	TO-3
S MJ 15004*	14043	PNP	-20	-140	250	TO-3
S MJ 15024 G	57102	NPN	16	250	250	TO-3
S MJ 15025 G*	2669	PNP	-16	-250	250	TO-3
S MJE 13003*	52390	NPN	1,5	400	40	TO-126
S MJE 15030*	2760	NPN	8	150	50	TO-220
S MJE 15031 G*	2761	PNP	-8	-150	50	TO-220
S MJE 15032 G*	6535	NPN	1	250	50	TO-220
S MJE 15033 G*	6536	PNP	-1	-250	50	TO-220
S MJE 2955 T*	14048	PNP	-10	-60	75	TO-220
S MJE 3055 T*	14049	NPN	10	60	75	TO-220

\* Developed for AF audio.

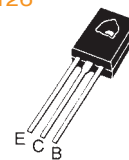
Housing dimensions can be found in the back of the catalogue..

## Switching Bipolar Transistors

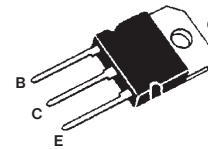
Part No.	Ord.No.	Polarity	Ic[A]	Uce[V]	Ptot[W]	Housing
S BU 2508 AF	29740	NPN	8	700	45	SOT199
S BU 2508 DF	3019	NPN+D	8	700	45	SOT199
S BU 2520 AF	5532	NPN	10	800	45	SOT199
S BU 2520 DF	36399	NPN+D	10	800	45	SOT199
S BU 2525 AF	36401	NPN	12	800	45	SOT199
O BU 2527 AF	6522	NPN	12	800	45	SOT199
S BU 326 A	24130	NPN	6	400	75	TO3
S BU 406	13976	NPN	7	200	60	TO220
S BU 508 AF PHI	24131	NPN	8	700	34	SOT199
S BU 508 AW PHI	40945	NPN	8	700	125	TO247
S BU 508 DF PHI	29738	NPN+D	8	700	34	SOT199
S BUT 11 A	20503	NPN	5	450	83	TO220
O BUT 18 A	28912	NPN	6	450	110	SOT186
S BUV 48 A	18869	NPN	15	450	150	TO218
S BUX 48 A	13996	NPN	15	450	175	TO3
S BUX 85	13998	NPN	2	450	50	TO220
S BUY 69 A	7609	NPN	10	1000	100	TO3
S MJE 13005	20509	NPN	4	400	75	TO220
S MJE 13007	20510	NPN	8	400	80	TO220
S MJE 13009	20511	NPN	12	400	100	TO220
S MJE 340	14044	NPN	0,5	300	21	TO126
S MJE 350	14045	PNP	-0,5	300	21	TO126

Housing dimensions can be found in the back of the catalogue..

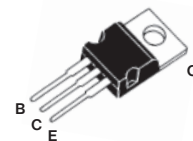
TO126



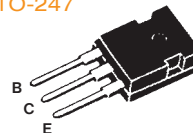
TO218



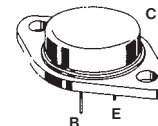
TO220



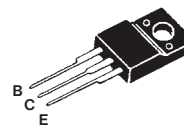
TO-247



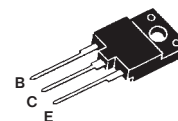
TO3



SOT-186



SOT-199



## Darlington Bipolar Transistors

Part No.	Ord.No.	Polarity	Ic[A]	Uce[V]	Ptot[W]	Housing
S BC 516	13645	PNP	-0,4	-30	1	TO-92
S BC 517	13646	NPN	0,4	30	1	TO-92
S BC 879	13680	NPN+Diode	1	80	1	TO-92
S BCV 46	34808	PNP	0,5	60	0	SOT 23
S BCV 47	34809	NPN	0,5	60	0	SOT 23
O BD 678 A	13814	NPN+Diode	4	60	40	TO-126
S BD 679	13815	NPN+Diode	4	80	40	TO-126
S BD 679 A	13816	NPN+Diode	4	80	40	TO-126
S BD 680	13817	PNP+Diode	-4	-80	40	TO-126
S BD 680 A	13818	PNP+Diode	-4	-80	40	TO-126
S BD 681	13819	NPN+Diode	4	100	40	TO-126
S BD 682	13820	PNP+Diode	-4	-100	40	TO-126
S BDW 83 C	13843	NPN+Diode	15	100	150	TO-218
S BDW 84 C	13849	PNP+Diode	-15	-100	150	TO-218
S BDW 93 C	13853	NPN+Diode	12	100	80	TO-220
S BDW 94 C	13855	PNP+Diode	-12	-100	80	TO-220
S BDX 33 C	13858	NPN+Diode	10	100	70	TO-220
S BDX 34 C	13861	PNP+Diode	-10	-100	70	TO-220
S BDX 53 C	13863	NPN+Diode	8	100	60	TO-220
S BDX 54 C	13865	PNP+Diode	-8	-100	60	TO-220
S BSP 52	34885	NPN	1	80	2	SOT 223S
S BU 806	13984	NPN+Diode	8	200	60	TO-220
S BU 808 DFI	45445	NPN+Diode	5	700	50	TO-218
S BU 931	5269	NPN	15	400	175	TO-3
S MJ 11015	22461	PNP	-30	-120	200	TO-3
S MJ 11016	22462	NPN	30	120	200	TO-3
S MJ 4032	19370	PNP+Diode	-16	-100	150	TO-3
S MJ 4035	19371	NPN+Diode	16	100	150	TO-3
O TIP 120	14067	NPN	5	60	65	TO-220
S TIP 122	14069	NPN+Diode	5	100	65	TO-220
S TIP 127	14072	PNP+Diode	-5	-100	65	TO-220
S TIP 132	14075	NPN+Diode	8	100	70	TO-220
S TIP 137	14078	PNP+Diode	-8	-100	70	TO-220
S TIP 142	14080	NPN+Diode	10	100	125	TO-218
S TIP 147	14083	PNP+Diode	-10	-100	125	TO-218
S BCR 108	73533	NPN	0,1	50	0,2	SOT 23
O BCR 108 W	74900	NPN	0,1	50	0,25	SOT 323
O BCR 112 4K7/4K7	238	NPN	0,1	50	0,2	SOT 23
O BCR 133 10K/10K	239	NPN	0,1	50	0,2	SOT 23
O BCR 133 W	70998	NPN	0,1	50	0,25	SOT 323
O BCR 135	74904	NPN	0,1	50	0,2	SOT 23
O BCR 135 W	74905	NPN	0,1	50	0,25	SOT 323
O BCR 141	74906	NPN	0,1	50	0,2	SOT 23
O BCR 142	74909	NPN	0,1	50	0,2	SOT 23
O BCR 148 W	74915	NPN	0,1	50	0,25	SOT 323
O BCR 169	74918	NPN	0,1	50	0,2	SOT 23
O BCR 185	74919	NPN	0,1	50	0,2	SOT 23
O BCR 191	74920	NPN	0,1	50	0,2	SOT 23
O BCR 198 W	74921	NPN	0,07	50	0,25	SOT 323
S BCR 512 E6327	11734	NPN	0,5	50	0,33	SOT 23
O BCR 533 10K/10K	242	NPN	0,5	50	0,33	SOT 23
O BCR 562 4K7/4K7	11735	PNP	-0,5	-50	0,33	SOT 23

## HF Bipolar Transistors

Part No.	Ord.No.	Vod.	Ic[mA]	Uce[V]	Ptot[W]	fT[GHz]	F[dB]	Housing
S AT-41511-BLKG	4012	NPN	50	12	225	8	1	SOT-143
S AT-41586-BLKG	2732	NPN	60	12	500	8	1,4-1,7	SOT 47
S BF 199	13871	NPN	25	25	500	550	-	TO-92CEB*
S BF 259	13891	NPN	100	300	1000	90	-	TO 39
S BF 422	13900	NPN	50	250	830	60	-	TO-92 ECB*
S BF 423	13901	PNP	-50	-250	830	60	-	TO-92 ECB*
S BF 470	13908	PNP	-30	-250	2000	60	-	TO-126
S BFP 420	3602	NPN	35	4,5	160	22	1,05	SOT-343(AV6)
S BFR 90	13929	NPN	30	15	300	5	2,2	SOT 37
S BFR 90 A	3825	NPN	30	15	300	6	1,8	SOT 37
S BFR 91 A	13930	NPN	35	12	300	6	1,6-2,3	SOT 37
S BFR 92 A	23931	NPN	30	15	200	6	1,8	SOT-23(+P2)

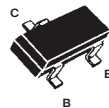
SOT143



SOT223



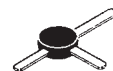
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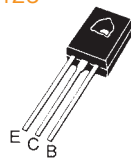
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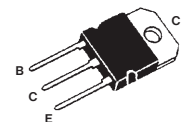
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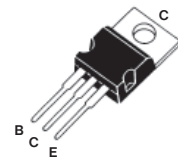
TO126



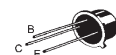
TO218



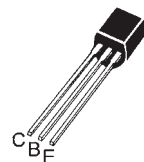
TO220



TO39



TO92





## HF Bipolar Transistors (continued)

S	BFR 93 A	23932	NPN	35	12	300	6	1,6-2,1	SOT-23(+R2)
S	BFR 96 TS	30148	NPN	100	15	700	5	3,3-4	SOT 37

## IGBT Modules

The insulated gate bipolar transistor or IGBT is a three-terminal power semiconductor device, noted for high efficiency and fast switching. It switches electric power in many modern appliances: electric cars, variable speed refrigerators, air-conditioners and even stereo systems with switching amplifiers. The IGBT combines the simple gate-drive characteristics of the MOSFETs with the high-current and low-saturation-voltage capability of bipolar transistors by combining an isolated gate FET for the control input, and a bipolar power transistor as a switch, in a single device. The IGBT is used in medium- to high-power applications such as switched-mode power supply, traction motor control and induction heating.

Part No.	Ord.No.	Uds[V]	Id[mA]	Ptot[W]	Housing
S BUP 212	34193	1200	22	125	TO-220
S BUP 313	34196	1200	32	200	TO-218
S BUP 314	40135	1200	52	300	TO-218

Housing dimensions can be found in the back of the catalogue..

## Low-Power Field-Effect Transistors (Small Signal MOSFETs)

Part No.	Ord.No.	Polarity	Uds[V]	Id[mA]	Ptot[W]	Rdson[Ω]	Housing
S BF 245 A	13876	JFET-N	30	25	300	$I_{DSS}=6,5mA$	TO-92 GSD*
S BF 245 B	13877	JFET-N	30	25	300	$I_{DSS}=15mA$	TO-92 GSD*
S BF 245 C	13878	JFET-N	30	25	300	$I_{DSS}=25mA$	TO-92 GSD*
O BF 998	29462	BIFET N	12	30	-	-	SOT-143
S BS 107	13943	VMOS-N	200	250	350	14R	TO-92 GSD*
S BS 107 BULK	73149	VMOS-N	200	150		14R	TO-92
S BS 108	36403	VMOS-N	200	250	1000	8R	TO-92 GSD*
S BS 170	13944	VMOS-N	60	500	830	5R	TO-92 GSD*
S BS 170 BULK	73151	VMOS-N	60			5R	TO-92
S BS 250	13945	VMOS-P	-45	-250	830	14R	TO-92 GSD*
S BSN 20	36393	MOSFET-N	50	100	250	15R	SOT-23
S BSS 123	32794	MOSFET-N	100	170	300	6R	SOT-23
S BSS 138	34802	MOSFET-N	50	200	360	3,5R	SOT-23
S BSS 83 P	8231	MOSFET-P	-60	-330	360	2R	SOT-23
S BSS 84	32792	MOSFET-P	-50	-130	360	10R	SOT-23

## Power Field-Effect Transistors (Power MOSFETs)

Part No.	Ord.No.	Polarity	Uds [V]	Id[A]	Ptot[W]	Rdson[Ω]	Housing
S BSP250	40273	FET P	-30	-3	5	0,25	SOT 223
S BUZ11	22440	FET N	50	30	75	0,04	TO 220
S BUZ71A	20501	FET N	55	16	70	0,12	TO 220
S BUZ80A	32787	FET N	800	3	75	3	TO 220
S BUZ90	24156	FET N	600	6	75	1,6	TO 220
O FDS6875	48213	FET 2xP	-20	-6	2	0,03	SO 8
S IRF1010N	3743	FET N	55	84	170	0,011	TO 220
O IRF1405	47260	FET N	55	169	330	0,0053	TO 220
O IRF2807S	46572	FET N	75	82	200	0,013	D2PAK
S IRF3205	6961	FET N	55	110	200	0,008	TO 220
S IRF3710	6986	FET N	100	57		0,023	TO 220
S IRF4905	11728	FET P	-55	-74	200	0,02	TO 220
S IRF510	2487	FET N	100	5,6	43	0,4	TO 220
S IRF520	22445	FET N	100	9,2	60	0,27	TO 220
S IRF530	22446	FET N	100	16	90	0,16	TO 220
S IRF530N	71967	FET N	100	17	70	0,9	TO 220
S IRF540	22447	FET N	100	28	150	0,077	TO 220
S IRF540N	4335	FET N	100	33	130	0,044	TO 220
S IRF630	40819	FET N	200	9	74	0,4	TO 220
S IRF640	32783	FET N	200	18	125	0,18	TO 220
S IRF640N	67650	FET N	18	200	150	0,15	TO 220
O IRF710	45942	FET N	400	2	36	3,6	TO 220
S IRF730	32784	FET N	400	5,5	100	1	TO 220
S IRF7301	47592	FET 2XN	20	5,2	2	0,05	SO8
S IRF7314	55477	FET 2XP	-20	-5,3		0,058	SO8
S IRF7341	9597	FET 2XN	55	4,7	2	0,05	SO 8
S IRF7342	9596	FET 2XP	-55	-3,4	2	0,105	SO 8
S IRF7343	9595	FET N+P	55	+4,7/-3,4	2	0,05/0,105	SO 8
S IRF740	22457	FET N	+/-400	10	125	0,55	TO 220
O IRF7450	9594	FET N	200	2,5	2,5	0,17	SO 8
S IRF 820	22458	FET N	500	2,5	50	3,0	TO 220
S IRF 830	22459	FET N	500	4,5	100	1,5	TO 220

SO-8



SOT-143



SOT-23



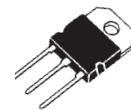
SOT-223



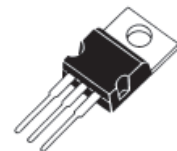
SOT-47



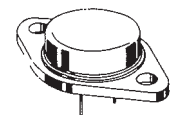
TO 218



TO-220



TO3



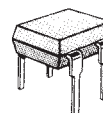
TO92



## Power Field-Effect Transistors (Power MOSFETs) (continued)

Part No.	Ord.No.	Polarity	Uds[V]	Id[A]	Ptot[W]	Rdson[Ω]	Housing
S IRF 840	32785	FET N	500	8	125	0,88	TO 220
S IRF 9520	7406	FET P	-100	-6	60	0,6	TO-220
S IRF 9530	2912	FET P	-100	-12	88	0,3	TO 220
S IRF 9540	40820	FET P	-100	-19	150	0,2	TO-220
S IRF 9630	40822	FET P	-200	-6,5	74	0,8	TO-220
S IRF 9640	3145	FET P	-200	-11	125	0,5	TO 220
S IRFB 3206	72417	FET N	60	75	300	0,003	TO-220AB
S IRFB 4110	61278	FET N	100	180	370	0,0045	TO-220
S IRFBC 30	6962	FET N	600	3,6	74	2,2	TO-220
O IRFBC 40	7516	FET N	600	6,2	125	1,2	TO-220
S IRFBE 30	4223	FET N	800	4,1	125	3	TO-220
S IRFBG 30	6963	FET N	1000	3,1	125	5	TO-220
S IRFD 024	4782	FET N	60	2,5	1,3	0,1	DIP-4
S IRFD 110	40823	FET N	100	1	1,3	0,54	DIP-4
S IRFD 9024	4553	FET P	-60	-1,6	1,3	0,28	DIP-4
S IRFD 9120	4787	FET P	-100	-1	1,3	0,6	DIP-4
S IRFI 540 N	4691	FET N	100	20	54	0,052	TO-220ISO
S IRFIBC 30G	9231	FET N	600	2,5	35	2,2	TO-220ISO
S IRFP 054 N	55491	FET	55	81	170	0,012	TO-247AC
S IRFP 150	2737	FET N	100	40	230	0,06	TO-247
S IRFP 240	4800	FET N	200	20	150	0,18	TO-247
S IRFP 250	3406	FET N	200	30	190	0,09	TO-247
S IRFP 450	28867	FET N	500	14	180	0,4	TO-247
S IRFP 460	2885	FET N	500	20	280	0,27	TO-247
S IRFP 9240	4801	FET P	-200	-12	150	0,5	TO-247
O IRFPC 50	3959	FET N	600	11	180	0,6	TO-247AC
O IRFPE 40	5742	FET N	800	5,4	150	2	TO-247
S IRFR 024 N	2853	FET N	55	16	38	0,075	TO-252AA
S IRFR 220	2855	FET N	200	4,8	42	0,8	TO-252AA
S IRFR 9024	6959	FET P	-60	-8,8	42	0,28	TO-252AA
S IRFU 024 N	5703	FET N	60	14	42	0,1	TO-251AA
S IRFU 9024	6960	FET P	-60	-8,8	42	0,28	TO-251AA
S IRFZ 24 N	5290	FET N	55	17	45	0,07	TO 220
S IRFZ 34 N	6964	FET N	55	26	56	0,04	TO 220
S IRFZ 44 N	4437	FET N	55	41	83	0,024	TO 220
S IRFZ 46 N	6965	FET N	55	46	88	0,02	TO 220
S IRFZ 48 N	3709	FET N	55	53	94	0,016	TO 220
O IRL 2203 N	55034	FET N-LogL	30	116	180	0,007	TO 220
S IRL 540 N	8233	FET N-LogL	100	36	94	0,044	TO 220
S IRLU 024 N	5515	FET N	60	14	45	0,065	DPAK
S IRLZ 24 N	4715	FET N	55	18	45	0,06	TO 220
S Si 4410 BDY	47832	FET N	30	10	2,5	0,0135	SO-8
O Si 4425 BDY-E3	53033	FET P	-30	-11	2,5	0,012	SO-8
S Si 4435 BDY-E3	47833	FET P	-30	-8	2,5	0,02	SO-8
O Si 4532 DY	4992	FET N+P-Ch	30	3,9	2	0,065	SO-8
S Si 2314 EDS	50407	FET N-ch	20	3,9		0,051	SOT-23

DIP-4



SO-8



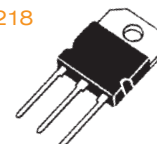
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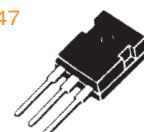
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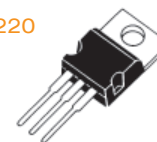
TO-218



TO-247



TO-220



TO-220 ISO



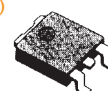
TO-220/5



TO-251AA (I-pak)



TO-252 AA (D-pak)



## Current Sense MOSFET Transistors

This series transistors have similar electrical and thermal characteristics as their equivalent types IRF series, but they offer extra two terminals - Kelvin Source and Current Sense for effective control or protection blocks from destruction. Placed in TO220-5 housing.

Part No.	Ord.No.	Note	Uds[V]	Id[mA]	Rdson[Ω]	Housing
O BTS 410 E	34207		50	16	0,19	TO-220/5
S BTS 432	34210	Current Sense	60	11	0,038	TO-220/5
O IRC 740	8982	Current Sense	400	10	0,55	TO-220/5

## 2S Series Transistor

Part No.	Ord.No.	Polarity	Umax[V]	Imax[A]	Ptot[W]	Housing
S 2 SA 1306	3488	PNP	-160	-1,5	50	TO-220
S 2 SA 1943	4211	PNP	-230	-15	150	TO-3P
S 2 SC 3281	20839	NPN	200	15	150	TO-247
S 2 SC 3298	20356	NPN	160	1,5	20	TO-220
S 2 SD 1555	23850	NPN	600	5	50	TO-247
O 2 SK 2610	42865	MOSFET-N	900	5	150	TO-218
S 2 SK 2750	44667	MOSFET-N	600	3,5	35	TO-220

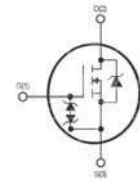
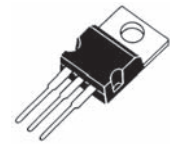
Housing dimensions can be found in the back of the catalogue.

## ST MICROELECTRONICS Power MOSFETs

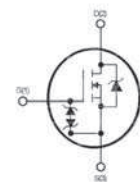
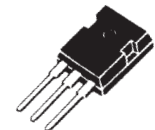
Part No.	Polarity	Uds[V]	I <sub>max</sub> [A]	P <sub>tot</sub> [W]	R <sub>dson</sub> [Ω]	Housing
○ STP3NK80Z	N-Ch	800	2,5	70	4,5	TO 220
○ STP3NK90Z	N-Ch+Z-Dio	900	3	90	4,8	TO 220
○ STP4NK50Z	N-Ch+Z-Dio	500	3	45	2,7	TO 220
○ STP4NK60Z	N-Ch+Z-Dio	600	4	70	2	TO 220
○ STP5NK50Z	N-Ch+Z-Dio	500	4,4	70	1,5	TO 220
○ STP5NK80Z	N-Ch+Z-Dio	800	4,3	110	2,4	TO 220
○ STP5NK100Z	N-Ch+Z-Dio	1000	3,5	125	3,7	TO 220
○ STP6NK60Z	N-Ch+Z-Dio	600	6	110	1,2	TO 220
○ STP6NK90Z	N-Ch+Z-Dio	900	5,8	140	2	TO 220
○ STP7NK40Z	N-Ch+Z-Dio	400	5,4	70	1	TO 220
○ STP7NK80Z	N-Ch+Z-Dio	800	5,2	125	1,8	TO 220
○ STP9NK50Z	N-Ch+Z-Dio	500	7,2	110	0,85	TO 220
○ STP9NK60Z	N-Ch+Z-Dio	600	7	125	0,95	TO 220
○ STP10NK60Z	N-Ch+Z-Dio	600	10	115	0,75	TO 220
○ STP11NK40Z	N-Ch+Z-Dio	400	9	110	0,55	TO 220
○ STP11NK50	N-Ch+Z-Dio	500	10	125	0,52	TO 220
○ STP14NK60Z	N-Ch+Z-Dio	600	13,5	160	0,5	TO 220
○ STP16NF06	N-Ch	60	16	45	0,1	TO 220
○ STP20NF06L	N-Ch	60	20	60	0,07	TO 220
○ STP30NF10	N-Ch	100	35	115	0,045	TO 220
○ STP36NF06	N-Ch	60	30	70	0,04	TO 220
○ STP36NF06L	N-Ch	60	30	70	0,048	TO 220
○ STP40NF10L	N-Ch	100	40	150	0,33	TO 220
○ STP60NF10	N-Ch	100	80	300	0,023	TO 220
○ STP80NF10	N-Ch	100	80	300	0,015	TO 220
○ STW11NK100Z	N-Ch	1000	8,3	230	1,38	TO 247
○ STW12NK90Z	N-Ch+Z-Dio	900	11	230	0,88	TO 247
○ STW13NK60Z	N-Ch+Z-Dio	600	13	150	0,55	TO 247
○ STW14NK50Z	N-Ch+Z-Dio	500	14	150	0,38	TO 247
○ STW18NK80Z	N-Ch+Z-Dio	800	19	350	0,38	TO 247
○ STW20NK50Z	N-Ch+Z-Dio	500	17	190	0,27	TO 247
○ STW34NB20	N-Ch	200	34	180	0,075	TO 247
○ STW40N20	N-Ch	200	40	160	0,045	TO 247



TO-220



TO-247



SOS electronic  
- partner of ST MICROELECTRONICS



### Transistors

- IGBTs
- 1200V
- 300-400V
- 600V

### Power MOSFETs

- N-Channel (12V to 40V)
- N-Channel (>150V to 400V)
- N-Channel (>400V to 650V)
- N-Channel (>40V to 150V)
- N-Channel (>650V) [84]
- P-Channel (-20V to -250V)

### Transistors, Emitter Switched Bipolar

- ESBT High Power

### Transistors, Power Bipolar

- Darlington
- High Voltage
- Low - Medium Voltage
- Low Voltage - High Performance
- Very High Voltage

### Transistors, Radio Frequency

- Bipolar 12/50 V HF/VHF & UHF Applications
- Bipolar Small Signal 0.5 - 5 GHz
- DMOS ISM & FM Broadcast Applications
- LDMOS 28 V HF/VHF/UHF/900 MHz & Avionics Applications
- LDMOS 7/12 V HF/VHF/UHF/900 MHz Applications



We provide wide range  
of ST MICROELECTRONICS MOSFET transistors.

## Thyristors

Part No.	Ord.No.	I <sub>max</sub> [A]	U <sub>max</sub> [V]	I <sub>gt</sub> [mA]	Housing
S BT 151-500 R	16309	12	500	15	TO-220
S BT 151-650 R	16307	12	650	15	TO-220
S BT 151-800 R	16308	12	800	15	TO-220
S BT 152-600 R	16312	20	600	32	TO-220
S BT 152-800 R	18357	20	800	32	TO-220
O BTW 68-800 RG	7525	35	800	50	TOP-3
S BTW 69-1200	32825	50	1200	80	TOP-3
S C 106 D1=M1	16306	4	400	0,2	TO-126
S MCR 100-8	40669	0,8	600	0,2	TO-92
S P 0102 DA	36738	0,8	400	0,2	TO-92
S TIC 106 M	19283	5	600	0,2	TO-220
S TIC 106 N	19284	5	800	0,2	TO-220
S TIC 126 M	19287	12	600	20	TO-220
S X 0202 MA	36758	1,25	600	0,2	TO-92

Lower voltages thyristors TIC (B,D series) can be replaced with M series.  
Housing dimensions can be found in the back of the catalogue.

TO - 92



TO - 220



TO - 126



TOP - 3



## Triacs

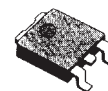
Part No.	Ord.No.	I <sub>max</sub> [A]	U <sub>max</sub> [V]	I <sub>gt</sub> [mA]	Housing
S BT 136-800 E	24553	4	800	15	TO-220
S BT 137-800	16327	8	800	20	TO-220
S BT 138-800	16330	12	800	30	TO-220
S BT 139-800	24572	16	800	30	TO-220
S BTA 12-600 B	19300	12	600	50	TO-220ISO
S BTA 16-600 B	19302	16	600	50	TO-220ISO
S BTA 26-600 B	29160	25	600	80	TOP-3
S BTA 40-600 B	32819	40	600	80	RD-91
S BTA 41-600 B	29164	40	600	80	TOP-3
S T 435-600 B	44812	4	600	35	D-PAK
S TIC 206 M	19290	4	600	30	TO-220
S TIC 216 M	22895	6	600	30	TO-220
S TIC 226 M	19292	8	600	30	TO-220
S TIC 236 M	19295	12	600	40	TO-220
S TIC 236 N	19296	12	800	50	TO-220
S TIC 246 M	19305	16	600	40	TO-220
S TIC 263 N	22893	25	800	50	TO-218
S Z 0103 MN	48643	1	600	3	SOT223
S Z 0107 DA	40583	1	400	5	TO-92

The BTA series provides an insulated tab (rated at 2500 VRMS).  
Housing dimensions can be found in the back of the catalogue.

TO - 92



TO-252 AA (D-pak)



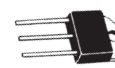
TO - 220



TO - 218



TOP - 3



RD - 91



## Diacs

Part No.	Ord.No.	I <sub>max</sub> [A]	U <sub>bo</sub> [V]	P <sub>tot</sub> [mW]	Housing
S ER 900	16335	2	25-36	150	DO-35

Housing dimensions can be found in the back of the catalogue..

DO-35

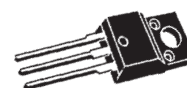


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## Integrated Circuits

ICs for Power Management



C 1

Analogue ICs



C 4

Digital ICs



C 13

Memories



C 18

Microprocessors



C 23

Interfaces



C 35

RTC and Supervising ICs



C 40

Converters



C 41

Sockets



C 43

Sensors



C 44

## Positive Voltage Regulators (linear)

Part No.	Ord. No.	Description
<b>100mA</b>		
S 78 L 05 ACD	23203	Voltage regulator SMD 5V/0,1A SO8
S 78 L 12 ACD	23874	Voltage regulator SMD 12V/0,1A SO8
S 78 L 05 ACY	35994	Voltage regulator SMD 5V/0,1A SOT89
<b>500mA</b>		
S 78 M 05 ACDTG	45433	Voltage regulator 5V/0,5A DPAK
O 78 M 12 CDT	42456	Voltage regulator 12V/0,5A D-PAK
<b>1A</b>		
S 7805	17692	Voltage regulator 5V/1A TO220
S 7805 S	35953	Voltage regulator 5V/1A TO220 ISO
S 7806	17693	Voltage regulator 6V/1A TO220
S 7808	17694	Voltage regulator 8V/1A TO220
S 7809	30563	Voltage regulator 9V/1A TO220
S 7810	17695	Voltage regulator 10V/1A TO220
S 7812	17696	Voltage regulator 12V/1A TO220
S 7812 S	35958	Voltage regulator 12V/1A TO220 ISO
S 7815	17697	Voltage regulator 15V/1A TO220
S 7818	17698	Voltage regulator 18V/1A TO220
S 7824	17699	Voltage regulator 24V/1A TO220
<b>1,5A</b>		
S 7805 CD2T	55168	Voltage regulator 5V/1,5A D2PACK
<b>2A</b>		
S 78 S 05	17716	Voltage regulator 5V/2A TO220
S 78 S 09	17718	Voltage regulator 9V/2A TO220
S 78 S 12	17720	Voltage regulator 12V/2A TO220
S 78 S 15	17721	Voltage regulator 15V/2A TO220
S 78 S 24	17723	Voltage regulator 24V/2A TO220
<b>3A</b>		
S 78 T 05 CT	40705	Voltage regulator 5V/3A TO220
S 78 T 12 CT	40706	Voltage regulator 12V/3A TO220

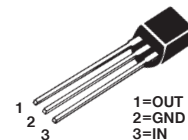
SO - 8



SOT - 89



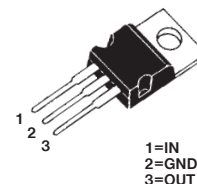
TO - 92



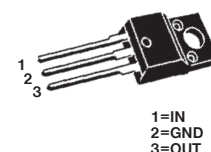
D-PAK



TO - 220



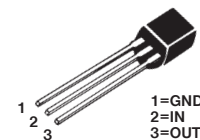
TO - 220 ISO



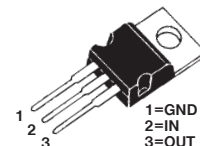
## Negative Voltage Regulators (linear)

Part No.	Ord. No.	Description
<b>100mA</b>		
S 79 L 05	18910	Voltage regulator -5V/0,1A TO92
S 79 L 12	18911	Voltage regulator -12V/0,1A TO92
S 79 L 15	18912	Voltage regulator -15V/0,1A TO92
<b>1A</b>		
S 7905	17700	Voltage regulator -5V/1A TO220
O 79005 S	35963	Voltage regulator -5V 1A TO220 ISO
S 7908	17701	Voltage regulator -8V/1A TO220
S 7909	6950	Voltage regulator -9V/1A TO220
S 7912	17702	Voltage regulator -12V/1A TO220
S 7915	17703	Voltage regulator -15V/1A TO220
S 7918	17704	Voltage regulator -18V/1A TO220
S 7924	17705	Voltage regulator -24V/1A TO220

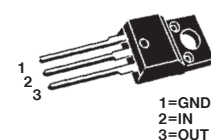
TO - 92



TO - 220



TO - 220 ISO



## LOW-DROP OUT Voltage Regulators (linear)

The very Low Drop voltage and the very low quiescent current make them particularly suitable for Low Noise, Low Power applications and specially in battery powered systems.

Part No.	Ord. No.	Description
O LD 1117 DT 33	51017	Voltage regulator LDO 3.3V, 800mA, DPAK
O LD 1117 S 33	53728	Voltage regulator LDO 3.3V, 800mA, SOT223
S LF 33 CDT	43893	Voltage regulator LDO 3,3V/1A DPAK
S LF 33 CV	40380	Voltage regulator LDO 3,3V/1A TO220
S LF 50 CDT	40379	Voltage regulator LDO 5V/0,5A DPAK
O LF 50 CV	49421	Voltage regulator LDO 5V/0,5A TO220AB
S LM 1085 IT-ADJ NOPB	53984	Voltage regulator LDO AdjV/3A TO220
O LM 1086 CS-3,3NOPB	48920	Voltage regulator LDO 3,3V/1,5A TO263
O LM 1086 CT-ADJ	51045	Voltage regulator LDO Adj/1,5A TO-220
O LM 1086 IS-5,0	52748	Voltage regulator LDO 5V/1,5A TO263
S LM 2575S-5.0 NOPB	44497	Step-Down switching regulatorr 5.0V/1A 5pin TO263
O LM 2936 Z-3.0/NOPB	51063	Voltage regulator LDO 3,0V TO92
O LM 2936 Z-3.3	50369	Voltage regulator LDO 3,3V TO92
S LM 2936 Z-5.0/NOPB	3498	Voltage regulator LDO 5V/0,1A TO92
S LM 2937 ES-3.3/NOPB	44657	Voltage regulator 3,3V TO263
S LM 2940 CS-5,0	49006	Voltage regulator LDO 5V/1A TO263
S LM 2940 CT-12V	2779	Voltage regulator LDO 12V/1A TO220
S LM 2940 CT-5.0 NOPB	3818	Voltage regulator LDO 5V/1A TO220
S LP 2950 CZ-3.0	5557	Voltage regulator LDO 3V/0,16A TO92
S LP 2950 CZ-5,0	5733	Voltage regulator LDO 5V/0,16A TO92
S LP 2950A CZ-3,3	43771	Voltage regulator LDO 3,3V/0,1A 0,5% TO92
S LP 2980 IM5-ADJ	50248	Voltage regulator ULDO 50mA SOT23-5
S TPS 76433 DBVTG4	71128	LDO regulator 150mA/3.3V SOT23-5
S TPS 76428 DBVTG4	71129	LDO regulator 150mA/2,8V SOT23-5
S TPS 76425 DBVTG4	71130	LDO regulator 150mA/2,5V SOT23-5
O LT 1084 CP	30013	Voltage regulator LDO Adj/5A TO247
O LT 1129 CQ-5	50315	Voltage regulator LDO 5V/0,5A D2PAK
O LT 1129 CT	43886	Voltage regulator LDO 3,75-30V TO220-5
O LT 1763 CS8-3,3	50941	Voltage regulator LDO 500mA SO8
O LT 1964 ES5-BYP	52955	Voltage regulator LDO Neg., Micropower SOT23-5
S REG 1117 -3,3	49319	Voltage regulator LDO 3,3V/0,8A SOT223
O REG 1117 A-1,8	49317	Voltage regulator LDO 1,8V/1A SOT223
S TS 1085 CZ-ADJ	54701	Voltage regulator LDO AdjV/3A TO220

## Adjustable Voltage Regulators (linear)

Part No.	Ord. No.	Description
S L 200 CV	17745	Voltage regulator adjustable 2A TO220/5 Vertical
O LM 317 LM	48401	Voltage regulator adjustable 1,2-37V SO8
S LM 317 LZ	37662	Voltage regulator adjustable 1,2-37V/0,1A TO92
O LM 317 MDT	53872	Voltage regulator adjustable 1,2-37V/0,5A DPAK
S LM 317 T	17769	Voltage regulator adjustable 1,2-37V/1,5A TO220
O LM 317A EMP	48503	Voltage regulator adjustable 1,2-37V SOT223
S LM 337 SP (LM 337 T)	17780	Voltage regulator adjustable -1,2-37V/1,5A TO220
S LM 338 K	17781	Voltage regulator adjustable 1,2-32V/5A TO3
S LM 350 T	18150	Voltage regulator adjustable 1,2-33V/3A TO220
S LM 723 CN	17903	Voltage regulator adjustable 2-37V/0,15A DIP14
S TS 317 CW RP	62396	Voltage regulator adjustable 1,2-37V SOT223

## Voltage and Current References

Part No.	Ord. No.	Description
S LM 334 Z	17776	Current reference 0,01-10mA 8% TO92
S LM 336 Z-2,5	17778	Voltage reference 2,5V 4% 20ppm TO92
S LM 336 Z-5,0	40861	Voltage reference 5,0V 4% 20ppm TO92
S LM 385 Z-1,2	36111	Voltage reference 1,2V 2% 80ppm TO92
S LM 385 Z-2,5	36112	Voltage reference 2,5V 3% 80ppm TO92
S LT 1004 CZ-1.2	2119	Voltage reference 1,2V 2,4% 20ppm TO92
S REF 01 CPZ	2442	Voltage reference 10V 0,2% 8,5ppm DIP8
S REF 02 AP	2587	Voltage reference 5V 0,3% 8,5ppm DIP8
S TL 431 CD	27004	Voltage reference 2,495V, 3 2,2% 4ppm, SO8
S TL 431 CZ	18880	Voltage reference 2,495V, 34ppm, TO92
S TL 431 ILP	18881	Voltage reference adjustable 2.5V/10mA -40+85°C TO92

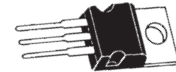
SOT - 223



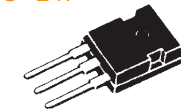
TO - 92



TO - 220



TO - 247



TO - 252 (DPAK)



TO - 263



DIP-14



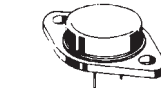
TO - 220



PENTAWATT



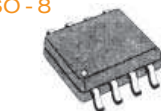
TO-3



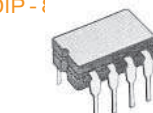
TO - 92



SO - 8



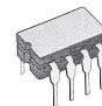
DIP - 8



## Battery Charger ICs

Part No.	Ord. No.	Description
o ISL6292-2CR4Z-T	63442	IC for Li-Ion/Li-Pol charger QFN16
s MAX 1555 EZK+T	70895	Charging circuit USB for LiPo SOT23-5
s MAX 1811 ESA+	49460	USB-powered Li+ charger SO8
s MC 33340 PG	2534	NiCd/NiMH fast charger DIP8

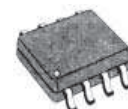
DIP-8



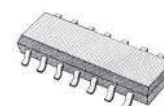
SO-8



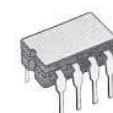
SO-8  
MSOP-8



SO-14



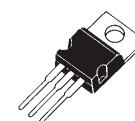
DIP-8



DIP-16



TO-220



TO-220-5



## PWM Regulators

Part No.	Ord. No.	Description
o ICE 2A165	47857	PWM regulator +FET 650V DIP8
s ICL 7660 ACBA	47908	DC/DC converter 1,5-10V/100mA SO8
s ICL 7660 SCPA	22671	DC/DC converter 1,5-10V 100mA DIP8
s ICL 7662 CPA	2108	DC/DC converter non-inductive DIP8
s L 4960	20367	PWM regulator 2,5A vertical HEPTAWATT-7
s L 4962	20368	PWM regulator 1,5A DIP16
s L 4970 A	26861	PWM regulator 10A Multiwatt 15
s L5973D	53146	PWM regulator 2,5A Step Down HSOP8
s LM 2574 M-ADJ	56253	PWM regulator 1,23-37,0V 0,5A SO14
s LM 2574 N-5.0	3475	PWM regulator 5V/0,5A DIP8
s LM 2574 N-ADJ	7026	PWM regulator 1,23-37V/0,5A DIP8
s LM 2575 N-5	7028	PWM regulator 5V/1A DIP16
s LM 2575 N-ADJ	7027	PWM regulator 1,23-37V/1A DIP16
s LM 2575 T-5.0	4495	PWM regulator 5V/1A TO220
s LM 2575 T-ADJ	40596	PWM regulator AdjV/1A TO220
s LM 2576 HVT-ADJ NOPB	6590	PWM regulator 1,2-57V/2,5A TO220-5
s LM 2576 T-5	40597	PWM regulator 5V/3A TO220
s LM 2576 T-ADJG	40598	PWM regulator 1,23-37V/3A TO220
s LM 2576S-ADJ/NOPB	43176	PWM regulator AdjV/3A SMD TO220
o LT 1054 CN 8	29991	PWM regulator DIP8
o LT 1071 CT	29997	PWM regulator 2,5A TO220-5
o LT 1073 CS 8	29915	DC/DC converter SO8
s LT 1074 CT	30003	PWM regulator TO220-5
o LT 1074 HVCT7	48657	PWM regulator step-down TO220
o LT 1242 CN 8	30082	PWM regulator fast DIP8
o LTM 4600 HVEV	64240	10A 28VIN High Efficiency DC/DC µModule LGA104
o MAX 860 ISA+	49297	DC/DC converter Step-Up non-inductive SO8
o MAX 861 ISA	49298	DC/DC converter Step-Up non-inductive SO8
s MC 34063 ADG SMD	5956	PWM regulator 1,5A SO8
s MC 34063 AP (AP1G)	2061	PWM regulator 1,5A DIP8
s SG 3524 N	18905	PWM regulator 0,1A DIP16
s SG 3525 AN	21094	PWM regulator 0,4A DIP16
s TDA 4605	29402	PWM regulator 8-14V 100-200kHz DIP8
s TDA 4605-2	33398	PWM regulator 7,5-15,5V 20-40kHz DIP8
s TDA 4605-3	33575	PWM regulator 7,5-15,5V 20-40kHz DIP8
s TL 494 CN	18211	PWM regulator 7-40V/0,2A DIP16
o TNY 255 PN	49468	PWM regulator +FET 5W DIP8
o TOP 204 YAI	49982	PWM regulator +FET 50/100W TO220
o TOP 221 P	42433	PWM regulator +FET 9/6W DIP8
o TOP 222 Y	8256	PWM regulator +FET 25/15W TO220
o TOP 223 YN	43734	PWM regulator +FET 50/30W TO220
o TOP 224 YN	43784	PWM regulator +FET 75/45W TO220
o TOP 225 Y	42413	PWM regulator +FET 100/60W TO220
s TOP 242 PN	51633	PWM regulator +FET 9/15W DIP8
s TOP 243 PN	50439	PWM regulator +FET 2/45W DIP8
s TOP 244 PN	50583	PWM regulator +FET 30/65W DIP8
o TOP 244 YN	50438	PWM regulator +FET 30/65W TO220
o TOP 245 Y	49981	PWM regulator +FET 60/85W TO220
s TOP 246 YN	49482	PWM regulator +FET 90/125W TO220
o TOP 248 YN	49481	PWM regulator +FET 155/250W TO220
o TOP 249 YN	52658	PWM regulator +FET 120/250W TO220
s UC 3842 N	20623	PWM regulator 25V/1A DIP8
s UC 3843 AD SMD (BDG)	2854	PWM regulator 8-30V/1A SO14
s UC 3843 N	22346	PWM regulator 8-30V/1A DIP8
s UC 3844 D SMD	33257	PWM regulator max.30V/1A SO14
s UC 3844 N (AN)	22573	PWM regulator max.30V/1A DIP8
s UC 3845 ADG4	67604	PWM current regulator SO14
o VIPER 20	49180	PWM regulator +FET 0,5A/620V TO220-5

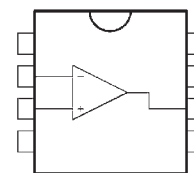


## Standard Operational Amplifiers

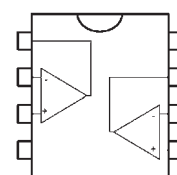
Part No.	Ord. No.	Description
O AD 8552 ARZ	64774	2x operational amplifier R-R SO8
S CA 3130 EZ	17733	OpAmp. fast Slew Rate DIP8
S CA 3140 E	17735	OpAmp. DIP8
S LF 353 N	17759	2xOpAmp. JFET DIP8
S LF 356 N	17761	OpAmp. JFET DIP8
S LF 411 CN	40595	OpAmp. JFET DIP8
S LF 412 CP	2397	2xOpAmp. BIFET DIP8
O LM 13700 N	3272	2xOpAmp. DIP16
S LM 258 D	37647	2xOpAmp., low power consumption SO8
S LM 258 N	19384	2xOpAmp., low power consumption DIP8
O LM 2902 N	17795	4xOpAmp. DIP14
O LM 2904 D	28894	2xOpAmp. low power consumption SO8
S LM 2904 N	17797	2xOpAmp. DIP8
O LM 301 AN	17764	OpAmp. DIP8
S LM 324 D	19559	4xOpAmp. SO14
S LM 324 N	17774	4xOpAmp. DIP14
S LM 348 N	17784	4xOpAmp. DIP14
S LM 358 D	19561	2xOpAmp. SO8
S LM 358 N	17785	2xOpAmp. DIP8
S MC 1458 D	19563	2xOpAmp. SO8
S MC 1458 P	17808	2xOpAmp. DIP8
S MC 4558 CD	22523	2xOpAmp. SO8
S NE 5532 AP	24352	2xOpAmp., bipolar, low noise DIP8
O NE 5532 D8	9445	2xOpAmp., bipolar, low noise SO8
S NE 5534 AP	17824	OpAmp. DIP8
S NJM 4580 D	9238	2xOpAmp., audio DIP8
S OP 07 CP	22685	OpAmp. DIP8
S TL 061 CD	22525	OpAmp. JFET SO8
S TL 061 CP	17891	OpAmp. JFET DIP8
S TL 062 CD	22526	2xOpAmp. JFET SO8
S TL 062 CP	17892	2xOpAmp. JFET DIP8
S TL 064 CN	17893	4xOpAmp. FET DIP14
S TL 071 CN	17894	OpAmp. JFET DIP8
S TL 072 CD	22529	2xOpAmp. JFET SO8
S TL 072 CN	17895	2xOpAmp. JFET DIP8
O TL 072 IN	40370	OpAmp. JFET DIP8
S TL 074 CD	22530	4xOpAmp. JFET SO14
S TL 074 CN	17896	4xOpAmp. JFET DIP14
S TL 081 CP	17897	OpAmp. JFET DIP8
S TL 082 CD	22532	2xOpAmp. JFET SO8
S TL 082 CP	17898	2xOpAmp. JFET DIP8
O TL 084 CD	19565	4xOpAmp. JFET SO14
S TL 084 CN	17899	4xOpAmp. JFET DIP14
S UA 741 CN	17905	OpAmp. DIP8



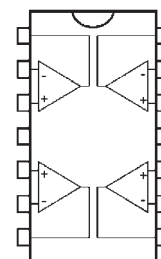
1xOA, DIP-8, SO-8



2xOA, DIP-8, SO-8



4xOA, DIP-14, SO-14



## Precision Operational Amplifiers

Part No.	Ord. No.	Description
S INA 105 KP	2337	OpAmp. differential G=1 DIP8
S INA 118 U	4852	OpAmp. instrumentation precision SO8
S INA 126 P	3828	OpAmp. instrumentation precision DIP8
S LT 1115 CN8	30031	1xOpAmp. precision DIP8
O LT 1360 CN 8	37279	OpAmp. 50MHz 800V/us DIP8
O LT 1490 ACS8	55520	Dual/Quad OTT Micropower R-t-R OpAmp SO8
O LT 1491 ACN	48882	Dual/Quad Over-The-Top Micropower R-t-R OpAmp DIP14
S LTC 1050 CN 8	30116	1xOpAmp. precision DIP8
O LTC 1051 CN 8	30117	2xOpAmp. precision CMOS chopper-stabilized DIP8
O OP 07 CD	26995	OpAmp. precision SO8
S OPA 177 GP	2195	OpAmp. precision DIP8
S OPA 2134 PA	5066	2xOpAmp. precision audio DIP8



## Precision Operational Amplifiers (continued)

Part No.	Ord. No.	Description
S INA 105 KP	2337	OA differential G=1 DIP8
S INA 118 U	4852	OA instrumentation precision SO8
S INA 126 P	3828	OA instrumentation precision DIP8
S LT 1115 CN8	30031	1xOA precision DIP8
O LT 1360 CN 8	37279	OA 50MHz 800V/us DIP8
O LT 1490 ACS8	55520	Dual/Quad OTT Micropower R-t-R OpAmp SO8
O LT 1491 ACN	48882	Dual/Quad Over-The-Top Micropower R-t-R OpAmp DIP14
S LTC 1050 CN 8	30116	1xOA precision DIP8
O LTC 1051 CN 8	30117	2xOA precision CMOS chopper-stabilized DIP8
O OP 07 CD	26995	OA precision SO8
S OPA 177 GP	2195	OA precision DIP8
S OPA 2134 PA	5066	2xOA precision audio DIP8
S OPA 2604 AP	2606	2xOA precision FET DIP8
S OPA 27 GP	2197	OA precision DIP8
O TLC 271 CD	54608	OA precision SO8
S TLC 271 CP	20618	OA precision CMOS DIP8
S TLC 272 CD	23881	2xOA precision SO8
S TLC 272 CP	20619	2xOA precision CMOS DIP8
S TLC 274 CN	20620	4xOA precision CMOS DIP14
O TLC 274 CD	23882	OA precision SMD SO14

## Comparators

Part No.	Ord. No.	Description
S LM 2903 N	17796	2xcomparator LP 1500ns DIP8
S LM 293 N	20583	2xcomparator LP CMOS 1300ns DIP8
S LM 311 D SMD	22520	Comparator 200ns SO8
S LM 311 N	17768	Comparator 200ns DIP8
S LM 319 N	17772	2xcomparator 80ns DIP14
S LM 339 D	19560	4xcomparator LP 1300ns SO14
S LM 339 N	17782	4xcomparator LP 1300ns DIP14
S LM 393 D SMD	19562	2xcomparator LP 1300ns SO8
S LM 393 N	17792	2xcomparator LP 1300ns DIP8

## Timers

Part No.	Ord. No.	Description
S 555IDSMD	3737	Timer CMOS SO8
S 555N	17814	Timer NMOS DIP8
S 556N	17815	2xTimer NMOS DIP14
S 555=ICM7555	18202	Timer CMOS DIP8
S 555D	19564	Timer NMOS SO8
S 556CN	20579	2xTimer CMOS DIP14
S 555CD	27011	Timer CMOS SO8



	NMOS (0°C to +70°C)	NMOS (-40°C to +85°C)	NMOS (-55°C to +125°C)	CMOS
Philips	NE 555	SA 555	SE 555	ICM7555
ST Microelectronics	NE 555	SA 555		TS 555
National Semiconductor	LM 555			LMC 555
Texas Instruments	NE 555	SA 555	SE 555	TLC 555
Intersil (Harris)	CA 0555			ICM 7555



- voltage regulators and references •precision operational amplifiers •charging controllers
- AD/DA converters •interfaces •RF circuits for special applications

Linear Technology ICs Overview

Part No.	Description	Package
LT1004CZ-1.2	Voltage Reference 1,2V, 2.4% 20ppm TO92	TO 92
LT1004CS8-2.5	Micropower Voltage Reference 2,5V SO8	SO 8
LT1007CS8	Low Noise, High Speed Precision Operational Amplifiers SO8	SO 8
LT1009IS8	2.5V Reference SO8	SO 8
LT1010CN8	Fast ±150mA Power Buffer PDIP8	PDIP 8
LT1011ACN8	Voltage Comparator PDIP8	PDIP 8
LT1012S8	Picoamp Input Current, Microvolt Offset, Low Noise Op Amp SO8	SO 8
LT1012S8	Picoamp Input Current, Microvolt Offset, Low Noise Op Amp SO8	SO 8
LT1014ISW	Quad Precision Op Amp (LT1014) Dual Precision Op Amp (LT1013) SO16	SO 16
LT1016CS8	Ultra Fast Precision 10ns Comparator SO8	SO 8
LT1017CS8	Micropower Dual Comparator SO8	SO 8
LT1018CS8	Micropower Dual Comparator SO8	SO 8
LT1019ACS8-2.5	Precision Reference SO8	SO 8
LT1039CSW	RS232 Driver/Receiver with Shutdown SO18	SOL 18
LT1054CN8	Switched-Capacitor Voltage Converter with Regulator DIP8	DIP 8
LT1057ACN8	Dual and Quad, JFET Input Precision High Speed Op Amps PDIP8	PDIP 8
LT1058SW	Dual and Quad, JFET Input Precision High Speed Op Amps SO16	SOL 16
LT1070HVCT	5A and 2.5A High Efficiency Switching Regulators TO-220 5	TO 220-5
LT1071CT	2.5A High Efficiency Switching Regulator TO-220 5	TO 220-5
LT1072CS8	1.25A High Efficiency Switching Regulator SO8	SO 8
LT1073CS8	Micropower DC-DC converter fixed 5V SO8	SO 8
LT1074CT	Step-Down Switching Regulator TO-220 5	TO 220-5
LT1074HVCT7	Step-Down Switching Regulator TO-220	TO 220
LT1076CQ	Step-Down Switching Regulator DD PAK5	DD 5
LT1076HVCT7	Step-Down Switching Regulator TO-220 7	TO 220-7
LT1077S8	Micropower, Single Supply, Precision Op Amp SO8	SO 8
LT1078IN8	Micropower, Dual and Quad, Single Supply, Precision Op Amps PDIP8	PDIP 8
LT1078S8	Micropower, Dual and Quad, Single Supply, Precision Op Amps SO8	SO 8
LT1079IN	Micropower, Dual and Quad, Single Supply, Precision Op Amps PDIP14	PDIP 14
LT1080CSW	Advanced Low Power 5V RS232 Dual Driver/Receiver SO18	SOL 18
LT1081CSW	Advanced Low Power 5V RS232 Dual Driver/Receiver SO16	SOL 16
LT1083CP-12	7.5A, 5A, 3A Low Dropout Positive Adjustable Regulators TO-3P 3	TO 3P
LT1084CT-3.3	7.5A, 5A, 3A Low Dropout Positive Adjustable Regulators TO-220 3	TO 220
LT1085CT-3.3	7.5A, 5A, 3A Low Dropout Positive Adjustable Regulators TO-220 3	TO 220-3
LT1086CM	1.5A Low Dropout Positive Regulators Adjustable and Fixed 2.85V, 3.3V, 3.6V, 5V, 12V DD PAK3	DD 3
LT1097S8	Low Cost, Low Power Precision Op Amp SO8	SO 8
LT1101AIN8	Precision, Micropower, Single Supply Instrumentation Amplifier (Fixed Gain = 10 or 100) PDIP8	PDIP 8
LT1107CS8	Micropower DC/DC Converter Adjustable and Fixed 5V, 12V SO8	SO 8
LT1109CZ-12	Micropower Low Cost DC/DC Converter Adjustable and Fixed 5V, 12V TO-92 3	TO 92
LT1111CS8	Micropower DC/DC Converter Adjustable and Fixed 5V, 12V SO8	SO 8
LT1114S	Dual/Quad Low Power Precision, Picoamp Input Op Amps SO16	SO 16
LT1115CN8	Ultralow Noise, Low Distortion, Audio Op Amp	DIP 8
LT1117CST-2.85	800mA Low Dropout Positive Regulators Adjustable and Fixed 2.85V, 3.3V, 5V SOT3	SOT 223
LT1118CST-2.5	Low IQ, Low Dropout, 800mA, Source and Sink Regulators Adjustable and Fixed 2.5V, 2.85V, 5V SOT3	SOT 223
LT1120CS8	Micropower Regulator with Comparator and Shutdown SO8	SO 8
LT1121CS8-3.3	Micropower Low Dropout Regulators with Shutdown SO8	SO 8
LT1121IS8-3.3	Micropower Low Dropout Regulators with Shutdown SO8	SO 8
LT1121IST-5	Micropower Low Dropout Regulators with Shutdown SOT3	SOT 223
LT1122DS8	Fast Settling, JFET Input Operational Amplifier SO8	SO 8
LT1122DS8	Fast Settling, JFET Input Operational Amplifier SO8	SO 8
LT1129CS8-3.3	700mA Micropower Low Dropout Regulator with Shutdown SO8	SO 8
LT1131ACSW	Advanced Low Power 5V RS232 Drivers/Receivers with Small Capacitors (Includes LT1130 thru LT1141) SO28	SOT 223
LT1158ISW	Half Bridge N-Channel Power MOSFET Driver SO16	PDIP 16
LT1158ISW	Half Bridge N-Channel Power MOSFET Driver SO16	PDIP 16
LT1161CSW	Quad Protected High-Side MOSFET Driver SO20	PDIP 20
LT1161CSW	Quad Protected High-Side MOSFET Driver SO20	PDIP 20
LT1161ISW	Quad Protected High-Side MOSFET Driver SO20	SOL 20
LT1167CS8	Single Resistor Gain Programmable, Precision Instrumentation Amplifier SO8	PDIP 8

Part No.	Description	Package
LT1168CS8	Low Power, Single Resistor Gain Programmable, Precision Instrumentation Amplifier SO8	SO 8
LT1170CQ	100kHz, 5A, 2.5A and 1.25A High Efficiency Switching Regulators DD PAK5	SO 8
LT1173CS8	Micropower DC/DC Converter Adjustable and Fixed 5V, 12V SO8	PDIP 8
LT1175CQ-5	500mA Negative Low Dropout Micropower Regulator DD-PAK5	SO 8
LT1176CN8	Step-Down Switching Regulator PDIP8	SO 8
LT1176CSW-5	Step-Down Switching Regulator SO20	PDIP 8
LT1180ACSW	Low Power 5V RS232 Dual Driver/Receiver with 0.1µF Capacitors SO18	PDIP 14
LT1182CS	CCFL/LCD Contrast Switching Regulators SO16	SOL 16
LT1182CS	CCFL/LCD Contrast Switching Regulators SO16	SOL 16
LT1184FCS	CCFL/LCD Contrast Switching Regulators SO16	SO 16
LT1193CS8	Video Difference Amplifier SO8	PDIP 8
LT1206CN8	250mA/60MHz Current Feedback Amplifier PDIP8	SO 8
LT1214CS	28MHz, 12V/µs, Single Supply Dual and Quad Precision Op Amps SO16	SO 8
LT1236ACS8-10	Precision Reference SO8	SO 8
LT1242CN8	High Speed Current Mode Pulse Width Modulator	DIP 8
LT1248IN	Power Factor Controller PDIP16	PDIP 16
LT1280ACSW	Low Power 5V RS232 Dual Driver/Receiver with 0.1µF Capacitors SO18	TO 220-5
LT1281ACSW	Low Power 5V RS232 Dual Driver/Receiver with 0.1µF Capacitors SO16	PDIP 16
LT1307IS8	Single Cell Micropower 600kHz PWM DC/DC Converters SO8	SO 8
LT1308BCS8	Single Cell High Current Micropower 600kHz Boost DC/DC Converter SO8	SO 8
LT1339CSW	High Power Synchronous DC/DC Controller SO20	PDIP 20
LT1353CS	Dual and Quad 250µA, 3MHz, 200V/µs Operational Amplifier SO14	SOL 20
LT1354CS8	12MHz, 400V/µs Op Amp SO8	SO 14
LT1355CS8	Dual and Quad 12MHz, 400V/µs Op Amps SO8	PDIP 8
LT1359CS	Dual and Quad 25MHz, 600V/µs Op Amps SO16	SO 8
LT1360CN8	50MHz, 800V/µs Op Amp	DIP 8
LT1361CS8	Dual and Quad 50MHz, 800V/µs Op Amps SO8	SO 8
LT1366CN8	Dual and Quad Precision Rail-to-Rail Input and Output Op Amps PDIP8	PDIP 8
LT1367CS	Dual and Quad Precision Rail-to-Rail Input and Output Op Amps SO14	SO 8
LT1368CS8	Dual and Quad Precision Rail-to-Rail Input and Output Op Amps SO8	SO 14
LT1371CR	500kHz High Efficiency 3A Switching Regulator DD PAK7	DD 7
LT1372CS8	500kHz and 1MHz High Efficiency 1.5A Switching Regulators SO8	DD 7
LT1372HVCS8	500kHz and 1MHz High Efficiency 1.5A Switching Regulators SO8	SO 8
LT1373CS8	250kHz Low Supply Current High Efficiency 1.5A Switching Regulator SO8	SO 8
LT1374CS8	4.5A, 500kHz Step-Down Switching Regulator SO8	DD PAK 7
LT1375HVCS8	1.5A, 500kHz Step-Down Switching Regulators SO8	SO 8
LT1376HVCS8	1.5A, 500kHz Step-Down Switching Regulators SO16	SO 8
LT1377CS8	500kHz and 1MHz High Efficiency 1.5A Switching Regulators SO8	SO 8
LT1399CS	Low Cost Dual and Triple 300MHz Current Feedback Amplifiers with Shutdown SO16	SO 8
LT1413S8	Single Supply, Dual Precision Op Amp SO8	PDIP 8
LT1424IS8-5	Isolated Flyback Switching Regulator with 5V Output SO8	SO 8
LT1460BIS8-5	Micropower Precision Series Reference SO8	SO 8
LT1461ACS8-2.5	Micropower Precision Low Dropout Series Voltage Reference Family SO8	SOT 23
LT1490ACS8	Dual/Quad OTT Micropower R-t-R Operational Amplifier SO8	SO 8
LT1491ACN	Dual/Quad OTT Micropower R-t-R Operational Amplifier DIP14	DIP14
LT1492CS8	5MHz, 3V/µs, Low Power Single Supply, Dual and Quad Precision Op Amps SO8	SO 14
LT1498CS8	10MHz, 6V/µs, Dual/Quad Rail-to-Rail Input and Output Precision C-Load Op Amps SO8	SO 8
LT1499CS	10MHz, 6V/µs, Dual/Quad Rail-to-Rail Input and Output Precision C-Load Op Amps SO8	SO 8
LT1505CG	Constant-Current/Voltage High Efficiency Battery Charger SSOP28	SO 14
LT1506CS8	4.5A, 500kHz Step-Down Switching Regulator SO8	SSOP 28
LT1509CSW	Power Factor and PWM Controller SO20	SO 8
LT1510CN	Constant-Voltage/Constant-Current Battery Charger PDIP16	SOL 20
LT1511CSW	Constant-Current/ Constant-Voltage 3A Battery Charger with Input Current Limiting SO24	SO 8
LT1513-2CT7	SEPIC Constant- or Programmable-Current/Constant-Voltage Battery Charger TO-220 7	SOL 24
LT1521CS8	300mA Low Dropout Regulators with Micropower Quiescent Current and Shutdown SO8	DD 7
LT1529CQ	3A Low Dropout Regulators with Micropower Quiescent Current and Shutdown DD PAK5	DD 5
LT1580CQ	7A, Very Low Dropout Regulator DD PAK5	SO 16
LT1584CT	7A, 4.6A, 3A Low Dropout Fast Response Positive Regulators Adjustable and Fixed TO-220 3	DD 5
LT1613CS5	1.4MHz, Single Cell DC/DC Converter in 5-Lead SOT-23 SOT5	TO 220-3
LT1615ES5-1	Micropower Step-Up DC/DC Converters in ThinSOT SOT5	SOT 23-5
LT1617ES5-1	Micropower Inverting DC/DC Converters in SOT-23 SOT5	SOT 23
LT1618EMS	Constant-Current/Constant-Voltage 1.4MHz Step-Up DC/DC Converter MSOP10	SOT 23
LT1619EMS8	Low Voltage Current Mode PWM Controller MSOP8	MSOP 10
LT1634ACS8-1.25	Micropower Precision Shunt Voltage Reference SO8	SO 8
LT1637IS8	1.1MHz, 0.4V/µs Over-The-Top Micropower, Rail-To-Rail Input and Output Op Amp SO8	SO 8
LT1638CMS8	1.2MHz, 0.4V/µs Over-The-Top Micropower Rail-to-Rail Input and Output Op Amps MSOP8	SO 8
LT1676IS8	Wide Input Range, High Efficiency, Step-Down Switching Regulator SO8	SO 8

Part No.	Description	Package
LT1711CMS8	Single/Dual 4.5ns, 3V/5V/±5V, Rail-to-Rail Comparators MSOP8	SOL 16
LT1715CMS	4ns, 150MHz Dual Comparator with Independent Input/Output Supplies MSOP10	MSOP 8
LT1719CS8	4.5ns Single/Dual Supply 3V/5V Comparator with Rail-to-Rail Output SO8	MSOP 10
LT1720CMS8	Dual/Quad, 4.5ns, Single Supply 3V/5V Comparators with Rail-to-Rail Outputs MSOP8	SO 8
LT1761ES5-1.8	100mA, Low Noise, LDO Micropower Regulators in SOT-23 SOT5	SO 8
LT1762EMS8	150mA, Low Noise, LDO Micropower Regulators MSOP8	SOT 23-5
LT1763CS8	500mA, Low Noise, LDO Micropower Regulators SO8	MSOP 8
LT1764EQ	3A, Fast Transient Response, Low Noise, LDO Regulators DD PAK5	DD 5
LT1765EFE-5	Monolithic 3A, 1.25MHz Step-Down Switching Regulators TSSOP16	TSSOP 16
LT1766IFE	High Voltage 1.5A, 200kHz Step-Down Switching Regulators TSSOP16	TSSOP 16
LT1767EMS8	Monolithic 1.5A, 1.25MHz Step-Down Switching Regulators MSOP8	TSSOP 16
LT1776CS8	Wide Input Range, High Efficiency, Step-Down Switching Regulator SO8	MSOP 8
LT1777CS	Low Noise Step-Down Switching Regulator SO16	SO 8
LT1782IS5	Micropower, Over-The-Top, Rail-to-Rail Input and Output Op Amp SOT23-5	SO 16
LT1785AIS8	60V Fault Protected RS485/RS422 Transceivers SO8	SOT 23-5
LT1789CS8-1	Micropower, Single Supply Rail-to-Rail Output Instrumentation Amplifier SO8	SO 8
LT1790ACS6-2.5	Micropower Low Dropout Reference Family SOT23-6	SO 8
LT1791CS	60V Fault Protected RS485/RS422 Transceivers SO14	SOT 23-6
LT1800IS5	80MHz, 25V/μs Low Power Rail-to-Rail Input and Output Precision Op Amp SOT5	SO 14
LT1806CS8	325MHz, Single/Dual, Rail-to-Rail Input and Output, Low Distortion, Low Noise Precision Op Amps SO8	SOT 23
LT1813IS8	Dual/Quad 3mA, 100MHz, 750V/μs Operational Amplifier SO8	MSOP 8
LT1881CS8	Dual Rail-to-Rail Output, Picoamp Input Precision Op Amps SO8	SOT 23
LT1931AES5	1.2MHz/2.2MHz Inverting DC/DC Converters in TSOT23-5	SOT 23-5
LT1936EMS8E	1.4A, 500kHz Step-Down Switching Regulator MSOP8	SOT 23
LT1940EFE	Dual Monolithic 1.4A, 1.1MHz Step-Down Switching Regulator TSSOP16	MSOP 8
LT1941EFE	Triple Monolithic Switching Regulator TSSOP28	TSSOP 16
LT1945EMS	Dual Micropower DC/DC Converter with Positive and Negative Outputs MSOP10	TSSOP 28
LT1956IFE	High Voltage, 1.5A, 500kHz Step-Down Switching Regulators TSSOP16	TSSOP 16
LT1962EMS8	300mA, Low Noise, Micropower LDO Regulators MSOP8	MSOP 8
LT1963AEQ-3.3	1.5A, Low Noise, Fast Transient Response LDO Regulators DD PAK5	DD 5
LT1964ES5-5	200mA, Low Noise, Low Dropout Negative Micropower Regulator in ThinSOT SOT5	SOT 223
LT1964ES5-SD	200mA, Low Noise, Low Dropout Negative Micropower Regulator in ThinSOT SOT5	SOT 23-5
LT1976EFE	High Voltage 1.5A, 200kHz Step-Down Switching Regulator with 100μA Quiescent Current TSSOP16	TSSOP 20
LT2078CS8	Micropower, Dual and Quad, Single Supply, Precision Op Amps SO8	TSSOP 16
LT3010EMS8E	50mA, 3V to 80V Low Dropout Micropower Regulator MSOP8	SO 8
LT3010EMS8E-5	50mA, 3V to 80V Low Dropout Micropower Regulator MSOP8	MSOP 8
LT3430EFE	High Voltage, 3A, 200kHz Step-Down Switching Regulator TSSOP16	SOT 23-5
LT3436EFE	3A, 800kHz Step-Up Switching Regulator TSSOP16	TSSOP 16
LT3439EFE	Slew Rate Controlled Ultralow Noise 1A Isolated DC/DC Transformer Driver TSSOP16	TSSOP 16
LT3467ES6	1.1A Step-Up DC/DC Converter with Integrated Soft-Start SOT6	TSSOP 16
LT3470ETS8	Micropower Buck Regulator with Integrated Boost and Catch Diodes SOT8	Thin SOT 6
LT3474EFE	Step-Down 1A LED Driver TSSOP16	SOT 23
LT3477EFE	3A, DC/DC Converter with Dual Rail-to-Rail Current Sense TSSOP20	TSSOP 16
LT3481EMSE	36V, 2A, 2.8MHz Step-Down Switching Regulator with 50μA Quiescent Current MSOP10	TSSOP 20
LT3508EFE	Dual Monolithic 1.4A Step-Down Switching Regulator TSSOP16	MSOP 10
LT5534ESC6	50MHz to 3GHz RF Power Detector with 60dB Dynamic Range SC70 6	TSSOP 16
LT6203CS8	Single/Dual/Quad 100MHz, Rail-to-Rail Input and Output, Ultralow 1.9nVrtHz Noise, Low Power Op Amps	SC 70
LT6700CS6	Micropower, Low Voltage, Dual Comparator with 400mV Reference SOT6	SO 8
LTC1050 CN8	Precision Zero-Drift Operational Amplifier with Internal Capacitors	DIP 8
LTC1051CSW	Dual/Quad Precision Zero-Drift Operational Amplifiers With Internal Capacitors SO16	PDIP 8
LTC1051 CN8	Dual/Quad Precision Zero-Drift Operational Amplifiers With Internal Capacitors	DIP 8
LTC1059CS	High Performance Switched Capacitor Universal Filter SO14	SOL 18
LTC1060CSW	Universal Dual Filter Building Block SO20	PDIP 20
LTC1062CSW	5th Order Lowpass Filter SO16	PDIP 8
LTC1063CSW	DC Accurate, Clock-Tunable 5th Order Butterworth Lowpass Filter SO16	PDIP 8
LTC1068-200CG	Clock-Tunable, Quad Second Order, Filter Building Blocks SSOP28	SOL 16
LTC1068CN	Clock-Tunable, Quad Second Order, Filter Building Blocks PDIP24	SSOP 28
LTC1093CSW	1, 2, 6 and 8 Channel, 10-Bit Serial I/O Data Acquisition Systems SO16	PDIP 16
LTC1144IS8	Switched-Capacitor Wide Input Range Voltage Converter with Shutdown SO8	SO 8
LTC1148CS	High Efficiency Synchronous Step-Down Switching Regulators SO14	SO 8
LTC1149CS	High Efficiency Synchronous Step-Down Switching Regulators SO16	PDIP 16
LTC1150CS8	±15V Zero-Drift Operational Amplifier with Internal Capacitors SO8	PDIP 8
LTC1159CS	High Efficiency Synchronous Step-Down Switching Regulators SO16	SO 8
LTC1159IS	High Efficiency Synchronous Step-Down Switching Regulators SO16	SO 16
LTC1174HVCN8-5	High Efficiency Step-Down and Inverting DC/DC Converter PDIP8	SO 16
LTC1257IS8	Complete Single Supply 12-Bit Voltage Output DAC in SO-8	SO 8
LTC1263CS8	12V, 60mA Flash Memory Programming Supply SO8	SO 8

Part No.	Description	Package
LTC1263CS8	12V, 60mA Flash Memory Programming Supply SO8	SO 8
LTC1272-8CCSW	12-Bit, 3µs, 250kHz Sampling A/D Converter SO24	SO 8
LTC1279CSW	12-Bit, 600ksps Sampling A/D Converter with Shutdown SO24	SOL 24
LTC1285CS8	3V Micropower Sampling 12-Bit A/D Converters in SO-8 Packages	SOL 24
LTC1286CS8	Micropower Sampling 12-Bit A/D Converters In SO-8 Packages	PDIP 8
LTC1286IS8	Micropower Sampling 12-Bit A/D Converters In SO-8 Packages	SO 8
LTC1292DCN8	Single Chip 12-Bit Data Acquisition Systems PDIP8	PDIP 8
LTC1296DCSW	Single Chip 12-Bit Data Acquisition System SO20	PDIP 20
LTC1298CS8	Micropower Sampling 12-Bit A/D Converters In SO-8 Packages	PDIP 8
LTC1298IS8	Micropower Sampling 12-Bit A/D Converters In SO-8 Packages	SO 8
LTC1321CSW	RS232/EIA562/RS485 Transceivers SO24	SO 8
LTC1325CSW	Microprocessor-Controlled Battery Management System SO18	SO 24
LTC1326CMS8	Micropower Precision Triple Supply Monitor MSOP8	SOL 18
LTC1334CNW	Single 5V RS232/RS485 Multiprotocol Transceiver PDIP28	SO 8
LTC1337CSW	5V Low Power RS232 3-Driver/5-Receiver Transceiver SO28	SO 28
LTC1383CN	5V Low Power RS232 Transceiver PDIP16	SSOP 44
LTC1386CS	3.3V Low Power EIA/TIA562 Transceiver SO16	SO 16
LTC1387CG	Single 5V RS232/RS485 Multiprotocol Transceiver SSOP20	SO 16
LTC1390CS	8-Channel Analog Multiplexer with Serial Interface SO16	SOL 20
LTC1400CS8	Complete SO-8, 12-Bit, 400ksps ADC with Shutdown SO8	SO 16
LTC1400IS8	Complete SO-8, 12-Bit, 400ksps ADC with Shutdown SO8	SO 8
LTC1402IGN	Serial 12-Bit, 2.2Mps Sampling ADC with Shutdown SSOP16	SO 8
LTC1407ACMSE	Serial 14-Bit, 3Mps Simultaneous Sampling ADCs with Shutdown MSOP10	MSOP 10
LTC1414CGN	14-Bit, 2.2 Mps, Sampling A/D Converter SSOP28	MSOP 10
LTC1416IG	Low Power 14-Bit, 400ksps Sampling ADC SSOP28	SSOP 28
LTC1418ACN	Low Power, 14-Bit, 200ksps ADC with Serial and Parallel I/O PDIP28	SSOP 28
LTC1422CS8	Hot Swap Controller SO8	PDIP 28
LTC1435ACS	High Efficiency Low Noise Synchronous Step-Down Switching Regulator SO16	SO 8
LTC1445CS	Ultralow Power Quad Comparators with Reference SO16	SO 8
LTC1446IS8	Dual 12-Bit Rail-to-Rail Micropower DACs in SO-8	SO 8
LTC1446LCS8	Dual 12-Bit Rail-to-Rail Micropower DACs in SO-8	SO 8
LTC1451CS8	12-Bit Rail-to-Rail Micropower DACs in SO-8	PDIP 8
LTC1452CS8	12-Bit Rail-to-Rail Micropower DACs in SO-8	SO 8
LTC1452IS8	12-Bit Rail-to-Rail Micropower DACs in SO-8	SO 8
LTC1454CN	Dual 12-Bit Rail-to-Rail Micropower DACs PDIP16	SO 8
LTC1458CG	Quad 12-Bit Rail-to-Rail Micropower DACs SSOP28	SO 16
LTC1472CS	Protected PCMCIA VCC and VPP Switching Matrix SO16	SOL 28
LTC1474IS8	Low Quiescent Current High Efficiency Step-Down Converters SO8	SO 16
LTC1485IS8	Differential Bus Transceiver SO8	SO 8
LTC1535CSW	Isolated RS485 Transceiver SO28	SO 8
LTC1540CMS8	Nanopower Comparator with Reference MSOP8	SO 28
LTC1544IG	Software-Selectable Multiprotocol Transceiver SSOP28	MSOP 8
LTC1560-1CS8	1MHz/500kHz Continuous Time Low Noise, Lowpass Elliptic Filter SO8	SO 24
LTC1562IG	Very Low Noise, Low Distortion Active RC Quad Universal Filter SSOP20	SSOP 20
LTC1563-2CGN	Active RC, 4th Order Lowpass Filter Family SSOP16	SSOP 20
LTC1563-3CGN	Active RC, 4th Order Lowpass Filter Family SSOP16	SSOP 16
LTC1590CS	Dual Serial 12-Bit Multiplying DAC So16	SO 8
LTC1594CS	4-Channel, Micropower Sampling 12-Bit Serial I/O A/D Converter SO16	SOL 16
LTC1595BCS8	Serial 16-Bit Multiplying DACs SO8	SO 16
LTC1605CSW	16-Bit, 100ksps, Sampling ADC SO28	SSOP 28
LTC1609CSW	16-Bit, 200ksps, Serial Sampling ADC SO20	SOL 28
LTC1622IS8	Low Input Voltage Current Mode Step-Down DC/DC Controller SO8	SO 20
LTC1624CS8	High Efficiency SO-8 N-Channel Switching Regulator Controller SO8	SO 8
LTC1625CGN	No RSENSE Current Mode Synchronous Step-Down Switching Regulator SSOP16	SO 8
LTC1627CS8	Monolithic Synchronous Step-Down Switching Regulator SO8	SO 16
LTC1628CG	High Efficiency, 2-Phase Synchronous Step-Down Switching Regulator SSOP28	SO 8
LTC1655CS8	16-Bit Rail-to-Rail Micropower DACs in SO-8 Package SO8	SO 16
LTC1660CGN	Micropower Octal 8-Bit and 10-Bit DACs SSOP16	SO 8
LTC1664CGN	Micropower Quad 10-Bit DAC SSOP16	MSOP 8
LTC1665IGN	Micropower Octal 8-Bit and 10-Bit DACs SSOP16	SSOP 16
LTC1453IS8	12-Bit Rail-to-Rail Micropower DACs in SO-8	SO 8
LTC1450CN	Parallel Input, 12-Bit Rail-to-Rail Micropower DACs in PDIP24	SSOP 24
LT1963EQ-3.3	1.5A, Low Noise, Fast Transient Response LDO Regulators DD PAK5	DD 5
LT1963EQ-2.5	1.5A, Low Noise, Fast Transient Response LDO Regulators DD PAK5	DD 5
LT1963EQ	1.5A, Low Noise, Fast Transient Response LDO Regulators DD PAK5	SOT 223
LT1963AEST-3.3	1.5A, Low Noise, Fast Transient Response LDO Regulators SOT3	SOT 223
LT1963AEST-1.8	1.5A, Low Noise, Fast Transient Response LDO Regulators SOT3	DD 5

## Power Audio ICs

Part No.	Ord. No.	Description
S BA 5406	19205	IC Audio power amplifier 2x5W/18V SILP12
S LM 386	17789	IC Audio power amplifier 4-12V DIP8
O LM 2876 T	2767	IC Audio power amplifier 75W SQL11
O LM 3875 T	5891	IC Audio power amplifier 56W/±20V/80hm
S LM 3876 T/NOPB	2768	IC Audio power amplifier 40W/±35V SQL11
S LM 3886 T/NOPB	2769	IC Audio power amplifier 75W/±35V SQL11
S LM 3886 TF/NOPB	8666	IC Audio power amplifier 75W/±35V SQL11 izol
S STK 4152 II	22051	IC Audio power amplifier 2x30W/27V HYB64x36
O TA 7270 P	20688	IC Audio power amplifier 2x5,8W/13V SQL12
S TA 8207 K	29307	IC Audio power amplifier 2x4,6W/12V SIL12
S TA 8210 AH	28442	IC Audio power amplifier 2x19W/25V QILP17
O TA 8216 H	29300	IC Audio power amplifier for TV NF 2x12W SQL12
S TBA 810 S	17846	IC Audio power amplifier 5,5W/14V QIP12
S TDA 1013 B	24362	IC Audio power amplifier 4,2W/18V SIL9
S TDA 1516 Q (BQ)	26835	IC Audio power amplifier 2x11W QILP13
S TDA 1517/N3	24365	IC Audio power amplifier 2x6W SIL9
S TDA 1554 Q	27769	IC Audio power amplifier 4x11W/14,4V QILP17
S TDA 1557 Q	40285	IC Audio power amplifier 2x22W/14,4V QILP13
S TDA 1558 Q	5566	IC Audio power amplifier 4x11W/14,4V QILP17
S TDA 1562 Q	6138	IC Audio power amplifier 70W DBS-17P
S TDA 2003 V	17873	IC Audio power amplifier 10W/14V TO220/5V
S TDA 2004	17874	IC Audio power amplifier 2x6W/14V SQL11
S TDA 2005 M	24390	IC Audio power amplifier 2x10W/14V SQL11
S TDA 2005 S	17875	IC Audio power amplifier 2x10W/14V SQL11
S TDA 2030 AV	21988	IC Audio power amplifier 18W±14V TO220/5V
O TDA 2030 V	17878	IC Audio power amplifier 14W/±14V TO220/5V
S TDA 2040 V	17879	IC Audio power amplifier 22W/±16V TO220/5
S TDA 2050 V	30348	IC Audio power amplifier 32W/±22V TO220/5
S TDA 2052 V	3189	IC Audio power amplifier 65W/±25V/40hm TO220/7
S TDA 2616	6282	IC Audio power amplifier hifi 2x12W/±16V SIL9
S TDA 2822	20598	IC Audio power amplifier 2x1,7W/9V DIP16
S TDA 2822 M	24801	IC Audio power amplifier 2x0,65W/6V DIP8
S TDA 7052	27764	IC Audio power amplifier 1W mono DIP8
O TDA 7056 A	29585	IC Audio power amplifier 3W SOT110-1
S TDA 7250	20613	IC Audio power amplifier 2x50W/±35V DIP20
S TDA 7265	6703	IC Audio power amplifier 2x25W Multiwatt11
O TDA 7269 A	47131	IC Audio power amplifier 2x14W
O TDA 7293 V	9123	IC Audio power amplifier DMOS 100W
S TDA 7294 V	37668	IC Audio power amplifier 100W/±40V SQL15
S TDA 7375 V	40696	IC Audio power amplifier 2x25W/18V
S TDA 7386	5338	IC Audio power amplifier 4 x 40W Flexiwatt25
S TDA 8541 T/N1	59581	IC Audio power amplifier BTL 1W
S TDA 8560 Q	40238	IC Audio power amplifier 2x40W/14V QILP13
S TDA 8561 Q	10121	IC Audio power amplifier 2x24W/14V QILP17
S TDA 8571 J	51275	IC Audio power amplifier 4x40W BTL SIP23
S TEA 2025 B	3128	IC Audio power amplifier 2x2,3W/9V DIP16
O TPA 3120D2 PWP	62491	IC Audio power amplifier class D 2x25W/27V TSSOP24

## Other Audio ICs

Part No.	Ord. No.	Description
S LM 1036 N	3281	Dual DC Operated Tone/Volume/Balance Circuit DIP20
S TDA 1524 A	20593	Stereo-tone/volume control circuit DIP18





## Video ICs

Part No.	Ord. No.	Description
<span style="color: orange;">o</span> LA 7830	21763	Color TV Vertical Deflection Output Circuit SIL7
<span style="color: orange;">s</span> STK 7348	28448	CTV switching regulator +115V HYB44x25
<span style="color: orange;">s</span> TDA 1675 A	17868	CTV vertical deflection circuit SQL15
<span style="color: orange;">s</span> TDA 3653 B	6857	TV vertical deflection and guard circuit 90° SIL9MPF
<span style="color: orange;">s</span> TDA 3654	20607	TV vert.sync. 110° SILP9
<span style="color: orange;">s</span> TDA 4950	19874	TV East/West correction circuit DIP8
<span style="color: orange;">s</span> TDA 8145	19397	TV East/West correction circuit DIP8
<span style="color: orange;">s</span> TDA 8170	19398	CTV, vertical deflection output circuit TO220/7
<span style="color: orange;">s</span> TDA 8172	19399	CTV, vertical deflection output circuit TO220/7
<span style="color: orange;">s</span> TDA 8350 Q	40283	CTV, vertical deflect. and East-West output circuit QILP13
<span style="color: orange;">s</span> TDA 8356	7567	DC-coupled vertical deflection circuit SIL9P
<span style="color: orange;">s</span> TEA 5101 B	22539	TV-RGB output circuit 15PQ

## Generators and Audio Recorders

Part No.	Ord. No.	Description
<span style="color: orange;">s</span> ISD 1620 BSY	55178	Audio recorder 13-40 sec. SO16
<span style="color: orange;">o</span> ISD 4002-120P	56968	Audio recorder 120sec. DIP28
<span style="color: orange;">o</span> ISD 4004-08MP	48426	Audio recorder 8 min. DIP28
<span style="color: orange;">s</span> VS 1053 B-L	71061	MP3, Ogg Vorbis Decoder LQFP48
<span style="color: orange;">s</span> LS 1240 A	37664	Electronic Two-Tone Ringer DIP8
<span style="color: orange;">s</span> SAE 800	33565	Eelectronic-gong DIP8
<span style="color: orange;">s</span> XR 2206 CP	19405	VCO/PLL/synthesiser DIP16



## LED and LCD Drivers

Part No.	Ord. No.	Description
<span style="color: orange;">o</span> AY 0438-I/P	53190	Driver LCD display 32 segm. -40--85°C DIP40
<span style="color: orange;">s</span> LM 3914 N-1	17803	Driver LED LIN DIP18
<span style="color: orange;">s</span> LM 3915 N-1	17804	Driver LED LOG DIP18
<span style="color: orange;">s</span> M 5450 B7	2179	Driver 7-segm. DIP40
<span style="color: orange;">s</span> M 5482 B7	3239	Driver 2x7-segm.(15seg.) DIP20
<span style="color: orange;">s</span> MAX 7219 CNG+	12731	Driver LED 8-char. serial DIP24
<span style="color: orange;">s</span> MC 14489 P	2776	Driver LED 4,5-char. 16bit DIP20
<span style="color: orange;">s</span> MM 5451 YN	67744	Driver LED 7-segm. 35x15mA DIP40
<span style="color: orange;">s</span> SAA 1064	22688	Driver LED/4char. DIP24
<span style="color: orange;">s</span> UAA 180 (A277D)	17902	Driver LED-meter



## FET and Triac Drivers

Part No.	Ord. No.	Description
<span style="color: orange;">s</span> IR 2110 PBF	7047	FET driver DIP14
<span style="color: orange;">s</span> IR 2111 PBF	4562	FET driver half bridge DIP8
<span style="color: orange;">s</span> IR 2112 PBF	5792	FET driver DIP14
<span style="color: orange;">s</span> IR 2125 PBF	3887	FET driver DIP8
<span style="color: orange;">o</span> LMD 18200T	2391	IC 3A/55V half bridge TO220
<span style="color: orange;">s</span> LS 7632 IE	69815	Triac driver DIP8
<span style="color: orange;">s</span> LS 7632 S	51657	Triac driver SO8
<span style="color: orange;">s</span> T2117-3ASY	17900	Triac driver, zero switching DIP8
<span style="color: orange;">o</span> T2117-TASY	45466	Triac driver, zero switching SO8
<span style="color: orange;">s</span> TCA 785	17852	IC phase control for triac DIP16
<span style="color: orange;">s</span> UAA 2016 PG	4505	Zero switch controller DIP8



## Transistor Arrays and Drivers

Part No.	Ord. No.	Description
S L 293 D	22138	4-channel motor driver with diodes DIP16
S L 297	18138	Stepper motor driver DIP20
S L 298 N	18139	DC-Motor driver Multiwatt-15
S LMD 18245 T	40857	Full bridge motor driver TO220
S TD 62783 AP	4722	8xDarlington 0,5A/50V DIP18
O TDE 1707 BFP	9693	Intelligent power switch 0,5A SO-8
S U 2008 B-A = B-MY	7196	Phase-control IC with Soft Start DIP8
S ULN 2003 A	17748	7xDarlington 0,5A/50V DIP16
S ULN 2003 D1 SMD	23890	7xDarlington 0,5A/50V SO16
S ULN 2004 AN	17749	7xDarlington 0,5A/50V DIP16
S ULN 2004 D1 SMD	23891	7xDarlington 0,5A/50V SO16
S ULN 2801 A	18085	8xDarlington 0,5/50V DIP18
S ULN 2803 AP(M)	18087	8xDarlington 0,5A/50V DIP18
S ULN 2804 A	18088	8xDarlington 0,5A/50V DIP18



## ICs for Telecommunication

Part No.	Ord. No.	Description
S ECHELON 50051R	8560	Transceiver Echelon LonWorks
O ECHELON 61000R-100	54839	Router Core Module
O ECHELON 75010R	54840	USB Network Interface
O ECHELON LPT-11 50040R-02	60588	Link Power Twisted Pair Transceiver
S LMC 567 CN	2491	PLL decoder DIP8
S MT 8870 DE	11808	Receiver DTMF CMOS, DIP18
O MT 8870 DS	42587	Receiver DTMF CMOS SO18
S NE 567 N	17817	PLL decoder DIP8



## Analogue Multiplexers

Part No.	Ord. No.	Description
S DG 408 DJ	7050	Switch analog 1MPX8 DIP16
S DG 409 DJ	7051	Switch analog 2x1MPX4 DIP16
S DG 406 DJ-E3	8955	16--channel analog MPX DIP28



### 74 LS SMD

Part No.	Ord. No.	Description
o 74 LS 00 D	40647	Quad 2Inp NAND Gate SO14
o 74 LS 04 D	40648	Hex Inverter SO14
o 74 LS 06 D	40883	Hex Inverter SO14
o 74 LS 07 D	40884	Hex Inverter SO14
o 74 LS 14 M1	25166	Hex Trigger SO14
o 74 LS 244 DW	53226	Oct Bus Transc/Line driver SO20W
o 74 LS 245 DW	40653	Oct Bus Transc/N-Nv SOL20
o 74 LS 273 DW	40654	Oct D-Flip-Flop clear SO20

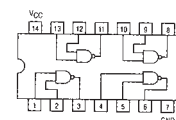
### 74 LS

Part No.	Ord. No.	Description
s 74 LS 00	26556	Quad 2Inp NAND Gate DIP14
s 74 LS 02	26558	Quad 2Inp NOR Gate DIP14
s 74 LS 03	26559	Quad 2Inp NAND Gate DIP14
s 74 LS 04	26560	Hex Inverter DIP14
s 74 LS 05	26561	Hex Inverter DIP14
s 74 LS 06	22654	Hex Inverter DIP14
s 74 LS 07	22655	Hex Inverter DIP14
s 74 LS 08	26562	Quad 2Inp AND Gate DIP14
s 74 LS 10	26563	Triple 3Inp NAND Gate DIP14
s 74 LS 125	26585	Tri State Quad Buff DIP14
s 74 LS 138	26589	Expand Decod Demultipl DIP16
s 74 LS 14	26565	Hex Trigger DIP14
s 74 LS 145	26590	BCD to Dec Dec Driver DIP16
s 74 LS 164	26595	Shift Reg 8bit Par Out DIP16
s 74 LS 193	26601	Syn.4B Up/Do.Bin.Coun. DIP16
s 74 LS 244	26606	Tri-Sta Oct Buff DIP20
s 74 LS 245	26607	Oct Bus Transc/N-Nv DIP20
s 74 LS 247	26608	BCD to 7 Seg Deco DIP16
s 74 LS 273	26610	Oct D-Flip-Flop clear DIP20
s 74 LS 30	26568	8Inp NAND Gate DIP14
s 74 LS 373	26613	Octal Latch DIP20
s 74 LS 47	26573	BCD to 7-Seg Dec Driv DIP16
s 74 LS 74	26575	Dual D Flip Flop DIP14
s 74 LS 86	26579	Quad Excl OR Gate DIP14
s 74 LS 90	26580	Dec.Div.By12+Bin.Coun.DIP14
s 74 LS 93	26581	4bit Binary Counter DIP14

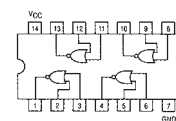
### 74HC SMD

Part No.	Ord. No.	Description
s 74 HC 00 M1	20762	Quad 2Inp NAND Gate SO14
s 74 HC 02 M1	20763	Quad 2Inp NOR Gate SO14
s 74 HC 04 M1	22866	Hex Inverter SO14
s 74 HC 05 D	6551	Hex Inverter SO14
s 74 HC 08 M1	20764	Quad 2Inp AND Gate SO14
s 74 HC 14 M1	20765	Hex Inv Schmitt Trigger SO14
s 74 HC 32 M1	20766	Quad 2Inp OR Gate SO14
s 74 HC 74 M1	20767	Dual D Flip Flop SO14
o 74 HC 123 D	48568	Dual Retrigger 1shots SO16
s 74 HC 125 M1	24024	Quad 3-Sta Buffer SO14
o 74 HC 126 M1	40919	Quad 3-Sta Buffer SO14
s 74 HC 132 M1	20770	Quad 2Inp Schmitt NAND SO14
s 74 HC 138 M1	20771	3 to 8 Line Decoder SO16
o 74 HC 157 M1	24029	Quad 2-input multiplexer SO16
s 74 HC 165 M1	24033	8bit Shift Reg P-In/S-Out SO16
s 74 HC 174 M1	20774	Hex D-Flip-Flop with Clear SO16
s 74 HC 245 M1	24042	Oct Bus Transc/N-Nv SOL20
s 74 HC 273 M1	24046	Octal D-Flip-Flop Clear wide SOL20
s 74 HC 373 M1	20777	Oct 3-Sta D-Part No. Latch SOL20
o 74 HC 393 D	41065	Dual 4bit Binary Counter SO14
o 74 HC 4040 M1	20779	12Stage Binary Counter SO16
o 74 HC 4051 M1	24071	8 Channel Analog Multipl SO16

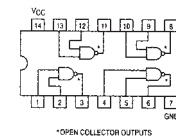
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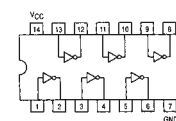
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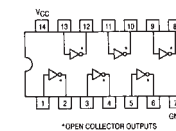
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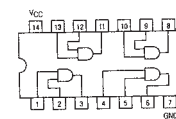
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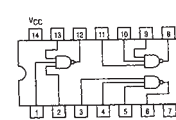
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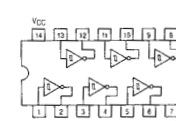
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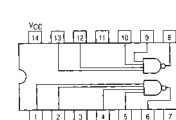
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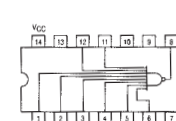
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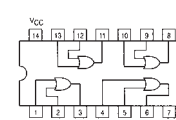
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74 xx 30



74 xx 32

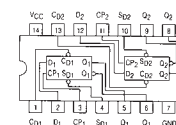


O	74 HC 4053 M1	24073	3x 2 Channel Analog MUX SO16
S	74 HC 4060 M1	24074	14 Stage Binary Counter SO16
S	74 HC 541 M1	24058	Tri-St. Oct Buffer SO20
S	74 HC 573 M1	24061	Octal Latch 3-State SOL20
S	74 HC 574 M1	24062	Octal D-FF Pet 3-St SOL20
S	74 HC 595 AD	2807	8bit Shift Reg/Outp Latch SO16

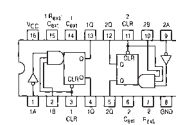
## 74HC

Part No.	Ord. No.	Description
O	74 AHC 1G 66 GW	44496 Pico Gate Bilateral Switch SOT353
O	74 AHC 1G 79 GW	44498 Pico Gate flip-flop circuit D SOT353
O	74 AHC 1GU 04 GW	53356 Pico Gate Inverter SOT353
S	74 HC 00	18171 Quad 2Inp NAND Gate DIP14
S	74 HC 02	18172 Quad 2Inp NOR Gate DIP14
O	74 HC 03	21099 Quad 2Inp NAND Gate DIP14
S	74 HC 04	18173 Hex Inverter DIP14
S	74 HC 08	18174 Quad 2Inp AND Gate DIP14
S	74 HC 10	18212 Tripple 3Input NAND Gate DIP14
S	74 HC 123	18422 Dual Retrigger 1shots DIP16
S	74 HC 126	18220 Quad 3-Sta Buffer DIP14
S	74 HC 132	18182 Quad 2Inp Schmitt NAND DIP14
O	74 HC 133	18463 13-Input NAND Gate DIP14
S	74 HC 138	18221 3 to 8 Line Decoder DIP16
S	74 HC 14	18213 Hex Inv Schmitt Trigger DIP14
O	74 HC 147	18222 10-to-4 line priority encoder DIP16
O	74 HC 153	18347 Dual 4-input multiplexer DIP16
S	74 HC 164	18226 8bit Shift Reg S-In/P-Out DIP14
S	74 HC 165	18227 8bit Shift Reg P-In/S-Out DIP16
S	74 HC 192	18980 4-Bit Binary Up/Down Counter DIP16
O	74 HC 1G 00 GV	51679 2Inp NAND Gate SOT753
O	74 HC 1G 00 GW	52749 2Inp NAND Gate SOT353
O	74 HC 1G 32 GV	51680 2Inp OR Gate SOT753
O	74 HC 1G 66 GV	51681 Analog Switch SOT753
S	74 HC 20	18176 Dual 4Inp NAND Gate DIP14
S	74 HC 240	38602 Inv 3-Sta Oct Bus Buf DIP20
S	74 HC 244	18233 Inv 3-Sta Oct Bus Buf DIP20
S	74 HC 245	38594 Oct Bus Transc/N-Nv DIP20
S	74 HC 251	18235 8 Channel Mtpx 3-Sta DIP16 !
S	74 HC 273	38595 Oct D-Flip-Flop Clear DIP20
S	74 HC 273 M1	24046 Octal D-Flip-Flop Clear wide SOL20
S	74 HC 30	18178 8-Input NAND Gate DIP14
S	74 HC 32	18179 Quad 2Inp OR Gate DIP14
S	74 HC 373	38596 Oct 3-Sta D-Part No. Latch DIP20
S	74 HC 374	38597 Oct 3-Sta D-Flip Flop DIP20
S	74 HC 390	18242 Dual Decade Ripple Counter DIL16
S	74 HC 4053	23169 8 Channel Analog Multipl DIP16
S	74 HC 4066	18354 Quad Bilateral Switch DIP14
S	74 HC 42	18180 BCD-to-Decim. Decoder DIP16
S	74 HC 540	38598 Tri-St. Inv Oct Buff DIP20
S	74 HC 541	38599 Tri-St. Oct Buffer DIP20
S	74 HC 573	38600 Octal Latch 3-State DIP20
S	74 HC 574	38601 Octal D-FF Pet 3-St DIP20
S	74 HC 595	19185 8bit Shift Reg/Outp Latch DIP16
S	74 HC 73	18462 Dual JK Flip Flop+Clr DIP14
S	74 HC 74	18214 Dual D Flip Flop DIP14
S	74 HC 86	18356 Quad 2Inp Excl OR Gate DIP14
S	74 HC 93	23157 4bit Binary Counter DIP14

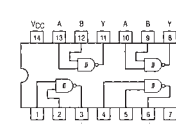
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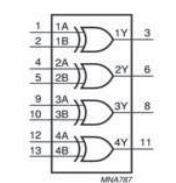
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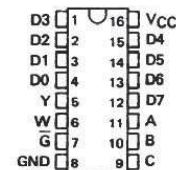
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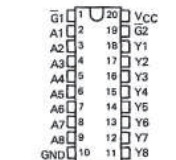
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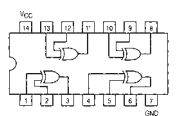
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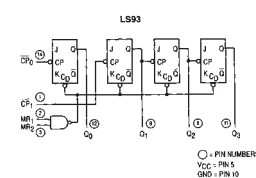
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74 xx 86



74 xx 93



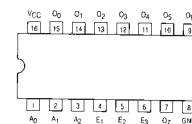
### 74HCT SMD

Part No.	Ord. No.	Description
S 74 HCT 00 M1	20780	Quad 2Inp NAND Gate SO14
S 74 HCT 02 M1	20781	Quad 2Inp NOR Gate SO14
S 74 HCT 04 M1	20782	Hex Inverter SO14
S 74 HCT 05 M1	40880	HEX inverter SO14
S 74 HCT 08 M1	20783	Quad 2Inp AND Gate SO14
S 74 HCT 32 M1	20785	Quad 2Inp OR Gate SO14
S 74 HCT 74 M1	20786	Dual D-Flip Flop+Pres SO14
S 74 HCT 123 M1	23963	Dual Retrigger 1Shots SO16
S 74 HCT 125 M1	23964	Quad 3-Sta Buffer SO14
S 74 HCT 138 M1	20787	3 to 8 Line Decoder SO16
S 74 HCT 14 M1	20784	Hex Inv Schmitt Trigger SO14
S 74 HCT 164 D	23973	8bit Shift Reg S-In/P-Out SO14
S 74 HCT 245 M1	23984	Oct Bus Transc/N-Nv SOL20
O 74 HCT 257 M1	23986	Quad 2-input multiplexer, 3-state SO16
O 74 HCT 259 M1	23987	8bit Addressable Latch SO16
O 74 HCT 273 M1	23988	Oct D-Fli-Flo Clear SOL20
O 74 HCT 374 M1	20790	Octal D-FF Tri-St. SOL20
S 74 HCT 541 D	23995	Tri-St. Oct Buff SOL20
S 74 HCT 563 M1	23996	Octal D-Part No. Latch SOL20
S 74 HCT 573 D	23998	Octal Latch 3-State SOL20
S 74 HCT 574 M1	23999	Octal D-FF Pet 3-St SOL20
O 74 HCT 595 D	40517	8bit shift register SO16
O 74 HCT 4040 M1	24005	12Stage Binary Counter SO16
O 74 HCT 4053 D	24007	3x2-channel analog MUX/DMX SO16

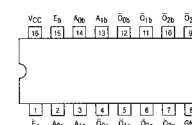
### 74HCT

Part No.	Ord. No.	Description
S 74 HCT 00	20879	Quad 2Inp NAND Gate DIP14
S 74 HCT 04	20885	Hex Inverter DIP14
S 74 HCT 05 N	2130	Hex Inverter (Open Drain) DIP14
S 74 HCT 10	20888	Tripple 3Input NAND Gate DIP14
S 74 HCT 123	20909	Dual Retrigger 1Shots DIP16
S 74 HCT 132	20913	Quad 2Inp Schmitt NAND DIP14
S 74 HCT 138	20915	3 to 8 Line Decoder DIP16
S 74 HCT 14	20890	Hex Inv Schmitt Trigger DIP14
S 74 HCT 153	20919	Dual 4-line to 1-line multiplexer DIP16
S 74 HCT 164	20927	8bit Shift Reg S-In/P-Out DIP14
S 74 HCT 193	20937	Syn.4B Up/Do. Bin.Coun.DIP16
S 74 HCT 244	38807	Inv 3-Sta Oct Bus Buf DIP20
S 74 HCT 245	19187	Oct Bus Transc/N-Nv DIP20
O 74 HCT 257	20946	Quad 2-input multiplexer, 3-state DIP16
S 74 HCT 273	38590	Oct D-Fli-Flo Clear DIP20
S 74 HCT 32	20897	Quad 2Inp OR Gate DIP14
S 74 HCT 373	38589	Octal Transp.Latch DIP20
S 74 HCT 374	38805	Octal D-FF Tri-St. DIP20
S 74 HCT 393	20961	Dual 4bit Binary Counter DIP14
S 74 HCT 4040	20989	12Stage Binary Counter DIP16
S 74 HCT 4053	20993	Triple 2-ch analog MUX/DMX DIP16
S 74 HCT 4060	20994	14 Stage Binary Counter DIP16
S 74 HCT 541	38806	Tri-St. Oct Buf DIP20
S 74 HCT 563	18252	Octal D-Part No. transparent latch DIP20
S 74 HCT 573	38622	Octal Latch 3-State DIP20
S 74 HCT 574	38623	Octal D-FF Pet 3-St DIP20
S 74 HCT 595	33072	8bit Shift Reg/Outp Latch DIP16
S 74 HCT 74	20900	Dual D-Flip Flop+Pres DIP14
S 74 HCT 86	20905	Quad 2Inp Excl OR Gate DIP14

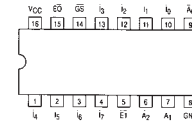
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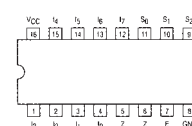
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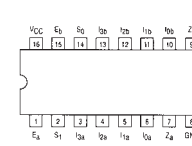
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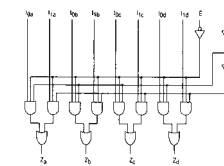
#### 74 xx 151



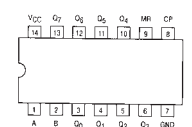
#### 74 xx 153



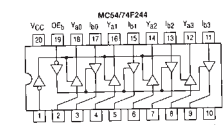
#### 74 xx 157



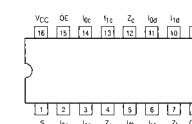
#### 74 xx 164



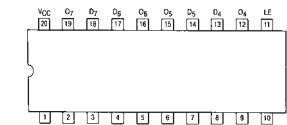
#### 74 xx 244



#### 74 xx 257



#### 74 xx 373

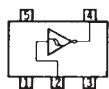


Integrated Circuits

## TinyLogic Inverters

Part No.	Ord. No.	Description
S NC 7S00 M5_NL	6941	1x2NAND SOT23/5 HCT
S NC 7S04 M5_NL	6943	1xINV SOT23/5 HCT
S NC 7S14 M5	6944	1xSchmitt inv. SOT23/5 HCT
S NC 7S86 M5	6945	1x2xOR SOT23/5 HCT

1xINV SCHMITT



1xINV



1x2NOR



1x2xOR



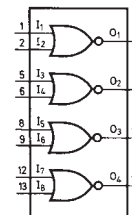
## CMOS 4000 SMT

Part No.	Ord. No.	Description
S CMOS 4001 SMD	19487	4x2 IN NOR SO14
S CMOS 4011 SMD	19492	4x2 IN NAND SO14
S CMOS 4013 SMD	19493	2x D-Flip Flop SO14
S CMOS 4017 SMD	19498	Dec. counter/divider SO16
S CMOS 4024 SMD	19505	7-bit ripple counter SO14
S CMOS 4049 SMD	26499	6xdriver SO16
S CMOS 4051 SMD	19522	8-channel analog. MX/DE MX SO16
S CMOS 4069 SMD	19531	6x inverter SO14
S CMOS 4081 SMD	19552	4X2 IN AND SO14
S CMOS 4093 SMD	19540	4x2-input NAND-Schmitt SO14
S CMOS 4094 SMD	19541	8bit shift register for bus SO16
S CMOS 4543 SMD	53677	Decoder/Driver BCD 7seg. SO16

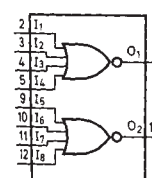
## CMOS 4000

Part No.	Ord. No.	Description
S CMOS 4001	17455	4x2 IN NOR DIP14
S CMOS 40106	17622	6xSchmitt DIP14
S CMOS 4011	17465	4x2 IN NAND DIP14
S CMOS 4012	17467	2x4 IN NAND DIP14
S CMOS 4013	17469	2xD-Flip FlopDIP14
S CMOS 4017	17477	Dec. counter/divider DIP16
S CMOS 4020	17483	14-bit ripple counter DIP16
S CMOS 4021	17485	8 bit stat. shift register DIP16
S CMOS 4023	17489	3x3 IN NAND DIP14
S CMOS 4024	17491	7 bit ripple counter DIP14
S CMOS 4025	17493	3x3 IN NOR DIP14
S CMOS 4026	17495	Decad. counter/divider DIP16
S CMOS 4027	17496	2x Flip Flop circuit DIP16
S CMOS 4028	17498	Decad. decoder BCD DIP16
S CMOS 4029	17500	Up/Down synchronous counter with preset DIP16
S CMOS 4030	17502	4x2 IN Exclusive-OR DIP14
S CMOS 4040	17511	12-bit ripple counter DIP16
S CMOS 4043	17517	4x NOR R/S latch, DIP16
S CMOS 4046	17522	PLL with VCO DIP16
S CMOS 4047	17524	Monostable/Astable Multivibrator DIP14
S CMOS 4049	17526	6xbuffer/converter, inverter DIP16
S CMOS 4050	17528	6xbuffer/converter (non-inverting) DIP16
S CMOS 4051	17530	8--channel. analog MX/DE MX DIP16
S CMOS 4052	17532	4--channel differ. MX/DE MX DIP16
S CMOS 4052 SMD	19523	4--channel differ. MX/DE MX SO16

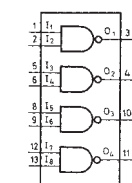
CMOS 4001



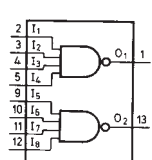
CMOS 4002



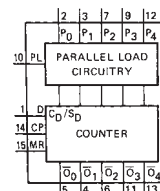
CMOS 4011



CMOS 4012



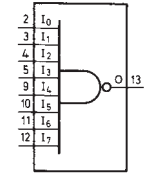
CMOS 4018



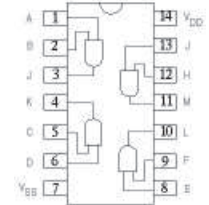
CMOS 4000 (continued)

S	CMOS 4053	17534	3x2-channels analog. MX/DE MX DIP16
S	CMOS 4053 SMD	19524	3x2-channels analog. MX/ DE MX SO16
S	CMOS 4060	17537	12bit. counter, oscillator DIP16
S	CMOS 4060 SMD	19527	12bit. counter, oscillator SO16
S	CMOS 4066	17539	4x Analog switch (Low "ON" Resistance) DIP14
S	CMOS 4066 SMD	19529	4x Analog switch (Low "ON" Resistance) SO14
S	CMOS 4067	17541	16-channel analog MX DIP24
S	CMOS 4068	17543	1x8 IN NAND DIP14
S	CMOS 4069	17545	6x inverter DIP14
S	CMOS 4070	17547	4x2-input Exclusive-OR DIP14
S	CMOS 4081	17563	4x2-input AND DIP14
S	CMOS 4082	17565	2x4-inputAND DIP14
S	CMOS 4093	17571	4x2-input NAND-Schmitt. Flip Flop DIP14
S	CMOS 4094	17573	8-stage shift-and-store bus DIP16
S	CMOS 4098	17577	2x one-shot monostable DIP16
S	CMOS 4503	18986	6x non-inverting buffer with tristate outputs DIP16
S	CMOS 4511	17587	BCD to 7-segment latch/decoder/driver DIP16
S	CMOS 4514	17591	4bit counter decoder DIP24
S	CMOS 4518	17596	2x synchr.counter BCD DIP16
S	CMOS 4520	17598	2x.4-bit binary up counter DIP16
S	CMOS 4521	40715	24-stage freq. divider DIP16
O	CMOS 4536	19191	Programmable Timer DIP16
S	CMOS 4538	21096	2x retriggerable monostable multivibrator DIP16
S	CMOS 4543	17606	BCD/7-Seg. Latch/Decoder/Driver with phase input DIP16
S	CMOS 4553	3177	3-digit BCD counter DIP16
S	CMOS 4555	17607	2x 1-of-4 decoder/demultiplexer HIGH output DIP16
S	CMOS 4584	27291	6xSchmitt DIP14

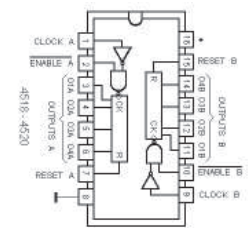
CMOS 4068



CMOS 4081

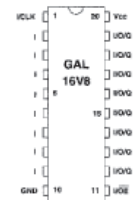


CMOS 4518-20



GAL Logic Arrays

Part No.	Ord. No.	Description
S GAL 16 V 8 D-15 LPN	37521	Programmed logic array 90mA 15ns DIP20
S GAL 16 V 8 D-15 QP	37523	Programmed logic array 45mA 15ns DIP20
S GAL 16 V 8 D-25 QPN	37524	Programmed logic array 45mA 25ns DIP20
S GAL 20 V 8 B-25 QPN	37527	Programmed logic array 45mA 25ns DIP24
S GAL 22 V 10 D-25 LP=15LP	38298	Programmed logic array 90mA 25ns DIP24



## SRAM

Part No.	Ord. No.	Description
S 621024 LLP-07 (SM621008LLP70)	2922	SRAM 128Kx8 5V DIP32
S 621024 LLP-07 SMD (SM621008LLP70M)	2949	SRAM 128Kx8 5V SOP32
S 62256 LLP-07 (SM620808LLP70)	27325	SRAM 32Kx8 70ns 5V DIP28
S 62256 LLP-07 SMD (SM620808LLP70M)	21110	SRAM 32Kx8 70ns 5V SOP28
S 6264 LLP-07	27324	SRAM 8Kx8 70ns 5V DIP28
S 628512 LP-07 (SM624008LLP70)	3452	SRAM 512Kx8 70ns 5V DIP32
S 628512 LP-07 SMD (SM624008LLP70M)	3331	SRAM 512Kx8 5V SOP32
S PCF 8570 P	36468	SRAM 256x8 I2C DIP8

## SRAM - speed

Part No.	Ord. No.	Description
O SM61 1016HSA10J	9668	SRAM 64Kx16 10ns SOJ44
O SM61 1016VHSA12T	9682	SRAM 64Kx16 12ns 3,3V TSOP44
O SM61 4016HSA12T	9674	SRAM 256Kx16 12ns TSOP44
O SM62 4008VLLP70T	48345	SRAM 512Kx8 70ns 3,3V TSOP32-II

## SRAM - Zeropower a Timekeeper

Part No.	Ord. No.	Description
O DS 1250 Y-70	49467	SRAM Nonvolatile 512Kx8 DIP32
S M 41 T 81 M6E	52690	Timekeeper SRAM 512bit SO8
O M 48 T 08 - 150 PC1	29187	CMOS Z-Power/Tim. DIP28

## FRAM

FRAM, an acronym for ferroelectric random access memory, is a non-volatile memory that can hold data even after it is powered off. In spite of the name, FRAM is a ferroelectric memory and is not affected by magnetic fields as there is no ferrous material (iron) in the chip. Ferroelectric materials switch polarity in an electric field, but are not affected by magnetic fields.

### FRAM's key advantages over EEPROM:

1) Speed. FRAM has fast write times. Beyond all the other operations, the actual write time to an FRAM memory cell is less than 50ns. That is approximately 1000x faster than EEPROM. Additionally, unlike EEPROM where you must have two steps to write data: a write command, followed by a read/verify command; FRAM's write memory function happens in the same process as read memory. There is only one memory access command, one step for either reading or writing. So in effect, all the time associated with an EEPROM write transaction is effectively eliminated in an FRAM-based smart IC.

2) Low Power. Writes to the FRAM cell occur at low voltage and very little current is needed to change the data. With EEPROM high voltages are needed. FRAM uses very low power - 1.5v compared to 10-14v for EEPROM. FRAM's low voltage translates into low power usage and enables more functionality at faster transactions speeds.

3) Data Reliability. Because only a small amount of energy is required, all the necessary power for FRAM is front-loaded at the beginning of data write. This avoids "data-tearing," a partial write of the data which occurs when EEPROM based smart ICs are removed from the RF field power source during a write cycle. Further, FRAM experiences 100 Trillion read/write cycles or greater - far exceeding EEPROM write cycles.

### Parallel FRAM

- standard pins out SRAM/EEPROM
- very low consumption in idle mode, less than 20 uA

### Serial FRAM 2-Wire

- standard protocol 2-Wire
- very low consumption in idle mode, version for 3V less than 1uA
- very low consumption

### Serial FRAM SPI

- standard SPI protocol
- very low consumption in idle mode, version for 3V less than 1uA

Part No.	Ord. No.	Description
O FM 1608-120-S	48209	FRAM 8Kx8 5V 120ns SOIC28
O FM 1808-70-S	48210	FRAM 32Kx8 5V 70ns SOIC28
O FM 18L08-70-S	48208	FRAM 32Kx8 3-3,65V 70ns SOIC28
S FM 24 C 04A-G	4324	FRAM 4K 400kHz 2WIRE SO8
S FM 24 C 16A-G	5356	FRAM 16K 400kHz I2C SO8
S FM 24 C 16A-P	5496	FRAM 16K 400kHz I2C DIP8
S FM 24 C 256-G	5358	FRAM 256K 1MHz I2C SO8
S FM 24 C 64-G	5357	FRAM 64K 1MHz I2C SO8
O FM 24 CL 16-G	64333	FRAM 16Kb 1MHz 2WIRE 2,7-3,6V SO8
O FM 24 CL 64-G	43132	FRAM 64K 3,3V I2C SO8
S FM 25 640-S	5361	FRAM 64K 5MHz SPI SO8
O FM 25 L 256-G	52824	FRAM 256K 3V 25MHz SPI SO8

Manufacturer	Part No.	Idle current	Write 1 Byte
RAMTRON	FM24C16	10uA	72us
ATMEL	AT24C16	18uA	10ms
ST	ST24C16	300uA	10ms
MICROCHIP	24AA16	100uA	10ms
XICOR	X24C16	150uA	10ms





## EPROM

Part No.	Ord. No.	Description
S 27 C 010-90 PLCC32	38618	EPROM 128Kx8 90ns PLCC32
S 27 C 020-100	34370	EPROM 256Kx8 100ns DIP32
S 27 C 256-100 UV	27335	EPROM 32Kx8 100ns DIP28
S 27 C 4001-100	29190	EPROM 512Kx8 100ns DIP32
S 27 C 512-100	29855	EPROM 64Kx8 100ns DIP28
O 27 C 512-90 PLCC32	38619	EPROM 64Kx8 90ns PLCC32
S 27 C 64-150	25489	EPROM 8Kx8 150ns DIP28
S 27 C 801-100F1	40587	EPROM 1Mx8 100ns DIP32
S 27 C 1001-10F1	27337	EPROM 128Kx8 100ns DIP32

## EEPROM

Interface	Wires	Transfer rate (max.)
I2C	2 wires (I/O, clock)	400 kbit/s
Microwire	4 wires (data-in/data-out, clock a CS)	1 Mbit/s
SPI	4 wires (data-in/data-out, clock a CS)	20 Mbit/s

## Serial - I<sup>2</sup>C Bus

Part No.	Ord. No.	Description
<b>2,5V bus</b>		
S 24 LC 16 B/P	6564	EEPROM serial 2Kx8 DIP8
S 24 LC 16 B/SN	3039	EEPROM serial 2Kx8 2,5V SO8
S 24 LC 256 I/P	45143	EEPROM serial 256K DIP8
S 24 LC 256 I/SN	44700	EEPROM serial 256K SO8
O 24 LC 32 A/P	8300	EEPROM serial 4Kx8 DIP8
O 24 LC 32 A/SN	43857	EEPROM serial 4Kx8 SO8
O 24 LC 64 I/SN	45774	EEPROM serial 8Kx8 SO8
S 24 LC 65/SM	6268	EEPROM serial 8Kx8 SO8
<b>5V bus</b>		
S M 24 C 02-WBN6P	27319	EEPROM ser. 2K I2C 2,5-5,5V DIP8
S M 24 C 02-WMN6P	29509	EEPROM ser 2K I2C 2,5-5,5V SO8
S PCF 8582 C-2 P	40708	EEPROM ser. 2kbit I2C 2,5-5V DIP8
S M 24 C 04-WBN6P	29545	EEPROM ser. 4K I2C 2,5-5,5V DIP8
S M 24 C 08-WBN6P	34360	EEPROM ser. 8K I2C 2,5-5,5V DIP8
S M 24 C 16-WBN6P	36084	EEPROM ser. 16K I2C 2,5-5,5V DIP8
S M 24 C 16-WMN6P	36083	EEPROM ser. 16K I2C 2,5-5,5V SO8
S M 24 C 32-WBN6P	8357	EEPROM ser. 32K I2C 2,5-5,5V DIP8
S M 24 C 32-WMN6P	65113	EEPROM ser. 32K I2C 2,5-5,5V SO8
S M 24 C 64-WBN6P	8358	EEPROM ser. 64K I2C 2,5-5,5V DIP8
S M 24 256-BWMN6P	45385	EEPROM ser. 256K I2C 2,5-5,5V SO8



## Serial - MICROWIRE

Part No.	Ord. No.	Description
<b>2,5V bus</b>		
S 93 LC 46 A/IP	4272	EEPROM serial 128Kx8 DIP8
<b>5V bus</b>		
S 93 C 56 B1 ST	4201	EEPROM serial 256x8/128x16 DIP8
O 93 C 56 CM1	48451	EEPROM serial 256x8/128x16 SO8
O 93 C 66 M	42868	EEPROM serial 512x8/256x16 SO8
O 93 C 66 WP	5518	EEPROM serial 256x16/512x8 DIP8
O 93 C 86 BN6	8360	EEPROM serial 16K M-WIRE DIP8
S M 93 C 46-WBN6P	27321	EEPROM serial 1K M-WIRE 8/16 bit DIP8
S M 93 C 46-WMN6P	29508	EEPROM serial dual 128x8/64x16 SO8





## Serial - SPI

Part No.	Ord. No.	Description
o 25 AA 640-I/P	48548	EEPROM serial SPI 8Kx8 1,8-5,5V DIP8
o 25 LC 256 I/SN	52490	EEPROM serial 32Kx8, 2,7-5,5V SO8
o 25 LC 640 I/SN	8597	EEPROM serial 8Kx8, 2,7-5,5V SO8
o 25 LC 640-I/P	48588	EEPROM serial 8Kx8, 2,7-5,5V DIP8
o AT 25 640AN-10SI-2,7	48017	EEPROM SPI Bus, High Speed SO8

## Parallel

Part No.	Ord. No.	Description
s 28 C 256-150	27318	EEPROM 32Kx8 150ns DIP28
s 28 C 64 C-150	36463	EEPROM 8Kx8 150ns DIP28

## FLASH

### Serial - DataFlash®

DataFlash® is the world's number one selling serial interface flash family. Introduced in 1997, Atmel's Dataflash families (45 series and the recently introduced 26 series) are feature rich, low pin count, sequential access families ideal for program code, data storage, Serial EEPROM replacement, and the next generation PC Bios Market.

#### Simple SPI Interface, Robust Architecture

DataFlash employs proven NOR technology (100% good bits), a robust architecture featuring on-board SRAM buffers (45 series), small pages and flexible op codes. Small pages facilitate easier changes to the chip's contents with less power consumption and eliminate the large external RAM buffers required by large sector flash.

The simple SPI interface greatly reduces system pin counts, power consumption and switching noise. System design is greatly simplified with DataFlash, as all densities 1 Mbit to 128 Mbits (45 series), and 4 Mbit to 32M bit (26 series) require only 4 pins to connect to the system processor, controller or DSP. This also allows for an easy migration path between densities with no board changes. DataFlash is offered in several footprint-compatible packages including SOIC/CASON, TSOP, MLF and CBGA.

#### World's Fastest Serial Flash

For frequencies greater than 33 MHz, Atmel has pioneered the RapidS™ serial interface on its 45 series products. RapidS is a natural extension of SPI and allows bus frequencies of 50 Mhz and beyond. For applications requiring even faster read throughput, Atmel has introduced Rapid8™, an 8-bit sequential access interface on the high-density 45 series DataFlash products. The Rapid8 interface is offered on the 64 Mbit and 128 Mbit 45 series devices. These two devices can operate with the RapidS/SPI interface, the Rapid8 interface or both.

#### A Better Way

System designers have adopted DataFlash as the sole nonvolatile memory block in their system, replacing up to three memories to hold program code, user data and ID, calibration, or parametric data. DataFlash increases reliability and dramatically reduces total system costs, size, switching noise and manufacturing complexity.

Part No.	Ord. No.	Description
o AT 45 DB 021 B-RU	43738	Flash serial 2,7V 2Mbit 20MHz SO28
s AT 45 DB 021 B-SU	43737	Flash serial 2,7V 2Mbit 20MHz SO8
o AT 45 DB 021 B-TU	43743	Flash serial 2,7V 2Mbit 20MHz TSOP28
o AT 45 DB 041 B-RU	43740	Flash serial 2,7V 4Mbit 20MHz SO28
o AT 45 DB 041 D-MU	43744	Flash serial 2,7V 4Mbit 66MHz MLF8
s AT 45 DB 041 D-SU	58216	Flash serial 2,7V 4Mbit 66MHz SO8
o AT 45 DB 081 B-TU	43058	Flash serial 2,7V 8Mbit 20MHz TSOP28
s AT 45 DB 161 D-SU	56897	Flash serial 2,7V 16Mbit 66MHz SO8
s AT 45 DB 161 D-TU	56898	Flash serial 2,7V 16Mbit 66MHz TSOP28
o AT 45 DB 321 D-TU	58804	Flash serial 2,7V 32Mbit 40MHz TSOP28

## Parallel

Part No.	Ord. No.	Description
s AM 29 F 010-90 JD	5905	Flash PEROM 5V 128Kx8 5V PLCC32
o AM 29 F 010B-70JD	59563	Flash 128Kx8 5V PLCC32
s AM 29 F 010B-90 PD=PF	40497	Flash PEROM 5V 128Kx8 5V PDIP32
o AM 29 F 032B-90EF	47963	Flash PEROM 5V 4Mx8 TSOP40
s AM 29 F 040-70JD	9514	Flash 512Kx8 70ns PLCC32
s AM 29 F 040B-90PD	3119	Flash PEROM 5V 512Kx8 DIP32
s AT 29 C 040A-90 JU	43756	Flash PEROM 5V 512Kx8 90ns PLCC32
s AT 29 C 512-70JU	2871	Flash PEROM 5V 64Kx8 70ns PLCC32



## Universal Programmers

### BeeProg+

Extremely fast universal USB/LPT interfaced programmer.



- extremely fast programming, one of the fastest programmers in this category. Programs 64-Mbit NOR Flash memory less than 46 seconds and 1Gbit NAND Flash less than 120 sec.
- 48-pins powerful pindrivers, no adapter required for any DIL devices
- connector for in-circuit programming (ISP)
- dual connection to PC: USB (up to 480 Mbit/s) or parallel (printer) port
- USB 2.0 (high speed, full speed) and 1.1 compatible interface
- alternatively high-speed IEEE 1284 (ECP/EPP) printer-port (LPT) interface
- comfortable and easy to use control program, Windows 98/Me/NT/2000/XP/2003/XPx64/Vista compatible
- Multiprogramming possible by attaching more programmers to one PC
- approved by CE laboratory to meet CE requirements

Part No.	Ord. No.
o BEEPROG+	63421

### SMARTprog2

Universal, ISP capable programmer



- small, fast and powerful universal programmer
- DIL40 ZIF socket, devices in DIL package up to 40 pins are supported without adapters
- connector for in-circuit programming (ISP)
- connection to PC: USB port
- USB 2.0 full speed and USB 1.1 compatible
- comfortable and easy to use control program, Windows 95/98/Me/NT/2000/XP/2003/XPx64/Vista compatible
- free SW update, download from Internet
- power supply, cable and software included
- approved by CE laboratory to meet CE requirements

Part No.	Ord. No.
o SMARTPROG2	55192

## Specialized Programmers

### MEMprog2

Universal memory programmer



- small, fast and powerful programmer of EPROM, EEPROM, Flash EPROM, NVRAM and serial EEPROM
- DIL40 ZIF socket, memories in DIL package up to 40 pins are supported without adapters
- connection to PC: USB port
- USB 2.0 full speed and USB 1.1 compatible
- upgradeable to SmartProg2 programmer
- comfortable and easy to use control program, Windows 98/Me/NT/2000/XP/2003/XPx64/Vista compatible
- free SW update, download from Internet
- power supply, cable and software included
- approved by CE laboratory to meet CE requirements

Part No.	Ord. No.
o MEMprog2	70287

### MEMprogl

Universal memory programmer



- small and powerful programmer of EPROM, EEPROM, Flash EPROM, NVRAM and serial EEPROM
- DIL32 ZIF socket, memories in DIL package up to 32 pins are supported without adapters
- connection to PC - parallel (printer) port
- comfortable and easy to use control program, Windows 95/98/Me/NT/2000/XP/Vista compatible
- free SW update, download from Internet
- power supply, cable and software included
- approved by CE laboratory to meet CE requirements

Part No.	Ord. No.
o MEMPROG L	48739

**SOS electronic - distributor of ELNEC programmers**



## T51prog2

MCS51 series and Atmel AVR microcontrollers ISP capable fast programmer



- small, very fast and powerful portable programmer of MCS51 series and Atmel AVR microcontrollers
- in-circuit serial programming (ISP) capability included
- full-speed programming of serial EEPROM (IIC, Microwire and SPI interface)
- DIL40 ZIF socket, all MCS51/AVR chips in DIL package up to 40 pins are supported without adapters
- connection to PC: USB port
- USB 2.0 full speed and USB 1.1 compatible
- upgradeable to SmartProg2 programmer.
- comfortable and easy to use control program, Windows 98/Me/NT/2000/XP/2003/XPx64/Vista compatible compatible
- free SW update, download from Internet
- power supply, cable and software included
- approved by CE laboratory to meet CECE sign requirements

Part No.	Ord. No.
o T51prog2	70285

## PIKprog2

Microchip™ PICmicro® series microcontrollers, ISP capable programmer.



- small, very fast and powerful portable programmer of Microchip™ PICmicro® series microcontrollers
- in-circuit serial programming (ISP) capability included
- full-speed programming of serial EEPROM (IIC, Microwire and SPI interface)
- DIL40 ZIF socket, all PICmicro® chips in DIL package up to 40 pins are supported without adapters
- connection to PC: USB port
- USB 2.0 full speed and USB 1.1 compatible
- upgradeable to SmartProg2 programmer.
- comfortable and easy to use control program, Windows 98/Me/NT/2000/XP/2003/XPx64/Vista compatible
- free SW update, download from Internet
- approved by CE laboratory to meet CE requirements
- small dimensions
- power supply, cable and SW included

Part No.	Ord. No.
o PIKprog2	70286

## SEEpog

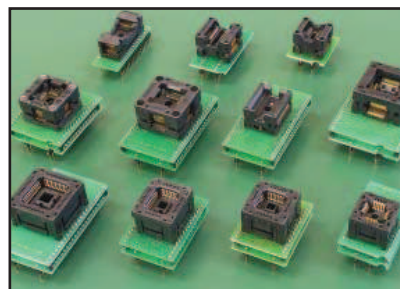
Serial EEPROM programmer



- small and powerful portable programmer of all 8-pins serial EEPROMs
- supports interfaces IIC (24Cxx), Microwire (93Cxx), SPI (25Cxx)
- supports programming LV (3.3V) EEPROM
- comfortable and easy to use control program, Windows 95/98/Me/NT/2000/XP/Vista compatible
- free SW update, download from Internet
- approved by CE laboratory to meet CE requirements
- connection to PC - via printer port
- power supply, cable and SW included

Part No.	Ord. No.
o SEEPROG	44887

## Socket Convertors



Part No.
DIL20W/PLCC20 ZIF
DIL28/PLCC28 ZIF
DIL32/PLCC32 ZIF
DIL44/PLCC44 ZIF
DIL40/PLCC44 ZIF W-EPROM/MCS51
DIL48/PLCC52 ZIF 68HC11
DIL16W/SOIC16 ZIF 150mil
DIL8/SOIC8 ZIF 200mil
DIL20W/SOIC20 ZIF 300mil
DIL28W/SOIC28 ZIF 300mil
DIL32/TQFP32-1 ZIF
DIL44/TQFP44-1 ZIF
DIL48/TQFP48-1 ZIF
DIL40/TQFP64 ZIF AVRmega-2
DIL48/TSOP48 ZIF 18.4mm
DIL24W/TSSOP24 ZIF 170 mil
DIL28/TSSOP28 ZIF 170mil
DIL28W/SSOP28 ZIF 200mil
DIL44/PSOP44 ZIF 600mil
DIL32/MLF32-1 ZIF-CS

## Overview:

8-bit 8051	8-bit RISC	32-bit
ATMEL - AT89C, AT89S CYGNAL - C8051 DALLAS - DS80C, DS89C, Analog Devices - ADuC8	ATMEL - ATMEGA, ATtiny Microchip - PIC12, PIC16, PIC18 Motorola - MC68	STMicroelectronics - STR7, STR9 Texas Instruments - MSP430 ATMEL - AT91SAM

## 8-bit Microprocessors

### 8051 Series



Part No.	Ord. No.	Description
S AT 89 C 2051-24PU	3147	MCU 5V 2K Flash 24MHz DIP20
S AT 89 C 2051-24SU	2681	MCU 5V 2K Flash 24MHz SOIC20
O AT 89 C 2051x2-16PI	52547	MCU 5V 2K Flash 16MHz CLKx2 DIP20
S AT 89 C 4051-24PU	3168	MCU 5V 4K Flash 24MHz DIP20
S AT 89 C 4051-24SU	42603	MCU 5V 4K Flash 24MHz SO20
S AT 89 C 51 AC2-SLSUM	59399	MCU 32kB Flash, 40MHz PLCC44
S AT 89 C 51 ED2-RLTUM	50361	MCU 64kB Flash 40MHz 2,7-5,5V VQFP44
S AT 89 C 51 ED2-SLSUM	48677	MCU 64kB Flash, 40MHz, 2,7-5,5V PLCC44
O AT 89 C 51 ID2-SLSUM	47880	MCU 5V 64K Flash 60MHz PLCC44
O AT 89 C 51 RD2-SLSUM	8839	ISP-MC 64kB Flash, 40MHz, PLCC44
S AT 89 C 51-24PI	2459	MCU 5V 4K-Flash 24MHz DIP40
O AT 89 C 5131A-TISUL	50881	MCU USB 32kB Flash, 48Mhz, 3,0-3,6V SO28
O AT 89 C 5131-S3SIL	50880	MCU USB 32kB Flash, 48Mhz, 3,0-3,6V PLCC52
S AT 89 C 52-24PI	2235	MCU 5V 8K-Flash 24MHz DIP40
S AT 89 C 55 WD-24PU	5917	MCU 5V 20K Flash 24MHz DIP40
O AT 89 C5131A-S3SUM	55484	MCU USB 32kB Flash, 48Mhz, 2,7-5,5V PLCC52
S AT 89 LP 2052-20PU	60975	MCU 2,4-5,5V 2K Flash 20MHz DIP20
S AT 89 LP 4052-20PU	55406	MCU 2,4V 4K Flash 20MHz PDIP20
S AT 89 LP 4052-20SU	55407	MCU 2,4V 4K Flash 20MHz SO20
O AT 89 LS 51-16JU	50431	MCU ISP 2,7-4V 4K-Flash 16MHz PLCC44
O AT 89 LS 51-16PU	50430	MCU ISP 2,7-4V 4K-Flash 16MHz DIP40
S AT 89 S 2051-24SU	54043	MCU ISP 2,7-5V 2K Flash 24MHz SO20
O AT 89 S 51-24JU	48984	MCU ISP 5V 4K Flash 24MHz PLCC44
S AT 89 S 51-24PU	47985	MCU 5V 4K Flash 24MHz DIP40
S AT 89 S 52-24AU	47990	MCU 5V 8K Flash 24MHz TQFP44
S AT 89 S 52-24JU	47987	MCU 5V 8K Flash 24MHz PLCC44
S AT 89 S 52-24PU	47986	MCU 5V 8K Flash 24MHz DIP40
S AT 89 S 8253-24JU	51222	MCU 2,7-5,5V 12K Flash 24MHz PLCC44
S AT 89 S 8253-24PU	51221	MCU 2,7-5,5V 12K Flash 24MHz DIP40
<b>ATMEL - TEMIC</b>		
S 80 C 31 X2-MCA=AT80C31X2-3CSUM	273	MCU ROMLESS 40MHz DIP40
S 80 C 32 X2-MCA=AT80C32X2-3CSUM	784	MCU ROMLESS 40MHz DIP40
S 80 C 32 X2-MCB = AT80C32X2-SLSUM	33043	MCU PLCC44

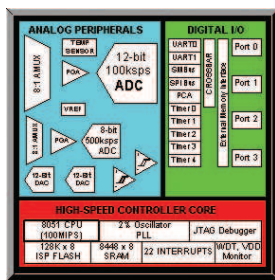
### AT 89 ISP CABLE



ISP adaptor for AT89S serial programming.

Part No.	Ord. No.
O AT 89 ISP CABLE	55336

## 8051 Series - SILABS (CYGNAL)



Our 8-bit mixed-signal MCUs integrate world-class analog, a pipelined 8051 CPU, in-system programmable Flash memory and on-chip debug in each device. No other MCU supplier can provide the level of high-performance analog and functional density to provide user with design flexibility, improved time-to-market, superior system performance and greater end product differentiation.

Part No.	Ord. No.	Description
o C8051F121-GQ	58828	MCU 12-bit/8-ch ADC TQFP64
o C8051F126-GQ	48337	MCU 12-bit/8-ch ADC TQFP100
o C8051F300-GM	50921	MCU 8kB Flash 8-bit/8-ch ADC MLP11
o C8051F301	53254	MCU 8kB Flash QFN11
o C8051F302	53255	MCU 8kB Flash 8bit/8ch ADC QFN11
o C8051F303	53215	MCU 8kB Flash QFN11
o C8051F310 GQ	54552	MCU 16kB Flash 10-bit/21-ch ADC LQFP32
o C8051F310-GQ	50210	MCU 16kB Flash 10-bit/21-ch ADC LQFP32
o C8051F330	48271	MCU 8kB Flash 10-bit/16-ch ADC MLP20
o C8051F350-GQ	49516	MCU 8kB Flash 24-bit/8-ch ADC LQFP32

## SILABS (CYGNAL) Microprocessor Overview



Part No.	MIPS (peak)	Flash	RAM Bytes	Ext Mem I/F	Dig I/O	Serial Buses	ADC 1	Other Analog	Package
C8051F000	20	32KB	256	-	32	UART, SMBus, SPI	12-bit, 8ch., 100ksps	VREF, 2 comparators	64-pin12x12 TQFP
C8051F001	20	32KB	256	-	16	UART, SMBus, SPI	12-bit, 8ch., 100ksps	VREF, 2 comparators	48-pin9x9 TQFP
C8051F002	20	32KB	256	-	8	UART, SMBus, SPI	12-bit, 4ch., 100ksps	VREF, comparator	32-pin9x9 LQFP
C8051F005	25	32KB	2304	-	32	UART, SMBus, SPI	12-bit, 8ch., 100ksps	VREF, 2 comparators	64-pin12x12 TQFP
C8051F006	25	32KB	2304	-	16	UART, SMBus, SPI	12-bit, 8ch., 100ksps	VREF, 2 comparators	48-pin9x9 TQFP
C8051F007	25	32KB	2304	-	8	UART, SMBus, SPI	12-bit, 4ch., 100ksps	VREF, comparator	32-pin9x9 LQFP
C8051F010	20	32KB	256	-	32	UART, SMBus, SPI	10-bit, 8ch., 100ksps	VREF, 2 comparators	64-pin12x12 TQFP
C8051F011	20	32KB	256	-	16	UART, SMBus, SPI	10-bit, 8ch., 100ksps	VREF, 2 comparators	48-pin9x9 TQFP
C8051F012	20	32KB	256	-	8	UART, SMBus, SPI	10-bit, 4ch., 100ksps	VREF, comparator	32-pin9x9 LQFP
C8051F015	25	32KB	2304	-	32	UART, SMBus, SPI	10-bit, 8ch., 100ksps	VREF, 2 comparators	64-pin12x12 TQFP
C8051F016	25	32KB	2304	-	16	UART, SMBus, SPI	10-bit, 8ch., 100ksps	VREF, 2 comparators	48-pin9x9 TQFP
C8051F018	25	16KB	1280	-	32	UART, SMBus, SPI	10-bit, 8ch., 100ksps	VREF, 2 comparators	64-pin12x12 TQFP
C8051F019	25	16KB	1280	-	16	UART, SMBus, SPI	10-bit, 8ch., 100ksps	VREF, 2 comparators	48-pin9x9 TQFP
C8051F020	25	64KB	4352	Y	64	2 UARTs, SMBus, SPI	12-bit, 8ch., 100ksps	VREF, 2 comparators	100-pin16x16 TQFP
C8051F021	25	64KB	4352	Y	32	2 UARTs, SMBus, SPI	12-bit, 8ch., 100ksps	VREF, 2 comparators	64-pin12x12 TQFP
C8051F022	25	64KB	4352	Y	64	2 UARTs, SMBus, SPI	10-bit, 8ch., 100ksps	VREF, 2 comparators	100-pin16x16 TQFP
C8051F023	25	64KB	4352	Y	32	2 UARTs, SMBus, SPI	10-bit, 8ch., 100ksps	VREF, 2 comparators	64-pin12x12 TQFP
C8051F040	25	64KB	4352	Y	64	CAN2.0B, 2 UARTs, SMBus, SPI	12-bit, 13ch., 100ksps	60V PGA, VREF, 3 comparators	100-pin16x16 TQFP
C8051F041	25	64KB	4352	Y	32	CAN2.0B, 2 UARTs, SMBus, SPI	12-bit, 13ch., 100ksps	60V PGA, VREF, 3 comparators	64-pin12x12 TQFP
C8051F042	25	64KB	4352	Y	64	CAN2.0B, 2 UARTs, SMBus, SPI	10-bit, 13ch., 100ksps	60V PGA, VREF, 3 comparators	100-pin16x16 TQFP
C8051F043	25	64KB	4352	Y	32	CAN2.0B, 2 UARTs, SMBus, SPI	10-bit, 13ch., 100ksps	60V PGA, VREF, 3 comparators	64-pin12x12 TQFP
C8051F044	25	64KB	4352	Y	64	CAN2.0B, 2 UARTs, SMBus, SPI	10-bit, 13ch., 100ksps	60V PGA, VREF, 3 comparators	100-pin16x16 TQFP
C8051F045	25	64KB	4352	Y	32	CAN2.0B, 2 UARTs, SMBus, SPI	10-bit, 13ch., 100ksps	60V PGA, VREF, 3 comparators	64-pin12x12 TQFP
C8051F046	25	32KB	4352	Y	64	CAN2.0B, 2 UARTs, SMBus, SPI	10-bit, 13ch., 100ksps	60V PGA, VREF, 3 comparators	100-pin16x16 TQFP
C8051F047	25	32KB	4352	Y	32	CAN2.0B, 2 UARTs, SMBus, SPI	10-bit, 13ch., 100ksps	60V PGA, VREF, 3 comparators	64-pin12x12 TQFP
C8051F060	25	64KB	4352	Y	59	CAN2.0B, 2 UARTs, SMBus, SPI	16-bit, 1ch., 1Msps	10-bit, 8ch., 200ksps, VREF, 3 comp	100-pin16x16 TQFP
C8051F061	25	64KB	4352	-	24	CAN2.0B, 2 UARTs, SMBus, SPI	16-bit, 1ch., 1Msps	10-bit, 8ch., 200ksps, VREF, 3 comp	64-pin12x12 TQFP
C8051F062	25	64KB	4352	Y	59	CAN2.0B, 2 UARTs, SMBus, SPI	16-bit, 1ch., 1Msps	10-bit, 8ch., 200ksps, VREF, 3 comp	100-pin16x16 TQFP
C8051F063	25	64KB	4352	-	24	CAN2.0B, 2 UARTs, SMBus, SPI	16-bit, 1ch., 1Msps	10-bit, 8ch., 200ksps, VREF, 3 comp	64-pin12x12 TQFP
C8051F064	25	64KB	4352	Y	59	2 UARTs, SMBus, SPI	16-bit, 1ch., 1Msps	VREF, 3 comparators	100-pin16x16 TQFP
C8051F066	25	32KB	4352	Y	59	2 UARTs, SMBus, SPI	16-bit, 1ch., 1Msps	PGA, VREF, comparator	100-pin16x16 TQFP
C8051F067	25	32KB	4352	-	24	2 UARTs, SMBus, SPI	16-bit, 1ch., 1Msps	PGA, VREF, comparator	64-pin12x12 TQFP
C8051F120	100	128KB	8448	Y	64	2 UARTs, SMBus, SPI	12-bit, 8ch., 100ksps	VREF, 2 comparators	100-pin16x16 TQFP
C8051F121	100	128KB	8448	Y	32	2 UARTs, SMBus, SPI	12-bit, 8ch., 100ksps	VREF, 2 comparators	64-pin12x12 TQFP
C8051F122	100	128KB	8448	Y	64	2 UARTs, SMBus, SPI	10-bit, 8ch., 100ksps	VREF, 2 comparators	100-pin16x16 TQFP
C8051F123	100	128KB	8448	Y	32	2 UARTs, SMBus, SPI	10-bit, 8ch., 100ksps	VREF, 2 comparators	64-pin12x12 TQFP
C8051F124	50	128KB	8448	Y	64	2 UARTs, SMBus, SPI	12-bit, 8ch., 100ksps	VREF, 2 comparators	100-pin16x16 TQFP
C8051F125	50	128KB	8448	Y	32	2 UARTs, SMBus, SPI	12-bit, 8ch., 100ksps	VREF, 2 comparators	64-pin12x12 TQFP
C8051F126	50	128KB	8448	Y	64	2 UARTs, SMBus, SPI	10-bit, 8ch., 100ksps	VREF, 2 comparators	100-pin16x16 TQFP
C8051F127	50	128KB	8448	Y	32	2 UARTs, SMBus, SPI	10-bit, 8ch., 100ksps	VREF, 2 comparators	64-pin12x12 TQFP



## SILABS (CYGNAL) Microprocessor Overview

Part No.	MIPS (peak)	Flash	RAM Bytes	Ext Mem I/F	Dig I/O	Serial Buses	ADC 1	Other Analog	Package
C8051F130	100	128KB	8448	Y	64	2 UARTs, SMBus, SPI	10-bit, 8ch., 100ksps	16x16 MAC	100-pin16x16 TQFP
C8051F131	100	128KB	8448	Y	32	2 UARTs, SMBus, SPI	10-bit, 8ch., 100ksps	16X16 MAC	64-pin12x12 TQFP
C8051F132	100	64KB	8448	Y	64	2 UARTs, SMBus, SPI	10-bit, 8ch., 100ksps	16X16 MAC	100-pin16x16 TQFP
C8051F133	100	64KB	8448	Y	32	2 UARTs, SMBus, SPI	10-bit, 8ch., 100ksps	16X16 MAC	64-pin12x12 TQFP
C8051F206	25	8KB	1280	-	32	UART, SPI	12-bit, 32ch., 100ksps	2 comparators	48-pin9x9 TQFP
C8051F220	25	8KB	256	-	32	UART, SPI	8-bit, 32ch., 100ksps	2 comparators	48-pin9x9 TQFP
C8051F221	25	8KB	256	-	22	UART, SPI	8-bit, 32ch., 100ksps	2 comparators	32-pin9x9 LQFP
C8051F226	25	8KB	1280	-	32	UART, SPI	8-bit, 32ch., 100ksps	2 comparators	48-pin9x9 TQFP
C8051F230	25	8KB	256	-	32	UART, SPI	-	2 comparators	48-pin9x9 TQFP
C8051F236	25	8KB	1280	-	32	UART, SPI	-	2 comparators	48-pin9x9 TQFP
C8051F300	25	8KB	256	-	8	UART, SMBus	8-bit, 8ch., 500ksps	comparator	11-pin3x3 QFN
C8051F301	25	8KB	256	-	8	UART, SMBus	-	comparator	11-pin3x3 QFN
C8051F302	25	8KB	256	-	8	UART, SMBus	8-bit, 8ch., 500ksps	comparator	11-pin3x3 QFN
C8051F303	25	8KB	256	-	8	UART, SMBus	-	comparator	11-pin3x3 QFN
C8051F304	25	4KB	256	-	8	UART, SMBus	-	comparator	11-pin3x3 QFN
C8051F305	25	2KB	256	-	8	UART, SMBus	-	comparator	11-pin3x3 QFN
C8051F310	25	16KB	1280	-	29	UART, SMBus, SPI	10-bit, 21ch., 200ksps	2 comparators	32-pin9x9 LQFP
C8051F311	25	16KB	1280	-	25	UART, SMBus, SPI	10-bit, 17ch., 200ksps	2 comparators	28-pin5x5 QFN
C8051F312	25	8KB	1280	-	29	UART, SMBus, SPI	10-bit, 21ch., 200ksps	2 comparators	32-pin9x9 LQFP
C8051F313	25	8KB	1280	-	25	UART, SMBus, SPI	10-bit, 17ch., 200ksps	2 comparators	28-pin5x5 QFN
C8051F315	25	8KB	1280	-	25	UART, SMBus, SPI	-	2 comparators	28-pin5x5 QFN
C8051F316	25	16KB	1280	-	21	UART, SMBus, SPI	10-bit, 13ch., 200ksps	2 comparators	24-pin 4x4 QFN
C8051F317	25	16KB	1280	-	21	UART, SMBus, SPI	-	2 comparators	24-pin 4x4 QFN
C8051F320	25	16KB	2304	-	25	USB 2.0, UART, SMBus, SPI	10-bit, 17ch., 200ksps	VREF, 2 comparators	32-pin9x9 LQFP
C8051F321	25	16KB	2304	-	21	USB 2.0, UART, SMBus, SPI	10-bit, 13ch., 200ksps	VREF, 2 comparators	28-pin5x5 QFN
C8051F326	25	16KB	1536	-	15	USB 2.0, UART	-	Separate I/O Supply Pin	28-pin5x5 QFN
C8051F330	25	8KB	768	-	17	UART, SMBus, SPI	10-bit, 16ch., 200ksps	VREF, comparator	20-pin4x4 QFN
C8051F330D	25	8KB	768	-	17	UART, SMBus, SPI	10-bit, 16ch., 200ksps	VREF, comparator	20-pin4x4 DIP
C8051F331	25	8KB	768	-	17	UART, SMBus, SPI	-	comparator	20-pin4x4 QFN
C8051F332	25	4KB	768	-	17	UART, SMBus, SPI	10-bit, 16ch., 200ksps	VREF, comparator	20-pin4x4 QFN
C8051F333	25	4KB	768	-	17	UART, SMBus, SPI	-	comparator	20-pin4x4 QFN
C8051F334	25	2KB	768	-	17	UART, SMBus, SPI	10-bit, 16ch., 200ksps	VREF, comparator	20-pin4x4 QFN
C8051F340	48	64KB	5376	Y	40	USB 2.0, 2x UART, SMBus, SPI	10-bit, 17ch., 200ksps	VREF, 2 comparators	48-pin9x9 TQFP
C8051F341	48	32KB	3328	Y	40	USB 2.0, 2x UART, SMBus, SPI	10-bit, 17ch., 200ksps	VREF, 2 comparators	48-pin9x9 TQFP
C8051F342	48	64KB	5376	-	25	USB 2.0, UART, SMBus, SPI	10-bit, 17ch., 200ksps	VREF, 2 comparators	32-pin9x9 LQFP
C8051F343	48	32KB	3328	-	25	USB 2.0, UART, SMBus, SPI	10-bit, 17ch., 200ksps	VREF, 2 comparators	32-pin9x9 LQFP
C8051F344	25	64KB	5376	Y	40	USB 2.0, 2x UART, SMBus, SPI	10-bit, 17ch., 200ksps	VREF, 2 comparators	48-pin9x9 TQFP
C8051F345	25	32KB	3328	Y	40	USB 2.0, 2x UART, SMBus, SPI	10-bit, 17ch., 200ksps	VREF, 2 comparators	48-pin9x9 TQFP
C8051F346	25	64KB	5376	-	25	USB 2.0, UART, SMBus, SPI	10-bit, 17ch., 200ksps	VREF, 2 comparators	32-pin9x9 LQFP
C8051F347	25	32KB	3328	-	25	USB 2.0, UART, SMBus, SPI	10-bit, 17ch., 200ksps	VREF, 2 comparators	32-pin9x9 LQFP
C8051F350	50	8KB	768	-	17	UART, SMBus, SPI	24-bit, 8ch., 1ksps	PGA, VREF, comparator	32-pin9x9 LQFP
C8051F351	50	8KB	768	-	17	UART, SMBus, SPI	24-bit, 8ch., 1ksps	PGA, VREF, comparator	28-pin5x5 QFN
C8051F352	50	8KB	768	-	17	UART, SMBus, SPI	16-bit, 8ch., 1ksps	PGA, VREF, comparator	32-pin9x9 LQFP
C8051F353	50	8KB	768	-	17	UART, SMBus, SPI	16-bit, 8ch., 1ksps	PGA, VREF, comparator	28-pin5x5 QFN
C8051F410	50	32KB	2304	-	24	UART, SMBus, SPI	12-bit, 20ch., 200ksps	VREF, 2 comparators, Volt Reg, RTC	32-pin9x9 LQFP
C8051F411	50	32KB	2304	-	20	UART, SMBus, SPI	12-bit, 20ch., 200ksps	VREF, 2 comparators, Volt Reg, RTC	28-pin5x5 QFN
C8051F412	50	16KB	1280	-	24	UART, SMBus, SPI	12-bit, 20ch., 200ksps	VREF, 2 comparators, Volt Reg, RTC	32-pin9x9 LQFP
C8051F413	50	16KB	1280	-	20	UART, SMBus, SPI	12-bit, 20ch., 200ksps	VREF, 2 comparators, Volt Reg, RTC	28-pin5x5 QFN
CP2101	-	12B EE	1000	-	13	UART to USB Bridge	-	Volt Reg	28-pin 5x5 QFN
CP2102	-	24B EE	1000	-	13	UART to USB Bridge	-	Volt Reg	28-pin 5x5 QFN
CP2103	-	24B EE	1000	-	13	UART to USB Bridge	-	Volt Reg	28-pin 5x5 QFN

Integrated Circuits

## SILABS (CYGNAL) Development kits



Part No.	Ord. No.	Description
○ C8051F005DK	48091	Development kit for SILABS uP C8051F005
○ C8051F060DK	63438	Development kit for CYGNAL uP C8051F060
○ C8051F120DK	55324	Development kit for SILABS uP C8051F120-133
○ C8051F124DK	48336	Development kit for SILABS uP C8051F124-127
○ C8051F330DK	49511	Development kit for SILABS uP C8051F330
○ C8051F350DK	49515	Development kit for SILABS uP C8051F350
○ C8051EC2 JTAG	50211	Serial Adapter for SILABS DK



## 8051 Series - ANALOG DEVICES



Part No.	Ord. No.	Description
o ADuC 812 BSZ	7126	MCU 8kB Flash 8-ch/12-bit ADC 12-bit DAC PQFP52
o ADuC 814 ARUZ	53110	MCU 8kB Flash 8-ch/12-bit ADC 12-bit DAC TSSOP28

## 8051 Series - DALLAS SEMICONDUCTOR



Part No.	Ord. No.	Description
o DS 5000 FP-16	48030	MCU s NV-RAM QFP80
o DS 80 C 320 ECG	5859	MCU 3xTimer 33MHz TQFP44
s DS 80 C 320 MCG	2286	MCU 3xTimer 33MHz DIP40
o DS 80 C 320 MCL	9340	Processor DALLAS DIL40
o DS 80 C 320+QNG	8806	MCU 3xTimer 33MHz PLCC44
o DS 80 C 390-QCR	7887	MCU 2xCAN2.0 40MHz 4kB SRAM PLCC68
o DS 80 C 400-FNY	52220	MCU LAN MAC 8051 LQFP100
o DS 87 C 530 QNL	48727	MCU 33MHz Industrial PLCC52
o DS 89 C 430 QNL	48559	MCU 16kB Flash Industrial PLCC44
o DS 89 C 440 QNL	48562	MCU 32kB Flash Industrial PLCC44
o DS 89 C 450 MNL	48564	MCU 64kB Flash Industrial DIL40
o DS 89 C 450 QNL	48566	MCU 64kB Flash Industrial PLCC44

## 8051 Series -NXP



Part No.	Ord. No.	Description
o P 89 LPC 901 FD.512	50995	MCU 1kB Flash 128B RAM SO8
o P 89 LPC 901 FN.129	50996	MCU 1kB Flash 128B RAM DIP8
o P 89 LPC 902 FD.512	50997	MCU 1kB Flash 128B RAM SO8
o P 89 LPC 902 FN.129	50998	MCU 1kB Flash 128B RAM DIP8
o P 89 LPC 903 FD.512	50999	MCU 1kB Flash 128B RAM UART SO8
o P 89 LPC 932 BA.529	51000	MCU 8kB Flash 768B RAM PLCC28
s PCB 80 C 552 WP =P80C552-EBA	24789	MCU 10bit ADC PWM PLCC68
s PCF 80 C 552-5-16 WP=P80C552-EFA	37613	MCU 10bit ADC PWM -40+85°C PLCC68



## RISC Series - ATMEL AVR

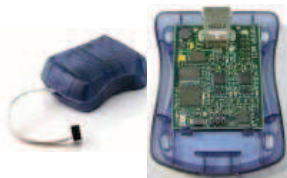
Part No.	Ord. No.	Description
S AT 90 CAN 128-16AU	56014	MCU AVR 8-bit 128k Flash TQFP64
S AT MEGA 128-16AU	43572	MCU 5V 128K Flash 16MHz TQFP64
S AT MEGA 128L-8AU	43087	MCU 2,7-5,5V 128K Flash 8MHz TQFP64
S AT MEGA 16-16AU	43569	MCU 5V 16K Flash 16MHz TQFP44
S AT MEGA 16-16PU	43567	MCU 5V 16K Flash 16MHz DIP40
S AT MEGA 162-16AU	45874	MCU 2,7-5,5V 16K Flash 16MHz TQFP44
S AT MEGA 162-16PU	45972	MCU 2,7-5,5V 16K Flash 16MHz DIP40
O AT MEGA 162L-8AI	45973	MCU 2,7-5,5V 16K Flash 8MHz TQFP44
O AT MEGA 162V-8AU	48349	MCU 1,8-5,5V 16K Flash 8MHz QFP44
O AT MEGA 162V-8MU	42471	MCU 2,7-5,5V 16kB Flash 8MHz MLF44
O AT MEGA 162V-8PU	48348	MCU 1,8-5,5V 16K Flash 8MHz DIP40
S AT MEGA 168-20AU	51773	MCU 2,7-5,5V 16kB Flash 20MHz TQFP32
O AT MEGA 168-20PU	51774	MCU 2,7-5,5V 16kB Flash 20MHz DIP28
S AT MEGA 16L-8AU	43570	MCU 2,7-5,5V 16K Flash 8MHz TQFP44
O AT MEGA 16L-8PU	43568	MCU 2,7-5,5V 16K Flash 8MHz DIP40
S AT MEGA 2560-16AU	53233	MCU 256KFlash/4kBEE 16MHz TQFP100
S AT MEGA 32-16AU	45177	MCU 5V 32K Flash 16MHz TQFP44
O AT MEGA 32-16PU	45969	MCU 5V 32K Flash 16MHz DIP40
S AT MEGA 32L-8AU	45178	MCU 2,7-5,5V 32K Flash 16MHz TQFP44
S AT MEGA 32L-8PU	45176	MCU 2,7-5,5V 32K Flash 16MHz DIP40
O AT MEGA 48-20AU	48664	MCU 2,7-5,5V 4kB Flash 20MHz TQFP32
O AT MEGA 48-20PU	48666	MCU 2,7-5,5V 4kB Flash 20MHz PDIP28
S AT MEGA 64-16 AU	42702	MCU 5V 64K Flash 16MHz TQFP64
O AT MEGA 64L-8AU	45974	MCU 2,7-5,5V 64K Flash 8MHz TQFP64
S AT MEGA 8-16AU	43565	MCU 5V 8K Flash 16MHz TQFP32
S AT MEGA 8-16PU	43148	MCU 5V 8K Flash 16MHz DIP28
S AT MEGA 8515-16AU	49184	MCU 5V 8K Flash 16MHz TQFP44
S AT MEGA 8515-16JU	43586	MCU 5V 8K Flash 16MHz PLCC44
S AT MEGA 8515-16PU	43584	MCU 5V 8K Flash 16MHz DIP40
O AT MEGA 8515L-8JU	43587	MCU 2,7-5,5V 8K Flash 8MHz PLCC44
O AT MEGA 8515L-8PU	43585	MCU 2,7-5,5V 8K Flash 8MHz DIP40
S AT MEGA 8535-16PU	45172	MCU 5V 8K Flash 16MHz DIP40
O AT MEGA 8535L-8JI	45175	MCU 2,7-5,5V 8K Flash 8MHz PLCC44
S AT MEGA 8535L-8PU	45173	MCU 2,7-5,5V 8K Flash 8MHz DIP40
S AT MEGA 88-20AU	51779	MCU 2,7-5,5V 8k Flash 20MHz TQFP32
S AT MEGA 88-20PU	51782	MCU 2,7-5,5V 8k Flash 20MHz DIP28
S AT MEGA 8L-8AU	43566	MCU 2,7-5,5V 8K Flash 8MHz TQFP32
O AT MEGA 8L-8MU	48374	MCU 2,7-5,5V 8K Flash 8MHz MLF32
S AT MEGA 8L-8PU	43564	MCU 2,7-5,5V 8K Flash 8MHz DIP28
O AT TINY 11-6PI	43588	MCU 5V 1K Flash 6MHz DIP8
O AT TINY 11-6SI	43590	MCU 5V 1K Flash 6MHz SOIC8
O AT TINY 11L-2PI	43589	MCU 2,7-5,5V 1K Flash 2MHz DIP8
O AT TINY 11L-2SI	43591	MCU 2,7-5,5V 1K Flash 2MHz SOIC8
O AT TINY 12L-4PI	43592	MCU 2,7-5,5V 1K Flash 4MHz DIP8
O AT TINY 12L-4SI	9486	MCU 2,7-5,5V 1K Flash 4MHz SOIC8
O AT TINY 12V-1PI	43890	MCU 1K Flash 1,8V 1,2MHz -40°C DIP8
O AT TINY 12V-1SI	43934	MCU 1K Flash 1,8V 1,2MHz -40°C SO8
S AT TINY 13-20PU	48647	MCU 2,7-5,5V 1K ISP Flash 20MHz DIP8
S AT TINY 13-20SU	48648	MCU 2,7-5,5V 1K Flash 20MHz SO8 width 0,209"
S AT TINY 15L-1PI	9569	MCU 2,7-5,5V 1K Flash 1MHz DIP8
O AT TINY 15L-1SI	42953	MCU 2,7-5,5V 1K Flash 1MHz SO8
S AT TINY 2313-20PU	48649	MCU 2,7-5,5V 2K ISP Flash 20MHz DIP20
S AT TINY 2313-20SU	48650	MCU 2,7-5,5V 2K ISP Flash 20MHz SO20
O AT TINY 2313V-10PU	52016	MCU 1,8-5,5V 2K Flash 10MHz DIP20
O AT TINY 2313V-10SU	55653	MCU 1,8-5,5V 2K Flash 10MHz SO20
O AT TINY 26-16PU	44831	MCU 2kB Flash ADC 11-channels DIP20
O AT TINY 26-16SU	54065	MCU 2kB Flash ADC 11-channels SO20

Integrated Circuits



## ATMEL Development Kits

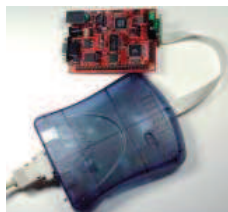
### AT AVR ISP mk II.



AVR® In-System Programmer mkII is used for field upgrades of AVR Flash microcontrollers. The AVRISP mkII combined with AVR Studio® can program new AVR 8-bit RISC microcontrollers with ISP Interface.

Part No.	Ord. No.
s AT AVR ISP mkII	55355

### AVR - JTAG ICE mk II.



The AVR® JTAGICE mkII from Atmel® is a powerful development tool for On-chip Debugging of all AVR 8-bit RISC MCUs and AVR32 32-bit DSP/MCUs with IEEE 1149.1 compliant JTAG interface.

Part No.	Ord. No.
o AVR JTAG ICE-MKII	50387

### AVR - JTAG ICE USB



AVR-USB-JTAG (complete analog of ATMEL's AVR JTAG ICE) is development tool for programming, real time emulation and debugging for AVR microcontrollers with JTAG interface (ATmega16, ATmega32, ATmega323, ATmega162, ATmega169, ATmega128 and all other future to come). AVR-USB-JTAG have: JTAG 10 pin connector (Atmel layout), status LED, USB Part No. A connector.

Part No.	Ord. No.
s AVR-JTAG ICE USB	57760

### AVR - Dragon



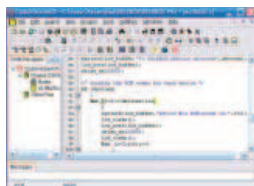
The AVR Dragon sets a new standard for low cost development tools. AVR Dragon supports all programming modes for the AVR device family. It also includes complete emulation support for devices with 32kB or less Flash memory.

- Programming Interfaces
- In-System Programming
  - High Voltage Serial Programming
  - Parallel Programming
  - JTAG Programming
- Emulation Interfaces
- JTAG
  - debugWIRE

The AVR Dragon is USB powered and is capable of sourcing an external target. A protoPart No. area allows simple programming and debugging.

Part No.	Ord. No.
s AVR Dragon	60646

### AVR - CODE VISION STANDARD



IC Compiler, IDE, Automatic Program Generator and ISP for the AVR microcontrollers with internal RAM  
www.hpinfotech.ro

Part No.	Ord. No.
o AVR CODE VISION STANDARD	48771

### STK 500



The Atmel AVR® STK500 is a starter kit and development system for Atmel's AVR Flash microcontrollers. The STK500 gives designers a quick start to develop code on the AVR combined with features for using the starter kit to develop protoPart No.s and test new designs. The STK500 interfaces with AVR Studio®, Atmel's Integrated Development Environment (IDE) for code writing and debugging.

Part No.	Ord. No.
s STK 500	8148

### STK 501



Socket adaptor TQFP64 for development kit STK 500

Part No.	Ord. No.
o STK 501	9250

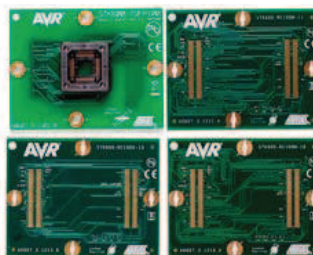
### STK 600



The Atmel AVR® STK600 is a complete starter kit and development system for the AVR and AVR32 flash microcontrollers from ATMEL Corporation. STK600 is shipped with a ATmega2560 device board.

Part No.	Ord. No.
s STK 600	67852

### Socket converters for STK 600



Socket converters for development kit STK 600.

Part No.	Ord. No.
o STK 600-DIP40	67951
o STK 600-SOIC	67952
o STK 600-TQFP100	67953
o STK 600-TQFP32	67954
o STK 600-TQFP64	67955

## RISC Series

Part No.	Ord. No.	Description
o PIC 10 F 200T-I/OT	50937	MCU 256B Flash, ICSP, 4MHz SOT23/6
s PIC 12 C 508 A-04/P	7018	MCU 4MHz 512x12 NO EEPROM 25B RAM DIP8
o PIC 12 C 508 A-04/SM	7806	MCU 4MHz 512x12 OTP 25B RAM SO8
s PIC 12 C 509 A-04/P	7019	MCU 4MHz 1kx12 NO EEPROM 41B RAM DIP8
o PIC 12 C 509 A-04/SM	9401	MCU 4MHz 1024x12 OTP 41B RAM SO8
o PIC 12 F 508 I/SN	53890	MCU Flash 768B SO8
s PIC 12 F 508-I/P	50938	MCU 512B Flash 4MHz DIP8
s PIC 12 F 629-I/P	45190	MCU 1024x14 Flash 64B RAM 6 I/O DIP8
s PIC 12 F 629-I/SN	47129	MCU 1024x14 EEPROM 20MHz SO8
s PIC 12 F 675-I/P	45191	MCU 1024x14 Flash 64B RAM 6 I/O 4xADC DIP8
s PIC 16 C 54 C-04/P	2209	MCU 4MHz 512x12 OTP 25B RAM DIP18
o PIC 16 C 54 HS/P	43707	MCU 20MHz 512x12 OTP QUARZ DIP18
o PIC 16 C 54 RCI/P	2395	MCU 4MHz OTP PDIP18
o PIC 16 C 54 XT/P	43708	MCU 4MHz 512x12 OTP QUARZ DIP18
o PIC 16 C 55 RC/P	2213	MCU 4MHz 512x12 OTP 24B RAM DIP28
o PIC 16 C 55 XT/I/P	47321	MCU 20MHz 512x12 OTP 24 RAM DIP28
o PIC 16 C 558-04I/P	9402	MCU 20MHz 2048x14 OTP 128B RAM DIP18
s PIC 16 C 65 B-04/L	2957	MCU 4MHz 4096x14 OTP 192B RAM PLCC44
o PIC 16 C 65 B-20I/P	7103	MCU 20MHz 4096x14 OTP 192B RAM DIP40
s PIC 16 C 711-04/P	7211	MCU 4MHz 1024x14 OTP 36B RAM 4xADC DIP18
o PIC 16 C 74 B-04I/P	43144	MCU 4k OTP 33I/O PWM I2C PLCC44
o PIC 16 F 54 I/P	50939	MCU 4MHz 512x12 Flash DIP18
s PIC 16 F 628-20/P	9161	MCU 2k Flash DIP18
o PIC 16 F 628-20/SO	43700	MCU 20MHz 2k FlashEPROM SO18
s PIC 16 F 628A-I/P	51315	MCU 20MHz 2k Flash EPROM DIP18
o PIC 16 F 628A-I/SO	52692	MCU 8bit 2k Flash SO18
o PIC 16 F 73-I/SP	8876	MCU 4k 22IO AD SDIP28
o PIC 16 F 74-I/P	5476	MCU 20MHz 4k Flash DIP40
o PIC 16 F 818-I/P	48274	MCU 20MHz 1024x14Flash EPROM 5x10bit A/D DIP18
o PIC 16 F 818-I/SO	69395	CPU 20MHz 1024x14Flash EPROM 5x10bit A/D SO18
s PIC 16 F 84 A-04/P	7374	MCU 4MHz 1024x14 Flash 64B RAM DIP18
s PIC 16 F 84 A-20/P #70660	5512	MCU 20MHz 1024x14 Flash 68B RAM DIP18
o PIC 16 F 84-04/SO	4659	MCU 4MHz 1024x14 Flash 64B RAM SO18
o PIC 16 F 84-10/P	43596	MCU Flash 4IRQ 13I/O DIP18
o PIC 16 F 872-I/SP	43616	MCU 20MHz 2k Flash SDIP28
o PIC 16 F 873-04/SP	43618	MCU 4MHz 4K Flash SDIP28
o PIC 16 F 873A-I/SO	49382	MCU 20MHz 4K Flash I2C/SPI PWM SO28
o PIC 16 F 874-04/P	43622	MCU 4MHz 4k Flash DIP40
o PIC 16 F 874-20/P	43623	MCU 20MHz 4k Flash DIP40
s PIC 16 F 876-04/SP	9268	MCU 4MHz 8k Flash PWM 10bit-A/DC SDIP28
o PIC 16 F 876-20/SO	43630	MCU 20MHz 8k Flash SO28
s PIC 16 F 876-20/SP=A-I/SP	43626	MCU 20MHz 8k Flash SDIP28
s PIC 16 F 877A-I/P	43631	MCU 20MHz 8k Flash DIP40
o PIC 16 LF 84 A-04/P	7385	MCU 4MHz 1024x14 Flash 68B RAM DIP18
o PIC 18 C 452/JW	8681	MCU 16Kx16 UV-EPROM CDIP40
o PIC 18 F 252-I/SP	49914	MCU 40MHz 16Kx16 Flash SDIP28
o PIC 18 F 452-I/L	5480	MCU 16Kx16 FLASH 34I/O PLCC44
o PIC 18 F 458-I/P	45192	MCU 40MHz 16Kx16 Flash 34I/O CAN DIP40

## PICKIT 2



Microchip's PICKIT2 Starter Kit is a low-cost development kit with an easy to use interface for programming the Flash family of PIC microcontrollers. Code development and debugging is performed using Microchip's MPLAB Integrated Development Environment (IDE). The PICKIT 2 Starter Kit connects to a personal computer via USB.

Part No.	Ord. No.
s PICKIT2	55989

## RISC Series - MOTOROLA

Part No.	Ord. No.	Description
o MC 68 HC 11 A1 CFN3=E1CFNE3	3613	MCU 8kB ROM PLCC52
o MC 68 HC 11 E1CFNE2	40643	MCU EEPROM 512B PLCC52
o MC 68 HC 11 F1 CFN4	49381	MCU 1kB RAM ADC PLCC68
o MC 68 HC 908 QT4 CP	48831	MCU 4kB Flash ADC DIP8

## RISC Series - CYPRESS



Part No.	Ord. No.	Description
o CY7C53120E4-40SXI	54902	Neuron Chip for Lon Works TQFP64
o CY7C53150-20AXI	48096	Neuron Chip for Lon Works TQFP64
o CY8C27143-24PXI	49115	MCU PSoC 16kB Flash ISP DIP8
o CY8C27443-24PXI	49173	MCU PSoC 16kB Flash ISP SDIP28
o CY8C27443-24PXI	53657	MCU PSoC 16kB Flash ISP SDIP28
o CY8C27443-24SXI	49175	MCU PSoC 16kB Flash ISP SO28
o CY8C29466-24PXI	52691	MCU PSoC 32kB Flash ISP DIP28
o CY8C29466-24SXI	61326	MCU PSoC 32kB Flash ISP SO28

## 16/32-bit Microprocessors



### TEXAS INSTRUMENTS Series

Part No.	Ord. No.	Description
o MSP 430 F 1491PM	48928	MCU 16-bit, 60kB Flash, 2k RAM, 12-bit ADC TQFP64
o MSP 430 F 4351PZ	48870	MCU 16-bit 16kB Flash 12-bit ADC, 1,8-3,6V LQFP
o MSP 430 F 4491PZ	52672	MCU 16-bit, 60kB Flash, 2kRAM, 12-bit ADC IQFP100

### MSP 430 microprocessors overview

Device Name	OTP/FLASH/ROM/EPROM (kB)	RAM (bytes)	ADC	LCD Segments	Capture/Compare plus Timer	UART	Hardware Multiplier	No. of Timers	Package	Price*	Description
<b>Flash</b>											
MSP430F110	1	128	slope		Yes	software	No	2	SOIC,TSSOP	1.04	16-Bit Ultra-Low-Power Microcontroller, 1kB Flash, 128B RAM
MSP430F1101	1	128	slope		Yes	software	No	2	SOIC,TSSOP	1.04	16-Bit Ultra-Low-Power Microcontroller, 1kB Flash, 128B RAM, Comparator
MSP430F112	4	256	slope		Yes	software	No	2	SOIC,TSSOP	1.74	16-Bit Ultra-Low-Power Microcontroller, 4kB Flash, 256B RAM
MSP430F1121	4	256	slope		Yes	software	No	2	SOIC,TSSOP	1.74	16-Bit Ultra-Low-Power Microcontroller, 4kB Flash, 256B RAM, Comparator
MSP430F122	4	256	slope		Yes	hardware	No	2	SOIC,TSSOP	2.40	16-Bit Ultra-Low-Power Microcontroller, 4kB Flash, 256B RAM, USART, Comparator, 22 I/Os
MSP430F123	8	256	slope		Yes	hardware	No	2	SOIC,TSSOP	2.51	16-Bit Ultra-Low-Power Microcontroller, 8kB Flash, 256B RAM, USART, Comparator, 22 I/Os
MSP430F133	8	256	12 bit		Yes (x2)	hardware	No	3	QFP	2.95	16-Bit Ultra-Low-Power Microcontroller, 8kB Flash, 256B RAM, 12 bit ADC, USART
MSP430F135	16	512	12 bit		Yes (x2)	hardware	No	3	QFP	3.55	16-Bit Ultra-Low-Power Microcontroller, 16kB Flash, 512B RAM, 12 bit ADC, USART
MSP430F147	32	1024	12 bit		Yes (x2)	hardware	Yes	3	QFP	4.95	16-Bit Ultra-Low-Power Microcontroller, 32 kB Flash, 1KB RAM, 12 bit ADC, 2 USARTs, HW multiplier
MSP430F148	48	2048	12 bit		Yes (x2)	hardware	Yes	3	QFP	5.65	16-Bit Ultra-Low-Power Microcontroller, 48 kB Flash, 2KB RAM, 12 bit ADC, 2 USARTs, HW multiplier
MSP430F149	60	2048	12 bit		Yes (x2)	hardware	Yes	3	QFP	5.96	16-Bit Ultra-Low-Power Microcontroller, 60 kB Flash, 2KB RAM, 12 bit ADC, 2 USARTs, HW multiplier
MSP430F412	4	256	slope	96	Yes	software	No	3	QFP	2.71	16-Bit Ultra-Low-Power Microcontroller, 4kB Flash, 256B RAM, 96 segment LCD, Comparator
MSP430F413	8	256	slope	96	Yes	software	No	3	QFP	2.90	16-Bit Ultra-Low-Power Microcontroller, 8kB Flash, 256B RAM, 96 segment LCD, Comparator

\* Budgetary price per unit in U.S. dollars, lots of 1,000+

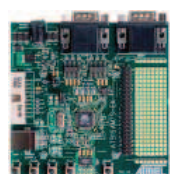
\*\* Budgetary price per unit in U.S. dollars, lots of 1 unit

## AT91SAM ARM7 Series



Part No.	Ord. No.	Description
o AT 91 SAM 7S128-AU	51958	MCU ARM7 128kB Flash LQFP64
s AT 91 SAM 7S256-AU	51959	MCU ARM7 256kB Flash LQFP64
o AT 91 SAM 7S32-AU	51957	MCU ARM7 32kB Flash LQFP48
s AT 91 SAM 7S64-AU	51918	MCU ARM7 64kB Flash LQFP64
o AT 91 SAM 7X256-AU	55228	MCU ARM7 256kB Flash LQFP100

## Development kit AT 91SAM7S-EK



Development kit AT91SAM7S-EK with AT91SAM7S.



Part No.	Ord. No.
o AT 91 SAM 7S-EK	54803

## 16/32-bit Microprocessors (continued)

### STM32 CORTEX M3 ARM7 Series

Part No.	Ord. No.	Description
o STM32 F 103 RBT6	65083	MCU 32-bit CORTEX M3 128kB Flash LQFP64
o STM32F101CBT6	65296	MCU 32-bit CORTEX M3 128kB Flash LQFP48
o STM32F101VBT6	69434	MCU 32-bit CORTEX M3 128kB Flash LQFP100
o STR 711 FR2 T6	55893	MCU ARM7 256+16K Flash USB 30I/O TQFP64



### Starter kit ARM7 Cortex M3



The STM32 Primer is fun, innovative evaluation and development tool packages that provides a quick, easy introduction to the features of the STM32 and the powerful ARM Cortex™-M3 core.

**STM3210B-PRIMER** - STM32 Primer with Raisonance software toolset, preloaded application (GUI, MEMS-based controls, games), CircleOS task scheduler, USB cable and rechargeable battery

Part No.	Ord. No.
s STM3210B-PRIMER	71157

### STR7 ARM7 Series

STR7 (ARM) - 32-bit Microcontrollers. The STR7 family of 32-bit microcontrollers combines the industry-standard ARM7TDMI® 32-bit RISC core, featuring high performance, very low power, and very dense code, with a comprehensive set of peripherals and ST's latest 0.18µm embedded Flash technology.



#### Features:

- Industry standard core ARM7 RISC 32-bit CPU for future-proof microcontrollers that easily adapt to customer requirements
- Extensive software and tool support with the complete STR7 library dramatically reduces development time and increases ease-of-use
- Industrial temperature range (-40°C to + 85 °C and +105°C) and 3.3V or 5.0V native devices provides flexible application options
- The largest choice of on-chip peripherals including up to 3 CAN, USB, SPI, I2C, 4 UART, 20 timers reduces the system cost
- Flexible power and clock management allows full control over power consumption

Part No.	Ord. No.	Description
o STR 711 FR2 T6	55893	MCU ARM7 256+16K Flash USB 30I/O TQFP64

Part number	Program memory type					Prog. (bytes)	RAM (bytes)	Data EPROM (bytes)	A/D inputs	Timer functions			Serial interface	LVD levels	I/Os (high current)	Package	Supply voltage	Special features
	Flash	OTP	FAST ROM <sup>1</sup>	ROM	EP ROM					12 or 16-bit (IC/OC/ PWM)	8-bit (IC/OC/ PWM)	Others						
<b>STR7: 32-bit ARM7™ RISC CPU microcontrollers</b>																		
64 pins	STR711FR0	•				64+ 16K	16K		4x12-bit			WDG, RTC	2xSPI/2xI <sup>2</sup> C/ 4xUART/HDLC/ SC/USB	30(0)	TQFP64/LFBGA64	3.0 to 3.6V	16K data Flash	
	STR712FR0	•				64+ 16K	16K		4x12-bit			WDG, RTC	2xSPI/2xI <sup>2</sup> C/ 4xUART/HDLC/ SC/CAN	32(0)	TQFP64/LFBGA64	3.0 to 3.6V		
	STR715FR0	•				64+ 16K	16K		4x12-bit			WDG, RTC	2xSPI/2xI <sup>2</sup> C/ 4xUART/HDLC/ SC/CAN	32(0)	TQFP64/LFBGA64	3.0 to 3.6V		
	STR711FR1	•				128+ 16K	32K		4x12-bit		4x16-bit (5/5/3)		WDG, RTC	2xSPI/2xI <sup>2</sup> C/ 4xUART/HDLC/ SC/USB	30(0)	TQFP64/LFBGA64		3.0 to 3.6V
	STR712FR1	•				128+ 16K	32K		4x12-bit				WDG, RTC	2xSPI/2xI <sup>2</sup> C/ 4xUART/HDLC/ SC/CAN	32(0)	TQFP64/LFBGA64		3.0 to 3.6V
	STR711FR2	•				256+ 16K	64K		4x12-bit				WDG, RTC	2xSPI/2xI <sup>2</sup> C/ 4xUART/HDLC/ SC/USB	30(0)	TQFP64/LFBGA64		3.0 to 3.6V
100 pins	STR731FV0	•				64K	16K		12x10-bit			WDG, RTC	3xSPI/2xI <sup>2</sup> C/ 4xUART/3xCAN	72(0)	TQFP100	4.5 to 5.5V	16xDMA, on-chip RC oscillator, -40 to 105°C	
	STR736FV0	•				64K	16K		12x10-bit			WDG, RTC	3xSPI/2xI <sup>2</sup> C/ 4xUART	72(0)	TQFP100	4.5 to 5.5V		
	STR731FV1	•				128K	16K		12x10-bit		15x16-bit (12/12/12)		WDG, RTC	3xSPI/2xI <sup>2</sup> C/ 4xUART/3xCAN	72(0)	TQFP100		4.5 to 5.5V
	STR736FV1	•				128K	16K		12x10-bit				WDG, RTC	3xSPI/2xI <sup>2</sup> C/ 4xUART	72(0)	TQFP100		4.5 to 5.5V
	STR731FV2	•				256K	16K		12x10-bit				WDG, RTC	3xSPI/2xI <sup>2</sup> C/ 4xUART/3xCAN	72(0)	TQFP100		4.5 to 5.5V
	STR736FV2	•				256K	16K		12x10-bit				WDG, RTC	3xSPI/2xI <sup>2</sup> C/ 4xUART	72(0)	TQFP100		4.5 to 5.5V
144 pins	STR710FZ1	•				128+ 16K	32K		4x12-bit	4x16-bit (5/5/3)		WDG, RTC	2xSPI/2xI <sup>2</sup> C/ 4xUART/HDLC/ SC/CAN/USB	48(8)	TQFP144/ LFBGA144	3.0 to 3.6V	EMI, 16K data Flash	
	STR730FZ1	•				128K	16K		16x10-bit	19x16-bit (20/20/16)		WDG, RTC	3xSPI/2xI <sup>2</sup> C/ 4xUART/3xCAN	112(0)	TQFP144/ LFBGA144	4.5 to 5.5V	16xDMA, on-chip RC oscillator, -40 to 105°C	
	STR735FZ1	•				128K	16K		16x10-bit			WDG, RTC	3xSPI/2xI <sup>2</sup> C/ 4xUART	112(0)	TQFP144/ LFBGA144	4.5 to 5.5V	16xDMA, on-chip RC oscillator, -40 to 105°C	
	STR710FZ2	•				256+ 16K	64K		4x12-bit	4x16-bit (5/5/3)		WDG, RTC	2xSPI/2xI <sup>2</sup> C/ 4xUART/HDLC/ SC/CAN/USB	48(8)	TQFP144/ LFBGA144	3.0 to 3.6V	EMI, 16K data Flash	
	STR730FZ2	•				256K	16K		16x10-bit			WDG, RTC	3xSPI/2xI <sup>2</sup> C/ 4xUART/3xCAN	112(0)	TQFP144/ LFBGA144	4.5 to 5.5V	16xDMA, on-chip RC oscillator, -40 to 105°C	
	STR735FZ2	•				256K	16K		16x10-bit				WDG, RTC	3xSPI/2xI <sup>2</sup> C/ 4xUART	112(0)	TQFP144/ LFBGA144	4.5 to 5.5V	16xDMA, on-chip RC oscillator, -40 to 105°C



#### STR 711-SK/IAR

IAR KickStart Kit™ is a complete evaluation environment; it contains a development board, a JTAG debugger, and a suite of software tools for embedded development. Design, develop, implement and test your applications on STR711 from STMicroelectronics using a single integrated toolkit. From Idea to Target®



#### ARM-JTAG

Professional low cost in-circuit programmer and debugger for ARM 32-bits Micro Controllers. The programmer connects to a PC through a standard parallel port interface and draws the necessary power from the target board eliminating the need for an additional power supply. Uses ARM standard 2x10 pin JTAG connector (20cm cable)

Part No.	Ord. No.
s STR 711-SK/IAR	55438

Part No.	Ord. No.
o ARM-JTAG	54800

s - in-stock product o - on order product

## Software Kits for 8051

RAISONANCE



Part No.	Description
EVAL-51	free version, 4kB limit, download <a href="http://www.raisonance.com">www.raisonance.com</a>
RKitL 51	32kB limit
RCA 51	C compiler, Assembler and Linker
RKitE51	enterprise version without limit

Part No.	Ord. No.
EVAL -51	
o RKitL51 or RKitLXA	47901
o RCA51 or RCAXA	47835
o RkitE51 or RkitEXA	47902

## Programmer for uPSD

RAISONANCE

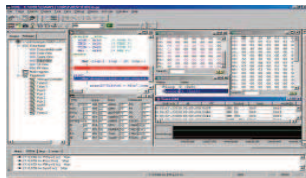


Part No.	Description
RLink-STD	ICD & programmer for uPSD

Part No.	Ord. No.
o RLink-STD	58416

## Complete SW and HW Kits for 8051

RAISONANCE

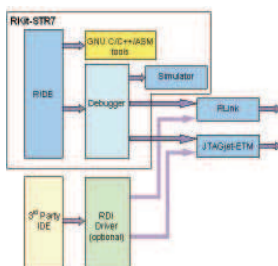


Part No.	Description
RKit51+RLink-STD	uPSD Lite, 32kB limit version with ICD & programmer for uPSD
RKitE51+RLink-STD	uPSD Enterprise, complete Enterprise kit with ICD & programmer for uPSD
Compiler Kit	RCA 51 kit + PHYTON ICE
Lite Kit	RKitL51 32kB limit version + PHYTON ICE
Enterprise Kit	RKitE51 Enterprise version + PHYTON ICE

On request

## Software kits for STRx

RAISONANCE



Part No.	Description
RKit-STRX	Free compiler without limit, GNU tools, download <a href="http://www.raisonance.com">www.raisonance.com</a> - for STR7
RKit-STRX	Free compiler without limit, GNU tools, download <a href="http://www.raisonance.com">www.raisonance.com</a> - for STR9

## Programmers for STRx

RAISONANCE



Part No.	Description
RLink-STD	ICD & programmer for STR7
RLink-STD	ICD & programmer for STR9

## Starter Kits

RAISONANCE



Development kit, included REva board, additional boards and RLink ICD & programmer:  
STR71x-SK  
STR730-SK  
STR750-SK  
STR91x-SK

On request.

## Professional Kits

RAISONANCE



Professional development kit, included REva board, additional boards, RLink Pro professional ICD & programmer and RKit-STRx:  
RKitPSTR71x  
RKitPSTR73x  
RKitPSTR750  
RKitPSTR91x

On request.

## Additional boards

RAISONANCE



Additional boards, for REva board

On request.

## Development kit

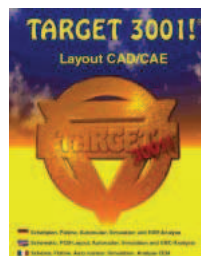
RAISONANCE



Development kit RKit-STRx, JTAGJET-TRACE-ST In-Circuit Emulator, included REva board, and additional boards.  
RKitPSTR91x - DK

On request.

## TARGET 3001



TARGET3001! design station is an object-oriented, 32-bit schematic- simulation- and printed circuit board development system for the PC. It's a partly automatic tool, that assists you with the drawing of a schematic, the mixed-mode simulation of a circuit and the PCB design with an integrated EMC checking tool.

Part No.	Ord. No.
S TARGET 3001! Professional V14	49182
S TARGET 3001! Economy V14	49181
S TARGET 3001! Design Station for School	49239
S TARGET 3001! Medium V14	71001
S TARGET 3001! Medium V14	71001
S TARGET 3001! Professional for school	51251
S TARGET 3001! Smart V14	48651
S TARGET 3001! Light V14	48280

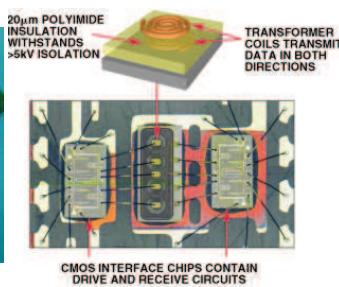
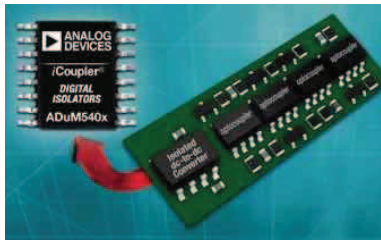
## Interfaces

Part No.	Ord. No.	Description
S ADM 202 JNZ	3505	IC RS232, 5V DIP16
S AM 26 LS 31 CN	23568	IC RS422 4xdriver DIP16
S AM 26 LS 32 ACN	23569	IC RS422 4xreceiver DIP16
O CP 2102-GM	53680	Converter USB/RS232 LF MLP28
O DJ LXT 972 ALC.A4	47827	Dual Speed Fast Ethernet Transceiver LQFP64
O LTC 1480 IS8	56920	3.3V Ultralow Power RS485 Transceiver SO8
O LTC 2804 CGN-1	55277	IC RS232 Dual Transceiver 1,8-5,5V SSOP16
S LTC 485 CN 8	30094	IC RS485 Transceiver DIP8
S LTC 485 CS8	29942	IC RS485 Transceiver SO8
O LTC 485 IN 8	30095	IC RS485 Transceiver DIP8
O LTC 491 CS SMD	33154	IC RS485 SO14
O MAX 203 ECPP	12837	IC RS232 ESD 5V DIP20
O MAX 220 CPE	4442	IC RS232, 5V DIP16
S MAX 232 ACPE+	5001	IC RS232 200kb/s 0,1uF DIP16
S MAX 232 ACSE+	7117	IC RS232, 0,1uF SO16 slim
S MAX 232 CPE+	48464	IC RS232, 1uF, 120kb/s DIP16
S MAX 232 CSE+	12772	IC RS232, 1uF, 120kb/s, SO16
S MAX 232 D	7033	IC RS232, 1uF, 120kb/s SO16 slim
S MAX 232 DW	28951	IC RS232, 1uF, 120kb/s SO16 wide
S MAX 232 N	22423	IC RS232, 1uF, 120kb/s DIP16
O MAX 233 CPP+	43834	IC RS232 120KBPS without cap. DIP20
S MAX 3232 CPE+	5696	IC RS232 3,3V DIP16
S MAX 3232 CSE+	5878	IC RS232 3,3V SO16
S MAX 3232 EID	62453	IC RS232 3,3V Ind ESD SO16
O MAX 3232 ESE	47809	IC RS232 3,3V SO16
S MAX 485 CSA+	5003	IC RS485/422 SO8
O MAX 485 EPA	6947	IC RS485/422 Transceiver DIP8
S MC 1489 P = SN75189N	13321	IC 4xLink Receiver DIP14
S SI 9243 AEY-E3	50273	IC Single-Ended Bus Transceiver SO8
S SN 75 LBC 176 D	7789	IC RS485 Transceiver SO8
S SN 75 LBC 176 P	7866	IC RS485 Transceiver DIP8
S SN 75176 BD	26997	IC RS485 Transceiver SO8
S SN 75176 BP	27310	IC RS485 Transceiver DIP8
S ST 232 ABD	48465	IC RS232, 0,1uF SO16 slim
S ST 232 ABN	48466	IC RS232, 0,1uF DIP16
S TJA 1040 T/N1	53810	CAN HS transceiver SO8
O TOIM 4232	8311	IC IrDA-RS232 Interface 3V/5V SO16
O W5100	72288	Ethernet controller TCP/IP, 25Mbps, LQFP80



Analog Devices	ADM 232	ADM 485	ADM 1232	ADM 690	ADM 691
Dallas	DS 232		DS 1232		
Intersil (Harris)	HIN 232				
Linear Technology	LT 1081	LTC 485	LTC 1232	LTC 690	LTC 691
Maxim	MAX 232	MAX 485	MAX 1232	MAX 690	MAX 691
Sipex	SP 232	SP 485			
Texas Instruments	MAX 232	SN75LBC176			
STM	ST 232				

## iCoupler Technology



Analog Devices has recently addressed this issue with the introduction of a complete and fully integrated isolation solution involving signal and power transfer across an isolation barrier using microtransformers. This extension to our iCoupler technology, termed isoPower, is a breakthrough alternative. Signal and power within a single component eliminates the need for a bulky, expensive, difficult to design isolated power supply and provides adequate isolation up to 5 kV. It can significantly reduce the total isolation system cost, the board space, and design time. A 2-channel iCoupler device with isoPower is almost 90% smaller and 70% less expensive.



Part No.	Ord. No.	Description
S ADuM 1201 ARZ	56891	IC 2ch Digital Isolator 150ns SO8
O ADuM 1201 BRZ	61083	IC 2ch Digital Isolator 50ns SO8
O ADuM 1301 ARWZ	59607	IC 3ch Digital Isolator SO16
O ADuM 1310 BRWZ	62696	IC 3ch Digital Isolator SO16
O ADuM 1311 ARWZ	62697	IC 3ch Digital Isolator SO16
O ADuM 1400 ARWZ	67540	Digital Isolator 4-channel SO16
O ADuM 1401 ARWZ	59608	IC 4ch Digital Isolator SO16
O ADuM 1402 ARWZ	57789	IC 4ch Digital Isolator SO16
O ADuM 1402 BRWZ	63410	IC 4ch Digital Isolator SO16
S ADuM 1410 ARWZ	62698	IC 4ch Digital Isolator SO16
S ADuM 1412 ARWZ	60968	IC 4ch Digital Isolator SO16
O ADuM 2402 ARWZ	60969	IC 4ch Digital Isolator SO16

## Peripherals ICs, I<sup>2</sup>C BUS

Part No.	Ord. No.	Description
S 16 C 550 CFN	5748	UART & FIFO PLCC 44
O FM 3104-S	48386	Processor companion +FRAM 4Kb SOIC14
O FM 3116-S	48387	Processor companion +FRAM 16Kb SOIC14
O FM 31256-G	48390	Processor companion +FRAM 256Kb SOIC14
O FM 3164-G	48389	Processor companion +FRAM 64Kb SOIC14
S PCA 82 C 250	40249	CAN Transceiver DIP8
S PCA 82 C 250 T SMD	33945	Driver CAN BUS/receiver SO8
S PCF 8574 AP(N)	27368	8-bit I/O port Expander I2C DIP16
S PCF 8574 AT SMD	27357	8-bit I/O port Expander I2C SO16
S PCF 8574 P	23581	8-bit I/O port Expander I2C DIP16
S PCF 8574 T SMD	24794	8-bit I/O port Expander I2C SO16
S PCF 8583 P	23582	I2C clock/calendar SRAM 256x8 DIP8
S PCF 8583 T SMD	24796	I2C clock/calendar SRAM 256x8 SO8(7,5mm)
S PCF 8584 P	36436	I2C BUS controller DIP20



www.ftdichip.com

FTDI Chips

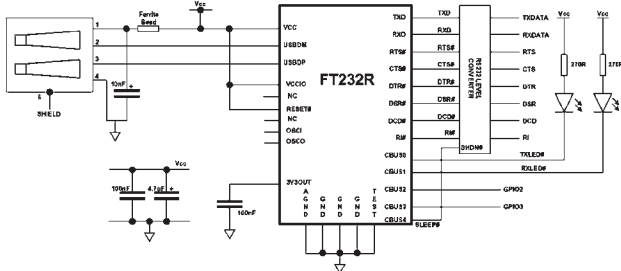
FT232R Series - USB UART IC



The FT232R is a USB to serial UART interface with optional clock generator output, and the new FTDIChip-ID™ security dongle feature. In addition, asynchronous and synchronous bit bang interface modes are available. USB to serial designs using the FT232R have been further simplified by fully integrating the external EEPROM, clock circuit and USB resistors onto the device.

The FT232R adds two new functions compared with its predecessors, effectively making it a „3-in-1“ chip for some application areas. The internally generated clock (6MHz, 12MHz, 24MHz, and 48MHz) can be brought out of the device and used to drive a microcontroller or external logic. A unique number (the FTDIChip-ID™) is burnt into the device during manufacture and is readable over USB, thus forming the basis of a security dongle which can be used to protect customer application software from being copied.

The FT232R is available in two different Pb-free (RoHS compliant) packages - the FT232RL comes in a compact 28-Lead SSOP package and the FT232RQ comes in an ultra-compact 5x5mm QFN-32 package.



Part No.	Description
FT 232 RL-R T&R	IC UART RS232 USB SSOP28
FT 232 RQ-R	IC UART RS232 USB QFN32
FT 232 BL-TR	IC UART RS232 USB LQFP32

Part No.	Ord. No.
S FT 232 RL-R T&R	70931
S FT 232 RQ-R	55231
S FT 232 BL-TR	42415

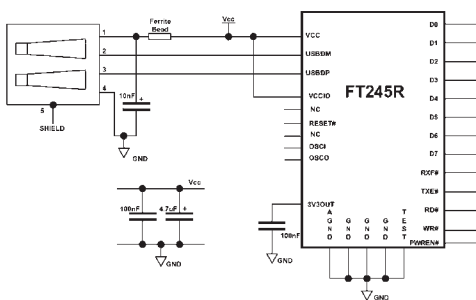
FT245 Series - USB FIFO IC



The FT245R is the latest device to be added to FTDI's range of USB FIFO interface Integrated Circuit Devices. The FT245R is a USB to parallel FIFO interface, with the new FTDIChip-ID™ security dongle feature. In addition, asynchronous and synchronous bit bang interface modes are available. USB to parallel designs using the FT245R have been further simplified by fully integrating the external EEPROM, clock circuit and USB resistors onto the device.

The FT245R adds a new function compared with its predecessors, effectively making it a „2-in-1“ chip for some application areas. A unique number (the FTDI-Chip-ID™) is burnt into the device during manufacture and is readable over USB, thus forming the basis of a security dongle which can be used to protect customer application software from being copied.

The FT245R is available in two different Pb-free (RoHS compliant) packages - the FT245RL comes in a compact 28-Lead SSOP package and the FT245RQ comes in an ultra-compact 5x5mm QFN-32 package.



Part No.	Description
FT 245 RL-R T&R	IO USB FIFO SSOP28
FT 245 RQ	USB/parallel port QFN32
FT 245 BL T&R	IC USB FIFO LQFP32

Part No.	Ord. No.
S FT 245 RL-R T&R	70390
S FT 245 RQ	55232
S FT 245 BL T&R	42416

FT2232 D Series  
Dual USB UART/FIFO IC

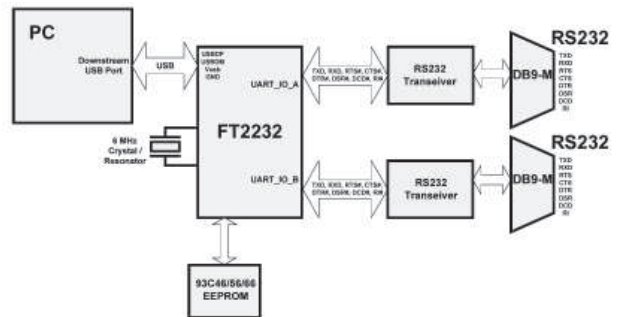


The FT2232D is an updated version of FTDI's 3rd generation USB UART/FIFO I.C. family. This device features two Multi-Purpose UART/FIFO controllers which can be configured individually in several different modes. As well as a UART interface, FIFO interface and Bit-Bang IO modes of the 2nd generation FT232BM and FT245BM devices, the FT2232D offers a variety of additional new modes of operation, including a Multi-Protocol Synchronous Serial Engine interface which is designed specifically for synchronous serial protocols such as JTAG, I2C, and SPI bus.

Main Features:

- Single chip USB to dual channel serial/parallel ports with a variety of configurations
- Entire USB protocol handled on the chip: no USB-specific firmware programming required
- FT232BM-style UART interface option with full handshaking & modem interface signals
- UART interface supports 7/8 data bits, 1/2 stop bits and Odd / Even / Mark / Space / No Parity
- Data transfer rate of 300 Baud to 1M Baud (RS232)
- Data transfer rate of 300 Baud to 3M Baud (TTL and RS422/RS485)
- Auto transmit enable control for RS485 serial applications using TXDEN pin
- FT245BM-style FIFO interface option with bi-directional data bus and simple 4-wire handshaking interface
- Data transfer rate up to 1M Byte/second

The FT2232D is fully pin to pin compatible with the previous FT2232C and FT2232L devices. In addition to supporting all of the FT2232C / FT2232L functionality, the FT2232D has an additional interface mode, CPU FIFO mode, and is specified for -40 to +85 degrees C operating temperature range. The FT2232D is available in Pb-free (RoHS compliant) compact 48-Lead LQFP package.



Part No.	Description
FT2232 D	IO USB/2xUART/FIFO LQFP48

Part No.	Ord. No.
S FT2232D	69375

FT2232 H Series -  
Hi-Speed Dual USB UART/FIFO IC



The FT2232H is FTDI's 5th generation of USB devices. The FT2232H is a USB 2.0 High Speed (480Mb/s) to UART/FIFO IC. It has the capability of being configured in a variety of industry standard serial or parallel interfaces.

Main Features:

- Single chip USB to dual serial / parallel ports with a variety of configurations.
- Entire USB protocol handled on the chip. No USB specific firmware programming required.
- USB 2.0 High Speed (480Mbits/Second) and Full Speed (12Mbits/Second) compatible.
- Dual Multi-Protocol Synchronous Serial Engine (MPSSE) to simplify synchronous serial protocol (USB to JTAG, I2C, SPI or bit-bang) design.
- Dual independent UART or FIFO ports configurable using MPSSEs.
- Independent Baud rate generators.
- RS232/RS422/RS485 UART Transfer Data Rate up to 12Mbaud. (RS232 Data Rate limited by external level shifter).
- USB to parallel FIFO transfer data rate up to 8 Mbyte/Sec.
- Single channel synchronous FIFO mode for transfers > 25 Mbytes/Sec
- CPU-style FIFO interface mode simplifies CPU interface design.
- MCU host bus emulation mode configuration option.
- Fast Opto-Isolated serial interface option.
- FTDI's royalty-free Virtual Com Port (VCP) and Direct (D2XX) drivers eliminate the requirement for USB driver development in most cases.

Integrated Circuits



- Adjustable receive buffer timeout.
- Option for transmit and receive LED drive signals on each channel.
- Enhanced bit-bang Mode interface option with RD# and WR# strobes
- FT245B-style FIFO interface option with bidirectional data bus and simple 4 wire handshake interface.
- Highly integrated design includes +1.8V LDO regulator for VCORE, integrated POR function and on chip clock multiplier PLL (12MHz - 480MHz).
- Asynchronous serial UART interface option with full hardware handshaking and modem interface signals.
- Fully assisted hardware or X-On / X-Off software handshaking.
- UART Interface supports 7/8 bit data, 1/2 stop bits, and Odd/Even/Mark/Space/No Parity.
- Auto-transmit enable control for RS485 serial applications using TXDEN pin.
- Operational configuration mode and USB Description strings configurable in external EEPROM over the USB interface.
- Configurable I/O drive strength (4, 8, 12 or 16mA) and slew rate.
- Low operating and USB suspend current.
- Supports bus powered, self powered and highpower bus powered USB configurations.
- UHCI/OHCI/EHCI host controller compatible.
- USB Bulk data transfer mode (512 byte packets in High Speed mode).
- +1.8V (chip core) and +3.3V I/O interfacing (+5V Tolerant).
- Extended -40°C to 85°C industrial operating temperature range.
- Compact 64-LD Lead Free LQFP or QFN package
- +3.3V single supply operating voltage range

Part No.	Description
FT2232 HL T&R	IO USB/2xUART/FIFO LQFP64
FT2232 HQ T&R	IO USB/2xUART/FIFO QFN64

Part No.	Ord. No.
S FT2232HL T&R	72508
O FT2232HQ T&R	72509

## FT4232 H Series - Hi-Speed Quad USB UART IC



The FT4232H is FTDI's 5th generation of USB devices. The FT4232H is a USB 2.0 High Speed (480Mb/s) to UART/MPSSSE ICs. The device features 4 UARTs. Two of these have an option to independently configure an MPSSSE engine. This allows the FT4232H to operate as two UART/Bit-Bang ports plus two MPSSSE engines used to emulate JTAG, SPI, I2C, Bit-bang

or other synchronous serial modes. The FT4232H has the following advanced features:

- Single chip USB to quad serial ports with a variety of configurations.
- Entire USB protocol handled on the chip. No USB specific firmware programming required.
- USB 2.0 High Speed (480Mbits/Second) and Full Speed (12Mbits/Second) compatible.
- Two Multi-Protocol Synchronous Serial Engine (MPSSSE) on channel A and channel B, to simplify synchronous serial protocol (USB to JTAG, I2C, SPI or bit-bang) design.
- Independent Baud rate generators.
- RS232/RS422/RS485 UART Transfer Data Rate up to 12Mbaud.
- FTDI's royalty-free Virtual Com Port (VCP) and Direct (D2XX) drivers eliminate the requirement for USB driver development in most cases.
- Optional traffic TX/RX indicators can be added with LEDs and an external 74HC595 shift register.
- Adjustable receive buffer timeout.
- Support for USB suspend and resume conditions via PWREN#, SUSPEND# and RI# pins.
- Highly integrated design includes +1.8V LDO regulator for VCORE, integrated POR function and on chip clock multiplier PLL (12MHz - 480MHz).
- Auto-transmit enable control for RS485 serial applications using TXDEN pin.
- Operational configuration mode and USB Description strings configurable in external EEPROM over the USB interface.
- Low operating and USB suspend current.
- Configurable I/O drive strength (4,8,12 or 16mA) and slew rate.
- Supports bus powered, self powered and highpower bus powered USB configurations.
- UHCI/OHCI/EHCI host controller compatible.
- USB Bulk data transfer mode (512 byte packets in High Speed mode).
- Dedicated Windows DLLs available for USB to JTAG, USB to SPI, and USB to I2C applications.
- +1.8V (chip core) and +3.3V I/O interfacing (+5V Tolerant).
- Extended -40°C to 85°C industrial operating temperature range.
- +3.3V single supply operating voltage range.

Part No.	Description
FT4232 HL T&R	IO USB/4xUART/FIFO LQFP64
FT4232 HQ T&R	IIO USB/4xUART/FIFO QFN64

Part No.	Ord. No.
S FT4232 HL T&R	72510
O FT4232HQ T&R	72511

## VNCL1A

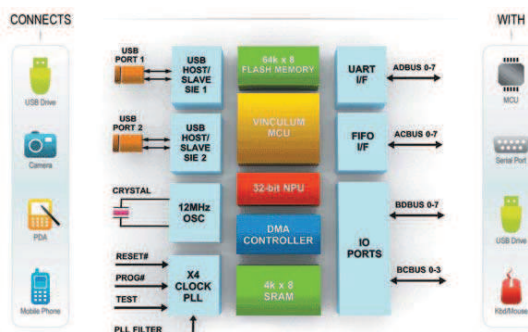


The Vinculum family of USB Host Controller ICs not only handle the USB Host Interface and data transfer functions, but owing to the inbuilt 8/32-bit MCU and embedded Flash memory, Vinculum encapsulates the USB device classes as well. When interfacing to mass storage devices such as USB Flash drives, Vinculum also transparently handles the FAT file structure communicating via UART, SPI or parallel

FTIO interfaces via a simple to implement command set. The initial product member of the family is the VNCL1L device which features two USB Ports which can be individually configured by firmware as Host or Slave ports.

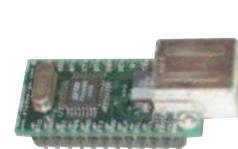
### Key VNC1L features:

- 8/32 bit V-MCU Core
- Dual DMA controllers for hardware acceleration
- 64k Embedded Flash Program Memory
- 4k internal Data SRAM
- 2 x USB 2.0 Slow/Full speed Host/Slave Ports
- UART, SPI and Parallel FIFO interfaces
- PS2 legacy Keyboard and Mouse Interfaces
- Up to 28 GPIO pins depending on configuration
- 3.3V operation with 5V safe inputs
- Low power operation (25mA running/2mA standby)
- Inbuilt FTDI firmware easily updated in the field
- LQFP-48 RoHS compliant package
- Multi-processor configuration capable



Part No.	Ord. No.
S VNC 1L-1A	57555

## FTDI Modules DLP-USB Series



The DLP-USB module is a low cost integrated module featuring FTDI's FT232BL or FT245BL 2nd generation. Ideal for rapid prototyping, an attractive quantity discount structure also makes this module suitable for incorporation into low/medium volume finished product designs. Integral 93C46 EEPROM on-board for easy OEM customisation. The DLP-USB plugs into a standard 24-pin 0.6in wide DIP socket.

Part No.	Ord. No.
S DLP-USB 232M	42417
S DLP-USB 245M	42418

## MM 232-R



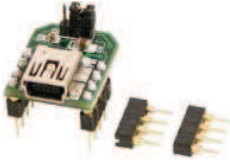
The MM232R is a mini development module for the FT232RQ IC device. It is a little bigger than a USB connector, and provides USB - Serial UART interface in an extremely small form factor. It is ideal for new development purposes, and also for adding a USB interface to existing product designs.

Based on the FT232RQ device, the MM232R supports RTS/CTS hardware handshaking and is powered from the USB port. Serial data communication is possible at up to 3Mbaud at TTL level. In addition, some of the EEPROM configurable CBUS pins of the FT232R are brought out allowing the MM232R to be used to provide clock signals to external logic.

Part No.	Ord. No.
S MM 232R	60339

## FTDI Modules (continued)

### UB 232-R



The UB232R is the smallest USB - serial module in the FTDI product range. To minimise the size of the module, the UB232R uses a standard USB mini-B connector. It is ideal for new development purposes and also for adding a USB interface to existing product designs.

Based on the FT232RQ device, the UB232R supports RTS/CTS hardware handshaking and is powered from the USB port. Serial data communication is possible at up to 3Mbaud at TTL level. In addition, two of the EEPROM configurable CBUS pins of the FT232R are brought out allowing the UB232R to be used to provide clock signals to external logic or signal traffic indicator LEDs.

Two 1x4 turned pin board headers with a standard 0.1" pitch are supplied with the UB232R to allow for rapid prototyping and development.

Part No.	Ord. No.
s UB 232 R	57991

### USB-RS232-PCB



The USB-RS232-PCB is a USB to RS232 level serial UART converter PCB incorporating FTDI's FT232RQ USB to Serial UART interface IC device which handles all the USB signalling and protocols. The PCB provides a fast, simple way to connect devices with a RS232 level serial interface to USB.

Each USB-RS232-PCB contains a small internal electronic circuit board, utilising the FT232R plus a USB Part No.-A connector. The integrated electronics also include an RS232 level shifter plus Tx and Rx LEDs which give a visual indication of UART traffic.

The PCB is USB powered and USB 2.0 full speed compatible. Each PCB supports a data transfer rate up to 1 Mbaud and supports the FTDIChip-ID™, with a unique USB serial number programmed into the FT232R. This feature can be used to create a security or password protected file transfer access using the PCB.



Part No.	Ord. No.
s USB-RS232-PCBA	72060

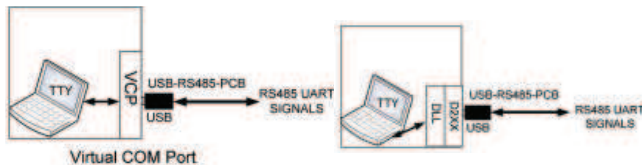
### USB-RS485-PCB



The USB-RS485-PCB is a USB to RS485 level serial UART converter PCB incorporating FTDI's FT232RQ USB to Serial UART interface IC device which handles all the USB signalling and protocols. The PCB provides a fast, simple way to connect devices with a RS485 interface to USB.

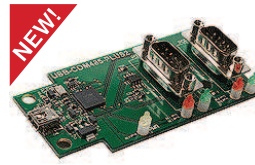
Each USB-RS485-PCB contains a small internal electronic circuit board, utilising the FT232R plus a USB Part No.-A connector. The integrated electronics also include an RS485 transceiver plus Tx and Rx LEDs which give a visual indication of UART traffic.

The PCB is USB powered and USB 2.0 full speed compatible. Each PCB supports a data transfer rate up to 3 Mbaud and supports the FTDIChip-ID™, with a unique USB serial number programmed into the FT232R. This feature can be used to create a security or password protected file transfer access using the PCB.



Part No.	Ord. No.
s USB-RS485-PCBA	72935

## USB-COM485-PLUS2



The USB-COM485-Plus2 module is a single USB interface to two independent RS485 ports, communication device. The integrated electronics of the USB-COM485-PLUS2 utilise the FTDI FT232H (USB 2.0 Hi-Speed device) and includes RS485 level shifters plus Power/TXD/RXD LEDs to provide a visual indication of data traffic through the module.

- The module uses a standard USB-mini B device connector for connection to an upstream host or hub port. RS485-level signals, including RTS/CTS modem handshake signals, are available on an industry-standard DE-9P connector. There is a separate DB9-PE for each RS485 port.
- The module is powered from the host USB port and therefore does not require an external power supply.
- Pin 9 of the DE-9P connector provides 5V power to external devices. The maximum power is 250mA dependent upon the capabilities of the USB host.
- Local Echo of data may be enabled or disabled.
- The maximum RS485-level data rate is 10Mbps.
- The product works with the royalty free FTDI drivers for Windows, MAC, Linux.
- The USB-COM485-PLUS1 is fully RoHS compliant and is CE and FCC approved.
- Operating temperature range -40°C to +85°C.

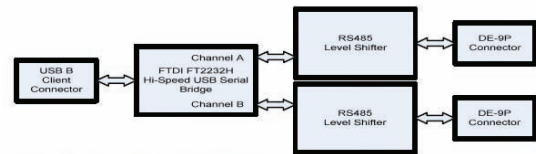


Figure 1.2 USB-COM485-PLUS2 Block Diagram

Part No.	Ord. No.
s USB-COM485-PLUS2	78494

## VF2F2

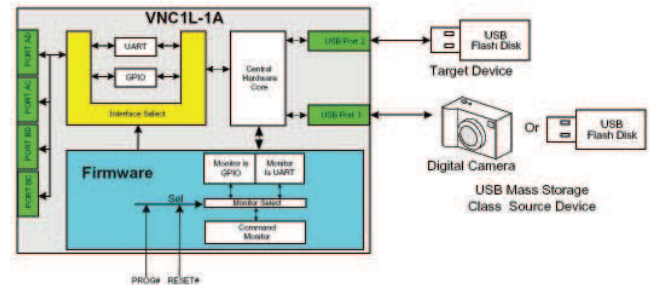


Back up Digital cameras to USB Flash Drives.

VF2F2 is a reference design for a VNC1L based stand-alone application. VF2F2 illustrates how to construct a file back up device for a digital camera with a USB Mass Storage Class interface. At the push of a button, all the picture files on the camera are copied to a unique folder of a USB Flash drive so that the digital camera memory can be re-used

to take further pictures. This is an ideal accessory for digital camera users who wish to backup their photos on the road without having to carry a notebook PC, or for people who want to share or swap their photos without requiring a card reader. VF2F2 is powered by two AAA size alkaline batteries.

- Two "A" sockets connect to digital camera and USB Flash drive respectively
- Uses FTDI's VNC1L embedded USB host controller IC device
- Single button file backup function
- Intelligent LEDs illustrate successful USB Flash disk enumeration, file copy function and error conditions
- On-board DC-DC converter supplies the circuitry with 5V and 3.3V power from 2 x AAA cells
- Program or update firmware via USB Flash disk or UART interface
- VNC1L firmware programming control pins (RESET# and PROG#) brought out onto jumper interface
- Schematics, firmware and PCB Gerber files available for download
- Assembled VF2F2 PCB available for evaluation
- Assembled VF2F2 evaluation kit is Pb-free and RoHS compliant



Part No.	Ord. No.
o VF2F2	80263

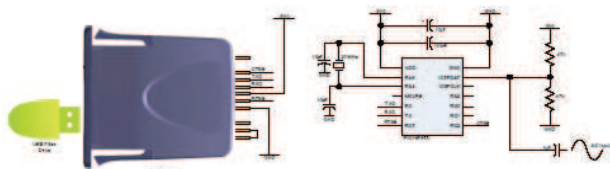
## VDRIVE2



VDRIVE2 is possibly the easiest solution for adding a USB Flash Drive interface to existing products. Only four signal lines plus 5V supply and ground are required to be connected. Using the Vinculum VDAP firmware the VNC1L's I/O interface can be selected between the serial UART or SPI using the on-board jumper pins. Not only is the VDrive2 ideal for

evaluation and development of VNC1L designs, but also its neat enclosure and attractive quantity discount structure makes this module suitable for incorporation into finished product designs. The VDrive2 is ideal for commercial products such as domestic goods, set top box, etc., as well as industrial products such as data loggers, software upgradable products, etc.

- USB 'A' Part No. socket to connect USB Flash drive
- Uses F.T.D.I.'s VNC1L embedded USB host controller I.C. device.
- Jumper selectable UART or SPI interfaces.
- Only four signals to connect, excluding power and ground.
- Single 5V supply input.
- Uses VDAP firmware and command set.



Part No.	Ord. No.
S VDRIVE2	60898

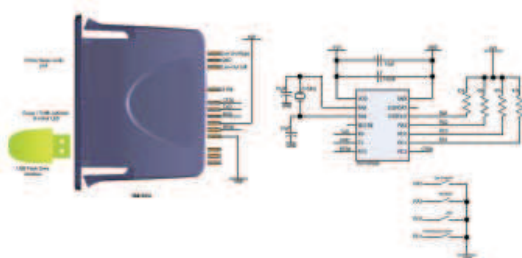
## VMUSIC2



VMUSIC is a product that not only lets you add USB Flash drive interfacing to your product but allows you to play back MP3 and other popular digital music formats direct from a USB Flash drive. Extensions to the VDAP command set allow you to play a selected file as well as control the volume, balance, etc. of the sound channel and monitor the status of the file being played. VMUSIC is ideal for

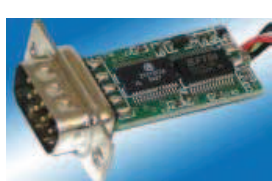
home entertainment and in-car audio systems, as well as other appliances requiring audio playback capability from USB Flash drives.

- One USB „A“ socket to connect to USB Flash drive
- Stereo 3.5mm headphone jack socket and audio line-out connector
- Uses FTDI's VNC1L device coupled with VLSI VS1003 IC
- Jumper selectable UART or SPI interface
- Only 4 signals to connect excluding PWR/GND
- Program or update firmware via USB Flash disk or via UART interface
- Uses extended VDAP command set
- Single 5V supply input



Part No.	Ord. No.
S VMUSIC2	60716

## UC 232 R USB - RS232 Converter

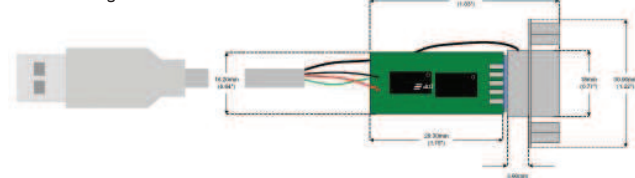


The UC232R-10-NE „ChiPi“ USB to RS232 converter is an evaluation cable for the FT232R. It utilises the minimum number of components required for a basic USB - RS232 converter designed using the FT232RL. Using the FT232RL chip combined with an RS232 level converter and a few capacitors, the UC232R-10-NE „ChiPi“ is a CE and FCC approved product which is one of the simplest USB - RS232 solutions around.



Using a standard DB9 connector and powered from the USB port, the ChiPi can be used with the VCP drivers to provide a COM port on a PC which is capable of communication rates with RS232 devices from 300 baud up to 230kbaud.

The UC232R-10 „ChiPi“ is the economy version of FTDI's USB to RS232 converter cable range.



Part No.	Ord. No.
S UC232R-NE „ChiPi“	59950
S UC232R-R10 „ChiPi“	68088

## TTL-232R Series



The new TTL-232R is a USB - TTL serial converter cable which will allow for a simple way to connect serial TTL level devices to USB. The TTL-232R uses a FT232RQ chip which is housed within the USB „A“ connector. A 1.8 meter (6 foot) cable is terminated with a 6 way 0.1" pitch header socket.

Part No.	Description	Ord. No.
S TTL-232R	Converter USB/RS232 (FT232R) 5,0V	56111
S TTL-232R-3V3	Converter USB/RS232 (FT232R) 3,3V	57997
O TTL-232R-AJ	Converter USB/RS232 audio jack	59463

## USB-RSxxx-WE-1800BT Series



The USB\_RSxxx cables are a family of USB to RSxxx levels serial UART converter cables incorporating FTDI's FT232RQ USB to serial UART interface IC device which handles all the USB signalling and protocols. The cables

provide a fast, simple way to connect devices with a RS232 or RS485 level serial UART interface to USB.

Each USB-RSxxx cable contains a small internal electronic circuit board, utilising the FT232R, which is encapsulated into the USB connector end of the cable.

The USB side of the cable is USB powered and USB 2.0 full speed compatible. Each cable is 1.8m long and supports a data transfer rate up to 1 or 3 Mbaud.

Each cable supports the FTDIChip-ID™, with a unique USB serial number programmed into the FT232R.

Part No.	Ord. No.
S USB-RS232-WE-1800BT	72059
S USB-RS485-WE-1800-BT	75342

## US 232R-100 Premium USB - RS232 Serial Converter Cable



The US232R-100 is FTDI's premium USB to RS232 evaluation cable which can be used for testing the functionality of the FT232R device and drivers prior to design-in.

The electronics, including the FT232RQ chip are housed in an attractive glossy white enclosure with blue, side-lit LED Tx and Rx traffic indicators. A matching white 1m USB cable uses gold plated USB and DB9 connectors.

The US232R-100 evaluation cable is supplied in retail packaging which includes instructions together with a Drivers and Utilities CD complete with Microsoft WHQL certified VCP drivers for Windows XP. Drivers for the Apple Mac, Linux and other versions of Windows are also included on the CD. A bulk pack version is also available, which is supplied loose in an anti-static bag. No driver CD is supplied with the bulk pack version.

The US232R-100 uses an enhanced RS232 level converter and is capable of communication rates from 300 Baud to 1M Baud.

Part No.	Ord. No.
S US232R-100-BLK	71853

## Evaluation Kits

### UM 232-R



The UM232R module is a USB - Serial UART (TTL) development module for the FT232R IC device. The UM232R is supplied on a PCB designed to fit a 24 pin DIP socket, and provides access to all UART and CBUS interface pins of the FT232R device.

The UM232R can be configured as either USB bus-powered or self-powered and also supports 5V or 3V level interface IOs via two sets of jumper setting pins. Full hardware handshaking is supported and the UM232R can communicate at up to 3Mbaud at TTL/CMOS levels.

Part No.	Ord. No.
S UM 232-R	60341

### UM 245-R



The UM245R module is a USB - Parallel FIFO interface (TTL) development module for the FT245R IC device. The UM245R is supplied on a PCB designed to fit a 24 pin DIP socket, and provides access to all FIFO interface and control pins (TXE#, RFX#, RD#, WR) of the FT245R device.

The UM245R can be configured as either USB bus-powered or self-powered and also supports 5V or 3V level interface IOs via two sets of jumper setting pins. The UM245R can transfer data at up to 1 MegaByte per second.

Part No.	Ord. No.
S UM 245-R	60343

### EVAL 232-R



The EVAL232R is a USB to RS232 development and evaluation module for the FT232RL IC device. Additional header pins on the board which provide access to the FT232RL device's configurable CBUS interface pins.

Powered from USB, the EVAL232R supports both 5V and 3V level IO interface voltage on the CBUS via a jumper setting. Full RTS/CTS, and DTR/DSR hardware handshaking are supported, DCD and RI are also available. RS232 communication is possible at up to 250kbaud. LEDs are fitted to indicate activity on the FT232RL's TXD and RXD lines, thus showing when the module is transmitting, or receiving data.

Part No.	Ord. No.
S EVAL 232R	60336

### FTx232 HQ MiniModule Series



The Hi-Speed Mini Modules are two evaluation modules which support FTDI's FT2232H and FT4232H USB 2.0 Hi-Speed devices. These modules have the capability of being configured in variety of industry standard serial or parallel interfaces such as UART, FIFO, JTAG, I2C and SPI. They are ideal for development purposes to quickly prove the concept of adding Hi-Speed USB to a target design.

#### Key features:

- USB 2.0 Hi-Speed compatible via small USB Part No. B connector.
- Rapid integration into existing systems via 2 double row male connectors (0.1" pitch).
- Asynchronous Serial data transfer rates from 300 baud to 12 Mbaud at TTL levels.
- Synchronous Serial (MPSSE) data rates of up to 30Mbps on JTAG, SPI and I2C.
- FT2232H-Mini-Module provides 2 independently configurable channels.
- FT4232H-Mini-Module provides 4 independently configurable channels.

Part No.	Ord. No.
S FT2232HQ Minimodule	73213
S FT4232HQ Minimodule	75174

### VDIP1



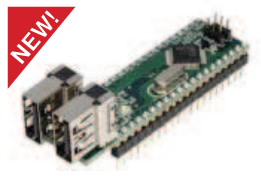
The VDIP1 module is an MCU to USB host controller development module for the VNC1L device. VDIP1 is supplied on a PCB designed to fit a 24-pin DIP socket and provides access to all UART, SPI and FIFO interface pins of the VNC1L device. Ideal for rapid prototyping and development of VNC1L designs, an attractive quantity discount structure also makes this module suitable for incorporation into low/medium volume finished product designs..

#### Key features:

- Jumper selectable UART, SPI or FIFO MCU Interfaces
- Uses FTDI's VNC1L device
- USB „A“ Part No. socket to interface with USB peripherals
- 2nd USB Interface available via module pins if required
- Single 5V supply input
- Auxiliary 3.3V/200mA power output to power external logic
- Power Good and Traffic Indicator LEDs
- Reset# and Prog# signals allow device programming via the UART interface if required.

Part No.	Ord. No.
S VDIP1	57840

### VDIP2



The VDIP2 module is an MCU to embedded USB host controller development module for the VNC1L I.C. device. The VDIP2 is supplied on a PCB designed to fit into a 40 pin DIP socket, and provides access to the UART, parallel FIFO, and SPI interface pins on the VNC1L device, via its AD and AC bus pins. All other Vinculum I/O pins are also accessible. Not only is it ideal for developing and rapid prototyping of VNC1L designs,

but also an attractive quantity discount structure makes this module suitable for incorporation into low and medium volume finished product designs.

#### Key features:

- Two vertically mounted USB „A“ Part No. sockets to interface with USB peripheral devices
- Uses FTDI's VNC1L device
- Jumper selectable UART, parallel FIFO or SPI MCU interfaces
- Single 5V supply input
- Auxiliary 3.3V/200mA power output to external logic
- Power and traffic indicator LEDs
- Program or update firmware via USB Flash disk or or via UART interface
- VNC1L firmware programming control pins PROG# and RESET# brought out onto jumper interface
- VDIP2 is a Pb-free, RoHS complaint development module
- VDIP2 module is supplied pre-loaded with Vinculum VDAP firmware

Part No.	Ord. No.
S VDIP2	75160

### V-EVAL 1



The V-Eval Kit is a hardware platform that designers can use to develop embedded USB host systems based on FTDI's VNC1L devices. Designs can be rapidly debugged using the „spy“ mode of the supplied V-Eval software which displays the data sent between the VNC1L UART and a controller UART, for example a PIC.

#### Key features:

- Inbuilt VNC1L USB device programmer/ terminal emulator/command monitor hardware.
- Two VNC1L USB Host/Slave ports.
- Generous prototyping area for standard DIP and SIL devices.
- Multiple IO port connectors grouped by port name and/or function.
- LEDs and switches for user interaction.
- PS/2 keyboard and mouse ports.
- Downloadable programming, terminal emulation and debug monitor software.
- Downloadable HID class example project (VNC1L controlled USB rocket launcher) including PIC source code in C.

Part No.	Ord. No.
S V-EVAL1	67414

## RTC - Real Time Clock ICs

Part No.	Ord. No.	Description
O DS 1302 S	7605	Real Time Clock 31x8 SO8 200mil
O DS 1302 SN	47005	Real Time Clock 31x8 -40+85°C SO8 200mil
O DS 1302 Z	9511	Real Time Clock 31x8 SMD SO8 150mil
S DS 1302+	4898	Real Time Clock 31x8 DIP8
S DS 1307 N	2839	Real Time Clock DIP8
O PCF 8563 T/F4,112 PBF	8507	Real Time Clock IC SO8
S RTC 4513	7037	Real Time Clock serial out SO14
S RTC 72421 A	38282	Real Time Clock DIP18
S RTC 72423 A	38283	Real Time Clock SOP24
S RTC 8564 JE	4861	Real Time Clock RTC I2C VSOJ20

## Watch Dog - Supervisory ICs

Part No.	Ord. No.	Description
S ADM 690 AARNZ	6237	Supervisory IC 4,65V SO8
S ADM 690 ANZ	5782	Supervisory IC 4,65V DIP8
S ADM 691 ANZ	5093	Supervisory IC 4,65V DIP16
O ADM 707 ANZ	3464	Supervisory IC 4,65V DIP8
S DS 1233-5	4968	Supervisory IC 5V 5% TO92
S DS 1233Z-5	44862	IC EconoReset SOT223
O LTC 1232 CN 8	33149	Supervisory IC 4,62/4,37V DIP8
O LTC 1232 CS 8 SMD	33158	Supervisory IC 4,62/4,37V SO8
S LTC 690 CS8#PBF	32767	Supervisory IC SO8
S MAX 1232 CPA+	12745	Supervisory IC 4,5/4,75V DIP8
O MAX 1232 CSA+	6226	Supervisory IC 4,62V SO8
O MAX 1232 EPA	49405	Supervisory IC 4,62V DIP8 -40...85°C
S MAX 690 CPA+	12732	Supervisory IC 4,65V DIP8
S MAX 691 ACPE+	12741	Supervisory IC 4,65V DIP16
S MAX 813 LCPA+	12742	Supervisory IC 4,65V DIP8
O MAX 813 LCSA	12806	Supervisory IC 4,65V SO8
S MC 33164 P-5	8660	Supervisory IC TO92
O STM 812 LW1 6F	54912	Supervisory IC 4,63V SOT143-R
S TC 1232 COA-SMD	6588	Supervisory IC 4,62V SO8
S TC 1232 CPA	6587	Supervisory IC 4,62V DIP8
S TL 7702 ACD	41207	Supervisory IC 2,48-2,58V SO8
S TL 7702 ACP	18886	Supervisory IC 2,48-2,58V DIP8
S TL 7705 ACD 1/A SMD	23873	Supervisory IC 4,5-4,6V SO8
S TL 7705 ACP	18887	Supervisory IC 4,5-4,6V DIP8
S TL 7712 ACP	18889	Supervisory IC 10,6-11,0V DIP8

## Digital Potentiometers

The DS1804 NV trimmer potentiometer is a nonvolatile digital potentiometer that has 100 positions. The device provides an ideal method for low-cost trimming applications using a CPU or manual control input with minimal external circuitry. Wiper position of the DS1804 can be stored in EEPROM memory on demand. The device is provided in an industrial temperature grade. Additionally, the DS1804 will operate from 3V or 5V supplies and is ideal for portable application requirements.

Part No.	Ord. No.	Description
S DS 1804-10+	7042	Digital potentiometer 10kOhm lin. DIP8
S DS 1804-100+	7044	Digital potentiometer 100kOhm lin. DIP8
S DS 1804-50	7043	Digital potentiometer 50kOhm lin. DIP8
S DS 1809-100	48755	Digital potentiometer 100kOhm DIP8



## A/D Converters

Part No.	Ord. No.	Description
o AD 7714 AN-5	9056	Converter A/D 24bit DIP24
o AD 7714 ARZ-5	51761	Converter A/D 24bit SO24
o AD 9203 ARUZ	49476	Converter A/D 10bit 40MSPS 3V SSOP28
s ADC 0804 LCN	28505	Converter A/D parallel 8bit DIP20
s ADC 0831 CCN/NOPB	2594	Converter A/D CMOS 8bit DIP8
o ADC 12038 CIWM	42779	Converter A/D serial 12bit Microwire SOIC28
o ADS 7807 P	2142	Converter A/D 16bit DIP28
s ADS 7816 P	4284	Converter A/D 12bit DIP8
s ADS 7816 U SMD	5721	Converter A/D 12bit SO8
s ADS 7846 E	63743	Touch Panel Controller SSOP16
s ICL 7106 CPL	13462	Converter A/D LCD DIP40
s ICL 7107 CPL	13463	Converter A/D LED DIP40
s ICL 7109 CPL	22341	Converter A/D 12bit DIP40
o ICL 7135 CP =TLC7135CN	22342	Converter A/D CMOS DIP28
o LTC 1286 CN 8	37249	Converter A/D 12bit DIP8
o LTC 1298 CN 8	37823	Converter A/D 12bit DIP8
o LTC 2440 CGN	52238	Converter A/D 24-bit Delta-Sigma fast SSOP16
o MAX 186 CCPP	2615	Converter A/D LP, 8-Ch, Serial 12bit DIP20
s TC 3400 VPA	9003	Converter A/D 16bit sigma delta DIP8
s TLC 549 CP	5388	Converter A/D 8bit DIP8

## D/A Converters

Part No.	Ord. No.	Description
o AD 420 AN-32	2881	Converter D/A 16bit, current loop output DIP24
o AD 420 ARZ-32	6954	Converter D/A 16bit, current loop output SOL24
o AD 7533 KR	49240	Converter D/A 10bit $\pm 0,05\%$ -40°C+85°C SO16
o AD 7533 LNZ	47144	Converter D/A 10bit $\pm 0,05\%$ -40°C+85°C DIP16
s DAC 08 EP = EPZ	2581	Converter D/A High Speed 0,19% DIP16
o LTC 1665 CN	48872	Micropower Octal 10-Bit DAC DIP16

## A/D + D/A Converters

Part No.	Ord. No.	Description
o AD 1843 JS	48275	Serial-Port 16-Bit SoundComm Codec PQFP80
s PCF 8591 P	23583	I2C Converter A/D+D/A DIP16

## Other Converters

Part No.	Ord. No.	Description
s LM 331 N	7084	Converter U/f f/U 100kHz DIP8
s VFC 32 KP	2067	Converter U/f f/U 500kHz DIP14
s XR 4151 = RV 4151 TX	3349	Converter U/f f/U 10kHz DIP8
s XTR 105 P	3757	Converter PT100-prúd DIP14
s XTR 105 UA	5963	Converter PT100-prúd SO14
s XTR 115 UA	7381	4-20mA Transmitter SO8

## Ethernet ICs

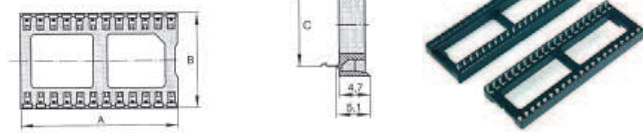
Part No.	Ord. No.	Description
s ENC 28J60-I/SO	56904	Ethernet LAN Controller SPI SO28
o CP 2102-GM	53680	Converter USB/RS232 LF MLP28
o CP 2200-GQ	58080	Ethernet Contr. 3,1-3,6V TQFP48
o CP 2201-GM	56335	Ethernet Contr. 3,1-3,6V QFN28
o CS8900A-CQZ	45840	Ethernet LAN Contr. 5V, LQFP100
o CS8900A-IQ3Z	63580	Ethernet LAN Contr. 3,3V, LQFP100
s RTL 8019 AS	54045	Ethernet Contr. 10Mb, FDEC PnP TQFP100



## Standard DIP IC Sockets

RM=2.54

contact: CuSn, -55°C to +110°C



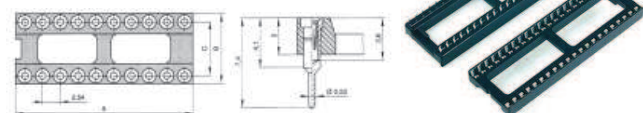
Part No.	Socket	A [mm]	B [mm]	C [mm]
ECLC 06	6-pins	7,54	10,08	7,62
ECLC 08	8-pins	10,08	10,08	7,62
ECLC 14	14-pins	17,70	10,08	7,62
ECLC 16	16-pins	20,24	10,08	7,62
ECLC 18	18-pins	22,78	10,08	7,62
ECLC 20	20-pins	25,32	10,08	7,62
ECLC 24-3	24-pins, slim	30,40	10,08	7,62
ECLC 24-6	24-pins, wide	30,40	17,70	15,24
ECLC 28-3	28-pins, slim	35,48	17,70	15,24
ECLC 28-6	28-pins, wide			15,24
ECLC 32	32-pins, wide	40,56	17,70	15,24
ECLC 40	40-pins	50,72	17,70	15,24

Part No.	Packing	Ord. No.
S ECLC 06	80pcs	30602
S ECLC 08	60pcs	30603
S ECLC 14	34pcs	30604
S ECLC 16	30pcs	30605
S ECLC 18	26pcs	30606
S ECLC 20	24pcs	30607
S ECLC 24-3	20pcs	30608
S ECLC 24-6	20pcs	30609
S ECLC 28-6	17pcs	30610
S ECLC 32-6	15pcs	30611
S ECLC 40	12pcs	30612
S ECLC 28-3	17pcs	40913

## Precision DIP IC Sockets

RM=2.54

contact : gold plated  
-55°C to +125°C



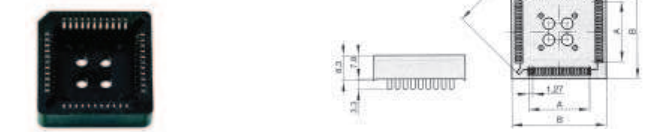
Part No.	Socket	A [mm]	B [mm]	C [mm]
ECPF06	6-pins	7,54	10,08	7,62
ECPF08	8-pins	10,08	10,08	7,62
ECPF14	14-pins	17,70	10,08	7,62
ECPF16	16-pins	20,24	10,08	7,62
ECPF18	18-pins	22,78	10,08	7,62
ECPF20	20-pins	25,32	10,08	7,62
ECPF24-3	24-pins, slim	30,40	10,08	7,62
ECPF24-6	24-pins, wide	30,40	17,70	15,24
ECPF28-3	28-pins, slim	35,48	10,08	7,62
ECPF28-6	28-pins, wide	35,48	17,70	15,24
ECPF32	32-pins	40,56	17,70	15,24
ECPF40	40-pins	50,72	17,70	15,24

Part No.	Packing	Ord. No.
S ECPF06	80pcs	33172
S ECPF08	60pcs	33173
S ECPF14	33pcs	33174
S ECPF16	29pcs	33175
S ECPF18	26pcs	33176
S ECPF20	23pcs	33177
S ECPF24-3	19pcs	33178
S ECPF24-6	19pcs	33179
S ECPF28-6	16pcs	33180
S ECPF32	15ks	33181

S ECPF40	11ks	33182
S ECPF28-3	16ks	40503

## PLCC IC Sockets

-55°C to +125°C



Part No.	Socket	A [mm]	B [mm]	C [mm]
PLCC 28	28-pins	7,62	18,2	20,70
PLCC 32	32-pins	7,62	18,7	22,70
PLCC 44	44-pins	12,70	23,5	28,40
PLCC 52	52-pins	15,24	26,00	32,70
PLCC 68	68-pins	20,32	32,00	38,20
PLCC 84	84-pins	25,40	36,70	45,40

Part No.	Packing	Ord. No.
S PLCC 20	37pcs	40914
S PLCC 32	28pcs	24771
S PLCC 44	25pcs	22502
S PLCC 52	22pcs	24772
S PLCC 68	18pcs	20383
S PLCC 84	16pcs	20384

## IC Sockets PLCC SMD

-55°C to +125°C



Part No.	Socket	A [mm]	B [mm]	C [mm]
PLCC 20 SMD	20-pins	5,08	15,58	16
PLCC 28 SMD	28-pins	7,62	18,12	20,6
PLCC 32 SMD	32-pins	7,62	18,12	22,5
PLCC 44 SMD	44-pins	12,7	23,2	27,5
PLCC 52 SMD	52-pins	15,24	25,74	31,1
PLCC 68 SMD	68-pins	20,32	30,82	38,8
PLCC 84 SMD	84-pins	25,4	25,9	44,8

Part No.	Packing	Ord. No.
S PLCC 20 SMD	37pcs	30569
S PLCC 28 SMD	32pcs	30570
S PLCC 32 SMD	28pcs	30571
S PLCC 44 SMD	26pcs	40915
S PLCC 52 SMD	20pcs	30573
S PLCC 68 SMD	19pcs	30574
S PLCC 84 SMD	16pcs	30575

## Test (ZIF) Sockets



Good quality wide slot universal ZIF (Zero Insertion Force) socket.

Using the ZIF socket allows quick and easy insertion of devices like PIC chips for programming without any possibility of leg damage. Simply flick the integral lever to clamp the pins for programming and lift again to release the device.

Part No.	Socket	A	B	C	Z	P
TEX 24	24-pins	45,30	40,90	22,90	11,00	15,24
TEX 28	28-pins	50,40	46,00	22,90	13,00	15,24
TEX 40	40-pins	65,60	61,20	22,90	19,00	15,24

Part No.	Ord. No.
S TEX 24	13334
S TEX 28	13335
S TEX 40	13336

## Temperature and Humidity Sensors

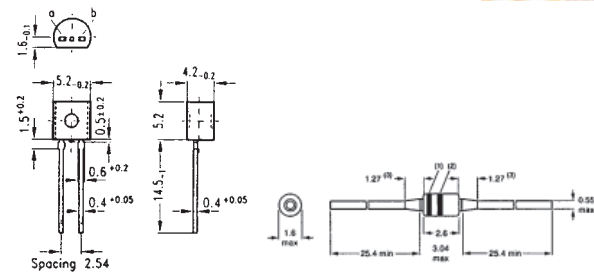
### DS Series



Part No.	Description
DS 1629 S	Sensor temp.+RTC-2WIRE SO8
DS 1821+	Sensor temp. -55....125°C PR35
DS 18S20+	Sensor temp. -55....125°C TO92

Part No.	Ord. No.
o DS 1629 S	7886
o DS 1821+	50891
s DS 18S20+	3199

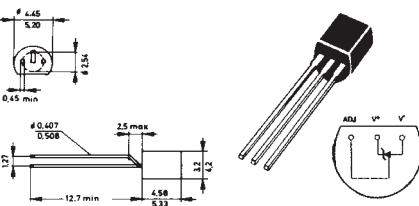
### KTY Series



Part No.	Description
KTY 81-110	Sensor temp. 1000R/25°C ±1% TO92
KTY 81-120	Sensor temp. 1000R/25°C ±2% TO92
KTY 81-210	Sensor temp. 2000R/25°C ±1% TO92
KTY 83-110	Sensor temp. 1000R/25°C ±1% DO34

Part No.	Ord. No.
s KTY 81-110	20754
s KTY 81-120	20755
s KTY 81-210	20756
s KTY 83-110	20758

### LM Series



Part No.	Description
LM 335 Z	Sensor temp. -40...+110°C TO92
LM 35 CZ	Sensor temp. -40...+110°C TO92
LM 35 DM/NOPB	Sensor temp. -55....150°C SO8
LM 35 DZ	Sensor temp. 0...+100°C TO92

Part No.	Ord. No.
s LM 335 Z	17777
s LM 35 CZ	20587
o LM 35 DM/NOPB	53211
s LM 35 DZ	41211

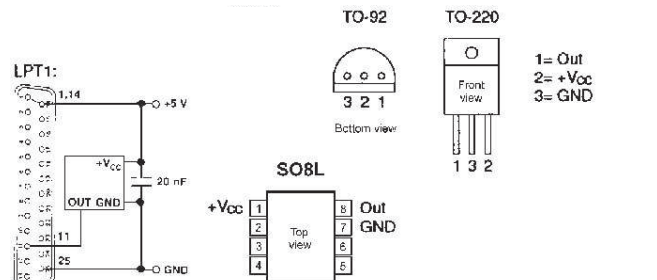
### SHT Series



Part No.	Description
SHT 11	Sensor humidity and temp. 5% I2C SMD
SHT 71	Sensor rel. humidity 0-100% RH
SHT 75	Sensor humidity and temp. 2% I2C SIL4

Part No.	Ord. No.
o SHT 11	47760
s SHT 71	44912
o SHT 75	45894

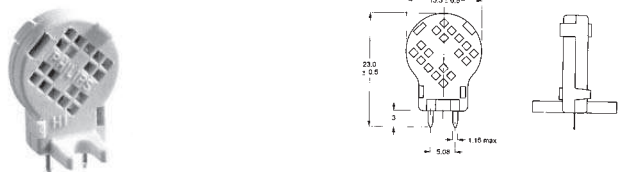
### SMT Series



Part No.	Description
SMT-160-30-220	Sensor temp.PWM -45+130°C/±1,7 5V/0,2mA TO220
SMT-160-30-92	Sensor temp.PWM vjst.-45+130°C/±2 5V/0,2mA TO92
SMT-160-30-SOIC	Sensor temp.PWM -45+130°C/±1,5 5V/0,2mA SO8

Part No.	Ord. No.
s SMT-160-30-220	45230
s SMT-160-30-92	42525
o SMT-160-30-SOIC	45231

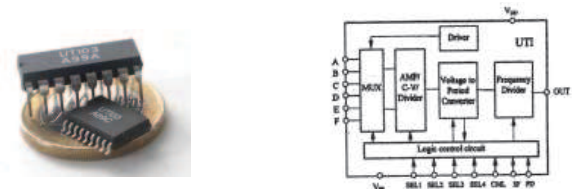
### Humidity - 1



Measuring range: 10-90%RH  
 Capacity at 25°C: 122pF  
 Sensitivity 12 to 75%: 0,4pF  
 Temperature range: -25°C to +85°C

Part No.	Ord. No.
s Humidity-1	20266

### Converters for Sensors



Part No.	Description
UTI 03 DIL16	Converter for sensor SMT, DIP16

Part No.	Ord. No.
s UTI 03 DIL16	45230



## Capacitive Touch Sensors

### MPR Series



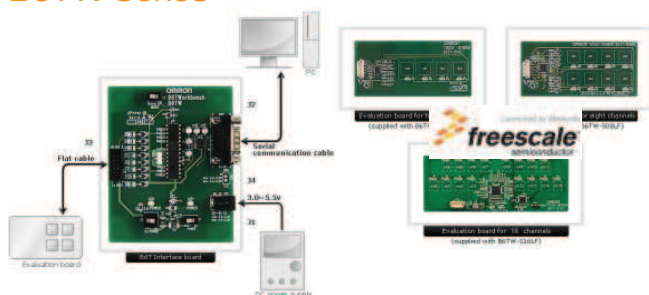
Capacitive Touch Sensor  
Supply current: 4µA  
Supply voltage min:1.8V - max.3.6V  
Temperature range -40 °C to +85 °C



Part No.	Description
MPR083EJ	Proximity Capacitive Touch Sensor Controller TSSOP16
MPR084EJ	Proximity Capacitive Touch Sensor Controller TSSOP16

Part No.	Ord. No.
S MPR083EJ	65545
S MPR084EJ	65546

### B6TW Series



Our new touch sensor IC family, B6TS, is the key to designing flexible, responsive and reliable capacitive touch controls in the new generation of consumer brown and white goods and AV equipment as well as vending machines, lift controls and security access. The B6TS is a durable replacement to any Part No. of tactile switch.

Capacitive touch sensing is growing in popularity as an easy to implement, flexible and reliable control interface for a wide range of applications. We are focused on increasing our research and development efforts in this market and will continue to expand our product range.

To minimise the cost of the finished system, cost-effective commercial single-sided PCB materials such as FR-2 or CEM-1 can be used. For non-flat user interfaces, FPCs (Flexible Printed Circuit) can be used to build unique design touch panel solutions. Touch keys can be produced using any non-conducting panel material including plastic, rubber, glass, marble and wood.

The Design Tool B6TWorkbench (B6TW) allows touch panel protoPart No. builds in hours rather than days and therefore speeds up time to market. The B6TW allows designers to experiment with user-definable settings to achieve desired sensing performance and accommodate anticipated environment changes in the custom specific touch panel (Man-Machine-Interface MMI)

Part No.	Ord. No.	Description
S B6TW-S04LT	68985	Development kit for Capacitive Touch Sensor 4-channels
S B6TW-S08LF	68986	Development kit for Capacitive Touch Sensor 8-channels
S B6TW-S16LF	68987	Development kit for Capacitive Touch Sensor 16-channels
O B6TS-04LT	63368	IC Capacitive Touch Sensor 4-channels SSOP 20
O B6TS-06LF	68983	IC Capacitive Touch Sensor 8-channels QFP 32
O B6TS-16LF	68984	IC Capacitive Touch Sensor 16-channels QFP 52

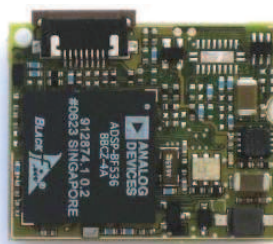
### E 100 S



This kit is designed for the evaluation and development of applications using the QT100-ISG Integrated Circuit (IC).  
Power supply: CR2032 Battery, 3V, 235mAh

Part No.	Ord. No.
O E 100 S	72290

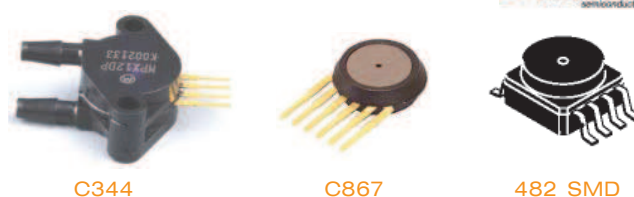
## TOPSEC Series - Biometric Sensors



Part No.	Ord. No.	Description
S TopSec ATMEL	68956	Development kit with biometric sensor ter.
S TopSec Testech	68955	Development kit with biometric sensor opt.
S TopSec UPEK TCS2	68953	Development kit with biometric sensor cap.

## Pressure Sensors

### MPX Series

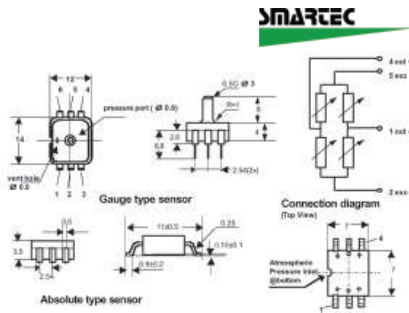


Part No.	Note	Range	Sensitivity	Linearity	Package
MPX 12 DP	Uncomp	0-10kPa/Bar	5,5mV/kPa	-0,5/+5%	C344C
MPX 2010 DP	Comp	0-10kPa/Bar	2,5mV/kPa	+/-1%	C344C
MPX 2010 GP	Comp	0-10kPa/Bar	2,5mV/kPa	+/-1%	C344B
MPX 2050 DP	Comp	0-50kPa/Bar	0,8mV/kPa	+/-0,25%	C344C
MPX 2100 AP	Comp	0-100kPa/Bar	0,4mV/kPa	+/-1%	C344B
MPX 2100 DP	Comp	0-100kPa/Bar	0,4mV/kPa	+/-0,25%	C344C
MPX 2202 AP	Comp	0-200kPa/Bar	0,2mV/kPa	+/-1%	C344C
MPX 4115 A	Int	15-115kPa/Bar	45,9mV/kPa	+/-1,5%	C867
MPX 4250 AP	Int	15-115kPa/Bar	45,9mV/kPa	+/-1,5%	SMD
MPX 4250 DP	Int	0-250kPa/Bar	18,8 mV/kPa	+/-1,4%	C867
MPX 5100 DP	Int	20-250kPa/Bar	20mV/kPa	+/-1,5%	C867
MPX 5500 DP	Int	0-100kPa/Bar	45mV/kPa	+/-2,5%	C867C
MPX 5999 D	Int	0-500kPa/Bar	9mV/kPa	+/-2,5%	C868C
MPXA 4115 AC6U	Int	0-1000kPa/Bar	4,5mV/kPa	+/-2,5%	C867C

\*) Uncomp=non compensated, Comp=compensated, Int=integrated

Part No.	Ord. No.
O MPX 12 DP	8997
O MPX 2010 DP	5521
O MPX 2010 GP	8998
O MPX 2050 DP	9000
O MPX 2100 AP	9001
O MPX 2100 DP	9002
O MPX 2202 AP	48985
S MPX 4115 A	6547
O MPX 4250 AP	9008
O MPX 4250 DP	71722
O MPX 5100 DP	49816
O MPX 5500 DP	9006
O MPX 5999 D	9007
O MPXA 4115 AC6U	8615

SPD Series



Part No.	Description
SPD 005 G	Pressure sensor 0,00-0,35 Bar
SPD 015 G	Pressure sensor 0,00-1,00 Bar
SPD 100 G	Pressure sensor 0,00-6,50 Bar

Part No.	Ord. No.
S SPD 005 G	47508
S SPD 015 G	47509
S SPD 100 G	47511

Gas Sensors

Oxygen and Hydrogen Sensors FIGARO



KE 25



TGS 821

Part No.	Ord. No.	Description
o KE 25	53099	Sensor gas - oxygen
o TGS 821	53105	Sensor gas - hydrogen

CO and CO2 Sensors

FIGARO



TGS 203



TGS 2442



TGS 4160

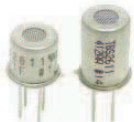


TGS 4161

Part No.	Ord. No.	Description
o TGS 203	42529	Sensor carbon monoxide gas - CO
o TGS 2442	52855	Sensor CO TO-5
o TGS 4160	53102	Sensor gas - CO2
o TGS 4161	53103	Sensor gas - CO2

Methane, Butane, LP Sensors

FIGARO



TGS 2610, 2611



TGS 813, 842

Part No.	Ord. No.	Description
o TGS 2610-J00	52853	Sensor butane, LP gas TO-5
o TGS 2611-C00	52854	Sensor methane TO-5
o TGS 813-A00	483	Sensor propane, butane, methane
o TGS 842-A00	9544	Sensor methane

Alcohol Sensors

FIGARO



TGS 2620



TGS 822

Part No.	Ord. No.	Description
o TGS 2620-C00	53101	Alcohol, Toluene, Xylene
o TGS 822	7719	Alcohol, Organic fumes

Air Contaminants Sensors

FIGARO



TGS 2600



TGS 800

Part No.	Ord. No.	Description
o TGS 2600-B00	53100	Sensor - detection of air contaminants
o TGS 800	7719	Sensor gas - conditioned atmosphere

Other Gas Sensors

FIGARO



TGS 825, 826, 832

Part No.	Ord. No.	Description
o TGS 2630	70933	Freon sensor
o TGS 825	62693	Sensor gas - hydrogen sulfide gas sensor
o TGS 826	53106	Sensor gas - ammonia
o TGS 832	53108	Sensor gas -chlorofluorocarbons (CFC's)

Miscellaneous Gas Sensors

PYM Series



PYM 151/152

The PYM 151/2 Series represent the first low cost gas alarm sensor for natural gas sensing in consumer applications. Using Infrared absorption technology (NDIR) and combining a robust IR Source with a highly reliable pyroelectric detector, this sensor achieves long term stability and performance. It boasts a digital output, with self monitoring and diagnostic features. The factory calibrated, fully tested unit is designed for long term operation for a minimum of 8 years.

Part No.	Ord. No.	Description
o PYM 151	52332	Natural gas sensor
o PYM 152	52333	Smart natural gas sensor

Accelerometers



LIS Series



The LIS3LV02DQ is a three axes digital output linear accelerometer that includes a sensing element and an IC interface able to take the information from the sensing element and to provide the measured acceleration signals to the external world through an I2C/SPI serial interface. The sensing element, capable of detecting the acceleration, is manufactured using a dedicated process developed by ST to produce inertial sensors and actuators in silicon. The IC interface instead is manufactured using a CMOS process that allows high level of integration to design a dedicated circuit which is factory trimmed to better match the sensing element characteristics.

Part No.	Ord. No.	Description
o LIS 3LV02 DL	61033	IC Accelerometer 3 AXIS LGA16
S LIS 3LV02 DQ	56071	IC Accelerometer 3 AXIS QFPN28

ADXL Series



The ADXL320 is a low cost, low power, complete dual-axis accelerometer with signal conditioned voltage outputs, which is all on a single monolithic IC. The product measures acceleration with a full-scale range of ±5g (typical). It can also measure both dynamic acceleration (vibration) and static acceleration (gravity)

Part No.	Ord. No.	Description
o ADXL 320 JCP	54570	Accelerometer ±5g LFCSP16
o ADXL 321 JCP	54573	Accelerometer ±18g LFCSP16

## Modules

DC/DC Converters



D 2

AC/DC Power Supplies



D 19

RF Modules



D 28

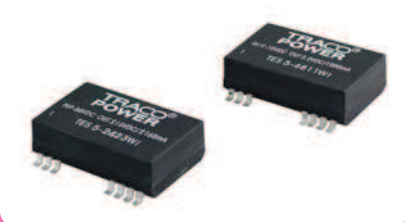
SOS electronic is official distributor of

# TRACO POWER<sup>®</sup>

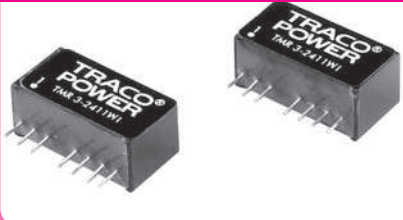
products

## DC/DC converters

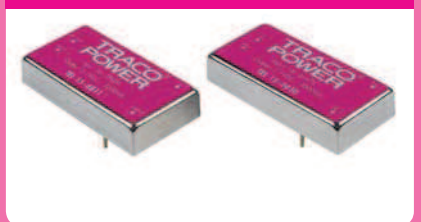
SMD package  
DC/DC converters



SIP package  
DC/DC converters



General purpose  
DC/DC converters



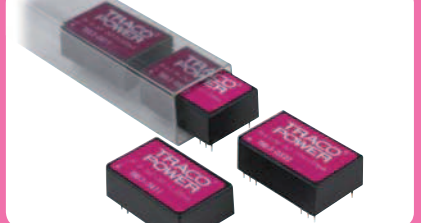
High performance  
DC/DC converters



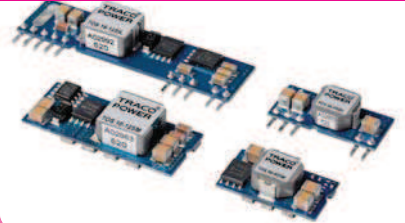
High power modules



Reinforced I/O isolation  
DC/DC converters



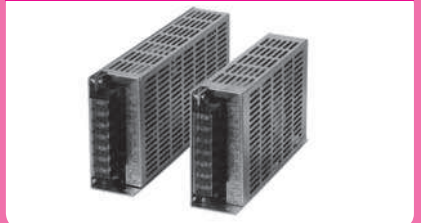
POL (Point-of-Load)  
Switching Regulators



High Voltage  
DC/DC converters



High power industrial  
DC/DC converters



## DC/AC inverters



## AC/DC power supplies

Open frame  
design



Encapsulated  
power modules



Enclosed metal  
case supplies



DIN rail Power  
supplies



## SMD Package DC/DC Converters

Offered SMD package DC/DC converters are optimized for lead-free soldering processes.

### TES-1 Series 1 W



- Non regulated
- Small SMD package with standard footprint
- I/O isolation 1500 VDC
- Single and dual output models
- Input Voltage 5, 12 and 24 VDC
- High efficiency up to 80%
- Operating temperature range -40 to +85°C
- High accuracy of pin co-planarity
- Qualified for leadfree reflow solder process according IPC/JEDEC J-STD-020C
- Available in tape and reel package

#### Single output models



#### Dual output models

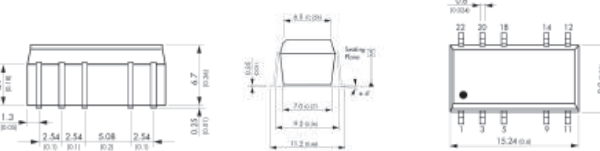


Part No.	Input Voltage	Output Voltage	Output Current Max.
TES-1-0511	5 VDC ± 10%	5 VDC	200 mA
TES-1-0512	5 VDC ± 10%	12 VDC	85 mA
TES-1-0513	5 VDC ± 10%	15 VDC	65 mA
TES-1-0521	5 VDC ± 10%	± 5 VDC	± 100 mA
TES-1-0522	5 VDC ± 10%	± 12 VDC	± 40 mA
TES-1-0523	5 VDC ± 10%	± 15 VDC	± 35 mA
TES-1-1211	12 VDC ± 10%	5 VDC	200 mA
TES-1-1212	12 VDC ± 10%	12 VDC	85 mA
TES-1-1213	12 VDC ± 10%	15 VDC	65 mA
TES-1-1221	12 VDC ± 10%	± 5 VDC	± 100 mA
TES-1-1222	12 VDC ± 10%	± 12 VDC	± 40 mA
TES-1-1223	12 VDC ± 10%	± 15 VDC	± 35 mA
TES-1-2411	24 VDC ± 10%	5 VDC	200 mA
TES-1-2412	24 VDC ± 10%	12 VDC	85 mA
TES-1-2413	24 VDC ± 10%	15 VDC	65 mA
TES-1-2421	24 VDC ± 10%	± 5 VDC	± 100 mA
TES-1-2422	24 VDC ± 10%	± 12 VDC	± 40 mA
TES-1-2423	24 VDC ± 10%	± 15 VDC	± 35 mA

### TSV Series 1 W



- Non regulated
- SMD Package (SOIC-22)
- Isolated Single and Dual Output Models
- I/O-Isolation 3'000 VDC
- High Efficiency up to 81%
- Extended temperature range -40°C to +85°C
- High Accuracy of Pin Co-Planarity
- Available in Tape and Reel Package
- Lead free Design, RoHS compliant



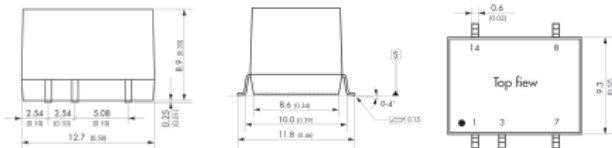
Part No.	Input Voltage	Output Voltage	Output Current Max.
TSV 0505S	5 VDC ± 10%	5 VDC	200 mA
TSV 0512S	5 VDC ± 10%	12 VDC	80 mA
TSV 0515S	5 VDC ± 10%	15 VDC	65 mA
TSV 0505D	5 VDC ± 10%	± 5 VDC	± 100 mA
TSV 0512D	5 VDC ± 10%	± 12 VDC	± 40 mA
TSV 0515D	5 VDC ± 10%	± 15 VDC	± 30 mA
TSV 1205S	12 VDC ± 10%	5 VDC	200 mA
TSV 1212S	12 VDC ± 10%	12 VDC	80 mA
TSV 1215S	12 VDC ± 10%	15 VDC	65 mA
TSV 1205D	12 VDC ± 10%	± 5 VDC	± 100 mA
TSV 1212D	12 VDC ± 10%	± 12 VDC	± 40 mA
TSV 1215D	12 VDC ± 10%	± 15 VDC	± 30 mA
TSV 2405S	24 VDC ± 10%	5 VDC	200 mA
TSV 2412S	24 VDC ± 10%	12 VDC	80 mA
TSV 2415S	24 VDC ± 10%	15 VDC	65 mA
TSV 2405D	24 VDC ± 10%	± 5 VDC	± 100 mA
TSV 2412D	24 VDC ± 10%	± 12 VDC	± 40 mA
TSV 2415D	24 VDC ± 10%	± 15 VDC	± 30 mA

### TSH Series 2 W

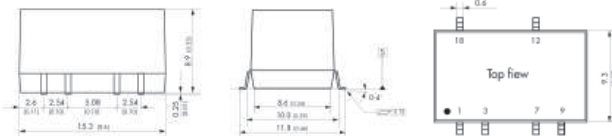


- Non regulated
- I/O isolation 1000 VDC
- Short circuit protection limited to 1 s
- High efficiency up to 80 %
- SMD puzdro so štandardizovanými vývodmi
- Vysoká presnosť vývodov v jednej rovine
- Single and dual output models
- Operating temperature range -40°C to +85°C

#### Single output models



#### Dual output models

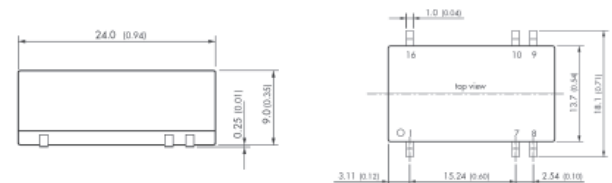


Part No.	Input Voltage	Output Voltage	Output Current Max.
TSH 0505S	5 VDC ± 10%	5 VDC	400 mA
TSH 0512S	5 VDC ± 10%	12 VDC	165 mA
TSH 0505D	5 VDC ± 10%	± 5 VDC	± 200 mA
TSH 0512D	5 VDC ± 10%	± 12 VDC	± 80 mA
TSH 0515D	5 VDC ± 10%	± 15 VDC	± 65 mA
TSH 1205S	12 VDC ± 10%	5 VDC	400 mA
TSH 1212S	12 VDC ± 10%	12 VDC	165 mA
TSH 1205D	12 VDC ± 10%	± 5 VDC	± 200 mA
TSH 1212D	12 VDC ± 10%	± 12 VDC	± 80 mA
TSH 1215D	12 VDC ± 10%	± 15 VDC	± 65 mA
TSH 2405S	24 VDC ± 10%	5 VDC	400 mA
TSH 2412S	24 VDC ± 10%	12 VDC	165 mA
TSH 2405D	24 VDC ± 10%	± 5 VDC	± 200 mA
TSH 2412D	24 VDC ± 10%	± 12 VDC	± 80 mA
TSH 2415D	24 VDC ± 10%	± 15 VDC	± 65 mA

### TES-2M Series 2 W



- Non regulated
- Ultracompact SMD-package
- I/O isolation 4000 VACrms
- Reinforced insulation rated for working voltages up to 300 VAC
- Industrial & medical safety approval
- Operating temp. range -40°C to +71°C
- Qualified for leadfree reflow solder process
- Available in tape & reel package



Part No.	Input Voltage	Output Voltage	Output Current Max.
TES 2-0511M	5 VDC ± 10%	5 VDC	400 mA
TES 2-0512M	5 VDC ± 10%	12 VDC	165 mA
TES 2-0513M	5 VDC ± 10%	15 VDC	133 mA
TES 2-0522M	5 VDC ± 10%	± 12 VDC	± 83 mA
TES 2-0523M	5 VDC ± 10%	± 15 VDC	± 66 mA
TES 2-1211M	12 VDC ± 10%	5 VDC	400 mA
TES 2-1212M	12 VDC ± 10%	12 VDC	165 mA
TES 2-1213M	12 VDC ± 10%	15 VDC	133 mA
TES 2-1222M	12 VDC ± 10%	± 12 VDC	± 83 mA
TES 2-1223M	12 VDC ± 10%	± 15 VDC	± 66 mA
TES 2-2411M	24 VDC ± 10%	5 VDC	400 mA
TES 2-2412M	24 VDC ± 10%	12 VDC	165 mA
TES 2-2413M	24 VDC ± 10%	15 VDC	133 mA
TES 2-2422M	24 VDC ± 10%	± 12 VDC	± 83 mA
TES 2-2423M	24 VDC ± 10%	± 15 VDC	± 66 mA

For more information, please contact  
the SOS's sales department  
[sales@soselectronic.com](mailto:sales@soselectronic.com)  
☎ +421 55 786 04 19

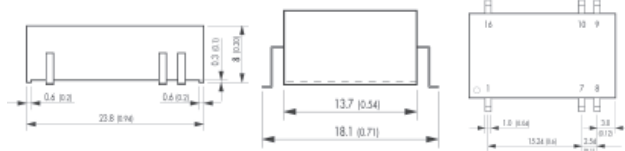
## SMD Package DC/DC Converters

(continued)

### TES-2N Series 2 W



- Regulated, max. 0,5 %
- Low profile SMD-package
- Wide 2:1 Input Voltage range
- I/O-isolation 1500 VDC
- Input filter meets EN55022, class A
- Operating temp. range -40°C to + 85°C
- Short-circuit protection
- Qualified for leadfree reflow solder process according IPC J-STD-020C
- Available in tape and reel package



Part No.	Input Voltage	Output Voltage	Output Current Max.
TES 2N-0510	4,5 - 9 VDC	3,3 VDC	500 mA
TES 2N-0511	4,5 - 9 VDC	5 VDC	400 mA
TES 2N-0512	4,5 - 9 VDC	12 VDC	165 mA
TES 2N-0513	4,5 - 9 VDC	15 VDC	35 mA
TES 2N-0521	4,5 - 9 VDC	± 5 VDC	± 200 mA
TES 2N-0522	4,5 - 9 VDC	± 12 VDC	± 85 mA
TES 2N-0523	4,5 - 9 VDC	± 15 VDC	± 65 mA
TES 2N-1210	9 - 18 VDC	3,3 VDC	500 mA
TES 2N-1211	9 - 18 VDC	5 VDC	400 mA
TES 2N-1212	9 - 18 VDC	12 VDC	165 mA
TES 2N-1213	9 - 18 VDC	15 VDC	35 mA
TES 2N-1221	9 - 18 VDC	± 5 VDC	± 200 mA
TES 2N-1222	9 - 18 VDC	± 12 VDC	± 85 mA
TES 2N-1223	9 - 18 VDC	± 15 VDC	± 65 mA
TES 2N-2410	18 - 36 VDC	3,3 VDC	500 mA
TES 2N-2411	18 - 36 VDC	5 VDC	400 mA
TES 2N-2412	18 - 36 VDC	12 VDC	165 mA
TES 2N-2413	18 - 36 VDC	15 VDC	35 mA
TES 2N-2421	18 - 36 VDC	± 5 VDC	± 200 mA
TES 2N-2422	18 - 36 VDC	± 12 VDC	± 85 mA
TES 2N-2423	18 - 36 VDC	± 15 VDC	± 65 mA
TES 2N-4810	36 - 75 VDC	3,3 VDC	500 mA
TES 2N-4811	36 - 75 VDC	5 VDC	400 mA
TES 2N-4812	36 - 75 VDC	12 VDC	165 mA
TES 2N-4813	36 - 75 VDC	15 VDC	35 mA
TES 2N-4821	36 - 75 VDC	± 5 VDC	± 200 mA
TES 2N-4822	36 - 75 VDC	± 12 VDC	± 85 mA
TES 2N-4823	36 - 75 VDC	± 15 VDC	± 65 mA

### TES-3 Series 3 W



- Regulated, max. 0,3 %
- SMD package
- Wide 2:1 Input Voltage range
- I/O isolation 1500VDC
- Under voltage lockout
- Operating temp. range -40°C to 85°C
- Short circuit protection
- High accuracy of pin co-planarity
- Lead free design - RoHS compliant

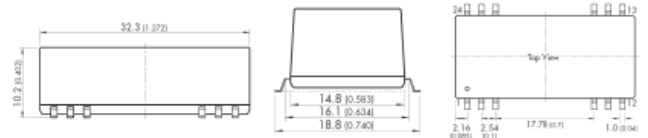


Part No.	Input Voltage	Output Voltage	Output Current Max.
TSH 0505S	5 VDC ± 10%	5 VDC	400 mA
TSH 0512S	5 VDC ± 10%	12 VDC	165 mA
TSH 0505D	5 VDC ± 10%	± 5 VDC	± 200 mA
TSH 0512D	5 VDC ± 10%	± 12 VDC	± 80 mA
TSH 0515D	5 VDC ± 10%	± 15 VDC	± 65 mA
TSH 1205S	12 VDC ± 10%	5 VDC	400 mA
TSH 1212S	12 VDC ± 10%	12 VDC	165 mA
TSH 1205D	12 VDC ± 10%	± 5 VDC	± 200 mA
TSH 1212D	12 VDC ± 10%	± 12 VDC	± 80 mA
TSH 1215D	12 VDC ± 10%	± 15 VDC	± 65 mA
TSH 2405S	24 VDC ± 10%	5 VDC	400 mA
TSH 2412S	24 VDC ± 10%	12 VDC	165 mA
TSH 2405D	24 VDC ± 10%	± 5 VDC	± 200 mA
TSH 2412D	24 VDC ± 10%	± 12 VDC	± 80 mA
TSH 2415D	24 VDC ± 10%	± 15 VDC	± 65 mA

### TES-3WI Series 3 W



- Regulated, max. 0,3 %
- Compact SMD package
- 33,4 x 18,8 mm footprint
- Ultra-wide 4:1 Input Voltage range
- I/O isolation 1500 VDC
- Operating temp. range -40 °C to 71 °C
- Short circuit protection
- Input filter to meet EN 55022, class A
- Remote On/Off
- High accuracy of pin co-planarity
- Qualified for leadfree reflow solder process according IPC/JEDEC J-STD-020D
- Available in tape & reel package

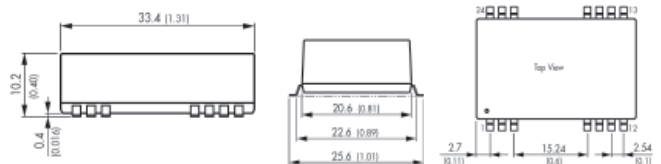


Part No.	Input Voltage	Output Voltage	Output Current Max.
TES 3-2410WI	9 - 36 VDC	3,3 VDC	750 mA
TES 3-2411WI	9 - 36 VDC	5 VDC	600 mA
TES 3-2412WI	9 - 36 VDC	12 VDC	250 mA
TES 3-2413WI	9 - 36 VDC	15 VDC	200 mA
TES 3-2421WI	9 - 36 VDC	± 5 VDC	± 300 mA
TES 3-2422WI	9 - 36 VDC	± 12 VDC	± 125 mA
TES 3-2423WI	9 - 36 VDC	± 15 VDC	± 100 mA
TES 3-4810WI	18 - 75 VDC	3,3 VDC	750 mA
TES 3-4811WI	18 - 75 VDC	5 VDC	600 mA
TES 3-4812WI	18 - 75 VDC	12 VDC	250 mA
TES 3-4813WI	18 - 75 VDC	15 VDC	200 mA
TES 3-4821WI	18 - 75 VDC	± 5 VDC	± 300 mA
TES 3-4822WI	18 - 75 VDC	± 12 VDC	± 125 mA
TES 3-4823WI	18 - 75 VDC	± 15 VDC	± 100 mA

### TES-5 Series 5 W



- Regulated, max. 0,3 %
- Compact low profile SMD package
- Wide 2:1 Input Voltage range
- I/O isolation 1500VDC
- Operating temp. range -40°C to 85°C max.
- Short circuit protection
- Remote On/Off
- High accuracy of pin co-planarity
- Lead free design - RoHS compliant



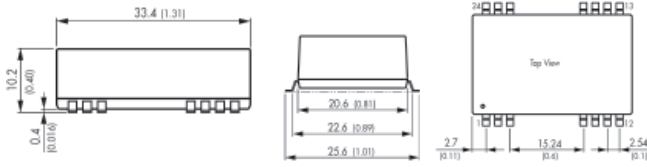
Part No.	Input Voltage	Output Voltage	Output Current Max.
TES 5-1210	9 - 18 VDC	3,3 VDC	1200 mA
TES 5-1211	9 - 18 VDC	5 VDC	1000 mA
TES 5-1212	9 - 18 VDC	12 VDC	420 mA
TES 5-1213	9 - 18 VDC	15 VDC	335 mA
TES 5-1221	9 - 18 VDC	± 5 VDC	± 500 mA
TES 5-1222	9 - 18 VDC	± 12 VDC	± 210 mA
TES 5-1223	9 - 18 VDC	± 15 VDC	± 165 mA
TES 5-2410	18 - 36 VDC	3,3 VDC	1200 mA
TES 5-2411	18 - 36 VDC	5 VDC	1000 mA
TES 5-2412	18 - 36 VDC	12 VDC	420 mA
TES 5-2413	18 - 36 VDC	15 VDC	335 mA
TES 5-2421	18 - 36 VDC	± 5 VDC	± 500 mA
TES 5-2422	18 - 36 VDC	± 12 VDC	± 210 mA
TES 5-2423	18 - 36 VDC	± 15 VDC	± 165 mA
TES 5-4810	36 - 75 VDC	3,3 VDC	1200 mA
TES 5-4811	36 - 75 VDC	5 VDC	1000 mA
TES 5-4812	36 - 75 VDC	12 VDC	420 mA
TES 5-4813	36 - 75 VDC	15 VDC	335 mA
TES 5-4821	36 - 75 VDC	± 5 VDC	± 500 mA
TES 5-4822	36 - 75 VDC	± 12 VDC	± 210 mA
TES 5-4823	36 - 75 VDC	± 15 VDC	± 165 mA

The list of in stock types is presented on page D25  
Other types available on customers' individual order.

## TES-5WI Series 5 W



- Regulated, max. 1 %
- Compact SMD package
- 33.4 x 25.6 mm footprint
- **Ultra-wide 4:1 Input Voltage range**
- I/O isolation 1500 VDC
- Operating temp. range -40 °C to 71 °C
- Short circuit protection
- Input filter to meet EN 55022, class A
- Remote On/Off
- High accuracy of pin co-planarity
- Qualified for leadfree reflow solder process according IPC/JEDEC J-STD-020D

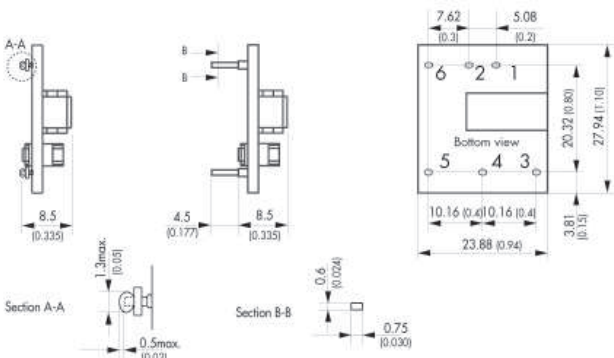


Part No.	Input Voltage	Output Voltage	Output Current Max.
TES 5-2410WI	9 - 36 VDC	3,3 VDC	1200 mA
TES 5-2411WI	9 - 36 VDC	5 VDC	1000 mA
TES 5-2412WI	9 - 36 VDC	12 VDC	420 mA
TES 5-2413WI	9 - 36 VDC	15 VDC	335 mA
TES 5-2421WI	9 - 36 VDC	± 5 VDC	± 500 mA
TES 5-2422WI	9 - 36 VDC	± 12 VDC	± 210 mA
TES 5-2423WI	9 - 36 VDC	± 15 VDC	± 165 mA
TES 5-4810WI	18 - 75 VDC	3,3 VDC	1200 mA
TES 5-4811WI	18 - 75 VDC	5 VDC	1000 mA
TES 5-4812WI	18 - 75 VDC	12 VDC	420 mA
TES 5-4813WI	18 - 75 VDC	15 VDC	335 mA
TES 5-4821WI	18 - 75 VDC	± 5 VDC	± 500 mA
TES 5-4822WI	18 - 75 VDC	± 12 VDC	± 210 mA
TES 5-4823WI	18 - 75 VDC	± 15 VDC	± 165 mA

## TON-15 / TON-15WI Series 15 W



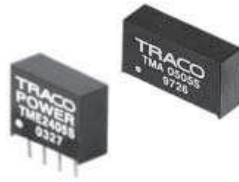
- Regulated, max. 0,2 %
- Smallest 15W converter, ultra compact size: 27.9 x 23.9 x 8.5mm
- Cost efficient open frame design with industry standard pin-out
- Surface-mount (SM) and through-hole version
- I/O Isolation voltage 2250V, rated for basic insulation
- Extended operating temp.range: -40°C to +85°C
- Input Filter meets EN55022, Class A
- Under Voltage Lockout
- Remote On/Off
- Lead free Design, RoHS compliant



Part No.	Input Voltage	Output Voltage	Output Current Max.
TON 15-2410-SM	18 - 36 VDC	3,3 VDC	3500 mA
TON 15-2411-SM	18 - 36 VDC	5 VDC	3000 mA
TON 15-2412-SM	18 - 36 VDC	12 VDC	1250 mA
TON 15-2413-SM	18 - 36 VDC	15 VDC	1000 mA
TON 15-2410WI-SM	9 - 36 VDC	3,3 VDC	4000 mA
TON 15-2411WI-SM	9 - 36 VDC	5 VDC	3000 mA
TON 15-2412WI-SM	9 - 36 VDC	12 VDC	1250 mA
TON 15-2413WI-SM	9 - 36 VDC	15 VDC	1000 mA
TON 15-4810-SM	36 - 75 VDC	3,3 VDC	3500 mA
TON 15-4811-SM	36 - 75 VDC	5 VDC	3000 mA
TON 15-4812-SM	36 - 75 VDC	12 VDC	1250 mA
TON 15-4813-SM	36 - 75 VDC	15 VDC	1000 mA
TON 15-4810WI-SM	18 - 75 VDC	3,3 VDC	4000 mA
TON 15-4811WI-SM	18 - 75 VDC	5 VDC	3000 mA
TON 15-4812WI-SM	18 - 75 VDC	12 VDC	1250 mA
TON 15-4813WI-SM	18 - 75 VDC	15 VDC	1000 mA

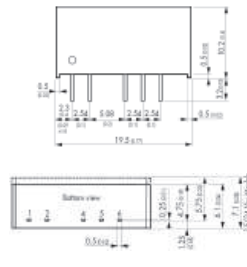
## SIP Package DC/DC Converters

### TMA/TME Series 1 W

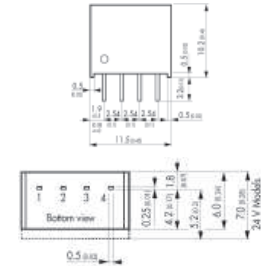


- Non regulated
- Single and Dual Output Models
- I/O-Isolation 1'000 VDC
- High Efficiency up to 81%
- Operating Temperature -40°C to +85°C
- Industry Standard Pinout
- 100% Burn-in (8 h)
- Lead free Design, RoHS compliant

TMA



TME

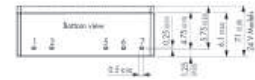
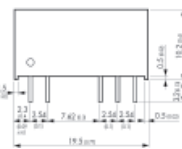


Part No.	Input Voltage	Output Voltage	Output Current Max.
TMA 0505S	5 VDC ± 10 %	5 VDC	200 mA
TME 0509S	5 VDC ± 10 %	9 VDC	110 mA
TMA 0512S	5 VDC ± 10 %	12 VDC	80 mA
TMA 0515S	5 VDC ± 10 %	15 VDC	65 mA
TMA 0505D	5 VDC ± 10 %	± 5 VDC	± 100 mA
TMA 0512D	5 VDC ± 10 %	± 12 VDC	± 40 mA
TMA 0515D	5 VDC ± 10 %	± 15 VDC	± 35 mA
TMA 1205S	12 VDC ± 10 %	5 VDC	200 mA
TME 1209S	12 VDC ± 10 %	9 VDC	110 mA
TMA 1212S	12 VDC ± 10 %	12 VDC	80 mA
TMA 1215S	12 VDC ± 10 %	15 VDC	65 mA
TMA 1205D	12 VDC ± 10 %	± 5 VDC	± 100 mA
TMA 1212D	12 VDC ± 10 %	± 12 VDC	± 40 mA
TMA 1215D	12 VDC ± 10 %	± 15 VDC	± 35 mA
TMA 1505S	15 VDC ± 10 %	5 VDC	200 mA
TMA 1512S	15 VDC ± 10 %	12 VDC	80 mA
TMA 1515S	15 VDC ± 10 %	15 VDC	65 mA
TMA 1505D	15 VDC ± 10 %	± 5 VDC	± 100 mA
TMA 1512D	15 VDC ± 10 %	± 12 VDC	± 40 mA
TMA 1515D	15 VDC ± 10 %	± 15 VDC	± 35 mA
TMA2405S	24 VDC ± 10 %	5 VDC	200 mA
TME 2409S	24 VDC ± 10 %	9 VDC	110 mA
TMA2412S	24 VDC ± 10 %	12 VDC	80 mA
TMA2415S	24 VDC ± 10 %	15 VDC	65 mA
TMA2405D	24 VDC ± 10 %	± 5 VDC	± 100 mA
TMA2412D	24 VDC ± 10 %	± 12 VDC	± 40 mA
TMA2415D	24 VDC ± 10 %	± 15 VDC	± 35 mA

### TMV Series 1 W



- Non regulated
- Single-in-Line (SIL) Package
- Isolated Single and Dual Output Models
- **I/O-Isolation 3'000 VDC**
- High Efficiency up to 81%
- Extended Temp. Range -40°C to +85°C
- Pin-compatible with other Manufacturers
- 100% Burn-in (8 h)
- Lead free Design, RoHS compliant



Part No.	Input Voltage	Output Voltage	Output Current Max.
TMV 0505S	5 VDC ± 10 %	5 VDC	200 mA
TMV 0509S	5 VDC ± 10 %	9 VDC	110 mA
TMV 0512S	5 VDC ± 10 %	12 VDC	80 mA
TMV 0515S	5 VDC ± 10 %	15 VDC	65 mA
TMV 0505D	5 VDC ± 10 %	± 5 VDC	± 100 mA
TMV 0512D	5 VDC ± 10 %	± 12 VDC	± 40 mA
TMV 0515D	5 VDC ± 10 %	± 15 VDC	± 30 mA
TMV 1205S	12 VDC ± 10 %	5 VDC	200 mA
TMV 1212S	12 VDC ± 10 %	12 VDC	80 mA
TMV 1215S	12 VDC ± 10 %	15 VDC	65 mA
TMV 1205D	12 VDC ± 10 %	± 5 VDC	± 100 mA
TMV 1212D	12 VDC ± 10 %	± 12 VDC	± 40 mA
TMV 1215D	12 VDC ± 10 %	± 15 VDC	± 30 mA
TMV 2405S	24 VDC ± 10 %	5 VDC	200 mA
TMV 2412S	24 VDC ± 10 %	12 VDC	80 mA
TMV 2415S	24 VDC ± 10 %	15 VDC	65 mA
TMV 2405D	24 VDC ± 10 %	± 5 VDC	± 100 mA
TMV 2412D	24 VDC ± 10 %	± 12 VDC	± 40 mA
TMV 2415D	24 VDC ± 10 %	± 15 VDC	± 30 mA

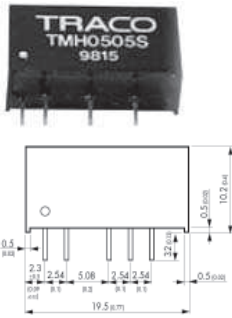
## SIP Package DC/DC Converters

(continued)

### TMH Series 2 W



- Non regulated
- Single-in-line package (SIP)
- Fully SMD-design
- Isolated single and dual output
- I/O isolation 1'000 VDC
- High efficiency up to 83 %
- Industry standard pinout
- 100% burn-in (8 h)
- Lead free design, RoHS compliant

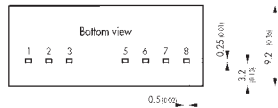
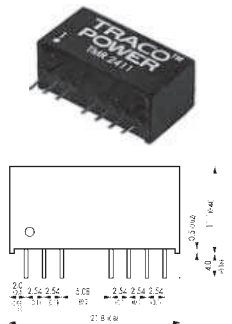


Part No.	Input Voltage	Output Voltage	Output Current Max.
TMH 0505S	5 VDC ± 10%	5 VDC	400 mA
TMH 0512S	5 VDC ± 10%	12 VDC	165 mA
TMH 0515S	5 VDC ± 10%	15 VDC	130 mA
TMH 0505D	5 VDC ± 10%	± 5 VDC	± 200 mA
TMH 0512D	5 VDC ± 10%	± 12 VDC	± 80 mA
TMH 0515D	5 VDC ± 10%	± 15 VDC	± 65 mA
TMH 1205S	12 VDC ± 10%	5 VDC	400 mA
TMH 1212S	12 VDC ± 10%	12 VDC	165 mA
TMH 1215S	12 VDC ± 10%	15 VDC	130 mA
TMH 1205D	12 VDC ± 10%	± 5 VDC	± 200 mA
TMH 1212D	12 VDC ± 10%	± 12 VDC	± 80 mA
TMH 1215D	12 VDC ± 10%	± 15 VDC	± 65 mA
TMH 2405S	24 VDC ± 10%	5 VDC	400 mA
TMH 2412S	24 VDC ± 10%	12 VDC	165 mA
TMH 2415S	24 VDC ± 10%	15 VDC	130 mA
TMH 2405D	24 VDC ± 10%	± 5 VDC	± 200 mA
TMH 2412D	24 VDC ± 10%	± 12 VDC	± 80 mA
TMH 2415D	24 VDC ± 10%	± 15 VDC	± 65 mA

### TMR-2 Series 2 W



- Regulated, max. ± 0,3 %
- Wide 2:1 Input Voltage range
- Compact SIP-8 package
- Small footprint
- Full SMD design
- Temperature range -40° to +85°C
- High efficiency
- Excellent load and line regulation
- Indefinite short-circuit protection
- I/O isolation 1000VDC
- Remote On/Off control
- Fully RoHS compliant

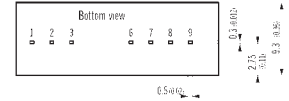
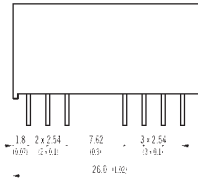


Part No.	Input Voltage	Output Voltage	Output Current Max.
TMR 0510	4,5 - 9 VDC	3,3 VDC	500 mA
TMR 0511	4,5 - 9 VDC	5 VDC	400 mA
TMR 0512	4,5 - 9 VDC	12 VDC	165 mA
TMR 0521	4,5 - 9 VDC	± 5 VDC	± 200 mA
TMR 0522	4,5 - 9 VDC	± 12 VDC	± 85 mA
TMR 0523	4,5 - 9 VDC	± 15 VDC	± 65 mA
TMR 1210	9 - 18 VDC	3,3 VDC	500 mA
TMR 1211	9 - 18 VDC	5 VDC	400 mA
TMR 1212	9 - 18 VDC	12 VDC	165 mA
TMR 1221	9 - 18 VDC	± 5 VDC	± 200 mA
TMR 1222	9 - 18 VDC	± 12 VDC	± 85 mA
TMR 1223	9 - 18 VDC	± 15 VDC	± 65 mA
TMR 2410	18 - 36 VDC	3,3 VDC	500 mA
TMR 2411	18 - 36 VDC	5 VDC	400 mA
TMR 2412	18 - 36 VDC	12 VDC	165 mA
TMR 2421	18 - 36 VDC	± 5 VDC	± 200 mA
TMR 2422	18 - 36 VDC	± 12 VDC	± 85 mA
TMR 2423	18 - 36 VDC	± 15 VDC	± 65 mA
TMR 4810	36 - 75 VDC	3,3 VDC	500 mA
TMR 4811	36 - 75 VDC	5 VDC	400 mA
TMR 4812	36 - 75 VDC	12 VDC	165 mA
TMR 4821	36 - 75 VDC	± 5 VDC	± 200 mA
TMR 4822	36 - 75 VDC	± 12 VDC	± 85 mA
TMR 4823	36 - 75 VDC	± 15 VDC	± 65 mA

### TMR-2WI Series 2 W



- Regulated, max. 0,5 %
- Ultra-wide 4:1 input range
- SIP-9 package
- Full SMD design
- Temperature range -40 to +85°C
- High efficiency
- Excellent load and line regulation
- Indefinite short-circuit protection
- I/O isolation 1500 VDC
- Remote On/Off control
- Fully RoHS compliant

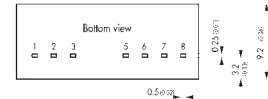
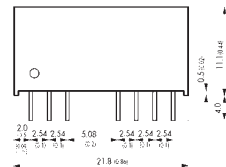


Part No.	Input Voltage	Output Voltage	Output Current Max.
TMR 2-2410WI	9 - 36 VDC	3,3 VDC	500 mA
TMR 2-2411WI	9 - 36 VDC	5 VDC	400 mA
TMR 2-2412WI	9 - 36 VDC	12 VDC	165 mA
TMR 2-2413WI	9 - 36 VDC	15 VDC	135 mA
TMR 2-2421WI	9 - 36 VDC	± 5 VDC	± 200 mA
TMR 2-2422WI	9 - 36 VDC	± 12 VDC	± 85 mA
TMR 2-2423WI	9 - 36 VDC	± 15 VDC	± 65 mA
TMR 2-4810WI	18 - 75 VDC	3,3 VDC	500 mA
TMR 2-4811WI	18 - 75 VDC	5 VDC	400 mA
TMR 2-4812WI	18 - 75 VDC	12 VDC	165 mA
TMR 2-4813WI	18 - 75 VDC	15 VDC	135 mA
TMR 2-4821WI	18 - 75 VDC	± 5 VDC	± 200 mA
TMR 2-4822WI	18 - 75 VDC	± 12 VDC	± 85 mA
TMR 2-4823WI	18 - 75 VDC	± 15 VDC	± 65 mA

### TMR-3 Series 3 W



- Regulated, max. 0,2 %
- Wide 2:1 Input Voltage range
- Ultra-compact SIP-8 package
- Small footprint
- Full SMD design
- Temperature range -40° to +85°C
- High efficiency
- Excellent load and line regulation
- Indefinite short-circuit protection
- I/O isolation 1500 VDC
- Remote On/Off control
- Fully RoHS compliant



Part No.	Input Voltage	Output Voltage	Output Current Max.
TMR 3-0510	4,5 - 9 VDC	3,3 VDC	700 mA
TMR 3-0511	4,5 - 9 VDC	5 VDC	600 mA
TMR 3-0512	4,5 - 9 VDC	12 VDC	250 mA
TMR 3-0513	4,5 - 9 VDC	15 VDC	200 mA
TMR 3-0521	4,5 - 9 VDC	± 5 VDC	± 300 mA
TMR 3-0522	4,5 - 9 VDC	± 12 VDC	± 125 mA
TMR 3-0523	4,5 - 9 VDC	± 15 VDC	± 100 mA
TMR 3-1210	9 - 18 VDC	3,3 VDC	700 mA
TMR 3-1211	9 - 18 VDC	5 VDC	600 mA
TMR 3-1212	9 - 18 VDC	12 VDC	250 mA
TMR 3-1213	9 - 18 VDC	15 VDC	200 mA
TMR 3-1221	9 - 18 VDC	± 5 VDC	± 300 mA
TMR 3-1222	9 - 18 VDC	± 12 VDC	± 125 mA
TMR 3-1223	9 - 18 VDC	± 15 VDC	± 100 mA
TMR 3-2410	18 - 36 VDC	3,3 VDC	700 mA
TMR 3-2411	18 - 36 VDC	5 VDC	600 mA
TMR 3-2412	18 - 36 VDC	12 VDC	250 mA
TMR 3-2413	18 - 36 VDC	15 VDC	200 mA
TMR 3-2421	18 - 36 VDC	± 5 VDC	± 300 mA
TMR 3-2422	18 - 36 VDC	± 12 VDC	± 125 mA
TMR 3-2423	18 - 36 VDC	± 15 VDC	± 100 mA
TMR 3-4810	36 - 75 VDC	3,3 VDC	700 mA
TMR 3-4811	36 - 75 VDC	5 VDC	600 mA
TMR 3-4812	36 - 75 VDC	12 VDC	250 mA
TMR 3-4813	36 - 75 VDC	15 VDC	200 mA
TMR 3-4821	36 - 75 VDC	± 5 VDC	± 300 mA
TMR 3-4822	36 - 75 VDC	± 12 VDC	± 125 mA
TMR 3-4823	36 - 75 VDC	± 15 VDC	± 100 mA

The list of in stock types is presented on page D25.

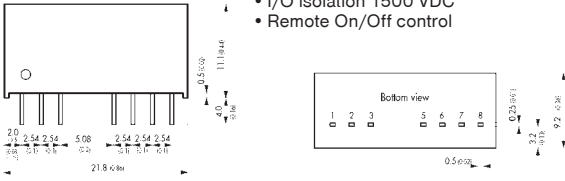
Other types available on customers' individual order.



## TMR-3WI Series 3 W



- Regulated, max. 0,2 %
- Highest power density in SIP package
- **Ultra wide 4:1 input range**
- Small footprint: 21.8 x 9.2 mm
- Temperature range -40° to +85°C
- High efficiency up to 81%
- Excellent load and line regulation
- Short-circuit protection
- I/O isolation 1500 VDC
- Remote On/Off control



Part No.	Input Voltage	Output Voltage	Output Current Max.
TMR 3-2410WI	9 - 36 VDC	3,3 VDC	700 mA
TMR 3-2411WI	9 - 36 VDC	5 VDC	600 mA
TMR 3-2412WI	9 - 36 VDC	12 VDC	250 mA
TMR 3-2413WI	9 - 36 VDC	15 VDC	200 mA
TMR 3-2421WI	9 - 36 VDC	± 5 VDC	± 300 mA
TMR 3-2422WI	9 - 36 VDC	± 12 VDC	± 125 mA
TMR 3-2423WI	9 - 36 VDC	± 15 VDC	± 100 mA
TMR 3-4810WI	18 - 75 VDC	3,3 VDC	700 mA
TMR 3-4811WI	18 - 75 VDC	5 VDC	600 mA
TMR 3-4812WI	18 - 75 VDC	12 VDC	250 mA
TMR 3-4813WI	18 - 75 VDC	15 VDC	200 mA
TMR 3-4821WI	18 - 75 VDC	± 5 VDC	± 300 mA
TMR 3-4822WI	18 - 75 VDC	± 12 VDC	± 125 mA
TMR 3-4823WI	18 - 75 VDC	± 15 VDC	± 100 mA

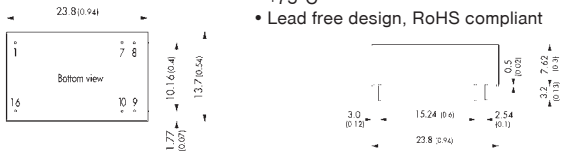
## General Purpose DC/DC Converters

Proven circuit topologies, full SMT construction and highly automated assembly lines makes these series the most cost-effective solution for many applications.

## TEL-2 Series 2 W



- Regulated, max. 0,5 %
- Ultracompact DIL-16 plastic package
- Wide 2:1 input range
- Regulated output
- I/O isolation 1500V
- Input filter meets EN55022A without ext. components
- Low ripple and noise
- Indefinite shortcircuit protection
- Operating temperature range -40°C to +75°C
- Lead free design, RoHS compliant

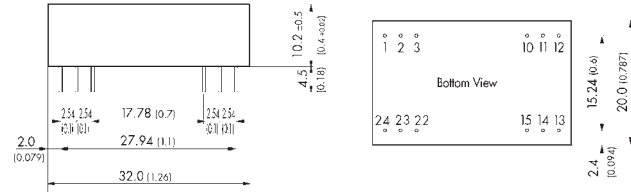


Part No.	Input Voltage	Output Voltage	Output Current Max.
TEL 2-0510	4,5 - 9 VDC	3,3 VDC	500 mA
TEL 2-0511	4,5 - 9 VDC	5 VDC	400 mA
TEL 2-0512	4,5 - 9 VDC	12 VDC	165 mA
TEL 2-0513	4,5 - 9 VDC	15 VDC	135 mA
TEL 2-0521	4,5 - 9 VDC	± 5 VDC	± 200 mA
TEL 2-0522	4,5 - 9 VDC	± 12 VDC	± 85 mA
TEL 2-0523	4,5 - 9 VDC	± 15 VDC	± 65 mA
TEL 2-1210	9 - 18 VDC	3,3 VDC	500 mA
TEL 2-1211	9 - 18 VDC	5 VDC	400 mA
TEL 2-1212	9 - 18 VDC	12 VDC	165 mA
TEL 2-1213	9 - 18 VDC	15 VDC	135 mA
TEL 2-1221	9 - 18 VDC	± 5 VDC	± 200 mA
TEL 2-1222	9 - 18 VDC	± 12 VDC	± 85 mA
TEL 2-1223	9 - 18 VDC	± 15 VDC	± 65 mA
TEL 2-2410	18 - 36 VDC	3,3 VDC	500 mA
TEL 2-2411	18 - 36 VDC	5 VDC	400 mA
TEL 2-2412	18 - 36 VDC	12 VDC	165 mA
TEL 2-2413	18 - 36 VDC	15 VDC	135 mA
TEL 2-2421	18 - 36 VDC	± 5 VDC	± 200 mA
TEL 2-2422	18 - 36 VDC	± 12 VDC	± 85 mA
TEL 2-2423	18 - 36 VDC	± 15 VDC	± 65 mA
TEL 2-4810	36 - 75 VDC	3,3 VDC	500 mA
TEL 2-4811	36 - 75 VDC	5 VDC	400 mA
TEL 2-4812	36 - 75 VDC	12 VDC	165 mA
TEL 2-4813	36 - 75 VDC	15 VDC	135 mA
TEL 2-4821	36 - 75 VDC	± 5 VDC	± 200 mA
TEL 2-4822	36 - 75 VDC	± 12 VDC	± 85 mA
TEL 2-4823	36 - 75 VDC	± 15 VDC	± 65 mA

## TEL-3 Series 3 W



- Regulated, max. ± 0,5 %
- Wide 2:1 and 3:1 input range
- High efficiency up to 81%
- DIL-24 plastic package
- Indefinite short-circuit protection
- I/O isolation 1500 VDC
- Available with industry standard Pinout (NP)
- Operating temperature range -40°C to +85°C

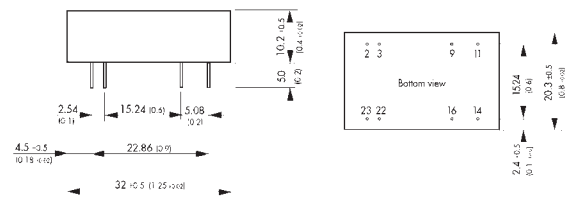


Part No.	Input Voltage	Output Voltage	Output Current Max.
TEL 3-0511	4,5 - 9 VDC	5 VDC	600 mA
TEL 3-0512	4,5 - 9 VDC	12 VDC	250 mA
TEL 3-0513	4,5 - 9 VDC	15 VDC	200 mA
TEL 3-0522	4,5 - 9 VDC	± 12 VDC	± 125 mA
TEL 3-0523	4,5 - 9 VDC	± 15 VDC	± 100 mA
TEL 3-1211	9 - 18 VDC	5 VDC	600 mA
TEL 3-1212	9 - 18 VDC	12 VDC	250 mA
TEL 3-1213	9 - 18 VDC	15 VDC	200 mA
TEL 3-1222	9 - 18 VDC	± 12 VDC	± 125 mA
TEL 3-1223	9 - 18 VDC	± 15 VDC	± 100 mA
TEL 3-2011	10 - 30 VDC	5 VDC	600 mA
TEL 3-2012	10 - 30 VDC	12 VDC	250 mA
TEL 3-2013	10 - 30 VDC	15 VDC	200 mA
TEL 3-2022	10 - 30 VDC	± 12 VDC	± 125 mA
TEL 3-2023	10 - 30 VDC	± 15 VDC	± 100 mA
TEL 3-2411	18 - 36 VDC	5 VDC	600 mA
TEL 3-2412	18 - 36 VDC	12 VDC	250 mA
TEL 3-2413	18 - 36 VDC	15 VDC	200 mA
TEL 3-2422	18 - 36 VDC	± 12 VDC	± 125 mA
TEL 3-2423	18 - 36 VDC	± 15 VDC	± 100 mA
TEL 3-4811	36 - 75 VDC	5 VDC	600 mA
TEL 3-4812	36 - 75 VDC	12 VDC	250 mA
TEL 3-4813	36 - 75 VDC	15 VDC	200 mA
TEL 3-4822	36 - 75 VDC	± 12 VDC	± 125 mA
TEL 3-4823	36 - 75 VDC	± 15 VDC	± 100 mA

## TEL-5 Series 5 W



- Regulated, max. 0,3 %
- Wide 2:1 input range
- Cost efficient SMD-design
- High power density
- High efficiency up to 86%
- Regulated outputs
- I/O isolation 1'500 VDC
- Indefinite short-circuit protection 24-pin DIP with industry standard pinout
- High reliability, MTBF >1 Mio. h
- Internal EMI filter to comply with EN 55022, class A (optional)
- Lead free design, RoHS compliant



Part No.	Input Voltage	Output Voltage	Output Current Max.
TEL 5-1210	9 - 18 VDC	3,3 VDC	1200 mA
TEL 5-1211	9 - 18 VDC	5 VDC	1000 mA
TEL 5-1212	9 - 18 VDC	12 VDC	500 mA
TEL 5-1222	9 - 18 VDC	± 12 VDC	± 250 mA
TEL 5-1223	9 - 18 VDC	± 15 VDC	± 200 mA
TEL 5-2410	18 - 36 VDC	3,3 VDC	1200 mA
TEL 5-2411	18 - 36 VDC	5 VDC	1000 mA
TEL 5-2412	18 - 36 VDC	12 VDC	500 mA
TEL 5-2422	18 - 36 VDC	± 12 VDC	± 250 mA
TEL 5-2423	18 - 36 VDC	± 15 VDC	± 200 mA

For more information, please contact  
the SOS's sales department  
[sales@soselectronic.com](mailto:sales@soselectronic.com)  
☎ +421 55 786 04 19

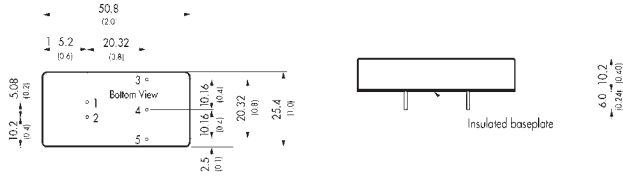


## General Purpose DC/DC Converters (continued)

### TEL-15 Series 15 W



- Regulated, max. 1 %
- **High efficiency up to 86%**
- Operating temp. range - 40°C to +71°C
- Indefinite short-circuit protection
- I/O isolation 1500 VDC
- Industry standard pinout
- Cost optimized design
- Lead free design, RoHS compliant

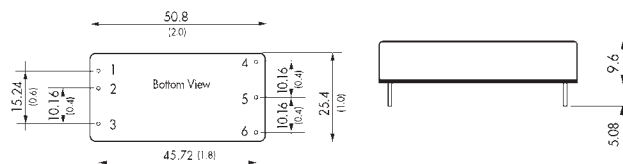


Part No.	Input Voltage	Output Voltage	Output Current Max.
TEL 15-1210	9 - 18 VDC	3,3 VDC	3000 mA
TEL 15-1211	9 - 18 VDC	5,1 VDC	3000 mA
TEL 15-1212	9 - 18 VDC	12 VDC	1250 mA
TEL 15-1213	9 - 18 VDC	15 VDC	1000 mA
TEL 15-1222	9 - 18 VDC	± 12 VDC	± 625 mA
TEL 15-1223	9 - 18 VDC	± 15 VDC	± 500 mA
TEL 15-2410	18 - 36 VDC	3,3 VDC	3000 mA
TEL 15-2411	18 - 36 VDC	5,1 VDC	3000 mA
TEL 15-2412	18 - 36 VDC	12 VDC	1250 mA
TEL 15-2413	18 - 36 VDC	15 VDC	1000 mA
TEL 15-2422	18 - 36 VDC	± 12 VDC	± 625 mA
TEL 15-2423	18 - 36 VDC	± 15 VDC	± 500 mA
TEL 15-4810	36 - 75 VDC	3,3 VDC	3000 mA
TEL 15-4811	36 - 75 VDC	5,1 VDC	3000 mA
TEL 15-4812	36 - 75 VDC	12 VDC	1250 mA
TEL 15-4813	36 - 75 VDC	15 VDC	1000 mA
TEL 15-4822	36 - 75 VDC	± 12 VDC	± 625 mA
TEL 15-4823	36 - 75 VDC	± 15 VDC	± 500 mA

### TEL-30 Series 30 W



- Regulated, max. 0,3 %
- Highest power density: 30W in 51x25x9,6mm package
- Industry standard footprint
- **Very high efficiency up to 86%**
- Models with low Output Voltages: 2.5 & 3.3VDC
- Output Voltage adjustable
- Optional remote On/Off
- Under voltage lockout
- Operating temp. range -40°C to +71°C
- Six-side shielded metal case
- Lead free design, RoHS compliant



Part No.	Input Voltage	Output Voltage	Output Current Max.
TEL 30-2409	18 - 36 VDC	2,5 VDC	6000 mA
TEL 30-2410	18 - 36 VDC	3,3 VDC	6000 mA
TEL 30-2411	18 - 36 VDC	5,1 VDC	5000 mA
TEL 30-2412	18 - 36 VDC	12 VDC	2500 mA
TEL 30-2413	18 - 36 VDC	15 VDC	2000 mA
TEL 30-4809	36 - 75 VDC	2,5 VDC	6000 mA
TEL 30-4810	36 - 75 VDC	3,3 VDC	6000 mA
TEL 30-4811	36 - 75 VDC	5,1 VDC	5000 mA
TEL 30-4812	36 - 75 VDC	12 VDC	2500 mA
TEL 30-4813	36 - 75 VDC	15 VDC	2000 mA

Please see page D25 for our stock types.

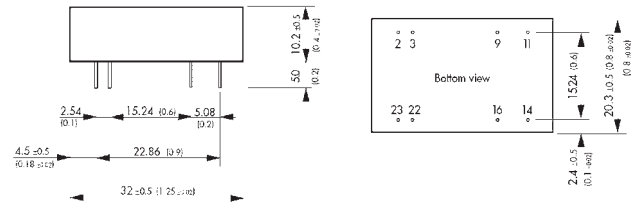
Other types available on customers' individual order.

## DC/DC Converter Modules High Power Density

### TEN-3 Series 3 W



- Regulated, max. 0,5 %
- Wide 2 : 1 Input Range
- High Efficiency up to 84%
- Full SMD-Design
- Short-Circuit Protection
- Extended op. temp. range -40°C to 85°C
- I/O-Isolation 1'500 VDC
- Input Filter to meet EN 55022, Class A and FCC, Level A without external components
- 24-pin DIP with Industry Standard Pinout
- High Reliability, MTBF >1.1 Mio. h

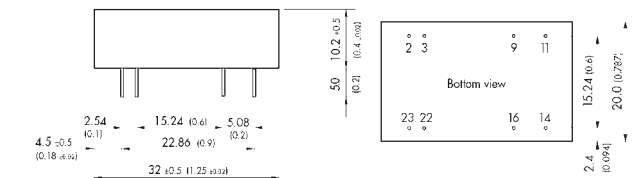


Part No.	Input Voltage	Output Voltage	Output Current Max.
TEN 3-0510	4,5 - 9 VDC	3,3 VDC	600 mA
TEN 3-0511	4,5 - 9 VDC	5 VDC	500 mA
TEN 3-0512	4,5 - 9 VDC	12 VDC	250 mA
TEN 3-0513	4,5 - 9 VDC	15 VDC	200 mA
TEN 3-0521	4,5 - 9 VDC	± 5 VDC	± 250 mA
TEN 3-0522	4,5 - 9 VDC	± 12 VDC	± 125 mA
TEN 3-0523	4,5 - 9 VDC	± 15 VDC	± 100 mA
TEN 3-1210	9 - 18 VDC	3,3 VDC	600 mA
TEN 3-1211	9 - 18 VDC	5 VDC	500 mA
TEN 3-1212	9 - 18 VDC	12 VDC	250 mA
TEN 3-1213	9 - 18 VDC	15 VDC	200 mA
TEN 3-1221	9 - 18 VDC	± 5 VDC	± 250 mA
TEN 3-1222	9 - 18 VDC	± 12 VDC	± 125 mA
TEN 3-1223	9 - 18 VDC	± 15 VDC	± 100 mA
TEN 3-2410	18 - 36 VDC	3,3 VDC	600 mA
TEN 3-2411	18 - 36 VDC	5 VDC	500 mA
TEN 3-2412	18 - 36 VDC	12 VDC	250 mA
TEN 3-2413	18 - 36 VDC	15 VDC	200 mA
TEN 3-2421	18 - 36 VDC	± 5 VDC	± 250 mA
TEN 3-2422	18 - 36 VDC	± 12 VDC	± 125 mA
TEN 3-2423	18 - 36 VDC	± 15 VDC	± 100 mA
TEN 3-4810	36 - 72 VDC	3,3 VDC	600 mA
TEN 3-4811	36 - 72 VDC	5 VDC	500 mA
TEN 3-4812	36 - 72 VDC	12 VDC	250 mA
TEN 3-4813	36 - 72 VDC	15 VDC	200 mA
TEN 3-4821	36 - 72 VDC	± 5 VDC	± 250 mA
TEN 3-4822	36 - 72 VDC	± 12 VDC	± 125 mA
TEN 3-4823	36 - 72 VDC	± 15 VDC	± 100 mA

### TEN-3WI Series 3 W

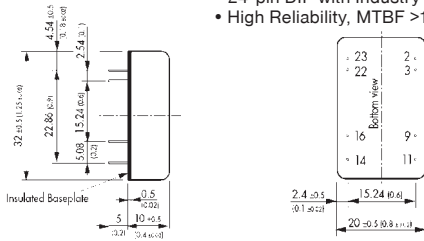


- Regulated, max. 1 %
- **Ultra-wide 4:1 Input Range**
- Full SMD-Design
- High Efficiency up to 84%
- Extended op. temp. range -40°C to +85°C
- Excellent Load and Line Regulation
- Indefinite Short-circuit protection
- I/O-Isolation 1'500 VDC
- Input Filter meets EN 55022, Class A and FCC, Level A without external components
- Shielded metal case with insulated baseplate
- Lead free Design, fully RoHS compliant



Part No.	Input Voltage	Output Voltage	Output Current Max.
TEN 3-2410WI	9 - 36 VDC	3,3 VDC	750 mA
TEN 3-2411WI	9 - 36 VDC	5 VDC	600 mA
TEN 3-2412WI	9 - 36 VDC	12 VDC	250 mA
TEN 3-2413WI	9 - 36 VDC	15 VDC	200 mA
TEN 3-2422WI	9 - 36 VDC	± 12 VDC	± 125 mA
TEN 3-2423WI	9 - 36 VDC	± 15 VDC	± 100 mA
TEN 3-4810WI	18 - 75 VDC	3,3 VDC	750 mA
TEN 3-4811WI	18 - 75 VDC	5 VDC	600 mA
TEN 3-4812WI	18 - 75 VDC	12 VDC	250 mA
TEN 3-4813WI	18 - 75 VDC	15 VDC	200 mA
TEN 3-4822WI	18 - 75 VDC	± 12 VDC	± 125 mA
TEN 3-4823WI	18 - 75 VDC	± 15 VDC	± 100 mA

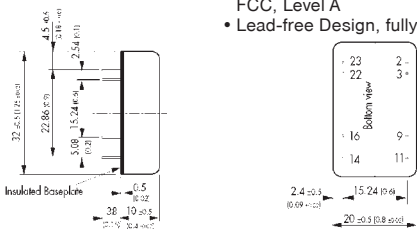
## TEN-5 Series 5 - 6 W



- Regulated, max. 0,3 %
- Wide 2:1 Input Range
- Full SMD-Design
- High Efficiency up to 86%
- Extended op.temp. range -40°C to 85°C
- I/O-isolation 1'500 VDC
- Indefinite Short-Circuit Protection
- Input Filter meets EN 55022, Class A and FCC, Level A without external components
- Shielded metal case with insulated baseplate
- 24-pin DIP with Industry Standard Pinout
- High Reliability, MTBF >1 Mio. h

Part No.	Input Voltage	Output Voltage	Output Current Max.
TEN 5-0510	4,5 - 7 VDC	3,3 VDC	1200 mA
TEN 5-0511	4,5 - 7 VDC	5 VDC	1000 mA
TEN 5-0512	4,5 - 7 VDC	12 VDC	500 mA
TEN 5-0513	4,5 - 7 VDC	15 VDC	400 mA
TEN 5-0521	4,5 - 7 VDC	± 5 VDC	± 500 mA
TEN 5-0522	4,5 - 7 VDC	± 12 VDC	± 250 mA
TEN 5-0523	4,5 - 7 VDC	± 15 VDC	± 200 mA
TEN 5-1210	9 - 18 VDC	3,3 VDC	1200 mA
TEN 5-1211	9 - 18 VDC	5 VDC	1000 mA
TEN 5-1212	9 - 18 VDC	12 VDC	500 mA
TEN 5-1213	9 - 18 VDC	15 VDC	400 mA
TEN 5-1221	9 - 18 VDC	± 5 VDC	± 500 mA
TEN 5-1222	9 - 18 VDC	± 12 VDC	± 250 mA
TEN 5-1223	9 - 18 VDC	± 15 VDC	± 200 mA
TEN 5-2410	18 - 36 VDC	3,3 VDC	1200 mA
TEN 5-2411	18 - 36 VDC	5 VDC	1000 mA
TEN 5-2412	18 - 36 VDC	12 VDC	500 mA
TEN 5-2413	18 - 36 VDC	15 VDC	400 mA
TEN 5-2421	18 - 36 VDC	± 5 VDC	± 500 mA
TEN 5-2422	18 - 36 VDC	± 12 VDC	± 250 mA
TEN 5-2423	18 - 36 VDC	± 15 VDC	± 200 mA
TEN 5-4810	36 - 75 VDC	3,3 VDC	1200 mA
TEN 5-4811	36 - 75 VDC	5 VDC	1000 mA
TEN 5-4812	36 - 75 VDC	12 VDC	500 mA
TEN 5-4813	36 - 75 VDC	15 VDC	400 mA
TEN 5-4821	36 - 75 VDC	± 5 VDC	± 500 mA
TEN 5-4822	36 - 75 VDC	± 12 VDC	± 250 mA
TEN 5-4823	36 - 75 VDC	± 15 VDC	± 200 mA

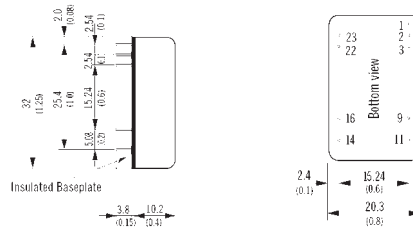
## TEN-5WI Series 5 - 6 W



- Regulated, max. 0,3 %
- **Ultra-wide 4:1 input range**
- DIP-24 Package with Standard Pinout
- Full SMD Design
- Extended op.temp. range -40 to +85°C
- **High Efficiency up 84%**
- Excellent Load and Line Regulation
- Indefinite Short-circuit Protection
- I/O-Isolation 1500VDC
- Built-in filter meets EN 55022, Class A and FCC, Level A
- Lead-free Design, fully RoHS compliant

Part No.	Input Voltage	Output Voltage	Output Current Max.
TEN 5-2410WI	9 - 36 VDC	3,3 VDC	1200 mA
TEN 5-2411WI	9 - 36 VDC	5 VDC	1000 mA
TEN 5-2412WI	9 - 36 VDC	12 VDC	500 mA
TEN 5-2413WI	9 - 36 VDC	15 VDC	400 mA
TEN 5-2421WI	9 - 36 VDC	± 5 VDC	± 500 mA
TEN 5-2422WI	9 - 36 VDC	± 12 VDC	± 250 mA
TEN 5-2423WI	9 - 36 VDC	± 15 VDC	± 200 mA
TEN 5-4810WI	18 - 75 VDC	3,3 VDC	1200 mA
TEN 5-4811WI	18 - 75 VDC	5 VDC	1000 mA
TEN 5-4812WI	18 - 75 VDC	12 VDC	500 mA
TEN 5-4813WI	18 - 75 VDC	15 VDC	400 mA
TEN 5-4821WI	18 - 75 VDC	± 5 VDC	± 500 mA
TEN 5-4822WI	18 - 75 VDC	± 12 VDC	± 250 mA
TEN 5-4823WI	18 - 75 VDC	± 15 VDC	± 200 mA

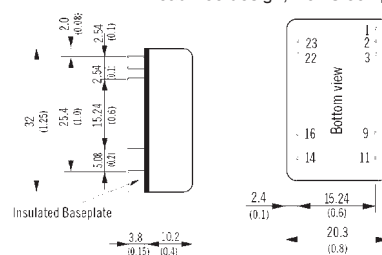
## TEN-8 Series 8 W



- Regulated, max. 0,2 %
- DIP-24 package with industry standard foot-print
- Wide 2:1 Input Voltage range
- Input filter meets EN 55022, class A
- Extended op. temp.e range -40°C to +85°C
- Remote On/Off
- Shielded metal case with insulated baseplate
- Lead free design, RoHS compliant

Part No.	Input Voltage	Output Voltage	Output Current Max.
TEN 8-1210	9 - 18 VDC	3,3 VDC	2000 mA
TEN 8-1211	9 - 18 VDC	5 VDC	1500 mA
TEN 8-1212	9 - 18 VDC	12 VDC	665 mA
TEN 8-1213	9 - 18 VDC	15 VDC	535 mA
TEN 8-1221	9 - 18 VDC	± 5 VDC	± 800 mA
TEN 8-1222	9 - 18 VDC	± 12 VDC	± 335 mA
TEN 8-1223	9 - 18 VDC	± 15 VDC	± 265 mA
TEN 8-2410	18 - 36 VDC	3,3 VDC	2000 mA
TEN 8-2411	18 - 36 VDC	5 VDC	1500 mA
TEN 8-2412	18 - 36 VDC	12 VDC	665 mA
TEN 8-2413	18 - 36 VDC	15 VDC	535 mA
TEN 8-2421	18 - 36 VDC	± 5 VDC	± 800 mA
TEN 8-2422	18 - 36 VDC	± 12 VDC	± 335 mA
TEN 8-2423	18 - 36 VDC	± 15 VDC	± 265 mA
TEN 8-4810	36 - 75 VDC	3,3 VDC	2000 mA
TEN 8-4811	36 - 75 VDC	5 VDC	1500 mA
TEN 8-4812	36 - 75 VDC	12 VDC	665 mA
TEN 8-4813	36 - 75 VDC	15 VDC	535 mA
TEN 8-4821	36 - 75 VDC	± 5 VDC	± 800 mA
TEN 8-4822	36 - 75 VDC	± 12 VDC	± 335 mA
TEN 8-4823	36 - 75 VDC	± 15 VDC	± 265 mA

## TEN-8WI Series 8 W



- Regulated, max. 0,2 %
- High power density in DIP-24 metal package
- **Ultra wide 4:1 Input Voltage range**
- **High efficiency up to 88%**
- Operating temp. range -40°C to +85°C
- Remote On/Off
- Under voltage lockout
- Shielded metal case with insulated base plate
- Lead free design, RoHS compliant

Part No.	Input Voltage	Output Voltage	Output Current Max.
TEN 8-2410WI	9 - 36 VDC	3,3 VDC	2400 mA
TEN 8-2411WI	9 - 36 VDC	5 VDC	1600 mA
TEN 8-2412WI	9 - 36 VDC	12 VDC	665 mA
TEN 8-2413WI	9 - 36 VDC	15 VDC	535 mA
TEN 8-2421WI	9 - 36 VDC	± 5 VDC	± 800 mA
TEN 8-2422WI	9 - 36 VDC	± 12 VDC	± 335 mA
TEN 8-2423WI	9 - 36 VDC	± 15 VDC	± 265 mA
TEN 8-4810WI	18 - 75 VDC	3,3 VDC	2400 mA
TEN 8-4811WI	18 - 75 VDC	5 VDC	1600 mA
TEN 8-4812WI	18 - 75 VDC	12 VDC	665 mA
TEN 8-4813WI	18 - 75 VDC	15 VDC	535 mA
TEN 8-4821WI	18 - 75 VDC	± 5 VDC	± 800 mA
TEN 8-4822WI	18 - 75 VDC	± 12 VDC	± 335 mA
TEN 8-4823WI	18 - 75 VDC	± 15 VDC	± 265 mA

The list of in stock types is presented on page D25  
Other types available on customers' individual order.

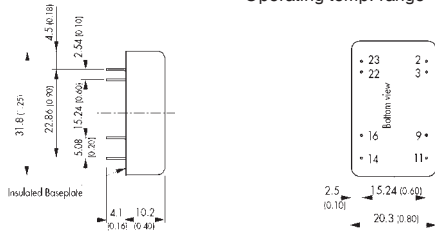
## DC/DC Converter Modules

### High Power Density (continued)

#### THD-10 Series 10 W



- Regulated, max. 1 %
- Very high power density in DIP-24 package
- Wide 2:1 input range
- **Very high efficiency up to 87%**
- I/O isolation 1500V
- Input filter meets EN 55022, class A without ext. components
- Low ripple and noise
- Continuous short circuit protection
- Operating temp. range -40°C to +71°C

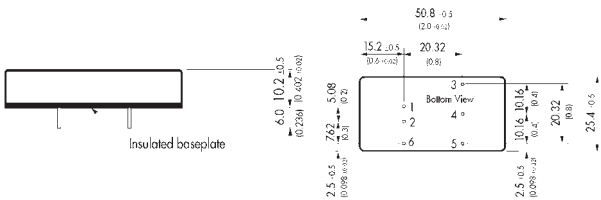


Part No.	Input Voltage	Output Voltage	Output Current Max.
THD 10-1210	9 - 18 VDC	3,3 VDC	3000 mA
THD 10-1211	9 - 18 VDC	5,1 VDC	2000 mA
THD 10-1212	9 - 18 VDC	12 VDC	830 mA
THD 10-1222	9 - 18 VDC	± 12 VDC	± 415 mA
THD 10-1223	9 - 18 VDC	± 15 VDC	± 330 mA
THD 10-2409	18 - 36 VDC	2,5 VDC	3000 mA
THD 10-2410	18 - 36 VDC	3,3 VDC	3000 mA
THD 10-2411	18 - 36 VDC	5,1 VDC	2000 mA
THD 10-2412	18 - 36 VDC	12 VDC	830 mA
THD 10-2422	18 - 36 VDC	± 12 VDC	± 415 mA
THD 10-2423	18 - 36 VDC	± 15 VDC	± 330 mA
THD 10-4809	36 - 75 VDC	2,5 VDC	3000 mA
THD 10-4810	36 - 75 VDC	3,3 VDC	3000 mA
THD 10-4811	36 - 75 VDC	5,1 VDC	2000 mA
THD 10-4812	36 - 75 VDC	12 VDC	830 mA
THD 10-4822	36 - 75 VDC	± 12 VDC	± 415 mA
THD 10-4823	36 - 75 VDC	± 15 VDC	± 330 mA

#### TEN-10 Series 10 W



- Regulated, max. 0,2 %
- Wide 2 : 1 Input Range
- High Power Density
- Operating Temp. Range - 40°C to +71°C
- Indefinite Short-Circuit Protection
- I/O-Isolation 1500 VDC
- Input Filter meets EN 55022, Class A and FCC, Level A without external components
- Industry Standard Pinout
- Shielded metal case with insulated baseplate
- High Reliability, MTBF >1 Mio. h

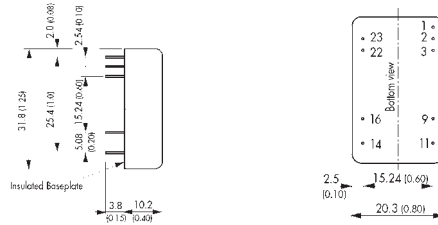


Part No.	Input Voltage	Output Voltage	Output Current Max.
TEN 10-1210	9 - 18 VDC	3,3 VDC	2400 mA
TEN 10-1211	9 - 18 VDC	5 VDC	2000 mA
TEN 10-1212	9 - 18 VDC	12 VDC	830 mA
TEN 10-1213	9 - 18 VDC	15 VDC	670 mA
TEN 10-1215	9 - 18 VDC	24 VDC	415 mA
TEN 10-1221	9 - 18 VDC	± 5 VDC	± 1000 mA
TEN 10-1222	9 - 18 VDC	± 12 VDC	± 415 mA
TEN 10-1223	9 - 18 VDC	± 15 VDC	± 330 mA
TEN 10-2410	18 - 36 VDC	3,3 VDC	2400 mA
TEN 10-2411	18 - 36 VDC	5 VDC	2000 mA
TEN 10-2412	18 - 36 VDC	12 VDC	830 mA
TEN 10-2413	18 - 36 VDC	15 VDC	670 mA
TEN 10-2415	18 - 36 VDC	24 VDC	415 mA
TEN 10-2421	18 - 36 VDC	± 5 VDC	± 1000 mA
TEN 10-2422	18 - 36 VDC	± 12 VDC	± 415 mA
TEN 10-2423	18 - 36 VDC	± 15 VDC	± 330 mA
TEN 10-4810	36 - 75 VDC	3,3 VDC	2400 mA
TEN 10-4811	36 - 75 VDC	5 VDC	2000 mA
TEN 10-4812	36 - 75 VDC	12 VDC	830 mA
TEN 10-4813	36 - 75 VDC	15 VDC	670 mA
TEN 10-4815	36 - 75 VDC	24VDC	415 mA
TEN 10-4821	36 - 75 VDC	± 5 VDC	± 1000 mA
TEN 10-4822	36 - 75 VDC	± 12 VDC	± 415 mA
TEN 10-4823	36 - 75 VDC	± 15 VDC	± 330 mA

#### THD-12 Series 12 W



- Regulated, max. 0,5 %
- **Highest power density: 12W in DIP-24 package!**
- Wide 2:1 Input Range
- **Very high Efficiency up to 88%**
- I/O-Isolation 1500V
- Input Filter meets EN 55022A without ext. components
- Remote On/Off
- Shielded metal case with insulated baseplate
- Continuous Short-Circuit Protection
- Operating Temp. Range -40°C to +85°C (with Derating)
- Lead free Design, RoHS compliant

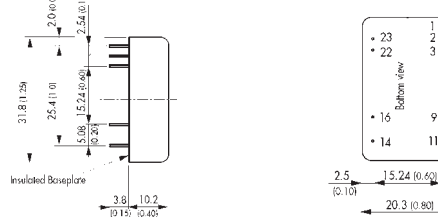


Part No.	Input Voltage	Output Voltage	Output Current Max.
THD 12-1209	9 - 18 VDC	2,5 VDC	3500 mA
THD 12-1210	9 - 18 VDC	3,3 VDC	3500 mA
THD 12-1211	9 - 18 VDC	5,1 VDC	2400 mA
THD 12-1212	9 - 18 VDC	12 VDC	1000 mA
THD 12-1222	9 - 18 VDC	± 12 VDC	± 500 mA
THD 12-1223	9 - 18 VDC	± 15 VDC	± 400 mA
THD 12-2409	18 - 36 VDC	2,5 VDC	3500 mA
THD 12-2410	18 - 36 VDC	3,3 VDC	3500 mA
THD 12-2411	18 - 36 VDC	5,1 VDC	2400 mA
THD 12-2412	18 - 36 VDC	12 VDC	1000 mA
THD 12-2422	18 - 36 VDC	± 12 VDC	± 500 mA
THD 12-2423	18 - 36 VDC	± 15 VDC	± 400 mA
THD 12-4809	36 - 75 VDC	2,5 VDC	3500 mA
THD 12-4810	36 - 75 VDC	3,3 VDC	3500 mA
THD 12-4811	36 - 75 VDC	5,1 VDC	2400 mA
THD 12-4812	36 - 75 VDC	12 VDC	1000 mA
THD 12-4822	36 - 75 VDC	± 12 VDC	± 500 mA
THD 12-4823	36 - 75 VDC	± 15 VDC	± 400 mA

#### THD-12WI Series 12 W



- Regulated, max. 0,2 %
- **Highest power density: 12W in DIP 24 package!**
- Ultra-wide 4:1 input range
- **Very high efficiency up to 85%**
- I/O isolation 1500V
- Input filter meets EN 55022A without ext. components
- Remote On/Off
- Shielded metal case with insulated baseplate
- Continuous short-circuit protection
- Operating temp. range -40°C to +85°C
- Lead free design, RoHS compliant



Part No.	Input Voltage	Output Voltage	Output Current Max.
THD 12-2410WI	9 - 36 VDC	3,3 VDC	3500 mA
THD 12-2411WI	9 - 36 VDC	5,1 VDC	2400 mA
THD 12-2412WI	9 - 36 VDC	12 VDC	1000 mA
THD 12-2413WI	9 - 36 VDC	15 VDC	800 mA
THD 12-2421WI	9 - 36 VDC	± 5 VDC	± 1200 mA
THD 12-2422WI	9 - 36 VDC	± 12 VDC	± 500 mA
THD 12-2423WI	9 - 36 VDC	± 15 VDC	± 400 mA
THD 12-4810WI	36 - 75 VDC	3,3 VDC	3500 mA
THD 12-4811WI	36 - 75 VDC	5,1 VDC	2400 mA
THD 12-4812WI	36 - 75 VDC	12 VDC	1000 mA
THD 12-4813WI	36 - 75 VDC	15 VDC	800 mA
THD 12-4821WI	36 - 75 VDC	± 5 VDC	± 1200 mA
THD 12-4822WI	36 - 75 VDC	± 12 VDC	± 500 mA
THD 12-4823WI	36 - 75 VDC	± 15 VDC	± 400 mA

For more information, please contact our sales department.

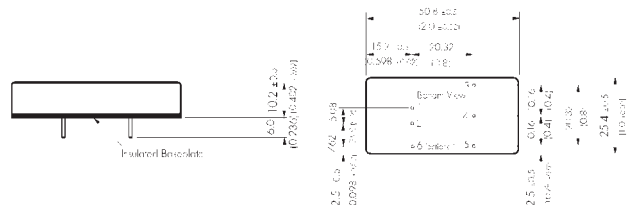
Modules



TEN-12WI Series 12 W



- Regulated, max. 0,5 %
- **Ultrawide 4 : 1 Input Range**
- Full SMD-Design
- Input Filter meets EN 55022, Class A and FCC, Level A without external components
- Indefinite Short-Circuit Protection
- Overvoltage Protection
- I/O-Isolation 1500 VDC
- Extended temp. op. range -40°C to 85°C
- Remote On/Off (optional)
- Insulated Baseplate
- Industry Standard Pinout

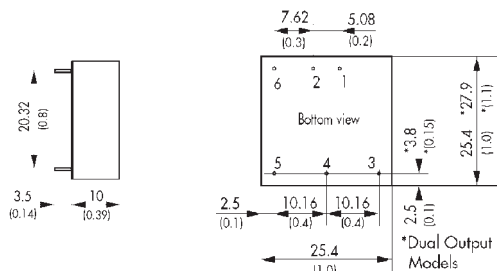


Part No.	Input Voltage	Output Voltage	Output Current Max.
TEN 12-2410	9 - 36 VDC	3,3 VDC	2400 mA
TEN 12-2411	9 - 36 VDC	5 VDC	2000 mA
TEN 12-2412	9 - 36 VDC	12 VDC	1000 mA
TEN 12-2413	9 - 36 VDC	15 VDC	800 mA
TEN 12-2421	9 - 36 VDC	± 5 VDC	± 1000 mA
TEN 12-2422	9 - 36 VDC	± 12 VDC	± 500 mA
TEN 12-2423	9 - 36 VDC	± 15 VDC	± 400 mA
TEN 12-4810	36 - 75 VDC	3,3 VDC	2400 mA
TEN 12-4811	36 - 75 VDC	5 VDC	2000 mA
TEN 12-4812	36 - 75 VDC	12 VDC	1000 mA
TEN 12-4813	36 - 75 VDC	15 VDC	800 mA
TEN 12-4821	36 - 75 VDC	± 5 VDC	± 1000 mA
TEN 12-4822	36 - 75 VDC	± 12 VDC	± 500 mA
TEN 12-4823	36 - 75 VDC	± 15 VDC	± 400 mA

THD-15 Series 15 W



- Regulated, max. 0,5 %
- **Smallest encapsulated 15W converter ultra compact size: 25.4x25.4x10.2mm**
- Single- and Dual Output Models
- I/O- Isolation Voltage 1500VDC
- **High efficiency up to 87%**
- Operating temp. range: -25°C to +71°C
- Remote On/Off
- Industry Standard Pinout
- Lead free Design, RoHS compliant



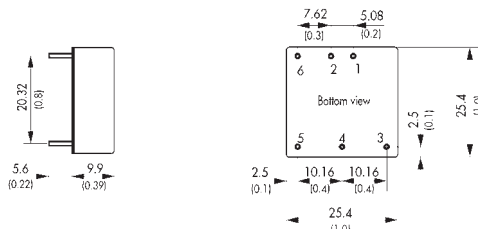
Part No.	Input Voltage	Output Voltage	Output Current Max.
THD 15-2410	18 - 36 VDC	3,3 VDC	3500 mA
THD 15-2411	18 - 36 VDC	5,1 VDC	3000 mA
THD 15-2412	18 - 36 VDC	12 VDC	1250 mA
THD 15-2413	18 - 36 VDC	15 VDC	1000 mA
THD 15-2422	18 - 36 VDC	± 12 VDC	± 600 mA
THD 15-2423	18 - 36 VDC	± 15 VDC	± 500 mA
THD 15-4810	36 - 75 VDC	3,3 VDC	3500 mA
THD 15-4811	36 - 75 VDC	5,1 VDC	3000 mA
THD 15-4812	36 - 75 VDC	12 VDC	1250 mA
THD 15-4813	36 - 75 VDC	15 VDC	1000 mA
THD 15-4822	36 - 75 VDC	± 12 VDC	± 600 mA
THD 15-4823	36 - 75 VDC	± 15 VDC	± 500 mA

The list of in stock types is presented on page D25  
Other types available on customers' individual order.

THN-15 Series 15 W



- Regulated, max. 0,2 %
- **Smallest encapsulated 15W converter! Ultra compact size: 1.0" x 1.0" x 0.4"**
- Shielded metal case with isolated baseplate
- Wide 2:1 input ranges
- Output Voltage Trim
- I/O-isolation voltage 1500 VDC
- **Very high efficiency up to 88%**
- Operating temp. range : -40°C to +85°C
- Remote On/Off control
- Industry standard pinout

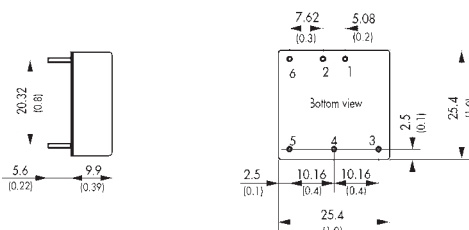


Part No.	Input Voltage	Output Voltage	Output Current Max.
THN 15-1210	9 - 18 VDC	3,3 VDC	4000 mA
THN 15-1211	9 - 18 VDC	5 VDC	3000 mA
THN 15-1212	9 - 18 VDC	12 VDC	1300 mA
THN 15-1213	9 - 18 VDC	15 VDC	1000 mA
THN 15-1221	9 - 18 VDC	± 5 VDC	± 1500 mA
THN 15-1222	9 - 18 VDC	± 12 VDC	± 625 mA
THN 15-1223	9 - 18 VDC	± 15 VDC	± 500 mA
THN 15-2410	18 - 36 VDC	3,3 VDC	4000 mA
THN 15-2411	18 - 36 VDC	5 VDC	3000 mA
THN 15-2412	18 - 36 VDC	12 VDC	1300 mA
THN 15-2413	18 - 36 VDC	15 VDC	1000 mA
THN 15-2421	18 - 36 VDC	± 5 VDC	± 1500 mA
THN 15-2422	18 - 36 VDC	± 12 VDC	± 625 mA
THN 15-2423	18 - 36 VDC	± 15 VDC	± 500 mA
THN 15-4810	36 - 75 VDC	3,3 VDC	4000 mA
THN 15-4811	36 - 75 VDC	5 VDC	3000 mA
THN 15-4812	36 - 75 VDC	12 VDC	1300 mA
THN 15-4813	36 - 75 VDC	15 VDC	1000 mA
THN 15-4821	36 - 75 VDC	± 5 VDC	± 1500 mA
THN 15-4822	36 - 75 VDC	± 12 VDC	± 625 mA
THN 15-4823	36 - 75 VDC	± 15 VDC	± 500 mA

THN-15WI Series 15 W



- Regulated, max. 0,5 %
- **Smallest encapsulated 15W converter! Ultra compact size: 1.0" x 1.0" x 0.4"**
- Shielded metal case with isolated baseplate
- **Ultrawide 4:1 input ranges 9-36 VDC or 18-75VDC**
- Output Voltage Trim
- I/O- isolation voltage 1500 VDC
- **Very high efficiency up to 87%**
- Operating temp. range : -40°C to +85°C
- Remote On/Off control
- Industry standard pinout



Part No.	Input Voltage	Output Voltage	Output Current Max.
THN 15-2410WI	9 - 36 VDC	3,3 VDC	4000 mA
THN 15-2411WI	9 - 36 VDC	5 VDC	3000 mA
THN 15-2412WI	9 - 36 VDC	12 VDC	1300 mA
THN 15-2413WI	9 - 36 VDC	15 VDC	1000 mA
THN 15-2421WI	9 - 36 VDC	± 5 VDC	± 1500 mA
THN 15-2422WI	9 - 36 VDC	± 12 VDC	± 625 mA
THN 15-2423WI	9 - 36 VDC	± 15 VDC	± 500 mA
THN 15-4810WI	18 - 75 VDC	3,3 VDC	4000 mA
THN 15-4811WI	18 - 75 VDC	5 VDC	3000 mA
THN 15-4812WI	18 - 75 VDC	12 VDC	1300 mA
THN 15-4813WI	18 - 75 VDC	15 VDC	1000 mA
THN 15-4821WI	18 - 75 VDC	± 5 VDC	± 1500 mA
THN 15-4822WI	18 - 75 VDC	± 12 VDC	± 625 mA
THN 15-4823WI	18 - 75 VDC	± 15 VDC	± 500 mA

Modules



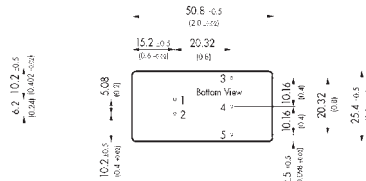
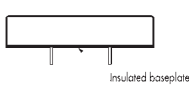
## DC/DC Converter Modules

### High Power Density (continued)

#### TEN-15 Series 15 W



- Regulated, max. 1,0 %
- Wide 2:1 input range
- **High efficiency up to 88%**
- Extended op. temp. range -40°C to +85°C
- Indefinite short circuit protection
- I/O isolation 1500 VDC
- Input filter to meet EN 55022, Class A and FCC, level A without external components
- Industry standard footprint
- Shielded metal case with insulated baseplate

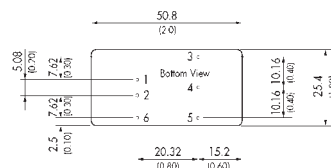
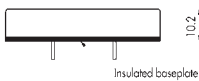


Part No.	Input Voltage	Output Voltage	Output Current Max.
TEN 15-1210	9 - 18 VDC	3,3 VDC	4000 mA
TEN 15-1211	9 - 18 VDC	5 VDC	3000 mA
TEN 15-1212	9 - 18 VDC	12 VDC	1250 mA
TEN 15-1213	9 - 18 VDC	15 VDC	1000 mA
TEN 15-1221	9 - 18 VDC	± 5 VDC	± 1500 mA
TEN 15-1222	9 - 18 VDC	± 12 VDC	± 625 mA
TEN 15-1223	9 - 18 VDC	± 15 VDC	± 500 mA
TEN 15-2410	18 - 36 VDC	3,3 VDC	4000 mA
TEN 15-2411	18 - 36 VDC	5 VDC	3000 mA
TEN 15-2412	18 - 36 VDC	12 VDC	1250 mA
TEN 15-2413	18 - 36 VDC	15 VDC	1000 mA
TEN 15-2421	18 - 36 VDC	± 5 VDC	± 1500 mA
TEN 15-2422	18 - 36 VDC	± 12 VDC	± 625 mA
TEN 15-2423	18 - 36 VDC	± 15 VDC	± 500 mA
TEN 15-4810	36 - 75 VDC	3,3 VDC	4000 mA
TEN 15-4811	36 - 75 VDC	5 VDC	3000 mA
TEN 15-4812	36 - 75 VDC	12 VDC	1250 mA
TEN 15-4813	36 - 75 VDC	15 VDC	1000 mA
TEN 15-4821	36 - 75 VDC	± 5 VDC	± 1500 mA
TEN 15-4822	36 - 75 VDC	± 12 VDC	± 625 mA
TEN 15-4823	36 - 75 VDC	± 15 VDC	± 500 mA

#### TEN-15WI Series 15 W



- Regulated, max. 0,5 %
- **Ultra-wide 4:1 input range**
- **High efficiency up to 86 %**
- Extended op. temp. range -40°C to +85°C max.
- Indefinite short circuit protection
- I/O-isolation 1500 VDC
- Built-in filter meets EN 55022, Class A and FCC, Level A without external components
- Remote On/Off
- Industry standard pinout
- Six-side shielded case
- Lead free design, fully RoHS compliant

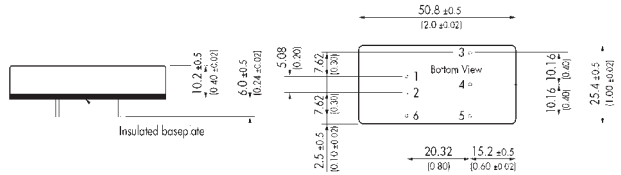


Part No.	Input Voltage	Output Voltage	Output Current Max.
TEN 15-2410WI	9 - 36 VDC	3,3 VDC	3000 mA
TEN 15-2411WI	9 - 36 VDC	5,1 VDC	3000 mA
TEN 15-2412WI	9 - 36 VDC	12 VDC	1250 mA
TEN 15-2422WI	9 - 36 VDC	± 12 VDC	± 625 mA
TEN 15-2423WI	9 - 36 VDC	± 15 VDC	± 500 mA
TEN 15-4810WI	18 - 75 VDC	3,3 VDC	3000 mA
TEN 15-4811WI	18 - 75 VDC	5,1 VDC	3000 mA
TEN 15-4812WI	18 - 75 VDC	12 VDC	1250 mA
TEN 15-4822WI	18 - 75 VDC	± 12 VDC	± 625 mA
TEN 15-4823WI	18 - 75 VDC	± 15 VDC	± 500 mA

#### TEN-20 Series 20 W



- Regulated, max. 0,3 %
- Wide 2 : 1 Input Range
- **High Efficiency up to 89%**
- Extended op. temp. range -40°C to +85°C
- Indefinite Short-Circuit Protection
- I/O-Isolation 1500 VDC
- Remote On/Off
- Input Filter meets EN 55022, Class A and FCC, Level A without external components
- Industry Standard Pinout
- Shielded metal case with insulated baseplate

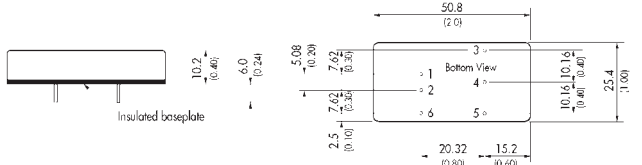


Part No.	Input Voltage	Output Voltage	Output Current Max.
TEN 20-1210	9 - 18 VDC	3,3 VDC	4000 mA
TEN 20-1211	9 - 18 VDC	5 VDC	4000 mA
TEN 20-1212	9 - 18 VDC	12 VDC	1670 mA
TEN 20-1213	9 - 18 VDC	15 VDC	1340 mA
TEN 20-1222	9 - 18 VDC	± 12 VDC	± 835 mA
TEN 20-1223	9 - 18 VDC	± 15 VDC	± 670 mA
TEN 20-2410	18 - 36 VDC	3,3 VDC	4000 mA
TEN 20-2411	18 - 36 VDC	5 VDC	4000 mA
TEN 20-2412	18 - 36 VDC	12 VDC	1670 mA
TEN 20-2413	18 - 36 VDC	15 VDC	1340 mA
TEN 20-2422	18 - 36 VDC	± 12 VDC	± 835 mA
TEN 20-2423	18 - 36 VDC	± 15 VDC	± 670 mA
TEN 20-4810	36 - 75 VDC	3,3 VDC	4000 mA
TEN 20-4811	36 - 75 VDC	5 VDC	4000 mA
TEN 20-4812	36 - 75 VDC	12 VDC	1670 mA
TEN 20-4813	36 - 75 VDC	15 VDC	1340 mA
TEN 20-4822	36 - 75 VDC	± 12 VDC	± 835 mA
TEN 20-4823	36 - 75 VDC	± 15 VDC	± 670 mA

#### TEN-20WIN Series 20 W



- Regulated, max. 0,2 %
- High power density in 1" x 2" metal package
- Ultra wide 4 : 1 input range
- Extended op. temp. range - 40°C to +85°C max.
- No minimum load required
- I/O-isolation 1500 VDC
- Remote On/Off
- Adjustable Output Voltage
- Industry standard footprint
- Shielded metal case with insulated baseplate
- Optional heatsink
- Lead free design - RoHS compliant



Part No.	Input Voltage	Output Voltage	Output Current Max.
TEN 20-2410WIN	9 - 36 VDC	3,3 VDC	5500 mA
TEN 20-2411WIN	9 - 36 VDC	5 VDC	4000 mA
TEN 20-2412WIN	9 - 36 VDC	12 VDC	1670 mA
TEN 20-2413WIN	9 - 36 VDC	15 VDC	1330 mA
TEN 20-2421WIN	9 - 36 VDC	± 5 VDC	± 2000 mA
TEN 20-2422WIN	9 - 36 VDC	± 12 VDC	± 835 mA
TEN 20-2423WIN	9 - 36 VDC	± 15 VDC	± 665 mA
TEN 20-4810WIN	18 - 75 VDC	3,3 VDC	5500 mA
TEN 20-4811WIN	18 - 75 VDC	5 VDC	4000 mA
TEN 20-4812WIN	18 - 75 VDC	12 VDC	1670 mA
TEN 20-4813WIN	18 - 75 VDC	15 VDC	1330 mA
TEN 20-4821WIN	18 - 75 VDC	± 5 VDC	± 2000 mA
TEN 20-4822WIN	18 - 75 VDC	± 12 VDC	± 835 mA
TEN 20-4823WIN	18 - 75 VDC	± 15 VDC	± 665 mA

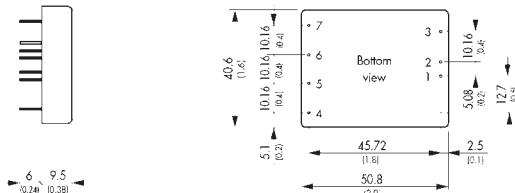
For more information, please contact the SOS's sales department.

For more technical information and data sheets please visit [www.tracopower.com](http://www.tracopower.com)

## TEN-25 Series from 25 to 30 W

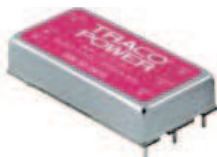


- Regulated, max. 0,3 %
- Wide 2:1 Input Range
- **Very high Efficiency up to 89%**
- Extended op.temp. range -40°C to +85°C
- Adjustable Output Voltage
- Remote On/Off
- Continuous Short Circuit Protection
- Over Voltage Protection
- I/O-Isolation 1500 VDC
- Input Filter meets EN 55022, Class A and FCC, Level A without external Components
- Lead free Design - RoHS compliant
- 3 Year Product Warranty

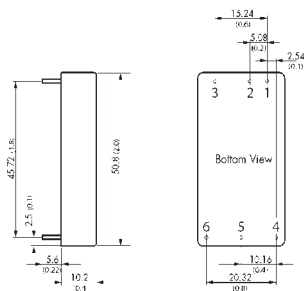


Part No.	Input Voltage	Output Voltage	Output Current Max.
TEN 25-1210	9 - 18 VDC	3,3 VDC	5500 mA
TEN 25-1211	9 - 18 VDC	5 VDC	5000 mA
TEN 25-1212	9 - 18 VDC	12 VDC	2500 mA
TEN 25-1213	9 - 18 VDC	15 VDC	2000 mA
TEN 25-1222	9 - 18 VDC	± 12 VDC	± 1250 mA
TEN 25-1223	9 - 18 VDC	± 15 VDC	± 1000 mA
TEN 25-2410	18 - 36 VDC	3,3 VDC	5500 mA
TEN 25-2411	18 - 36 VDC	5 VDC	5000 mA
TEN 25-2412	18 - 36 VDC	12 VDC	2500 mA
TEN 25-2413	18 - 36 VDC	15 VDC	2000 mA
TEN 25-2422	18 - 36 VDC	± 12 VDC	± 1250 mA
TEN 25-2423	18 - 36 VDC	± 15 VDC	± 1000 mA
TEN 25-4810	36 - 75 VDC	3,3 VDC	5500 mA
TEN 25-4811	36 - 75 VDC	5 VDC	5000 mA
TEN 25-4812	36 - 75 VDC	12 VDC	2500 mA
TEN 25-4813	36 - 75 VDC	15 VDC	2000 mA
TEN 25-4822	36 - 75 VDC	± 12 VDC	± 1250 mA
TEN 25-4823	36 - 75 VDC	± 15 VDC	± 1000 mA

## TEN-30 Series 30 W



- Regulated, max. 0,2 %
- Smallest encapsulated 30 W converter
- 2" x 1" x 0.4" shielded metal package with isolated baseplate
- Single- and dual output models
- I/O isolation voltage 1500 VDC
- **Excellent efficiency up to 91 %**
- Operating temp. range -40°C to +85°C
- Remote On/Off
- Over-temperature protection



Part No.	Input Voltage	Output Voltage	Output Current Max.
TEN 30-1207	9 - 18 VDC	1,5 VDC	8000 mA
TEN 30-1209	9 - 18 VDC	2,5 VDC	8000 mA
TEN 30-1210	9 - 18 VDC	3,3 VDC	8000 mA
TEN 30-1211	9 - 18 VDC	5,1 VDC	6000 mA
TEN 30-1212	9 - 18 VDC	12 VDC	2500 mA
TEN 30-1213	9 - 18 VDC	15 VDC	2000 mA
TEN 30-1221	9 - 18 VDC	± 5 VDC	± 3000 mA
TEN 30-1222	9 - 18 VDC	± 12 VDC	± 1250 mA
TEN 30-1223	9 - 18 VDC	± 15 VDC	± 1000 mA

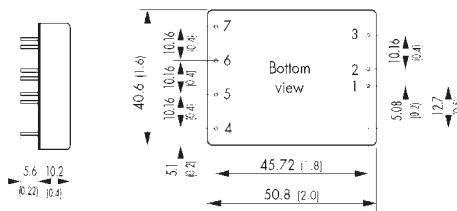
For more information, please contact the SOS's sales department.

Part No.	Input Voltage	Output Voltage	Output Current Max.
TEN 30-2407	18 - 36 VDC	1,5 VDC	8000 mA
TEN 30-2409	18 - 36 VDC	2,5 VDC	8000 mA
TEN 30-2410	18 - 36 VDC	3,3 VDC	8000 mA
TEN 30-2411	18 - 36 VDC	5 VDC	6000 mA
TEN 30-2412	18 - 36 VDC	12 VDC	2500 mA
TEN 30-2413	18 - 36 VDC	15 VDC	2000 mA
TEN 30-2421	18 - 36 VDC	± 5 VDC	± 3000 mA
TEN 30-2422	18 - 36 VDC	± 12 VDC	± 1250 mA
TEN 30-2423	18 - 36 VDC	± 15 VDC	± 1000 mA
TEN 30-4807	36 - 75 VDC	1,5 VDC	8000 mA
TEN 30-4809	36 - 75 VDC	2,5 VDC	8000 mA
TEN 30-4810	36 - 75 VDC	3,3 VDC	8000 mA
TEN 30-4811	36 - 75 VDC	5 VDC	6000 mA
TEN 30-4812	36 - 75 VDC	12 VDC	2500 mA
TEN 30-4813	36 - 75 VDC	15 VDC	2000 mA
TEN 30-4821	36 - 75 VDC	± 5 VDC	± 3000 mA
TEN 30-4822	36 - 75 VDC	± 12 VDC	± 1250 mA
TEN 30-4823	36 - 75 VDC	± 15 VDC	± 1000 mA

## TEN-30WI Series 30 W



- Regulated, max. 0,5 %
- High Power Density: 30W in a 51x41x10 mm (2"x1.6"x0.4") Package
- Ultra Wide 4:1 Input Voltage Range
- Single Output Voltage Models from 1.8 to 15 VDC
- Dual Output Voltage Models
- Extended op. temp. range: -40°C to 85°C
- Under Voltage Lockout
- Remote On/Off
- Shielded metal case with insulated baseplate
- Optional Heatsink
- Lead free Design - RoHS compliant

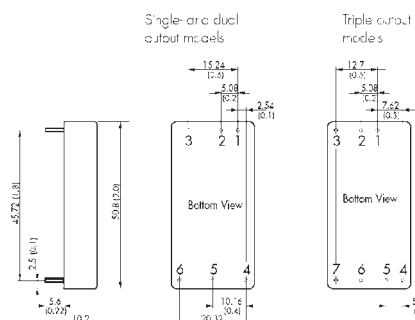


Part No.	Input Voltage	Output Voltage	Output Current Max.
TEN 30-2408WI	10 - 40 VDC	1,8 VDC	8000 mA
TEN 30-2409WI	10 - 40 VDC	2,5 VDC	8000 mA
TEN 30-2410WI	10 - 40 VDC	3,3 VDC	6000 mA
TEN 30-2411WI	10 - 40 VDC	5 VDC	6000 mA
TEN 30-2412WI	10 - 40 VDC	12 VDC	2500 mA
TEN 30-2413WI	10 - 40 VDC	15 VDC	2000 mA
TEN 30-2422WI	10 - 40 VDC	± 12 VDC	± 1250 mA
TEN 30-2423WI	10 - 40 VDC	± 12 VDC	± 1000 mA
TEN 30-4808WI	18 - 75 VDC	1,8 VDC	8000 mA
TEN 30-4809WI	18 - 75 VDC	2,5 VDC	8000 mA
TEN 30-4810WI	18 - 75 VDC	3,3 VDC	6000 mA
TEN 30-4811WI	18 - 75 VDC	5 VDC	6000 mA
TEN 30-4812WI	18 - 75 VDC	12 VDC	2500 mA
TEN 30-4813WI	18 - 75 VDC	15 VDC	2000 mA
TEN 30-4822WI	18 - 75 VDC	± 12 VDC	± 1250 mA
TEN 30-4823WI	18 - 75 VDC	± 12 VDC	± 1000 mA

## TEN-30WIN Series 30 W



- Regulated, max. 0,2 %, (triple 1 %)
- Smallest encapsulated 30 W converter
- 2" x 1" x 0.4" shielded metal package
- **Ultra wide 4:1 Input Voltage range**
- Single- dual- and triple output models
- **Very high efficiency up to 91 %**
- Operating temp. range -40°C to +75°C
- I/O-isolation 1500 VDC
- Over temperature and short circuit protection
- Remote On/Off
- Adjustable Output Voltage



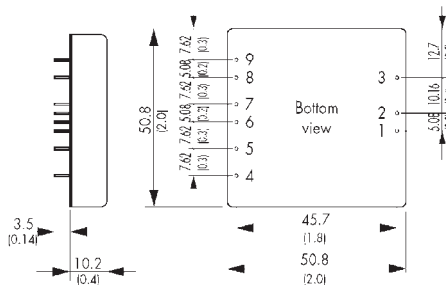
## DC/DC Converter Modules High Power Density (continued)

Part No.	Input Voltage	Output 1 $V_{out} / I_{out} \text{ max.}$	Output 2 $V_{out} / I_{out} \text{ max.}$
TEN 30-2407WIN	9 - 36 VDC	1,5 VDC / 8,0 A	
TEN 30-2409WIN	9 - 36 VDC	2,5 VDC / 8,0 A	
TEN 30-2410WIN	9 - 36 VDC	3,3 VDC / 8,0 A	
TEN 30-2411WIN	9 - 36 VDC	5 VDC / 6,0 A	
TEN 30-2412WIN	9 - 36 VDC	12 VDC / 2,5 A	
TEN 30-2413WIN	9 - 36 VDC	15 VDC / 2,0 A	
TEN 30-2421WIN	9 - 36 VDC	+5 VDC / 3,0 A	-5 VDC / 3,0 A
TEN 30-2422WIN	9 - 36 VDC	+12 VDC / 1,25 A	-12 VDC / 1,25 A
TEN 30-2423WIN	9 - 36 VDC	+15 VDC / 1,0 A	-15 VDC / 1,0 A
TEN 30-2433WIN	9 - 36 VDC	3,3 VDC / 5,0 A	±12 VDC / ±0,4 A
TEN 30-2434WIN	9 - 36 VDC	3,3 VDC / 5,0 A	±15 VDC / ±0,4 A
TEN 30-2431WIN	9 - 36 VDC	5 VDC / 4,0 A	±12 VDC / ±0,3 A
TEN 30-2432WIN	9 - 36 VDC	5 VDC / 4,0 A	±15 VDC / ±0,3 A
TEN 30-4807WIN	18 - 75 VDC	1,5 VDC / 8,0 A	
TEN 30-4809WIN	18 - 75 VDC	2,5 VDC / 8,0 A	
TEN 30-4810WIN	18 - 75 VDC	3,3 VDC / 8,0 A	
TEN 30-4811WIN	18 - 75 VDC	5 VDC / 6,0 A	
TEN 30-4812WIN	18 - 75 VDC	12 VDC / 2,5 A	
TEN 30-4813WIN	18 - 75 VDC	15 VDC / 2,0 A	
TEN 30-4821WIN	18 - 75 VDC	+5 VDC / 3,0 A	-5 VDC / 3,0 A
TEN 30-4822WIN	18 - 75 VDC	+12 VDC / 1,25 A	-12 VDC / 1,25 A
TEN 30-4823WIN	18 - 75 VDC	+15 VDC / 1,0 A	-15 VDC / 1,0 A
TEN 30-4833WIN	18 - 75 VDC	3,3 VDC / 5,0 A	±12 VDC / ±0,4 A
TEN 30-4834WIN	18 - 75 VDC	3,3 VDC / 5,0 A	±15 VDC / ±0,4 A
TEN 30-4831WIN	18 - 75 VDC	5 VDC / 4,0 A	±12 VDC / ±0,3 A
TEN 30-4832WIN	18 - 75 VDC	5 VDC / 4,0 A	±15 VDC / ±0,3 A

### TEN-40 Series 40 W



- Regulated, max. 1 %
- High Power Density: 40W in a 51x51x10mm (2"x2"x0.4") Package
- Wide 2:1 Input Voltage Range
- Models with Single-, Dual- and Triple Output
- Models with 2 independently regulated 3.3 and 5.0 VDC Outputs
- Extended op. temp. range: -40°C to +85°C
- Over Temperature Protection
- Under Voltage Lockout
- Remote On/Off
- Shielded metal case with insulated baseplate
- Optional Heatsink
- Lead free Design - RoHS compliant



Part No.	Input Voltage	Output 1 $V_{out} / I_{out} \text{ max.}$	Output 2 $V_{out} / I_{out} \text{ max.}$
TEN 40-1210	9 - 18 VDC	3,3 VDC / 8,0 A	
TEN 40-1211	9 - 18 VDC	5 VDC / 8,0 A	
TEN 40-1212	9 - 18 VDC	12 VDC / 3,3 A	
TEN 40-1220	9 - 18 VDC	*3,3 VDC / 8,0 A	*5 VDC / 8,0 A
TEN 40-1222	9 - 18 VDC	+12 VDC / 1,8 A	-12 VDC / 1,8 A
TEN 40-1223	9 - 18 VDC	+15 VDC / 1,4 A	-15 VDC / 1,4 A
TEN 40-1233	9 - 18 VDC	3,3 VDC / 6,0 A	±12 VDC / ±0,4 A
TEN 40-1234	9 - 18 VDC	3,3 VDC / 6,0 A	±15 VDC / ±0,3 A
TEN 40-1231	9 - 18 VDC	5 VDC / 6,0 A	±12 VDC / ±0,4 A
TEN 40-1232	9 - 18 VDC	5 VDC / 6,0 A	±15 VDC / ±0,3 A
TEN 40-2410	18 - 36 VDC	3,3 VDC / 8,0 A	
TEN 40-2411	18 - 36 VDC	5 VDC / 8,0 A	
TEN 40-2412	18 - 36 VDC	12 VDC / 3,3 A	
TEN 40-2420	18 - 36 VDC	*3,3 VDC / 8,0 A	*5 VDC / 8,0 A
TEN 40-2422	18 - 36 VDC	+12 VDC / 1,8 A	-12 VDC / 1,8 A
TEN 40-2423	18 - 36 VDC	+15 VDC / 1,4 A	-15 VDC / 1,4 A
TEN 40-2433	18 - 36 VDC	3,3 VDC / 6,0 A	±12 VDC / ±0,4 A
TEN 40-2434	18 - 36 VDC	3,3 VDC / 6,0 A	±15 VDC / ±0,3 A
TEN 40-2431	18 - 36 VDC	5 VDC / 6,0 A	±12 VDC / ±0,4 A
TEN 40-2432	18 - 36 VDC	5 VDC / 6,0 A	±15 VDC / ±0,3 A
TEN 40-4810	36 - 75 VDC	3,3 VDC / 8,0 A	
TEN 40-4811	36 - 75 VDC	5 VDC / 8,0 A	
TEN 40-4812	36 - 75 VDC	12 VDC / 3,3 A	
TEN 40-4820	36 - 75 VDC	*3,3 VDC / 8,0 A	*5 VDC / 8,0 A
TEN 40-4822	36 - 75 VDC	+12 VDC / 1,8 A	-12 VDC / 1,8 A
TEN 40-4823	36 - 75 VDC	+15 VDC / 1,4 A	-15 VDC / 1,4 A
TEN 40-4833	36 - 75 VDC	3,3 VDC / 6,0 A	±12 VDC / ±0,4 A

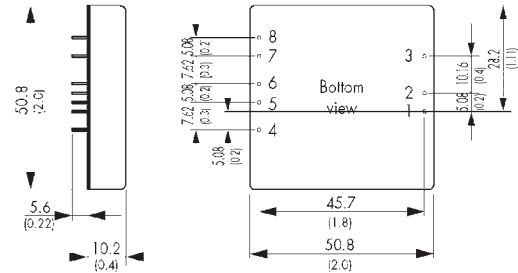
Part No.	Input Voltage	Output 1 $V_{out} / I_{out} \text{ max.}$	Output 2 $V_{out} / I_{out} \text{ max.}$
TEN 40-4834	36 - 75 VDC	3,3 VDC / 6,0 A	±15 VDC / ±0,3 A
TEN 40-4831	36 - 75 VDC	5 VDC / 6,0 A	±12 VDC / ±0,4 A
TEN 40-4832	36 - 75 VDC	5 VDC / 6,0 A	±15 VDC / ±0,3 A

\*dynamic current allocation, max. 8A total output current for both outputs together

### TEN-40WI Series 40 W



- Regulated, max. 0,2 %
- High power density: 40W in 2"x2"x0.4" metal package
- Ultra wide 4:1 Input Voltage range
- Very high efficiency up to 87 %
- No minimum load required for single output models
- Over temperature protection
- Under voltage lockout
- Remote On/Off
- Shielded metal case with insulated baseplate
- Optional heat-sink

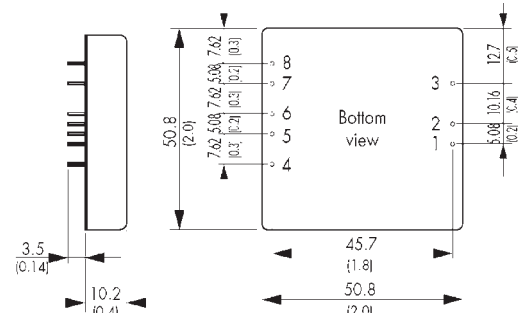


Part No.	Input Voltage	Output Voltage	Output Current Max.
TEN 40-2410WI	9 - 36 VDC	3,3 VDC	10000 mA
TEN 40-2411WI	9 - 36 VDC	5 VDC	8000 mA
TEN 40-2412WI	9 - 36 VDC	12 VDC	3330 mA
TEN 40-2413WI	9 - 36 VDC	15 VDC	2660 mA
TEN 40-2422WI	9 - 36 VDC	± 12 VDC	± 1660 mA
TEN 40-2423WI	9 - 36 VDC	± 15 VDC	± 1330 mA
TEN 40-4810WI	18 - 75 VDC	3,3 VDC	10000 mA
TEN 40-4811WI	18 - 75 VDC	5 VDC	8000 mA
TEN 40-4812WI	18 - 75 VDC	12 VDC	3330 mA
TEN 40-4813WI	18 - 75 VDC	15 VDC	2660 mA
TEN 40-4822WI	18 - 75 VDC	± 12 VDC	± 1660 mA
TEN 40-4823WI	18 - 75 VDC	± 15 VDC	± 1330 mA

### TEN-60 Series 60 W



- Regulated, max. 0,2 %
- Highest Power Density: 60W in a 51x51x10mm (2"x2"x0.4") Package
- Wide 2:1 Input Voltage Range
- Very High Efficiency up to 90 %
- No Minimum Load required
- Over Temperature Protection
- Under Voltage Lockout
- Remote On/Off
- Shielded metal case with insulated baseplate
- Optional Heatsink
- Lead free Design - RoHS compliant



Part No.	Input Voltage	Output Voltage	Output Current Max.
TEN 60-2410	18 - 36 VDC	3,3 VDC	14000 mA
TEN 60-2411	18 - 36 VDC	5 VDC	12000 mA
TEN 60-2412	18 - 36 VDC	12 VDC	5000 mA
TEN 60-2413	18 - 36 VDC	15 VDC	4000 mA
TEN 60-4810	36 - 75 VDC	3,3 VDC	14000 mA
TEN 60-4811	36 - 75 VDC	5 VDC	12000 mA
TEN 60-4812	36 - 75 VDC	12 VDC	5000 mA
TEN 60-4813	36 - 75 VDC	15 VDC	4000 mA

The list of in stock types is presented on page D25  
Other types available on customers' individual order.

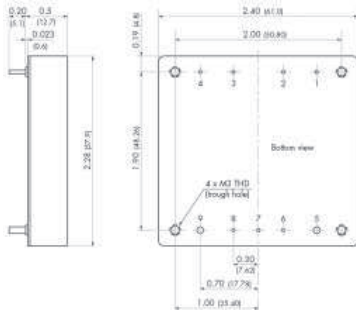


## DC/DC Converters High Power Modules

### TEP-75WI Series 75 W



- Regulated, max. 0,2 %
- Rugged, compact metal case
- Easy chassis mount
- Screw terminal adaptor available for easy connection
- **Ultra wide 4:1 Input Voltage range**
- Full load operation up to 60°C with convection cooling
- Soft start
- Reverse Input Voltage protection
- Input protection filter

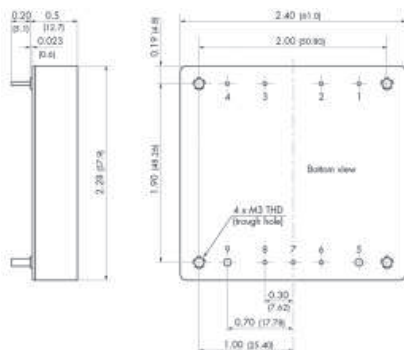


Part No.	Input Voltage	Output Voltage	Output Current Max.
TEP 75-2411WI	9 - 36 VDC	5,0 VDC	15,0 A
TEP 75-2412WI	9 - 36 VDC	12 VDC	6,3 A
TEP 75-2413WI	9 - 36 VDC	15 VDC	5,0 A
TEP 75-2415WI	9 - 36 VDC	24 VDC	3,2 A
TEP 75-2416WI	9 - 36 VDC	28 VDC	2,7 A
TEP 75-2418WI	9 - 36 VDC	48 VDC	1,6 A
TEP 75-4811WI	18 - 75 VDC	5,0 VDC	15,0 A
TEP 75-4812WI	18 - 75 VDC	12 VDC	6,3 A
TEP 75-4813WI	18 - 75 VDC	15 VDC	5,0 A
TEP 75-4815WI	18 - 75 VDC	24 VDC	3,2 A
TEP 75-4816WI	18 - 75 VDC	28 VDC	2,7 A
TEP 75-4818WI	18 - 75 VDC	48 VDC	1,6 A

### TEP-100 Series 100 W



- Regulated, max. 0,2 %
- Rugged, compact metal case
- Easy chassis mount
- Screw terminal adaptor available for easy connection
- **Wide 2:1 Input Voltage range**
- Full load operation up to 60°C with convection cooling
- Soft start
- Reverse Input Voltage protection
- Input protection filter

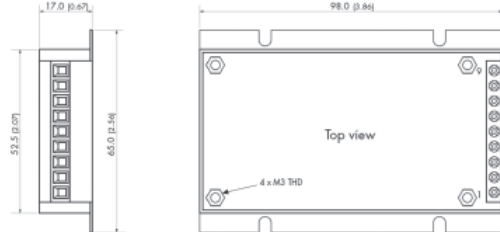


Part No.	Input Voltage	Output Voltage	Output Current Max.
TEP 100-2411	18 - 36 VDC	5,0 VDC	20,0 A
TEP 100-2412	18 - 36 VDC	12 VDC	8,4 A
TEP 100-2413	18 - 36 VDC	15 VDC	6,7 A
TEP 100-2415	18 - 36 VDC	24 VDC	4,2 A
TEP 100-2416	18 - 36 VDC	28 VDC	3,6 A
TEP 100-2418	18 - 36 VDC	48 VDC	2,1 A
TEP 100-4811	36 - 75 VDC	5,0 VDC	20,0 A
TEP 100-4812	36 - 75 VDC	12 VDC	8,4 A
TEP 100-4813	36 - 75 VDC	15 VDC	6,7 A
TEP 100-4815	36 - 75 VDC	24 VDC	4,2 A
TEP 100-4816	36 - 75 VDC	28 VDC	3,6 A
TEP 100-4818	36 - 75 VDC	48 VDC	2,1 A

### TEP-150WI Series 150 W



- Regulated, max. 0,2 %
- Shielded metal case with screw terminals
- Compact dimensions: 98 x 52 x 34 mm
- **Ultra-wide 4:1 Input Voltage range**
- **Very high efficiency up to 87%**
- Constant current output characteristic for battery load applications
- Overtemperature protection
- Operating temp. range -40°C to +75°C
- Reverse input protection
- I/O isolation 2250 VDC (basic insulation)
- Easy chassis and wall mounting



Part No.	Input Voltage	Output Voltage	Output Current Max.
TEP 150-2412WI	9 - 36 VDC	12 VDC	12,5 A
TEP 150-2413WI	9 - 36 VDC	15 VDC	10 A
TEP 150-2415WI	9 - 36 VDC	24 VDC	6,3 A
TEP 150-2416WI	9 - 36 VDC	28 VDC	5,4 A
TEP 150-2418WI	9 - 36 VDC	48 VDC	3,2 A
TEP 150-4812WI	18 - 75 VDC	12 VDC	12,5 A
TEP 150-4813WI	18 - 75 VDC	15 VDC	10 A
TEP 150-4815WI	18 - 75 VDC	24 VDC	6,3 A
TEP 150-4816WI	18 - 75 VDC	28 VDC	5,4 A
TEP 150-4818WI	18 - 75 VDC	48 VDC	3,2 A

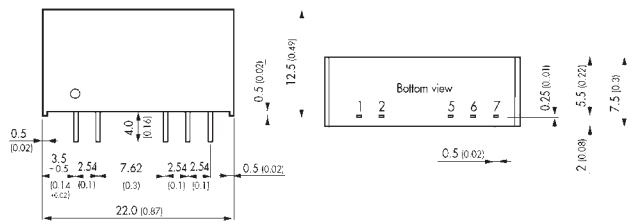
## DC/DC Converters Reinforced Insulation

These converter modules provide reinforced insulation with high I/O-isolation voltages rated for 2500 VAC to 4000 VAC. The products come with industrial and medical safety approvals. The (THP-3 series) provides ultra-wide input ranges including a 36 to 160 VDC range for compliance with railroad safety standards.

### TMV-EN Series 1 W



- Non regulated
- Isolation test voltage 6'000 Vpk
- With reinforced insulation, rated for 300 Vrms working voltage
- Physical clearance of isolation barrier 2.0 mm min.
- Certified to IEC/EN/UL 60950-1 safety standards
- Safety barrier 100% production test
- Low coupling capacity
- Single-in-line package (SIP)
- Lead-free design, RoHS compliant



Part No.	Input Voltage	Output Voltage	Output Current Max.
TMV 0505EN	5 VDC ± 10%	5 VDC	200 mA
TMV 0512EN	5 VDC ± 10%	12 VDC	80 mA
TMV 0515EN	5 VDC ± 10%	15 VDC	65 mA
TMV 0505DEN	5 VDC ± 10%	± 5 VDC	± 100 mA
TMV 0512DEN	5 VDC ± 10%	± 12 VDC	± 40 mA
TMV 0515DEN	5 VDC ± 10%	± 15 VDC	± 30 mA
TMV 1205EN	12 VDC ± 10%	5 VDC	200 mA
TMV 1212EN	12 VDC ± 10%	12 VDC	80 mA
TMV 1215EN	12 VDC ± 10%	15 VDC	65 mA
TMV 1205DEN	12 VDC ± 10%	± 5 VDC	± 100 mA
TMV 1212DEN	12 VDC ± 10%	± 12 VDC	± 40 mA
TMV 1215DEN	12 VDC ± 10%	± 15 VDC	± 30 mA

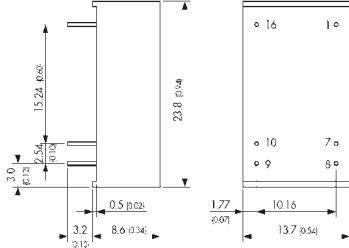
The list of in stock types is presented on page D25  
Other types available on customers' individual order.

## DC/DC Converters Reinforced Insulation (continued)

### THI-2M Series 2 W



- Non regulated
- Ultracompact DIP 16 package
- I/O isolation 4000 VACrms
- Reinforced insulation rated for working voltage up to 300 VAC
- Industrial & medical safety approval
- Operating temp. range -25°C to +71°C
- Short circuit protection



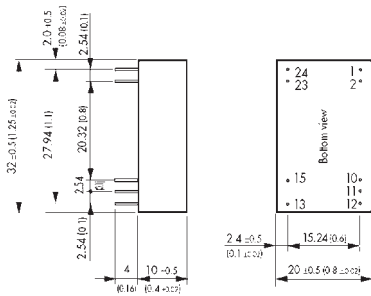
The product with the same electrical features in SMD housing - TES-2M - is presented in section of DC/DC Converters with SMD housing.

Part No.	Input Voltage	Output Voltage	Output Current Max.
THI 2-0511M	5 VDC ± 10%	5 VDC	400 mA
THI 2-0512M	5 VDC ± 10%	12 VDC	165 mA
THI 2-0513M	5 VDC ± 10%	15 VDC	133 mA
THI 2-0522M	5 VDC ± 10%	± 12 VDC	± 83 mA
THI 2-0523M	5 VDC ± 10%	± 15 VDC	± 66 mA
THI 2-1211M	12 VDC ± 10%	5 VDC	400 mA
THI 2-1212M	12 VDC ± 10%	12 VDC	165 mA
THI 2-1213M	12 VDC ± 10%	15 VDC	133 mA
THI 2-1222M	12 VDC ± 10%	± 12 VDC	± 83 mA
THI 2-1223M	12 VDC ± 10%	± 15 VDC	± 66 mA
THI 2-2411M	24 VDC ± 10%	5 VDC	400 mA
THI 2-2412M	24 VDC ± 10%	12 VDC	165 mA
THI 2-2413M	24 VDC ± 10%	15 VDC	133 mA
THI 2-2422M	24 VDC ± 10%	± 12 VDC	± 83 mA
THI 2-2423M	24 VDC ± 10%	± 15 VDC	± 66 mA

### THI-2 Series 2 W



- Regulated, max. 0,5 %
- I/O-Isolation Test Voltage 6000Vpk
- Supplementary Insulation to meet IEC/EN 60950 and IEC/EN 60601-1 Safety Standards
- Agency Safety Approvals
- Full SMD-Design with Ceramic Capacitors
- Regulated Single- and Dual Output Models
- Low Coupling Capacity
- DIL-24 Plastic Package

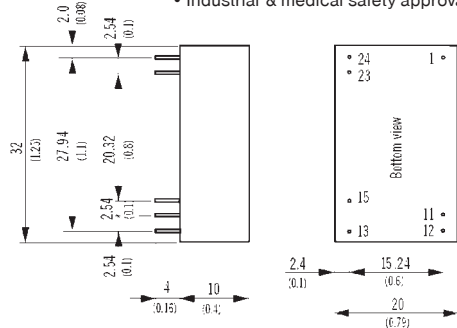


Part No.	Input Voltage	Output Voltage	Output Current Max.
THI 0511	5 VDC ± 10%	5 VDC	400 mA
THI 0512	5 VDC ± 10%	12 VDC	165 mA
THI 0513	5 VDC ± 10%	15 VDC	130 mA
THI 0520	5 VDC ± 10%	± 5 VDC	± 100 mA
THI 0521	5 VDC ± 10%	± 12 VDC	± 80 mA
THI 0522	5 VDC ± 10%	± 15 VDC	± 65 mA
THI 1211	12 VDC ± 10%	5 VDC	400 mA
THI 1212	12 VDC ± 10%	12 VDC	165 mA
THI 1213	12 VDC ± 10%	15 VDC	130 mA
THI 1220	12 VDC ± 10%	± 5 VDC	± 100 mA
THI 1221	12 VDC ± 10%	± 12 VDC	± 80 mA
THI 1222	12 VDC ± 10%	± 15 VDC	± 65 mA
THI 2411	24 VDC ± 10%	5 VDC	400 mA
THI 2412	24 VDC ± 10%	12 VDC	165 mA
THI 2413	24 VDC ± 10%	15 VDC	130 mA
THI 2420	24 VDC ± 10%	± 5 VDC	± 100 mA
THI 2421	24 VDC ± 10%	± 12 VDC	± 80 mA
THI 2422	24 VDC ± 10%	± 15 VDC	± 65 mA

### THB-3 Series 3 W



- Regulated, max. ± 0,5 %
- Supplementary and reinforced insulation for working voltages up to 300 VAC
- I/O isolation 4000 VACrms
- Isolation test voltage 6000 Vpk
- Wide 2:1 Input Voltage ranges
- Extended op. temp. range -40°C to 85°C max.
- Input filter meets EN55022, class A
- Continuous short-circuit protection
- High reliability
- Industrial & medical safety approvals

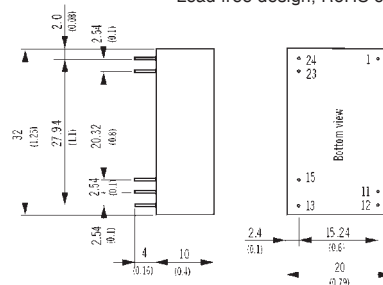


Part No.	Input Voltage	Output Voltage	Output Current Max.
THB 3-0511	4,5 - 9 VDC	5 VDC	600 mA
THB 3-0512	4,5 - 9 VDC	12 VDC	250 mA
THB 3-0515	4,5 - 9 VDC	24 VDC	125 mA
THB 3-0522	4,5 - 9 VDC	± 12 VDC	± 125 mA
THB 3-0523	4,5 - 9 VDC	± 15 VDC	± 100 mA
THB 3-1211	9 - 18 VDC	5 VDC	600 mA
THB 3-1212	9 - 18 VDC	12 VDC	250 mA
THB 3-1215	9 - 18 VDC	24 VDC	125 mA
THB 3-1222	9 - 18 VDC	± 12 VDC	± 125 mA
THB 3-1223	9 - 18 VDC	± 15 VDC	± 100 mA
THB 3-2411	18 - 36 VDC	5 VDC	600 mA
THB 3-2412	18 - 36 VDC	12 VDC	250 mA
THB 3-2415	18 - 36 VDC	24 VDC	125 mA
THB 3-2422	18 - 36 VDC	± 12 VDC	± 125 mA
THB 3-2423	18 - 36 VDC	± 15 VDC	± 100 mA
THB 3-4811	36 - 75 VDC	5 VDC	600 mA
THB 3-4812	36 - 75 VDC	12 VDC	250 mA
THB 3-4815	36 - 75 VDC	24 VDC	125 mA
THB 3-4822	36 - 75 VDC	± 12 VDC	± 125 mA
THB 3-4823	36 - 75 VDC	± 15 VDC	± 100 mA

### THP-3 Series 3 W



- Regulated, max. 0,5 %
- Supplementary and reinforced insulation for working voltages up to 300VAC
- I/O isolation voltage of 4000VACrms
- Industrial & medical safety approvals
- 9-40 VDC, 18-80 VDC and 36-160 VDC
- Extended op. temp. range -40°C to 85°C max.
- Input filter meets EN55022A without ext. components
- Continuous short circuit protection
- High reliability, MTBF >1 Mio. hours
- Lead free design, RoHS compliant

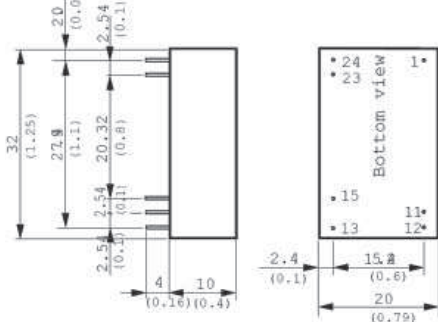


Part No.	Input Voltage	Output Voltage	Output Current Max.
THP 3-2411	9 - 40 VDC	5 VDC	600 mA
THP 3-2412	9 - 40 VDC	12 VDC	250 mA
THP 3-2422	9 - 40 VDC	± 12 VDC	± 125 mA
THP 3-2423	9 - 40 VDC	± 15 VDC	± 100 mA
THP 3-4811	18 - 80 VDC	5 VDC	600 mA
THP 3-4812	18 - 80 VDC	12 VDC	250 mA
THP 3-4822	18 - 80 VDC	± 12 VDC	± 125 mA
THP 3-4823	18 - 80 VDC	± 15 VDC	± 100 mA
THP 3-7211	36 - 160 VDC	5 VDC	600 mA
THP 3-7212	36 - 160 VDC	12 VDC	250 mA
THP 3-7222	36 - 160 VDC	± 12 VDC	± 125 mA
THP 3-7223	36 - 160 VDC	± 15 VDC	± 100 mA

## THB-6 Series 6 W



- Regulated, max. 0,5 %
- Ultra compact DIP-24 package
- Wide 2:1 Input Voltage ranges
- I/O isolation voltage 4000 VACrms
- Reinforced insulation rated for working voltage 300 VAC
- Industrial and medical safety approvals
- Low leakage current
- Short circuit protection
- Input filter to meet EN 55022, Class A



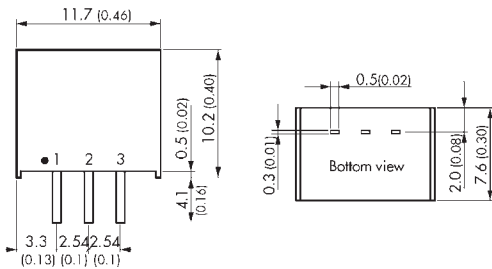
Part No.	Input Voltage	Output Voltage	Output Current Max.
THB 6-1211	9 - 18 VDC	5 VDC	1000 mA
THB 6-1212	9 - 18 VDC	12 VDC	500 mA
THB 6-1222	9 - 18 VDC	± 12 VDC	± 250 mA
THB 6-1223	9 - 18 VDC	± 15 VDC	± 200 mA
THB 6-2411	18 - 36 VDC	5 VDC	1000 mA
THB 6-2412	18 - 36 VDC	12 VDC	500 mA
THB 6-2422	18 - 36 VDC	± 12 VDC	± 250 mA
THB 6-2423	18 - 36 VDC	± 15 VDC	± 200 mA
THB 6-4811	36 - 75 VDC	5 VDC	1000 mA
THB 6-4812	36 - 75 VDC	12 VDC	500 mA
THB 6-4822	36 - 75 VDC	± 12 VDC	± 250 mA
THB 6-4823	36 - 75 VDC	± 15 VDC	± 200 mA

## POL (Point-of-Load) Converters - DC/DC Switching Regulators

### TSR-1 Series 1 A

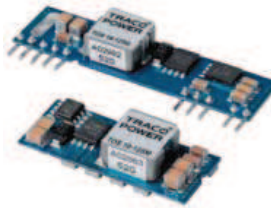


- Regulated, max. 0,2 %
- Up to 96 % efficiency - no heat-sink required
- Pin compatible with LMxx linear regulators
- SIP-package fits existing TO-220 footprint
- Built in filter capacitors
- Operation temp. range -40°C to +85°C
- Short circuit protection
- Wide input operating range
- Excellent line / load regulation
- Low standby current



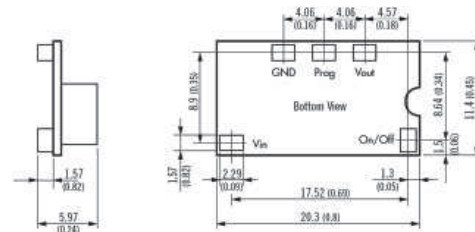
Part No.	Input Voltage	Output Voltage	Output Current Max.
TSR 1-2415	4,75 - 32 VDC	1,5 VDC	1000 mA
TSR 1-2418	4,75 - 32 VDC	1,8 VDC	1000 mA
TSR 1-2425	4,75 - 32 VDC	2,5 VDC	1000 mA
TSR 1-2433	5,5 - 32 VDC	3,3 VDC	1000 mA
TSR 1-2450	6,5 - 32 VDC	5,0 VDC	1000 mA
TSR 1-2465	9,0 - 32 VDC	6,5 VDC	1000 mA
TSR 1-2490	12 - 32 VDC	9,0 VDC	1000 mA
TSR 1-24120	15 - 32 VDC	12 VDC	1000 mA
TSR 1-24150	18 - 32 VDC	15 VDC	1000 mA

## TOS Series 6 - 30 A

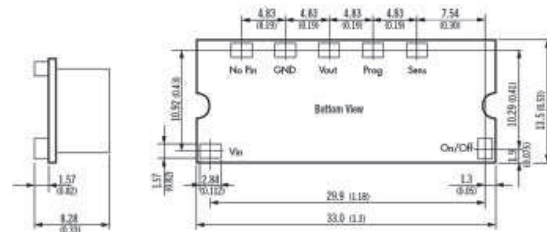


- Regulated, max. 0,3 %
- Small Size, low Profile
- SMT package or SIP version
- Cost-efficient open Frame Design
- Wide Input Voltage Ranges
- Output Voltages trim from 0.75VDC to 5.0VDC
- Delivers up to 16A with minimal derating
- Ultra high Efficiency to 96%
- Fast Transient Response
- Remote On/Off Control
- Wide Temperature Range(-40°C to 85°C)
- SMT Package fully DOSA compatible
- Lead free Design - RoHS compliant

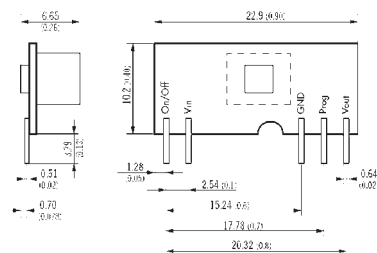
### SM Version 6A Model



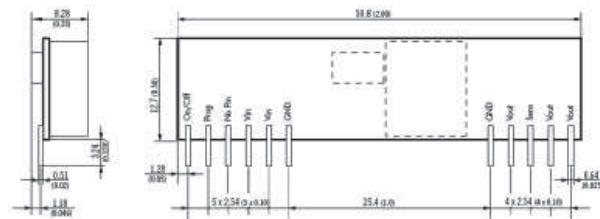
### 10 A, 16 A Models



### SIL Version 6 A Model



### 10 A, 16 A Models



### SM Version

Part No.	Input Voltage	Output Voltage	Output Current Max.
TOS 06-05SM	2,4 - 5,5 VDC	0,75 - 3,3 VDC	6 A
TOS 10-05SM	2,4 - 5,5 VDC	0,75 - 3,3 VDC	10 A
TOS 16-05SM	2,4 - 5,5 VDC	0,75 - 3,3 VDC	16 A
TOS 30-05SM	4,5 - 5,5 VDC	0,80 - 3,6 VDC	30 A
TOS 06-12SM	8,3 - 14,0 VDC	0,75 - 5,0 VDC	6 A
TOS 10-12SM	8,3 - 14,0 VDC	0,75 - 5,0 VDC	10 A
TOS 16-12SM	8,3 - 14,0 VDC	0,75 - 5,0 VDC	16 A
TOS 30-12SM	6,0 - 14,0 VDC	0,80 - 5,5 VDC	*30 A

### SIP Version

Part No.	Input Voltage	Output Voltage	Output Current Max.
TOS 06-05SIL	2,4 - 5,5 VDC	0,75 - 3,3 VDC	6 A
TOS 10-05SIL	2,4 - 5,5 VDC	0,75 - 3,3 VDC	10 A
TOS 16-05SIL	2,4 - 5,5 VDC	0,75 - 3,3 VDC	16 A
TOS 30-05SIL	4,5 - 5,5 VDC	0,80 - 3,6 VDC	30 A
TOS 06-12SIL	8,3 - 14,0 VDC	0,75 - 5,0 VDC	6 A
TOS 10-12SIL	8,3 - 14,0 VDC	0,75 - 5,0 VDC	10 A
TOS 16-12SIL	8,3 - 14,0 VDC	0,75 - 5,0 VDC	16 A
TOS 30-12SIL	6,0 - 14,0 VDC	0,80 - 5,5 VDC	*30 A

\* 25 A at Output Voltage higher than 3,6 VDC



## DC/DC Converters - High Voltage Output

High Voltage power supplies (2 and 5W) are compact shielded metal package. Full SMT-construction with ceramic capacitors for highest reliability. Excellent output stability and low temperature drift. Typical applications for these HV power supplies are photomultiplier tubes, gas chromatography, analytical instruments and wherever where small size and high Output Voltage stability is requested.

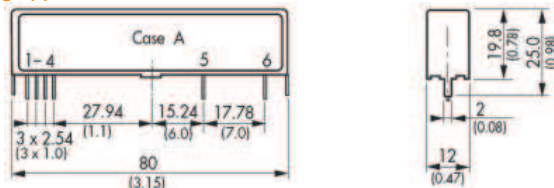
### MHV / PHV Series 2/5 W



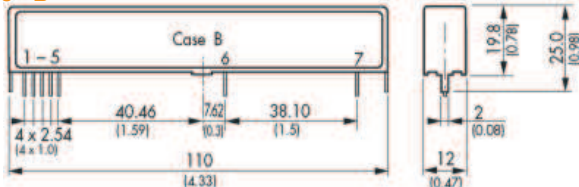
- Regulated, 0,03 % (MHV), 0,01 % (PHV)
- World's most compact high voltage power supplies
- Full SMD-Design with Ceramic
- Capacitors for highest Reliability
- Positive or negative Polarity Models
- PCB- and flying Lead Versions
- Excellent Output stability
- Low Temperature Coefficient
- Ultra low Ripple
- Remote Voltage Programming 0 to 100%
- Short Circuit Protection
- Shielded Metal Case

### MHV Series

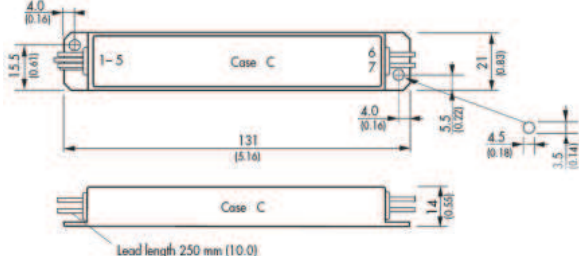
Case "A"



Case "B"



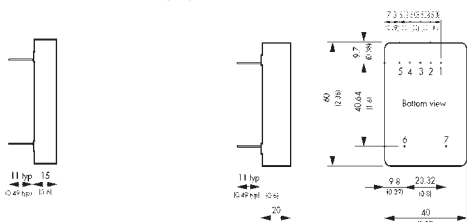
Case "C"



### PHV Series

Model PHV 12-350 S 10 P (N)

Other models



### MHV Models 2 W

Part No.	Input voltage	Output voltage	Output current max.	Case
MHV 12-180 S 15 P (N)	10,8 - 13,2 VDC	0 - 180 VDC	15 mA	A
MHV 12-300 S 10 P (N)	10,8 - 13,2 VDC	0 - 300 VDC	10 mA	A
MHV 12-350 S 07 P (N)	10,8 - 13,2 VDC	0 - 350 VDC	7 mA	A
*MHV 12-0,5 K 6000 P (N)	10,8 - 16,5 VDC	0 - 500 VDC	6 mA	B
*MHV 12-1,0 K 2000 P (N)	10,8 - 16,5 VDC	0 - 1000 VDC	2 mA	B
*MHV 12-1,5 K 1300 P (N)	10,8 - 16,5 VDC	0 - 1500 VDC	1,3 mA	B
*MHV 12-2,0 K 1000 P (N)	10,8 - 16,5 VDC	0 - 2000 VDC	1 mA	B

### Models PHV 5 W

Part No.	Input voltage	Output voltage	Output current max.	Case
PHV 12-350 S 10 P (N)	10,8 - 16,5 VDC	0 - 350 VDC	10 mA	D
PHV 12-0,5 K 1000 P (N)	10,8 - 16,5 VDC	0 - 500 VDC	10 mA	D
PHV 12-1,0 K 5000 P (N)	10,8 - 16,5 VDC	0 - 1000 VDC	5 mA	D
PHV 12-2,0 K 2500 P (N)	10,8 - 16,5 VDC	0 - 2000 VDC	2,5 mA	D

Type P for positive output polarity  
Type N for negative output polarity

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The list of in stock types is presented on page D25  
Other types available on customers' individual order.

## Industrial, DIN-Rail Mount DC/DC Converters

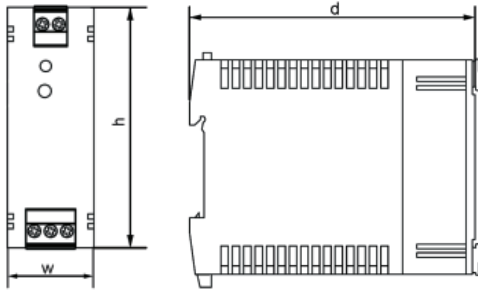
### TCL Series 24 - 240 W



#### Dimensions

Type	Width w (mm)	Height h (mm)	Depth d (mm)
TCL 012	27	75	100
TCL 024, REM	27	75	100
TCL 060	45	75	100
TCL 120	85	75	100
TCL 240	85	110	125

- High efficiency up to 90 %
- For industrial, office and residential applications
- Ultracompact plastic housing
- Connection by spring clamp terminals or detachable screw terminal block
- Reliable snap-on mounting on DIN-rails
- Adaptor for wall mounting
- Universal input 85-264 VAC, 50/60 Hz
- Models with 5, 12, 24 and 48 VDC output
- Output Voltage adjustable
- Power OK signal
- Low ripple and noise
- Overload and short-circuit protection
- Parallel operation possible
- Worldwide safety approvals
- Redundancy module



Part No.	Output power max.	Output Voltage	Output Current Max.
TCL 024-105	24 W	5,1 VDC	4,0 A
TCL 024-112	24 W	12 VDC	2,0 A
TCL 024-124 (C)	24 W	24 VDC	1,0 A
TCL 060-112 (C)	60 W	12 VDC	4,0 A
TCL 060-124 (C)	60 W	24 VDC	2,5 A
TCL 060-148 (C)	60 W	48 VDC	1,25 A
TCL 120-112 (C)	120 W	12 VDC	8,0 A
TCL 120-124 (C)	120 W	24 VDC	5,0 A
TCL 240-124	240 W	24 VDC	10,0 A

Without suffix: Detachable screw terminal blocks  
With "C" suffix: Spring clamp terminals

#### Redundancy Module

Type	2 inputs	Output Voltage	Output Current Max.
TCL-REM240	5 - 60 VDC 144 W max./input	Vin - 0,9 VDC	8,0 A

#### Models with DC input

Part No.	Input Voltage	Output Voltage	Output Current Max.
TCL 012-124 DC	9,5 - 18 VDC	24 VDC	1,0 A
TCL 024-105 DC	18 - 75 VDC	5 VDC	5,0 A
TCL 024-112 DC	18 - 75 VDC	12 VDC	2,0 A
TCL 024-124 DC	18 - 75 VDC	24 VDC	1,0 A
TCL 060-124 DC	18 - 75 VDC	24 VDC	2,5 A

The list of in stock types is presented on page D25  
Other types available on customers' individual order.

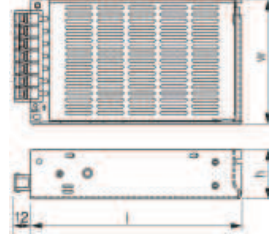
For more information, please contact the SOS's sales department.

## Industrial High Power DC/DC Converters

### TZL Series 60 - 300 W



- Regulated, max. 1,0 %
- Compact metal case with screw terminal block
- Models with 60W, 100W, 150W and 300W
- Wide 2:1 Input Range
- I/O-Isolation 1500VDC
- Input polarity reverse protection
- Soft start, low inrush current
- Overload and Short Circuit Protection
- EMC Compliance with EN 61000-6-1 and EN 50082-1
- Adjustable Output Voltage



#### Dimensions

Type	Length l (mm)	Width w (mm)	Height h (mm)
TZL 060	159	95	38
TZL 100	198	95	38
TZL 150	198	99	50
TZL 300	212	115	50

Part No.	Input Voltage	Output Voltage	Output Current Max.
TZL 060-2412	18 - 36 VDC	12 VDC	5,0 A
TZL 060-2424	18 - 36 VDC	24 VDC	2,5 A
TZL 060-4812	36 - 72 VDC	12 VDC	5,0 A
TZL 060-4824	36 - 72 VDC	24 VDC	2,5 A
TZL 100-2412	18 - 36 VDC	12 VDC	8,5 A
TZL 100-2424	18 - 36 VDC	24 VDC	4,2 A
TZL 100-4812	36 - 72 VDC	12 VDC	8,5 A
TZL 100-4824	36 - 72 VDC	24 VDC	4,2 A
TZL 150-2412	18 - 36 VDC	12 VDC	12,5 A
TZL 150-2424	18 - 36 VDC	24 VDC	6,3 A
TZL 150-4812	36 - 72 VDC	12 VDC	12,5 A
TZL 150-4824	36 - 72 VDC	24 VDC	6,3 A
TZL 300-4812	36 - 72 VDC	12 VDC	25,0 A
TZL 300-4824	36 - 72 VDC	24 VDC	12,5 A

### TSC Series 150 - 5000 W



#### Dimensions

Power (W)	Width (mm)	Depth (mm)	Height (mm)
150	71	160	133
250	107	160	133
500	213	160	133
400	107	220	133
800	213	220	133
200	51	160	267
400	71	160	267
600	107	160	267
1200	213	160	267
850	107	220	267
1250	142	220	267
1700	213	220	267
2500	284	220	267
2500	142	300	267
5000	284	300	267

- Regulated, max. 0,1 %
- I/O isolation 2100 VDC (Vin < 60 VDC), 3500 VDC (Vin > 60 VDC and models with VAC input)
- Plug-in Modules for 19"-Subracks (3U and 6U Height)
- Available DC-Input Voltage Ranges 18-36,36-75,80-160 and 160-320VDC
- Also Models with AC-Input
- Standard Output Voltages: 5-250VDC, up to 200A
- EMI Compliance with EN 55022 class A
- Safety Compliance to IEC/EN 60950
- Many Options available, i.e. Powerfail Signals,
- Ext. On/Off, redundant Operation, Wall Mounting
- Customized Version available on request

Input Voltage range	Output power	Output Voltage range
10 - 16 VDC 18 - 36 VDC 36 - 75 VDC 80 - 160 VDC 160 - 320 VDC 320 - 640 VDC 450 - 800 VDC	Models with 150 W - 5000 W available	4,5 - 5,5 VDC 8 - 10 VDC 11 - 13 VDC 14 - 16 VDC 23 - 26 VDC 26 - 30 VDC 45 - 55 VDC 58 - 68 VDC 100 - 130 VDC 200 - 250 VDC 380 - 400 VDC

## Industrial High Power DC/DC Converters

(continued)

### TSC 19" Series 5 - 22 kW



#### Dimensions

Power (W)	Width (mm)	Depth (mm)	Height (mm)
5/7,5/10	19"	600	178
6/8/12	19"	360/460*	267/400
22	19"	600	356

\* depending on output current

- Regulated, max. 0,1 %
- I/O isolation 2100 VDC (Vin < 60 VDC), 3500 VDC (Vin > 60 VDC and models with VAC input)
- High efficiency up to 90 %
- 19" subrack
- Robust mechanical design for industrial applications
- Input Voltages from 18 to 800 VDC
- Standard models with Output Voltages up to 800 VDC
- Also AC input 115/230 VAC or 400/480 VAC 3P available
- EMI complies with EN 55022, Class A
- Operating temperature range -10°C to +50°C
- Available with many standard options

Input Voltage range	Output power	Output Voltage range
18 - 36 VDC	Models with 5 kW - 22 kW available	4,5 - 5,5 VDC
36 - 75 VDC		8 - 10 VDC
80 - 160 VDC		11 - 13 VDC
160 - 320 VDC		14 - 16 VDC
320 - 640 VDC		23 - 26 VDC
450 - 800 VDC		26 - 30 VDC
		45 - 55 VDC
		58 - 68 VDC
		100 - 130 VDC
		200 - 250 VDC
		380 - 400 VDC
		570 - 600 VDC
		760 - 800 VDC

## Industrial DC/AC Inverters

### TSD Series 200 VA - 30 kVA



#### Dimensions

##### Models with 1-phase output

Power (kVA)	Depth (mm)	Width (mm)	Height (mm)
do 0,6	160	213	267
do 1,2	220	213	267
do 1,6	220	284	267
do 2,5	300	284	267
do 10	460	483 (19")	267

##### Models with 3-phase output

Power (kVA)	Depth (mm)	Width (mm)	Height (mm)
06 - 10	460	19"	267
do 30	460	19"	267

- Regulated, 0,1 % - 2 % (depending on model)
- I/O isolation 3000 VDC
- Regulated sine wave Output Voltage
- Efficiency 75 - 94 %
- Plug-in types for 19" subracks
- Compact and robust design for industrial environment
- Isolation between input and output
- Single phase or 3-phase output
- DC input 18 - 800 VDC
- Low standby power consumption
- Operating temperature range -20°C up to +75°C

Input Voltage range	Output power	Output Voltage range
18 - 36 VDC	Models with 200 VA - 30 kVA available	1P 115/230 VAC
36 - 75 VDC		3P 200/400/480 VAC
45 - 90 VDC		
80 - 160 VDC		
160 - 320 VDC		
320 - 380 VDC		
380 - 450 VDC		
450 - 550 VDC		
550 - 640 VDC		
1f 115/230 VAC		
3f 200/400/480 VAC		

The list of in stock types is presented on page D25  
Other types available on customers' individual order.

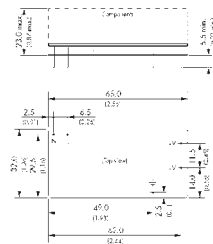
## Open Frame Design AC/DC Power Supplies

### TOM Series 12 a 25 W

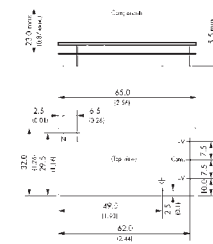


- Regulated, max. 0,5 %
- High efficiency up to 79 %
- AC/DC Open Frame Modul
- PCB mountable with Solderpins
- Ultra compact dimension
- Universal Input 85-264 VAC
- Overload Protection
- Conducted EMI meets EN 55022, Level B
- Safety Approvals to EN/IEC 60950, UL 60950
- Operating temperature range -10°C to +71°C

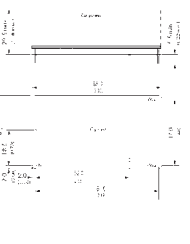
#### TOM 12 W single output



#### TOM 12 W dual output



#### TOM 25 W

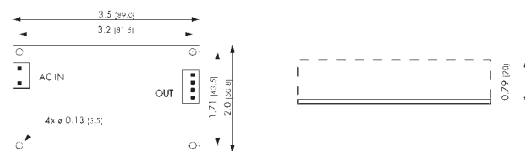


Part No.	Output Voltage	Output Current Max. 230 VAC on output	Output Current Max. 115 VAC on output
TOM 12103	3,3 VDC	2400 mA	2400 mA
TOM 12105	5 VDC	2000 mA	2000 mA
TOM 12112	12 VDC	1000 mA	840 mA
TOM 12115	15 VDC	800 mA	670 mA
TOM 12124	24 VDC	500 mA	420 mA
TOM 12212	± 12 VDC	± 500 mA	± 420 mA
TOM 12215	± 15 VDC	± 420 mA	± 350 mA
TOM 25103	3,3 VDC	6000 mA	6000 mA
TOM 25105	5 VDC	5000 mA	5000 mA
TOM 25112	12 VDC	2100 mA	2100 mA
TOM 25115	15 VDC	1700 mA	1700 mA
TOM 25124	24 VDC	1100 mA	1100 mA

### TOP-20 Series 20 W



- Regulated, max. 0,5 %
- High efficiency up to 78 %
- Universal input 90 - 264 VAC
- Overload protection
- Operating temperature range -10°C to +60°C
- Low profile design, 3,5"x2,0"x0,8"

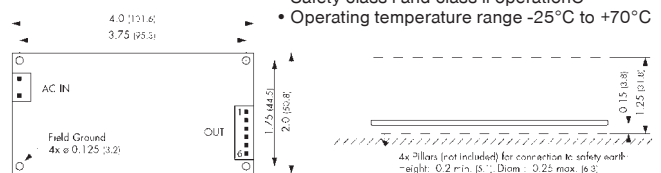


Type	Output Power	Output Voltage	Output Current Max.
TOP 20-103	20 W	3,3 VDC	4,0 A
TOP 20-105	20 W	5 VDC	4,0 A
TOP 20-112	20 W	12 VDC	1,65 A
TOP 20-115	20 W	15 VDC	1,35 A
TOP 20-124	20 W	24 VDC	0,85 A

### TOP-100 Series 100 W

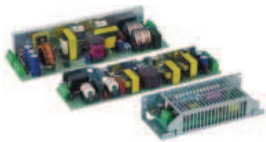


- Regulated, max. 0,5 %
- 100 W power supply in 2.0"x 4.0" foot-print!
- Full load operation up to +50°C with convection cooling
- Highest efficiency, 90 % type.
- EMI filter meets EN 55022, level B
- Compliance with EN 61000-3-2
- Low leakage current
- Safety class I and class II operationC
- Operating temperature range -25°C to +70°C

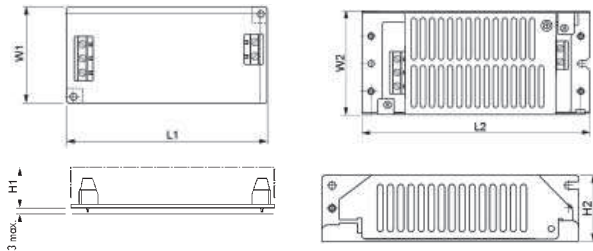


Part No.	Output Power	Output Voltage	Output Current Max.
TOP 100-103	100 W	3,3 VDC	20 A
TOP 100-105	100 W	5 VDC	20 A
TOP 100-112	100 W	12 VDC	8,3 A
TOP 100-115	100 W	15 VDC	6,7 A
TOP 100-124	100 W	24 VDC	4,2 A
TOP 100-148	100 W	48 VDC	2,1 A

## TOF Series 10 - 150 W



- Regulated, max. 0,5 %
- Short circuit and overvoltage protection
- Efficiency 78 % (single output)  
70 % (dual output)
- Universal Input Voltage 85 - 264 VAC
- Output Voltage adjustable
- High industrial quality standard
- Optional available with case
- Screw terminal or pin connector version
- Operating temperature range -10°C to +60°C



### Dimensions

Part No.	Depth L1 (mm)	Width W1 (mm)	Height H1 (mm)	Depth L2 (mm)	Width W2 (mm)	Height H2 (mm)
TOF 10	105	50	20	125	57	32
TOF 15	125	50	20	145	57	32
TOF 30	133	55	25	163	65	36
TOF 50	195	55	25	225	65	36
TOF 75	222	55	26	252	65	42
TOF 100	222	62	32	252	72	45
TOF 150	222	75	37	252	85	51
TOF 15-T	127	50	22,6	147	57	38
TOF 30-T	140	65	22,6	160	72	38

Part No.*	Output power max	Output Voltage	Output Current Max.	Peak current 10 sec.max.
TOF 10-05S	10 W	5 VDC	2 A	
TOF 10-12S	10 W	12 VDC	0,9 A	
TOF 10-15S	10 W	15 VDC	0,7 A	
TOF 10-24S	10 W	24 VDC	0,5 A	
TOF 15-05S	15 W	5 VDC	3 A	
TOF 15-12S	15 W	12 VDC	1,3 A	
TOF 15-15S	15 W	15 VDC	1 A	
TOF 15-24S	15 W	24 VDC	0,7 A	
TOF 30-05S	30 W	5 VDC	6 A	
TOF 30-12S	30 W	12 VDC	2,5 A	
TOF 30-15S	30 W	15 VDC	2 A	
TOF 30-24S	30 W	24 VDC	1,3 A	
TOF 50-05S	50 W	5 VDC	10 A	
TOF 50-12S	50 W	12 VDC	4,3 A	
TOF 50-15S	50 W	15 VDC	3,5 A	
TOF 50-24S	50 W	24 VDC	2,2 A	3,0 A
TOF 75-05S	75 W	5 VDC	15 A	
TOF 75-12S	75 W	12 VDC	6,3 A	
TOF 75-15S	75 W	15 VDC	5 A	
TOF 75-24F	75 W	24 VDC	3,2 A	4,5 A
TOF 100-05S	100 W	5 VDC	20 A	
TOF 100-12S	100 W	12 VDC	8,5 A	
TOF 100-15S	100 W	15 VDC	6,7 A	
TOF 100-24F	100 W	24 VDC	4,5 A	6,3 A
TOF 150-05S	150 W	5 VDC	30 A	
TOF 150-12S	150 W	12 VDC	12,5 A	
TOF 150-15S	150 W	15 VDC	10 A	
TOF 150-24F	150 W	24 VDC	6,5 A	9,1 A

\*Version with Molex pin connectors-add suffix M

### Triple output models

Part No.*	Output power max.	Output 1	Output 2/3
TOF 15-0522T	15 W	5 VDC / 2 A	±12 VDC / ±0,5 A
TOF 15-0533T	15 W	5 VDC / 2 A	±15 VDC / ±0,45 A
TOF 30-0522T	30 W	5 VDC / 4 A	±12 VDC / +1,2 A/-0,5 A
TOF 30-0533T	30 W	5 VDC / 4 A	±15 VDC / +1,0 A/-0,5 A

\*Version with Molex pin connectors-add suffix M

### Chassis / Cover kit

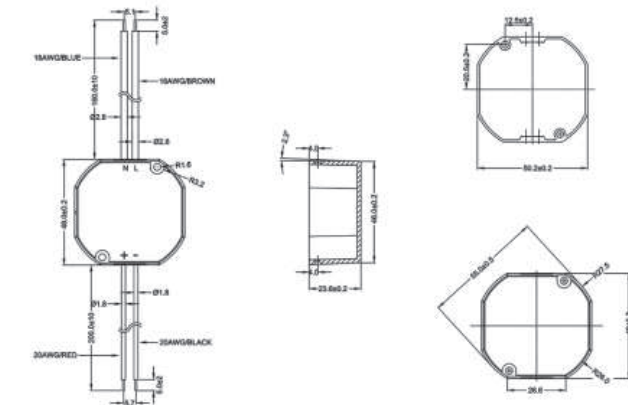
Part No.	For models
TOF 10-MC	TOF 10-xx
TOF 15-MC	TOF 15-xx
TOF 30-MC	TOF 30-xx
TOF 50-MC	TOF 50-xx
TOF 75-MC	TOF 75-xx
TOF 100-MC	TOF 100-xx
TOF 150-MC	TOF 150-xx
TOF 15T-MC	TOF 15-xxxT
TOF 30T-MC	TOF 10-xxxT

## AC/DC Power Supplies - Encapsulated Modules

### TIW Series 6 and 12 W



- High efficiency switching power supplies
- Easy installation into standard flush boxes
- Fully encapsulated plastic housing
- Dust and waterproof to IP 67
- Protection class II
- Safety approval to EN 60950-1 EN 60335-1
- Universal input range 93 to 264 VAC
- Regulated Output Voltage (models from 3.3 to 24 VDC)
- Operating temp. range -25°C to +50°C
- Short circuit and overload protection



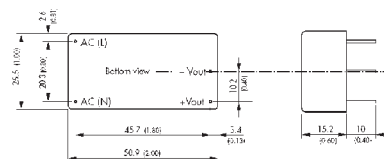
Part No.	Output Voltage	Output current
TIW 06-103	3,3 VDC	1,2 A
TIW 06-105	5,0 VDC	1,0 A
TIW 06-106	6,0 VDC	1,0 A
TIW 12-112	12 VDC	1,0 A
TIW 12-115	15 VDC	0,8 A
TIW 12-124	24 VDC	0,5 A

### TMLM Series 5 and 10 W

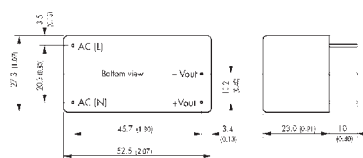


- Regulated, max. 0,3 %
- AC/DC power modules for PCB mounting
- Highest power density
- Fully encapsulated plastic case
- Universal input 85-264 VAC, 47-440 Hz
- High efficiency up to 72%
- EMI meets EN 55022, class B and FCC, level B
- Low ripple and noise
- Short circuit and overload protection
- Operating temperature range -25°C to +60°C

#### TMLM 5 W Models



#### TMLM 10 W Models



Part No.	Output power	Output Voltage	Output Current Max.
TMLM 05103	4,1 W	3,3 VDC	1250 mA
TMLM 05105	5 W	5,0 VDC	1000 mA
TMLM 05112	5 W	12 VDC	420 mA
TMLM 05115	5 W	15 VDC	330 mA
TMLM 05124	5,5 W	24 VDC	230 mA
TMLM 10103	8,2 W	3,3 VDC	2500 mA
TMLM 10105	10 W	5,0 VDC	2000 mA
TMLM 10112	10 W	12 VDC	830 mA
TMLM 10115	10 W	15 VDC	665 mA
TMLM 10124	10 W	24 VDC	420 mA

## AC/DC Power Supplies - Encapsulated Modules (continued)

### TMS Series 6 - 25 W



- Regulated, max. 0,4 %
- Compact AC/DC power supply modules
- Fully encapsulated plastic package
- Universal input 85-264 VAC, 50/60 Hz
- High efficiency
- Low ripple and noise
- Overload protection
- EMI meets EN 55022, class B and FCC, level B
- 3 package styles available:
  - for PCB Mount with solder pins
  - for chassis mount with FASTON-tabs
  - for chassis mount with screw terminals
- Operating temperature range -25°C to +60°C

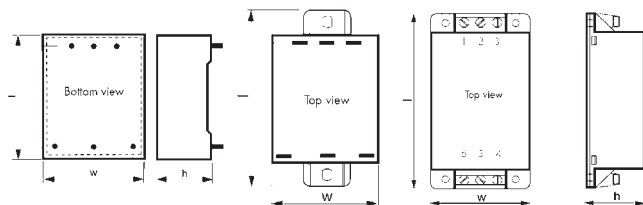
#### Dimensions

Type	Depth l (mm)	Width w (mm)	Height h (mm)	Type	Depth l (mm)	Width w (mm)	Height h (mm)
TMS 06	50	40	20	TMS 15F	84	45	24
TMS 10	55	45	24	TMS 25F	96	51	29
TMS 15	64	45	24	TMS 15C	84	45	26,5
TMS 25	76	51	28	TMS 25C	96	51	29,5
TMS 10F	75	45	24				

PCB mount version (no suffix)

Chassis mount with Faston-tabs (suffix F)

Chassis mount with screw terminal block (suffix C)



Part No.	Output Power	Output 1	Output 2
TMS 06105	6 W	5 VDC / 1200 mA	
TMS 06112	6 W	12 VDC / 500 mA	
TMS 06115	6 W	15 VDC / 400 mA	
TMS 06124	6 W	24 VDC / 250 mA	
TMS 06212	6 W	±12 VDC / 250 mA	-12 VDC / 250 mA
TMS 06215	6 W	±15 VDC / 200 mA	-15 VDC / 200 mA
TMS 10105	10 W	5 VDC / 2000 mA	
TMS 10112	10 W	12 VDC / 900 mA	
TMS 10115	10 W	15 VDC / 700 mA	
TMS 10124	10 W	24 VDC / 450 mA	
TMS 10212	10 W	±12 VDC / 450 mA	-12 VDC / 450 mA
TMS 10215	10 W	±15 VDC / 350 mA	-15 VDC / 350 mA
TMS 15105	15 W	5 VDC / 3000 mA	
TMS 15112	15 W	12 VDC / 1300 mA	
TMS 15115	15 W	15 VDC / 1000 mA	
TMS 15124	15 W	24 VDC / 650 mA	
TMS 15212	15 W	±12 VDC / 650 mA	-12 VDC / 650 mA
TMS 15215	15 W	±15 VDC / 500 mA	-15 VDC / 500 mA
TMS 25105	25 W	5 VDC / 4600 mA	
TMS 25112	25 W	12 VDC / 2000 mA	
TMS 25115	25 W	15 VDC / 1600 mA	
TMS 25124	25 W	24 VDC / 1000 mA	
TMS 25212	25 W	±12 VDC / 1000 mA	-12 VDC / 1000 mA
TMS 25215	25 W	±15 VDC / 800 mA	-15 VDC / 800 mA

\*For PCB mount version - no suffix

For chassis mount with Faston - Tabs add suffix F (not for 6 W models)

For chassis mount with screw terminal block add suffix C (not for 6 and 10 W models)

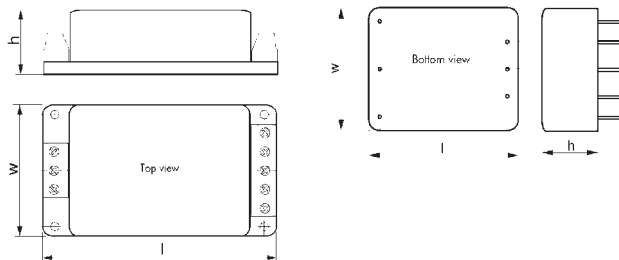
### TML Series 10 - 30 W



- Regulated, max. 0,3 %
- PCB mounting or chassis mounting with screw terminals
- Fully encapsulated Plastic Case
- Single, Dual and Triple Output Models
- Universal Input 85-264 VAC, 47 - 440 Hz
- High Efficiency
- EMI meets EN 55022, Class B and FCC, Level B
- Low Ripple and Noise
- Short Circuit and Overload Protection
- Safety Class II Product (30 Watt Models)
- Operating temperature range -25°C to +60°C

Chassis mount with screw terminals

PCB mount version



#### Dimensions

Type	PCB mount			Chassis mount		
	Depth l (mm)	Width w (mm)	Height h (mm)	Depth l (mm)	Width w (mm)	Height h (mm)
TML 10xxx	64	45	20,5			
TML 15xxx	74	54	22	96	54	27
TML 30xxx	89	63,5	25	112	64	30

Part No.	Output Power	Output 1	Output 2/3
TML 10105	10 W	5 VDC / 2000 mA	
TML 10112	10 W	12 VDC / 830 mA	
TML 10115	10 W	15 VDC / 666 mA	
TML 10124	10 W	24 VDC / 420 mA	
TML 10205	10 W	5 VDC / 800mA	-5 VDC / 800 mA
TML 10212	10 W	12 VDC / 380 mA	-12 VDC / 380 mA
TML 10215	10 W	15 VDC / 300 mA	-15 VDC / 300 mA
**TML 15105	15 W	5 VDC / 3000 mA	
**TML 15112	15 W	12 VDC / 1250 mA	
**TML 15115	15 W	15 VDC / 1000 mA	
**TML 15124	15 W	24 VDC / 625 mA	
**TML 15205	15 W	5 VDC / 1500 mA	-5 VDC / 1500 mA
**TML 15212	15 W	12 VDC / 650 mA	-12 VDC / 650 mA
**TML 15215	15 W	15 VDC / 500 mA	-15 VDC / 500 mA
**TML 15512	15 W	5 VDC / 2000 mA	±12 VDC / ±200 mA
**TML 15515	15 W	5 VDC / 2000 mA	±15 VDC / ±150 mA
**TML 30103	30 W	3,3 VDC / 6000 mA	
**TML 30105	30 W	5 VDC / 6000 mA	
**TML 30112	30 W	12 VDC / 2500 mA	
**TML 30115	30 W	15 VDC / 2000 mA	
**TML 30124	30 W	24 VDC / 1250 mA	
**TML 30205	30 W	5 VDC / 3000 mA	-5 VDC / 3000 mA
**TML 30212	30 W	12 VDC / 1300 mA	-12 VDC / 1300 mA
**TML 30215	30 W	15 VDC / 1000 mA	-15 VDC / 1000 mA
**TML 30252	30 W	5 VDC / 3000 mA	*12 VDC / 1250 mA
**TML 30512	30 W	5 VDC / 3000 mA	±12 VDC / ±630 mA
**TML 30515	30 W	5 VDC / 3000 mA	±15 VDC / ±500 mA

\*Output floating

\*\*For chassis mount version add suffix C

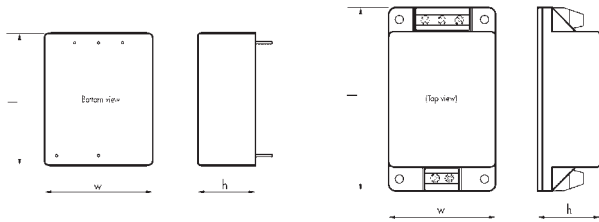
The list of in stock types is presented on page D25  
Other types available on customers' individual order.



## TMP Series 7 - 30 W



- Regulated, max. 1,0 %
- Short circuit and overload protection
- **High efficiency up to 83 %**
- Universal input 85 - 264 VAC, 47-440 Hz
- Single-, dual- and triple output models
- Fully encapsulated low profile plastic casing
- 2 packages styles available:
  - for PCB mount (solder pins)
  - for chassis mount (screw terminal blocks)
- Operating temperature range -25°C to +60°C



### Dimensions

Type	PCB mount			Chassis mount		
	Depth l (mm)	Width w (mm)	Height h (mm)	Depth l (mm)	Width w (mm)	Height h (mm)
TMP 07xxx	51	25,4	18,3			
TMP 10xxx	64	45	18			
TMP 15xxx	74	54	18,3	96	54	22,3
TMP 30xxx	89	63,5	21,5	112	63,5	24,6

Part No.	Output Power	Output 1	Output 2/3
TMP 07103	7 W	3,3 VDC / 1400 mA	
TMP 07105	7 W	5,0 VDC / 1400 mA	
TMP 07112	7 W	12 VDC / 585 mA	
TMP 07115	7 W	15 VDC / 465 mA	
TMP 07124	7 W	24 VDC / 290 mA	
TMP 10103	10 W	3,3 VDC / 2000 mA	
TMP 10105	10 W	5,0 VDC / 2000 mA	
TMP 10112	10 W	12 VDC / 830 mA	
TMP 10115	10 W	15 VDC / 665 mA	
TMP 10124	10 W	24 VDC / 415 mA	
TMP 10212	10 W	+ 12 VDC / 380 mA	-12 VDC / 380 mA
TMP 10215	10 W	+15 VDC / 300 mA	-15 VDC / 300 mA
*TMP 15105	15 W	5,0 VDC / 3000 mA	
*TMP 15112	15 W	12 VDC / 1250 mA	
*TMP 15115	15 W	15 VDC / 1000 mA	
*TMP 15124	15 W	24 VDC / 625 mA	
*TMP 15148	15 W	48 VDC / 310 mA	
*TMP 15212	15 W	+12 VDC / 650 mA	-12 VDC / 650 mA
*TMP 15215	15 W	+15 VDC / 500 mA	-15 VDC / 500 mA
*TMP 15252	15 W	+5,0 VDC / 1500 mA	+12 VDC / 625 mA
*TMP 15512	15 W	+ 5,0 VDC / 2000 mA	+12 VDC / 200 mA -12 VDC / 200 mA
*TMP 15515	15 W	+ 5,0 VDC / 2000 mA	+15 VDC / 150 mA -15 VDC / 150 mA
*TMP 30105	30 W	5,0 VDC / 6000 mA	
*TMP 30112	30 W	12 VDC / 2500 mA	
*TMP 30115	30 W	15 VDC / 2000 mA	
*TMP 30124	30 W	24 VDC / 1250 mA	
*TMP 30148	30 W	48 VDC / 625 mA	
*TMP 30212	30 W	+12 VDC / 1300 mA	-12 VDC / 1300 mA
*TMP 30215	30 W	+15 VDC / 1000 mA	-15 VDC / 1000 mA
*TMP 30252	30 W	+ 5,0 VDC / 3000 mA	+12 VDC / 1250 mA
*TMP 30512	30 W	+ 5,0 VDC / 3000 mA	+12 VDC / 600 mA -12 VDC / 600 mA
*TMP 30515	30 W	+ 5,0 VDC / 3000 mA	+15 VDC / 500 mA -15 VDC / 500 mA
*TMP 30522	30 W	+ 5,0 VDC / 1500 mA	+12 VDC / 1000 mA -12 VDC / 250 mA
*TMP 30316	30 W	+ 3,3 VDC / 4000 mA	+ 5,0 VDC / 1500 mA +12 VDC / 250 mA
*TMP 30317	30 W	+ 5,0 VDC / 4500 mA	+3,3 VDC / 1000 mA +12 VDC / 250 mA

\*For chassis mount version add suffix C

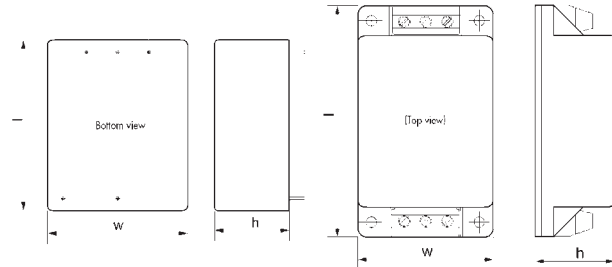
For more technical information and data sheets please visit [www.tracopower.com](http://www.tracopower.com).

For more information, please contact the SOS's sales department.

## TMT Series 10 - 50 W



- Regulated, max. 0,4 %
- Short circuit and overload protection
- High efficiency up to 83 %
- Single-, dual- and triple output models
- Universal input 85 - 264 VAC
- 2 packages styles available:
  - for PCB mount (solder pins)
  - for chassis mount (screw terminal blocks)
- Adapter for DIN-rail mount
- Industrial (UL508) and medical safety approvals
- Operating temperature range -25°C to +60°C



### Dimensions

Type	PCB mount			Chassis mount		
	Depth l (mm)	Width w (mm)	Height h (mm)	Depth l (mm)	Width w (mm)	Height h (mm)
TMT 10xxx	51	33	21,6			
TMT 15xxx	55	45	24	77	45	26,4
TMT 301xx	76	51	28	96	51	29,5
TMT 3021x	76	51	28	96	51	29,5
TMT 30252	86	58	28	106	58	29,5
TMT 305xx	86	58	28	106	58	29,5
TMT 50xxx	89	64	28	110	64	31,5

Part No.	Output Power	Output 1	Output 2/3
TMT 10105	10 W	5 VDC / 2000 mA	
TMT 10112	10 W	12 VDC / 840 mA	
TMT 10115	10 W	15 VDC / 670 mA	
TMT 10124	10 W	24 VDC / 420 mA	
*TMT 15105	15 W	5 VDC / 3000 mA	
*TMT 15112	15 W	12 VDC / 1250 mA	
*TMT 15115	15 W	15 VDC / 1000 mA	
*TMT 15124	15 W	24 VDC / 625 mA	
*TMT 15212	15 W	+ 12 VDC / 625 mA	-12VDC / 325 mA
*TMT 15215	15 W	+ 15 VDC / 500 mA	-15 VDC / 500 mA
*TMT 30105	30 W	5 VDC / 6000 mA	
*TMT 30112	30 W	12 VDC / 2500 mA	
*TMT 30115	30 W	15 VDC / 2000 mA	
*TMT 30124	30 W	24 VDC / 1250 mA	
*TMT 30212	30 W	+ 12 VDC / 1250 mA	-12VDC / 625 mA
*TMT 30215	30 W	+ 15 VDC / 1000 mA	-15 VDC / 500 mA
*TMT 30252	30 W	+ 5 VDC / 4500 mA	+12 VDC / 1200 mA
*TMT 30512	30 W	+ 5 VDC / 4500 mA	+12 VDC / 1000 mA -12 VDC / 300 mA
*TMT 30515	30 W	+ 5 VDC / 4500 mA	+ 15 VDC / 500 mA -15 VDC / 500 mA
*TMT 30503	30 W	+3,3 VDC / 6000 mA	+ 5 VDC / 1500 mA +12 VDC / 300 mA
*TMT 30505	30 W	+ 5 VDC / 5000 mA	+3,3 VDC / 1000 mA +12 VDC / 300 mA
*TMT 50105	50 W	5 VDC / 9000 mA	
*TMT 50112	50 W	12 VDC / 4200 mA	
*TMT 50115	50 W	15 VDC / 3400 mA	
*TMT 50124	50 W	24 VDC / 2300 mA	
*TMT 50148	50 W	48 VDC / 1150 mA	

\*For chassis mount version add suffix C

Adapter for DIN-rail mount	
TMT-MK1	for 15 W models
TMT-MK2	for 30 W models
TMT-MK3	for 50 W models

The list of in stock types is presented on page D25  
Other types available on customers' individual order.

For more information, please contact the SOS's sales department.

## Enclosed Metal Case

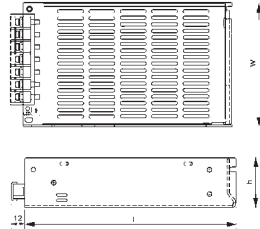
### TXL Series 25 - 1000 W



- Regulated, max. 1,0 %
- Short circuit and overload protection
- High efficiency up to 80 %
- Single-, dual- and triple output models (isolated outputs)
- Universal input 85 - 264 VAC
- Output Voltage adjustable
- Metal case with screw terminal block
- Operating temperature range -10°C to +60°C

#### Dimensions

Case	Depth l (mm)	Width w (mm)	Height h (mm)
C	79	51	29
D	99	82	35
E	160	95	38
J	198	95	38
K	178	99	35
L	198	99	50
N	198	99	45
O	212	115	50
P	275	125	63
Q	295	127	40



Part No.	Output Power Max.	Output Voltage	Output Current Max.	Case
TXL 025-3,3S	25 W	3,3 VDC	6,0 A	C
TXL 025-05 S	25 W	5 VDC	5,0 A	C
TXL 025-12 S	25 W	12 VDC	2,1 A	C
TXL 025-15 S	25 W	15 VDC	1,7 A	C
TXL 025-24 S	25 W	24 VDC	1,1 A	C
TXL 025-48 S	25 W	48 VDC	0,57 A	C
TXL 035-3,3S	35 W	3,3 VDC	9,0 A	D
TXL 035-05 S	35 W	5 VDC	7,0 A	D
TXL 035-12 S	35 W	12 VDC	3,0 A	D
TXL 035-15 S	35 W	15 VDC	2,4 A	D
TXL 035-24 S	35 W	24 VDC	1,5 A	D
TXL 035-48 S	35 W	48 VDC	0,75 A	D
TXL 050-05 S	50/60 W	5 VDC	10,0 A	D
TXL 060-12 S	50/60 W	12 VDC	5,0 A	D
TXL 060-15 S	50/60 W	15 VDC	4,0 A	D
TXL 060-24 S	50/60 W	24 VDC	2,5 A	D
TXL 060-3,3S	60/70 W	3,3 VDC	15,0 A	E
TXL 060-05 S	60/70 W	5 VDC	12,0 A	E
TXL 070-12 S	60/70 W	12 VDC	6,0 A	E
TXL 070-15 S	60/70 W	15 VDC	4,8 A	E
TXL 070-24 S	60/70 W	24 VDC	3,0 A	E
TXL 070-48 S	60/70 W	48 VDC	1,5 A	E
TXL 100-3,3S	100 W	3,3 VDC	25,0 A	J
TXL 100-05 S	100 W	5 VDC	20,0 A	J
TXL 100-12 S	100 W	12 VDC	8,5 A	J
TXL 100-15 S	100 W	15 VDC	6,8 A	J
TXL 100-24 S	100 W	24 VDC	4,5 A	J
TXL 100-48 S	100 W	48 VDC	2,1 A	J
TXL 120-12 S	120 W	12 VDC	10,0 A	K
TXL 120-15 S	120 W	15 VDC	8,0 A	K
TXL 120-24 S	120 W	24 VDC	5,0 A	K
TXL 120-48 S	120 W	48 VDC	2,5 A	K
TXL 150-05 S	150 W	5 VDC	30,0 A	L
TXL 150-12 S	150 W	12 VDC	12,5 A	L
TXL 150-24 S	150 W	24 VDC	6,3 A	L
TXL 150-48 S	150 W	48 VDC	3,2 A	L
TXL 220-12 S	220 W	12 VDC	18,4 A	N
TXL 220-24 S	220 W	24 VDC	9,2 A	N
TXL 220-48 S	220 W	48 VDC	4,6 A	N
TXL 300-24 S	300 W	24 VDC	12,5 A	O
TXL 300-48 S	300 W	48 VDC	6,5 A	O
TXL 600-24 S	600 W	24 VDC	25 A	P
TXL 600-48 S	600 W	48 VDC	12,5 A	P
TXL 1000-24 S	1000 W	24 VDC	40 A	Q
TXL 1000-48 S	1000 W	48 VDC	21 A	Q

#### Multi output models

Part No.	Output Power	Output 1* Max.	Output 2*	Output 3*	Case
TXL 035-0512D	35 W	+5 VDC / 4,0 A	+12 VDC / 1,5 A		D
TXL 035-0524D	35 W	+5 VDC / 4,0 A	+24 VDC / 1,3 A		D
TXL 035-1212D	35 W	+12 VDC / 1,5 A	-12 VDC / 1,5 A		D
TXL 035-1515D	35 W	+15 VDC / 1,3 A	-15 VDC / 1,3 A		D
TXL 060-0512DI	60 W	+5 VDC / 8,0 A	+12 VDC / 4,0 A		E
TXL 060-0524DI	60 W	+5 VDC / 8,0 A	+24 VDC / 2,2 A		E
TXL 060-0521TI	60 W	+5 VDC / 8,0 A	+12 VDC / 3,5 A	-5 VDC / 1,0 A	E
TXL 060-0522TI	60 W	+5 VDC / 7,0 A	+12 VDC / 3,5 A	-12 VDC / 1,0 A	E
TXL 060-0533TI	60 W	+5 VDC / 7,0 A	+15 VDC / 3,0 A	-15 VDC / 1,0 A	E
TXL 060-0534TI	60 W	+5 VDC / 6,0 A	+24 VDC / 1,5 A	+24 VDC / 1,2 A	E
TXL 100-0512DI	100 W	+5 VDC / 12 A	+12 VDC / 6,0 A		J
TXL 100-0524DI	100 W	+5 VDC / 10 A	+24 VDC / 4,0 A		J
TXL 100-0521TI	100 W	+5 VDC / 12 A	+12 VDC / 5,0 A	-5 VDC / 1,5 A	J
TXL 100-0522TI	100 W	+5 VDC / 12 A	+12 VDC / 5,0 A	-12 VDC / 1,5 A	J
TXL 100-0533TI	100 W	+5 VDC / 12 A	+15 VDC / 3,0 A	-15 VDC / 1,5 A	J
TXL 100-0534TI	100 W	+5 VDC / 12 A	+12 VDC / 3,0 A	+24 VDC / 2,0 A	J

60 and 100 W models with fully isolated outputs

\*Total power not to exceed specified output power

## Industrial AC/DC Power Supplies

### DIN-Rail Mount



### TBL Series 15 - 150 W



- Regulated, max. 1,0 %
- Short circuit and overload protection
- DC-OK indicator
- High efficiency up to 80 %
- 5 power ranges from 15 to 150 W
- Universal input 85 - 264 VAC
- Adjustable Output Voltage
- Low profile case, module height only 55mm
- Fits into flat control panels used in building automation
- Easy snap-on mounting on DIN-rail
- Operating temperature range -25°C to +70°C



#### Dimensions

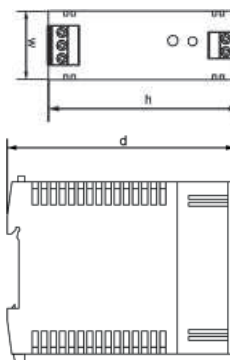
Type	Width (w)
TBL 015	26,3
TBL 030	52,5
TBL 060	70
TBL 090	105
TBL 150	175

Part No.	Output Power	Output Voltage	Output Current Max.
TBL 015-105	15 W	5,0 VDC	2,4 A
TBL 015-112	15 W	12 VDC	1,25 A
TBL 015-124	15 W	24 VDC	0,63 A
TBL 030-112	30 W	12 VDC	2,5 A
TBL 030-124	30 W	24 VDC	1,25 A
TBL 060-112	60 W	12 VDC	4,5 A
TBL 060-124	60 W	24 VDC	2,5 A
TBL 090-112	90 W	12 VDC	6,0 A
TBL 090-124	90 W	24 VDC	3,75 A
TBL 150-124	150 W	24 VDC	6,25 A

### TCL Series 24 - 240 W



- High efficiency up to 90 %
- For industrial, office and residential applications
- Ultracompact plastic housing
- Connection by spring clamp terminals or detachable screw terminal block
- Reliable snap-on mounting on DIN-rails
- Adaptor for wall mounting
- Universal input 85-264 VAC, 50/60 Hz
- Models with 5, 12, 24 and 48 VDC output
- Output Voltage adjustable
- Power OK signal
- Low ripple and noise
- Overload and short-circuit protection
- Parallel operation possible
- Worldwide safety approvals
- Redundancy module
- Operating temperature range -10°C to +70°C



#### Dimensions

Type	Width w (mm)	Height h (mm)	Depth d (mm)
TCL 012	27	75	100
TCL 024, REM	27	75	100
TCL 060	45	75	100
TCL 120	85	75	100
TCL 240	85	110	125

Part No.	Output Power Max.	Output Voltage	Output Current Max.
TCL 024-105	24 W	5,1 VDC	4,0 A
TCL 024-112	24 W	12 VDC	2,0 A
TCL 024-124 (C)	24 W	24 VDC	1,0 A
TCL 060-112 (C)	60 W	12 VDC	4,0 A
TCL 060-124 (C)	60 W	24 VDC	2,5 A
TCL 060-148 (C)	60 W	48 VDC	1,25 A
TCL 120-112 (C)	120 W	12 VDC	8,0 A
TCL 120-124 (C)	120 W	24 VDC	5,0 A
TCL 240-124	240 W	24 VDC	10,0 A

Without suffix: detachable screw terminal block

With suffix C: spring clamps

#### Redundancy module

Part No.	2 inputs	Output Voltage	Output Current Max.
TCL-REM240	5 - 60 VDC 144 W max./input	Vin - 0,9 VDC	8,0 A

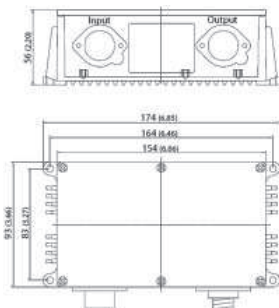
#### Models with DC input

Part No.	Input Voltage Range	Output Voltage	Output Current Max.
TCL 012-124 DC	9,5 - 18 VDC	24 VDC	1,0 A
TCL 024-105 DC	18 - 75 VDC	5 VDC	5,0 A
TCL 024-112 DC	18 - 75 VDC	12 VDC	2,0 A
TCL 024-124 DC	18 - 75 VDC	24 VDC	1,0 A
TCL 060-124 DC	18 - 75 VDC	24 VDC	2,5 A

## TEX Series 120 W



- Regulated, max. 0,5 %
- Short circuit and overload protection
- Rugged power supply for harsh outdoor environments
- Die-cast aluminium housing
- Dust, water (incl. salt water), ice and oil resistant enclosure
- IP67 and NEMA 4X rated
- Connection via waterproof I/O plug-connectors
- Shock & vibration proof construction
- Operating temp. range -40°C to +85°C
- Universal input 85 to 264 VAC
- Output Voltage adjustable
- DC-OK indicator
- Low ripple and noise
- Worldwide safety approvals
- Class I, zone 2 approval incl. ATEX certification
- Operating temperature range -40°C to +85°C

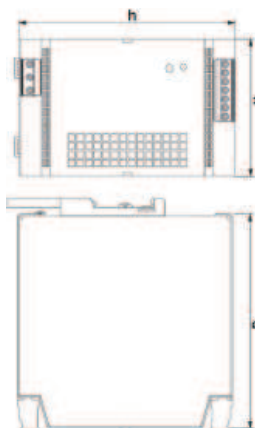


Part No.	Output power	Output Voltage	Output Current Max.
TEX 120-112	120 W	12 VDC	8 A
TEX 120-124	120 W	24 VDC	5 A

## TSP Series 90 - 600 W



- Regulated, max. 0,5 %
- True industrial grade design
- Rugged metal case for harsh industrial environments
- For worldwide use – Autoselect input and international safety approvals
- ATEX and IECEx certification (opt. EX)
- Model TSP 090-124N meets NEC class 2
- Industrial op. temp. range: -25°C to +70°C
- Variable Output Voltage
- Indefinite short circuit, overvoltage and over-temperature protection
- Power OK signal
- Remote On/Off
- Shock and vibration proof
- Wall mounting (opt.)
- Redundancy module
- Buffer module for power backup
- Battery controller module
- Operating temperature range -25°C to +70°C



### Dimensions

Type	Width w (mm)	Height h (mm)	Depth d (mm)
TSP 070/090	35	110	110
TSP 140/180	54	110	110
TSP 360	80	125	125
TSP 600	165	125	125

<sup>1)</sup> Part No.	Output power max.	<sup>2)</sup> Output Voltage nom.	<sup>3)</sup> Output Current Max.
TSP 070-112	90 W	12 VDC	6,5 A
TSP 090-124	90 W	24 VDC	3,75 A
TSP 090-124 <sup>4)</sup>	90 W	24 VDC	3,75 A
TSP 090-148	90 W	48 VDC	2,0 A
TSP 140-112	180 W	12 VDC	13,0 A
TSP 180-124	180 W	24 VDC	7,5 A
TSP 180-148	180 W	48 VDC	4,0 A
TSP 360-124	360 W	24 VDC	15,0 A
TSP 360-148	360 W	48 VDC	7,5 A
TSP 600-124	600 W	24 VDC	25,0 A
TSP 600-136	600 W	36 VDC	16,5 A
TSP 600-148	600 W	48 VDC	12,5 A

<sup>1)</sup> Suffix EX: For ATEX certified models

<sup>2)</sup> Output Voltage adjustable 12 - 14 VDC, 24 - 28 VDC, 48 - 56 VDC

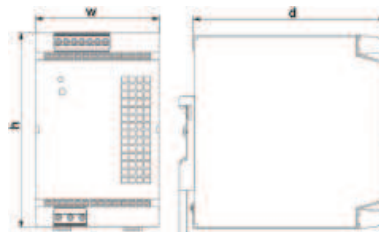
<sup>3)</sup> Max. current at nominal Output Voltage and max. 40°C ambient temperature

<sup>4)</sup> Model meets EN 60950-1 sect. 2.5 and NEC Class2 (limited power source)

## TSP-WR Series 180 - 600 W



- Regulated, max. 0,5 %
- For global use with single- and two phase wide-range input 100/ 230-500 VAC
- Rugged metal case for harsh industrial environments
- Industrial operating temp. range: -25°C to +70°C
- Power OK signal
- Remote On/Off
- Shock and vibration-proof
- Indefinite short circuit, overvoltage and over-temperature protection
- Redundancy module
- Buffer module for power backup
- Battery controller module
- Operating temperature range -25°C to +70°C



### Dimensions

Type	Width w (mm)	Height h (mm)	Depth d (mm)
TSP 180	54	110	110
TSP 360	80	125	125
TSP 600	190	125	125

<sup>1)</sup> Part No.	Output power max.	<sup>2)</sup> Output Voltage nom.	<sup>3)</sup> Output Current Max.
TSP 180-124WR	180 W	24 VDC	7,5 A
TSP 360-124WR	360 W	24 VDC	15,0 A
TSP 600-124WR	600 W	24 VDC	25,0 A

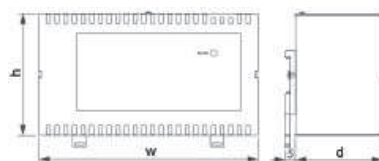
<sup>1)</sup> Output Voltage adjustable 12 - 14 VDC or 24 - 28 VDC

<sup>2)</sup> Max. current at nominal Output Voltage and max. 40°C ambient temperature

## TIS Series 50 - 600 W



- Regulated, max. 0,2 %
- Overload protection
- High efficiency up to 90 %
- Switch mode power supplies for DIN-rail mount
- 6 power ranges with 2, 3, 6, 12, 20 and 24 A output current (24 VDC models)
- Selectable 115/230 VAC input
- Very low ripple and noise
- EMI complies with EN 61000-6-3 and EN 61000-6-4
- Operating temp. range -25°C to +70°C
- For system operation available with built-in functions
- Easy snap-on mount on DIN-rails or chassis mount



### Dimensions

Type	Width w	Height h	Depth d
TIS 50	75	100	56,7
TIS 75	90	114,6	56,7
TIS 150	157	114,6	56,7
TIS 300	207	114,6	83,0
TIS 500	220	130	83,0
TIS 600	243	177,2	83,0

Part No.	Output power max.	Output Voltage	Output Current Max.
TIS 50-112	50 W	12 VDC (12-14 VDC)	3,5 A
TIS 50-124	50 W	24 VDC (24-28 VDC)	2 A
TIS 75-112	75 W	12 VDC (12-14 VDC)	6 A
TIS 75-124	75 W	24 VDC (24-28 VDC)	3 A
TIS 75-148	75 W	48 VDC (48-52 VDC)	1,5 A
TIS 150-124	150 W	24 VDC (24-28 VDC)	6 A
TIS 150-148	150 W	48 VDC (48-52 VDC)	3 A
TIS 300-124	300 W	24 VDC (24-28 VDC)	12 A
TIS 300-148	300 W	48 VDC (48-52 VDC)	6 A
TIS 300-172	300 W	72 VDC (60-76 VDC)	4,2 A
TIS 500-124-230	500 W	24 VDC (24-28 VDC)	20 A
TIS 500-124-115	500 W	24 VDC (24-28 VDC)	20 A
TIS 600-124	600 W	24 VDC (24-28 VDC)	24 A
TIS 600-148	600 W	48 VDC (48-52 VDC)	12 A
TIS 600-172	600 W	72 VDC (60-76 VDC)	8,5 A

The list of in stock types is presented on page D25  
Other types available on customers' individual order.



## SIMCOM GSM Modules



The SIM 300 series is a Tri-Band (900/1800/1900MHz) GSM/GPRS solution in a compact plug-in module, ideal for virtually unlimited applications such as WLL applications (Fixed Cellular Terminal), M2M application, handheld devices and much more.

- An embedded Powerful TCP/IP protocol stack
- GPRS class 10: max. 85.6 Kbps (downlink)
- SIM application toolkit
- Supply voltage range 3.4V...4.5V
- Point-to-point MO and MT, SMS cell broadcast, text and PDU model
- Two analog audio interfaces,
- Interface to external SIM 3V/1.8V
- Antenna connector and antenna pad
- SIM 300C with DIP board-to-board connector suitable for vehicle applications

### SIM 300 Series

#### SIM 300



dimensions: 40 x 33 x 2,86 mm

Part No.	Description
SIM300	Board-to-Board connector with 0,5mm pitch
SIM300C	Board-to-Board connector with 1,27mm pitch

#### Features

<b>Triband GSM/GPRS 900/1800/1900 MHz</b>	yes
<b>GPRS multi-slot class 10</b>	yes
<b>GPRS mobile station class B</b>	yes
<b>Compliant to GSM phase 2/2 +</b>	Class 4 (2W@900Mhz) Class 1 (1W@1800/1900Mhz)
<b>Control via AT commands</b>	GSM 07.07, 07.05 and SIMCOM enhanced AT commands
<b>SIM application toolkit</b>	yes
<b>Supply voltage range</b>	+3.4 ...4.5V
<b>Normal operation temperature range</b>	-20°C to +55°C

Part No.	Description
SIM300	GSM module GPRS class 10, 900/1800/1900MHz B-B
SIM300C	GSM module GPRS class 10, 900/1800/1900MHz DIP
SIM300DTE	GSM module SIM300D + adapter board
SIM300DZ	GSM module GPRS class 10, 900/1800/1900MHz SMD
SIM305	GSM module GPRS class 10, 900/1800/1900MHz

Part No.	Ord.No.
S SIM300	55884
S SIM300C	55883
S SIM300DTE	64569
S SIM300DZ	57216
S SIM305	69824

#### SIM 300 EVB KIT



Part No.	Description	Ord.No.
S SIM300 EVB KIT	EVB KIT for SIM300 module	55889
S SIM300C EVB KIT	EVB KIT for SIM300C module	55888

#### SIM 300 C

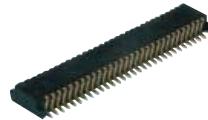


dimensions: 50 x 33 x 6,2 mm

#### SIM 300 C EVB KIT



#### SYSKON\_SIM300 60PIN



Part No.	Description
SYSKON_SIM300	Connector 60pin for GSM module SIM300C
SYSKON_SIM300C	Connector 60pin for GSM module SIM300C

Part No.	Ord.No.
S SYSKON_SIM300	56555
S SYSKON_SIM300C	56556

#### SYSKON\_SIM300C 60PIN



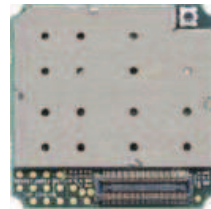
## GSM / GPRS Modules

### SIM5210

SIM5210 is a HSDPA/WCDMA/GSM/GPRS/EDGE module solution which support up to 7.2M downlink speed and 384K uplink speed data service. It also has strong capability with rich application interfaces and multimedia services such as MP3, MPEG4, and Video Call.

The leading features of SIM5210 make it ideal for abundant applications such as gateways, routers, USB Modem, Security solution, PDA and much more.

#### SIM5210



dimensions: 35 x 35 x 4,5 mm

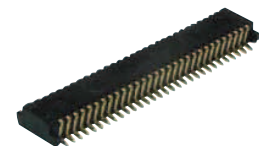
#### Technical features

WCDMA 2100 or 1900MHz
GSM 850/900/1800/1900 MHz
GPRS/EDGE
HSDPA up to 7,2Mbps
Interfaces: UART, USB2.0, PCM, SD card, SIM card, Audio, Camera, etc.
Dimension 35 x 35 x 4,5 mm

Suitable EVB kit  
**SIM5210EVB KIT**  
Ord.No.: 64913



Suitable connector  
**SYSKON\_SIM5210 70PIN**  
Ord.No.: 64915



Part No.	Description
SIM5210	GSM module GPRS/WCDMA 3G B-B
SIM5210EVB KIT	EVB KIT for SIM5210 3G module
SYSKON_SIM5210	Connector 70pin for GSM module SIM5210

Part No.	Ord.No.
S SIM5210	63343
S SIM5210EVB KIT	64913
S SYSKON_SIM5210	64915

## FLYFOT M260

M260 module is a self-contained GSM 900/1800/1900 GPRS tri-band module with real time clock and calendar, battery charger. M260 module has two external connections: RF interface and General Purpose Connector (GPC) to digital, keyboard, audio and supply.



dimensions: 58 x 32 x 3,9 mm

#### Technical features

2W EGSM 900 radio section running at 3.8 V
1W GSM1800/1900 radio section running at 3.8 V
3V SIM interface
Hardware GPRS class 10 capable
Complete interfacing: Power supply, serial link, audio, SIM card, keyboard, LCD
Dimension 58 x 32 x 3,9 mm

Development in this area is very dynamic, so the GSM version of the modules may vary. For the latest information please visit [www.soselectronic.com](http://www.soselectronic.com)

## GSM / GPRS Modules

(continued)

Suitable connector  
GSM\_CON\_PIML900/1800



Part No.	Description
FLYFOT M260	GSM/GPRS module, 900/1800/1900 MHz
GSM_CON_PIML900/1800	Connector 60 PIN for GSM module PIML/FLYFOT

Part No.	Ord.No.
S FLYFOT M260	61874
S GSM_CON_PIML900/1800	54938

## SIM508



SIM508 module is a Tri-Band GSM/GPRS-enabled module which is also equipped with GPS technology for satellite navigation. The compact design of the SIM508 makes it easy to integrate GSM/GPRS & GPS as an all-in-one solution. You will save significantly both time and cost for the integration of additional hardware components.



dimensions: 55 x 33 x 2,85 mm

### Specifications for GPS

Receiver	20-channels, L1 1575.42 MHz, C/A code 1,023MHz
Accuracy position	10m CEP
DGPS accuracy	1 to 5 m
Date	WGS-84
Acquisition time	Hot start < 1s, average, open sky Warm start < 38 s, average, open sky Cold start < 42 s, average, open sky
Supply voltage range	3.3V DC ±5%
Low power consumption	cca 200mW
Protocols	NMEA-0183, SiRF binary, RTCM SC-104
Crystal oscillator	(TCXO), temperature compensated with frequency stability of ±0.5 ppm
Memory	4 Mb flash and 1Mb SRAM

## SIM508EVb KIT



Suitable connector  
SYSKON\_SIM508 80PIN



Part No.	Description
SIM508	GSM/GPRS and GPS module, SiRF STARIII
SIM508EVb KIT	EVb KIT for SIM508 series module
SYSKON_SIM508	Connector 60pin for GSM module SIM508

Part No.	Ord.No.
S SIM508	55891
S SIM508EVb KIT	56112
S SYSKON_SIM508	56557

## GSM Modules - Antennas and Accessories

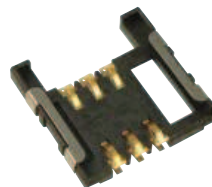
RF ADAPTER CABLE  
RF cable for GSM Modules  
SIM/PIML MXTK/SMA.



UFL-R-SMT(02)  
GSC connector, coaxial, SMT male



SIM0125  
SIM card holder.



MOLEX 91228 and 91236  
Connector for SIM card+SIM holder.



SIM A 003C  
SIM card holder.



SCH-10  
Sim card holder 6-pin, ejector, SMD



C707-10M006  
SIMLOCK connector for SIM/SAM cards, 6-pin



9162-006-206-175  
SIM card reader, SIM 6-pin



115A-BDA0-R01  
SIM card holder 6-PIN + SCP, Push-Push



Part No.	Ord.No.
S RF ADAPTER CABLE	53551
S MOLEX 91228-0001	51624
S 115A-BDA0-R01	71452
S UFL-R-SMT(02)	69261
S MOLEX 91236-0001	56160
S SCH-10	67958
S SIM0125	64272
S SIM A 003C	73201
S 9162-006-206-175	57849
S C707-10M006	57814

2J antennas to GSM modules - see page D31-D32.

## GPS Modules

The Global Positioning System (GPS) is a space-based global navigation satellite system. It provides reliable positioning, navigation, and timing services to worldwide users on a continuous basis in all weather, day and night, anywhere on or near the Earth.

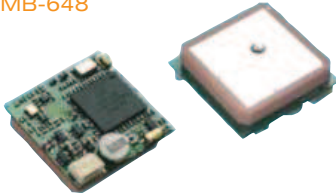
### GPS Modules

The Polstar PMB-648 GPS module is powerful, high-performance GPS module that is designed for a wide range of OEM applications, from vehicular/marine navigation to tracking and more. The low power consumption and high reliability of this module makes it a worthy investment for every application. By employing the SiRFstarIII chipset, users will enjoy unsurpassed positioning accuracy and performance.

The sleek, compact design of this module coupled with highly customizable features gives designers maximum flexibility in their design. Support for TTL and RS-232 permits integration across a wide range of platforms.



#### PMB-648



Technical features	PMB-648
SiRFstarIII GPS Chip	•
TTL interface	•
RS-232 interface	•
MMCX connector	
NMEA 0183 v2.2 output message	•
Built-in patch antenna	•
Acquisition time Cold/Warm/Hot (sec.)	42/38/1
Sensitivity (acquisition / tracking)	-148dBm/-159dBm
Power consumption	80mA @5V
Dimensions	32x32x9 mm

Part No.	Ord.No.
S PMB-648	55823

### GPS Mouse Receiver

The Polstar G-Mouse PGM-648 is a high performance serial GPS receiver that is both compact and portable. With the Polstar G-Mouse PGM-638, you can now give your PDA or laptop full GPS navigational capabilities at minimal cost while enjoying performance that rivals dedicated GPS navigators. By employing the SiRFstarIII chipset, users will enjoy unsurpassed positioning accuracy and performance.

The TTL interface used by the G-Mouse PGM-648 permits designers to integrate it across a wide range of platforms with relative ease. The high-sensitivity GPS receiver will pick up the weakest of signals, allowing you to place your G-Mouse PGM-648 anywhere without compromise, and enabling you to begin navigation immediately with the very fast Time-To-First-Fix.



Technical features	PGM-648
SiRFstarIII GPS chip	•
TTL interface	•
RS-232 interface	•
USB interface	
PS/2 6-pin mini connector	•
Acquisition time Cold/Warm/Hot (sec.)	42/38/1
Sensitivity (acquisition / tracking)	-148dBm/-159dBm
Power consumption	80mA @5V
Dimensions	41x41x18mm

Part No.	Ord.No.
S PGM-648	55820

## GPS Modules - Accessories

### GPS Cable

Cable with PS/2 connector for GPS Modules PMB-XXX series.



Part No.	Description
GPS Cable	Cable with PS/2 for GPS Modules PMB-XXX

Part No.	Ord.No.
S GPS Cable	55432

### GPS RS-232 Cable

Cable/reduction SUB-D9 + 5V/USB



Part No.	Description
GPS RS-232 Cable	Cable/reduction SUB-D9 + 5V/USB

Part No.	Ord.No.
S GPS RS-232 Cable	55830

2J antennas for GPS modules - see page D31-D32



2J is an expanding company within the telecommunications sector, pushing the boundaries of antennae innovation for the modern wireless world. 2J offers a wide range of antennae for the use in GSM, GPRS, GPS, Galileo, Glonass and Telematic applications to name but a few, as well as producing an array of cable assemblies according to customer specifications.

## 2J GPS Modules Antennas

2J431MP



Part No.	2J431 MP
Frequency	GPS 1575.42 MHz
Impedance	50 Ohms
Mounting	any surface
Polarization	RHCP
Gain	26dB at 3V, 28dB at 5V
VSWR	<1.2:1
Voltage supply	3V - 5V
Current	15mA - 25mA
Power (max.)	125mW
Housing size	41mm x 34mm x 13.7mm

Part No.	Ord.No.
S 2J431MP	56419

## 2J GSM Antennas

2J501 Series



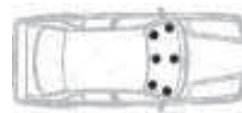
NEW!



Part No.	2J501/SMA	2J501/MMCX
Frequency	AMPS 824-894MHz / GSM 900 MHz / UMTS 2.1 GHz / WIFI / BLUETOOTH 2.4 GHz / PCN 1800 MHz / DCS 1900 MHz	
Impedance	50 Ohms	
Polarization	VERTICAL	
Gain	2.25 dBi	
VSWR	<1.5:2	
Power handling	25W	
Cable	2,5m	1,5m
Connector	SMA	MMCX
Housing size	22mm x 126.5mm	
Note	waterproof antenna	

Part No.	Ord.No.
S 2J501/MMCX	67598
S 2J501/SMA	71467

## 2J510 Series

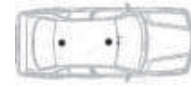


Part No.	2J510F	2J510F FME
Frequency	GSM 900 MHz/AMPS 824-894MHz/UMTS 2.1 GHz/WIFI/ BLUETOOTH 2.4 GHz/PCN 1800 MHz/DCS 1900 MHz/DCS	
Impedance	50 Ohms	
Mounting	ON GLASS	
Polarization	VERTICAL	
Gain	2.14dBi	
VSWR	<1.5:1	
Power handling	25W	
Cable	RG174 2,5m	
Connector	SMA	FME Female
Housing size	123mm x 11-15mm	

Part No.	Ord.No.
S 2J510F	55071
S 2J510F FME	78249

## 2J Magnetic Mount GSM Antennas

2J300M Series



Part No.	2J300M	2J300M FME
Frequency	AMPS 824-894MHz / GSM 900 MHz / UMTS 2.1 GHz / PCN 1800 MHz / DCS 1900 MHz	
Impedance	50 Ohms	
Mounting	Magnetic	
Polarization	VERTICAL	
Gain	2.2 dBi	
VSWR	<1.5:1	
Cable	RG174 2,5m	
Connector	SMA	FME Female
Housing size	71mm x 29mm	

Part No.	Ord.No.
S 2J300M	53552
S 2J300M FME	6742

## 2J320M Series

NEW!



Part No.	2J030M/SMA	2J030M/FME
Frequency	AMPS 824-894MHz / GSM 900 MHz / UMTS 2.1 GHz / PCN 1800 MHz / DCS 1900 MHz	
Impedance	50 Ohms	
Mounting	Magnetic	
Polarization	VERTICAL	
Gain	5 dBi	
VSWR	<1.5:1	
Cable	RG174 2,5m	
Connector	SMA	FME Female
Housing size	300mm x 29mm	

Part No.	Ord.No.
S 2J320M/SMA	78260
S 2J320M/FME	78263

## 2J Telematic GSM Antennas

2J010 Series



Part No.	2J030
Frequency	AMPS 824-894MHz / GSM 900 MHz / UMTS 2.1 GHz / WIFI / BLUETOOTH 2.4 GHz / PCN 1800 MHz / DCS 1900 MHz
Impedance	50 Ohms
Polarization	VERTICAL
Gain	2.2 dBi
VSWR	<2:1
Connector	SMA Male
Housing size	55mm x 9.65mm

Part No.	Ord.No.
S 2J010	54954

## 2J020 Series



Part No.	2J030
Frequency	AMPS 824-894MHz / GSM 900 MHz / UMTS 2.1 GHz / WIFI / BLUETOOTH 2.4 GHz / PCN 1800 MHz / DCS 1900 MHz
Impedance	50 Ohms
Polarization	VERTICAL
Gain	2.2 dBi
VSWR	<2:1
Connector	SMA Male
Housing size	55mm x 9.65mm

Part No.	Ord.No.
S 2J020 (black)	54955
S 2J020W (white)	68025

## 2J030 Series



Part No.	2J030
Frequency	AMPS 824-894MHz / GSM 900 MHz / UMTS 2.1 GHz / WIFI / BLUETOOTH 2.4 GHz / PCN 1800 MHz
Impedance	50 Ohms
Polarization	VERTICAL
Gain	2.2 dBi
VSWR	<2:1
Connector	FME Female
Housing size	61mm x 9.65mm

Part No.	Ord.No.
S 2J030	68026
S 2J030W (white)	78254

## 2J040 Series



Part No.	2J040
Frequency	AMPS 824-894MHz / GSM 900 MHz / UMTS 2.1 GHz / WIFI / BLUETOOTH 2.4 GHz / PCN 1800 MHz / DCS 1900 MHz
Impedance	50 Ohms
Polarization	VERTICAL
Gain	2.2 dBi
VSWR	<2:1
Connector	FME Female 90°
Housing size	53mm x 9.65mm

Part No.	Ord.No.
S 2J040	68027

## 2J050 Series



Part No.	2J030
Frequency	AMPS 824-894MHz / GSM 900 MHz / UMTS 2.1 GHz / WIFI / BLUETOOTH 2.4 GHz / PCN 1800 MHz / DCS 1900 MHz
Impedance	50 Ohms
Polarization	VERTICAL
Gain	2.2 dBi
VSWR	<2:1
Connector	SMA Male
Housing size	54mm x 9.65mm

Part No.	Ord.No.
S 2J050	68028

## 2JW04 Series

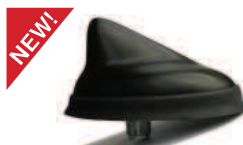


Part No.	2J030
Frequency	GSM 900 MHz / PCN 1800 MHz
Impedance	50 Ohms
Polarization	VERTICAL
Gain	2.2dB at 900MHz
VSWR	<2:1
Connector	FME Female
Housing size	146mm x 10mm dia.

Part No.	Ord.No.
S 2J320M	78260
S 2J320M MFE	78263

## 2J GPS Combined Antennas

2J860B - "Shark" GPS/Glonass/GSM/WIFI Antenna



Part No.	2J860B
Frequency	GLONASS 1572MHz to 1610MHz / AMPS/GSM/WIFI/ GPS / GPS 1575.42 MHz
Impedance	50 Ohm
Mounting	any surface
Polarization	GPS RHCP , GSM vertical
Gain	GPS 26 - 28 dBi , GSM 3dBi max.
VSWR	<2:1 for GSM <1,2:1 for GPS
Voltage supply	2,7V to 5,5V
Current	15mA-25mA
Power (max.)	138mW
Cable	RG 174 5m/5m
Connector	SMA/SMA
Housing size	91 mm x 52 mm x 48 mm

Part No.	Ord.No.
S 2J860B	71466

## 2J600 Series

2J600B



2J600M



Part No.	2J600B	2J600M
Frequency	AMPS 824-894MHz / GSM 900 MHz / UMTS 2.1 GHz / PCN 1800 MHz / GPS 1575.42 MHz	
Impedance	50Ohms	
Mounting	Body Mount	Magnetic mount
Polarization	RHCP	
Gain	0 dBi	
VSWR	<2:1	
Power handling	50W	
Voltage supply	3V - 5V	
Current	15mA - 25mA	
Power (max.)	125mW	
Cable	RG174 2,5m	
Connector	GSM: FME Female, GPS: SMB Female	
Housing size	80mm x 75mm	

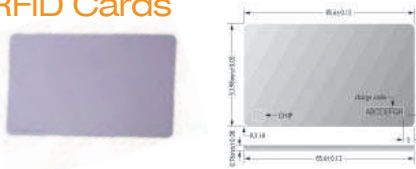
Part No.	Ord.No.
S 2J600B	66264
S 2J600M	66263



## RFID Products



### RFID Cards



Part No.	Description
<b>125kHz</b>	
EM 4100 ISO-CT-NN	RFID ISO card R/O 125kHz EM4102
TK 4100 ISO-CARD	RFID ISO card R/O 125kHz
<b>13,56MHz Mifare</b>	
MF 1 ISO-CU-NN	ISO card RFID Mifare 13,56MHz (S50)
MF UL ISO-CT-NN	ISO card RFID Mifare 13,56MHz Ultra Light
Part No.	Ord.No.
S EM 4100 ISO-CT-NN	53398
O TK 4100 ISO-CARD	76596
S MF 1 ISO-CU-NN	54956
S MF UL ISO-CT-NN	74706

### RFID Glass Tags



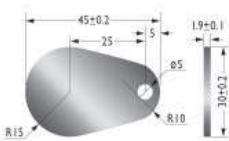
**GT 601200**  
RFID glass tag, R/O  
diameter 3.15mm, length 13.3mm

Part No.	Ord.No.
S GT 601200	54220

### RFID Key Fobs

HD 9911BK

TK 29



Part No.	Description
HD 9911BK-PCB-EM2	RFID Key Fob R/O 125kHz, black Heavy Duty
TK 29GE-PC-EM7	RFID Key Fob R/O 125kHz EM4102 grey-green
TK 29SBK-ABS-EM7	RFID Key Fob R/O 125kHz EM4102, ABS black

### RFID Stickers



**SK 18**  
RFID Sticker R/O 125kHz black  
18mm EM4102

Part No.	Ord.No.
S SK 18BK-EP-EM7	56108

### RFID Tags



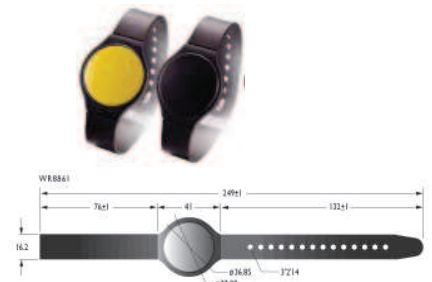
Part No.	Description
TAG 302BK-ABS-EM7	RFID TAG 30mm, 125kHz, ABS black, EM4102
TAG 401BK-ABS-EM7	RFID TAG 40mm, 125kHz, ABS black, EM4102
TAG 501BK-ABS-EM7	RFID TAG 52 mm, 125kHz, ABS black, EM4102

Part No.	Ord.No.
S TAG 302BK-ABS-EM7	58174
S TAG 401BK-ABS-EM7	58175
S TAG 501BK-ABS-EM7	58176

## RFID Wristbands

WR 8860

WR 8861

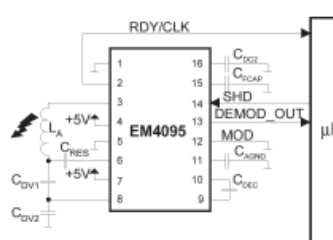


Part No.	Description
WR8860ABU-EM7	RFID Silicone Wristband R/O 125kHz blue EM4102
WR8860AGE-EM7	RFID Silicone Wristband R/O 125kHz green EM4102
WR8860APU-EM7	RFID Silicone Wristband R/O 125kHz violet EM4102
WR8860AW-EM7	RFID Silicone Wristband R/O 125kHz white EM4102
WR8860AY-EM7	RFID Silicone Wristband R/O 125kHz yellow EM4102
WR 8861NBK-EM1	RFID Wristband R/O 125kHz black GK4001
WR 8861NGE-EM1	RFID Wristband R/O 125kHz green GK4001
WR 8861NLBU-EM1	RFID Wristband R/O 125kHz blue GK4001
WR 8861NO-EM1	RFID Wristband R/O 125kHz orange GK4001
WR 8861NR-EM1	RFID Wristband R/O 125kHz red GK4001

Part No.	Ord.No.
S WR8860ABU-EM7	77425
S WR8860AGE-EM7	77422
S WR8860APU-EM7	77423
S WR8860AW-EM7	77424
S WR8860AY-EM7	77426
S WR 8861NBK-EM1	54203
S WR 8861NGE-EM1	54601
S WR 8861NLBU-EM1	54602
S WR 8861NO-EM1	54604
S WR 8861NR-EM1	54603

## RFID Transceivers

EM 4095

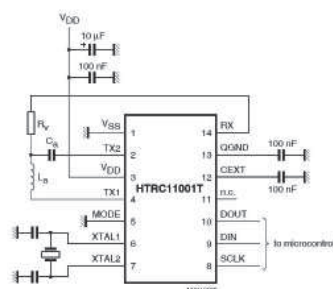


CMOS integrated transceiver circuit intended for use in an RFID base station to perform the following functions:

- antenna driving with carrier frequency
  - AM modulation of the field for writable transponder
  - AM demodulation of the antenna signal modulation induced by the transponder
  - communicate with a microprocessor via simple interface.
- Package: SO16 for SMD mounting  
125kHz

Part No.	Ord.No.
S EM 4095 HMSO16A+	9356

HTRC 11001T



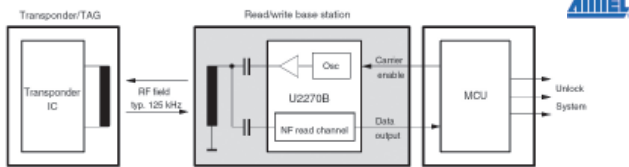
Combines all analog RFID reader hardware in one single chip  
Optimized for HITAG transponder family

- Robust antenna coil power driver stage with modulator
- High performance adaptive sampling time AM/PM demodulator
- Read and write function
- On-chip clock oscillator
- Antenna rupture and short circuit detection

Low power consumption  
Very low power standby mode  
Low external component count  
Small package SO14.

Part No.	Ord.No.
O HTRC 11001T	5070

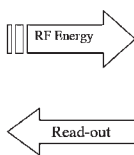
## U 2270 B-MFPY



- Carrier Frequency  $f_{osc}$  100 kHz - 150 kHz, typical Data Rate up to 5 kbaud at 125 kHz
- Suitable for Manchester and Bi-phase Modulation
- Power Supply from the Car Battery or from 5-V Regulated Voltage
- Optimized for Car Immobilizer Applications
- Tuning Capability
- Microcontroller-compatible Interface
- Low Power Consumption in Standby Mode
- Power-supply Output for Microcontroller

Part No.	Ord.No.
S U 2270 B-MFPY	4838

## RFID Readers CTU Series



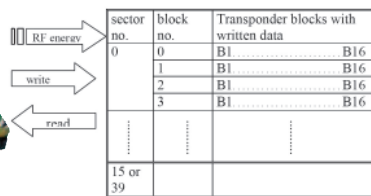
Byte no.	Unique transponder
1	ID1 (8 bytes)
2	ID2 (8 bytes)
3	ID3 (8 bytes)
4	ID4 (8 bytes)
5	ID5 (8 bytes)
6	Parity 1 (8 bytes)
8	Parity 2 (6 bytes)

CTU module operates on principle of the contactless unique data acquiring from UNIQUE (RFID) transponders. Data is processed suitably and next transmitted in serial form to the master unit. Additionally indication LED can be connected to the reader signaling successful reading information from transponder and power-on indicating LED. Buzzer located on board beeps at the moment of reading.

Part No.	CTU-005	CTU232-M	CTU-RWD-M
Supply Voltage	4,5-5,5V	8-13V	5 +/-0,25V
Supply Current	5-55mA		5-75mA
Operating Radio Frequency	125kHz		
Part No. of recieved Data	Manchester		
Baud rate	RF/64 (1953b/s)		
Output Current Capacity	15mA	5mA	
Read-Out Distance	8-10cm	up to 12cm	
Max. Read-Out Frequency	2 read-outs/sec	5 read-outs/sec	
Data transmission parameters to the master unit	9600b/s, 8data bits, 1 stop bit, no parity bit		
	TTL levels	RS232C	RS-TTL, Wiegand, Dallas

Part No.	Ord.No.
S TR READER CTU005	55409
S TR READER CTU232-M	55413
S TR READER CTU-RWD-M	55414

## MM-U57D READER



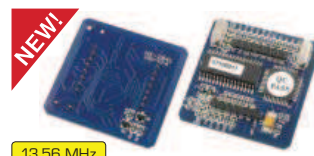
sector no.	block no.	Transponder blocks with written data
0	0	B1 ..... B16
	1	B1 ..... B16
	2	B1 ..... B16
	3	B1 ..... B16
.....	.....	.....
15 or 39		

MM-U57D module is a device, which operates on basis of non-contact data reading and writing from and to the Mifare® transponder (RFID). The module is operated via RS-232 interface on voltage levels conforming TTL. The device operates on basis: Query (from master device - host) - action (of module) - response (of module).

Part No.	MM-U57D-Reader
Supply voltage	4.5...5.5 V
Maximum Supply Current	1...55 mA
Operation Frequency	13.65 MHz
Read distance of transponders	5...10 cm
Antenna	External, including resonance capacitors for 13.56 MHz frequency.
RS-485 transmission	2400, 4800, 9600, 19200, 38400, 57600, 115200 bit/s, 8 data bits, 1 stop bit, no parity

Part No.	Ord.No.
S MM-U57D READER	72647

## SB 2240 MC



SB2230,2240 Philips Mifare Reader/Writer Module

Part No.	SB 2240 MC
RFID Technology	Philips Mifare
Operating Voltage	5VDC
Operating Current	120mA
Operating Temperature	0°C to 70°C
Operating Frequency	13.56MHz
Reading Range	Int. ant. 4.5cm, Ext. ant. 8cm
Read Card Reponse Time	less than 0.1sec
Dimensions (mm)	40 x 40 x 11
ISO Standard	ISO14443A
Communication setting	9600,8,1,N(Can be customized)

Part No.	Ord.No.
S MM-U57D READER	72647

## ID Series



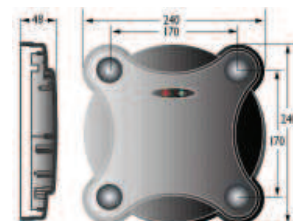
The ID2, ID12 and ID20 are similar to the obsolete ID0, ID10 and ID15 MK(ii) series devices, but they have extra pins that allow Magnetic Emulation output to be included in the functionality. The ID-12 and ID-20 come with internal antennas, and have read ranges of 12+ cm and 16+ cm, respectively. With an external antenna, the ID-2 can deliver read ranges of up to 25 cm. All three readers support ASCII, Wiegand26 and Magnetic ABA Track2 data formats.

Part No.	ID-2	ID-12	ID-20
Read Range	N/A (no int. antenna)	12+ cm	16+ cm
Dimensions	21 x 19 x 6 mm	26 x 25 x 7 mm	40 x 40 x 9 mm
Frequency	125 kHz		
Card Format	EM 4001 or compatible		
Encoding	Manchester 64-bit, modulus 64		
Power Requirement	5 VDC@13mA	5 VDC @ 30mA	5 VDC @ 65mA
I/O Output Current	+/-200mA PK	-	-
Voltage Supply Range	+4.6V through +5.4V		

Part No.	Ord.No.
S ID 12	54214
S ID 2 + ANT	69365
S ID 20	54215

## EM Series

### EM 80



The EM80 is an advanced reader for the popular EM4001 format 125KHz tags. It can be used on ISO card with Read range of over 70 cm.

Part No.	EM 80
Power Input	12V DC
Current Consumption	0,2A
Frequency	125kHz
Read Range	over 70cm wit ISO cards
Interfaces	RS232 (9600,n,8,1) and Wiegand 26/34
transponder	Read-only 64bits, Manchester encoded
Auto-Tune	Internal upon switch-on and everu 10 minutes
Read Indication	LED and RS232 connection

Part No.	Ord.No.
S EM 80	64639

## RFID Readers (continued)

### EM 9936 ST



13.56 MHz/125kHz

9936ST is a standalone door access keypad controller. It can connect an additional Wiegand proximity reader for IN/OUT reader.

- Operation in User Card only + Global password, User Card + Global password or Door Access Password, Door Access Password only.
- 9936ST can add / delete User Card or Door Access Password by present card or by keypad.
- 5 x Master Cards for system operation, 32 bits card no, 2,000 cardholders, 32 bits card no. G. 200 Door Access Passwords.
- One Global Door Access Password, for card + pin purpose, one Master password for entering program mode.
- Dallas Clock IC inside, automatic time zone switching.
- Time zone control as Password, E-Lock, Alarm.

Part No.	EM 9936
Power Input	12.5 to 16V DC, 2A DC
Operating current	less than 80mA for control, 1.5A for E-lock
Card read range	40mm up for Philips Mifare Card, 100mm up for EM 4100 Card.
Response time	less than 0.2s
Reader frequency	13.56MHz for Mifare / 125KHz for EM
Alarm output	5VDC with 25mA DC
Product Dimension	86mm x 86mm x 21mm
IN/OUT reader	IN reader ID-1, OUT reader ID-2
Audio output/ Visual output	Beep sound/ Red / Yellow / Green Led
Input signal	Door sensor, door release button & Tamper switch
Output signal	Electric lock N/C & N/O selectable, alarm output.

Part No.	Ord.No.
S EM 9936 ST-BK (black)	74772
O EM 9936 ST-WH (white)	74773

## UW Series



125kHz

### UW-DAL READER

UW-DAL is RFID reader module working on the principle of contactless reading data from Unique transponder (EM MICROELECTRONIC MARIN SA - P4150). Unique transponder has "Read Only" memory with 40-bit identification number stored in it (ID numbers are different for each transponder). Reader sends this number via 1-wire Bus in format DS1990.

### UW-U4x READER

The UW-U4x is RFID card reader, which belongs to Unique family.  
 Support for Unique, Q5 transponder  
 1000 card memory with built-in lock driver  
 RS-485 interface, RS-485 bus addressability  
 Built-in relay and buzzer  
 Built-in push-button and warning LED's on front panel  
 Built-in push-button for reset  
 Built-in tamper with spring  
 Set-up capability for inputs and outputs  
 Two-state outputs control, read-out of two-state input  
 Data security by password, events memory

Part No.	UW-DAL	UW-U4Z	UW-U4R
Supply voltage	7...25V	7...16V	7-16V
Supply current	30...55 mA	30...60 mA	120mA
RF module working frequency	125 kHz		
Data receiving speed	RF/64 (1953b/s)		115200 bps
Max. Read distance	15 cm (MAX.)	up to 12 cm	up to 12cm
Antenna		internal	
Transmission	1-wire (dallas)		
Dimensions	82 x 82 x 22 mm		

Part No.	Description	Ord.No.
S UW-DAL READER	RFID reader DALLAS protocol	61224
S UW-U4R READER	RFID reader RS485 int. Memory	72845
S UW-U4Z READER	RFID reader RS485 int. Memory	72315

## TWN3 Series



The TWN3 reader family supports 125 kHz or 13.56 MHz: HID PROX, HID iCLASS, IN-DALA, 125kHz Multitags (EM410x, HITAG-1, HITAG-2, HITAG-S, EM4150, T5567, Q5), MIFARE (Mifare Ultralight, Mifare Ultralight C, Mifare Mini, Mifare 1k and 4k, Mifare DESfire, Mifare PLUS) and LEGIC (advant and prime). The TWN3 Reader is available as OEM-board and as desk reader in housing (USB or RS232 connection). The compact sized device is equipped with 2 LEDs and a loud-speaker. Operating mode can be keyboard emulation (simply plug into your computer, no drivers are necessary) or a virtual comport with full access to the transponder.

Part No.	TWM3 Multi ISO	TWM3 Multi 125
Housing	Material ABS, color black or white	
Frequency	13.56 MHz	125KHz
Dimensions	88mm x 56mm x 18mm	
Power Supply	5V ± 10% via communication cable	
Supply Current	N/A	220mA
Antenna	PCB Aircoil	Aircoil
Read-/Write Distance	Up to 10cm (depending on transponder)	
Supported Transponders	EM410x	ISO14443A:
	HITAG 1	Mifare Ultralight,
	HITAG 2	Mifare Ultralight C,
	HITAG S	Mifare Mini
	EM4150	Mifare 1k, 4k
	T5567, Q5	Mifare DESfire
		Mifare Plus
		ISO14443B
	ISO15693	

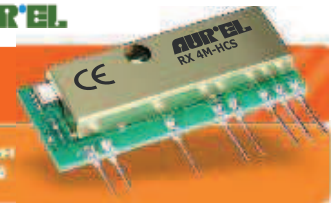
Part No.	Ord.No.
S TWN3 MULTI ISO OEMPCB	78265
S TWN3 MULTI 125 OEMPCB	78259
S TWN3 HOUSING BLACK	78274
S TWN3 SUB D9 CABLE	78279
S TWN3 USB CABLE	78278



Since 1970, AUREL is a service company specialized in microelectronics and automation in order to satisfy customer's demands. AUREL offers advanced technological solutions and manufacturing processes which continuously guarantee the requested high level of quality. Electronic contract manufacturing services for: automotive, industrial electronic, biomedical, domestic, consumer.

### RF Modules- 434 MHz

#### AM/FM 434 MHz-RF Receivers



# RX RECEIVERS

Gate door openers, burglar alarms, home security, remote controls

MODEL Part number	AM	FM	Frequency (Mhz)	Supply (V)	Current (mA)	Sensitivity (dBm)	R.F. Band (KHz)	Bit rate (Bps)	LxWxH (mm)	
BC-NBK <sup>(1)</sup> 650200208G	●		433.92	+5	2.7	- 103	± 1200	2400	38 x 13.7 x 5.5	Low Cost Receiver
AC-RX/AC-RX2 <sup>(1)</sup> 650200473G/884G	●		433.92	+5	2.5	- 106	± 2000	2400	38 x 12.3 x 5.5	Low Cost Receiver
RX-4M30RR01SF <sup>(1)</sup> 650200590G	●		433.92	+3	0.07	- 100	600 SAW Filter	2400	40 x 17.5 x 5.5	Low consumption 2.5V version available
RX-4M50RR30SF <sup>(1)</sup> 650200527G	●		433.92	+5	3	- 106	600 SAW Filter	2400	40 x 17.5 x 5.5	High performance
RX-4MHCS <sup>(1) (*)</sup> 650200997G	●		433.92	+5	3	- 106	150	2400	39 x 17.5 x 5	HCS decoder embedded
RX-AM4SF <sup>(1)</sup> 650200701G	●		433.92	+5	6.5	- 109	600 SAW 280 IF Ceramic	2400	40.3 x 17.5 x 5	RSSI Super-het
RX-4MM5 <sup>(1)</sup> 650200821G	●		433.92	+5	5.8	- 114	280 IF Ceramic	2400	39 x 17.5 x 5	High sensitivity super-het 3V version available
RX-4MM5++ 650200972G	●		433.92	+5	5.8	- 114	600 SAW 280 IF Ceramic	2400	36 x 15 x 4	SAW filtered EMI CLASS 1 3V available
RX MID 3V <sup>(1)</sup> 650201034G	●		433.92	+3	5.6	- 111	400	2400	25.4 x 12.4 x 2.5	Very small size 5V available
RX-4M50FM60SF 650200605G		●	433.92	+5	6	- 111	600 SAW 70 IF CER	19200	44.9 x 17.5 x 9.3	Super-Het High sensitivity
RX-4MF1 650200855G		●	433.92	+5	6	- 108	600 SAW 70 IF CER	19200	40 x 17.4 x 5.5	Super-Het Low cost Auto Squelch
RX-AM8SF <sup>(1)</sup> 650200797G	●		868.30	+5	6.5	- 108	600 SAW 280 IF CER	2400	40.3 x 17.5 x 5.3	RSSI High Sensitivity
RX-8L50FM70SF 650200636G		●	868.30	+5	7	- 107	600 SAW filter	9600	44.9 x 17.5 x 9.3	Super-Het High sensitivity

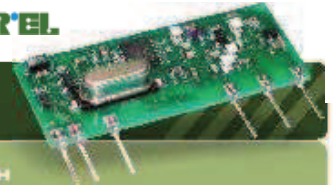


(1) 100% modulazione RF / RF generator with 100% modulation.

(\*) Compatible only with HCS keyfobs programmed with AUREL manufacturer code.

Part No.	Ord.No.	Description
S AC-RX-433	42480	433.92 MHz Receiver optimized for HCSXXX Microchip
S BC-NBK	4631	433.92 MHz Standard (OOK) Receiver
O NB-05L 433.92MHz	7472	433.92 MHz Low consumption Receiver
S RX-4M30RR01SF	52170	433.92MHz SAW filter, 3V
S RX-4M50RR30SF	50289	433.92 Mhz High performance Low Cost AM Receiver
S RX-4MHCS	60729	Receiver 433.92MHz, with KEELOQ® decoder emb., -106 dBm
O RX-AM4SF	70811	Receiver module 433.92 MHz RSSI Super-het -108dBm
O RX-AM8SF	69679	Receiver module 868 MHz RSSI Super-het -108dBm
O RX-4MM5	65570	Receiver AM (OOK) 433.92MHz, Super-het, -114 dBm, 5V
O RX-4MM5++	70812	Receiver AM (OOK) 433.92MHz, SAW filter
O RX-MID-3V	65101	RF digital Transceiver 433,92MHz
O RX-4M50FM60SF	70813	433.92 Mhz Receiver Super-het
O RX-4MF1	70814	434 MHz FM (FSK) Low cost super-het
O RX-8L50FM70SF	69596	Receiver module 868.3 MHz Super-het FM (FSK)

## AM/FM 434 MHz-RF Transmitters



# TX HYBRID TXs

Gate door openers, burglar alarms, home security, remote controls

MODEL Part number	AM	FM	Frequency (MHz)	Supply (V)	Current (mA)	Out Power (mW)	Bit rate (Bps)	LxWxH (mm)	
TX-4MDIL 650200738G	●		433.92	+3÷5	3÷6	15	9600	17.8 x 10.16 x 2	Mini Tx DIL
TX-4MSIL 650200737G	●		433.92	+3÷5	3÷6	2÷4	9600	17.8 x 12.4 x 2	Mini Tx SIL
TX-SAW MID 3V 650200798G	●		433.92	1.8÷3.5	3÷7	10	9600	28 x 12.5 x 3	Ideal for long battery life 5V version available
TX-SAW 433 s/Z RFM 650200689G	●		433.92	+5	4	10	9600	38.1 x 13.2 x 3	Low cost Tx
TX-4M10HA 650200819G	●		433.92	+3	25	10 (ERP)	9600	56 x 18.5 x 10	High power Integrated antenna Vertical pin available
TX-FM-MID 650200926G		●	433.92	+3	11÷16	10	9600	25.4 x 12.5 x 3	Enable pin version available
TX-8LAVSA05 650200546G	●		868.30	+2.7÷5	20÷50	5	9600	38.1 x 13.7 x 3	Low cost Integrated antenna available
TX-8L25IA 650200846G	●		868.30	+3	25	25 (E.R.P.)	9600	56 x 18.5 x 5	High power Integrated antenna Horiz./Vert. versions
TX-8L50PF06 650200653G		●	868.30	+5	24	6	9600	39 x 17.5 x 5	High performance 3V version available

Part No.	Ord.No.	Description
S TX-4MDIL	50291	433.92 MHz Mini Transmitter with dedicated antenna
S TX-4MSIL	50292	433.92 MHz Mini Transmitter with dedicated antenna
O TX-4M10HA	57850	Transmitter 433.92MHz AM (OOK) with helical antenna
O TX-8LAVSA05	70815	Transmitter 868MHz AM (OOK) w/dedicated antenna
O TX-8L25IA	69678	Transmitter module 868.3 MHz AM (OOK) w/ ded. antenna
O TX-8L50PF05	69595	Transmitter module 868 MHz PLL FM (2FSK) w/ ext. ant.
O TX-FM-MID	70825	434 MHz PLL FSK transmitter external antenna
S TX-SAW 433/s-Z RFM	5731	433.92 MHz Transmitter with dedicated antenna
O TX-SAW MID 3V	57851	Transmitter 433.92MHz AM (OOK) SAW high perf. 3V
S TX-SAW BOOST	5732	433.92 MHz SAW RF Transmitter Module 400mW

## SIR 2008

NEW!



Wide angle low-power coverage  
PIR detector with built-in coded RF SAW transmitter.  
Possible encoders:  
HCS Keeloq (Microchip)  
Fixed codes  
Custom codes

### Technical Specification

Battery supply Voltage	2V DC
Stand-by mode consumption	10uA
Alarm mode consumption	9mA
Working frequency	433.92MHz
RF emitted power	1mW
Alarm inhibit time	240s
Test inhibit time	4s
Coverage range	8-20mT
Operating temperature range	-10°C to +55°C

Part No.	Ord.No.	Description
S SIR2008HCS/HT12E	75235	PIR sensor/transmitter 433.92MHz AM roll.+fix code
O SIR2008HCS/145026	75237	PIR sensor/transmitter 433.92MHz AM roll.+fix code

## 2,4GHz- RF Audio Modules



# AUDIO 2.4 GHz

Wireless speakers, Home theatre, headphone

MODEL Part number	AM	FM	Frequency (MHz)	Supply (V)	Current (mA)	TX Power (mW)	Channels (N)	LxWxH (mm)	
RX-AUDIO-2.4 6502010005G		●	2400 ÷ 2483.5	+5	65		8	47 x 32 x 7	High Fidelity CD quality Analogic Output
TX-AUDIO-2.4 650201004G		●	2400 ÷ 2483.5	+3.6÷5	93	+10 dBm	8	52 x 16 x 7	High Fidelity CD quality Analogic Input

Part No.	Ord.No.	Description
S RX-AUDIO-2,4	61432	2.4 GHz Digital audio receiver
S TX-AUDIO-2,4	61433	2.4 GHz Digital audio signal transmitter

NEW!

## AM/FM 434 MHz-RF Keyfobs

AUREL



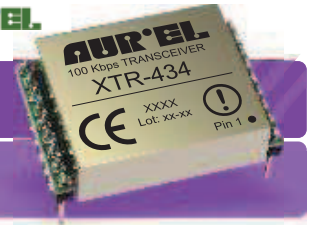
# KF

Gate door openers, burglar alarms, home security, remote controls

MODEL Part number	AM	FM	Frequency (MHz)	Supply (V)	Current (mA)	E.R.P. (mW)	Encoder (type)	Channels (buttons)	LxWxH (mm)	
TX-1/2TK-SAW433 650200134G/135G	●		433.92	+12	10	1	145026	1/2	65.5 x 37 x 15	
TX12E-1/2TK SAW433 650201000G/1001G	●		433.92	+12	10	1	HT12E 3750 comp.	1/2	65.5 x 37 x 15	
HCS-TX-1/2/3 650200609G/610G/606G 650200693G/683G/684G (AUREL CODE)	●		433.92	+3	10	0.5	HCS300	1/2/3	54 x 43 x 11	
TX1/2/3-HCS-433 650200569G/571G/568G 650200765G/808G/759G (AUREL CODE)	●		433.92	+12	10	0.5	HCS301 Available HCS360	1/2/3	56.5 x 36 x 14	
TX12E-1/2/4 C-SAW433 650200919G/918G/917G	●		433.92	+12	7	1	HT12E 3750 comp.	1/2/4	75 x 43.5 x 18.5	
TX-1/2/4 C-5026 650200463G/444G/462G	●		433.92	+12	10	1	145026	1/2/4	75 x 43.5 x 18.5	
TX12E-1/2/4 E-SAW433 650200922G/921G/920G	●		433.92	+12	7	1	HT12E 3750 comp.	1/2/4	80 x 43.5 x 18.5	
TX-2/4/6 M-HCS 650200805G/806G/807G 650200900G/901G/828G (AUREL CODE)	●		433.92	+12	7	1	HCS301	2/4/6	75 x 43.5 x 18.5	
TX-12 CH 650200487G 650200902G (AUREL CODE)	●		433.92	+6	10	0.5	HCS301	12	85.5 x 54 x 10.5	
HCS-FM-TX 1/2/3 650200611G/612G/613G 650200903G/791G/904G (AUREL CODE)		●	433.92	+3	10	0.5	HCS300	1/2/3	54 x 43 x 11	
HCS-TX 1/2/3-868 650200741G/654G/648G 650200910G/714G/691G (AUREL)	●		868.30	+3	10	1	HCS300	1/2/3	54 x 43 x 11	
HCS-FM-TX 1/2/3-868 650200745G/649G/647G 650200864G/863G/862G (AUREL CODE)		●	868.30	+3	10	0.5	HCS300	1/2/3	54 x 43 x 11	

Part No.	Ord.No.	Description
O TX-2TK-SAW433	47867	433.92 MHz 2-Ch AM (OOK) Keyfob transmitter
S HCS-TX-1 / CODE AUREL	47851	433.92MHz 1ch AM KEELOQ®Key-fobTransmitter
S HCS-TX-2 / CODE AUREL	50293	433.92MHz 2ch. AM KEELOQ®KeyfobTransmitter
S HCS-TX-3 / CODE AUREL	50294	433.92MHz 3ch AM KEELOQ®KeyfobTransmitter
S TX1-HCS-433 / CODE AUREL	47853	433.92MHz 1ch. KEELOQ®KeyfobTransmitter
S TX2-HCS-433 / CODE AUREL	47882	433.92MHz 2ch. AM KEELOQ®KeyfobTransmitter
S TX3-HCS-433 / CODE AUREL	48942	433.92MHz 3ch. AM KEELOQ®KeyfobTransmitter
O TX-12 CH	47858	433.92 MHz 12-Ch AM (OOK) Keyfob Transmitter
O HCS-FM-TX1	47852	433.92 MHz Keyfob Transmitter
O TX-12E-4C-SAW 433	67674	434 MHz 4-Ch Key-fob transmitter
O TX2-M HCS	70826	434 MHz 2-Ch AM (OOK) Key-fob transmitter
S TX4-M HCS	70830	433.92MHz 4ch AM KEELOQ®KeyfobTransmitter
O TX6-M HCS	70831	434 MHz 6-Ch AM (OOK) Key-fob transmitter
O HCS-FM-TX2	70822	Keyfob Transmitter 2ch 433.92MHz
O HCS-FM-TX3	70824	Keyfob Transmitter 3ch 433.92MHz
O HCS-FM-TX1-868	70832	868 MHz 1-Ch FM (FSK) Key-fob transmitter
O HCS-FM-TX2-868	70833	868 MHz 2-Ch FM (FSK) Key-fob transmitter
O HCS-FM-TX3-868	70834	868 MHz 3-Ch FM (FSK) Key-fob transmitter

Single-Channel Transceivers



# RTX

Telemetry, home automation, remote meter reading

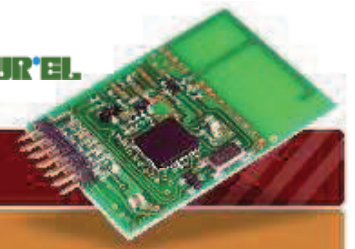
MODEL Part number	AM	FM	Frequency (MHz)	Supply (V)	Current (mA)	Sensitivity (dBm)	TX Power (mW)	Max Bit rate (bps)	LxWxH (mm)	
RTF-DATA-SAW <sup>(1)</sup> 650200218G	●		433.92	+5	Tx 4.5 Rx 2.5	-96	10	9600	63.5 x 17.9 x 5	Low Cost
RTX-RT LP 434 <sup>(1)</sup> 650200589G	●		433.92	+3	Rx 0.08	-99	10	2400	63.3 x 17.2 x 5	Low Consumption
RTX MID 3V <sup>(1)</sup> 650201033G	●		433.92	+3	15 Tx On 7 Rx On 0.01 En Off	-110	10	9600	25.4 x 12.4 x 2.5	High Sensitivity Very small size
XTR-434 <sup>(1) (2)</sup> 650200588G		●	433.92	+5	28 Tx On 11 Rx On 0.1 All Off	-100	10	100.000	33 x 23 x 8	High speed 433.42 MHz available
XTR-434L <sup>(1) (3)</sup> 650200614G		●	433.92	+5	28 Tx On 11 Rx On 0.1 All Off	-103	10	50.000	33 x 23 x 8	High sensitivity
XTR-869 <sup>(1) (3)</sup> 650200624G		●	869.85	+5	28 Tx On 11 Rx On 0.1 All Off	-100	5	100.000	33 x 23 x 8	High speed
WIZ2-434-RS 650200615G		●	433.92	+9÷15	30	-100	10	115.200	65 x 125 x 20	Integrated antenna Open frame Plastic enclosure available
WIZ-434-SML IA 5V 650200626G		●	433.92	+5	30	-100	3	115.200	37 x 93 x 20	RS-232 Adapter available Integrated antenna 12V version available
WIZ-869-TRS 650200705G		●	869.85	+5	13 Rx On 29 Tx On	-100	3	38.400	68 x 40 x 10	RS-232 Adapter available Integrated antenna



(1) 100% modulazione RF / RF generator with 100% modulation  
 (2) Bit rate min. 9600 bps  
 (3) Bit rate min. 2400 bps  
 (\*) Needs Manchester balanced code / Richiede codifica Manchester

Part No.	Ord.No.	Description
S RTF-DATA-SAW	49270	433.92 MHz SAW Digital Data Transceiver
S RTX-MID-3	65101	RF digital Transceiver 433,92MHz
O RTX-RT-LP 434	70835	434 MHz AM (OOK) SAW Digital Data Transceiver
O XTR-434	49271	433.92MHz Transceiver 100kbps -20°C to+80°C
O XTR-434L	5354	433.92MHz Transceiver
O XTR-869	49272	869.85 MHz Transceiver 100kbps
O WIZ -434-SML IA 5V	70836	434 MHz FM (FSK) 1ch & HS Radio Modem
O WIZ2-434-RS	70837	434 MHz FM (FSK) 1ch HS Radio Modem
O WIZ-869-TRS	70838	868 MHz FM (FSK) 1ch transparent Radio Modem

Multichannel Transceivers



# RTX

Industrial automation, radio modem, access control

MODEL Part number	AM	FM	Frequency (Mhz)	Supply (V)	Current (mA)	TX Power (mW)	Bit rate (Bps)	LxWxH (mm)	
XTR-7020 A-4 650200925G		●	433÷434	+3	30 RX ON 40 TX ON 0.08 OFF	Min 0.15 Max 10	MAX 115.200	33 x 23 x 8	Microcontrolled embedded 10 Channels
XTR-7020 A-8 650200998G		●	868÷870	+3	30 RX ON 40 TX ON 0.08 OFF	Min 0.15 Max 10	115.200	33 x 23 x 8	Microcontrolled embedded 7 Channels
WIZ-7020 A-4 650200960G		●	433÷434	+5	30 RX ON 40 TX ON 0.08 OFF	Min 0.1 Max 3 (E.R.P.)	115.200	68 x 40 x 10	Integrated antenna 10 Channels RS-232 Adapter available
WIZ-7020 A-8 650200999G		●	868 ÷ 870	+5	30 RX ON 40 TX ON 0.08 OFF	Min 0.1 Max 3 (E.R.P.)	115.200	68 x 40 x 10	Integrated antenna RS-232 adapter avail. 10 Channels
XTR-CYP 2.4 <sup>(*)</sup> 650200915G			SDDD 2402 ÷ 2481	+3.3	60 RX ON 100 TX ON	Min 0.04 Max 30 (E.R.P.)	64.000	35 x 25	Data Transceiver 78 Channels
XTR VF 2.4 LP <sup>(*)</sup> 650201025G			SDDD 2402 ÷ 2497	1.8 ÷ 3	21 RX ON 35 TX ON 0.08 ST-BY	Min 0.03 Max 30 (E.R.P.)	1 M	35 x 25	Data Transceiver 98 Channels



(\*) DEMOBOARD CYP AVAILABLE (P.N. 650200999G)

Part No.	Ord.No.	Description
O XTR-7020A-4	61225	Transceiver multichannel radiomodem 434MHz
O XTR-7020A-8	61226	Transceiver multichannel radiomodem 868MHz
O XTR-CYP 2,4GHz	60730	Transceiver multichannel radiomodem 2,4GHz
O WIZ-7020 A-4	70839	Transceiver multichannel radiomodem 434MHz
O WIZ-7020 A-8	70840	Transceiver multichannel radiomodem 868MHz

Modules








## Antennas

AUREL

# ANT

Industrial automation, radio modem, access control

MODEL Part number	Frequency (MHz)	Impedance (Ω)	Case	LxWxH (mm)	
AS433 / AS868 650200596G/597G	430÷440 860÷870	50	Black PVC	34 x 175	Vertical 
GP433/GP868 650200313G/599G	430÷440 860÷870	50	Aluminium & Chromium Plated Brass	190 x 460	Ground Plane 
T/T8 650200442G/607G	430÷440 860÷870	50	Black rubber	10 x 90	Flexible stylus 
T-A/T8-A 650200448G/608G	430÷440 860÷870	50	Black rubber	10 x 90	Flexible stylus 
A24 650200740G	2200÷2600		White PVC	188 x 133 x 40	High Gain Antenna +10 dBi 

D

Modules


Part No.	Ord.No.	Description
S AS 433	50288	433.92 MHz Vertical Part No. Antenna, wire end 2,5m cable
O AS 868	70841	Vertical Part No. Antenna 868MHz
O GP 434	70842	Ground Plane Antenna 434MHz
O GP 868	70843	Ground Plane Antenna 868MHz
S T 433.92	50287	Antenna kit
O T-A 433,92	5355	Antenna kit
S T8	50785	Antenna kit T8, 868MHz
O T8-A	70844	Antenna kit 868MHz
O A24	70845	2.4 GHz High Gain Antenna - 10 dB

## Decoders

AUREL

# DEC

Burglar alarms, home security, remote controls

MODEL Part number	Supply (V)	Current (mA)	Decoder (mm)(type)	Encoder (type)	Clock (KHz)	LxWxH	
D1MB 650200012G	+5÷15	1 quiescent	145028	145026	1.7	40 x 16.8 x 3.5	Single channel
D2MB 650200011G	+5÷15	1 quiescent	145027	145026	1.7	51.2 x 16 x 4.3	Dual channels
D4ML 650200450G	+5÷15	1 quiescent	HT12D	86409	1	51.2 x 18.8 x 4.3	Four channels
HCS-DEC 4 <sup>(1)</sup> 650200994G	12 DC 24 AC	66 ON 20 Stand by	µP	HCS301		65 x 45 x 18	Available with 1/2/4 outputs 

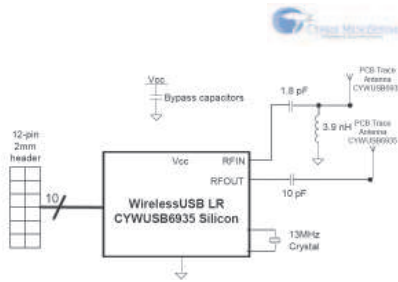
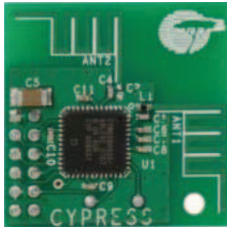
<sup>(1)</sup> Compatible only with HCS keyfobs programmed with AUREL manufacturer code.

Part No.	Ord.No.	Description
O D1MB	70847	Single Channel Decoder 145028
O D2MB	70848	Dual Channel Decoder 145028
O D4ML	70849	Quad Channel Decoder UM3750
S HCS-DEC-4	69271	RF receiver with 4-chan. KEELOQ® decoder, 4xrelay out



## RF Modules - 2,4GHz

### CYWM Series



The CYWM6935 WirelessUSB LR Radio Module offers a complete radio module solution for integration into existing or new 2.4-GHz products. The CYWM6935 is tested for functional operation and is FCC/ETS(EU)/Industry pre-certified. The module is supplied with dual integrated PCB trace antennas. The CYWM6935 is available in a small PCBA design and can be mounted horizontally to the device PCB via a 12-pin header.

#### Applications

- Consumer / PC (Locator Alarms, Presenter Tools, Remote Controls, Toys)
- Building/Home Automation (Climate Control, Lighting Control, Smart Appliances, On-Site Paging Systems, Alarm and Security)
- Industrial Control (Inventory Management, Factory Automation, Data Acquisition, Automatic Meter Reading (AMR))
- Transportation (Diagnostics, Remote Keyless Entry)

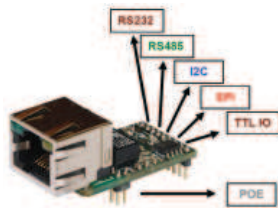
#### Technical Parameters

Operating Voltage	2,7 to 3,6 V
Output Power	up to 0 dBm
Receive Sensitivity	-95 dBm
Data Throughput	62,5 kbps
Signal coverage	cca 50m
Dimensions	23,75 x 23,75 mm

Part No.	Note	Ord.No.
S CYWM6935	WirelessUSB+PSoC	56507

## LAN Modules

### XT NANO Series



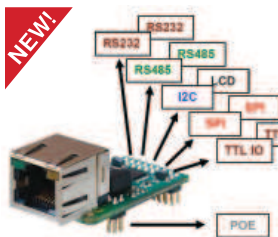
#### XT NANO

With its extremely little dimensions of only 20 x 32mm is the XT-NANO-MODUL particularly appropriate to be integrated in very small terminals. With a total of four switchable BUS systems, such as RS232, RS485, I2C, SPI as well as TTL-IO it fulfills all customer requirements. Even a POE (Power over Ethernet) supply is available, since all required connections are carried out.

#### Main features:

- Power supply: 3.3V/300mA, POE Power-Over-Ethernet
- Management: Telnet, Browser, Serial interface
- Upgrade firmware via TFTP and serially
- Supported Protocols: IP, TCP, UDP, FTP, SNMP, Telnet, ICMP, DHCP, DNS, DDNS, ARP, BOOTP, HTTP,HTML, DynDNS
- Ethernet 10/100Mbit RJ45
- Interfaces (TTL) RS232, RS485, I2C, SPI
- Dimensions: (WxD) 20 x 32 mm

Part No.	Note	Ord. No.
S XT NANO	TCP/IP <-> RS232, I2C, SPI	59400



#### XT NANO-XXL

Thanks to its extremely little dimensions of only 20 x 34 mm, the new XT-NANO-XXL module is very well appropriate to be integrated also to very small terminals. A total of two bus systems are made available of each four or five switchable interfaces such as RS232, RS485, I2C, SPI as well as TTL-IO. Even a POE (Power over Ethernet) supply is available since all necessary connections are executed. Lots of functions, e.g. a 4-bit or SPI LCD display as well as the direct connection of the SD card may be directly selected.

#### Main features:

- Power supply: 3.3V/170mA, POE Power-Over-Ethernet
- Management: Telnet, Browser, Serial interface
- Supported Protocols: IP, TCP, UDP, FTP, TFTP, ICMP, ARP, SNMP, LPR, DHCP, BOOTP, DNS, TELNET, HTML, http, DYNDNS, SMTP, POP3, SYSLOG, SSL (in preparation)
- Ethernet (MDIX)
- Interfaces (TTL) RS232, RS485, I2C, SPI, TTL/IO
- Dimensions: (WxD) 20 x 32 mm

Part No.	Note	Ord. No.
S XT NANO-XXL	TCP/IP <-> RS232, I2C, SPI	71079

## XT NANO Evaluation kit

NEW!



The EVA-KIT for the XT-NANO offers all functions as well as hardware options in order to completely try out the XT-NANO / XT-NANO-XXL. Two RS232/RS485 interfaces as well as an SPI display and an SD card holder are available. Also a POE (PowerOverEthernet) module is included in the EVA-KIT. Two additional WIRE-WRAP fields of the contact spacing 2.54 and 2mm. Using the jumpers, it is possible to individually separate or connect each bus of the XT-NANO module. An XT-NANO and the connection plan are also included in the functional scope.

Part No.	Ord. No.
S EVA KIT XT NANO	71344

## XT Micro Series

NEW!



#### XT MICRO-C

The XT-MICRO-C is a small and compact print-server and is easy to use. The XT-MICRO-C is a small plug and integrates every printer with a centronics interface into a network.

- Power supply: 5Volt / ca. 300 mA
- Connection: Ethernet 10/100Mbit RJ45  
1x 36pin centronics Plug
- Protocols: IP,TCP,UDP ,SNMP, ICMP, DHCP, DNS, DDNS, ARP, BOOTP,HTML,HTTP,TELNET ,LPR,IPP
- Functions: PrinterIEEE1284,bidirectional

Part No.	Note	Ord. No.
O XT MICRO C	Centronics	71330

NEW!



#### XT MICRO-V

The XT-MICRO-V is an external device server or printserver and integrates every hardware with a serial interface like RS232 into a network.

- Power supply: 5 Volt / ca. 300 mA
- Connection:  
Ethernet 10/100Mbit RJ45  
1 x 25pin Sub-D Plug or Jack RS232
- Dimensions: 45 x 48x 14 (mm)
- Protocols: TCP/IP, UDP, FTP, SNMP, Telnet, ICMP, DHCP, DNS, DDNS, ARP, BOOTP, HTTP, IPP, LPR, DynDNS

- Software Emulations: Modem - Emulation, PAD - Emulation, ConnectOnData, AutoConnect, UDP-KeepAlive, DynDNS
- Serial Interface: Speed: 300Baud -115200Baud  
Parity: Odd,Even,Mark,Space,None  
Databits: 7-8Bit  
Signals: TXD, RXD, RTS, CTS, DSR, DTR, DCD, GND

Part No.	Note	Ord. No.
O XT MICRO V1	D-Sub Jack	71331
O XT MICRO V2	D-Sub Plug	71332

## ConLine Series

NEW!



#### CONLINE-USB

The ConLine-USB is a small and compact print server and is easy to use. The ConLine-USB is a small cable solution and integrates every printer with a usb interface into a network.

- Power supply: 5Volt / ca. 300 mA
- Connection: Ethernet 10/100Mbit RJ45  
USB-B Plug or USB-A Jack
- Protocols: IP, TCP, UDP, SNMP, ICMP, DHCP, DNS, DDNS, ARP, BOOTP, HTML, HTTP, TELNET, LPR, IPP
- Functions: Printer USB1.1 and USB 2.0 compatible , IEEE1284-4,bidirectional

Part No.	Note	Ord. No.
O ConLineUSB-B	USB B Plug	71327

NEW!



#### CONLINE-V24

The ConLine-V24 is a small and compact device server and is easy to use. The ConLine-V24 is a small cable solution and integrates every hardware with a serial interface like Rs232 into a network.

- Power supply: 5Volt / ca. 300 mA
- Connection: Ethernet 10/100Mbit RJ45  
9pol Sub-D JACK or Plug
- Protocols: TCP/IP, UDP, FTP, SNMP, Telnet, ICMP, DHCP, DNS, DDNS, ARP, BOOTP, HTTP, IPP, LPR, DynDNS

- Software Emulations: Modem - Emulation, PAD - Emulation, ConnectOnData, AutoConnect, UDP-KeepAlive, DynDNS
- Serial Interface: Speed: 300Baud -115200Baud  
Parity: Odd,Even,Mark,Space,None  
Databits:7-8Bit  
Signals: TXD, RXD, RTS, CTS, DSR, DTR, DCD, GND

Part No.	Ord. No.
S ConLineV24-S D-SUB Plug	70109
O ConLineV24-B D-SUB Jack	71328

## ComPoint Series



### COMPOINT-LAN-AS

The COMPOINT-LAN-AS is an external device server and integrates every hardware with a serial interface like RS232 or RS485 into a network.

- Power supply: 6 Volt / ca. 300 mA
- Connection:
  - Ethernet 10/100Mbit RJ45
  - 1 x 9pin Sub-D Plug RS232
  - 1 x 9pin Sub-D Plug RS232/RS485
- Protocols: TCP/IP, UDP, FTP, SNMP, Telnet,

- ICMP, DHCP, DNS, DDNS, ARP, BOOTP, HTTP, IPP, LPR, DynDNS
- Software Emulations: Modem - Emulation, PAD-Emulation, ConnectOnData, AutoConnect, UDP-KeepAlive, DynDNS
- Serial Interface: Speed: 300Baud -115200Baud  
Parity: Odd,Even,Mark,Space,None  
Databits:7-8Bit  
Signals: TXD, RXD, RTS, CTS, DSR, DTR, DCD, GND
- Dimensions : 60 x 30 x 100 (mm)

Part No.	Ord. No.
O COMPOINT-LAN-AS	71333



### COMPOINT-LAN-XXL

The ComPoint-LAN-XXL offers two independently operating serial RS232 or RS485 interfaces. Each interface can be individually set and it is possible to transmit baud rates of up to 1.000.000 bauds. It is possible to additionally set emulations as Modem, Auto-Connect, Connect-On-Data, TCP / UDP client with up to 10 parallel connections, TCP/UDP server, tunnel mode with transfer of the signal statuses as well

as settings, e-mail client including sending and receiving of e-mails. Optionally the Compoint-LAN-XXL is available with POE (Power over Ethernet) as well as with a 36Volt variant. Also an internal SD card holder is available which allows to save own homepages or JAVA applets.

- Power supply: supply 6Volt ca.270 mA
- Optional: POE IEEE802.3af , 36V switching regulator. All tensions can be switched via the internal jumper to pin 9 of the serial interface.
- Dimensions: (WxHxL): 100 x 28 x 110mm
- 1 x Ethernet: 10/100Mbit RJ45(MDIX)
- 1 x SD CARD slot (internal)
- 2 x RS232/RS485:
  - Baud rate : up to 1M baud
  - DataBits : 7.8
  - Parity : Odd,Even,None,Mark,Space
  - RS232 Signals : TXD, RXD, RTS, CTS, DSR, DTR, DCD,RI, GND
  - RS485 Signals : TXD, RXD
- Supported protocols : IP, TCP, UDP, FTP, TFTP, ICMP, ARP, SNMP, LPR, DHCP, BOOTP, DNS, TELNET, HTML, http, DYNDNS, SMTP, POP3, SYSLOG, SSL(in preparation)
- Emulations and functions: Modem Emulation, Connect-On-Data, Auto-Connect, Tunnel-Mode, DYNDNS-Client, FTP-Server, LPR-Server, 20KB Flashdrive, Flash-File-System, SD- und DF-CARD, E-Mail-Client, TCP/UDP-Client, TCP/UDP-Server, SYSLOG-Client

Part No.	Ord. No.
O COMPOINT-LAN-XXL	71334



### COMPOINT-LIB

The ComPoint-LIB (LAN-ISDN-BRIDGE) offers a LAN to ISDN Bridge, up to 10 ISDN X.25 connections at the same time. You will find typical ranges of application in the field of POS (Point of Sale), cash dispenser, machine controls etc.

- Power supply: included
- Dimensions (WxHxD): 60 x 30 x 100 (mm)
- Connectos: 1x ISDN RJ45, 1x Ethernet 10/100Mbit RJ45
- Supported Ethernet protocols: TCP/IP, UDP, FTP, SNMP, Telnet, ICMP, DHCP, DNS, DDNS, ARP, BOOTP, HTTP, IPP, LPR, DynDNS
- ISDN Protocols: D-Channel= X.31, B-Channel= X.75, X.25

Part No.	Ord. No.
O COMPOINT-LIB	71338



### COMPOINT-ISDN

The ComPoint-ISDN connects an asynchronous serial interface with ISDN.The device does not require any specific ISDN device driver.

- Power supply: included
- Dimensions (WxHxD): 60 x 30 x 100 (mm)
- Connectos: 25pin Sub-D JACK
- Functions: Modem - Emulation, PAD - Emulation
- ISDN Protocols: D-Channel= X.31, B-Channel= X.75, X.25
- Serial Interface: Speed 300Baud -230KBit  
7-8Bit,Odd-Even parity  
Signals: TXD, RXD, RTS, CTS, DSR, DTR, DCD, GND

Part No.	Ord. No.
O COMPOINT-ISDN	71339

## DIN-Rail Series



### DIN RAIL LAN

AK-DIN rail modules are external devices which

can easy mounted by clipping onto a DIN rail. The AK-DINRAIL-LAN is an dinrail modul and integrates every hardware with a serial interface like Rs232 or RS485 into a network. You will find typical ranges of application in the field of machine controls, industry robots, etc.

- Power supply: 6 -40 Volt / ca. 300 mA
- Connection: Ethernet 10/100Mbit RJ45  
1 x 9pin Sub-D Plug RS232  
1 x 2pin RS485
- Dimensions: 70 x 58 x 90(mm)
- Protocols: TCP/IP, UDP, FTP, SNMP, Telnet, ICMP, DHCP, DNS, DDNS, ARP, BOOTP, HTTP, IPP, LPR, DynDNS
- Software Emulations: Modem - Emulation, PAD - Emulation, ConnectOnData, AutoConnect, UDP-KeepAlive, DynDNS
- Serial Interface: Speed: 300Baud -115200Baud  
Parity: Odd,Even,Mark,Space,None  
Databits:7-8Bit  
Signals: TXD, RXD, RTS, CTS, DSR, DTR, DCD, GND

Part No.	Ord. No.
O AK-DIN RAIL LAN	71342



### DIN RAIL ISDN

AK-DIN rail modules are external devices which can easy mounted by clipping onto a DIN rail. The AK-DINRAIL-ISDN connects every hardware with a serial interface like Rs232 to ISDN. You will find typical ranges of application in the field of machine controls, industry robots, etc.

- Power supply: 6 - 40Volt / ca. 100 mA
- Dimensions: 70 x 58 x 90 (mm)
- Connectos: 9pin Sub-D Plug, RJ45 ISDN
- Functions: Modem - Emulation, PAD - Emulation
- ISDN Protocols: D-Channel= X.31, B-Channel= X.75, X.25
- Serial Interface:
  - Speed 300Baud -230KBit
  - 7-8Bit,Odd-Even parity
  - Signals: TXD, RXD, RTS, CTS, DSR, DTR, DCD, GND

Part No.	Ord. No.
O AK-DIN RAIL ISDN	71343

## ISDN SOC



### ISDN-SOC

The ISDN-SOC is an all-purpose, ultra-compact active ISDN module. The module is completely autonomous and requires no external system resources whatsoever, apart from a power supply. The user operates the compact system via a serial asynchronous interface (TTL-Level). The ISDN-SOC is network management capable and comes with all the protocol and configuration options.

- Power Consumption/supply: 3.3Volt /40 mA
- Dimensions: 27 x 65mm
- Connectors: 2mm pin rails /TTL-Level)
- Functions: Modem - Emulation, PAD - Emulation,
- ISDN Protocols: D-Channel= X.31,B-Channel= X.75, X.25
- Serial Interface (TTL): Speed 300Baud -230KBit, 7-8Bit,Odd-Even parity
- Signals: TXD, RXD, RTS, CTS, DSR, DTR, DCD, GND

Part No.	Ord. No.
O ISDN SOC	71345

## LAN Modules (continued)

### PI-Module ISDN



With the PI module made by AK-NORD, a subsequent connection of serial terminals to LAN, ISDN or Bluetooth can be easily performed. The RS232/V24 or an internal RS485 interface are offered in the device. Only a small outlet of 64 x 20mm is required in order to plug the PI modules in the terminals. The PI modules are fixed with two screws and internally supplied with a tension of 6 to 40 volts.

- Power supply: 6 - 40Volt / ca. 100 mA
- Dimensions: 64 mm x 82 mm
- Connectors: 9pin Sub-D Plug, RJ45 ISDN
- Functions: Modem - Emulation, PAD - Emulation
- ISDN Protocols: D-Channel, X.31, B-Channel, X.75, X.25, V.110/ECMA102, V.120
- Serial Interface: RS232 /V24  
Speed 300Baud -230KBit  
7-8Bit, Odd-Even parity  
Signals: TXD, RXD, RTS, CTS, DSR, DTR, DCD, GND

Part No.	Ord. No.
o LPT2 USB	71350

### LPT2 USB



Adapter to connect the LPT(parallel) - Ports from Clients with the USB - Port from Printers and Multifunction-Printers.

Connectors  
1 x 25Pin - SUB-D Plug  
1x USB - B Plug

Part No.	Ord. No.
o LPT2 USB	71350

### EG-SR 7100 Series



#### EG-SR 7100A

EG-SR 7100A is a true Internet-on-a-Chip, which will be an infrastructure of ubiquitous devices on IPv6, as progress of SoC, where all functions of system will be implemented into a single chip. Internet-on-a-Chip will become new paradigm of SoC, where IP of Hardwired TCP/IP protocol will become a core block as virtual component.

- Plug and Play RS-232/Ethernet modul
- High stability & reliability by Hardwired TCP/IP Chip (W3100A-LF)
- 10/100Mbps Ethernet Interface, Max. 230Kbps Serial Interface
- Power supply 3,3V/150mA
- Configuration program: Easy interface and powerful functionality
- dimensions 50mm X 30mm



Part No.	Description	Ord. No.
s EG-SR 7100A	Converter TCP/IP <-> RS232	55942



#### EG-SR 7100A - EVB

- Contents:
- EG-SR 7100A
  - Module and Evaluation Board
  - Firmware Source and H/W Schematic of evaluation board
  - Configuration program
  - Power supply, UTP cable, Serial cable

Part No.	Description	Ord. No.
o EG-SR 7100A-EVB	Development kit k EG-SR7100A	58832

### WIZ 610wi



Stand-alone typed 802.11b/g wireless LAN-module

- Ethernet to Wireless Bridging : Enable wired network device to have wireless communication interface
- Supports Serial Interface for "Serial to Wireless" application
- Supports AP/Station/Gateway mode
- 54Mbps data rate and Max.20Mbps Effective Data Transmission
- Full-Featured Network Protocol Stack
- Built-in Web server for configuration via standard web browser

Technical Parameters	WIZ 610 wi
Wireless Standards	IEEE 802.11b; 802.11g
Frequency Range	2.412GHz ~ 2.472GHz
Output Power	14dBm@802.11b(1~11Mbps) 14dBm@802.11g(1~54Mbps)
Receive Sensitivity	802.11b -65dBm@11Mbps 802.11g -76dBm@54Mbps
Range	Up to 200m/2dBi antenna gain
Modulation Techniques	11g: OFDM (64QAM, 16QAM, QPSK, BPSK) 11b: DSSS (CCK, DQPSK, DBPSK)
Serial Interface	UART, CMOS (Asynchronous) 3.3V-level signals, rate is software selectable
Network Interface	MII, Wireless 802.11b, 802.11g
Protocols Supported	ARP, UDP, TCP, Telnet, ICMP, DHCP, PPPoE, BOOTP, HTTP, SMTP, TFTP

Part No.	Ord. No.
s WIZ610wi	75008

### WIZ 81x Series



- Plug-in Module
- Usable without H/W design for W5100, transformer and RJ-45
- Available of fast evaluation of W5100 and MCU in the target board
- Supports MCU BUS and SPI Interface
- Supports Auto MDI/MDIX (auto detection of crossover)
- Supports network status indicator LEDs - FDX, TX, RX, LINK, Collision

Technical Parameters	WIZ 810 MJ	WIZ 812 MJ
TCP/IP		W5100
PHY		Embedded in W5100
Mag Jack		PPT RJ113BZ
Interface	10/100 Base-T Ethernet (Auto Detection)	
Protocol	TCP, UDP, IP, ARP, ICMP, IGMP, PPPoE, MAC	
Dimension WxHxD	52 x 25 x 21mm	55.5 x 25 x 23.5mm
Connector Type	2mm pitch 14 x 2 header	2.54mm pitch 10 x 2 header J2:9 GND, ->RX_LED J2:10 GND, ->TX_LED J2:19 GND, ->LINK_LED
PCB Through Hole	x	4x 3.00mm
SPI Signal Pin	Shared for SPI and BUS signals	Separated for SPI signals
Input Voltage	3.3V internal operation and 5V tolerant I/Os	
Power Consumption	10/100 baseT max. 185mA (3.3V)	

Part No.	Ord. No.
o WIZ810MJ	72157
s WIZ812MJ	72158

### WIZ 830 MJ

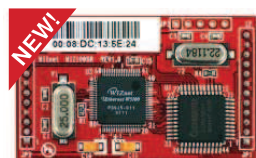


- Plug-in Network Module having W5300 & Mag Jack
- Usable without H/W design for W5300, Transformer and RJ-45
- Available of fast evaluation of W5300 and MCU in the target board
- Supports 8 Independent connections simultaneously
- Supports MCU BUS Interface
- Supports 16/8 bit data bus width
- Support Memory to Memory DMA

Technical Parameters	WIZ 830 MJ
TCP / IP	W5300
PHY	Embedded in W5300
Mag Jack	
Interface	10/100 Base-T Ethernet (Auto Detection)
Protocol	TCP, UDP, IP, ARP, ICMP, IGMP, PPPoE, MAC
Dimension (WxDxH)	53.3 x 34.0 x 19.5 mm
Connector Type	2.54 mm pitch 2x14 header pin
Input Voltage	3.3V Internal Operation, 5V Tolerant I/Os

Part No.	Ord. No.
o WIZ830MJ	71809

## WIZ 100 SR

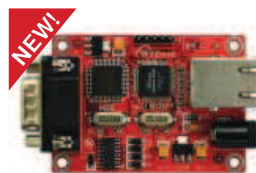


- Plug & Play Type Serial to Ethernet Gateway Module
- High stability & reliability by using W5100 WIZnet Chip, a fully-hardwired TCP/IP stack
- 10/100Mbps Ethernet Interface, Max 230Kbps Serial Interface
- Compact Size : 50mm X 30mm X 12mm
- Easy & Powerful Configuration program

Technical Parameters	WIZ 100 SR
TCP / IP	W5100
PHY	Included in W5100
MCU	GC89L591A0-MQ44I (fact 80C52 compatible) - 62K Bytes in-system programmable (ISP) Flash
Memory	GC89L591A0-MQ44I Internal SRAM 16K Bytes GC89L591A0-MQ44I Internal EEPROM 2K Bytes
Mag Jack	RDA-125BAG1A
Interface	10/100 Base-T Ethernet (Auto Detection)
Protocol	TCP, UDP, IP, ARP, ICMP, MAC, DHCP, PPPoE
Network Interface	MII, Wireless 802.11b, 802.11g
Connector Type	2 X 12 2mm Pin header array
Input Voltage	3.3V Internal Operation, 5V Tolerant I/Os
Power Consumption	150mA

Part No.	Ord. No.
o WIZ100SR	71573

## WIZ 110 SR



- All-made Serial to Ethernet module
- > Simple and quick network implementation
- > Available of firmware customization for various serial devices
- High stability & reliability by using W5100 WIZnet Chip, a fully-hardwired TCP/IP stack
- Easy & Powerful Configuration program
- 10/100Mbps Ethernet Interface, Max 230Kbps Serial Interface
- Dimensions: 75x45mm

Technical Parameters	WIZ 110 SR
TCP / IP	W5100
PHY	Included in W5100
MCU	GC89L591A0-MQ44I (fact 80C52 compatible) - 62K Bytes in-system programmable (ISP) Flash
Network Interface	10/100 Mbps auto sensing RJ-45 Connector
Protocol	TCP, UDP, IP, ARP, ICMP, MAC, PPPoE
Serial: Signals	TXD, RXD, RTS, CTS, GND
Parameters	Parity : None, Even, Odd Data bits : 7,8 Flow Control : RTS/CTS, XON/XOFF
Speed	Up to 230Kbps
Input Voltage	5V Adaptor
Power Consumption	DC 5V, Under 180mA

Part No.	Ord. No.
o WIZ110SR	78033

## XPORT



- Embedded Ethernet Device Server
- Minimal engineering effort required to web-enable virtually any electronic device
  - Remote command and control of edge devices
  - Real-time edge device status via e-mail alerts
  - 256-bit AES encryption for secure communications
  - EMC/EMI-compliant; RoHS-compliant
  - Everything you need – all in a single RJ45 package

Technical Parameters	XP1001000-03R
Serial Interface	CMOS (Asynchronous, 5V Tolerant)
Data Rates	300 bps to 921,600 bps
Interface	Ethernet 10Base-T or 100Base-TX (Auto-Sensing)
Connector	RJ45
Protocols	TCP/IP, UDP/IP, ARP, ICMP, SNMP, TFTP, Telnet, DHCP, BOOTP, HTTP, and AutoIP
Management	SNMP, Telnet, serial, internal web server, and Microsoft Windows®-based utility for configuration
Security	Password protection
CPU	Based on the DSTni-EX enhanced 16-bit, 48MHz or 88MHz, x86 architecture
Memory	256KB SRAM and 512KB flash
Input Voltage	3.3 VDC
Dimensions	33.9 x 16.25 x 13.5mm

Part No.	Ord. No.
s XP1001000-03R	58816
o XP1001000M-03R (with MODBUS)	58685

## XPORT Direct+



- Embedded Device Server
- Powerful and affordable networking for any device with a serial interface on its microcontroller
  - Integrated module with RJ45 and dedicated networking SoC
  - Web server, TCP/IP protocol stack and Windows deployment software
  - Up to 921 Kbps data rate
  - Compact low profile (<12mm)
  - 2 x 12 pin, 2 mm headers
  - Three GPIO pins
  - RS-232/RS-485 ready
  - 256-bit AES encryption for secure communications

Technical Parameters	XPD1001000-01
Serial Interface	CMOS (Asynchronous, 5V Tolerant)
Data Rates	300 bps to 921,600 bps
Network Interface	Ethernet 10Base-T or 100Base-TX (Auto-Sensing)
Connector	RJ45
Protocols	TCP/IP, UDP/IP, ARP, ICMP, SNMP, TFTP, Telnet, DHCP, BOOTP, HTTP, and AutoIP
Management	SNMP, Telnet, serial, internal web server, and Microsoft Windows®-based utility for configuration
Security	Password protection
CPU	Based on the DSTni-EX enhanced 16-bit, 48MHz or 88MHz, x86 architecture
Memory	256KB SRAM and 512KB Flash
Input Voltage Power	3.3 VDC, 200mA Typical (240mA max)
Dimensions	43.3 x 31.75 x 11.76 mm

Part No.	Ord. No.
s XPD1001000-01	74164

LANTRONIX

LANTRONIX

LAN Modules (continued)

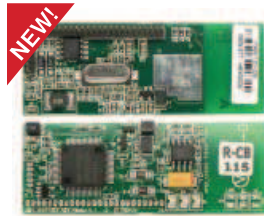
WIPORT



- Embedded Wireless Device Server
- 802.11 b/g wireless networking for virtually any electronic device
  - Wired Ethernet-to-wireless bridging
  - Bulletproof wireless security with IEEE 802.11i-PSK, WPA-PSK, TKIP
  - Secure end-to-end communication with Advanced Encryption Standards (AES)
  - FCC Class B, UL and EN EMC and safety-compliant

Technical Parameters	WP2001000G-02
Wireless Standards	IEEE 802.11b; 802.11g
Frequency Range	2.412 - 2.484 GHz
Output Power	14dBm +1.5 dBm/-1.0 dBm
Maximum Receive Level	-10dBm (with PER < 8%)
Data Rates With Auto Fallback	54Mbps - 1Mbps
Range	Up to 328 feet indoors
Modulation Techniques	OFDM, DSSS, CCK, DQPSK, DBPSK, 64 QAM, 16 QAM
Serial Interface	CMOS (Asynchronous) 3.3V-level signals, rate is software selectable (300 bps to 921,600 bps)
Network Interface	Wireless 802.11b, 802.11g and 10/100 Ethernet
Protocols Supported	ARP, UDP, TCP, Telnet, ICMP, SNMP, DHCP, BOOTP, Auto IP, HTTP, SMTP, TFTP
Management	Internal web server, SNMP (read only) Serial login, Telnet login, DeviceInstaller software
Security	IEEE 802.11i - PSK with AES-CCMP Encryption, WPA - PSK, TKIP Encryption, 64/128-bit WEP
CPU, Memory	Lantronix DSTni-EX 186 CPU, on-chip 256 KB zero wait static SRAM, 2,048 KB Flash, 16 KB Boot ROM, 802.11 b/g radio
Power Consumption	300-1300mW
Peak Supply Current	650 mA
Dimensions	33.9 x 32.5 x 10.5mm
Part No.	Ord. No.
S WP2001000G-02	58827

IT800 Series



The IT800 is a highly integrated SoC (System on a Chip) Powerline Communication modem. The chip incorporates Yitran's high performance DLL (Data Link Layer) and extremely reliable PHY (Physical) layer. The IT800 is an ideal solution for a variety of command and control applications and offers the required flexibility for the implementation of communication protocols as well as proprietary products.

MAIN FEATURES

- Highly integrated SoC (System on a Chip) Powerline Communication modem
- Incorporates Yitran's high performance DLL (Data Link Layer) and extremely robust PHY (Physical) layer
- Simple serial Host interface (logical command language over UART)
- Seamlessly integrated with higher layers protocol stacks
- High in-phase and cross-phase reliability
- Complies with worldwide regulation requirements (FCC, ARIB, CENELEC)
- Ideal for Command and Control applications including Energy Management, Smart
- Grid, AMR (Automatic Meter Reading), Home/Building automation; lighting, security and HVAC control and more.

Part No.	Note	Ord. No.
S IT800Y-APIM-CB	Europe Indoor	67717

IT700 Series



IT700 is a fully integrated Powerline Communication (PLC) modem and application solution on a single chip. IT700 incorporates Yitran's extremely reliable PHY (Physical Layer), line driver and a 8051 Micro with 256 KB Flash for protocol stack and application implementation as well as 24 general purpose I/Os. IT700 is an ideal solution for a variety of narrow-band applications and offers the required flexibility for the implementation of communication protocols and applications.

MAIN FEATURES

- Full, low cost PLC modem and application solution in a single chip
- Incorporates YITRAN'S high performance DLL (Data Link Layer), Y-Net protocol and extremely robust PHY (Physical layer)
- HomePlug® Command and Control ready
- Includes 8051 Micro for protocol stack and application
- High in-phase and cross-phase reliability
- Complies with worldwide regulation requirements (FCC, ARIB, CENELEC)
- Ideal for "No New Wires" applications utilizing the existing electrical wiring and grids, such as home automation, command and control, security and AMR (Automatic Meter Reading)/AMM/AM
- Fully back compatible with IT800 series

Technical Parameters	
Modulation	DCSK
Bit Rate	Robust Mode (RM) - 2.5 Kbps Extremely Robust Mode (ERM) - 0.625 Kbps
Error Correction	Forward short-block soft decoding error correction code and CRC-16
Receiver Sensitivity	<1mV PTP
Dynamic Range	>85dB
Single Supply Voltage	+3.3V
Interface	UART / SPI / I2C / JTAG / dedicated A/D
Package	QFN 56 (56 pins)
I/Os	24 general purpose I/Os

Part No.	Note	Ord. No.
S IT700-PIM708-CA3	Europe Outdoor	73851
S IT700-PIM708-CB	Europe Indoor	72835
S IT700-PS-4C	SMPS for IT700-PIM	73852

Y-NET



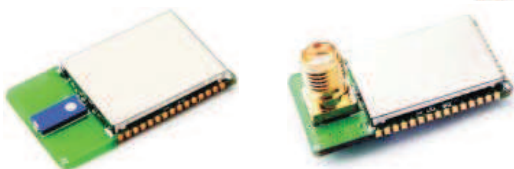
The Y-Net Evaluation Package package is designed to enable evaluation, testing and application development with Yitran's IT700 networking technology to provide solutions for command and control applications. The evaluation package consists of Yitran's STK development board on which the IC comes pre-flashed with the DLL and Yitran's Y-Net Network Protocol software. The package contains:

- 1 Concentrator
- 5 Remote Stations
- 6 Power Supplies and Cables
- CD with software and documentation

Part No.	Ord. No.
O Y-NET	65437

## ZigBee Modules

### JN5139 Series



The JN5139-xxx-Myy family is a range of surface mount modules that enables users to implement IEEE802.15.4 or ZigBee compliant systems with minimum time to market and at the lowest cost. They remove the need for expensive and lengthy development of custom RF board designs and test suites. The modules use Jennic's JN5139 wireless microcontroller to provide a comprehensive solution with high radio performance and all RF components included. All that is required to develop and manufacture wireless control or sensing products is to connect a power supply and peripherals such as switches, actuators and sensors, considerably simplifying product development.

#### Features: Module

- 2.4GHz IEEE802.15.4 & ZigBee compliant
- 2.7-3.6V operation
- Sleep current (with active sleep timer) 2.8µA
- **JN5139-xxx-M00/01/03** up to 1km range
- M00: on board antenna
- M01: SMA connector
- M03: uFl connector
- o Receiver sensitivity -96.5dBm
- o TX power +2.5dBm
- o TX current 37mA
- o RX current 37mA
- o 18x30mm
- **JN5139-xxx-M02/04** up to 4km range
- M02: SMA connector
- M04: uFl connector
- o Receiver sensitivity -100dBm
- o TX power +19dBm
- o TX current 120mA
- o RX current 45mA
- o 18x41mm

#### Features: Microcontroller

- 16MHz 32-bit RISC CPU
- 96kB RAM, 192kB ROM
- 4-input 12-bit ADC, 2 11-bit DACs, 2 comparators, temperature sensor
- 2 Application timer/counters, 3 system timers
- 2 UARTs (one for in-system debug)
- SPI port with 5 selects
- 2-wire serial interface
- 21 GPIO

Part No.	Note	Ord.No.
S JN5139-Z01-M00	with an integrated antenna	63045
S JN5139-Z01-M02	with a power amplifier and LNA	63051

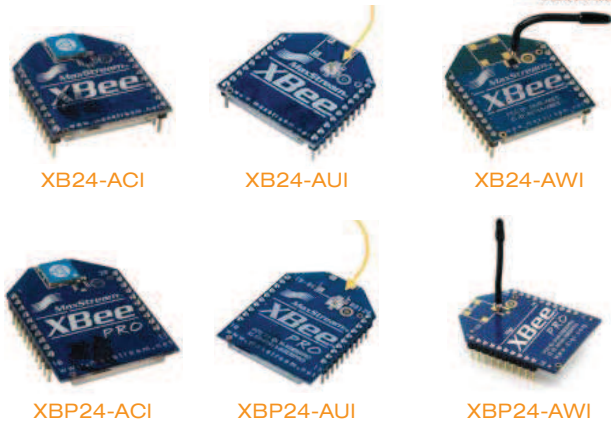
## ZigBee Evaluation Kit



Jennic's ZigBee evaluation kit provides all the software tools and hardware required to develop and monitor wireless sensor network products. The kit contains one controller board with display, and four sensor boards. Each board features temperature, humidity and light level sensors and the JN5139 device implemented on a compact reference module. Two high power modules are provided for extended range testing. Expansion boards and ZigBee enabled modules allow networks of any size to be easily constructed.

Part No.	Ord.No.
S JN5139-EK010	64201

## XBee Series

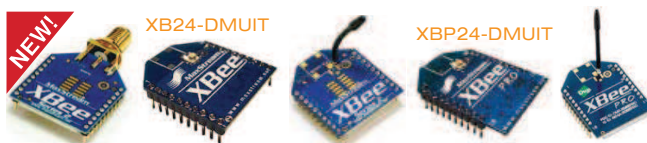


The XBee and XBee-PRO OEM RF Modules were engineered to meet IEEE 802.15.4 standards and support the unique needs of low-cost, low-power wireless sensor networks. The modules require minimal power and provide reliable delivery of data between devices. The modules operate within the ISM 2.4 GHz frequency band and are pin-for-pin compatible with each other.

Technical Parameters	XBee	XBee PRO
Supply Voltage	2,8 - 3,4 V	
Range Indoor/Outdoor	30 m/100m	100/1500m
Transmit Power	0dBm (1mW)	18dBm (60mW)
Transmit Current	45 mA (at 3,3V)	137mA to 215mA (at3,3V)
Idle / Receive Current	50 mA (at 3,3V)	55 mA (pri 3,3V)
Power-down Current	<10uA	<10uA
Receiver Sensitivity	-92 dBm	-100 dBm
RF Data Rate	250 000bps	
Serial Interface Data Rate	1200-115200bps	
Dimensions	2,43 x 2,76 cm	
Operating Temperature	-40°C to 85°C	

Part No.	Note	Ord.No.
O XB24-ACI-001	with an integrated antenna	63044
S XB24-AUI-001	with an int. antenna and U.FL connector	63413
S XB24-AWI-001	with wire antenna	61456
S XB24-ACI-001	with an integrated antenna	63042
S XBP24-AUI-001	with an int. antenna and U.FL connector	63043
S XBP24-AWI-001	with wire antenna	63041

## XBee DigiMesh Series



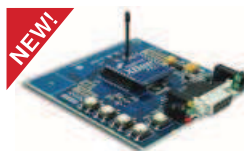
XB24-DMSIT XB24-DMWIT XBP24-DMWIT

XBee & XBee-PRO DigiMesh 2.4 embedded RF modules utilize the peer-to-peer DigiMesh protocol in 2.4 GHz for global deployments. This innovative mesh protocol offers users added network stability through self-healing, self discovery, and dense network operation. With support for sleeping routers, DigiMesh is ideal for power sensitive applications relying upon batteries or power harvesting technology for power.

Technical Parameters	XBee DigiMesh	XBee PRO DigiMesh
Supply Voltage	2,8 - 3,4 V	
Range Indoor/Outdoor	30 m/90m	90/1600m
Transmit Power	0dBm (1mW)	18dBm (63mW)
Transmit Current	45 mA (at 3,3V)	250mA to 340mA (at3,3V)
Idle / Receive Current	50 mA (at 3,3V)	55 mA (pri 3,3V)
Power-down Current	<50uA	<50uA
Receiver Sensitivity	-92 dBm	-100 dBm
RF Data Rate	250 000bps	
Serial Interface Data Rate	1200bps-250kbps	
Dimensions	2,43 x 2,76 cm	
Operating Temperature	-40°C to 85°C	

Part No.	Note	Ord.No.
S XB24-DMSIT-250	with RPSMA	79845
S XB24-DMUIT-250	with uFL connector	79844
S XB24-DMWIT-250	with wire antenna	79841
S XBP24-DMUIT-250	with uFL connector	79848
S XB24-DMWIT-250	with wire antenna	79846

## XBIB-U-DEV



USB, XBee / XBee-PRO professional interface board

Part No.	Ord.No.
S XBIB-U-DEV	79850

## ZigBee Antennas



A24-HABUF



A24-HAFM

Part No.	Ord.No.
S A24-HABUF-P5I	2,4-2,5 GHz 2,1dBi, U.FL female 79850
S A24-HASM-450	2,4-2,5 GHz 2,1dBi, RPSMA female 63420

## Bluetooth Modules

### BTM 112



- The module is a Max. 4dBm (Class2) module.
- Bluetooth standard Ver. 2.0 + EDR conformity
- Internal 1.8V regulator
- Low current consumption: Hold, Sniff, Park, Deep sleep Mode
- 3.0V to 3.6V operation
- Support for up to seven slaves: SCO links, ACL links, Piconet<7>

- Interface: USB,UART&PCM(for voice CODEC)
- SPP firmware with AT command sets
- Dimensions: 25 x 14.5 x 2.2mm
- Applications: Notebook PC, PDA, Digital camera & printer, GPS,POS, Barcode Reader,
- Domestic and industrial applications

Technical Parameters	BTM 112
Carrier Frequency	2,402-2,480 GHz
Operating Voltage (VDD)	3,3 V
RF Output Power	0dBm
RX Sensitivity	-83dBm
Average Current Consumption	46mA

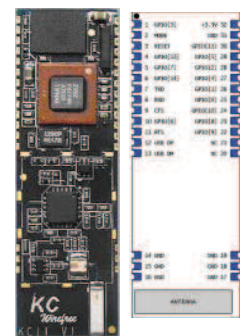
Part No.	Ord. No.
S BTM-112	74080

### KC Series

#### KC 11 - Class 1 Bluetooth v1.2 Serial/Data Module

One of the most powerful Bluetooth modules available, the KC-11 Bluetooth OEM Hi Power Module is designed for maximum wireless range and penetration.

The KC-11 is a surface mount PCB module that provides fully embedded, ready to use Bluetooth wireless technology. The reprogrammable flash memory contains embedded firmware for serial cable replacement using the Bluetooth SPP profile.

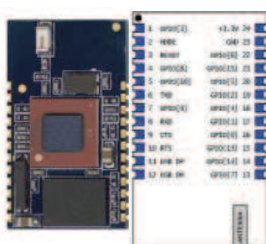


#### Key Features:

- FCC & Bluetooth licensed radio
- Complete RF ready module
- Fully embedded serial port profile (SPP)
- Class 1 radio
- Bluetooth v1.2
- Wireless data communications
- ARM7 microprocessor up to 48MHz
- 8Mb flash memory
- 921K baud data throughput
- Integrated chip antenna
- 128-bit encryption security
- Amplified transmission and reception
- Range 100m LOS
- SPI interface, up to 24MHz
- 14 general purpose I/O
- Multipoint capability

#### KC 21 - Class 2 Bluetooth v2.1+EDR Serial/Data Module

KC-21.6 modules are pre-engineered, pre-qualified, and highly tuned surface mount PCB modules that provide fully embedded, ready to use Bluetooth wireless technology. Multi-surface pads provide both bottom pads for high volume reflow soldering and edge pads for low volume hand soldering.

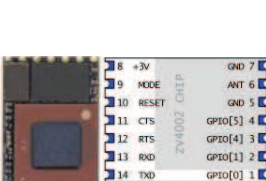


#### Key Features:

- Bluetooth v2.1 + EDR Compatible
- 2.4GHz Class 2 Radio
- Range Exceeds 20m
- High Speed Data Rate Up To 3Mbps
- 12 Programmable Digital I/O Pins
- 2 Programmable Analog I/O Pins
- UART and USB Interfaces
- Onboard Antenna
- 8Mbit Flash Memory
- CSR BlueCore™ 4 Ext Chipset

#### KC 22 - Class 2 Bluetooth v1.2 Micro Serial/Data Module

One of the smallest Bluetooth modules available, the KC-22 Bluetooth OEM Micro Module is designed for maximum performance in a minimal space. The KC-22 module includes 4 general purpose input/output lines, and offers high speed serial communications up to 921K baud.

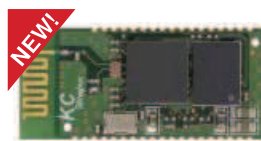


#### Key Features:

- Fully embedded serial port profile (SPP)
- RF module subsystem w/ external antenna
- 50 ohm antenna port
- Bluetooth v1.2
- Class 2 radio
- Wireless data communications
- ARM7 microprocessor up to 48MHz
- 4Mb flash memory
- 921K baud data throughput
- 128-bit encryption security
- Range up to 20m LOS
- 4 general purpose I/O
- AT command set
- Multipoint capability

#### KC 4201 - Class 2 Bluetooth v2.1+EDR Serial/Data Module

The KC420x series modules are pre-engineered, pre-qualified, and highly tuned surface mount PCB modules that provide fully embedded, ready to use Bluetooth wireless technology. Multi-surface pads provide both bottom pads for high volume reflow soldering and edge pads for low volume hand soldering. The KC4201 offers the standard but powerful Bluetooth HCI programming interface. The onboard flash memory stores OEM programmable default settings, and pairing history.



#### Firmware Features:

- Wireless Data Communications Subsystem
- Embedded Bluetooth Serial Port Profile (SPP)1
- Easy to use AT Command Interface Using UART1
- OEM Programmable Configuration
- Remote Command And Control Available 1
- Multipoint / Piconet Capable
- 128Bit Encryption Security

#### Hardware Features:

- Bluetooth v2.1
- 2.4GHz Class 2 Radio
- Range Exceeds 20m
- High Speed Data Rate Up To 3Mbps
- Programmable I/O Pins - 11 Digital, 2 Analog
- UART, USB, SPI, PCM, I2C interfaces
- Onboard Antenna
- 8Mbit Flash Memory

Part No.	Note.	Ord.No.
S KC 11	V1.2 spec, 15x43mm amplified	59716
S KC 21	V1.2 spec., 15x27mm	55636
O KC 22	V1.2 spec., 15x27mm	59714
S KC 4201	Class2, HCI 32x13mm	71301

## Optoelectronics

Optocouplers



E 1

MOSFET and SSR Relays



E 3

IR Emitters/Receivers



E 6

Optical Sensors



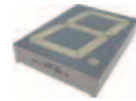
E 7

LED's



E 8

LED Displays



E 22

LCD Modules



E 25

Incandescent Lamps



E 39

Camera Modules



E 40



## Optocouplers with Transistor Output

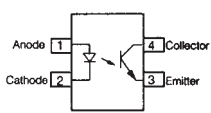
Part No.	Ord. No.	Ch.	CTR[%]	$I_F$ [mA]	$I_{CEO}$ [V]	$U_{ISOL}$ [V]	Package	Img. Note
S 4 N 25	20268	1	min.20	80	30	2500	DIP6	2
S 4 N 35	13444	1	100	60	30	2500	DIP6	2
S CNY 17/II	13434	1	63-125	90	70	5300	DIP6	2
S CNY 17/III	19315	1	100-200	90	70	5300	DIP6	2
S CNY 17/IV	19316	1	160-320	90	70	5300	DIP6	2
S CNY 74-4H	2446	4	50-600	50	70	2500	DIP16	7
S LTV 814	24088	1	20-300	50	35	5000	DIP4	9 AC input
S LTV 816	3568	1	50-600	50	70	5000	DIP4	1
S PC 817 XJ0000F	9926	1	50-600	50	35	5000	DIP4	1
S LTV 826	4756	2	50-600	50	80	5000	DIP8	5
S LTV 827	23769	2	50-600	50	35	5000	DIP8	5
S LTV 844	24089	4	20-300	50	35	5000	DIP16	8 AC input
S LTV 846	24092	4	50-600	50	80	5000	DIP16	6
S LTV 847	23771	4	50-600	50	35	5000	DIP16	6
S PC 3 H 5 J00000F	69406	1	min.600	50	80	2500	MFP4	1
S PC 357 N3T	41084	1	200-400	50	35	3750	MFP4	1
S PC 357 NTJ000F	22856	1	50-600	50	35	2500	MFP4	1
O SFH 615A-3	49709	1	100-200	60	70	5300	DIP4	1
S TLP 112 SMD	33017	1	min.10	25	15	2500	MFP5	4
S TLP 121 SMD	3329	1	100-600	50	80	3750	MFP4	1
O TLP 598 GA	49252	1	-	50	400	2500	DIP6	3 FET output
S TLP 621	33011	1	50-600	60	55	5000	DIP4	1

CTR - Transfer Ratio

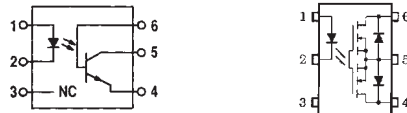
$I_F$  - Average Forward Current

$U_{CEO}$  - Collector-Emitter Voltage

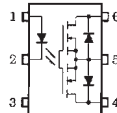
$U_{ISOL}$  - Isolation Voltage input/output



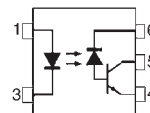
Img.1



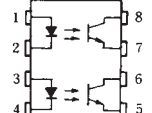
Img.2



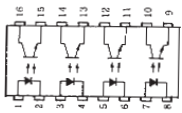
Img.3



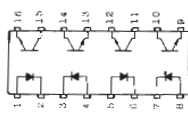
Img.4



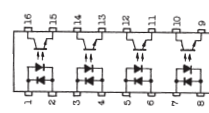
Img.5



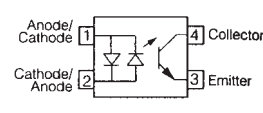
Img.6



Img.7



Img.8



Img.9

## Optocouplers with Darlington Output

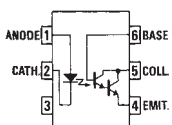
Part No.	Ord. No.	Ch.	CTR[%]	$I_F$ [mA]	$U_{CEO}$ [V]	$t_{on/off}$ [usV]	$U_{ISOL}$ [V]	Package	Img.
S 4 N 33	19317	1	500	80	30	5/100	2500	DIP6	10
S 6 N 139	20273	1	min.400	-	18	60/25	2500	DIP8	10a
S LTV 352 T	49255	1	min.1000	1	300	-	3750	MFP4	13
S LTV 815	24090	1	1600	50	35	60	5000	DIP4	12
S LTV 845	24091	4	1600	50	35	60	5000	DIP16	11
S PC 355NTJ000F	22854	1	600-7500	50	35	60	3750	MFP4	12

CTR - Transfer Ratio

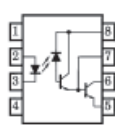
$I_F$  - Average Forward Current

$U_{CEO}$  - Collector-Emitter Voltage

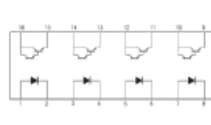
$U_{ISOL}$  - Isolation Voltage input/output



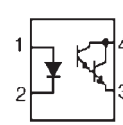
Img.10



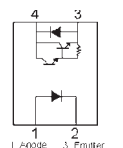
Img.10a



Img.11



Img.12



Img.13

LITEON

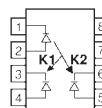
VISHAY

LITEON

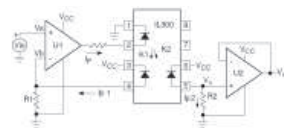
VISHAY

## Linear Optocouplers

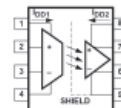
A unique optocoupler using two separate isolated photodiodes with matched characteristics, one of which is used as a feedback element. The combination of the linear photodiodes and the feedback concept enables construction of simple but accurate linear isolating circuits. Applications include switch mode power supply feedback and isolation of process control transducers. IL 300 has transfer gain (K3) of between 0,56 (min.) and 1,56 (max.).



Img.14



Img.15 Application circuit



Img.16

Part No.	Ord. No.	Freq. resp.	Non-linearity	$I_F$ [mA]	$t_r$ [ $\mu$ s]	$U_{ISOL}$ [V]	Pack.	Img.
S HCPL 7840-000E	6988	100kHz	< 0,004%	-	2-10	3750	DIP8	14
S IL 300	36038	200kHz	< 0,01%	60	1,75	5300	DIP8	15,16

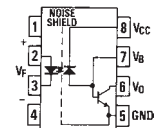
## Digital Optocouplers

Part No.	Ord. No.	Ch.	BR[Mbps]	$I_F$ [mA]	$U_{CC}$ [V]	$U_{ISOL}$ [V]	Note	Pack.	Img.
S 6 N 136	20269	1	1	25	15,1	2500	noise shield	DIP8	17
S 6 N 137	33968	1	10	20	5,5	2500	ultra high speed	DIP8	18
S H 11 L 1 - M	35812	1	1	60	15	5300	Schmitt výstup	DIP6	19
O HCPL 0453-000E	4368	1	1	-	-	1500	LSTTL/TTL	SO8	17
S HCPL 0600	40830	1	10	50	7	2500	LSTTL/TTL	SO8	18
S HCPL 0601	40831	1	10	50	7	2500	LSTTL/TTL	SO8	18
S HCPL 0630	41220	2	10	15	7	2500	LSTTL/TTL	SO8	21
S HCPL 2531	27282	2	1	25	30	2500	LSTTL/TTL	DIP8	20
S HCPL 2630	27283	2	10	15	5,5	2500	noise shield	DIP8	21
S HCPL 2631	36796	2	10	15	5,5	2500	noise shield	DIP8	21
O HCPL 2731	31984	2	10	0,5	5,5	2500	LSTTL/TTL	DIP8	21
O HCPL 7710	6416	1	12	10	5,5	3750	CMOS, 40ns	DIP8	23
S PC 400 TJ 0000F	2948	1	1	50	16	3750	OPIC	SO6	22
S PC 900 V0NSZXF	22334	1	1	50	16	5000	TTL/LSTTL	DIP6	22

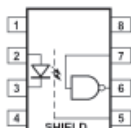
BR - Baud Rate

$I_F$  - Average Forward Current

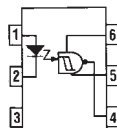
$U_{ISOL}$  - Isolation Voltage input/output



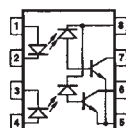
Img.17



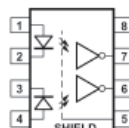
Img.18



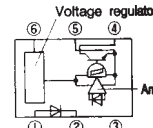
Img.19



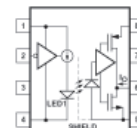
Img.20



Img.21



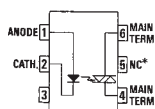
Img.22



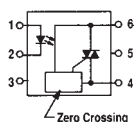
Img.23

## Optotriacs

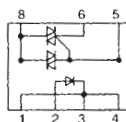
Part No.	Ord. No.	$U_{OUT}$ [V]	$I_{OUT}$ [mA]	$I_{FT}$ [mA]	Rate [V/ $\mu$ s]	Zero switch.	$U_{ISOL}$ [V]	Pack.	Img.
S MOC 3020	27286	400	1000	30	100	-	5300	DIP6	24
S MOC 3021-M	27287	400	1000	15	100	-	5300	DIP6	24
O MOC 3031	49225	250	1000	10	2000	+	7500	DIP6	25
S MOC 3041	29851	400	1000	15	2000	+	7500	DIP6	25
O MOC 3051	49226	600	1000	15	2000	-	7500	DIP6	24
O MOC 3061	45882	600	1000	15	1500	+	7500	DIP6	25
S MOC 3063	5504	600	1000	5	1500	+	5000	DIP6	25
O MOC 3081	49227	800	1000	15	1500	+	7500	DIP6	25
O MOC 3082 M	2057	800	1000	10	1500	+	7500	DIP6	25
O MOC 3083	2804	800	1000	5	1500	+	7500	DIP6	25
S PR 36 MF 12 NSZF	51207	600	600	10	100	-	4000	DIP8	26
S PR 36 MF 22 NSZ	50901	600	600	10	100	+	4000	DIP8	27



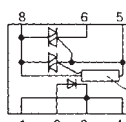
Img.24



Img.25



Img.26



Img.27

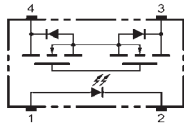
Alternative optotriacs: MOC 30xx = TLP 30xx = K 30xx

## MOSFET Relays

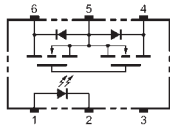
### G3VM Series



G3VM-61A1



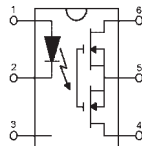
G3VM-61B1



Part No.	IF [mA]	I <sub>OUT</sub> [mA]	U <sub>OUT</sub> [V]	U <sub>ISOL</sub> [V]	Package
G3VM-61A1	50	500	60	2500	DIP4
G3VM-61B1	50	1000	60	2500	DIP6

Part No.	Ord. No.
o G3VM-61A1	57131
o G3VM-61B1	57132

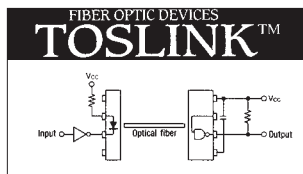
### PVG and PVT Series



Part No.	IF [mA]	I <sub>OUT</sub> [mA]	U <sub>OUT</sub> [V]	U <sub>ISOL</sub> [V]	Package
PVG 612 PBF	5	2000	60	4000	DIP6
PVT 312	2	320	250	4000	DIP6
PVT 412 LS	3	210	400	4000	SO6
PVT 412 PBF	3	210	400	4000	DIP6

Part No.	Ord. No.
o PVG 612 PBF	44052
o PVT 312	49230
o PVT 412 LS	44960
o PVT 412 PBF	49231

## Optocable Components



TOSLINK or Toshiba - LINK is a connection standard for digital audio streams. It is a standard which uses fiber optic cables.

The important feature of fiber optic cables is that they convert audio signals into light impulses as opposed to electric signals. TOSLINK cables usually transmit their signals as the red LED lights. The TOSLINK standard

was first developed by Toshiba to provide connections in its CS players. It soon caught on and became the most popular connection format for audio signals. It is mainly used to connect CD player, DVD players, satellite dish receivers and other equipment which require reliable means of transporting audio signals. An important difference between TOSLINK and other audio cable formats is that since TOSLINK uses fiber optic cables, it is not susceptible to electromagnetic disturbance and line noise.

### TORX 173

### TOTX 173



Part No.	Description
TORX 173	Receiver PCB mount 6Mbps 660nm
TOTX 173	Transmitter PCB mount 6Mbps 660nm

Part No.	Ord. No.
s TORX 173	33997
s TOTX 173	33986

## SSR - Solid State Relays

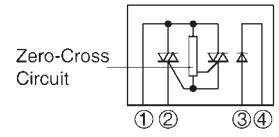
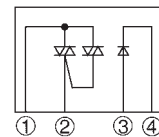
A solid state relay (SSR) is an electronic switch, which, unlike an electromechanical relay, contains no moving parts. The types of SSR are photo-coupled SSR, transformer-coupled SSR, and hybrid SSR. A photo-coupled SSR is controlled by a low voltage signal which is isolated optically from the load. The control signal in a photo-coupled SSR typically energizes a LED which activates a photo-sensitive diode. The diode turns on a back-to-back SCR, or MOSFET transistor to switch the load.

SSRs are faster than electromechanical relays; their switching time is dependent on the time needed to power the LED on and off, on the order of microseconds to milliseconds, Increased lifetime due to the fact that there are no moving parts, and thus no wear. Can be used in explosive environments where a spark must not be generated during turn-on. SSR has totally silent operation and it is smaller than a corresponding mechanical relay.

### S202 Series



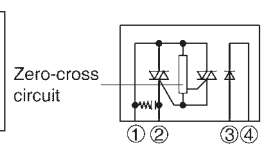
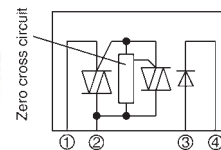
"S" package S202 S01 S202 S02, S216 S02, S216 SE2



"T" package

S202 T02

S202 S12



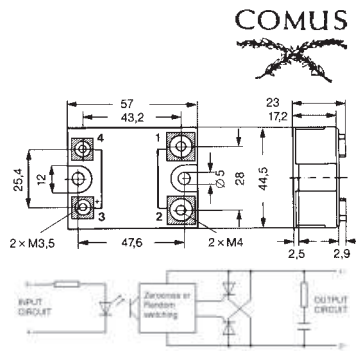
Part No.	U <sub>OUT</sub> [V]	I <sub>MAX</sub> [mA]	I <sub>OUT</sub> [A]	I <sub>FT</sub> [mA]	tr/ts	Polarity	U <sub>ISOL</sub> [V]
S 202 S 01 F	600	50	8	8	1/10	-	4000
S 202 S 02 F	600	50	8	8	1/10	+	4000
S 202 S 12 F	600	50	8	8	1/10	+	4000
S 202 T 02 F	600	50	2	8	1/10	+	3000
S 216 S 02 F	600	50	16	8	1/10	+	4000
S 216 SE 2 F	600	50	16	8	1/10	+	4000

U<sub>OUT</sub> - Output voltage  
U<sub>ISOL</sub> - Isolation voltage  
I<sub>OUT</sub> - Output current  
I<sub>MAX</sub> - Max. input current

I<sub>FT</sub> - Min. Trigger current  
tr/ts - Turn ON/OFF time

Part No.	Ord. No.
s S 202 S 01 F	5387
s S 202 S 02 F	10120
o S 202 S 12 F	6983
s S 202 T 02 F	7072
s S 216 S 02 F	44673
o S 216 SE 2 F	7468

## WG480 Series

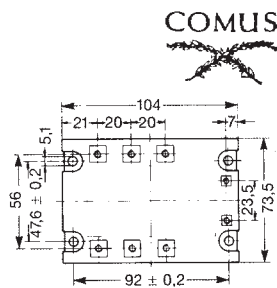


COMUS

Part No.	Ch.	$U_s$ [V]	$U_R$ [V]	$I_{MAX}$ [A]	Polarity	Switching
WG 480 D 25 Z	1	48-530	3-32	25	+	thyristor
WG 480 D 50 Z	1	48-530	3-32	50	+	thyristor
WG 480 D 90 Z	1	48-530	3-32	90	+	thyristor

Part No.	Ord. No.
S WG 480 D 25 Z	2773
S WG 480 D 50 Z	7948
O WG 480 D 90 Z	49238

## WG A3 Series



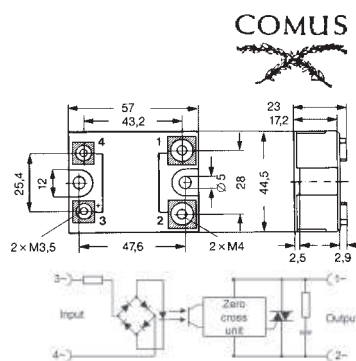
COMUS

Part No.	Ch.	$U_s$ [V]	$U_R$ [V]	$I_{MAX}$ [A]	Polarity	Switching
WG A3 12D 45Z	3	48-530	3-32	10	-	thyristor

$U_s$  - Switching voltage,  $U_R$  - Triggered voltage,  $I_{MAX}$  - Max. switching current

Part No.	Ord. No.
S WG A3 12D 45Z	2792

## WG A5 Series



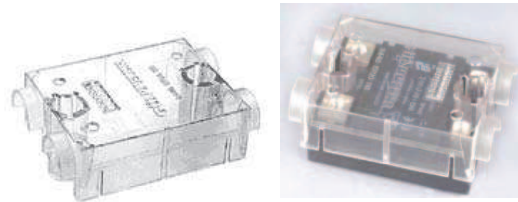
COMUS

$U_s$  - Switching voltage,  $U_R$  - Triggered voltage,  $I_{MAX}$  - Max. switching current

Part No.	Ch.	$U_s$ [V]	$U_R$ [V]	$I_{MAX}$ [A]	Polarity	Switching
WG A5 6D 10 Z	1	24-280	3-32	10	+	triac
WG A5 6D 25 Z	1	24-280	3-32	25	+	triac
WG A5 6D 40 Z	1	24-280	3-32	40	+	triac
WG A5 6A 40 Z	1	24-280	90-280	40	+	triac

Part No.	Ord. No.
O WG A5 6D 10 Z	2787
S WG A5 6D 25 Z	2788
S WG A5 6D 40 Z	2789
O WG A5 6A 40 Z	1210

## WG-KAPPE Series



COMUS

Plastic cover for relays

Version 3F is suitable for 3-phase relays

Part No.	Ord. No.
S WG - KAPPE	2819
S WG - KAPPE 3F	62307

## ZG3-NC Series

ECONOMIC

NEW!



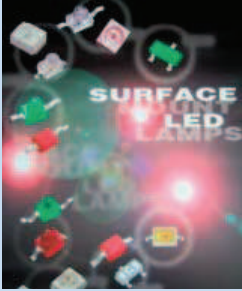
Max. switching current: 40A  
 Max. switching voltage: 1200V<sub>AC</sub>  
 Triggered voltage: 3-32V  
 Triggered current: DC3~25mA  
 Voltage ON: ≤ 1.5V  
 Leakage current OFF: ≤ 2mA  
 Time ON-OFF: ≤ 10ms  
 Dielectric strength: 2500VAC  
 Insulating resistance: 1000mΩ / 500VDC  
 Working temperature: -30~75°C  
 Dimensions: 58x44x32mm  
 Weight: 135g

Part No.	Ord. No.
S ZG3NC-240B	59959

# Kingbright

Kingbright is a professional supplier of light emitting diodes (LEDs) and related products. We have been a steadily growing force in solid-state lighting ever since the company was founded in Taiwan in 1980. For more than 25 years, Kingbright has delivered product and technological innovations to benefit customers around the world.

## SMD LEDs



- different packages (0402, 0603, 0805, 1206, SOT23, PLCC2,4, Xpower(10x10mm), TopLED and other with height 0,65mm to 1,9mm)
- different emitting colours (red, orange, yellow, green, blue)
- special types (with lens, side emitting, dual and multicolour LED, IR emitters and phototransistors, ultra slim types)

## LED Lamps



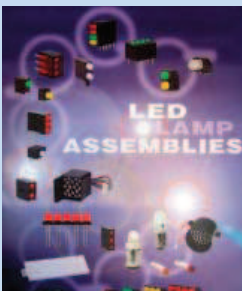
- standard PCB mounting LEDs
- IR emitters and phototransistors
- low consumption LED
- high power LED, HiFlux LED
- Series with high precision luminous intensity

## LED Displays



- single digit displays
- alphanumeric displays 14 and 16 segments
- DOTmatrix displays 5x7, 5x8 and 8x8 points (also dual colours)
- versions with common anode or cathode
- light bars
- bar graph arrays

## Industry packages and components

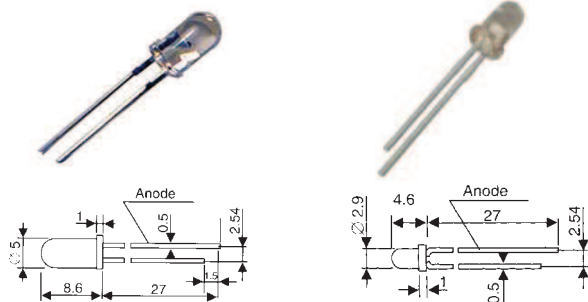


- LED indicators
- LED bulbs
- light guides
- accessories – holders, sockets

## IR Emitters/Receivers

### IR Emitting Diodes

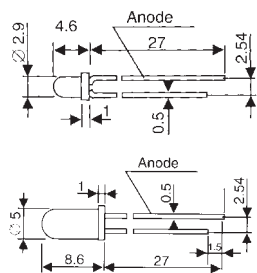
**Kingbright**



Part No.	Description
L-934 F3BT	940nm, LED 3mm, blue, clear, 30°
L-934 F3C	940nm, LED 3mm, clear, 30°
L-53 F3BT	940nm, LED 5mm, blue, clear, 30°
L-53 F3C	940nm, LED 5mm, clear, 30°

Part No.	Ord. No.
S L-934 F3BT	12397
S L-934 F3C	12377
S L-53 F3BT	12338
S L-53 F3C	12378

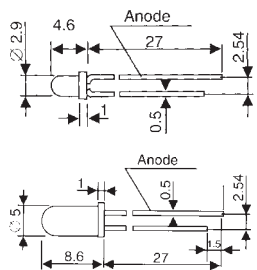
### IR Photodiodes



Part No.	Description
SFH 203	PIN 850nm, 40° viewing angle, 5/5ns, LED 5mm
SFH 203 FA	PIN 900nm, with IR filters, 5/5ns, LED 5mm
SFH 203 P	PIN 850nm, 150° viewing angle, 5/5ns, LED 5mm
SFH 229 FA	PIN 900nm, with IR filters, 34°, 10/10ns, LED 3mm

Part No.	Ord. No.
S SFH 203	40081
S SFH 203 FA	40082
O SFH 203 P	48678
S SFH 229 FA	40084

### IR Phototransistors

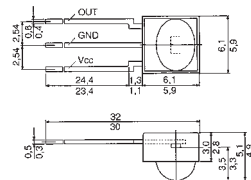


Part No.	Description
BPW 96 C	850nm, IR receiver, LED 5mm, clear, 20°
L-53 P3BT	940nm, IR receiver, LED 5mm, blue, clear, 30°
L-53 P3C	940nm, IR receiver, clear, LED 5mm, 30°
L-932 P3BT	940nm, IR receiver, LED 3mm, blue, clear, 30°
L-932 P3C	940nm, IR receiver, clear, LED 3mm, 30°
SFH 309 FA-5	900nm, with IR filters, 12° angle, LED 3mm
SFH 309-4	860nm, 12° angle, Uce=35V, Ic=15mA, LED 3mm

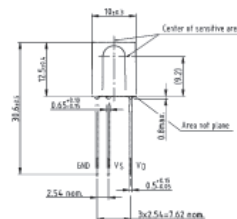
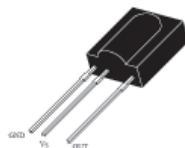
Part No.	Ord. No.
S BPW 96 C	8948
S L-53 P3BT	12337
S L-53 P3C	12401
S L-932 P3BT	12347
S L-932 P3C	12326
S SFH 309 FA-5	55724
S SFH 309-4	36443

### IR Receivers

#### SFH 5110



#### TSOP 1736

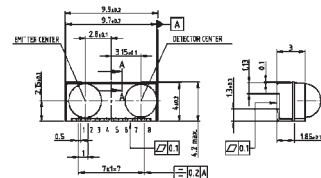


Part No.	Description
SFH 5110-36	(=SFH506-36), IR receiver+demodul., 950nm, 36kHz, TTL out
SFH 5110-38	IR receiver + demodulator 38kHz
TSOP 1736	IR receiver+demodul., 36 kHz, TTL output

Part No.	Ord. No.
S SFH 5110-36	5788
S SFH 5110-38	7290
S TSOP 1736	6001

### IRDA Components

#### TFDU 4100

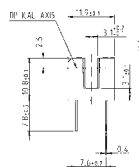
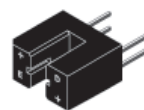


Type	Description
TFDU 4100	Hybrid IR Transceiver 115,2kBd SMD horizontal or vertical

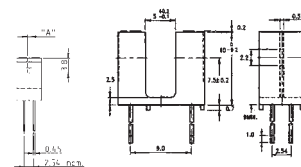
Part No.	Ord. No.
S TFDU 4100	5788

### Transmissive Optical Sensors

#### TCST 1103



#### LTH 301

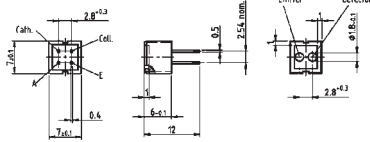


Part No.	Description
KTIR 0221 DS	Optical sensor 3,1mm RM7,4/2,54mm
LTH 301-07	Optical sensor, If=20mA, Uce0=30V
TCST 1103	Optical sensor, If=60mA, Uce0=70V

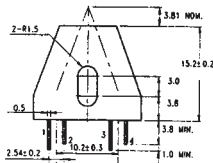
Part No.	Ord. No.
S KTIR 0221 DS	55389
S LTH 301-07	5840
S TCST 1103	49910

## Reflective Optical Sensors

CNY 70



LTH 209

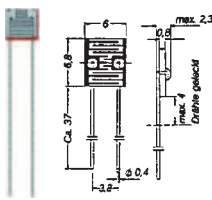


Part No.	Description
CNY 70	Reflective optical sensor, If=50mA, Uce0=32V
LTH 209-01	Reflective optical sensor, If=60mA, Uce0=30V

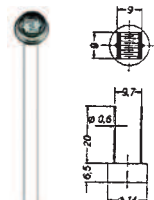
Part No.	Ord. No.
S CNY 70	13438
S LTH 209-01	5841

## Photoresistors

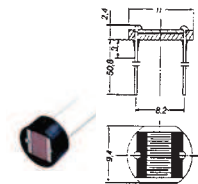
FW 150



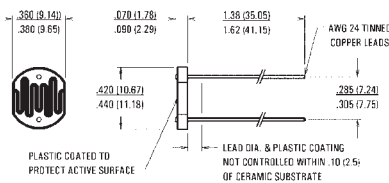
FW 200



FW 300



VT43N1



Part No.	Description
FW 150	Photoresistor 150Vmax, R10=28k, R01=1400k, R05=4200k
FW 200	Photoresistor 200Vmax, R10=8.3k, R01=85k, R05=255k
FW 300	Photoresistor 300Vmax, R10=8k, R01=100k, R05=300k
VT 43 N 1	Photoresistor 150Vmax, R10=5-10kOhm, Rtma=300kOhm

\* R10 = resistance at 10 lux, R01= resistance 1 sec. after OFF light 10 lux, R05 = resistance after 5 sec. after OFF light 10 lux

Part No.	Ord. No.
S FW 150	28917
S FW 200	28918
S FW 300	28919
S VT 43 N 1	50972

## Pyroelectric Detectors



The LHI 878 pyroelectric infrared-detector series are the standard dual element design recommended for all variants of motion control. They include a dual element pyro-electric ceramic with FET in source follower connection. The LHI 878 detector is available in TO-5 housing with standard infrared filter.



Part No.	Description
LHI 878 RF	Pyroelectric Detector 4200V/W dual element TO5

Part No.	Ord. No.
S LHI 878 RF	49304

# online order

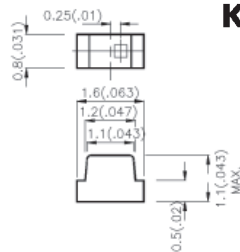
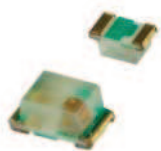


## electroniconline

www.soselectronic.com

## SMT LEDs

### 0603 Series

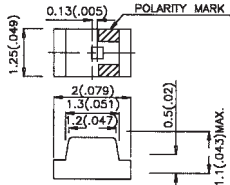
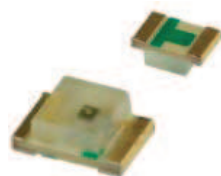


Part No.	Colour	Viewing Angle	Luminous Intensity	U <sub>F</sub> [V]
KP-1608 ID	red	120°	12mcd/20mA	2,0
KP-1608 MBC	blue	120°	10mcd/20mA	3,8
KP-1608 SGD	green	120°	12mcd/20mA	2,2
KP-1608 YD	yellow	120°	8mcd/20mA	2,1

Part No.	Ord. No.
S KP-1608 ID	41171
S KP-1608 MBC	41163
S KP-1608 SGD	41172
S KP-1608 YD	41173

Package: 2000pcs

### 0805 Series



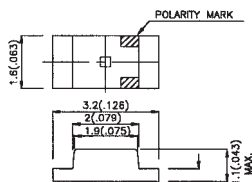
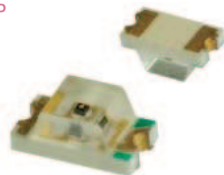
Part No.	Colour	Viewing Angle	Luminous Intensity	U <sub>F</sub> [V]
KP-2012 EC	red	120°	12mcd/20mA	2,0
KP-2012 MBC	blue	120°	10mcd/20mA	3,8
KP-2012 PBC-A	blue	120°	45mcd/20mA	3,65
KP-2012 SGC	green	120°	15mcd/20mA	2,2
KP-2012 SYCK	yellow	120°	12mcd/20mA	2,0
KP-2012 SYC	yellow	120°	100mcd/20mA	2,0

Part No.	Ord. No.
S KP-2012 EC	12660
S KP-2012 SGC	12659
S KP-2012 SYCK	59713
S KP-2012 MBC	41165
O KP-2012 PBC-A	12103
S KP-2012 SYC	47004

Package: 2000pcs

### 1206 Series

KP



Part No.	Colour	Viewing Angle	Luminous Intensity	U <sub>F</sub> [V]
KP-3216 EC	red	120°	12mcd/20mA	2,0
KP-3216 MBCK	blue	120°	8mcd/20mA	4,0
KP-3216 PBC-A	blue	120°	10mcd/20mA	3,8
KP-3216 SGC	green	120°	15mcd/20mA	2,2
KP-3216 SYCK	yellow	120°	120mcd/20mA	2,0
KP-3216 YC	yellow	120°	8mcd/20mA	2,1

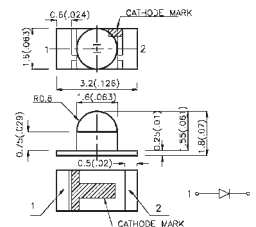
Part No.	Ord. No.
S KP-3216 EC	12661
S KP-3216 SGC	12671
S KP-3216 YC	12630
S KP-3216 MBCK	49820
S KP-3216 PBC-A	41166
S KP-3216 SYCK	56539

Package: 2000pcs

## Kingbright

### Kingbright

## KPTD



Part No.	Colour	Angle	Luminous Intensity	U <sub>F</sub> [V]
KPTD-3216 SRC-PRV	red	50°	300mcd/20mA	1,85
KPTD-3216 YC	yellow	40°	30mcd/20mA	2,1

Part No.	Ord. No.
S KPTD-3216 SRC-PRV	45180
S KPTD-3216 YC	45181

Package: 2000pcs

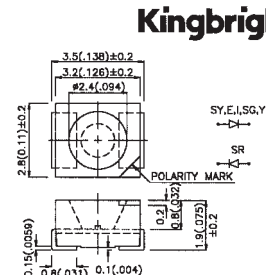
## Surface Mount LEDs Kit



Ring binder surface mount LED Kit  
1206 case sizes  
Kit contains 4 types of SMD LEDs /270 pieces

Part No.	Ord. No.
S SET SMD LED 1206	51654

## PLCC2 Series



Part No.	Colour	Angle	Luminous Intensity	U <sub>F</sub> [V]
KA-3528A LSRC	red	120°	8mcd/2mA	1,65
KA-3529 SES-L1	red	120°	6000mcd/150mA	2,9
KA-3528A SRC	red	120°	150mcd/20mA	1,85
KA-3528A SURC-E	red	120°	280mcd/20mA	1,9
KA-3528A MBC	blue	120°	15mcd/20mA	3,8
KA-3528A PBC-G	blue	120°	200mcd/20mA	3,2
KA-3529 QB24ZS	blue	120°	1500mcd/150mA	3,5
KA-3528A LSGC	green	120°	2mcd/2mA	1,9
KA-3528A VGC-A	green	120°	220mcd/20mA	3,2
KA-3528A SGC	green	120°	25mcd/20mA	2,2
KA-3529 ZG24ZS	green	120°	7500mcd/150mA	3,4
KA-3529 SYS-L1	yellow	120°	3000mcd/150mA	2,8
KA-3528A SYC	orange	120°	180mcd/20mA	2,0
L-T670 LBCT-PO	blue	<b>ECONOMIC</b>		
L-T670WDT-PO	white	<b>ECONOMIC</b>		

Part No.	Ord. No.
S KA-3528A LSGC	12116
S KA-3528A LSRC	12054
S KA-3528A MBC	12405
S KA-3528A PBC-G	59941
S KA-3528A VGC-A	64794
S KA-3529 QB24ZS	69388
S KA-3529 SES-L1	70560
S KA-3529 SYS-L1	70561
S KA-3528A SGC	12696
S KA-3528A SRC	12231
S KA-3528A SURC-E	48756
S KA-3528A SYC	58045
S KA-3529 ZG24ZS	69389
S L-T670 LBCT-PO	64504
S L-T670WDT-PO	64253

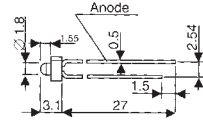


## Standard LEDs

### 1,8mm Series



### Kingbright



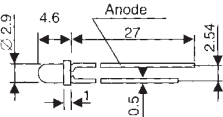
Part No.	Colour	Viewing Angle	Luminous Intensity	U <sub>F</sub> [V]
L-2060 HD	red dif.	70°	15mcd/10mA	2,05
L-2060 GD	green dif.	70°	10mcd/10mA	2,00
L-2060 YD	yellow dif.	70°	8mcd/10mA	1,95

Part No.	Ord. No.
S L-2060 HD	12423
S L-2060 GD	12424
S L-2060 YD	12425

### 3mm Series



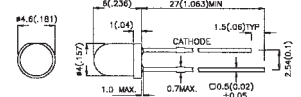
### Kingbright



Part No.	Colour	Viewing Angle	Luminous Intensity	U <sub>F</sub> [V]
L-934 HD	red dif.	60°	3mcd/10mA	2,25
L-934 ID	red dif.	60°	20mcd/10mA	1,9
L-934 SRD-C	red dif.	60°	100mcd/20mA	1,85
L-934 MBC	blue clear	20°	80mcd/20mA	3,8
L-934 MBDK	blue dif.	60°	25mcd/20mA	4,0
L-934 MBDL	blue dif.	60°	50mcd/20mA	3,8
L-934 GD	green dif.	60°	20mcd/10mA	2,0
L-934 SGC	green clear	50°	150mcd/20mA	2,2
L-934 SGD	green dif.	60°	40mcd/20mA	2,2
L-934 YD	yellow dif.	60°	15mcd/10mA	1,95
L-934 ED	orange dif.	60°	20mcd/10mA	1,9
L-934 ND	orange dif.	60°	30mcd/10mA	1,95
L-934 LC 3MM RD	red dif.	40°	3,2mcd	<b>ECONOMIC</b> -
L-934 LC 3MM GN	green dif.	40°	12mcd	<b>ECONOMIC</b> -
L-934 LC 3MM YE	yellow dif.	25°	9mcd	<b>ECONOMIC</b> -

Part No.	Ord. No.
S L-934 HD	12388
S L-934 ID	12330
S L-934 SRD-C	12454
S L-934 MBC	12516
S L-934 MBDK	45959
S L-934 MBDL	12392
S L-934 GD	12389
S L-934 SGC	12287
S L-934 SGD	11990
S L-934 YD	12390
S L-934 ED	12393
S L-934 ND	12438
S L-934 LC 3MM RD	13367
S L-934 LC 3MM GN	13369
S L-934 LC 3MM YE	13368

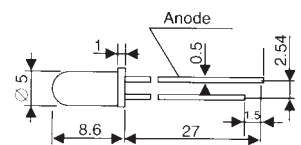
## 4mm Series



Part No.	Colour	Viewing Angle	Luminous Intensity	U <sub>F</sub> [V]
L-43 HD	red	80°	2mcd/10mA	2,25
L-43 GD	green	80°	12mcd/10mA	2,20
L-43 YD	yellow	80°	10mcd/10mA	1,95

Part No.	Ord. No.
O L-43 HD	64754
S L-43 GD	12083
S L-43 YD	12084

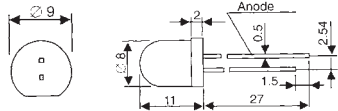
## 5mm Series



Part No.	Colour	Viewing Angle	Luminous Intensity	U <sub>F</sub> [V]
L-53 HD	red dif.	60°	5mcd/10mA	2,05
L-53 ID	red dif.	60°	30mcd/10mA	1,90
L-53 SRD-C	red dif.	60°	200mcd/20mA	1,85
L-53 SRD-D	red dif.	60°	250mcd/20mA	1,85
L-53 SRD-E	red dif.	60°	400mcd/20mA	1,85
L-53 SRD-G	red dif.	60°	800mcd/20mA	1,85
L-53 MBC	blue clear	16°	150mcd/20mA	3,80
L-53 MBDK	blue dif.	60°	40mcd/20mA	4,00
L-53 MBDL	blue dif.	60°	60mcd/20mA	3,80
L-53 GD	green dif.	60°	20mcd/10mA	2,00
L-53 SGC	green clear	30°	200mcd/20mA	2,20
L-53 SGD	green dif.	60°	40mcd/20mA	2,20
L-53 SYC	yellow, clear	30°	1200mcd/20mA	2,00
L-53 YD	yellow dif.	60°	20mcd/10mA	1,95
L-53 ED	orange dif.	60°	25mcd/10mA	1,90
L-53 ND	orange dif.	60°	30mcd/10mA	1,95
L-53 NT	orange	30°	80mcd/10mA	1,95
L-53 MWC	white clear	30°	200mcd/20mA	3,8
L-53 LC 5MM GN	green dif.	25°	20mcd/20	<b>ECONOMIC</b> -
L-53 LC 5MM RD	red dif.	25°	4mcd/20	<b>ECONOMIC</b> -
L-53 LC 5MM YE	yellow dif.	25°	20mcd/20	<b>ECONOMIC</b> -

Part No.	Ord. No.
S L-53 HD	12399
S L-53 ID	12259
S L-53 SRD-C	12462
S L-53 SRD-D	12263
S L-53 SRD-E	12262
S L-53 SRD-G	12464
S L-53 MBC	12055
S L-53 MBDK	45958
S L-53 MBDL	12029
S L-53 GD	12236
S L-53 SGC	12332
S L-53 SGD	12344
S L-53 SYC	12235
S L-53 YD	12234
S L-53 ED	12339
S L-53 ND	12439
S L-53 NT	12033
S L-53 MWC	12515
S L-53 LC 5MM GN	13374
S L-53 LC 5MM RD	13372
S L-53 LC 5MM YE	13373

## 8mm Series

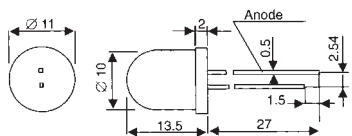


### Kingbright

Part No.	Colour	Viewing Angle	Luminous Intensity	U <sub>F</sub> [V]
L-793 ID	red	60°	100mcd/20mA	2,00
L-793 SRD-B	red	60°	200mcd/20mA	1,85
L-793 GD	green	60°	60mcd/20mA	2,20
L-793 YD	yellow	60°	50mcd/20mA	2,10
L-793 ED	orange	60°	100mcd/20mA	2,00

Part No.	Ord. No.
S L-793 ID	12384
S L-793 SRD-B	12394
S L-793 GD	12385
S L-793 YD	12386
S L-793 ED	12387

## 10mm Series

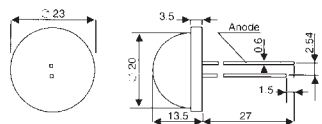


### Kingbright

Part No.	Colour	Viewing Angle	Luminous Intensity	U <sub>F</sub> [V]
L-813 ID	red	60°	100mcd/20mA	2,00
L-813 SRD-E	red	60°	450mcd/20mA	1,85
L-813 GD	green	60°	60mcd/20mA	2,20
L-813 SGC	green clear	40°	500mcd/20mA	2,20
L-813 YD	yellow	60°	50mcd/20mA	2,10
L-813 ED	orange	60°	100mcd/20mA	2,00
LED10MMBLAU	blue		3500mcd/20	<b>ECONOMIC</b> 3,6

Part No.	Ord. No.
S L-813 ID	12190
S L-813 SRD-E	12316
S L-813 GD	12248
S L-813 SGC	11972
S L-813 YD	12253
S L-813 ED	12373
S LED10MMBLUE	44759

## 20mm Series

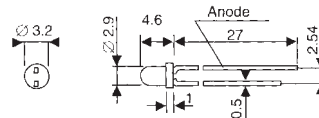


### Kingbright

Part No.	Colour	Viewing Angle	Luminous Intensity	U <sub>F</sub> [V]
DLC2-6 ID	red	120°	50mcd/10mA	1,9
DLC2-6 SRD	red	120°	400mcd/20mA	1,85
DLC2-6 GD	green	120°	80mcd/10mA	2
DLC2-6 SGD	green	120°	200mC/20mA	2,2
DLC2-6 YD	yellow	120°	50mcd/10mA	1,95

Part No.	Ord. No.
S DLC2-6 ID	11937
S DLC2-6 SRD	12302
S DLC2-6 GD	11951
S DLC2-6 SGD	12301
S DLC2-6 YD	11955

## Super Bright LEDs 3mm Super Bright Series



### Kingbright

Part No.	Colour	Viewing Angle	Luminous Intensity	U <sub>F</sub> [V]
L-934 SEC-H	red	50°	500mcd/20mA	2,20
L-934 SRC-C	red	50°	500mcd/20mA	1,85
L-934 SYC	yellow	50°	700mcd/20mA	2,00
L-934 SYC-H	yellow	50°	900mcd/20mA	2,30
L-934 VGC-Z	green	50°	2000mcd/20mA	4,00

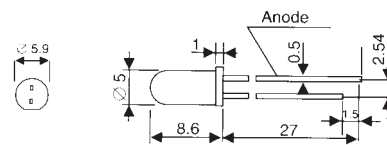
Part No.	Ord. No.
S L-934 SEC-H	45253
S L-934 SRC-C	12331
S L-934 SYC	12622
O L-934 SYC-H	49045
S L-934 VGC-Z	70585

**ECONOMIC**

Part No.	Colour	Viewing Angle	Luminous Intensity
HSBL-3101L	blue	40°	1000mcd/20mA
LED 3MM BL	blue	30°	3500mcd
LED 3MM GN	green	30°	300mcd
LED 3MM RD	red	30°	1000mcd
LED 3MM YE	yellow	30°	1500mcd
LED 3MM WH	white	30°	1000mcd
LED 3MM GN PURE	green	30°	6000mcd
L3-B71GWL	blue	15°	2000mcd/20mA

Part No.	Ord. No.
S HSBL-3101L	51849
S LED 3MM BL	57609
S LED 3MM GN	57610
S LED 3MM RD	57616
S LED 3MM YE	57617
S LED 3MM WH	57618
S LED 3MM GN PURE	59599
S L3-B71GWL	44704

## 5mm Super Bright Series



### Kingbright

Part No.	Colour	Viewing Angle	Luminous Intensity	U <sub>F</sub> [V]
L-53 SEC-E	red	30°	5000mcd/20mA	2,00
L-53 SEC-H	red	30°	10000mcd/20mA	2,20
L-53 SRC-D-W	red	30°	1700mcd/20mA	1,85
L-53 SRC-F	red	30°	4000mcd/20mA	1,85
L-53 SRC-C	red	60°	1000mcd/20mA	1,85
L-53 SRC-E	red	60°	2800mcd/20mA	1,85
L-7524 SEC-H	red	12°	7500mcd/20mA	2,20
L-7113 SEC-H	red	20°	1000mcd/20mA	2,20
L-7113 PBC-H	blue	16°	3600mcd/20mA	3,80
L-7524 PBC-Z	blue	18°	3300mcd/20mA	3,80
L-53 VGC-E	green	30°	4500mcd/20mA	4,00
L-7113 TGC	green	20°	1500mcd/20mA	3,60
L-7113 VGC-E	green	20°	3000mcd/20mA	3,50
L-7524 VGC-Z	green	12°	13000mcd/20mA	3,20
L-53 SYT	yellow	30°	1200mcd/20mA	2,00
L-7113 SYC-J2	yellow	20°	3800mcd/20mA	2,30

## 5mm Super Bright Series

(continued)

Part No.	Ord. No.
S L-53 SEC-E	12182
S L-53 SEC-H	12183
S L-53 SRC-C	12314
S L-53 SRC-D-W	12415
S L-53 SRC-E	12353
O L-53 SRC-F	12407
S L-53 SYT	12114
S L-53 VGC-E	12154
O L-7113 PBC-H	12159
S L-7113 SEC-H	12163
S L-7113 SYC-J2	64221
S L-7113 TGC	54899
S L-7113 VGC-E	12161
O L-7524 PBC-Z	53026
O L-7524 SEC-H	53028
O L-7524 VGC-Z	53027

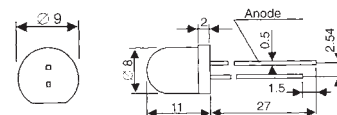
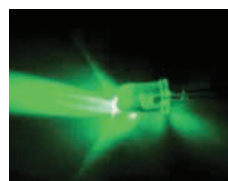
ECONOMIC

Part No.	Colour	Viewing Angle	Luminous Intensity	U <sub>F</sub> [V]
LED 5 MM KS WH	white		12000mcd	
LED 5 MM = NSPB 500 S	blue	15°	4400mcd/20mA	3,6
LED 5 MM=NSPW 500	white	20°	9200mcd/20mA	
LED 5 MM PK1000/15	pink	15°	1100mcd/20mA	
LED 5 MM VT1000/15	violet	15°	1100mcd/20mA	3,6
L5-B91G WL	blue	15°	3500mcd/20mA	3,6
LED 5 MM TQ6000/15	turquoise	15°	6000mcd/20mA	
HUBL-5101L	blue clear	15°	3000mcd	3,6
LED 5 MM = NSPW 500 CS	white	20°	22000mcd	
LED 5 MM WH	white	15°	20000mcd	
LED 5MM BL 15°	blue	15°	10000mcd	
LED 5MM RD	red clear	30°	1300mcd	
LED 5MM GN	green clear	30°	300mcd	
LED 5MM YL	yellow clear	30°	300mcd	
LED 5MM WH	white clear	30°	1000mcd	
LED 5MM BL 20°	blue	20°	6000mcd	

Part No.	Ord. No.
S LED 5 MM KS WH	9437
S LED 5 MM = NSPB 500 S	41088
S LED 5 MM=NSPW 500	41177
S LED 5 MM PK1000/15	41199
S LED 5 MM VT1000/15	41200
S L5-B91G WL	44705
S LED 5 MM TQ6000/15	47318
S HUBL-5101L	51848
O LED 5 MM = NSPW 500 CS	53274
S LED 5 MM WH	53327
S LED 5MM BL 15°	56757
S LED 5MM RD	57619
S LED 5MM GN	57620
S LED 5MM YL	57621
S LED 5MM WH	57622
S LED 5MM BL 20°	57623

## 8mm Super Bright Series

ECONOMIC

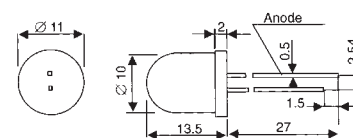
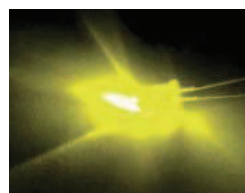


Part No.	Colour	Viewing Angle	Luminous Intensity
LL-803WC2C-W2-2B	white clear	15°	4500 mcd
LL-803BC2C-B4-1B	blue clear	30°	4000 mcd
LED 8MM BLUE	blue	15°	10000 mcd
LED 8MM WHITE	white	15°	10000 mcd

Part No.	Ord. No.
S LL-803WC2C-W2-2B	56212
S LL-803BC2C-B4-1B	56500
S LED 8MM BLUE	56758
S LED 8MM WHITE	56759

## 10mm Super Bright Series

Kingbright



Part No.	Colour	Viewing Angle	Luminous Intensity
L-813 SRC-E	red	40°	2700mcd/20mA
L-813 SRC-F	red	40°	3800mcd/20mA
L-813 SYD-H	yellow	60°	700mcd/20mA
L-813 VGD-Z	green	60°	1600mcd/20mA

Part No.	Ord. No.
S L-813 SRC-E	12335
O L-813 SRC-F	12139
O L-813 SYD-H	57129

ECONOMIC

Part No.	Colour	Viewing Angle	Luminous Intensity
LL-1004WC2D-W2-1E	white	20°	6500 mcd
LED 10MM WHITE	white	30°	3000 mcd

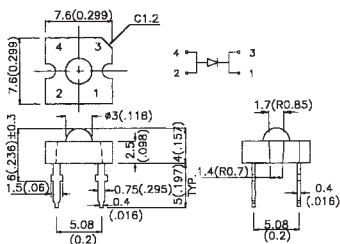
Part No.	Ord. No.
S LL-1004WC2D-W2-1E	56381
S LED 10MM WHITE	57626

## SUPERFLUX LEDs

**Features:** High Luminance output, Designed for High Current Operation, Uniform Color, Low Power Consumption, Low Thermal Resistance, Low Profile...

**Typical Applications:** Automotive Exterior Lighting, Electronic Signs and Signals, Specialty Lighting...

**Kingbright**



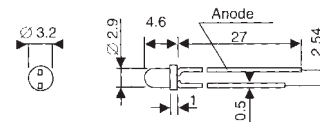
Part No.	Colour	Viewing Angle	Luminous Intensity
L-7676 CPBC-Z	blue 470nm	70°	4300mcd/20mA
L-7676 CSEC	red 621nm	70°	600mcd/20mA
L-7676 CSEC-E	red 621nm	70°	800mcd/20mA
L-7676 CSEC-G	red 625nm	70°	1200mcd/20mA
L-7676 CSEC-H	red 630nm	70°	1800mcd/20mA
L-7676 CSURC	red 628nm	70°	500mcd/20mA
L-7676 CSURC-E	red 630nm	70°	600mcd/20mA
L-7676 CSYC	orange 588nm	70°	400mcd/20mA
L-7676 CSYC-H	orange 589nm	70°	450mcd/20mA
L-7676 CVGC-Z	green 525nm	70°	4300mcd/20mA
VLWW9600	white	60°	4pin

Part No.	Ord. No.
S L-7676 CPBC-Z	62618
S L-7676 CSEC	45256
S L-7676 CSEC-E	12674
S L-7676 CSEC-G	45249
S L-7676 CSEC-H	45250
O L-7676 CSURC	45255
S L-7676 CSURC-E	12673
S L-7676 CSYC	45254
S L-7676 CSYC-H	47116
S L-7676 CVGC-Z	62617
S VLWW9600	62621

## 2mA Low Current LEDs

### 3mm Low Current Series

**Kingbright**

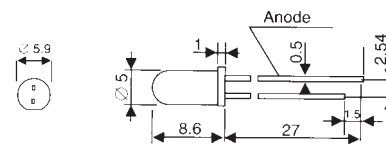


Part No.	Colour	Viewing Angle	Luminous Intensity
L-934 LID	red	60°	3mcd
L-934 LSRD	red	60°	20mcd
L-934 LYD	yellow	60°	2mcd
L-934 LGD	green	60°	2mcd

Part No.	Ord. No.
S L-934 LID	12233
S L-934 LSRD	12391
S L-934 LYD	12257
S L-934 LGD	12232

### 5mm Low Current Series

**Kingbright**



Part No.	Colour	Viewing Angle	Luminous Intensity
L-53 LID	red	60°	5mcd
L-53 LSRD	red	60°	20mcd
L-53 LYD	yellow	60°	2mcd
L-53 LGD	green	60°	2mcd

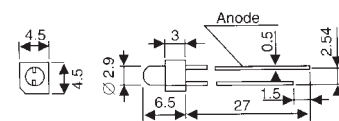
Part No.	Ord. No.
S L-53 LID	12189
S L-53 LSRD	12246
S L-53 LYD	12343
S L-53 LGD	12223

## Blinking LEDs

Led with integrated chip for blinking. Supply voltage from 3,5V, typically 9-12V.

### 3mm Blinking LEDs Series

**Kingbright**

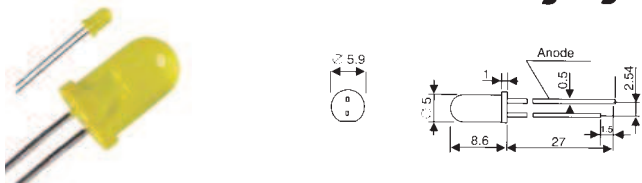


Part No.	Colour	Viewing Angle	Luminous Intensity [mcd@9V]	U <sub>f</sub> [max.V/mA]
L-616 BHD	red	60°	2	13/44
L-616 BGD	green	60°	15	13/20
L-616 BYD	yellow	60°	10	13/20

Part No.	Ord. No.
S L-616 BHD	11974
O L-616 BGD	12018
O L-616 BYD	12019

## 5mm Blinking LEDs Series

**Kingbright**

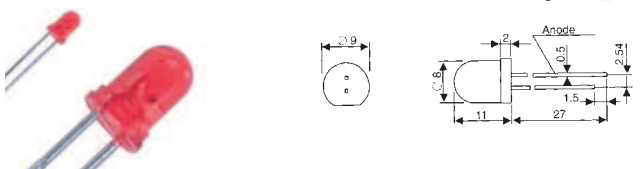


Part No.	Colour	Viewing Angle	Luminous Intensity [mcd@9V]	$U_F$ [max.V/mA]
L-56 BSRD/B	red	60°	200	14/44
L-56 BHD	red	60°	200	14/44
L-56 BGD	green	60°	20	14/44
L-56 BYD	yellow	60°	20	14/44
L-56 BND	orange	60°	20	14/44

Part No.	Ord. No.
S L-56 BSRD/B	12507
S L-56 BHD	12199
S L-56 BGD	12374
S L-56 BYD	12375
S L-56 BND	12414

## 8mm Blinking LEDs Series

**Kingbright**

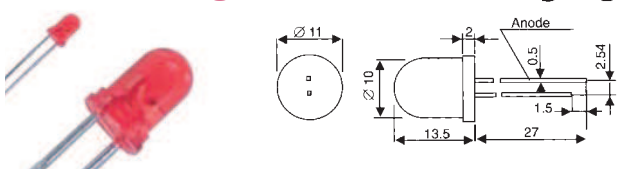


Part No.	Colour	Viewing Angle	Luminous Intensity [mcd@9V]	$U_F$ [max.V/mA]
L-796 BID	red	60°	40	14/48
L-796 BGD	green	60°	50	14/44
L-796 BYD	yellow	60°	40	14/48

Part No.	Ord. No.
S L-796 BID	12303
O L-796 BGD	12508
O L-796 BYD	12509

## 10mm Blinking LEDs Series

**Kingbright**



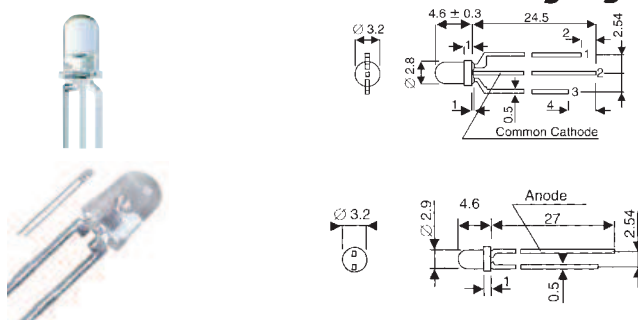
Part No.	Colour	Viewing Angle	Luminous Intensity [mcd@9V]	$U_F$ [max.V/mA]
L-816 BID	red	60°	60	14/50
L-816 BGD	green	60°	50	
L-816 BYD	yellow	60°	40	

Part No.	Ord. No.
S L-816 BID	12256
O L-816 BGD	12376
O L-816 BYD	12334

## Bi - Colour LEDs

### 3mm 2-Colour Series

**Kingbright**

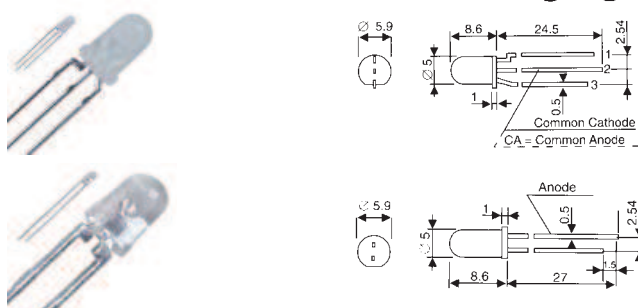


Part No.	Colour	Package	Viewing Angle	Luminous Intensity
L-937 EGW	R/G	2 leads	60°	20/16mcd
L-115 WEGW	R/G	3 leads	60°	40/35mcd
L-115 WSRGW	R/G	3 leads	60°	150/30mcd

Part No.	Ord. No.
S L-937 EGW	12590
S L-115 WEGW	12551
S L-115 WSRGW	48708

### 5mm Bi - Colour Series

**Kingbright**



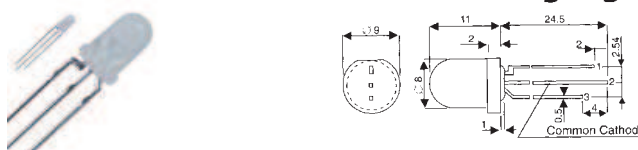
Part No.	Colour	Package	Viewing Angle	Luminous Intensity
L-57 EGW	R/G	2-leads, dif.	60°	30/20mcd
L-59 EGW	R/G	3 leads, dif.	60°	60/50mcd
L-59 EGW/CA	R/G	3 leads, dif.	60°	5/5mcd
L-59 SRSGW	R/G	3 leads, dif.	60°	220/60mcd
L-59 SRSGC	R/G	3 leads, clear	24°	600/200mcd
L-59 EYW	R/Y	3 leads, dif.	60°	60/40mcd
L-59 GYW	G/Y	3 leads, dif.	60°	50/40mcd

CA - common anode

Part No.	Ord. No.
S L-57 EGW	12321
S L-59 EGW	12383
S L-59 EGW/CA*	12120
S L-59 SRSGW	12352
S L-59 SRSGC	11941
S L-59 EYW	12412
S L-59 GYW	11988

### 8mm Bi - Colour Series

**Kingbright**

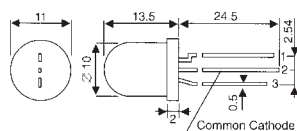


Part No.	Colour	Package	Viewing Angle	Luminous Intensity
L-799 EGW	R/G	3 leads, dif.	50°	80/50mcd

Type	Ord. No.
S L-799 EGW	12320

## 10mm Bi-Colour Series

**Kingbright**

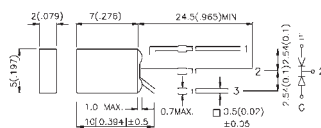


Part No.	Colour	Package	Viewing Angle	Luminous Intensity
L-819 EGW	R/G	3 leads	50°	80/50mcd
L-819 SRSGW	R/G	3 leads	50°	200/50mcd

Part No.	Ord. No.
S L-819 EGW	12319
S L-819 SRSGW	12503

## 2x5mm Bi-Colour Series

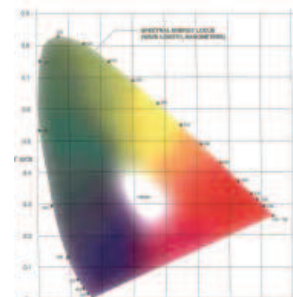
**Kingbright**



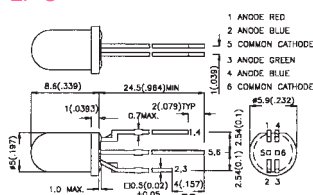
Part No.	Colour	Package	Viewing Angle	Luminous Intensity
L-119 EGW	R/G	3 leads	110°	20/12mcd

Part No.	Ord. No.
S L-119 EGW	12028

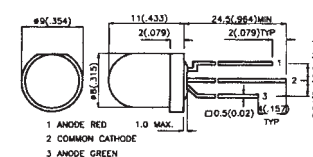
## Multicolour RGB LEDs



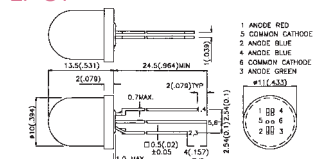
### LF-5



### LF-79



### LF-81

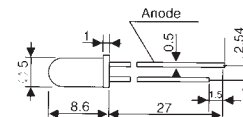


Part No.	Colour	Package	Viewing Angle	Luminance [mcd]
LF-5WAEMBGMBBC	RGB	5mm, clear, 6 leads	30°	50/30/2x40
LF-5 WAEMBGMBW	RGB	5mm, diffused, 6 leads	60°	30/25/2x20
LF-79 WAEMBGMBBC	RGB	8mm, clear, 6 leads	30°	30/35/2x25
LF-81 WAEMBGMBBC	RGB	10mm, clear, 6 leads	30°	40/45/2x30

Part No.	Ord. No.
S LF-5WAEMBGMBBC	12611
S LF-5 WAEMBGMBW	12612
S LF-79 WAEMBGMBBC	12150
S LF-81 WAEMBGMBBC	12151

## LEDs with Resistor

**Kingbright**



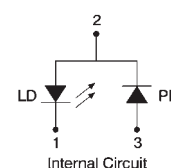
Light Emitting Diodes in standard 5mm package with integrated resistor.

Part No.	Colour	Angle	Luminance	If[mA/12V]
L-53 GD-12V	green	60°	20mcd/12V	8,5
L-53 ID-12V	red	60°	30mcd/12V	8,5
L-53 YD-12V	yellow	60°	20mcd/12V	8,5

Part No.	Ord. No.
S L-53 GD-12V	12266
S L-53 ID-12V	12267
O L-53 YD-12V	12265

## Laser Diodes

### DL Series



Chip material - AlGaInP.

LASER = Light Amplification by Stimulated Emission of Radiation

Part No.	Wavelength	Output Power	Power Supply
DL 3147-011	645nm	5mW	2,3V/40mA

Part No.	Ord. No.
O DL 3147-011	51150

### GLM Series



Green laser diode with diode driver, dimensions 11,9 x 41,5mm.

Part No.	Wavelength	Output Power	Power Supply
GLM-01-035D	532nm	5mW	3V/350mV

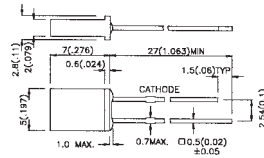
Part No.	Ord. No.
O GLM-01-035D	71146

## Rectangular LEDs

### 2x5mm Series



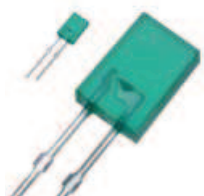
**Kingbright**



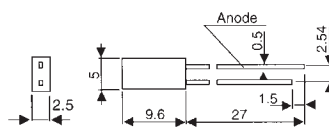
Part No.	Colour	Viewing Angle	Luminous Intensity	$U_f$ [V]
L-113 GDT	green	110°	5mcd/10mA	2
L-113 HDT	red	110°	1mcd/10mA	2,05
L-113 IDT	red	110°	5mcd/10mA	1,9
L-113 SRDT	red	110°	80mcd	1,85
L-113 YDT	yellow	110°	4mcd/10mA	1,95

Part No.	Ord. No.
S L-113 GDT	12254
S L-113 HDT	12333
S L-113 IDT	12381
L-113 SRDT	12445
S L-113 YDT	12380

### 2,5x5mm Series



**Kingbright**



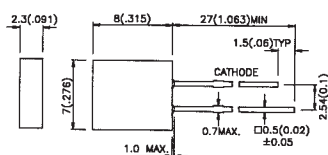
Part No.	Colour	Viewing Angle	Luminous Intensity	$U_f$ [V]
L-383 GDT	green	110°	4mcd/10mA	2
L-383 HDT	red	110°	1mcd/10mA	2,05
L-383 YDT	yellow	110°	4mcd/10mA	1,95

Part No.	Ord. No.
S L-383 GDT	12357
S L-383 HDT	12358
S L-383 YDT	12324

### 2,3x7mm Series



**Kingbright**



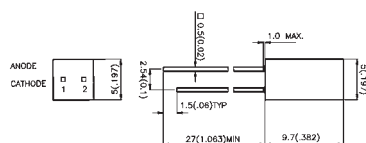
Part No.	Colour	Viewing Angle	Luminous Intensity	$U_f$ [V]
L-153 GDT	green	110°	3mcd/10mA	2,30
L-153 HDT	red	110°	0,6mcd/10mA	2,05
L-153 YDT	yellow	110°	3mcd/10mA	2,20

Part No.	Ord. No.
S L-153 GDT	12355
S L-153 HDT	12356
O L-153 YDT	12449

### 5x5mm Series



**Kingbright**



Part No.	Colour	Viewing Angle	Luminous Intensity	$U_f$ [V]
L-1553 GDT	green	110°	5mcd/10mA	2
L-1553 IDT	red	110°	8mcd/10mA	1,9
L-1553 YDT	yellow	110°	5mcd/10mA	1,95

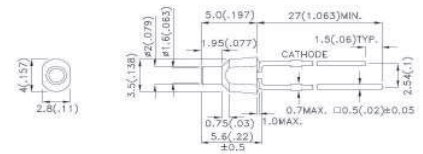
Part No.	Ord. No.
S L-1553 GDT	12258
S L-1553 IDT	12382
S L-1553 YDT	12400

## Flat Top LEDs

### 2mm Series



**Kingbright**



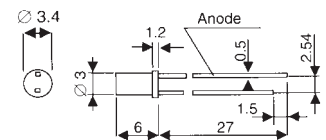
Part No.	Colour	Viewing Angle	Luminous Intensity	$U_f$ [V]
L-1034 GDT	green	70°	6mcd/10mA	2,2
L-1034 HDT	red	70°	1mcd/10mA	2,5
L-1034 YDT	yellow	70°	5mcd/10mA	2,5

Part No.	Ord. No.
S L-1034 GDT	70256
S L-1034 HDT	70253
S L-1034 YDT	70255

### 3mm Series



**Kingbright**



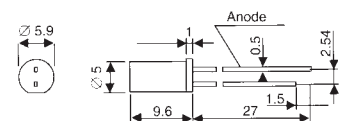
Part No.	Colour	Viewing Angle	Luminous Intensity	$U_f$ [V]
L-424 EDT	orange	100°	5mcd/10mA	1,9
L-424 GDT	green	100°	4mcd/10mA	2
L-424 HDT	red	100°	1mcd/10mA	2,05
L-424 YDT	yellow	100°	4mcd/10mA	1,95

Part No.	Ord. No.
S L-424 EDT	12560
S L-424 GDT	12561
S L-424 HDT	12411
S L-424 YDT	12260

### 5mm Series



**Kingbright**



Part No.	Colour	Viewing Angle	Luminous Intensity	$U_f$ [V]
L-483 GDT	green	100°	4mcd/10mA	2
L-483 HDT	red	100°	1mcd/10mA	2,05
L-483 YDT	yellow	100°	4mcd/10mA	

Part No.	Ord. No.
S L-483 GDT	12562
S L-483 HDT	12308
S L-483 YDT	12312

## Plastic LED Holders

### RTC Series

RTC - 31, RTC - 51



RTC - 32, RTC - 52



Part No.	LED Ø	Mounting Hole	Note
RTC-31	3mm	4,4mm	plastic
RTC-32	3mm	4,7mm	two pieces, plastic
RTC-51	5mm	6,5mm	plastic
RTC-52	5mm	7,1mm	two pieces, plastic

Part No.	Ord. No.
S RTC-31	12122
S RTC-32	12369
S RTC-51	12171
S RTC-52	12179

### RTF Series

RTF-5010

RTF-5020

RTF-8080

RTF-1090



Part No.	LED Ø	Mounting Hole	Note
RTF-5010	5mm	8mm	plastic
RTF-5020	5mm	8mm	plastic
RTF-8080	8mm	12mm	plastic
RTF-1090	10mm	14mm	plastic

Part No.	Ord. No.
S RTF-5010	12255
S RTF-5020	12193
S RTF-8080	12197
S RTF-1090	12194

### EBF Series

EBF A

EBF I



Part No.	LED Ø	Mounting Hole	Note
EBF A 3 CHROM	3mm	6mm	LED - out
EBF A 5 CHROM	5mm	8mm	LED - out
EBF A 8 CHROM	8mm	12mm	LED - out
EBF I 3 CHROM	3mm	6mm	LED - in
EBF I 5 CHROM	5mm	8mm	LED - in
EBF I 8 CHROM	8mm	12mm	LED - in

Part No.	Ord. No.
S EBF A 3 CHROM	19334
S EBF A 5 CHROM	19335
S EBF A 8 CHROM	19336
S EBF I 3 CHROM	19328
S EBF I 5 CHROM	19329
S EBF I 8 CHROM	19330

## Plastic Spacers for LEDs

### MAH Series

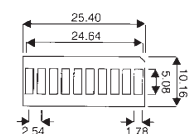
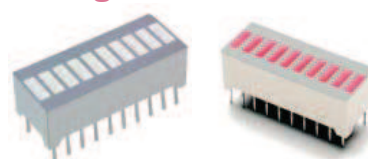


Part No.	Description
MAH 403	Plastic Spacers for LED 3mm
MAH 405	Plastic Spacers for LED 5mm
MAH 407	Plastic Spacers for LED 7mm

Part No.	Ord. No.
S MAH 403	8432
S MAH 405	8651
S MAH 407	5565

## Bar Graph Arrays

### 10-segments



**Kingbright**

Part No.	Description
DC-10 GWA	LED bargraph 10segm. green, luminance 9,5mcd/10mA
DC-10 HWA	LED bargraph 10segm. red, luminance 9,5mcd/10mA
DC-10 YWA	LED bargraph 10segm. yellow, luminance 9mcd/10mA
DC-7G 3HWA	LED bargraph 7xgreen 3xred, luminance 9,5/2,2mcd/10mA

Part No.	Ord. No.
S DC-10 GWA	12198
S DC-10 HWA	12410
S DC-10 YWA	12409
S DC-7G 3HWA	11980

### 20-segments

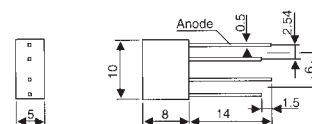
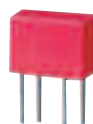
**Kingbright**

Type	Description
DC-20/20 EWA	LED bargraph 20segm. red, 9mcd/10mA

Part No.	Ord. No.
O DC-20/20 EWA	12690

## Light Bars

### L 835 Series



**Kingbright**

### L 885 Series



Part No.	No of LEDs	Colour	Dimensions [mm]	Viewing Angle	Luminance [mcd/mA]
L-885/6 IDT	6	red	10-x-16	120°	10/10
L-835/2 IDT	2	red	5-x-10	120°	10/10
L-835/2 GDT	2	green	5-x-10	120°	10/10

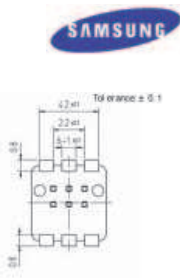
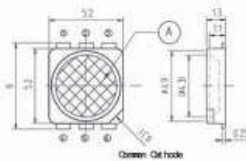
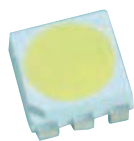
Part No.	Ord. No.
S L-885/6 IDT	12282
S L-835/2 IDT	12304
S L-835/2 GDT	12306



## Power LEDs

### SLSNN Series

in Package 5,2x5,2x1,3mm



Part No.	Colour	Intensity	Luminance	Uf	Pins
SLSNN-WH805TS	white cold	1,7cd	4,2lm/20mA	3,2V	2
SLSNN-WH825TS	white cold	3,6cd	10lm/40mA	3,2V	2
SLSNN-WH815TS ASSS	white cold	5,2cd	13,5lm/60mA	3,2V	6
SLSNN-WH815TS MALS	white warm	5,2cd	13,5lm/60mA	3,2V	6
SLSNN-WW825TS	white warm	3,2cd	8,0lm/40mA	3,2V	2
SLSNN-WW815TSMAUS	white warm	5,0cd	13,0lm/60mA	3,2V	6
SLSNN-RA825TS	red	1,0cd	2,4lm/40mA	2,2V	2
SLSNN-GA825TS	green	2,7cd	7,0lm/40mA	3,2V	2
SLSNN-BA825TS	blue	0,6cd	1,2lm/40mA	3,2V	2
SLSNN-AA825TS	amber	1,2cd	2,8lm/40mA	3,2V	2
SLSNN-RGBW815TS	RGB	0,6/1,4 /0,4cd	-	3,1V	6

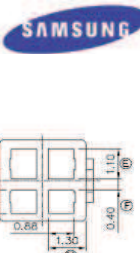
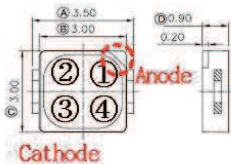
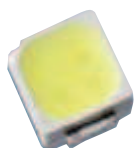
Part No.	Ord. No.
S SLSNN-WH815TS ASSS	74876
S SLSNN-WH815TS MALS	74877
S SLSNN-WW815TSMAUS	73752

Other types on request.

Please ask our sales department for quotation.

### SLSNN Series

in Package 3x3x0,9mm



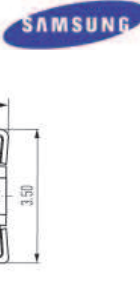
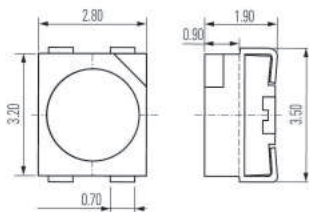
Part No.	Colour	Intensity	Luminance	Uf	Pins
SLSNN-WH804TS	white cold	2cd	4,2lm/30mA	3,2V	4
SLSNN-WH824TS	white cold	4cd	8,4lm/60mA	3,2V	4
SLSNN-WH814TS	white cold	6cd	12,9lm/90mA	3,3V	4
SLSNN-WH834TS	white cold	8cd	16,8lm/120mA	3,6V	4

Prices on request.

Please ask our sales department for quotation.

### SLSNN Series

in Package 3,2x2,8x1,9mm



Part No.	Colour	Intensity	Luminance	Uf	Pins
SLSNN-WH802TS	white cold	2cd	4,2lm/30mA	3,2V	2
SLSNN-WH822TS	white cold	4cd	8,4lm/60mA	3,2V	4
SLSNN-WH812TS	white cold	6cd	12,9lm/90mA	3,3V	4
SLSNN-RGBW812TS	RGB	0,26/0,65/0,15	-	3,1V	4

Prices on request.

Please ask our sales department for quotation.

## HP845 Series in Package 8x8x0,8mm

NEW!

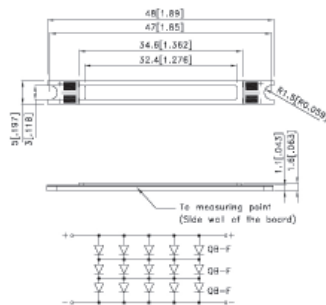


Part No.	Colour	Description
HP845CNO - 1XT	cyan	5W, 505nm at 700mA
HP845NBO - 1XT	blue	5W, 470nm at 700mA
HP845NOO - 1XT	amber	5W, 590nm at 700mA
HP845NRO - 1XT	red	5W, 625nm at 700mA
HP845NW0 - 1XT	white	5W, 6000K at 700mA
HP845WW0 - 1XT	warm white	5W, 3300K at 700mA
HP845PG0 - 1XT	green	5W, 530nm at 700mA

Part No.	Ord. No.
S HP845CNO - 1XT	56086
S HP845NBO - 1XT	56083
S HP845NOO - 1XT	56084
S HP845NRO - 1XT	56089
S HP845NW0 - 1XT	56081
S HP845WW0 - 1XT	56082
S HP845PG0 - 1XT	56087

## KASL-4805 Series

## Kingbright



New K-Linear High Power LEDs. These new devices contain 15 chips per package and provide a high brightness and high thermal dissipation efficiency.

This is achieved by incorporating aluminium as reflector and also substrate to ensure long operating life.

The slim and linear design can be used in parallel or series configurations to conveniently accommodate a variety of applications.

### Key Features :

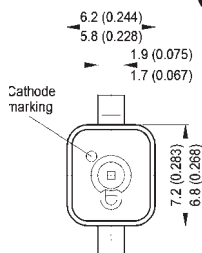
- Size: 48mm x 5mm x 1.6mm
- Instant Light
- Linear Type
- High Efficiency
- Long Operating life
- Low Power Consumption
- More Energy Efficient Than incandescent, most halogene lamps and flourescent lamps

**Applications:** ceiling lights, contour lights, decoration lights, general lighting, architectural lighting...

Part No.	Description
KASL-4805 SEL 1S/5	LED K-line, red, 75lm/5W, 500mA
KAS-4805 QBFS/3	LED K-line, blue, 20lm/3W, 350mA
KASL-4805 SYL 1S/5	LED K-line, yellow, 75lm/5W, 500mA
KASL-4805 ZG24S/7	LED K-line, green, 180lm/7W, 700mA
KASL-4805 ZGS/3	LED K-line, green, 30lm/3W,350mA

Part No.	Ord. No.
S KASL-4805 SEL 1S/5	67415
S KAS-4805 QBFS/3	67417
S KASL-4805 SYL 1S/5	67418
O KASL-4805 ZG24S/7	67419
S KASL-4805 ZGS/3	67420

## LxW5 Series

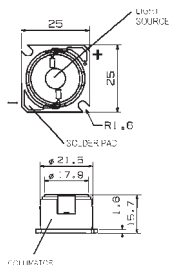


**OSRAM**  
Golden Dragon

Part No.	Colour	Luminous flux [lm/mA]	Luminance [mcd/mA]	Com-sumpt.	Uf	Viewing Angle
LA W57B-FYGY-24	red	18/400	6000/400	1,2W	2,2V	120°
LW W5 SG-GYHY-5K8L	white	25/350	10000/350	2,3W	3,8V	120°
LW W5JM-HZKX-5K8L	white	39-82/350		1,6W	3,8V	120°/80°

Part No.	Ord. No.
S LA W57B-FYGY-24	50304
O LW W5 SG-GYHY-5K8L	50306
O LW W5JM-HZKX-5K8L	69941

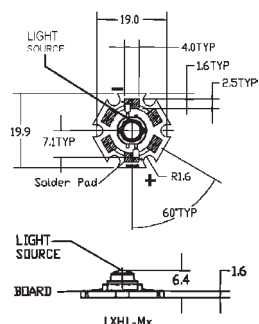
## LXHL Series



LUXEON

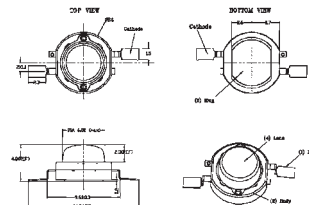
Part No.	Colour	Luminous flux	Viewing Angle
LXHL-NB98	blue 470nm	10lm/350mA	10°
LXHL-ND98	red 625nm	27lm/350mA	10°
LXHL-NL98	yellow 590nm	25lm/350mA	10°
LXHL-NM98	green 530nm	30lm/350mA	10°
LXHL-NRR8	blue 455nm	150mw/350mA	10°
LXHL-NWE8	white 5500k	25lm/350mA	10°

Part No.	Ord. No.
O LXHL-NB98	45124
O LXHL-ND98	45125
O LXHL-NL98	45127
O LXHL-NRR8	45130
S LXHL-NWE8	53200
O LXHL-NM98	45128



Part No.	Colour	Luminous flux	Viewing Angle
LXHL-LD3C	red 627nm	140lm/1400mA	110°
LXHL-LRD5	blue 460nm	600mW/700mA	150°
LXHL-LW6C	white 5500K	120lm/700mA	120°
LXHL-MD1C	red 625nm	27lm/350mA	110°
LXHL-LW3C	white 5500K	80lm/1000mA	160°
LXHL-MW1D	white 5500K	25lm/350mA	140°
LXHL-MWEC	white 5500K	45lm/350mA	110°
LXHL-MWGC	white 3300K	20lm/350mA	110°
LXK2-PW14-T00	white 6500K	85lm/1000mA	140°

Part No.	Ord. No.
O LXHL-LD3C	53654
S LXHL-LW6C	48932
O LXHL-LRD5	55643
O LXHL-MD1C	45119
O LXK2-PW14-T00	61100
O LXHL-LW3C	55969
O LXHL-MW1D	53201
S LXHL-MWEC	53838
O LXHL-MWGC	54653



Part No.	Colour	Luminous flux	Viewing Angle
LXHL-BW02	white 5500K	45lm/350mA	110°
LXHL-PW09	white 5500K	65lm/1000mA	160°
LXHL-PRD5	blue 460nm	600lm/700mA	150°
LXHL-PW03	white 5500K	120lm/700mA	120°

Part No.	Ord. No.
O LXHL-BW02	55967
O LXHL-PW09	55968
O LXHL-PRD5	55971
O LXHL-PW03	55970

## LED1W/3W Series

ECONOMIC

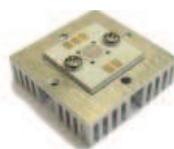


Part No.	Description
LED 1W RD	Power LED red 1W
LED 1W WH	Power LED white 1W
LED 1W BL	Power LED blue 1W
LED 1W GN	Power LED green 1W
LED 1W YE	Power LED yellow 1W
LED 3W WH	Power LED white 3W
LED 3W BL	Power LED blue 3W
LED 3W RD	Power LED red 3W
LED 3W GN	Power LED green 3W
LED 3W YE	Power LED yellow 3W

Part No.	Ord. No.
S LED 1W RD	64791
S LED 1W WH	64796
S LED 1W BL	64797
S LED 1W GN	71780
S LED 1W YE	71779
S LED 3W WH	64798
S LED 3W BL	64799
S LED 3W RD	64800
S LED 3W GN	71782
S LED 3W YE	71781

## KLH-10 Series

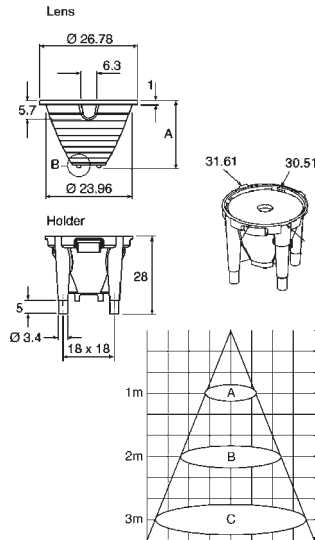
Power LED modul - RGB  
1W



Part No.	Ord. No.
S KLH-10RGB3	53655

## Accessories

### FHS Series - Lenses for LUXEON LED



The FHS series offers a complete range of lenses specially designed for the LUXEON LED from Lumileds. Both Batwing and Lambertian radiation patterns are supported. A software optimized aspheric profile combined to front shaped micro-lens arrays enable the generation of four different lens models: narrow beam, medium beam, wide beam and a special elliptical pattern. The high collection efficiency reaches the 85% of the total flux emitted from the LED.

#### Typical applications are:

- Reading Lamps
  - Signs
  - Street Lights
  - General Illumination
- Most applications where uniformity and high intensity over a wide angle is required

#### Technical data

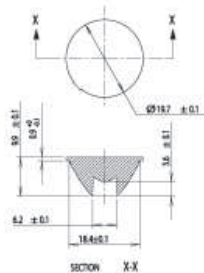
Beam	Part No.	A (1m) [Lux]	B (2m) [Lux]	C (3m) [Lux]
<b>Batwing</b>				
Slim	FHS-HNB 1-LB01-x	13.4	3.4	1.5
Medium	FHS-HMB 1-LB01-x	4.1	1.1	0.5
Wide	FHS-HWB 1-LB01-x	1.6	0.4	0.2
<b>Lambertian</b>				
Slim	FHS-HNB 1-LL01-x	17.1	4.3	1.9
Medium	FHS-HMB 1-LL01-x	5.5	1.4	0.6
Wide	FHS-HWB 1-LL01-x	1.8	0.5	0.2

Part No.	Description
FHS-HNB-LB01-H	Lens for Luxeon LED 10° beam
FHS-HWB1-LB01-H	Lens for Luxeon LED 45° beam
FHS-HWB1-LL01-H	Lens for Luxeon LED 45° beam

Part No.	Ord. No.
o FHS-HNB-LB01-H	48931
o FHS-HWB1-LB01-H	53203
o FHS-HWB1-LL01-H	53694

### CARCLO Series - Lenses for LUXEON POWER LED



Part No.	Description
CARCLO 10003	Lens for Luxeon Power LED 12°
CARCLO 10003/15	Lens for Luxeon Power LED 30°
CARCLO 10003/25	Lens for Luxeon Power LED 50°

Part No.	Ord. No.
s CARCLO 10003	60304
s CARCLO 10003/15	60164
s CARCLO 10003/25	60303

### CARCLO Series - Lens Holder for LUXEON

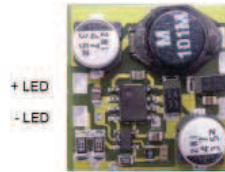


Part No.	Description
CARCLO 10121	Lens holder for Luxeon K2 white

Part No.	Ord. No.
s CARCLO 10121	65464

### HKO Series - High Power Constant Current Source



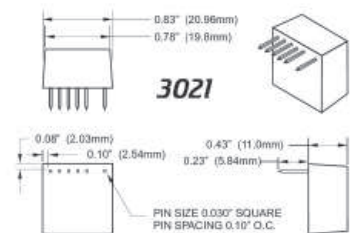
- Startup ca. 5,2 Volt (for one 1 Watt LED)
- Drop: ca. 1,8 Volts
- Output: protected against short circuit
- Output current: 350 mA resp. 700mA constant
- Input: reverse polarity protection
- Efficiency: between 75% and 90% depending on the number of LEDs

Part No.	Description
HKO 350	Current power supply for LED 350mA (5,2-24V)
HKO 700	Current power supply for LED 700mA (5,8-24V)

Part No.	Ord. No.
o HKO 350	54143
o HKO 700	54144

### BuckPuck DC LED Driver for LUXEON - 3021Series



Part No.	Description
3021-D-E-0350	350mA DC LED driver, 5,0-32V
3021-D-E-1000	1000mA DC LED driver 5,0-32V

Part No.	Ord. No.
s 3021-D-E-0350	64640
s 3021-D-E-1000	64974



Part No.	Description
SLP 03 SS	Constant-current source for LED 1W, 230V

Part No.	Ord. No.
s SLP 03 SS	71143

### LED Tester

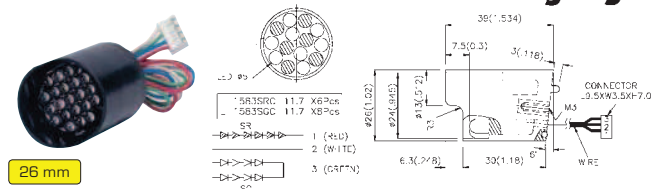


LED Tester 80x60x22mm

Part No.	Ord. No.
s LED TESTER	52245

## LED Clusters

### BL0102 Series

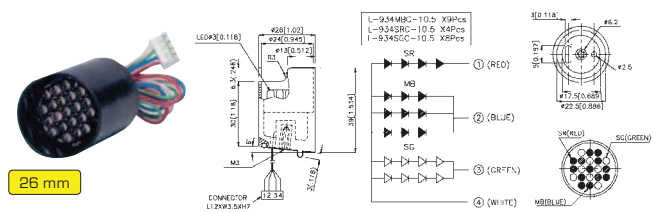


Part No.	Description
BL0102-14-34	LED cluster 26mm red/green

Part No.	Ord. No.
o BL 0102-14-34	12201

### BL0104 Series

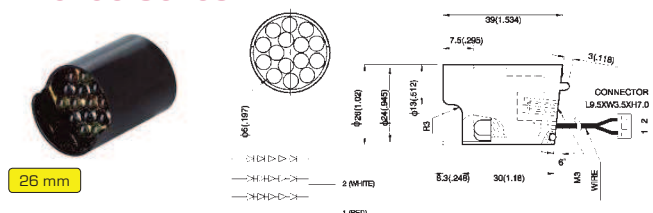


Part No.	Description
BL0104-21-72	LED 26mm cluster R/G/B

Part No.	Ord. No.
o BL 0104-21-72	12202

### BL0106 Series

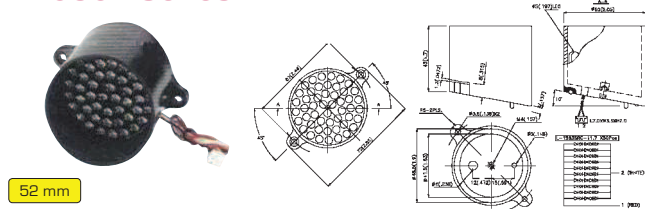


Part No.	Description
BL0106-15-28	LED 26mm cluster IR
BL0106-15-39	LED 26mm cluster 6Cd red
BL0106-15-47	LED 26mm cluster 2Cd green
BL0106-15-48	LED 26mm cluster 2Cd yellow

Part No.	Ord. No.
s BL 0106-15-28	12207
o BL 0106-15-39	12204
o BL 0106-15-47	12205
o BL 0106-15-48	12206

### BL0307 Series



Part No.	Description
BL0307-50-44	LED cluster 52mm red, 23000 mcd/20mA
BL0307-50-45	LED cluster 52mm yellow, 15000 mcd/20mA
BL0307-50-46	LED cluster 52mm green, 15000 mcd/20mA

Part No.	Ord. No.
o BL 0307-50-44	11942
o BL 0307-50-45	12097
o BL 0307-50-46	12096

## LED Modules

### LSL Series



Part No.	Description
LSL-062A-02R SEC-H	red flexible 26xLED
LSL-062A-05B QBC-D	blue flexible 26xLED
LSL-063A-07G CGCK	green 32xLED

Part No.	Ord. No.
s LSL-062A-02R SEC-H	54894
s LSL-062A-05B QBC-D	54897
s LSL-063A-07G CGCK	54898

### LED STRIP FLEXIBLE Series

ECONOMIC

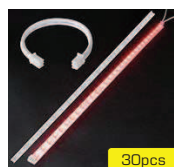


Part No.	Description
Led-Strip Flex18 BU	blue 18pcs 12VDC, L=300mm
Led-Strip Flex18 RD	red 18pcs 12VDC, L=300mm
Led-Strip Flex18 WH	white 18pcs 12VDC, L=300mm

Part No.	Ord. No.
s Led-Strip Flexible BU	71776
s Led-Strip Flexible RD	71775
s Led-Strip Flexible WH	71777

### LED STRIP STARR Series

ECONOMIC



Part No.	Description
Led-Strip starr BL	blue 30pcs 12VDC, L=375mm
Led-Strip starr WH	white 30pcs 12VDC, L=375mm
Led-Strip starr YL	yellow 30pcs 12VDC, L=375mm
Led-Strip starr RD	red 30pcs 12VDC, L=375mm
Led-Strip starr GN	green 30pcs 12VDC, L=375mm

Part No.	Ord. No.
s Led-Strip starr BL	65533
s Led-Strip starr WH	65534
s Led-Strip starr YL	71141
s Led-Strip starr RD	69272
s Led-Strip starr GN	71142

### LED STRIP PIRANHA Series

ECONOMIC



Part No.	Description
LED-Strip18BUPiranha	LED-Strip 33cm, 18 LEDs blue
LED-Strip18RDPiranha	LED-Strip 33cm, 18 LEDs red
LED-Strip18WHPiranha	LED-Strip 33cm, 18 LED white
LED-Strip36BUPiranha	LED-Strip 63cm, 36 LEDs blue
LED-Strip36RDPiranha	LED-Strip 63cm, 36 LEDs red
LED-Strip36WHPiranha	LED-Strip 63cm, 36 LEDs white

## LED Modules (continued)

Part No.	Ord. No.
S LED-Strip18BUPiranha	76864
S LED-Strip18RDPiranha	76863
S LED-Strip18WHPiranha	76865
S LED-Strip36BUPiranha	76861
S LED-Strip36RDPiranha	76860
S LED-Strip36WHPiranha	76862

## LED STRIP VERY FLEXIBLE Series

ECONOMIC



33pcs/0,5m

Part No.	Description
Led-Strip hochflexibel BL	SMD LED, 33 pcs, blue, 0,5m
Led-Strip hochflexibel WH	SMD LED, 33 pcs, white, 0,5m

Part No.	Ord.
S Led-Strip hochflexibel BL	65535
S Led-Strip hochflexibel WH	65536

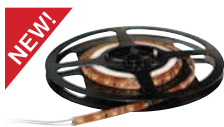


66pcs/1m  
IP65

ECONOMIC

Part No.	Description
LED-Strip Flex66 BU	blue 66pcs 12VDC, L=1m, IP65
LED-Strip Flex66 RD	red 66pcs 12VDC, L=1m, IP65
LED-Strip Flex WH	white 66pcs 12VDC, L=1m, IP65

Part No.	Ord.
S LED-Strip Flex66 BU	76813
S LED-Strip Flex66 RD	76812
S LED-Strip Flex66 WH	71778



330pcs/5m

ECONOMIC

Part No.	Description
SMD Led-Strip BLUE	SMD LED, 330 pcs, 12VDC, blue, 5m
SMD Led-Strip WHI	SMD LED, 330 pcs, 12VDC, white, 5m
SMD Led-Strip RED	SMD LED, 330 pcs, 12VDC, red, 5m

Part No.	Ord.
S SMD Led-Strip BLUE	72675
S SMD Led-Strip WHI	72676
S SMD Led-Strip RED	72677

## RGB Series

ECONOMIC



RGB

Part No.	Description
LED-Strip-Flex150 RGB1	LED-Strip 5m, 150 RGB LEDs, 3x1000mA
LED-Strip-Flex150RGB2	LED-Strip 5m,150RGB LEDs,3x1000mA, waterresist
LED-Strip-Flex30RGB2	LED-Strip 1m, 30RGB LEDs, 3x1000mA, waterresist
RGB Controller	LED-Controller with IR-remote control

Part No.	Ord.
S LED-Strip-Flex150 RGB1	79580
S LED-Strip-Flex150RGB2	79577
S LED-Strip-Flex30RGB2	79343
S RGB Controller	79344

## LED Bulbs

### MR-16 Series



12V

### GU-10 Series



Part No.	Description
LED SPOTLIGHT BL MR-16	LED(18pcs) bulb MR16 50mm 12VDC blue
LED SPOTLIGHT GR MR-16	LED(18pcs) bulb MR16 50mm 12VDC green
LED SPOTLIGHT WH MR-16	LED(18pcs) bulb MR16 50mm 12VDC white
LED SPOTLIGHT Y MR-16	LED(18pcs) bulb MR16 50mm 12VDC yellow
LED SPOTLIGHT WH GU10	LED(18pcs) bulb GU10 50mm 230VAC white
LED SPOTLIGHT WHc GU10	LED 3W bulb GU10 230VAC cold white
LED SPOTLIGHT WHw GU10	LED 3W bulb GU10 230VAC warm white

Part No.	Ord. No.
S LED SPOTLIGHT BL MR-16	56629
S LED SPOTLIGHT GR MR-16	56627
S LED SPOTLIGHT WH MR-16	56625
S LED SPOTLIGHT Y MR-16	56628
S LED SPOTLIGHT WH GU10	53107
S LED SPOTLIGHT WHc GU10	65293
S LED SPOTLIGHT WHw GU10	65294

## E27 Series

LED

JDR

E27



230V



230V



230V

Part No.	Description
LED SPOTLIGHT WH E27	LED(18pcs) bulb E27 50mm 230VAC white
LED SPOTLIGHT WH E27	LED 3W bulb E27 230VAC warm white
LED SPOTLIGHT WH E27	LED 3W bulb E27 230VAC cold white
JDR-C3W-M70	LED bulb E27 230V warm white 3W 120lm 70°
JDR-C3W-W70	LED bulb E27 230V white 3W 140lm 70°
JDR-C1W3-M60	LED bulb E27 230V warm white 3x1W 220lm 60°
JDR-C1W3-W60	LED bulb E27 230V white 3x1W 260lm 60°
E27-10W-M70	LED bulb E27 230V warm white 10W 350lm 70°
E27-10W-W70	LED bulb E27 230V white 10W 400lm 70°

Part No.	Ord. No.
S LED SPOTLIGHT WH E27	56624
S LED SPOTLIGHT WH E27	65291
S LED SPOTLIGHT WH E27	65292
S JDR-C3W-M70	68833
S JDR-C3W-W70	68835
S JDR-C1W3-M60	68842
S JDR-C1W3-W60	68843
S E27-10W-M70	68844
S E27-10W-W70	68845

## E14 Series

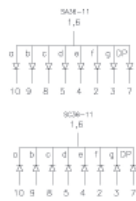
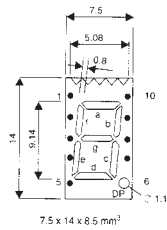
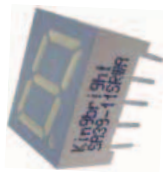


230V

Part No.	Description
E14-C3W-M70	LED bulb E14 230V warm white 3W 120lm 70°
E14-C3W-W70	LED bulb E14 230V white 3W 140lm 70°

Part No.	Ord. No.
S E14-C3W-M70	68837
S E14-C3W-W70	68838

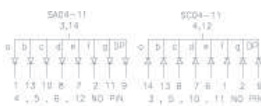
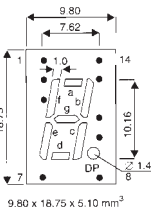
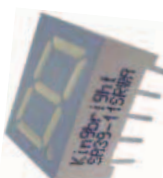
## 7 segments, 1 - digit LED Displays 9 mm Series/0,36" Kingbright



Part No.	Colour	Luminous Intensity (mcd/10mA)
SA 36-11 EWA	red	1,9
SA 36-11 SRWA	super bright red	6,4
SA 36-11 GWA	green	1,9
SA 36-11 YWA	yellow	1,2
SC 36-11 EWA	red (common cathode)	1,9

Part No.	Ord. No.
S SA 36-11 EWA	12371
S SA 36-11 SRWA	11975
S SA 36-11 GWA	12215
O SA 36-11 YWA	12370
S SC 36-11 EWA	11957

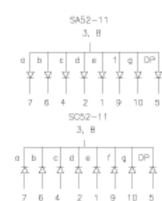
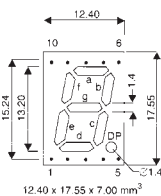
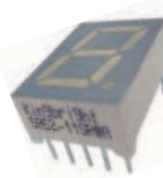
## 10 mm Series/0,4" Kingbright



Part No.	Colour	Luminous Intensity (mcd/10mA)
SA 04-11 EWA	red	8
SA 04-11 GWA	green	12
SA 04-11 YWA	yellow	4,7
SC 04-11 GWA	green (common cathode)	12

Part No.	Ord. No.
S SA 04-11 EWA	12075
S SA 04-11 GWA	12310
O SA 04-11 YWA	12309
S SC 04-11 GWA	12591

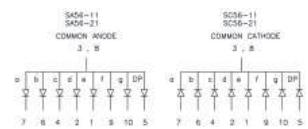
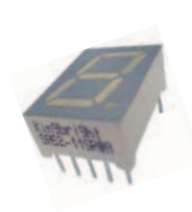
## 13 mm Series/0,52" Kingbright



Part No.	Colour	Luminous Intensity (mcd/10mA)
SA 52-11 EWA	high efficiency red	6,4
SA 52-11 LEWA	super bright red	1,4/2mA
SC 52-11 GWA	green	10,5
SC 52-11 EWA	green (common cathode)	1,9
SC 52-11 SRWA	super bright red (common cathode)	24

Part No.	Ord. No.
S SA 52-11 EWA	12288
S SA 52-11 LEWA	12557
S SC 52-11 GWA	11940
S SC 52-11 EWA	12559
S SC 52-11 SRWA	11948

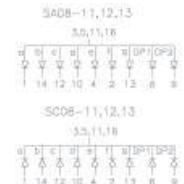
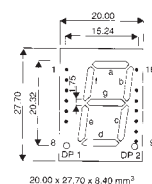
## 14 mm Series/0,56" Kingbright



Part No.	Colour	Luminous Intensity (mcd/10mA)
SA 56-11 EWA	red	6,4
SA 56-11 LSRWA	red	0,9/2mA
SA 56-11 SRWA	red	24
SA 56-11 GWA	green	10,5
SA 56-11 YWA	yellow	4,7
SC 56-11 GWA	green (common cathode)	10,5

Part No.	Ord. No.
S SA 56-11 EWA	12362
S SA 56-11 GWA	12166
S SA 56-11 LSRWA	12404
S SA 56-11 SRWA	12289
S SA 56-11 YWA	12372
O SC 56-11 GWA	12015

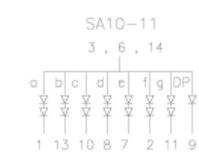
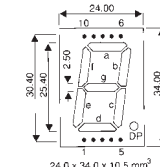
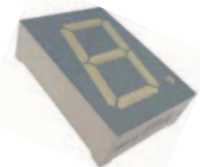
## 20 mm Series/0,8" Kingbright



Part No.	Colour	Luminous Intensity (mcd/10mA)
SA 08-11 EWA	high efficiency red	6,4
SA 08-11 SRWA	super bright red	24
SA 08-11 GWA	green	10,5
SC 08-11 EWA	red (common cathode)	6,4
SC 08-11 GWA	yellow (common cathode)	10,5

Part No.	Ord. No.
S SA 08-11 EWA	12564
S SA 08-11 GWA	12021
S SA 08-11 SRWA	12598
S SC 08-11 EWA	12046
S SC 08-11 GWA	11960

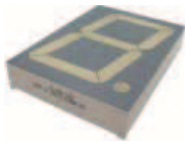
## 25 mm Series/10" Kingbright



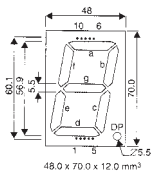
Part No.	Colour	Luminous Intensity (mcd/10mA)
SA 10-21 EWA	red	16
SA 10-21 GWA	green	24

Part No.	Ord. No.
S SA 10-21 EWA	12365
O SA 10-21 GWA	12363

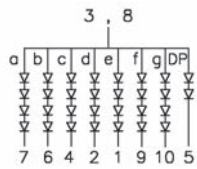
## 57 mm Series/2,3"



4 LED/1 segment



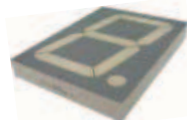
### Kingbright



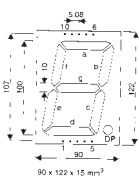
Part No.	Colour	Luminous Intensity (mcd/10mA)
SA 23-12 GWA	green	24
SA 23-12 SRWA	super bright red	75

Part No.	Ord. No.
o SA 23-12 GWA	11961
s SA 23-12 SRWA	12000

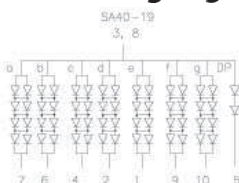
## 100 mm Series/4,0"



2x4 LED/1 segment



### Kingbright

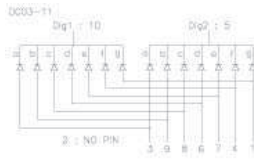
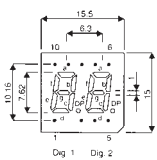


Part No.	Colour	Luminous Intensity (mcd/10mA)
SA 40-19 EWA	red	44
SA 40-19 SRWA	super bright red	105

Part No.	Ord. No.
s SA 40-19 EWA	12119
s SA 40-19 SRWA	11953

## 7 segments 2-digit LED Displays

### 7 mm Series /0,3"

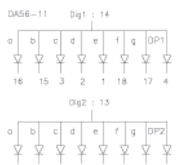
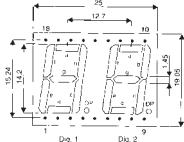


### Kingbright

Part No.	Colour	Luminous Intensity (mcd/10mA)
DC 03-11 GWA	green	3

Part No.	Ord. No.
s DC 03-11 GWA	11963

## 14 mm Series /0,56"

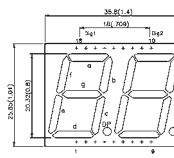
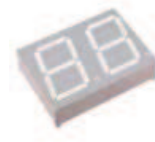


### Kingbright

Part No.	Colour	Luminance (mcd/10mA)
DA 56-11 EWA	red	8
DA 56-11 HWA	red	1,9
DA 56-11 SRWA	super red	24
DA 56-11 GWA	green	10,5
DC 56-11 HWA	red (common cathode)	1,9
DC 56-11 GWA	green (common cathode)	10,5

Part No.	Ord. No.
s DA 56-11 EWA	12250
s DA 56-11 HWA	11967
s DA 56-11 SRWA	12249
s DA 56-11 GWA	12188
o DC 56-11 HWA	11968
s DC 56-11 GWA	11969

## 20 mm Series/0,8"



### Kingbright



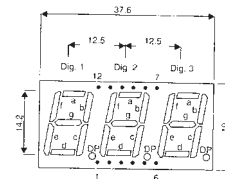
Part No.	Colour	Luminous Intensity (mcd/10mA)
DA 08-11 EWA	red	8
DA 08-11 SRWA	super bright red	24
DA 08-11 GWA	green	10,5

Part No.	Ord. No.
o DA 08-11 EWA	12616
s DA 08-11 SRWA	12037
o DA 08-11 GWA	12617

## 7 segments 3-digit LED Displays

### 14 mm Series/0,56"

### Kingbright



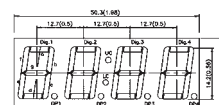
Part No.	Colour	Luminous Intensity (mcd/10mA)
BA 56-12 SRWA	red	24
BA 56-12 SRWA	super bright red	24
BA 56-12 GWA	green	10,5
BA 56-11 EWA	red	6,4

Part No.	Ord. No.
s BA 56-12 SRWA	12408
s BA 56-12 SRWA	12017
s BA 56-12 GWA	12016
s BA 56-11 EWA	73133

## 7 segments 4-digit LED Displays

### Series 14 mm/0,56"

### Kingbright



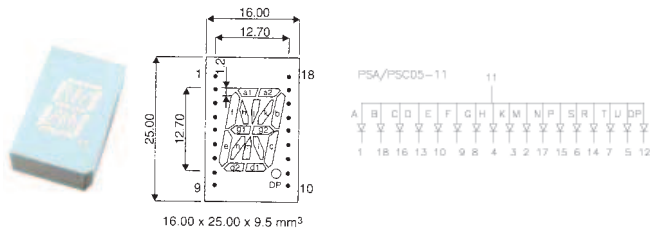
Part No.	Colour	Luminous Intensity (mcd/10mA)
CA 56-12 SRWA	red	24
CC 56-11 EWA	red (common cathode)	6,4

Part No.	Ord. No.
s CA 56-12 SRWA	43953
s CC 56-11 EWA	12076

## Alphanumeric LED Displays

13 mm Series/0,5"

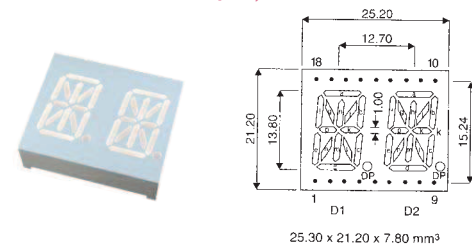
**Kingbright**



Part No.	Colour	Luminous Int. (mcd)	digital segments
PSA 05-11 EWA	red	4,1	1/16
Part No.	Ord. No.		
S PSA 05-11 EWA	12087		

14 mm Series/0,54"

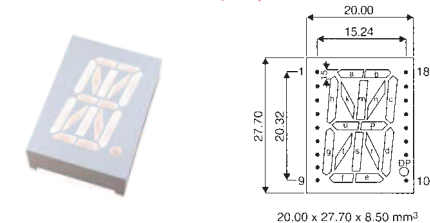
**Kingbright**



Part No.	Colour	Luminous Int. (mcd)	digital segments
PDA 54-11 EWA	red	4,7	2/14
Part No.	Ord. No.		
S PDA 54-11 EWA	12111		

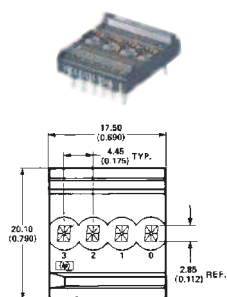
20 mm Series/0,8"

**Kingbright**



Part No.	Colour	Luminous Int. (mcd)	digital segments
PSC 08-11 EWA	red	75	1/16 common Cathode
Part No.	Ord. No.		
S PSC 08-11 EWA	12155		

2,8mm LED Display with Driver



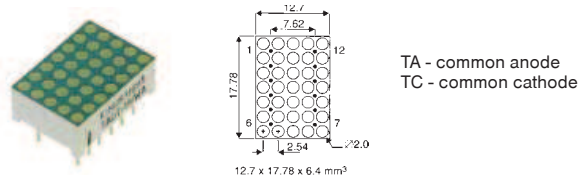
The HPDL-1414 is a smart, four character, sixteen-segment, red display. The on-board CMOS IC contains memory, ASCII decoder, multiplexing circuitry and drivers. The monolithic LED characters are magnified by an immersion lens which increases both character size and luminous intensity. It has a wide operating temperature range, very fast IC access time, and improved ESD protection. The displays are also fully TTL compatible, wave solderable, and highly reliable. These displays are ideally suited for industrial and commercial applications where a good-looking, easy-to-use alphanumeric display is required.

Part No.	Colour	Luminous Int. (mcd)	digital segments
HPDL-1414	red	1	4/16 driver
Part No.	Ord. No.		
S HPDL-1414	49089		

## Dot Matrix LED Displays

18 mm Series/0,7"

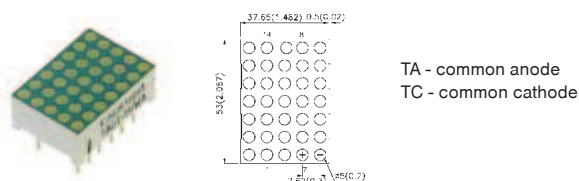
**Kingbright**



Part No.	Colour	Luminous Int. (mcd/10mA)	No of Dots
TC 07-11 EWA	red	8	5x7
TC 07-11 GWA	green	8	5x7
Part No.	Ord. No.		
S TC 07-11 EWA	12225		
S TC 07-11 GWA	12214		

50 mm Series/20"

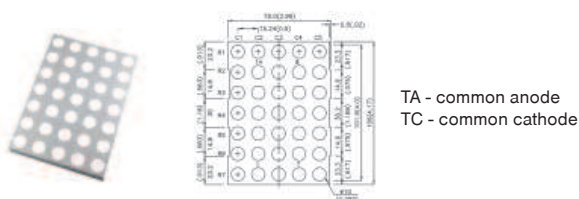
**Kingbright**



Part No.	Colour	Luminance (mcd/10mA)	No of Dots
TA 20-11 SRWA	super red	26	5x7
Part No.	Ord. No.		
S TA 20-11 SRWA	12165		

100 mm Series/40"

**Kingbright**



Part No.	Colour	Luminous Int. (mcd/10mA)	No of Dots
TA 40-11 SRWA	super red	44	5x7
Part No.	Ord. No.		
S TA 40-11 SRWA	56943		

## Light Pipes

**Kingbright**

KL Series



Wide viewing angle.  
Designed to replace rectangular Right angle through hole device.  
High transmissivity polycarbonate material.  
UI94v-0 compliance.

Part No.	Description
KL-05	Light Pipe
KL-07LS	Light Pipe
Part No.	Ord. No.
S KL-05	61447
S KL-07S	47117

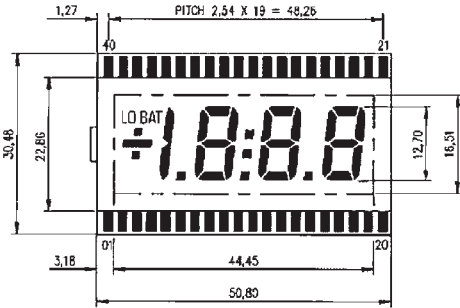


## 7-segment LCD Modules

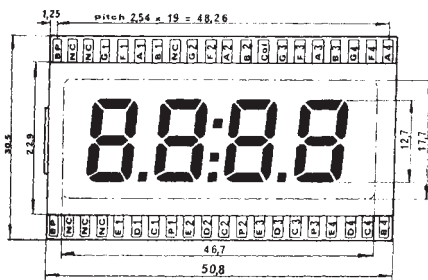


- operating time: 100 000 hours
- very low current consumption 1 mA
- operating voltage: 3 V
- temperature range -10°C to +60°C
- without driver

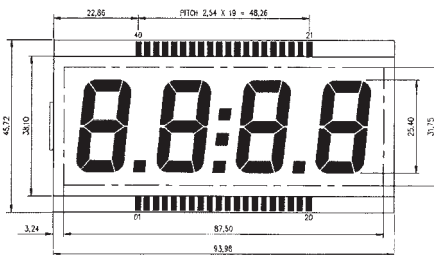
LCD 3,5-13 LOBAT



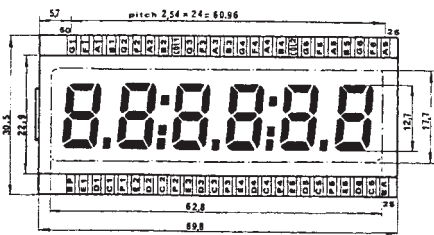
LCD 4,0-13



LCD 4,0-25,4



LCD 6,0-13



Module	Digits	Character Height (mm)	Overall dimensions (mm)	Display	Viewing direction
LCD 3,5-13	3 1/2	12,7	50,8 x 30,4	46,8 x 18,4 mm	6 o'clock
LCD 4,0-13	4	12,7	50,7 x 30,4	46,7 x 18,4 mm	6 o'clock
LCD 4,0-25,4	4	25,4	94,0 x 45,7	87,5 x 31,7 mm	6 o'clock
LCD 6,0-13	6	12,7	69,8 x 30,4	65,8 x 18,4 mm	6 o'clock

Module	Original Marking	Ord. No.
S LCD 3,5-13	DE-113-RS-20/7,5	13459
S LCD 4,0-13	DE-119-RS-20/7,5	13460
S LCD 4,0-25,4	DE-158-RS-20/8,4	6314
S LCD 6,0-13	DE-122-RS-20/6,35	13461

## Alphanumeric LCD Modules



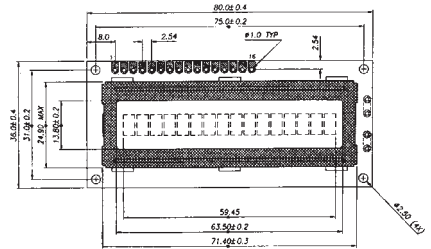
### 1x16 Characters



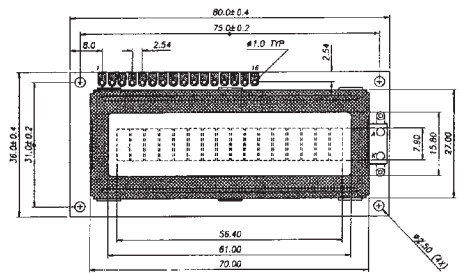
- alphanumeric LCD modules
- 1x16 characters
- yellow - green LED backlight
- temperature range -20°C to +70°C



DEM 16101



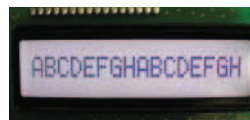
DEM 16102



Module	Module Size (mm)	View Area (mm)	Character Size (mm)	Fonts
DEM 16101 SYH	80x36	64x14	5,95x3,20	eng/japan
DEM 16102 SYH-LY	80x36	61x16	7,90x3,15	eng/japan

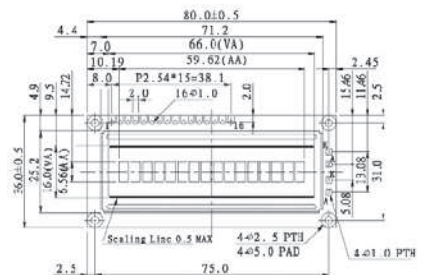
Module	Ord. No.
S DEM 16101 SYH	41179
S DEM 16102 SYH-LY	42440

### 1x16 Characters

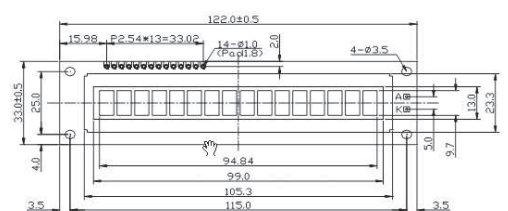


- alphanumeric LCD modules
- 1x16 characters
- green LED backlight
- temperature range -20°C to +70°C

BC1601A



BC1601D



Module	Module Size (mm)	View Area (mm)	Character Size (mm)	Fonts
BC 1601A YPLEH	80x36	66x16	3,07x6,56	eng/european
BC 1601D YPLEH	122x33	99x13	4,84x9,7	eng/european

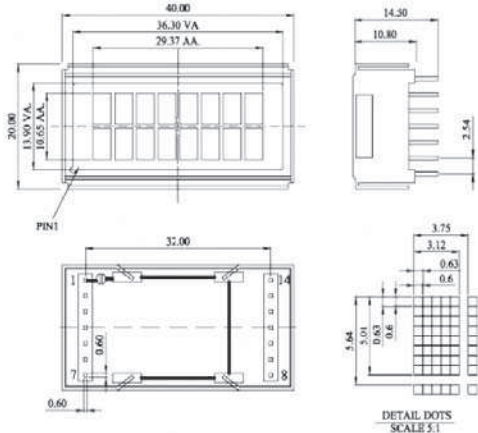
Part No.	Ord. No.
S BC 1601A YPLEH	55876
S BC 1601D YPLEH	55878

## 2x8 Characters



- alphanumeric LCD modules
- 2x8 characters
- yellow - green LED backlight
- BC 0802B YRNEH - without backlight
- temperature range: -20°C to +70°C

BC 0802B



Module	Module Size (mm)	View. Area (mm)	Character Size (mm)	Fonts
BC 0802B YPLEH	40x20	36,3x13,9	5,01x3,12	eng/european
BC 0802B YRNEH	40x20	36,3x13,9	5,01x3,12	eng/european

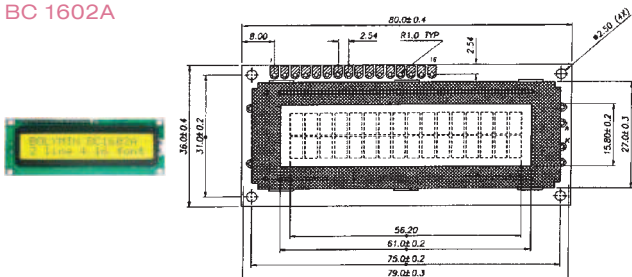
  

Module	Ord. No.
s BC 0802B YPLEH	69467
s BC 0802B YRNEH	69468

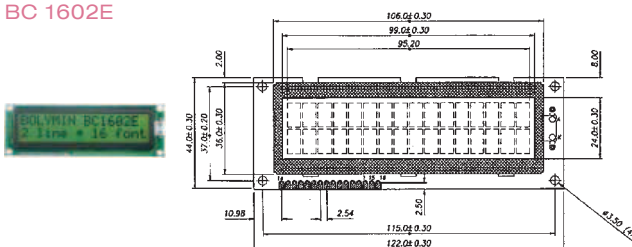
## 2x16 Characters

- alphanumeric LCD modules
- 2x16 characters
- BNHEH blue colour with white backlight (negative)
- FNHEH is black/white. Other models are with yellow/green LED backlight.
- Temperature range -20°C to +70°C.

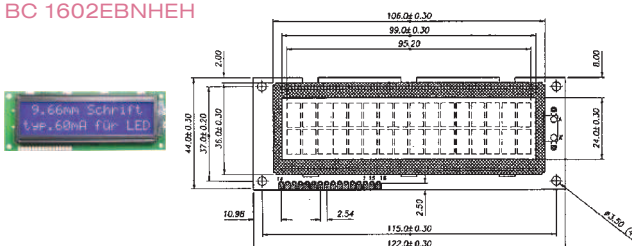
BC 1602A



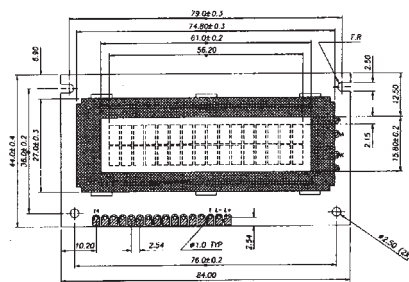
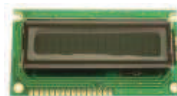
BC 1602E



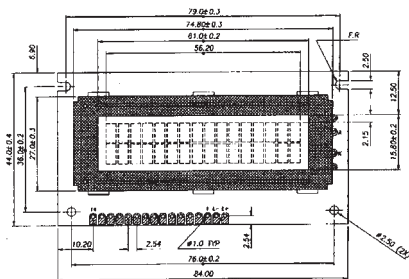
BC 1602EBNHEH



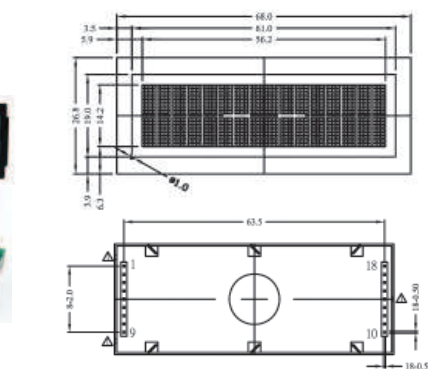
BC 1602H



BC1602HYPLEH



BC1602L



with pin headers

Module	Module Size (mm)	View. Area (mm)	Character Size (mm)	Fonts
BC 1602A BNHEH	80x36	66x16	2,96x5,56	eng/european
BC 1602A FNHEH	80x36	66x16	2,96x5,56	eng/european
BC 1602A YPLEH	80x36	66x16	2,96x5,56	eng/european
BC 1602A YPLCH	80x36	66x16	2,96x5,56	eng/cyrillic
BC 1602A YPLJH	80x36	66x16	2,96x5,56	eng/japan
BC 1602E BNHEH	122x44	99x24	4,84x9,66	eng/european
BC 1602E YPLEH	122x44	99x24	4,84x9,66	eng/european
BC 1602E YPLCH	122x44	99x24	4,84x9,66	eng/cyrillic
BC 1602H BNHEH	84x44	66x16	2,96x5,56	eng/european
BC 1602H FNHEH	84x44	66x16	2,96x5,56	eng/european
BC 1602H YPLEH	84x44	66x16	2,96x5,56	eng/european
BC 1602K YPGEH	59x29,3	52x15	2,54x4,67	eng/european
BC 1602L BNHEH	68x27	61x19	2,96x6,68	eng/european
BC 1602L YPLEH	68x27	61x19	2,96x6,68	eng/european

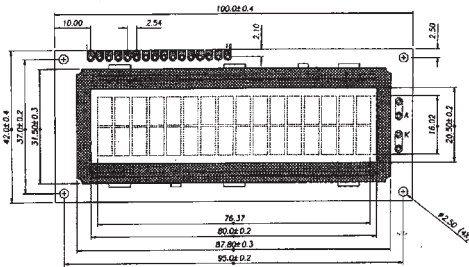
Part No.	Ord. No.
s BC 1602A BNHEH	57716
s BC 1602A FNHEH	63275
s BC 1602A YPLEH	52951
s BC 1602A YPLCH	54576
o BC 1602A YPLJH	54937
s BC 1602E BNHEH	55881
s BC 1602E YPLEH	52952
s BC 1602E YPLCH	55476
s BC 1602H BNHEH	63274
s BC 1602H FNHEH	63276
s BC 1602H YPLEH	52950
s BC 1602K YPGEH	72687
s BC 1602L BNHEH	70985
s BC 1602L YPLEH	70984

## 2x16 Characters

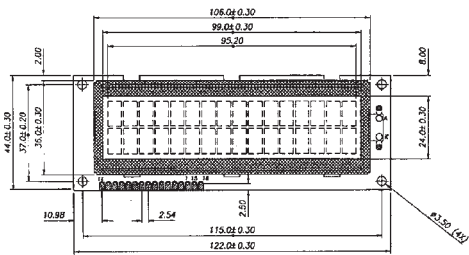


Alphanumeric LCD modules with 2x16 characters.  
DEM 16216 SBH-PW-N - blue colour with white backlight (negative).  
FNHEH - black/white colour.  
Other displays are green LED backlight.  
Temperature range: -20°C to +70°C

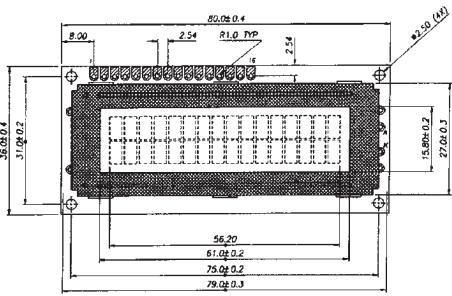
DEM 16214



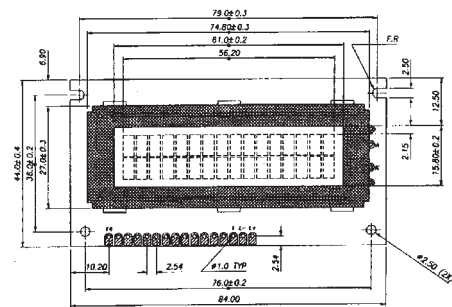
DEM 16215



DEM 16216



DEM 16217



Module	Module Size (mm)	Viewing Area (mm)	Character Size (mm)	Fonts
DEM 16214 SYH-LY	100x42	80x20,5	7,76x4,07	eng/japan
DEM 16215 SYH-LY	122x44	99x24	9,55x5,0	eng/japan
DEM 16216 SBH-PW-N	80x36	61x16	5,55x2,95	eng/japan
DEM 16216 SYH-LY	80x36	61x16	5,55x2,95	eng/japan
DEM 16217 SYH-LY	84x44	61x15,8	5,55x2,95	eng/japan
DEM 16217 SYH-PY	84x44	61x15,8	5,55x2,95	eng/japan

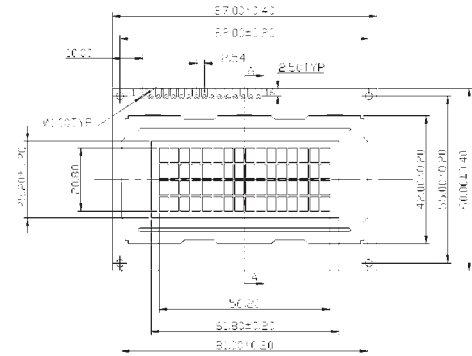
Part No.	Ord. No.
DEM 16214 SYH-LY	41180
DEM 16215 SYH-LY	41186
DEM 16216 SBH-PW-N	44219
DEM 16216 SYH-LY	41097
DEM 16217 SYH-LY	8481
DEM 16217 SYH-PY	3895

## 4x16 Characters



Alphanumeric LCD modules with 4x16 characters with yellow - green LED backlight. Temperature range: -20°C to +70°C

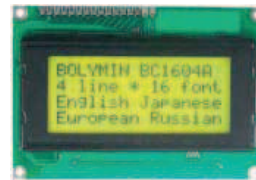
DEM 16481



Part No.	Module Size (mm)	Viewing Area (mm)	Character Size (mm)	Fonts
DEM 16481 SYH-LY	87x60	62x25	4,75x2,95	eng/japan

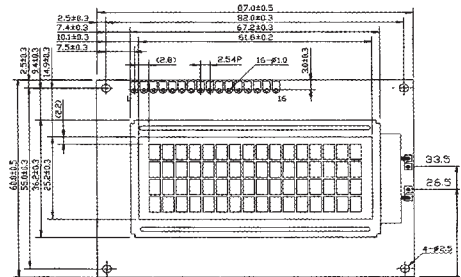
Part No.	Ord. No.
s DEM 16481 SYH-LY	41188

## 4x16 Characters



Alphanumeric LCD modules with 4x16 characters with yellow - green LED backlight. BC 1604A BNHEH is blue colour with white backlight (negative). Other models are with yellow - green LED backlight.  
Temperature range: -20°C to +70°C

BC 1604A



Part No.	Module Size (mm)	Viewing Area (mm)	Character Size (mm)	Fonts
BC 1604A BNHEH	87x60	62x26	4,75x2,95	eng/european
BC 1604A YPLEH	87x60	62x26	4,75x2,95	eng/european

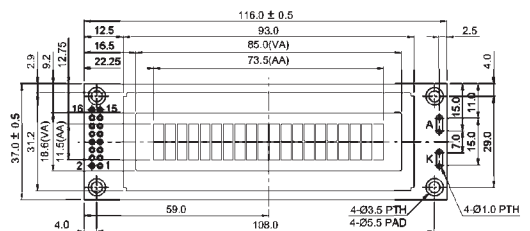
Part No.	Ord. No.
s BC 1604A BNHEH	56308
s BC 1604A YPLEH	52953

## 2x20 Characters

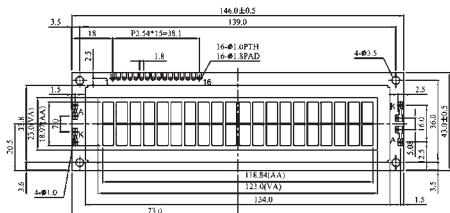


Alphanumeric LCD modules with 2x20 characters. BNHEH is blue colour with white backlight (negative). Other models are with yellow - green LED backlight.  
Temperature range: -20°C to +70°C

BC 2002A



## BC 2002C



Part No.	Module Size (mm)	Viewing Area (mm)	Character Size (mm)	Fonts
BC 2002A BNHEH	116x37	85x19	5,55x3,2	
BC 2002A YPLEH	116x37	85x19	5,55x3,2	eng/european
BC 2002C BNHEH	146x43	123x23	9,22x4,84	eng/european
BC 2002C YPLEH	146x43	123x23	9,22x4,84	

Part No.	Ord. No.
S BC 2002A BNHEH	62067
S BC 2002A YPLEH	54057
S BC 2002C BNHEH	55733
S BC 2002C YPLEH	55316

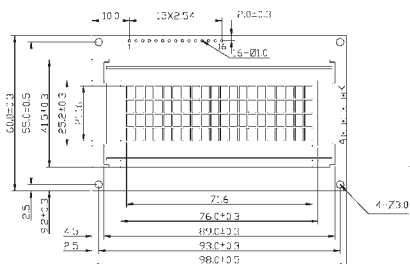
## 4x20 Characters



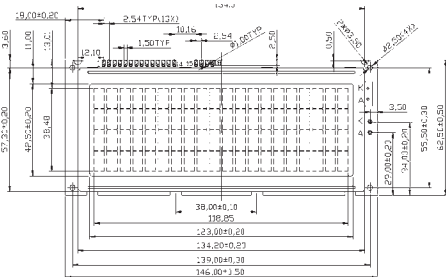
Alphanumeric LCD Modules with 4x20 characters. BNHEH is blue colour with white backlight (negative), BC 2004A FNHEH is black / white (negative). Other models are with yellow - green LED backlight. Temperature range: -20°C to +70°C.



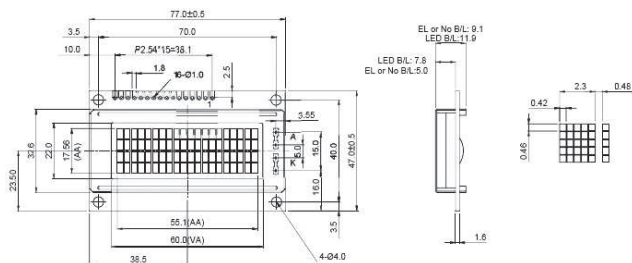
## BC 2004A



## BC 2004B



## BC 2004D



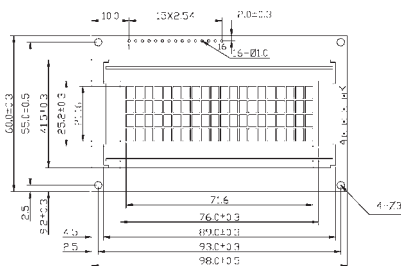
Part No.	Module Size (mm)	Viewing Area (mm)	Character Size (mm)	Fonts
BC 2004A BNHEH	98x60	77x25	4,75x2,95	
BC 2004A FNHEH	98x60	77x25	4,75x2,95	
BC 2004A YPLEH	98x60	77x25	4,75x2,95	eng/european
BC 2004B BNHEH	146x63	124x43	9,22x4,84	
BC 2004B YPLEH	146x63	124x43	9,22x4,84	eng/european
BC 2004D BNHEH	77x47	60x22	4,03x2,3	

Part No.	Ord. No.
S BC 2004A BNHEH	63675
S BC 2004A FNHEH	67496

## Part No. Ord. No.

S BC 2004A YPLEH	52954
S BC 2004B BNHEH	60143
S BC 2004B YPLEH	53766
S BC 2004D BNHEH	68622

## DEM 20485



Part No.	Module Size (mm)	Viewing Area (mm)	Character Size (mm)	Fonts
DEM 20485 SYH-LY	98,0x60,0	76,3x25,0	4,75x2,95	

## Part No. Ord. No.

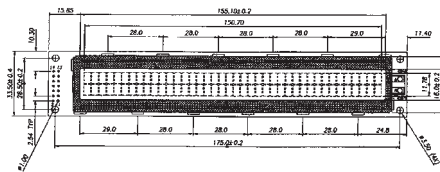
S DEM 20485 SYH-LY	3682
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## 2x40 Characters



Alphanumeric LCD Module with 4x16 characters with yellow - green LED backlight. Temperature range: 0°C to +50°C.

## DEM 40271



Part No.	Module Size (mm)	Viewing Area (mm)	Character Height (mm)	Fonts
DEM 40271 SY-LY	182,0x33,5	155,1x16,0	5,69	

## Part No. Ord. No.

S DEM 40271 SY-LY	41100
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## Numbering system for Bolymin LCD modules

B	C	2004	A	G	P	L	E	B	xxx
0	Brand	Bolymin							
1	Module Type	C= character type G= graphic type P= TAB/TCP type R= color STN				O= COG type F= COF type L= OLED			
2	Format	2002= 20 characters, 4 lines 12332= 122 x 32 dots							
3	Version No.	A type							
4	LCD Color	G=STN/gray Y=STN/yellow-green C= color STN				B=STN/blue F=FSTN T=TN			
5	LCD Type	R=positive/reflective P=positive/transflective				M=positive/transmissive N=negative/transmissive			
6	Backlight type/color	L=LED array/ yellow-green H=LED edge/white R=LED array/red G=LED edge/yellow-green N=No Backlight F=RGB				D=LED edge/blue E=EL/white B=EL/blue C=CCFL/white Y=LED Bottom/yellow O=LED array/orange K=LED edge/Green Pure A=LED edge/amber			
7	CGRAM Font	J=English/Japanese Font E=English/European Font G=Chinese (simple) F=Chinese (traditional)				C=English/Cyrillic Font H=English/Hebrew Font A=Arabic/English			
8	View Angle/ Operating Temperature	B=Bottom/Normal Temperature W=Top/Wide Temperature H=Bottom/Wide Temperature U=Bottom/Ultra wide Temperature				T=Top/Normal Temperature W=Top/Wide Temperature C=9H/Normal Temperature E=Top/ultra wide temperature			
9	Special Code	3=3 volt logic power supply n=negative voltage for LCD c=cable/connector xxx=to be assigned on datasheet				t=temperature compensation for LCD p=touch panel			

## EA DIP Alphanumeric Modules



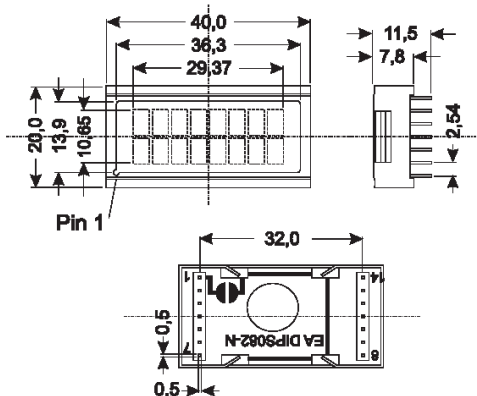
Because of their unique design, DIP modules are extremely compact: there is no PCB overhang, no drilled holes for assembly and no contact pads for connectors or cables. The viewing area is optimally sized and the large font makes reading easier. DIP modules are simply inserted in the PCB and soldered in place. No screws, distance sleeves or cables are required.

The displays forming and series are compatible both in terms of pins and dimensions. It is therefore a simple matter to use both and text display (e.g. 2 x 16) and and graphics display (e.g. 122 x 32) within and series without the need for any mechanical or hardware modifications.

### 2x8 Characters



Alphanumeric LCD Modules  
2x8 characters  
yellow-green LED backlight  
(besides EA DIPS082-HN)



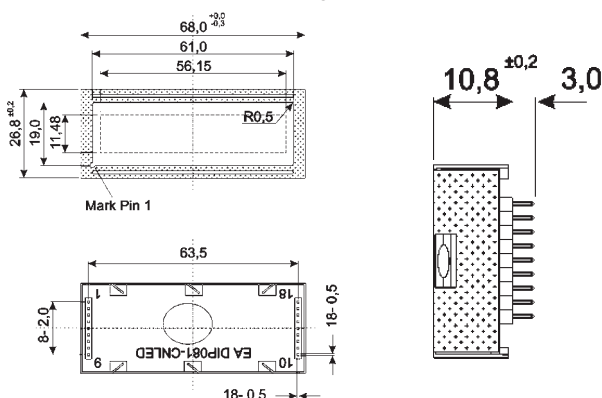
Part No.	Module Size (mm)	Viewing Area (mm)	Character or Dot Size (mm)	Temperature Range
EA DIPS082-HN	40x20x8	36x14	5,55x2,95	
EA DIPS082-HNLED	40x20x11	36x14	5,55x2,95	-20°C to +70°C

Part No.	Ord. No.
S EA DIPS082-HN	48382
S EA DIPS082-HNLED	49798

### 4x20 Characters



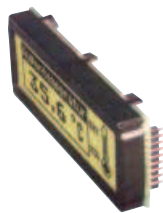
Alphanumeric LCD Modules  
4x20 characters  
DIP204B4NLW is blue with white backlight, other models are with yellow-green LED backlight.



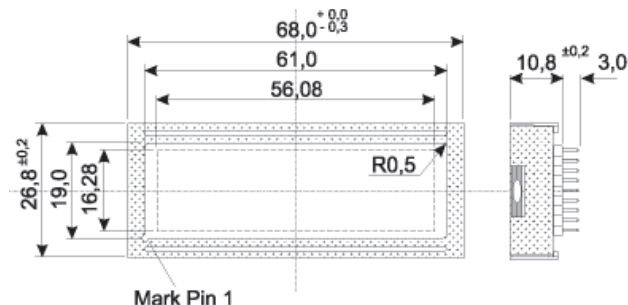
Part No.	Module Size (mm)	Viewing Area (mm)	Character or Dot Size (mm)	Temperature Range
EA DIP204-4NLED	68x27x11	61x19	3,72x2,31	0°C to +50°C
EA DIP204B-4NLW	75x27x11	61x19	3,72x2,31	-20°C to +70°C

Part No.	Ord. No.
S EA DIP204-4NLED	9716
S EA DIP204B-4NLW	49235

## EA DIP Graphic Modules 122x32 Dots



LCD Graphic Modules with 122x32 dots. Model EA DIPB-5NLW is with blue-white backlight, other models are with yellow-green LED backlight.



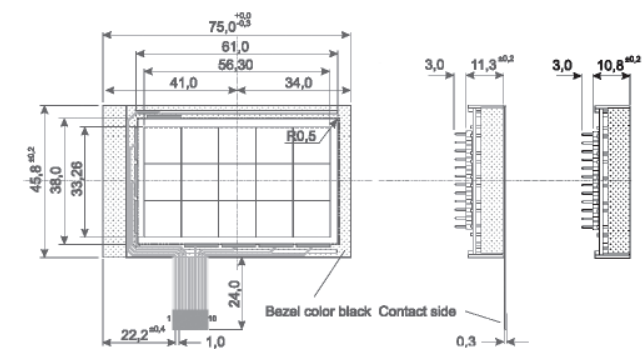
Part No.	Module Size (mm)	Viewing Area (mm)	Character or Dot Size (mm)	Temperature Range
EA DIP122-5HNLED	68x27	61x19	0,47x0,42	-20°C to +70°C

Part No.	Ord. No.
O EA DIP122-5HNLED	49375

### 128x64 Dots



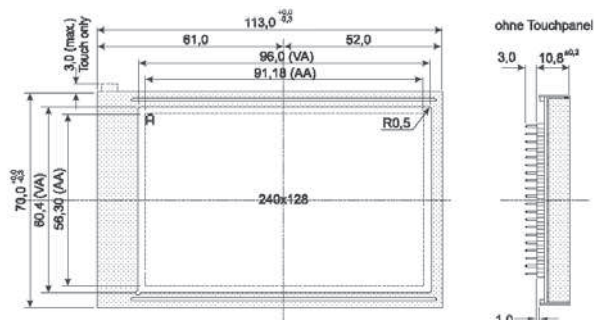
LCD Graphic Modules with 128x64 dots. Model EA DIP128J-6N5LWTP is with black-white backlight, other models are with blue-white LED backlight. Temperature range: -20°C to 70°C. Note: Touch panel, 5x3 buttons for TP models.



Part No.	Module Size (mm)	Viewing Area (mm)	Character or Dot Size (mm)
EA DIP128-6N5LWTP	75,0x45,8x11,3	61x36	0,50x0,42
EA DIP128J-6N5LWTP	75,0x45,8x11,3	61x36	0,50x0,42
EA DIP128J-6N5LETP	75,0x45,8x11,3	61x36	0,50x0,42
EA DIP128J-6N5LATP	75,0x45,8x11,3	61x36	0,50x0,42

Part No.	Ord. No.
O EA DIP128-6N5LWTP	52946
S EA DIP128J-6N5LWTP	48403
S EA DIP128J-6N5LETP	62369
S EA DIP128J-6N5LATP	62406

## EA eDIP Modules



Part No.	Module Size (mm)	Colour	Backlight	Temperature range
EAeDIP240J-7LWTP	113x70	FSTN, positive	LED, white	-20°C to +70°
EA eDIP240B-7LW	113x70	blue, negative	LED, white	-20°C to +70°
EA eDIP240J-7LW	113x70	FSTN, positive	LED, white	-20°C to +70°
EA eDIP240J-7LA	113x70	FSTN, positive	orange	-20°C to +70°
EA eDIP240J-7LATP	113x70	FSTN, positive	orange	-20°C to +70°

Part No.	Ord. No.
s EAeDIP240J-7LWTP	57759
o EA eDIP240B-7LW	67801
o EA eDIP240J-7LW	67802
o EA eDIP240J-7LA	67803
o EA eDIP240J-7LATP	67804

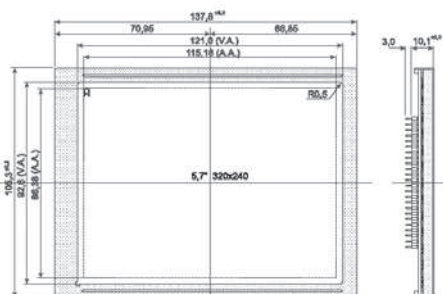
## Development Kit for eDIP240



Development kit for EA eDIP240-7LWT

Part No.	Ord. No.
s EA STARTERKIT-eDIP240	60373

## 320x240 Dots

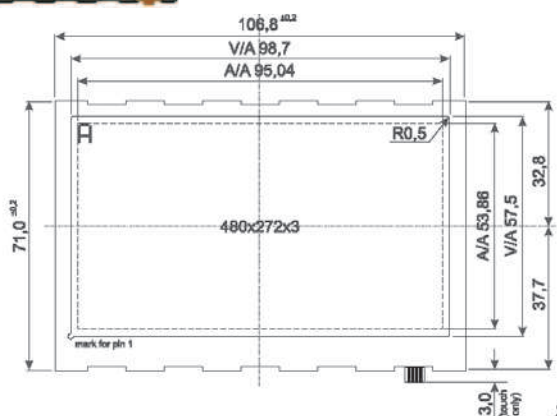


Part No.	Module Size (mm)	Colour	Backlight	Temperature Range
EA eDIP320B-8LW	138x105	blue, negative	LED, white	-20°C to +70°
EA eDIP320B-8LWTP	138x105	blue, negative	LED, white	-20°C to +70°

Part No.	Ord. No.
o EA eDIP320B-8LW	61340
o EA eDIP320B-8LWTP	67975

## EA eDIP TFT Modules

480x272 Dots



Part No.	Module Size (mm)	Backlight	Temperature Range	Note
EA eDIP243-ATP	107x71	LED, white	-20°C to +70°	touch panel

Part No.	Ord. No.
s EA eDIP243-ATP	69265

# More information needed?

## electroniconline

www.soselectronic.com

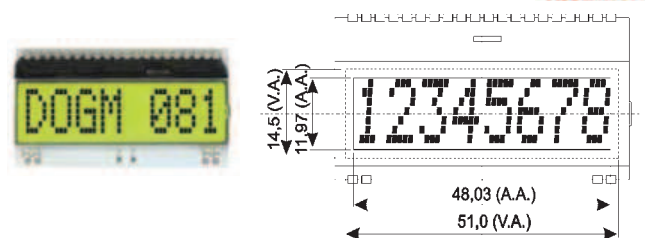
## EA DOG Alphanumerical Modules



With its EA DOG series, ELECTRONIC ASSEMBLY presents the world's first display series which will run on 3.3 V systems without auxiliary power. They can, of course be used on traditional 5 V systems. Unlike normal LCD modules, you order the display and the corresponding backlight separately. This gives you a wealth of possible combinations. Designed for compact hand-held devices, this modern LCD range provides a number of real benefits with or without backlight:

- extremely compact at 55 x 31 mm at the standard font size of 5.57 mm (2 x 16)
- ultra-flat at 2.0 mm without backlight or 5.8 mm including LED backlight
- 4-bit, 8-bit and SPI interface (4-wire)
- typical power consumption of only 250µA in full operation (LED white backlight as of 3mA)
- easy installation by simply soldering into the board
- a whole range of design variants (63) can be supplied as of single units
- changing background color

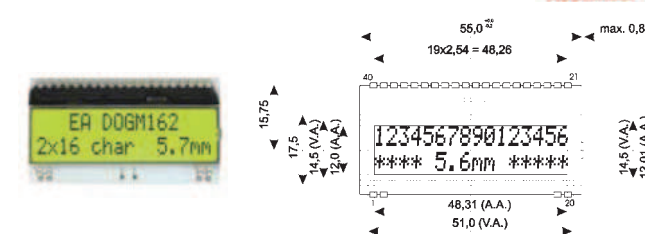
### 1x8 Characters



Part No.	Technology
EA DOGM081B-A	STN negative blue transmissive
EA DOGM081E-A	STN positive yellow/green transmissive
EA DOGM081L-A	STN positive yellow/green reflective
EA DOGM081S-A	FSTN negative black transmissive
EA DOGM081W-A	FSTN positive transfective

Part No.	Ord. No.
S EA DOGM081B-A	51746
S EA DOGM081E-A	51747
O EA DOGM081L-A	51748
S EA DOGM081S-A	51749
S EA DOGM081W-A	51750

### 2x16 Characters

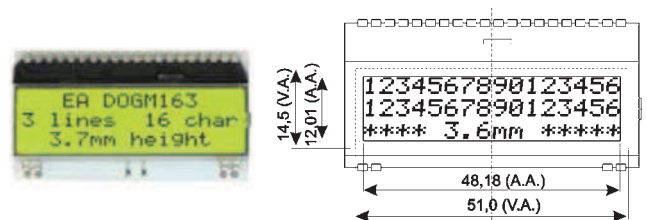


Part No.	Technology
EA DOGM162B-A	STN negative blue transmissive
EA DOGM162E-A	STN positive yellow/green transmissive
EA DOGM162L-A	STN positive yellow/green reflective
EA DOGM162S-A	FSTN negative black transmissive
EA DOGM162W-A	FSTN positive transfective

Part No.	Ord. No.
S EA DOGM162B-A	52013
S EA DOGM162E-A	52014
S EA DOGM162L-A	52086
S EA DOGM162S-A	52087
S EA DOGM162W-A	52088

Suitable backlight modules for EA DOG series you can find on the next page.

### 3x16 Characters



Part No.	Technology
EA DOGM163B-A	STN negative blue transmissive
EA DOGM163E-A	STN positive yellow/green transmissive
EA DOGM163L-A	STN positive yellow/green reflective
EA DOGM163S-A	FSTN negative black transmissive
EA DOGM163W-A	FSTN positive transfective

Part No.	Ord. No.
S EA DOGM163B-A	52089
O EA DOGM163E-A	52091
O EA DOGM163L-A	52092
S EA DOGM163S-A	52093
S EA DOGM163W-A	52094

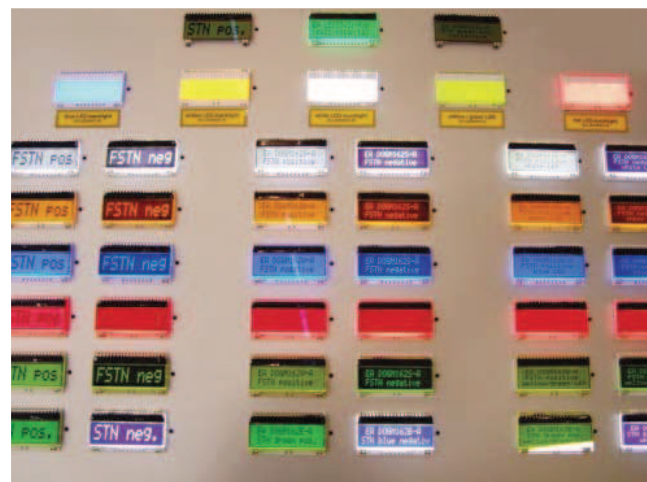
### Development Kit for EA DOGM



Development kit for EA DOGM16x, 132 and 128

Part No.	Ord. No.
S EA 9780-1USB	63406

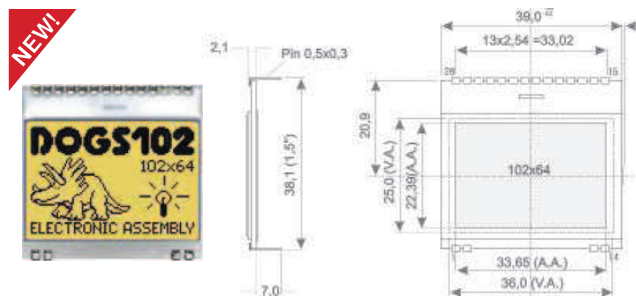
### EA DOG - Display variations



## EA DOG Graphic Modules



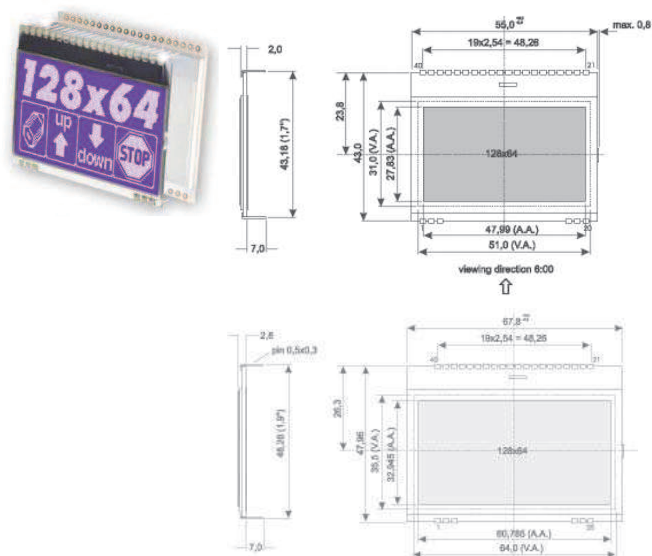
### 102x64 Dots



Part No.	Module Size (mm)	Type and colour
EA DOGS102B6	39x38	Blue Negative Transmissive
EADOGS102N-6	39x38	White Positive Reflective
EADOGS102W-6	39x38	White Positive Transmissive

Part No.	Ord. No.
S EA DOGS102B6	78609
S EADOGS102N-6	78612
S EADOGS102W-6	78607

### 128x64 Dots

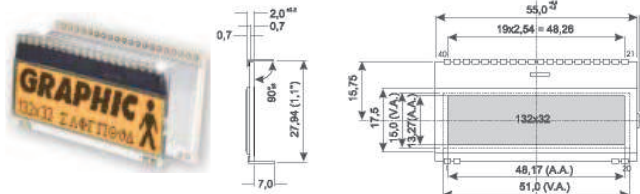


Part No.	Module Size (mm)	Type and colour
EA DOGM128B-6	55x46	STN negative transmissive, blue
EA DOGM128E-6	55x46	STN positive transmissive, green-yellow
EA DOGM128L-6	55x46	STN positive reflective, green-yellow
EA DOGM128S-6	55x46	FSTN negative transmissive, black
EA DOGM128W-6	55x46	FSTN positive transmissive, white
EA DOGL128B-6	68x51	STN negative transmissive, blue
EA DOGL128E-6	68x51	STN positive transmissive, green-yellow
EA DOGL128L-6	68x51	STN positive reflective, green-yellow
EA DOGL128S-6	68x51	FSTN negative transmissive, black
EA DOGL128W-6	68x51	FSTN positive transmissive, white

DOGL - large (68x51mm)

Part No.	Ord. No.
S EA DOGM128B-6	60674
S EA DOGM128E-6	60675
S EA DOGM128L-6	60676
S EA DOGM128S-6	60678
S EA DOGM128W-6	60680
S EA DOGL128B-6	69512
S EA DOGL128E-6	69513
S EA DOGL128L-6	69515
S EA DOGL128S-6	69517
S EA DOGL128W-6	69518

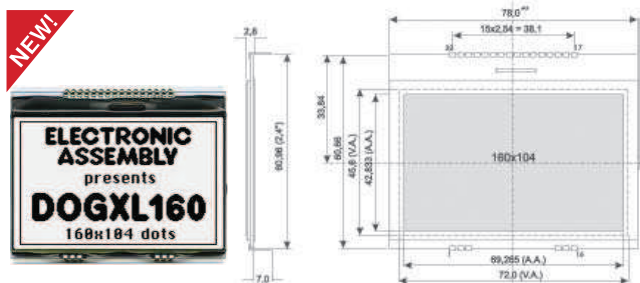
### 132x32 Dots



Part No.	Module Size (mm)	Type and colour
EA DOGM132W-5	55x31	FSTN positive transmissive
EA DOGM132E-5	55x31	STN positive transmissive, green-yellow
EA DOGM132B-5	55x31	STN negative transmissive, blue
EA DOGM132S-5	55x31	FSTN negative transmissive
EA DOGM132L-5	55x31	STN positive reflective, green-yellow

Part No.	Ord. No.
S EA DOGM132W-5	63393
S EA DOGM132E-5	63401
S EA DOGM132B-5	63402
S EA DOGM132S-5	63403
S EA DOGM132L-5	63405

### 160x104 Dots



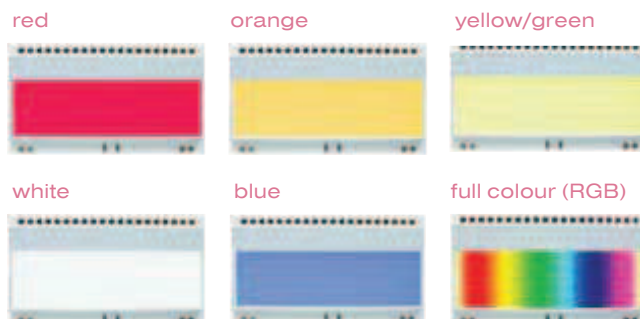
Part No.	Module Size (mm)	Type and colour
EADOGXL160L-7	78x90,96	Yellow/Green Positive Reflective
EADOGXL160W-7	78x90,96	White Positive Transmissive
EADOGXL160B-7	78x90,96	Blue Negative Transmissive

Part No.	Ord. No.
S EADOGXL160L-7	78656
S EADOGXL160W-7	78653
S EADOGXL160B-7	78654

## Backlight Panels for EA DOG



Simply clip the display and the backlighting unit together and you have up to 23 possible combinations.



Part No.	Colour backlight
EA LED 39x41-W	LED B/L for DOGS, white
EA LED 39x41-A	LED B/L for DOGS, orange
EA LED55x31-A	LED B/L for DOGM, orange
EA LED55x31-B	LED B/L for DOGM, blue
EA LED55x31-G	LED B/L for DOGM, green/yellow
EA LED55x31-R	LED B/L for DOGM, red
EA LED55x31-W	LED B/L for DOGM, white
EA LED55x31-RGB	LED B/L for DOGM, RGB
EA LED55x46-A	LED B/L for DOGM128, orange



## Backlight Panels for EA DOG Series (continued)

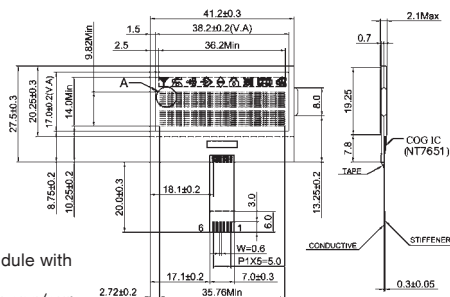
EA LED55x46-E	LED B/L for DOGM128, pure green
EA LED55x46-G	LED B/L for DOGM128, green/yellow
EA LED55x46-R	LED B/L for DOGM128, red
EA LED55x46-B	LED B/L for DOGM128, blue
EA LED55x46-W	LED B/L for DOGM128, white
EA LED55x46-RGB	LED B/L for DOGM128, RGB full color
EA LED68x51-A	LED B/L for DOGM-L128, orange
EA LED68x51-B	LED B/L for DOGM-L128, blue
EA LED68x51-E	LED B/L for DOGM-L128, pure green
EA LED68x51-G	LED B/L for DOGM-L128, green/yellow
EA LED68x51-R	LED B/L for DOGM-L128, red
EA LED68x51-W	LED B/L for DOGM-L128, white
EA LED68x51-RGB	LED B/L for DOGM-L128, RGB full color
EA LED78x64-A	LED B/L for DOGXL, orange
EA LED78x64-B	LED B/L for DOGXL, blue
EA LED78x64-E	LED B/L for DOGXL, green
EA LED78x64-G	LED B/L for DOGXL, green
EALED78x64-R	LED B/L for DOGXL, red
EALED78x64-RGB	LED B/L for DOGXL, RGB
EALED78x64-W	LED B/L pre DOGXL, white

Part No.	Ord. No.
S EA LED 39x41-W	78614
S EA LED 39x41-A	78613
S EA LED55x31-A	51751
S EA LED55x31-B	51752
S EA LED55x31-G	51753
S EA LED55x31-R	51754
S EA LED55x31-W	51755
S EA LED55x31-RGB	59492
S EA LED55x46-A	60682
S EA LED55x46-E	60684
S EA LED55x46-G	60685
S EA LED55x46-R	60686
S EA LED55x46-B	60687
S EA LED55x46-W	60688
S EA LED55x46-RGB	63623
S EA LED68x51-A	69505
S EA LED68x51-B	69506
S EA LED68x51-E	69507
S EA LED68x51-G	69508
S EA LED68x51-R	69510
S EA LED68x51-W	69839
S EA LED68x51-RGB	69511
O EALED78x64-A	78678
O EALED78x64-B	78676
O EALED78x64-E	78679
O EALED78x64-G	78675
O EALED78x64-R	78677
O EALED78x64-RGB	78680
O EALED78x64-W	78674

## Alphanumeric LCD Modules with FFC

### 2x16 Characters

BO 1602D



- alphanumeric LCD module with flex wire
- 2x16 characters, fonts: eng/eur
- without backlight
- COG package
- 5x7 dots with cursor, icons
- Built-in controller ST7032i
- + 3.3V single power supply
- 1/16 duty cycle
- I2C Serial interface.

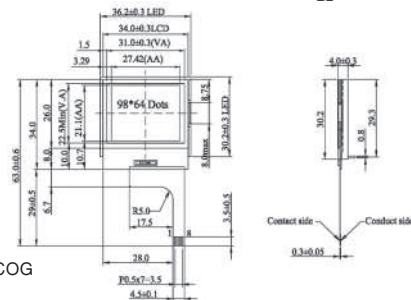
Part No.	Module Size (mm)	Viewing Area (mm)	Character Size (mm)	Temperature Range
BO 1602D GPNEB	41,2x27,5	38,2x17,0	4,56x1,86	0°C to +50°C

Part No.	Ord. No.
S BO 1602D GPNEB	64822

## Graphic LCD Modules with FC

### 98x64 Dots

BO 9864B



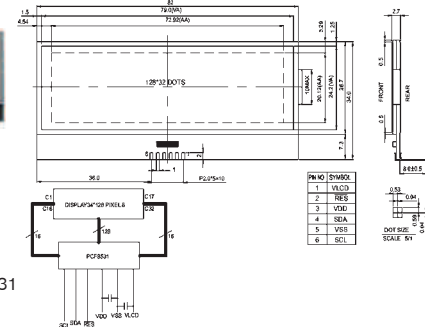
- FSTN Transflective LCD, COG package
- built-in driver ST7548i, serial I2C data bus
- 1/64 duty cycle
- +3V power supply
- with FPC and ZIF connector

Part No.	Module Size (mm)	Viewing Area (mm)	Dot Size (mm)	Temperature Range
BO 9864B FPNH	34x34	31,0x22,5	0,31x0,26	0°C to +50°C

Part No.	Ord. No.
S BO 9864B FPNH	62373

## 128x32 Dots

BO 12832A



- STN/gray
- positive/transflective
- without backlight
- COG package
- Built-in controller PCF8531
- +5V power supply
- 1/32 duty cycle
- I2C series interface

Part No.	Module Size (mm)	Viewing Area (mm)	Dot size (mm)	Temperature Range
BO 12832A GPNB	82x34	79x24	0,53x0,59	0°C to +50°C

Part No.	Ord. No.
S BO 12832A GPNB	52160



## Intelligent Graphic LCD Modules (EA KIT)

The EA graphics kit is a fully assembled control and operating unit with a variety of integrated functions. As well as offering excellent super-twist contrast, the compact display can be put into operation immediately. It is controlled via the standard RS-232 or RS-422 interface. In addition to complete graphics routines for display output, the graphics kit also contains a wide variety of fonts.



High-level language-type graphics commands are used for programming. There is no longer any need for the time-consuming programming of character sets and graphics routines. There's no need for any driver software or programming tools. The ease of use offered by macros and input via touch panel make it a real power display.

The graphics kit is designed to work with an operating voltage of +5V. A supply voltage of +9..36 V is also possible. Serial asynchronous data transfer is carried out in RS-232 or RS-422 format. The transmission format is set permanently to 8 data bits, 1 stop bit and no parity. Rates between 1200 bps and 115,200 bps can be selected by means of DIP switches. RTS and CTS handshake lines are available.

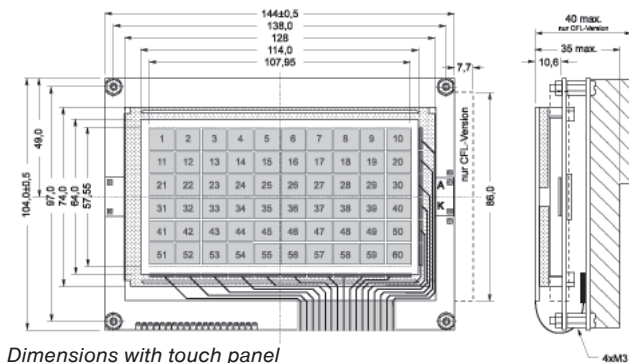
All versions are supplied with an integrated touch panel. You can make entries and menu settings by touching the display. The labeling of the "keys" is flexible and can also be changed during runtime (different languages, icons). The drawing of the individual "keys" and the labeling or grouping of several fields is handled entirely by the integrated software. Programming the fields couldn't be simpler.

### 240x128 Dots



EA KIT240-7CTP: blue background with white characters. Extreme bright and with high contrast. Lifetime for backlight 10 000-20 000h. Current consumption typ. 450mA-

EA KIT240-7LEDTP: yellow/green background with black characters. Good contrast, lifetime 10 000h. Current consumption typ. 1200mA

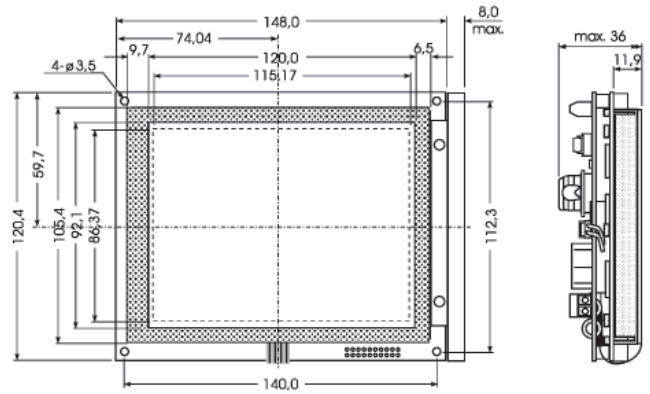
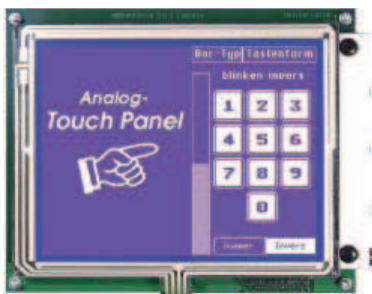


Part No.	Module Size (mm)	Viewing Area (mm)	Dot Size (mm)	Touch Fields
EA KIT240-7CTP	144x104	114x64	0,40x0,40	10x6
EA KIT240-7LEDTP	144x104	114x64	0,40x0,40	10x6

Part No.	Ord. No.
EA KIT240-7CTP	9079
EA KIT240-7LEDTP	9720

### 320x240 Dots

EA KIT320-8CTP :with CFL illumination, blue negative  
EA KIT320-8LWTP white LED illumination, positive mode, FSTN  
EA KIT320F-8CTP CCFL with CFL backlight and 16 colours.



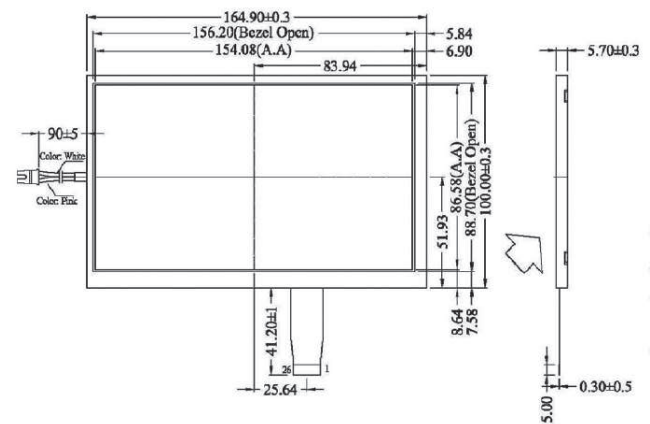
Part No.	Module Size (mm)	Viewing Area (mm)	Dot Size (mm)	Touch Fields
EA KIT320-8CTP	148x120,4	120x92,1	0,33x0,33	analog
EA KIT320-8LWTP	148x120,4	120x92,1	0,33x0,33	analog
EA KIT320F-8CTP	155x115	118x89	0,33x0,33	analog

Part No.	Ord. No.
EA KIT320-8CTP	9721
EA KIT320-8LWTP	9722
EA KIT320F-8CTP	52433

## TFT Modules 7,0" Screen Size



TFT modules 7,0" diagonal  
NTSC/PAL signal input  
CVBS/S video input  
+12V single power supply  
CCFL backlight



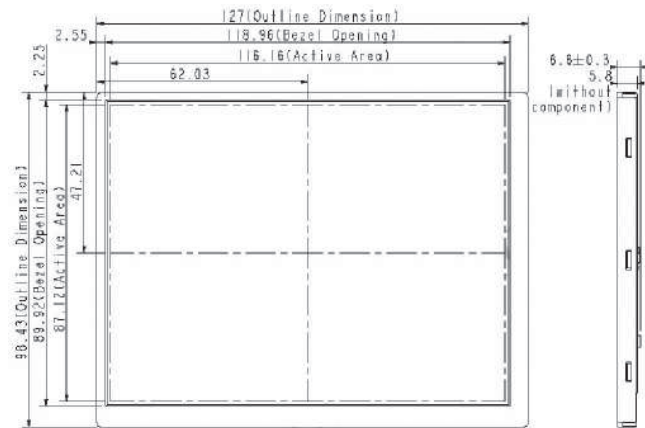
Part No.	Module Dimensions (mm)	Active Area (mm)	Displast Format (mm)
BT 7.0 ACB	164,9x100,0x5,7	154,08x86,58	1440x234

Part No.	Ord. No.
S BT 7.0 ACB	63719

## 5,7" Screen Size



TFT modules 5,7" diagonal  
LVDS input interface  
+5V single power supply  
LED backlight



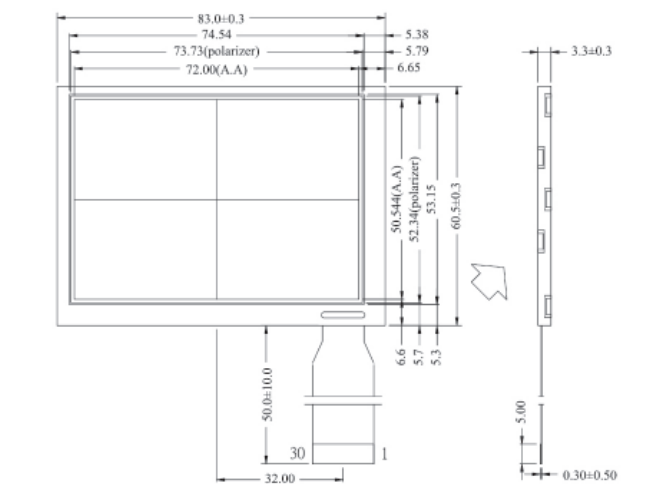
Part No.	Module Dimensions (mm)	Active Area (mm)	Displat Format (mm)
BT 5.7 ADNHW	127x98,5x6,6	116,16x87,12	640x480

Part No.	Ord. No.
BT 5.7 ADNHW	67811

## 3,5" Screen Size



TFT modules 3,5" diagonal  
NTSC/PAL signal input  
CVBS/S video input  
+12V single power supply  
LED backlight



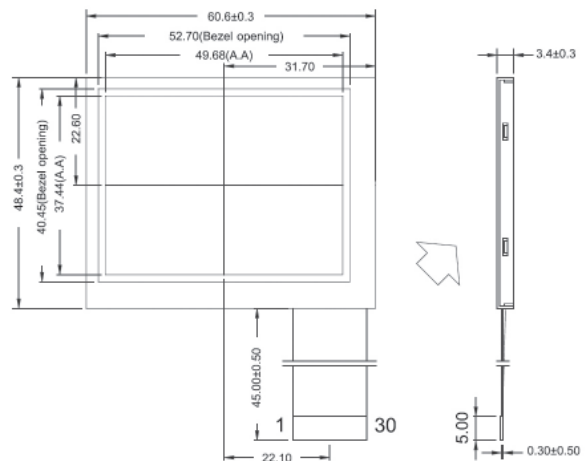
Part No.	Module Dimensions (mm)	Active Area (mm)	Displat Format (mm)
BT 3.5 B ACHB	83x60,5x3,3	72x50,5	480x234

Part No.	Ord. No.
BT 3.5 B ACHB	63717

## 2,5" Screen Size



TFT modules 2,5" diagonal  
NTSC/PAL signal input  
CVBS/S video input  
+12V single power supply  
LED backlight

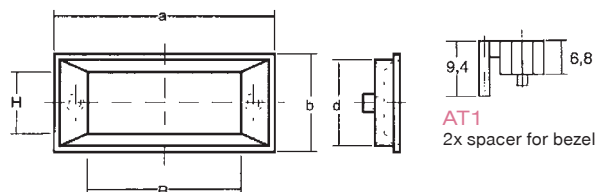


Part No.	Module Dimensions (mm)	Active Area (mm)	Displat Format (mm)
BT 2.5A HB	60,6x48,4,5x3,4	79,68x37,44	480x234

Part No.	Ord. No.
BT 2.5 AHB	63716

## Display Accessories

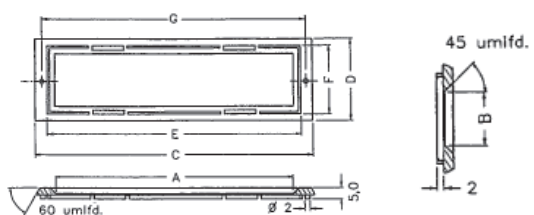
### Bezels



AT1  
2x spacer for bezel

Part No.	Description
AR1938	Bezel for 3-digit LCD/LED display with 13mm characters B=38mm, H=19mm, a=59mm, b=32mm, d=28mm
AR1950	Bezel for 4-digit LCD/LED display with 13mm characters B=50mm, H=19mm, and=70mm, b=32mm, d=28mm
AT 1 (pair)	Spacer for LED/LCD frame

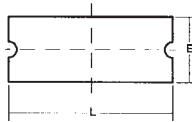
Part No.	Ord. No.
S AR1938	2069
S AR1950	11254
S AT 1 (pair)	11255



Part No.	Description
FR 919.040	Plastic bezel for LCD module 16x2, black A=60mm, B=14,8mm, C=76mm, D=27mm, E=66,2mm, F=21,2mm, G=71mm

Part No.	Ord. No.
S FR 919.040	7587

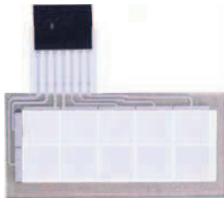
## Display Filters



Part No.	Description
FS1938AC-RT	Display Filter, red, suitable for AR1938, LxE=51x25mm
FS1950AC-RT	Display Filter, red, suitable for AR1950, LxE=63x25mm

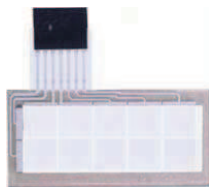
Part No.	Ord. No.
S FS1938AC-RT	2068
S FS1950AC-RT	7461

## Touch Panels



Part No.	Description
EA TOUCH10X6-A	Touch Panel for EA P240-7 matrix 10x6
EA TOUCH12X4-A	Touch Panel for EA P240-6 matrix 12x4
EA TOUCH240-1	Touch Panel for EA DIP240 analog
EA TOUCH320-2	Touch Panel for EA DIP320 analog
EA TOUCH5X2-A	Touch Panel for EA P120-5 matrix 5x2
EA TOUCH5X3-A	Touch Panel for EA DIP128 matrix 5x3
EA TOUCH8X4-A	Touch Panel for EA P128-6N2 matrix 8x4
EA TOUCH8X7-A	Touch Panel for EA W160-7 matrix 8x7
EA TOUCH128-1	Touch Panel for EA DOGM128 analog
EA TOUCH128-2	Touch Panel for EA DOGL128 analog
EA TOUCH160-1	Touch Panel for EADOGXL160 analog

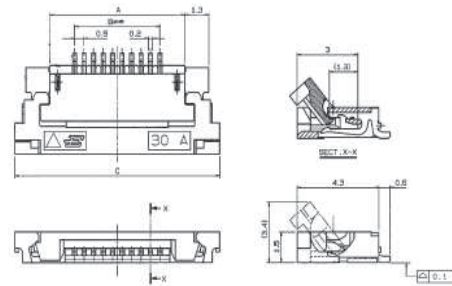
Part No.	Ord. No.
O EA TOUCH10X6-A	50196
O EA TOUCH12X4-A	50198
O EA TOUCH240-1	50202
O EA TOUCH320-2	50203
O EA TOUCH5X2-A	48944
O EA TOUCH5X3-A	50199
S EA TOUCH8X4-A	50200
O EA TOUCH8X7-A	50201
S EA TOUCH128-1	64531
S EA TOUCH128-2	69520
S EA TOUCH160-1	78685



Part No.	Description
TP 240128 AAW1	Touch Panel for BG240128A, analog
TOUCH PANEL 7,0"	Touch Panel for BT7,0"

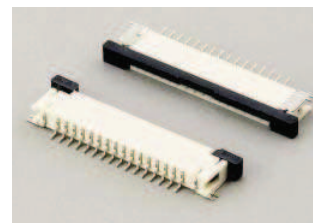
Part No.	Ord. No.
O TP 240128 AAW1	57207
O TOUCH PANEL 7,0"	69843

## Connectors



Part No.	Description
EA FL-20P	Socket connector for EA DOG module, 20pin, 4,8mm height
EA WF100-10S	ZIF connector for TP, 10pin, RM1mm, horizontal, bottom
EA WF100-04S	ZIF connector for EA TOUCH128-1

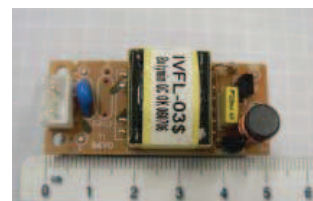
Part No.	Ord. No.
O EA FL-20P	55411
S EA WF100-10S	48404
S EA WF100-04S	65181



Part No.	Description
CT061DTZ0	ZIF connector for BO1602B
CT161DDZ0	ZIF connector for BO12864D bottom contact
CT081FTZ0	ZIF connector 8pin, 0,5mm for BO9864
CT081DTZ0	ZIF connector for BO1602D

Part No.	Ord. No.
S CT061DTZ0	60710
S CT161DDZ0	62622
S CT081FTZ0	63238
S CT081DTZ0	64824

## Inverters



Part No.	Description
Inverter IVFL-03	Inverter for CCFL Backlight Vin=5V
Inverter IVFL-14	Inverter for CCFL Backlight for TFT5,6"
Inverter IVFL-15	Inverter for CCFL Backlight for TFT7,0"
Inverter IVFL-16	Inverter for CCFL Backlight for TFT7,0", DC 12V
CXA-0214 TDK	Inverter "TDK" k LQ64D341

Part No.	Ord. No.
S Inverter IVFL-03	52734
S Inverter IVFL-14	64720
S Inverter IVFL-15	64721
S Inverter IVFL-16	69047
O CXA-0214 TDK	48397

## Electromagnetic Display Modules

H700 electromagnetic display modules with 10 to 58 cm characters height. Exceptional readability and reliability. Indoor or outdoor



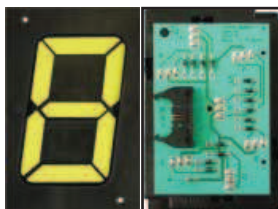
**Bodet**

[www.bodet.com](http://www.bodet.com)

Display with card

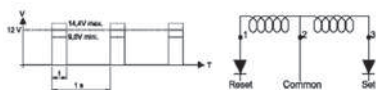
The main advantages are the following :

- Perfect readability even in harsh conditions such as bright light or direct sunlight (unlike diods display systems)
- Operating temperature: from -40°C to +70°C
- No power consumption at rest
- Life over 70 million operations



Impulses diagram

Coil electrical diagram



### Application Sectors

- Petrol price signs
- Time, temperature, date, sound display
- Sport timing and scoring
- Toll indications boards for highways and tunnel bridges
- Industrial productivity and quality measures
- Weight, speed, flow display...
- Queueing system, stock exchange, exchange rate
- Motel room prices
- Events count up and down in days, hours and seconds



Part No.	Outside dimensions without card HxWxD [mm]	Outside dimensions with card HxWxD [mm]	Character Size [mm]
H 710	148x95x51 mm	148x95x62 mm	105 mm
H 715	204x141x53 mm	204x141x65 mm	158 mm
H 725	306x230x53 mm	306x230x65 mm	253 mm
H 725E	306x230x51 mm	306x230x62 mm	253 mm
H 730	395x275x74 mm	395x275x90 mm	304 mm
H 745	575x400x67 mm	575x400x82 mm	456 mm
H 758	710x515x72 mm	710x515x87 mm	585 mm

Part No.	Maximum viewing distance	Casing
H 710	40 m	plastic/polycarbonate
H 715	60 m	plastic/polycarbonate
H 725	100 m	plastic/polycarbonate
H 725E	100 m	plastic/polycarbonate
H 730	125 m	aluminium
H 745	200 m	aluminium
H 758	250 m	aluminium

Part No.	Ord. No.
o H 710 WHITE	1628
o H 710 YELLOW	1631
o H 710 YELLOW w. CARD	49888
o H 715 YELLOW	1632
o H 715 YELLOW w. CARD	48523
o H 725E WHITE	43612
o H 725E YELLOW	48763
o H 725E YELLOW w. CARD	50841
o H 730 WHITE w. CARD	1630
o H 730 YELLOW	1629
o H 730 YELLOW w. CARD	46971
o H 745 WHITE w. CARD	50646
o H 745 YELLOW w. CARD	49889
o H 758 YELLOW w. CARD	49890

# online ordering



**SOS**  
electronic  
europe

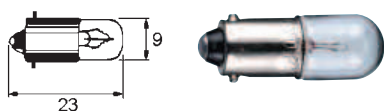
**electroniconline**

[www.soselectronic.com](http://www.soselectronic.com)



## Filament Lamps

**LB**  
bayonet BA9s

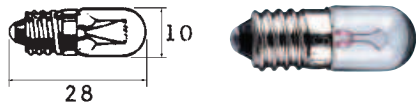


Part No.	Description
LB24V85	bayonet BA9s, 24V/85mA

Part No.	Ord. No.
S LB24V85	14281

**L x x B**  
screw E10



Part No.	Description
L12V100B	screw E10, cylindrical, 12V/100mA

Part No.	Ord. No.
S L12V100B	8090

**L x x A**  
screw E5



Part No.	Description
L12V50A	screw E5,5, 12V/50mA
L6V50A	screw E5,5, 6V/50mA

Part No.	Ord. No.
S L12V50A	8088
S L6V50A	5276

**LF**  
solderable eyelets



**LF PCB mount**



**LF-BA**



Part No.	Description
LF-BA9S	Holder for bayonet BA9S, solderable eyelets
LF-E10M	Holder for E10, PCB mount, RM=10mm
LF-E10M/LF	Holder for E10, solderable eyelets
LF-E5,5P	Holder for E5,5, PCB mount, RM=7,5mm

Part No.	Ord. No.
S LF-BA9S	8097
S LF-E10M	5280
S LF-E10M/LF	5281
S LF-E5,5P	8096

**LG**

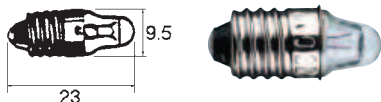


Part No.	Description
LG12V20A	Wire ended, miniature 4,2x11,7mm, 12V/20mA
LG12V75A	Wire ended, miniature 4,2x11,7mm, 12V/75mA
LG6V80A	Wire ended, miniature 4,2x11,7mm, 6V/80mA

Part No.	Ord. No.
S LG12V20A	14270
S LG12V75A	14272
S LG6V80A	14269

**LL**  
screw E10



Part No.	Description
LL2,5V200B	screw E10 2,5V/200mA

Part No.	Ord. No.	1+	10+	50+
S LL2,5V200B	29603			

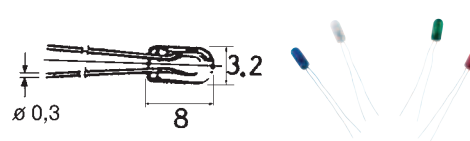
**LK**  
screw E10



Part No.	Description
LK12V200B	screw E10 12V/200mA
LK2,5V300B	screw E10 2,5V/300mA
LK3,5V200B	screw E10 3,5V/200mA
LK4,5V300B	screw E10 4,5V/300mA
LK6,0V50B	screw E10 6V/50mA

Part No.	Ord. No.
S LK12V200B	8095
S LK2,5V300B	8091
S LK3,5V200B	8092
S LK4,5V300B	8093
S LK6,0V50B	8094

**LSG**



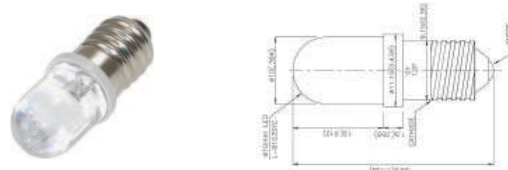
Part No.	Description
LSG12V50A	wire ended, subminiature 3,2x8mm, 12V/50mA
LSG6V50A	wire ended, subminiature 3,2x8mm, 6V/50mA

Part No.	Ord. No.
S LSG12V50A	3940
S LSG6V50A	5274

## LED Lamps

### BLS 101 Series

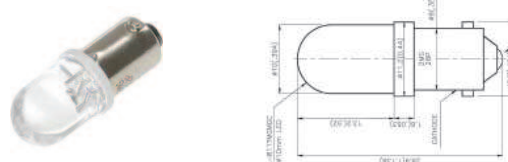


Part No.	Description
BLS101SYC-12V-P	LED lamp 10mm E10 1200mcd 588nm 20° yellow
BLS101SYC-28V-P	LED lamp 10mm E10 350mcd 588nm 20° yellow

Part No.	Ord. No.
S BLS101SYC-12V-P	47944
S BLS101SYC-28V-P	47945

### BLB 102 Series



Part No.	Description
BLB102MGC-28V-P	LED lamp 10mm bayonet 400mcd 568nm 40° green
BLB102SURC-E-12V-P	LED lamp 10mm bayonet 1800mcd 40° red
BLB102SURC-E-28V-P	LED lamp 10mm bayonet 1300mcd 40° red
BLB102SYC-28V-P	LED lamp 10mm bayonet 600mcd 588nm 40° yellow

Part No.	Ord. No.
S BLB102MGC-28V-P	47786
S BLB102SURC-E-12V-P	47933
S BLB102SURC-E-28V-P	47934
S BLB102SYC-28V-P	47937

## Camera Modules

### PCB Colour Camera Modules

CAM01-C



The CAM01-C turns a complete colour video camera into a component of your product. It is a CMOS type video camera specially designed for the cost sensitive consumer electronics application. It offers the unique benefits such as low power consumption, low cost, small size together with consistent image quality. Application: visual door phone, security systems, machine vision....

ITM-C-328



The C328 module is a highly integrated serial camera board that can be attached to a wireless or PDA host performing as a video camera or a JPEG compressed still camera. It provides a serial interface (RS-232) and JPEG compression engine to act as a low cost and low powered camera module for high-resolution serial bus security system or PDA accessory applications.

Technical data	CAM 01-C	ITM-C-328
<b>Array Size</b>	628x582	640x480 pix
<b>Output</b>	1Vp-p/75 Ohm	serial (RS-232)
<b>Lens</b>	f6,0mm (with IR filters)	f4,0mm F2.2
<b>Operation Voltage</b>	5 VDC / 10mA	3,3 VDC
<b>Dimensions</b>	22x22x28 mm	20x28mm
<b>Note</b>	PCB mount	JPEG compression module

Part No.	Description
CAM 01-C	CMOS 1/4" color 5V, PCB mount
ITM C328	RS232, JPEG compression, 20x28mm, 3,3V

Part No.	Ord. No.
S CAM 01-C	8557
S ITM C328	50228

### ECT Camera Module



S/W Cameramodul, 1/3"B/W CCIR Sensor, 352x288 Pixel, 0,5 Lux, Resolution 320 TV Lines, Lens 4,2 mm/F2.0, Autom., Electronic-Shutter 1/50 s, Video Output 1Vp-p 75 Ohm, Temperature range 0-40°C, Power Supply 9,6-14,4 VDC/max. 1,7W, Dimensions 69x46x27 mm, Weight 31 g, Terminals Red=+12V/DC, Black=G-round, Yellow=Video Out.

Part No.	Ord. No.
S ECT Camera	78450

### Network Camera Modules

IPC 98



This is a cost effective network camera solution for consumer market. It integrates the JPEG codec, Ethernet MAC and embedded TCP/IP networking that supports DDNS, DHCP and acts as a HTTP server. It serves a special function of remote snap shot. Using any internet browser which supports image display, one can get the still image from the camera to the remote device. No special plug-in software is required.

- Built-in 2Mpix CMOS sensor, lens included
- JPEG compression for still picture of 1600x1200
- Network support
- TCP/IP
- DNS/DDNS/DHCP
- HTTP/PPPoE/FTP/SMTP
- Working individually without PC connected
- Motion detect to store image in SD card (optional) or send image to email or FTP
- User friendly, camera search program is provided

Part No.	Ord. No.
O IPC 98	77209

### Video Cameras with Wires

SX-312BS



B/W subminiature CMOS camera with microphone

SX-312AS



Colour subminiature CMOS camera with microphone.

Technical data	SX-312 BS	SX-312 AS
<b>Image</b>	B/W	colour
<b>Resolution</b>	352x288	628 x 582
<b>Output</b>	1Vp-p 75 Ohm	1Vp-p 75 Ohm
<b>Objective</b>	5,5mm	5,5mm
<b>Operation Voltage</b>	6-12 VDC	6-12 VDC
<b>Temperature Range</b>	-10°C to +50°C	-10°C to +50°C
<b>Dimensions</b>	15x15x17 mm	15x15x17 mm
<b>Note</b>	wires, microphone	wires, microphone

Type	Description
SX-312BS SUB-MINI CAMERA CMOS B/W	Camera B/W+microphone
SX-312AS SUB-MINI CAMERA CMOS COLOR	Camera colour+microphone

Part No.	Ord. No.
S SX-312BS	45948
S SX-312AS	45912

SX-203BS



B/W CMOS camera with microphone

SX-203AS



Color CMOS camera with microphone

Technical data	SX-203 BS	SX-203 AS
<b>Image</b>	B/W	colour
<b>Resolution</b>	352x288	628 x 582
<b>Output</b>	1Vp-p 75 Ohm	1Vp-p 75 Ohm
<b>Objective</b>	3,6mm	3,6mm
<b>Operation Voltage</b>	12 VDC	12 VDC
<b>Working temperature</b>	-10°C to +50°C	-10°C to +50°C
<b>Dimensions</b>	41x45x30 mm	41x45x30 mm
<b>Note</b>	wires, microphone, stand to wall	wires, microphone, stand to wall

Part No.	Description
SX-203BS CMOS CAMERA B/W	Camera B/W 41x45x30mm
SX-203AS CMOS CAMERA COLOR	Camera colour 41x45x30mm

Part No.	Ord. No.
S SX-203BS	45950
S SX-203AS	45946



## SX-2008BS



B/W mini CMOS camera with IR LEDs and microphone.

## SX-200AS



Colour mini CMOS camera with IR LEDs and microphone.

Technical data	SX-2008 BS	SX-200 AS
Image	B/W	color
Resolution	352x288	628 x 582
Output	1Vp-p 75 Ohm	1Vp-p 75 Ohm
Objective	3,6mm	3,6mm
Operation Voltage	6-12 VDC	6-12 VDC
Operating Temperature	-10°C to +50°C	-10°C to +50°C
Dimensions	35x54x35 mm	60x50x30 mm
Note	wires, microphone, IR LEDs	wires!, IR LED, microphone

Part No.	Description
SX-2008BS MINI CAMERA CMOS B/W	Camera B/W + mikrof+IR
SX-200AS MINI CAMERA CMOS COLOR	Camera color + microphone

Part No.	Ord. No.
S SX-2008BS	45951
S SX-200AS	66821



**CCTV DOME Camera**  
CCD(Sharp) Color Dome Camera, 1/4" CCD Sensor, 420 TV Lines, 1.0 Lux/F2.0, S/N Ratio >48db, very simple instalation with BNC connections

Technical data	CCTV Dome
Resolution	512x582 Pixel (PAL)
Video Output	1Vp-p 75 Ohm
Lens	f=3,6mm/F=2.0
Operation Voltage	12 VDC
Operating Temperature	-10°C to +50°C
Dimensions	100x75 mm

Part No.	Ord. No.
S CCTV DOME Camera	67128

For the actual prices visit [www.soselectronic.com](http://www.soselectronic.com)

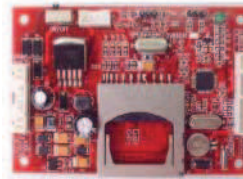
## Video Cameras w/Cables



**1/4" CCD Camera**  
Color camera with 1/4" CCD sensor and IR LEDs.

Technical data	Camera 1/4" CCD
Sensor	1/4"CCD
Resolution	512x582 pixel PAL
Output	1V p-p
Objective	f 3,6mm / F=2,0
Operation Voltage	12V
Operating Temperature	-10 to +50°C
Dimensions	50x56mm

Part No.	Description	Ord. No.
S Camera 1/4"CCD	Camera 1/4"CCD s IR LEDs	67130



**ITM-DVR8100**  
The DVR81xx is a series of different types of digital video recorders. All types have certain features for certain fields of application. Base module is "DVR8100".  
Main features are:  

- Comfortable surveillance functions like motion detection
- Applicable for a huge variety of cameras
- Taking pictures or recording video
- Simple control by display menu
- Input and output triggers allow to connect your external applications
- Very flexible by custom made extensions (like key board)

Technical data	ITM-DVR8100
Video input	2 cams
Output	NTSC or PAL, video output to TV, Alarm output when motion detected
Flash memory	SD card
Power supply	12V DC
Dimensions	80x55 mm

Part No.	Description	Ord. No.
S ITM-DVR8100	Video recorder to SD Card	64803



**DUMMY-CAMERA 1**  
Highly realistic dummy camera with flashing LED and moving to the left and right side.  
Power supply: 3xAAA  
Dimensions: 135x53x53mm

**DUMMY-CAMERA 2**  
Imitation of Security Camera with Flashing LED. Power supply 2xAAA, dimensions: 94x65mm

**DUMMY-CAMERA 3**  
Aluminium Imitation of Security Camera with flashing LED. Power supply 2xAA, dimensions: 380x95x22mm.



Part No.	Description
DUMMY-CAMERA 1	Dummy Camera with flashing LED 3xAAA 135x53x53mm
DUMMY-CAMERA 2	Dummy Camera with flashing LED 2xAAA 94x65mm
DUMMY-CAMERA 3	Dummy Camera with flashing LED 2xAA 380x95x22mm

Part No.	Ord. No.
S DUMMY-CAMERA 1	47617
S DUMMY-CAMERA 2	63116
S DUMMY-CAMERA 3	69007

## Connectors and Terminals

AUDIO/VIDEO Connectors



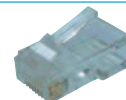
F 1

Power Supply Connectors



F 10

Signal and Data Connectors



F 16

HF Connectors



F 23

Data Connectors



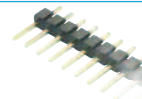
F 27

Industrial Connectors



F 37

Pin Headers and Sockets



F 46

Wire to Board Connectors



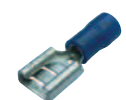
F 48

Memory Card Connectors



F 52

Crimp Terminals



F 53

Terminal Blocks



F 55

Plug-in Connectors



F 67

Rail-Mounted Terminal Blocks



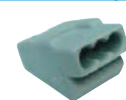
F 73

Lighting Connectors



F 80

Push-Wire Connectors



F 80

Panel Feed Through Blocks



F 82

## JACK Type Connectors

ECONOMIC

### Jack Type Connectors - ordering key

example: JM63 - MGP

- J** Jack connector
- M** M = male (plug)  
F = female (socket)
- 63** connector's diameter
- M** M = mono, S = stereo
- G** G = gold, M = metal, P = plastic  
B = assigned into PCB,  
H = closed construction for panel mounting,  
L = opened construction for panel mounting  
A = angled
- P** P = cable protection, S=switching contacts

## JACK Type Plugs

ECONOMIC

JM25-MP

JM25-MPP



Part No.	Description
JM25-MP	Connector Jack M 2,5 mono cabel, plastic
JM25-MPP	Connector Jack M 2,5 mono cabel, plastic, cable protector

Part No.	Ord.No.
S JM25-MP	14131
S JM25-MPP	28103

JM25-SPP

JM25-SMP

JM25-4PP



Part No.	Description
JM25-SPP	Connector Jack M 2,5 stereo cabel, plastic, protector
JM25-SMP	Connector Jack M 2,5 stereo cabel, metal, protector
JM25-4PP	Connector Jack M 2,5 / 4 contacts cabel, plastic, protector

Part No.	Ord.No.
S JM25-SPP	28104
S JM25-SMP	43920
S JM25-4PP	3467

JM35-MPP

JM35-SPP

JM35-SMP

ECONOMIC



Part No.	Description
JM35-MPP	Connector Jack M 3,5 mono cabel, plastic, protector
JM35-SPP	Connector Jack M 3,5 stereo cabel, plastic, protector
JM35-SMP	Connector Jack M 3,5 stereo cabel, metal, protector

Part No.	Ord.No.
S JM35-MPP	28105
S JM35-SPP	14135
S JM35-SMP	613

JM35-SGP

JM35-4PP

JM35-4M



Part No.	Description
JM35-SGP	Connector Jack M 3,5 stereo cabel, gold-plated, protector
JM35-4PP	Connector Jack M 3,5 / 4 contacts cabel, plastic, protector
JM35-4M	Connector Jack M 3,5 / 4 contacts cabel , metal, gold-plated

Part No.	Ord.No.
S JM35-SGP	28107
S JM35-4PP	7611
S JM35-4M	69385

JM63-MP

JM63-MPP

JM63-MMP

JM63-MGP

ECONOMIC



Part No.	Description
JM63-MP	Connector Jack M 6,3 mono cabel, plastic
JM63-MPP	Connector Jack M 6,3 mono cabel, plastic, protector
JM63-MMP	Connector Jack M 6,3 mono cabel, metal, protector
JM63-MGP	Connector Jack M 6,3 mono cabel, gold-plated, protector

Part No.	Ord.No.
S JM63-MP	14136
S JM63-MPP	28108
S JM63-MMP	4737
S JM63-MGP	28109

JM63-SPP

JM63-SMP

JM63-SGP



Part No.	Description
JM63-SPP	Connector Jack M 6,3 stereo cabel, plastic, protector
JM63-SMP	Connector Jack M 6,3 stereo cabel, metal, protector
JM63-SGP	Connector Jack M 6,3 stereo cabel, gold-plated, protector

Part No.	Ord.No.
S JM63-SPP	28111
S JM63-SMP	4613
S JM63-SGP	28112

## JACK Type Sockets

ECONOMIC

JF25-MPP

JF25-SPP

JF35-MPP



Part No.	Description
JF25-MPP	Connector Jack F 2,5 mono cabel, plastic, protector
JF25-SPP	Connector Jack F 2,5 stereo cabel, plastic, protector
JF35-MPP	Connector Jack F 3,5 mono cabel, plastic, protector

Part No.	Ord.No.
S JF25-MPP	28114
S JF25-SPP	28115
S JF35-MPP	28116

JF35-SPP



3,5mm

JF63-MPP



6,3mm

JF63-SPP



6,3mm

Part No.	Description
JF35-SPP	Connector Jack F 3,5 stereo cabel, plastic, protector
JF63-MPP	Connector Jack F 6,3 mono cabel, plastic, protector
JF63-SPP	Connector Jack F 6,3 stereo cabel, plastic, protector

Part No.	Ord.No.
S JF35-SPP	14148
S JF63-MPP	28119
S JF63-SPP	28121

## Panel Mount JACK Type Sockets

JF25-MHS



2,5mm

JF25-ML



2,5mm

ECONOMIC

Part No.	Description
JF25-MHS	Connector Jack F 2,5 mono panel, plastic, switching contact
JF25-ML	Connector Jack F 2,5 mono panel

Part No.	Ord.No.
S JF25-MHS	16663
S JF25-ML	16656

JF35-MH



3,5mm

JF35-ML



3,5mm

JF35-SHM



3,5mm

JF35-SHMQ



3,5mm

ECONOMIC

Part No.	Description
JF35-MH	Connector Jack F 3,5 mono panel, plastic
JF35-ML	Connector Jack F 3,5 mono panel
JF35-SHM	Connector Jack F 3,5 stereo panel, metal
JF35-SHMQ	Connector Jack F 3,5 stereo panel, metal

Part No.	Ord.No.
S JF35-MH	16664
S JF35-ML	16657
S JF35-SHM	28123
S JF35-SHMQ	56668

JF35-SBSQ



3,5mm

JF35-SBS



3,5mm

JF35-4B



3,5mm

VIDEO

Part No.	Description
JF35-SBSQ	Connector Jack F 3,5 stereo PCB, 2 circuit contacts
JF35-SBS	Connector Jack F 3,5 stereo PCB, plastic, 2 circuit contacts
JF35-4B	Connector Jack F 3,5 / 4 contacts PCB, plastic

Part No.	Ord.No.
S JF35-SBSQ	56672
S JF35-SBS	16662
S JF35-4B	7610

Wide range of audio cords are available in chapter G

JF63-ML



6,3mm

JF63-SL



6,3mm

JF63-SLS



6,3mm

ECONOMIC

Part No.	Description
JF63-ML	Connector Jack F 6,3 mono panel
JF63-SL	Connector Jack F 6,3 stereo panel
JF63-SLS	Connector Jack F 6,3 stereo panel, switching contact

Part No.	Ord.No.
S JF63-ML	16658
S JF63-SL	16660
S JF63-SLS	16661

JF63-MHS



6,3mm

JF63-SHS



6,3mm

Part No.	Description
JF63-MHS	Connector Jack F 6,3 mono panel, plastic, circuit contact
JF63-SHS	Connector Jack F 6,3 stereo panel, 2 circuit contact

Part No.	Ord.No.
S JF63-MHS	16665
S JF63-SHS	16666

## "Profi" JACK Type Plugs <sup>®</sup> NEUTRIK

CONNECTING THE WORLD

JM35-MM (NYS226)



3,5mm

JM35-SM (NYS 231)



3,5mm

Part No.	Description
JM35-MM (NYS226)	Jack M 3,5 mono cabel, metal
JM35-SM-BK (NYS231B)	Jack M 3,5 stereo cabel, metal, black
JM35-SM (NYS 231)	Jack M 3,5 stereo cabel, metal

Part No.	Ord.No.
S JM35-MM (NYS226)	68998
S JM35-SM-BK (NYS231B)	68997
S JM35-SM (NYS 231)	60591

JM63-MGS (NP2C-AU-SILENT)

NEUTRIK

CONNECTING THE WORLD



6,3mm

2 pole 1/4" professional phone plug, gold plated contacts, red coating, silent switch

Special version of 2 pole plug with integrated switch which automatically mutes (shorts) a guitar cable to avoid annoying pops and squeals when hot swapping guitars. The integrated silent switch is based on the REED technology and guarantees a lifetime beyond 10'000 mating cycles.

### Features & Benefits

- Hermetically sealed and magnetically operated switch
- No wear, constant contact resistance
- No corrosion or pollution of switch, durable and long-lasting
- Lifetime beyond 10'000 mating cycles

Part No.	Description
JM63-MGS	Connector Jack M 6,3 mono cabel, gold-plated, HQ

Part No.	Ord.No.
O JM63-MGS	60599

## "Profi" JACK Type Plugs

(continued)

JM63-MM (NYS201)

JM63-MPP (NYS203)



6,3mm



6,3mm

Part No.	Description
JM63-MM (NYS201)	Connector Jack M 6,3 mono cabel, metal
JM63-MPP (NYS203)	Connector Jack M 6,3 mono cabel, plastic, protector

Part No.	Ord.No.
S JM63-MM (NYS201)	69002
S JM63-MPP (NYS203)	69001

JM63-SM (NYS 202)

JM63-SPP (NYS204)



6,3mm



6,3mm

Part No.	Description
JM63-SM (NYS 202)	Connector Jack M 6,3 stereo cabel, metal
JM63-SPP (NYS204)	Jack M 6,3 stereo cabel, plastic, protector

Part No.	Ord.No.
S JM63-SM (NYS 202)	60595
S JM63-SPP (NYS204)	69000

## "Profi" JACK Type Sockets

JF-35-SM (NYS 240)

JF63-SM (NYS 2203P)



3,5mm



6,3mm

Part No.	Description
JF-35-SM (NYS 240)	Connector Jack F 3,5 stereo cabel, metal
JF63-SM (NYS 2203P)	Jack F 6,3 stereo cabel, metal

Part No.	Ord.No.
S JF-35-SM (NYS 240)	60592
S JF63-SM (NYS 2203P)	60598

JF63-SH (NYS 2203)

JF63-SL (NYS 230)



6,3mm



6,3mm

Part No.	Description
JF63-SH (NYS 2203)	Connector Jack F 6,3 stereo panel, metal
JF63-SL (NYS 230)	Connector Jack F 6,3 stereo panel, metal

Part No.	Ord.No.
S JF63-SH (NYS 2203)	60593
S JF63-SL (NYS 230)	60597

JF63-SBS15 (NYS 218)

JF63-SBS12,5 (NYS 219)



6,3mm



6,3mm

Part No.	Description
JF63-SBS15 (NYS 218)	Connector Jack F 6,3 stereo PCB, plastic., H=15mm
JF63-SBS12,5 (NYS 219)	Connector Jack F 6,3 stereo PCB, plastic.,H=12,5mm

H = axis height of the hole over the PCB.

Part No.	Ord.No.
S JF63-SBS15 (NYS 218)	60632
S JF63-SBS12,5 (NYS 219)	12989

JF63-SBS9 (NRJ6HF)

JF63-SHS (NYS234)



6,3mm



6,3mm

Part No.	Description
JF63-SBS9 (NRJ6HF)	Connector Jack F 6,3 stereo PCB, plastic, H=9mm
JF63-SHS (NYS234)	Connector Jack F 6,3 stereo panel, plastic

H = axis height of the hole over the PCB.

Part No.	Ord.No.
O JF63-SBS9 (NRJ6HF)	60759
S JF63-SHS (NYS234)	69008

## JACK/CINCH (RCA) Adapters

HA 340

A177

A 178



Part No.	Description
HA 340	Connector Cinch adapter F / F
A 177	Audio adapter Jack M 6,3 mono / Cinch F
A 178	Audio adapter Jack M 3,5 stereo / 2 x Cinch F

Part No.	Ord.No.
S HA 340	4743
S A 177	5704
S A 178	50945

A 228

A 170

A 173



Part No.	Description
A 228	Audio adapter Jack M 2,5 stereo / Jack F 3,5 stereo
A 170	Audio adapter Jack M 6,3 stereo / Jack F 3,5 stereo
A 173	Audio adapter Jack F 6,3 stereo / Jack M 3,5 stereo

Part No.	Ord.No.
S A 228	7979
S A 170	16672
S A 173	16673

A 076



A 080



A 082



Part No.	Description
A 076	Audio adapter Jack 2 x F 6,3 stereo / Jack M 6,3 stereo
A 080	Audio adapter Jack 2 x F 3,5 stereo / Jack M 6,3 stereo
A 082	Audio adapter Jack 2 x F 3,5 stereo / Jack M 3,5 stereo

Part No.	Ord.No.
S A 076	28124
S A 080	28127
S A 082	28128

AUDIO cables - see chapter G.

## CINCH (RCA) Connectors

### Plastic

CKP-xx



CSP-xx



CSPG-xx



Part No.	Ord.No.	Description
S CKP-BK	16686	F plastic/black
S CKP-BU	19428	F plastic/blue
S CKP-RD	16683	F plastic/red
S CKP-WH	19429	F plastic/white
S CKP-YE	19427	F plastic/yellow
S CSP-BK	16688	M plastic/black
S CSP-BU	19424	M plastic/blue
S CSP-GN	19422	M plastic/green
S CSP-RD	16681	M plastic/red
S CSP-WH	19425	M plastic/white
S CSP-YE	19423	M plastic/yellow
S CSPG-BK	2433	M plastic/black 90°
S CSPG-RD	2432	M plastic/red 90°

### Metal and Plated

CSM



CSM-xx



CSG

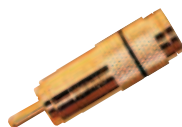


CSGM-xx



Part No.	Ord.No.	Description
S CSM	16680	M metal
S CSM-BK	4951	M metal/black
S CSM-RD	4952	M metal/red
S CSG	18169	M gold-plated
S CSGM-RD	28161	M gold-plated/red
S CSGM-BK	28162	M gold-plated/black

X-2017-xx



X-2022-xx



X-2051-xx



Part No.	Ord.No.	Description
O X-2017-RD	51112	M gold-plated/red cod.
O X-2017-WH	51113	M white coding
S X-2022-BK	46715	M black coding
S X-2022-RD	46714	M red coding
S X-2051-BK	52930	F black coding
S X-2051-RD	52929	F red coding

## PCB Mount

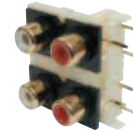
CP560-xx  
CPG560-xx



CPG 570



CPG 580



Part No.	Ord.No.	Description
S CP 560-BK	44732	F nickel-plated/black
S CP 560-RD	4365	F nickel-plated/red
S CP 560 GELB	72077	F nickel-plated/yell.
S CPG 560-BK	6163	F gold-plated/black
S CPG 560-RD	6162	F gold-plated/red
S CPG 570	6164	2F PCB gold-plated
S CPG 580	6165	4F PCB gold-plated

## Panel Mount

CBGP-xx  
Isolated

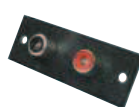


CBM-xx  
CBMG-xx



Part No.	Ord.No.	Description
S CBGP-BK	28166	F gold-plated/black
S CBGP-RD	28165	F gold-plated/red
S CBM-BK	16684	F metal/black
S CBM-RD	2158	F metal/red
S CBMG-BK	16685	F gold-plated/black
S CBMG-RD	16689	F gold-plated/red
S CBMG-YE	71013	F gold-plated/yellow
S CBMG-WH	71014	F gold-plated/white

RCP 020



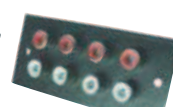
RCP 041



RCP 060



RCP 081



Part No.	Ord.No.	Description
S RCP 020	7089	2 x F panel, plastic
S RCP 041	28168	4 x F panel, plastic
S RCP 060	28169	6 x F panel, plastic
S RCP 081	28170	8 x F panel, plastic

## "Profi" CINCH (RCA) Connectors



NEUTRIK NYS series connectors are due to their mechanical resistance suitable for demanding and professional applications. They have all-metal housing and cable bushing to suppress the mechanical stress on the contacts.

NYS 367



NYS 373



NYS 352



Part No.	Description
NYS367-0	Connector Cinch F panel, gold-plated/black
NYS367-2	Connector Cinch F panel, gold-plated/red
NYS367-4	Connector Cinch F panel, gold-plated/yellow
NYS367-5	Connector Cinch F panel, gold-plated/green
NYS367-6	Connector Cinch F panel, gold-plated/blue
NYS367-9	Connector Cinch F panel, gold-plated/white
NYS373-0	Connector Cinch M black metal, gold-plated/black coding
NYS373-2	Connector Cinch M black metal, gold-plated/red coding
NYS373-4	Connector Cinch M black metal, gold-plated/yellow coding
NYS373-5	Connector Cinch M black metal, gold-plated/green coding
NYS373-6	Connector Cinch M black metal, gold-plated/blue coding
NYS373-9	Connector Cinch M black metal, gold-plated/white coding
NYS352BG	Connector Cinch M cabel, metal, gold-plated/black
NYS352G	Connector Cinch M cabel, metal, gold-plated

Part No.	Ord.No.
S NYS367-0	60606
S NYS367-2	60607
O NYS367-4	60608
O NYS367-5	60609
O NYS367-6	60610
O NYS367-9	60611
S NYS373-0	60600
S NYS373-2	60601
O NYS373-4	60602
O NYS373-5	60603
O NYS373-6	60604
O NYS373-9	60605
S NYS352BG	69012
S NYS352G	69010

## Microphone Connectors

MIC 32x



cable

MIC 33x

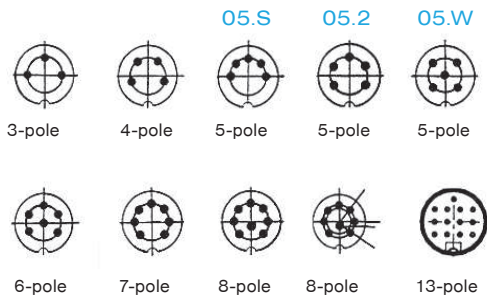


chassis

Part No.	Ord.No.	Description
S MIC 324	28150	F 4 pole
S MIC 326	46932	F 6 pole
S MIC 328	28151	F 8 pole
S MIC 334	28152	M 4 pole
S MIC 336	48524	M 6 pole
S MIC 338	28153	M 8 pole

## DIN Type Connectors

### DIN



SE-DIO

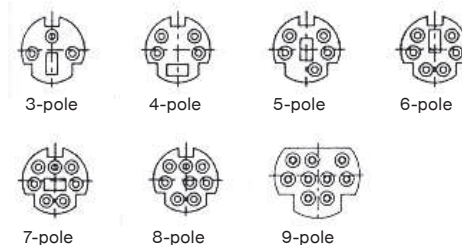
DIO-K

EB DIO



Part No.	Ord.No.	Description
S SE-DIO 03	25510	M 3-pole
S SE-DIO 05 S	22325	M 5-pole 180°
S SE-DIO 05 W	25513	M 5-pole 360°
S SE-DIO 06	25514	M 6-pole
S SE-DIO 07	25515	M 7-pole
S DIO-K 03	25527	F 3-pole
S DIO-K 05 S	25529	F 5-pole 180°
S DIO-K 05 W	25531	F 5-pole 360°
S DIO-K 06	25532	F 6-pole
S DIO-K 07	25533	F 7-pole
S EB-DIO 05 S	25518	F 5-pole 180°
S EB-DIO 06	25521	F 6-pole
S EB-DIO 07	25522	F 7-pole

### Mini-DIN



SE-DIO M

DIO-K M

EB-DIO M



Part No.	Ord.No.	Description
S SE-DIO M 04	25538	M 4-pole
S SE-DIO M 06	25540	M 6-pole
S SE-DIO M 08	20345	M 8-pole
S DIO-K M 04	30066	F 4-pole
S DIO-K M 06	30068	F 6-pole
S DIO-K M 08	30070	F 8-pole
S EB-DIO M 04	25542	F 4-pole
S EB-DIO M 06	25544	F 6-pole
S EB-DIO M 08	25546	F 8-pole

According to an order we are able to supply metal DIN connectors and connectors with screw lock.



## XLR Type Connectors

### Cable

XLR 188-x



XLR 189-x



Part No.	Ord.No.	Description
S XLR 188-3	28148	M 3 pole
O XLR 188-4	56447	M 4 pole
O XLR 188-5	7416	M 5 pole
O XLR 188-7	69029	M 7 pole
S XLR 189-3	28149	F 3 pole
O XLR 189-4	56449	F 4 pole
O XLR 189-5	51283	F 5 pole
O XLR 189-7	69031	F 7 pole

### Chassis

XLR 186-x



XLR 187-x



Part No.	Ord.No.	Description
S XLR 186-3	28146	M 3 pole
O XLR 186-4	56445	M 4 pole
O XLR 186-5	8734	M 5 pole
O XLR 186-7	69027	M 7 pole
S XLR 187-3	28147	F 3 pole
O XLR 187-4	56446	F 4 pole
O XLR 187-5	7415	F 5 pole
O XLR 187-7	69028	F 7 pole

## "Profi" XLR Connectors

Neutrik XLR connectors are the standard worldwide. They are available in 3 - 7 pin configurations including 6 pin Switchcraft® configuration, assembly is quick and easy - no screws or special tools are required, unique Neutrik chuck type internal strain relief, female shell has rubber ring for secure mating to male XLR or microphone, sleek profile and compact design, rugged diecast shell, UL recognized components.

### XLR Sockets

NC 3 FX



NC 3 FXB



NC 3 FRX



5 outlet positions

Part No.	Ord.No.	Description
S NC 3 FX	52903	3 pole
S NC 3 FXB	52910	3 pole, gold-pl.cont.
S NC 3 FRX	65478	3 pole
O NC 5 FX	53664	5 pole

### XLR Plugs

#### Cable

NC 3 MX



NC 3 MXB



NC 3 MRX



5 outlet positions

Part No.	Ord.No.	Description
S NC 3 MX	52904	3 pole
O NC 3 MX BAG	53183	3 pole black/silver-plated contacts
S NC 3 MXB	52912	3 pole gold-plat. cont.
S NC 3 MRX	53408	3 pole
O NC 5 MX	53665	5 pole;

### Chassis

NC 3 MAH



NC 3 MBV



Part No.	Ord.No.	Description
S NC 3 MAH	52917	3 pole PCB mount 90°
O NC 3 MBV	52918	3 pole, metal ring

NC 3 MD-H



NC 3 MD-V



NC 3 MDL 1



NC 3 MDL B1



Part No.	Ord.No.	Description
O NC 3 MD-H	56459	3 pole PCB mount 90°
S NC 3 MDL 1	52914	3 pole solder-cups
O NC 3 MD-V	60893	3 pole PCB mount
O NC 3 MDL-BAG1	57590	3 pole silver-plat.cont.
S NC 3 MDL 1B	52947	3 pole gold-plated con.

NC 4 MAH



NC 5 MAH



NC 5 MDL 1



Part No.	Ord.No.	Description
O NC 4 MAH	58278	4 pole PCB mount 90°
S NC 5 MAH	52973	5 pole PCB mount 90°
O NC 5 MDL 1	53663	5 pole solder cups

### XLR Sockets

#### Chassis

NC 3 FAH 1

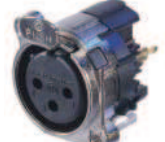
NC 3 FAH 2



NC 3 FAH 1-0



NC 3 FBV 2



Part No.	Description
NC 3 FAH 1	XLR F chassis connector 3pole, pin1 ground connected
NC 3 FAH 1-0	XLR F chassis connector 3pole, pin1 ground connected
NC 3 FAH 2	XLR F chassis connector 3pole, pin1 no ground contact
NC 3 FBV 2	XLR F chassis connector 3pole, vertical

Part No.	Ord.No.
S NC 3 FAH 1	53400
O NC 3 FAH 1-0	60731
S NC 3 FAH 2	52915
O NC 3 FBV 2	52919



## "Profi" XLR Connectors

(continued)



### XLR Sockets

#### Chassis

NC 3 FD-H

NC 3 FD-V



Part No.	Ord.No.	Description
o	NC 3 FD-H 56460	3 pole, PCB 90°
o	NC 3 FD-V 60892	3 pole, PCB

NC 3 FDL 1

NC 3 FDL B1  
NC 3 FD-L-BAG-1

NC 3 FP-1



Part No.	Ord.No.	Description
s	NC 3 FDL 1 52913	3 pole, solder cups
o	NC 3 FDL B1 52945	3 pole, gold-pl.cont.
o	NC 3 FD-L-BAG1 53182	3 pole, black silver-pl. contacts
s	NC 3 FP-1 62305	3 pole, silver-pl. contacts

NC 5 FAH

NC 5 FDL 1



Part No.	Ord.No.	Description
s	NC 5 FAH 52974	5 pole, PCB 90°
o	NC 5 FDL 1 53662	5 pole, solder cups

## "Profi" Combo Series



"2 in 1" - first XLR / JACK hybrid panel mount connector combining a 3 pole XLR receptacle and mono or stereo 1/4" phone jack in one XLR housing. Space saving combination of 2 connectors in one plastic housing. Available in nonswitching and normalling versions with horizontal or vertical pcb mount or soldering termination. Many equipments have two input connectors (balanced XLR and unbalanced jack). But in almost all cases only one input is used at a time, so the Combo reduces panel space, costs and simplifies pcb design.

NCJ6FI-S

NCJ6FI-V



Part No.	Description
NCJ6FI-S	Hybrid chassis connector combining XLR3 + Jack 6,3S F
NCJ6FI-V	Hybrid chassis/PCB connector comb. XLR3 + Jack 6,3S F

Part No.	Ord.No.
s	NCJ6FI-S 52978
s	NCJ6FI-V 52979



## "Profi" SpeakON Connectors

The speakON® cable connectors are the industry-standard connectors for amplifier / loudspeaker connections. The entire family of 2, 4 and 8 pole cable connectors has been designed to operate in high current, inductive load environment of loudspeakers.

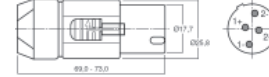
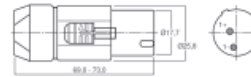
The cable connectors feature a robust plastic housing, the traditional Neutrik chuck type cable clamp, a unique locking principle and touch proof contacts. The 2 and 8 pole versions offer 30 Amp current rating while the new 4 pole SPX type features up to 50 Amp current carrying capacity for the operation of high power speakers and amplifiers carrying more than 1000 Watts.

### Cabel



NL 2 FC

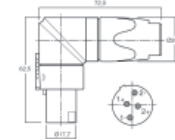
NL 4 FC



Part No.	Ord.No.	Description
s	NL 2 FC 52937	M 2 pole
s	NL 4 FC 52938	M 4 pole

NL 4 FX

NL 4 FRX



Part No.	Ord.No.	Description
s	NL 4 FX 52920	M 4 pole
s	NL 4 FRX 52935	M 4 pole 90°

### Chassis

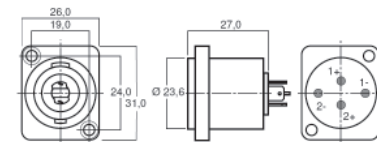


NL 2 MP

NL 4 MP

NL 4 MDV

vertical PCB mount available



Part No.	Ord.No.	Description
s	NL 2 MP 52934	F 2 pole
s	NL 4 MP 52921	F 4 pole
o	NL 4 MDV 52924	F 4 pole, chass/PCB



## Power Supply Connectors

The powerCON® is a locking 3 conductor equipment AC connector with contacts for line, neutral and pre-mating ground contact. It replaces appliance couplers wherever a very rugged solution in combination with a locking device is needed in order to guarantee a safe power connection.

Attention: The powerCON® is a connector without breaking capacity, i.e. the powerCON® should not be connected or disconnected under load or live! They can be exactly and easily identified by the colour - grey B(out) / blue A(in).

NAC 3 FCA

NAC 3 MPA



Part No.	Ord.No.	Description
s	NAC 3 FCA 52922	M 3 pole blue
s	NAC 3 FCB 53788	M 3 pole grey
s	NAC 3 MPA 52923	F 3 pole blue
s	NAC 3 MPB 53789	F 3 pole grey

## SpeakON Connectors

Cost-effective alternative Speakon connectors mainly used in PA systems.

### Cabel

#### PA - XA-8062

Screw terminal socket, suitable for cable of 6-15mm diameter, wire of max. 4mm diameter (mate to PA - SKC 102).



#### PA - SKC 102

Screw terminal plug, suitable for cable of 6-15mm diameter, wire of max. 4mm diameter.



ECONOMIC

Part No.	Ord.No.	Description
S PA-XA-8062	1827	F cable conn.,
S PA-SKC 102	1816	M cable conn.,

### Chassis

#### PA - SKC 098

Rectangular shape 30x25mm, design depth 27mm, outside dimensions 31x26mm, mounting hole Ø 23,5mm.



#### PA - SKC 099

Round shape with diameter of 50mm, design depth 27mm, outside dimensions 51mm, mounting hole Ø 23,5mm.



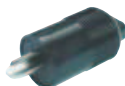
ECONOMIC

Part No.	Ord.No.	Description
S PA-SKC 098	1814	F chassis
S PA-SKC 099	1815	F chassis

## Loudspeaker Connectors

### Plugs

#### LST 01



#### LSW 01

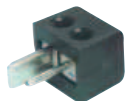


#### LST 02



Part No.	Ord.No.	Description
S LST 01	25547	M solder cups
S LSW 01	40065	M angled, black
S LST 02	25548	M screw contact

#### LST 02 B



#### LST 02 R



#### LST 03



Part No.	Ord.No.	Description
S LST 02 B	2551	M angled black
S LST 02 R	4736	M angled red
S LST 03	2550	M angled black

### Sockets

#### LSB 01



Chassis

#### LSK 01



#### LSK 02



Part No.	Ord.No.	Description
S LSB 01	25551	F solder cups
S LSK 01	25549	F solder cups
S LSK 02	25550	F screw contact

## Speaker Push Terminals

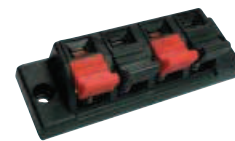
#### DK 021

2-way loudspeaker connector (red/black), panel mounted. Mounting hole diameter: 3 mm, mounting hole spacing: 45 mm



#### DK 022

4x way red/black/black/red, outside dimensions 70x24mm, mounting hole spacing: 60mm



Part No.	Ord.No.	Description
S DK 021	28154	2x push Part No. conn.
S DK 022	28155	4x push Part No. conn.

#### DK 031

2x push type red/black, diameter: 75mm, mounting hole Ø49mm, mounting hole spacing: 44mm



#### DK 035

2x push type red/black, outside dimensions 79x65mm, mounting hole spacing: 70x55 mm



Part No.	Ord.No.	Description
S DK 031	28156	2x push Part No.
S DK 035	28157	2x push Part No.

#### LA 212

2x push type red/black including panel, outside dimensions 57x57mm, mounting hole Ø49mm, depth: 18mm



#### LA 508

2x screw type with panel, outside dimensions 92x78mm, mounting hole 74x54mm, depth: 24mm



Part No.	Ord.No.	Description
S LA 212	4026	2x push Part No.
S LA 508	3678	2x screw Part No.

#### SKFK 040

Loudspeaker screw terminal+PA speaker connector 95x83mm



#### SKFK 041

Loudspeaker screw terminal+XLR plug 95x82mm



Part No.	Ord.No.
S SKFK 040	49101
S SKFK 041	49102

Please find more loudspeaker accessories in chapter R.

Suitable loudspeaker cables - see chapter G.

## SCART Connectors, Switches and Selectors

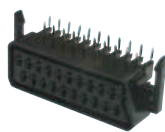
### SEC 20

Scart plug, 20 contacts + shield, housing for cable assembly with entry on the side.



### SEF 20

Scart panel jack, angled PCB type



### SEP 20

Scart panel jack for screw connection; straight PCB type



Part No.	Ord.No.
S SEC 20	20170
S SEF 20	20575
S SEP 20	28140

### AVK 195

SCART M/3xCINCH F, scart plug with IN/OUT switch,



### AVK 196

SCART M/3xCINCH F plug + S-VHS M with IN/OUT switch



Part No.	Ord.No.
S AVK 195	43736
S AVK 196	47479

### AVK 198

Scartadapter (plug/jack), SCART M/3xCINCH F + S-VHS M/SCART F with switch



### AVS 16 SB

Audio/video Cinch switch box, plastic, 3xIn / 1xOut



Part No.	Ord.No.
S AVK 198	49864
S AVS 16 SB	60192

### AVS 20 SB

Manual HDMI switch box 2xIn/1xOut, plastic



### AVS 9

SCART/video switch box for S-VHS, HI8, RGB, 2xIn / 1xOut



Part No.	Ord.No.
S AVS 20 SB	60018
S AVS 9	49869

### AVS 1 M

Audio/Video SCART/Cinch switch box in a metal housing



### AVS 1 PL SB

Audio/Video SCART/Cinch switch box in a plastic housing



3xIn scart / 1xOut scart / 2xOut cinch (video+audio L/R)

Part No.	Ord.No.
S AVS 1 M	58634
S AVS 1 PL SB	49159

## Power Supply Car Connectors

### Cigarette Lighter Connectors

#### ZS 550

Power supply car connector - soldering cigarette lighter plug



#### ZS 700

Cable cigarette lighter plug with inbuilt fuse holder 6,3x32mm and 250V/2A fuse.



Part No.	Ord.No.
S ZS 550	6668
S ZS 700	4341

#### ZS 570

Soldering cigarette lighter socket, plastic



#### ZB 910

Panel cigarette lighter car connector, 6-24VDC/20A max.



Part No.	Ord.No.
S ZS 570	7333
S ZB 910	55382

## On-Board Connectors

### ZS 880

On-board power supply plug, suitable for ZB 900



### ZB 900

Panel-mount. on-board power supply socket, 6-24VDC/16A max., suitable plug: ZS 880



Part No.	Ord.No.
S ZS 880	56925
S ZB 900	4340

## Splitter Connectors / Extensions

### MW U10230

Panel-mount. splitter for cigarette lighter socket, 6-24VDC/20A max.



### TC - 70

Panel-mount. splitter for cigarette lighter socket, 6-24VDC/20A max., cable's length: 20cm



### TC - 100

Panel-mount. splitter for cigarette lighter socket, 6-24VDC/20A max.

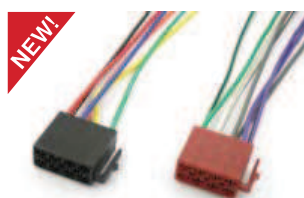


3xsocket + 1xUSB 5V/1A

Part No.	Ord.No.
S MW-U10230	69247
S TC70	46713
S TC-100	49103

### ISO 01 MALE

ISO-connection kit for car radio



Part No.	Ord.No.
S ISO 01 MALE	76282

## DC Power Supply Connectors

### DC Jack Connectors

#### HS

DC jack connectors of different diameters and lengths, plastic black housing



#### HP 110 A

Higher quality DC plug connector, angled, plastic black housing

Part No.	Ord.No.	Description
S DC 13 W	644	1,3x3,45mm angled
S HS 07524	7613	M 0,75x2,4mm
S HS 0850	8178	M 0,8x5,0mm
S HS 10	18458	M 1,0x3,8mm
S HS 1130	7615	M 1,1x3,0mm Profitec
S HS 1138	9713	M 1,1x3,8mm Profitec
S HS 13	28131	M 1,3x3,4mm
S HS 1540	9714	M 1,5x4,0mm Profitec
S HS 1555	8179	M 1,5x5,5mm
S HS 1740	36159	M 1,7x4,0mm
S HS 17475	7022	M 1,7x4,75mm Profitec
S HS 1755	8180	M 1,7x5,5mm
S HS 21	16667	M 2,1x5,5mm Profitec
S HS 2114	28132	M 2,1x5,5mm
S HS 2150	8181	M 2,1x5,0mm
S HP-110 A	3834	M 2,1x5,5mm angled
S HS 25	16668	M 2,5x5,5mm Profitec
S HS 2514	28133	M 2,5x5,5mm
S HS 31	18852	M 3,0x6,3mm

We reserve the right to supply the HS series of DC plug connectors with or without the cable protector.

### DC Power Sockets

#### HEBG

DC power supply socket, panel-mounted, 2x side clips



#### MJ

Higher quality DC panel socket, 2x side clips (2,1mm or 2,5mm type)



Part No.	Ord.No.	Description
S HEBG 21	28134	F 2,1x5,5mm
S HEBG 25	28135	F 2,5x5,5mm
S MJ 179	49922	F 2,1x5,5mm
S MJ 180	49923	F 2,5x5,5mm Profitec

#### DC 1813

#### DC 1819

#### DC 1820

#### HEBL



DC panel socket with a central screw

Part No.	Ord.No.	Description
S DC 1813	9715	F 1,3x3,5mm Profitec
S DC 1819	49924	F 2,1x5,5mm Profitec
S DC 1820	49925	F 2,5x5,5mm Profitec
S HEBL 21	28136	F 2,1x5,5mm
S HEBL 25	28137	F 2,5x5,5mm

### PCB Mounting DC Sockets

#### HEBP

DC Socket for PCB



#### DCE 4A

2,1mm DC Socket, PCB, 90°, contacts, 11x11,5x7mm



Part No.	Ord.No.	Description
S HEBP 21	28138	F 2,1x5,5mm panel/PCB
S HEBP 25	28139	F 2,5x5,5mm panel/PCB
S DCE4A	49928	F 2,1x5,5mm 11x11,5x7mm

#### CJ

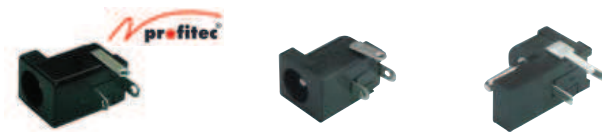
Higher quality DC socket, PCB, 90° (available 2,1mm and 2,5mm type).

#### HEBA

DC socket, PCB, 90°

#### DC13

1,3mm DC Socket, PCB, 90°, pins



Part No.	Ord.No.	Description
S CJ 179	47998	F 2,1x5,5mm Profitec
S CJ 180	47999	F 2,5x5,5mm Profitec
S HEBA 21	49926	F 2,1x5,5mm
S HEBA 25	49927	F 2,5x5,5mm
S DC 13	3875	F 1,3x3,5mm Profitec

### DCK21, DCK25

DC Cable socket



Part No.	Ord.No.	Description
S DCK 21	67550	F 2,1x5,5mm
S DCK 25	78238	F 2,5x5,5mm

### 3-pin Design

#### DC 204

Higher quality DC plug connector, 3 contacts, plastic housing

#### DCJ 390

DC Socket, PCB, contacts, 90°, 3 contacts



Part No.	Description
DC204	M 3,5x5,5mm L=9mm, inner tip 0,8mm
DC204L	M 90° 3,5x5,5mm L=9mm, inner pin 0,8mm
DCJ390	F 3,5x5,5mm PCB, inner pin 0,8mm

Part No.	Ord.No.
S DC204	69244
S DC204L	69245
S DCJ390	69246

### IEC Connectors

#### Panel Mount

#### SE-KS 01

EURO plug, panel mount, faston 4,8mm, 250V/15A

#### SE - KSS 01

EURO plug, panel mount, faston 4,8mm/ soldering, with fuse holder 5x20mm

#### KGES/SI

EURO plug connector, panel mount +fuse holder, Snap-in, faston 6,3



Part No.	Ord.No.
S SE-KS 01	7553
S SE-KSS 01	28159
S KGES/SI	69249

## IEC Connectors (continued)

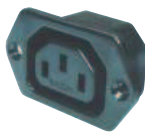
**GSD 4**  
EURO socket, panel mount, faston 4,8mm, 250V/10A



**GSD 4SI**  
EURO socket, panel mount, SNAP-IN, faston 2,8mm/soldering, 250V/10A



**SE-KB 01**  
EURO socket, panel mount, faston 4,8mm/soldering, 250V/10A



Part No.	Ord.No.
S GSD4-4,8	9210
S GSD4SI	8561
S SE-KB 01	25553

**GSW 1074**  
EURO plug connector, panel mount + switch, Snap-In



**GSW 6762**  
EURO plug connector with fuse and 2-pole switch, faston 4,8mm, 250V/10A



**GSW**  
EURO plug connector, panel mount + fuse and switch, Snap-in



Part No.	Ord.No.
S GSW 1074	69257
S GSW 6762	7274
S GSW	69256

## Cable Mount

**SE-KSG**  
EURO cable plug, 250V/6A

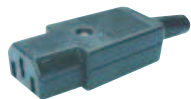


**GST 4L**  
EURO cable plug, 90° angled, 250V/6A

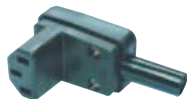


Part No.	Ord.No.
S SE-KSG	25555
O GST 4L	50976

**SE-KES**  
EURO cable socket, 250V/6A



**SE-KES W**  
EURO cable socket, angled



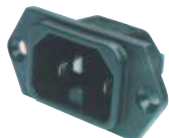
**GST 790**  
EURO cable socket, 90° angled, 250V/10A



Part No.	Ord.No.
S SE-KES	25554
S SE-KES W	11243
S GST 790	8414

## 120°C Temperature Series

**SE - KS TEMP**  
EURO appliance inlet plug, max. temperature: 120°C, 250V/15A



**WGS3G**  
EURO cable socket, 10A 250Vac 120°C, mating part: SE - KS TEMP



Part No.	Ord.No.
S SE-KS TEMP	11233
O WGS3G	69253

## 16A Series

**KGES3**  
Power supply panel plug connector 16A, 250Vac, faston 6,3



**KGES4**  
Power supply panel plug connector 16A, 250Vac, faston 6,3



**GSD 5216**  
Power supply panel socket 16A, faston 6,3



Part No.	Ord.No.
S KGES3	69238
S KGES4	69239
S GSD 5216	69234

**GSD 104**  
Power supply cable socket 16A, 250Vac, 70°C



**GST 106**  
Power supply cable plug 16A, 250Vac, 70°C



Part No.	Ord.No.
S GST 106	69235
S GSD 104	69236

## MINI Series

**CN 11 P**  
Cable socket, mini, 230V/3A



**CN 11 J**  
Panel plug, mini, 230V/3A



Part No.	Ord.No.
S CN11P	3503
S CN11J	2456

## Travel Adaptor Kits

**NK SET 1**  
Travel adaptor kit ; 4 pcs, for devices with euro plug. Suitable for: USA, Europe, Asia, Africa, GB, Hong-Kong

**NK SET 2**  
Travel adaptor for devices with euro plug, 250V 10A

**NK SET 3**  
Travel adaptor kit, 250V 6A



Part No.	Ord.No.
S NK SET 1	47787
S NK SET 2	70037
S NK SET 3	73371

**NK SET 4**  
Travel adaptor kit for devices with schuko plug - 250V 16A



**NK SET UK**  
Travel adaptor for devices with euro plug. Suitable for: GB, Hong Kong, Scotland, Wales, Ireland.



Part No.	Ord.No.
S NK SET 4	70066
S NK SET UK	70067

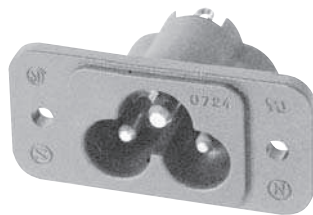
## Power Entry Modules

SCHURTER company was found in Lucerne (Switzerland) in 1933 and is an internationally leading innovator and manufacturer of fuses, connectors, circuit breakers, input systems and EMC products as well as a PCB assembly service provider for the electronics industry. Based on customer requirements they develop, manufacture and provide value added services over a professional network of worldwide affiliates and distributors. Please find an overview of the Schurter connectors (inlets/outlets) with basic technical parameters below.

0720-FP; 0721-PP; 0720-FS



0724



8843.FL; 8843.FLR



6100-3; 6100-4

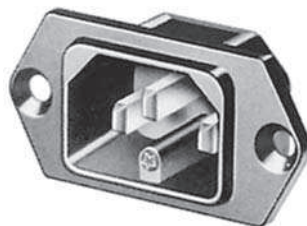


Technical parameters	0720-FP; 0721-PP; 0720-FS	0724	8843.FL; 8843.FLR	6100-3; 6100-4
Max. rated current/voltage	2,5A/250V AC	2,5A/250V AC	10A/250V AC	10A/250V AC
Dielectric strength	2kVAC L-N	2kVAC, 2kVAC	2kVAC, 2kVAC	2kVAC, 2kVAC
Terminals	PCB solder terminals	Solder	Screw or quick connect	Solder
Allowable operation temp.	-25°C up to 70°C	-25°C up to 70°C	-25°C up to 70°C	-25°C up to 70°C
Rear-side degree of protection	IP40	IP40	IP40	IP40
Mounting hole dimensions	21x12,4 mm	22,9x17,9 mm	29,5x22 mm	27,5x20 mm

6102-3; 6102-5



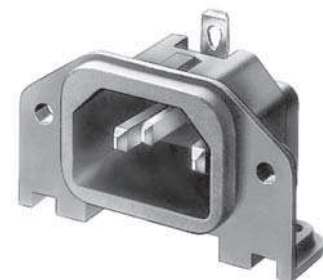
6110-3; 6110-4



6120-3; 6120-5



GSP1



Technical parameters	6102-3; 6102-5	6110-3; 6110-4	6120-3; 6120-5	GSP1
Max. rated current/voltage	10A/250V AC	10A/250V AC	10A/250V AC	10A/250V AC
Dielectric strength	2kVAC L-N	2kVAC, 2kVAC	2,5kVAC, 2kVAC	3kVAC, 3kVAC
Terminals	Solder	Solder	Solder	FASTIN 4,8x0,8
Allowable operation temp.	-25°C up to 70°C	-25°C up to 120°C	-25°C up to 155°C	-25°C up to 70°C
Rear-side degree of protection	IP40	IP40	IP40	IP40
Mounting hole dimensions	27,5x20 mm	27,5x20 mm	27,5x20 mm	30,3x22,5 mm

GSP2



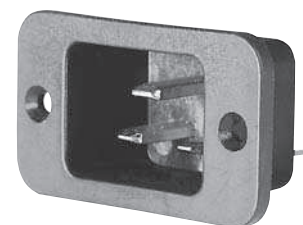
8843.ZP30



6130-56



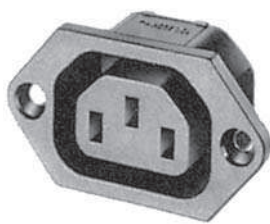
4798; 4793



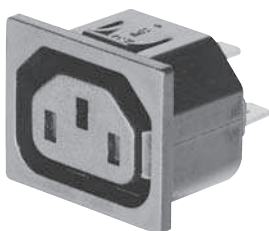
Technical parameters	GSP2	8843.ZP30	6130-56	4798; 4793
Max. rated current/voltage	10A/250V AC	10A/250V AC	10A/250V AC	16A/250V AC
Dielectric strength	3kVAC, 3kVAC	2kVAC, 2kVAC	2kVAC, 2kVAC	2,2kVAC, 4kVAC
Terminals	FASTIN 4,8x0,8	PCB	PCB	Solder
Allowable operation temp.	-25°C up to 70°C	-25°C up to 70°C	-25°C up to 70°C	-25°C up to 70°C
Rear-side degree of protection	IP40	IP40	IP30	IP40; IP30
Mounting hole dimensions	27,5x19,5 mm	27,8x20,3 mm	27,5x19,5 mm	32,6x24,5 mm

## Power Entry Modules (continued)

6600-3; 6600-4



4721; 4723



4787; 4788



P675/PC



Technical parameters	6600-3; 6600-4	4721; 4723	4787; 4788	P675/PC
Max. rated current/voltage	10A/250V AC	10A/250V AC	10A/250V AC	10A/250V AC
Dielectric strength	2kVAC, 2kVAC	2kVAC, 2kVAC	2kVAC, 2kVAC	2kVAC, 2kVAC
Terminals	Solder	Solder	FASTIN 4,8x0,8	FASTIN 4,8x0,8
Allowable operation temp.	-25°C up to 70°C	-25°C up to 70°C	-25°C up to 70°C	-25°C up to 70°C
Rear-side degree of protection	IP30	IP30	IP30	IP30
Mounting hole dimensions	32.5x24.8 mm	32.5x24.8 mm	25x20 mm	40x26.4 mm

0723



4782; 4785



4781; 4784



473x



Technical parameters	0723	4782; 4785	4781; 4784	473x
Max. rated current/voltage	16A/250V AC	10A/250V AC	10A/250V AC	10A/250V AC
Dielectric strength	2kVAC, 2kVAC	2kVAC, 2kVAC	2kVAC, 2kVAC	2kVAC, 2kVAC
Terminals	Solder	Screw	Screw	Screw
Allowable operation temp.	-25°C up to 70°C	-25°C up to 70°C	-25°C up to 120°C	-25°C up to 70°C
Rear-side degree of protection	IP30	-	-	-
Mounting hole dimensions	37,6x29,5 mm	-	-	-

P685



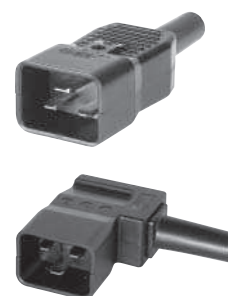
4300-06



4795; 4790



4796; 4789



Technical parameters	P685	4300-06	4795; 4790	GSP1
Max. rated current/voltage	10A/250V AC	10A/250V AC	16A/250V AC	16A/250V AC
Dielectric strength	2kVAC, 2kVAC	2kVAC, 2kVAC	2kVAC, 2kVAC	2kVAC, 2kVAC
Terminals	Screw	Screw	Screw	Screw
Allowable operation temp.	-25°C up to 70°C	-25°C up to 70°C	-25°C up to 70°C	-25°C up to 70°C

SOS electronic - official distributor of

**SCHURTER**  
ELECTRONIC COMPONENTS

CMF1; CMF2; CMF3



KEB1



KEB2



DC11



Technical parameters	CMF1; CMF2; CMF3	KEB1	KEB2	DC11
Max. rated current/voltage	2,5A/250V AC	10A/250V AC	10A/250V AC	10A/250V AC
Dielectric strength	2,3kVAC, 2,8kVAC	3kVAC, 4kVAC	2,5kVAC, 3kVAC	2,5kVAC, 3kVAC
Terminals	do PCB	FASTIN 4,8x0,8mm	FASTIN 4,8x0,8mm	FASTIN 4,8x0,8mm
Number of switch poles	1 pole	1 pole	2 pole	1,2 pole
Allowable operation temp.	-25°C up to 70°C	-25°C up to 70°C	-25°C up to 70°C	-25°C up to 70°C
Rear-side degree of protection	IP40	IP40	IP40	IP40
Mounting hole dimensions	53,3x18 mm	27,5x31,5 mm	27,5x42 mm	27,5x31,5 mm

DC21



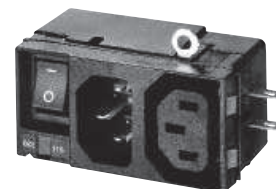
KM



GRM1



PMM



Technical parameters	DC21	KM	GRM1	PMM
Max. rated current/voltage	2,5A/250V AC	10A/250V AC	10A/250V AC	10A/250V AC
Dielectric strength	2,5kVAC, 3kVAC	2,5kVAC, 3kVAC	2,5kVAC, 3kVAC	2,5kVAC, 3kVAC
Terminals	FASTIN 4,8x0,8mm	FASTIN 4,8x0,8mm	FASTIN 4,8x0,8mm	FASTIN 4,8x0,8mm
Number of switch poles	2 pole	1, 2 pole	2 pole	1, 2 pole
Allowable operation temp.	-25°C up to 70°C	-25°C up to 70°C	-25°C up to 70°C	-25°C up to 70°C
Rear-side degree of protection	IP40	IP40	IP40	IP40
Mounting hole dimensions	34x27,5 mm	28x47 mm / 28,8x47,8 mm	34,2x40,9 mm	32,2x63,7 mm

KD



KG



6145



EC11



Technical parameters	KD	KG	6145	EC11
Max. rated current/voltage	10A/250V AC	10A/250V AC	10A/250V AC	16A/250V AC
Dielectric strength	3kVAC, 4kVAC	3kVAC, 4kVAC	L/N-PE 3kVAC	2,5kVAC, 3kVAC
Terminals	FASTIN 4,8x0,8mm	FASTIN 4,8x0,8mm	FASTIN 4,8x0,8mm	FASTIN 6,3x0,8 mm
Number of switch poles	2 pole	2 pole	2 pole	2 pole
Allowable operation temp.	-25°C up to 70°C	-25°C up to 70°C	-10°C up to 55°C	-25°C up to 70°C
Rear-side degree of protection	IP40	IP40	IP40	IP40
Mounting hole dimensions	27,5x66,5 mm	27,5x80 mm	29x72 mm	32,5x46,5 mm



## Power Entry Modules (continued)

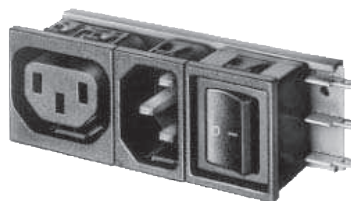
EF11



KP



Felcom 64



Felcom components



Technical parameters	EF11	KP	Felcom 64	Felcom components
Max. rated current/voltage	16A/250V AC	10A/250V AC	10A/250V AC	10A/250V AC
Dielectric strength	1,5kVAC, 3kVAC	2,3kVAC, 2,8kVAC	2,5kVAC, 3kVAC	-
Terminals	FASTIN 6,3x0,8 mm	do PCB	FASTIN 6,3x0,8 mm	do PCB
Number of switch poles	2 pole	1, 2 pole	2 pole	2 pole
Allowable operation temp.	-10°C up to 55°C	-25°C up to 70°C	-25°C up to 70°C	-25°C up to 70°C
Rear-side degree of protection	IP40	IP40	IEC 61140	IP40
Mounting hole dimensions	32,5x79,5 mm	52,4x32,3 mm	90,5x30 mm	-

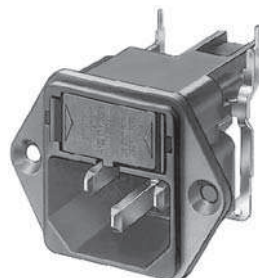
GSF1



GSF2



KEA Print

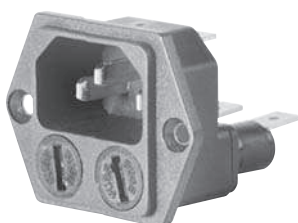


620x, 6220



Technical parameters	GSF1	GSF2	KEA Print	620x, 6220
Max. rated current/voltage	10A/250V AC	10A/250V AC	10A/250V AC	10A/250V AC
Dielectric strength	3kVAC, 4kVAC	2,5kVAC, 6kVAC	3kVAC, 4kVAC	2kVAC, 2kVAC
Terminals	Solder	FASTIN 4,8x0,8 mm	PCB	Solder
Fuseholder dimensions	5x20 2x	5x20 2x	5x20 2x	5x20 (6220 2x)
Allowable operation temp.	-25°C up to 70°C	-25°C up to 70°C	-25°C up to 70°C	-25°C up to 70°C
Rear-side degree of protection	IP40	IP40	IP40	IP40
Mounting hole dimensions	30,3x22,3 mm	33x25,4 mm	27,5x31,5 mm	27,5x31,5 mm

4704



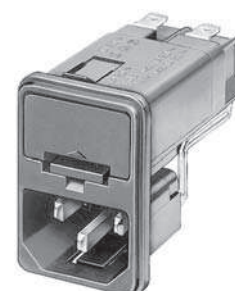
8842/8843



4719



KEC



Technical parameters	4704	8842/8843	4719	KEC
Max. rated current/voltage	10A/250V AC	10A/250V AC	10A/250V AC	10A/250V AC
Dielectric strength	2kVAC, 3kVAC	2kVAC, 4kVAC	2,5kVAC, 3kVAC	3kVAC, 4kVAC
Terminals	FASTIN 3,8x0,8, 6,3x0,8 mm	FASTIN 4,8x0,8 mm	FASTIN 3,8x0,8	FASTIN 3,8x0,8, 6,3x0,8 mm
Fuseholder dimensions	5x20 1, 2x	5x20 1, 2x	5x20 1x	5x20, 6,3x32 1, 2x
Allowable operation temp.	-25°C up to 70°C	-25°C up to 70°C	-25°C up to 70°C	-25°C up to 70°C
Rear-side degree of protection	IP40	IP40	IP40	IP40
Mounting hole dimensions	27,4x30,4 mm	33,3x33,3 mm	33,20x37,20 mm	27,5x41 mm

## Modular (RJ) Connectors

### Plugs

#### TZB 40x

Western Modular cable connectors, transparent, for crimping

**TZB 400**  
4P4C (RJ9)

**TZB 401**  
6P4C (RJ11)

**TZB 402**  
6P6C (RJ12)

**TZB 403**  
8P8C (RJ45)

**TZB 404**  
10P10C (RJ50)



Part No.	Ord.No.
S TZB 400 (RJ-9)	29042
S TZB 401 (RJ-11)	29043
S TZB 402 (RJ-12)	29044
S TZB 403 (RJ-45)	29045
S TZB 404 (RJ-50)	8172

#### TZB 507

Strain relief boot for RJ45 plugs (8P8C), different colors available

#### TZB 510

RJ45 plug (8P8C) shielded + beige strain relief boot



Part No.	Ord.No.	Description
S TZB 507 BU	55019	blue
S TZB 507 YE	55021	yellow
S TZB 507 GY	54635	grey
S TZB 507 BK	55020	black
S TZB 507 GN	55022	green
S TZB 507 RD	55023	red
S TZB 510	38410	beige CAT5

Suitable cables - see chapter G.

Suitable pliers - see chapter K.



HT-2092



HT-2008 R

## Adapters

#### TZB 411

Connection adapter, 2x 6P4C / 1x 6P4C, socket



#### TZB 414

Connection adapter RJ45 socket/socket



#### TZB 420

Splitter, 6P4C / 2x 6P4C, plug/2xsocket



Part No.	Ord.No.
S TZB 411	29047
S TZB 414 1-1/8-8	69571
S TZB 420	29048

## Modular Sockets and Adapters CS standard

#### KOD-3104

Adapter, CS-plug / RJ11 socket



#### KOD-3104 BK

Adapter, CS-plug / RJ11 socket, black



Part No.	Ord.No.
S KOD-3104	4171
S KOD-3104 BK	69255

#### KOD-3131

Wall mount telephone socket with RJ11 connector



#### KOD-3134

Wall mount telephone socket with 2xRJ11 connectors



Part No.	Ord.No.
S KOD-3131	5599
S KOD-3134	5600

#### CAT5e WPC Flush

Wall plate flush mounting 2xRJ45 beige and white colour available, shielded



#### CAT5e WPC Surface

Wall plate, 2xRJ45 beige and white colour available



Part No.	Ord.No.	Colour
O CAT5e WPC Flush BE	70638	beige
S CAT5e WPC Flush WH	70637	white
O CAT5e WPC Surface BE	70640	beige
O CAT5e WPC Surface WH	70639	white

#### CAT5e WPC Uni WH

Universal wall plate, 2xRJ45, only in white colour available



Patch cables  
- see chapter G.

Part No.	Ord.No.	Colour
S CAT5e WPC Uni WH	70641	white

#### CAT6e WPC Flush

Wall plate flush mounting 2xRJ45 beige or white colour available



#### CAT6e WPC Uni

Universal wall plate 2xRJ45 beige or white colour available



Part No.	Ord.No.	Colour
O CAT6e WPC Flush BE	70643	beige
S CAT6e WPC Flush WH	70642	white
O CAT6e WPC Uni BE	70645	beige
S CAT6e WPC Uni WH	70644	white

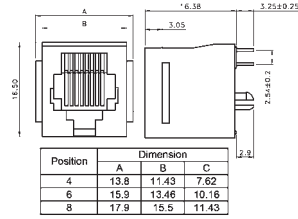
## Modular PCB Sockets

### 7006

Modular-Jack, vertical (perpendicular) insertion into PCB, 4P4C, 6P6C, 8P8C series available



vertical

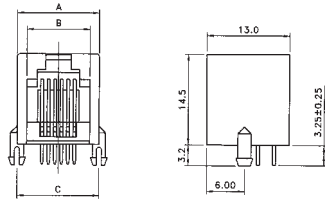
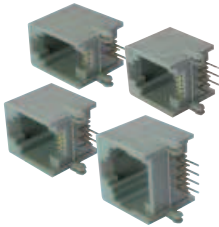


Part No.	Description
7006-4P4C	4P4C vertical, 13,8x16,38x16,5mm RM7,62
7006-6P6C	6P6C vertical, 15,46x16,38x16,5mm RM10,16
7006-8P8C	8P8C vertical, 17,9x16,38x16,5mm RM11,43

Part No.	Ord.No.
S 7006-4P4C	55946
S 7006-6P6C	55947
S 7006-8P8C	55948

### 7007

Modular-Jack unshielded, horizontal insertion to PCB, 4P4C, 6P4C, 6P6C, 8P8C versions available.



Part No.	Description
7007-4P4C	4P4C 10x14,5x13mm RM10
7007-6P4C	6P4C 12,2x14,5x13mm RM12
7007-6P6C	6P6C 12,2x14,5x13mm RM12
7007-8P8C	8P8C 15x14,5x13mm RM15

Part No.	Ord.No.
S 7007-4P4C	48742
S 7007-6P4C	48744
S 7007-6P6C	48745
S 7007-8P8C	48746

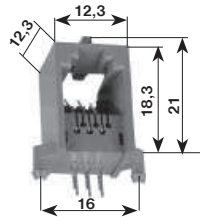
### TZB 46x

Modular-Jack for horizontal PCB mounting, with guiding pins. 4P4C, 6P4C, 6P6C versions available.

#### TZB 460

#### TZB 461

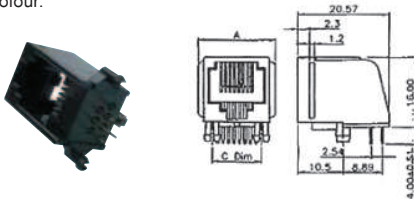
#### TZB 462



Part No.	Ord.No.	Description
S TZB 460	29057	PCB mounting 4P4C
S TZB 461	29058	PCB mounting 6P4C
S TZB 462	29059	PCB mounting 6P6C

### TZB 463

Modular-Jack for horizontal PCB mounting, 8P8C type available in black or grey colour.



Part No.	Ord.No.
S TZB 463 BK	29060
TZB 463 GY	42725

### TZB 453

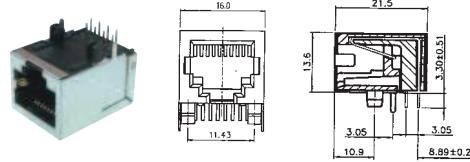
Modular-Jack 8/8 with approx. 15 cm long connecting wires, panel mounting



Part No.	Ord.No.
S TZB 453	29056

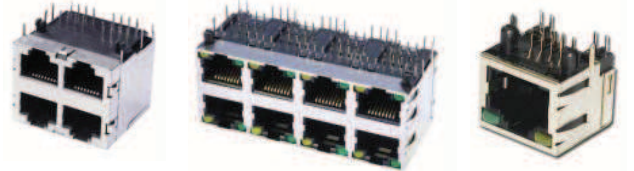
### A-20042-LP/FS

Modular-Jack 8/8 shielded with gold plated contacts, L21,5mm



Part No.	Ord.No.
S A-2004-2-LP/FS	47771

We also supply jacks with leds as well as multiport jacks on offer.



## Industrial RJ45 Connectors



Designed for wet and aggressive industrial environment. They are characterized by high protection class - IP67.

### A-RJ45M-LR

Modular plug RJ45M IP67, cable mounting, long sealing nut

### A-RJ45M-SR

Modular plug RJ45M IP67, cable mounting, short sealing nut



IP67



IP67

Part No.	Ord.No.
S A-RJ45M-LR	69340
S A-RJ45M-SR	69341

### A-RJ45 DFR

Modular Jack, 8-contacts, IP67, shielded, flange, panel mount.

### A-RJ45 GFS

Modular Jack IP67 panel mount., rear RJ45, shielded, flange.

### A-WP-COVER 1

Cover with chain for panel RJ45 IP67, 9cm long chain



IP67



IP67



IP67

Part No.	Ord.No.
S A-RJ45 DFR	69337
S A-RJ45 GFS	69338
S A-WP-COVER 1	69339

## MagJack Connector Modules

### What is MagJack?

These highly integrated devices combine Bel Stewart Connectors network magnetics with combinations of RJ45 and USB connectors. In addition to connectivity, these modules provide the signal conditioning, electro-magnetic interference suppression and signal isolation previously performed by multiple, discrete magnetic components.



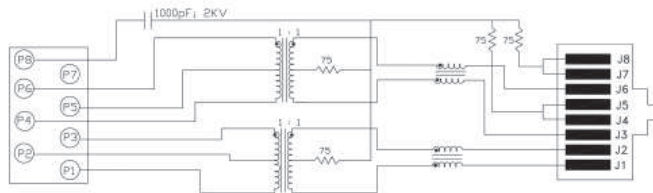
### 1xport 10/100Mb



SI-60002-F

SI-60062-F

SI-46001-F

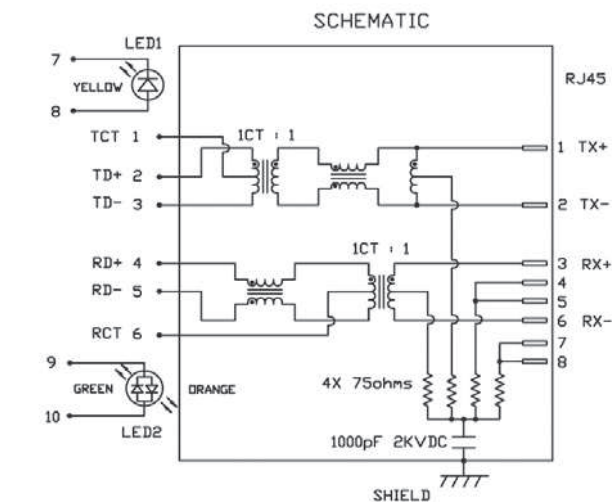


Part No.	Description
SI-60002-F	horizontal, NO LED, tab down
SI-60062-F	horizontal, yellow/green, tab down
SI-46001-F	vertical, yellow/green

Part No.	Ord.No.
SI-60002-F	79166
SI-60062-F	67541
SI-46001-F	79091

08B0-1X1T-03-F

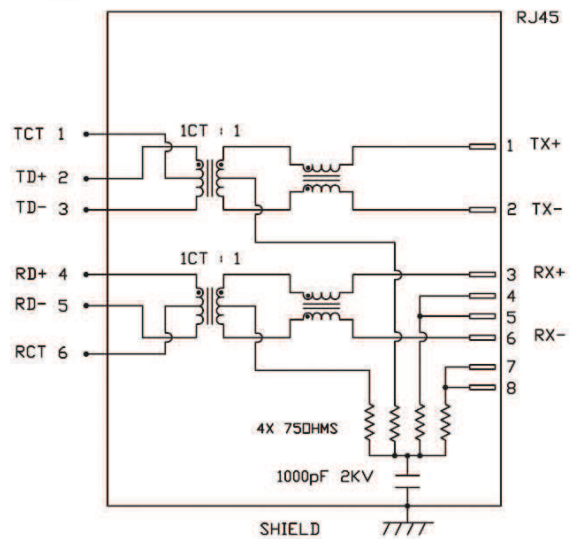
08C2-1X1T-03



Part No.	Description
08B0-1X1T-03-F	horizontal, green-orange/yellow, tab up
08C2-1X1T-03	combo 2xUSB, green-orange/yellow, tab up

Part No.	Ord.No.
08B0-1X1T-03-F	79326
08C2-1X1T-03	79110

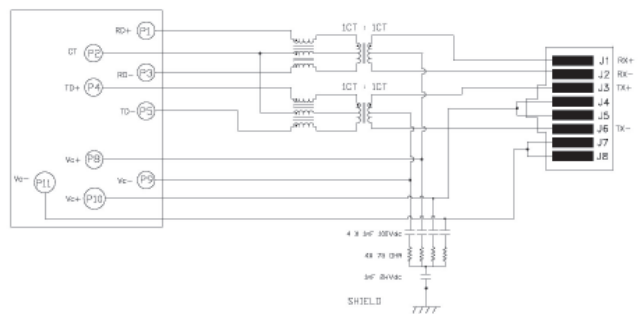
S811-1X1T-06-F



Part No.	Description
S811-1X1T-06-F	SMT, NO LED, tab down

Part No.	Ord.No.
S811-1X1T-06-F	79121

SI-52008-F



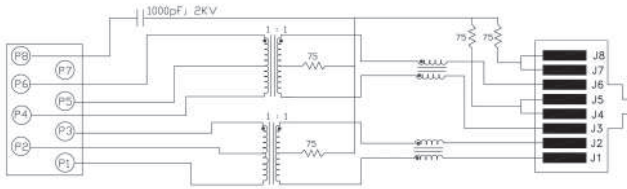
Part No.	Description
SI-52008-F	PoE, green/yellow, tab up

Part No.	Ord.No.
SI-52008-F	79327

## 2xport 10/100Mb

SI-60135-F

SI-60159-F

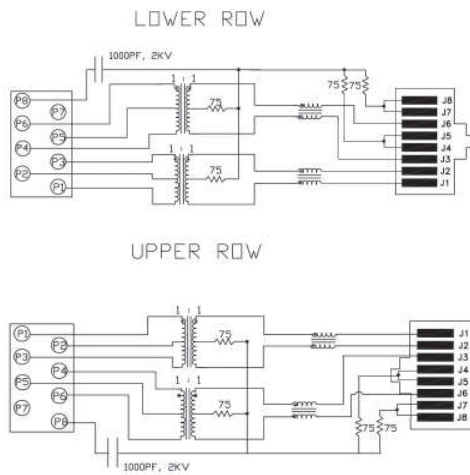


Part No.	Descripton
SI-60135-F	horizontal, NO LED, tab down
SI-60159-F	horizontal, green/yellow, tab down

Part No.	Ord.No.
o SI-60135-F	79365
o SI-60159-F	79366

SI-30107-F



Part No.	Descripton
SI-30107-F	vertical, NO LED

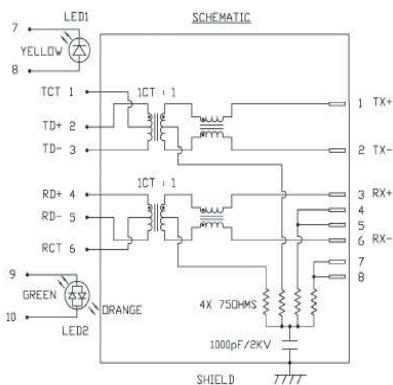
  

Part No.	Ord.No.
o SI-30107-F	79367

## 4xport 10/100Mb

08B1-1X4T-06-F

0810-1X4T-06-F

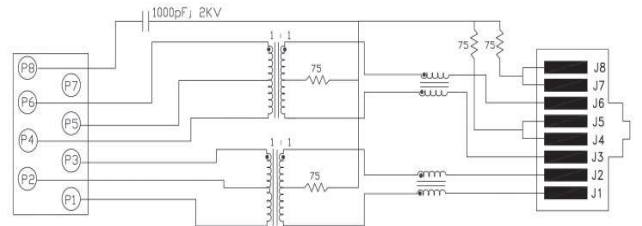


Part No.	Descripton
08B1-1X4T-06-F	harmonica, NO LED, tab up
0810-1X4T-06-F	harmonica, orange-green/yellow, tab up

Part No.	Ord.No.
o 08B1-1X4T-06-F	79368
o 0810-1X4T-06-F	79369

## 8xport 10/100Mb

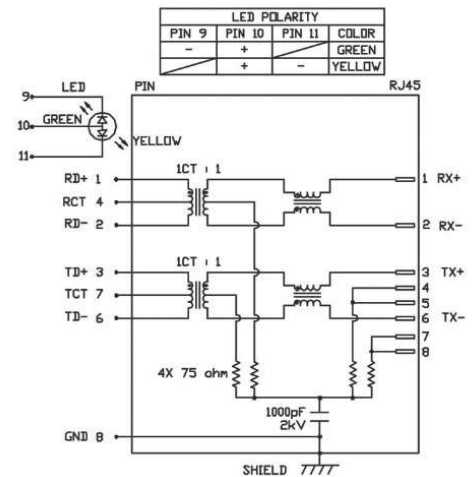
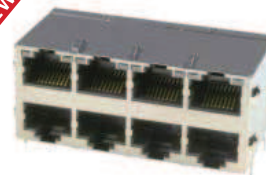
SI-60115-F



Part No.	Descripton
SI-60115-F	harmonica, NO LED, tab down

Part No.	Ord.No.
o SI-60115-F	79370

0810-2H4R-28-F



Part No.	Descripton
0810-2H4R-28-F	stacked, green/yellow

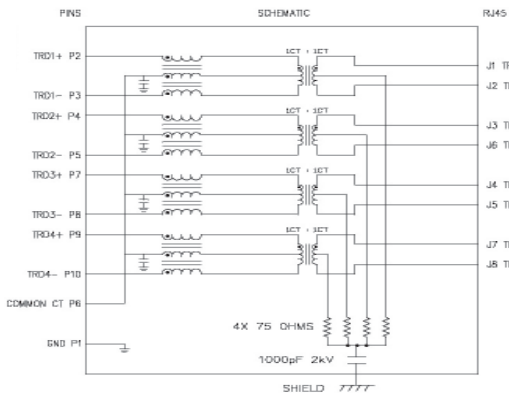
Part No.	Ord.No.
o 0810-2H4R-28-F	79371

## 1xport 10/100/1000Mb

SI-51005-F



**NEW!**

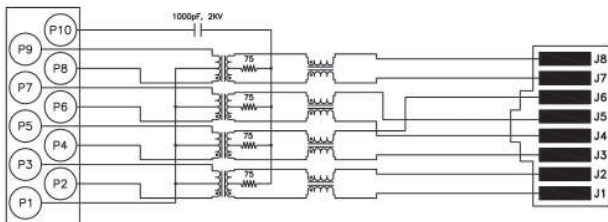


Part No.	Description
SI-51005-F	harmonica, green/green, tab up
Part No.	Ord.No.
SI-51005-F	79372

SI-61001-F



**NEW!**

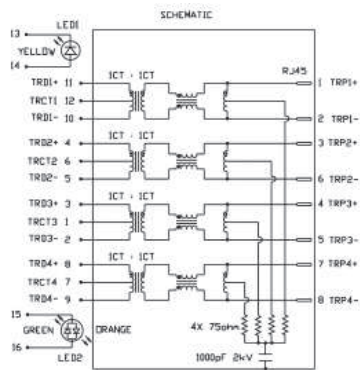


Part No.	Description
SI-61001-F	horizontal, green/yellow, tab down
Part No.	Ord.No.
SI-61001-F	79373

0826-1X1T-23-F



**NEW!**

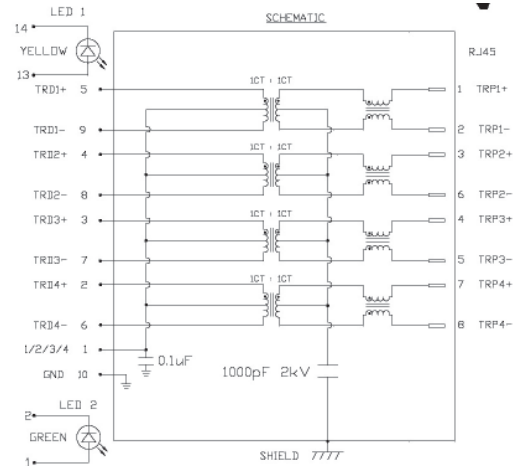


Part No.	Description
0826-1X1T-23-F	horizontal, yellow/green-orange, tab up
Part No.	Ord.No.
0826-1X1T-23-F	79374

V890-1AX1-A1



**NEW!**

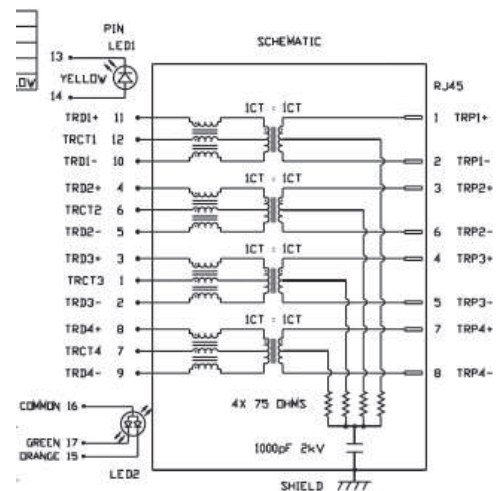


Part No.	Description
V890-1AX1-A1	vertical, green/yellow
Part No.	Ord.No.
V890-1AX1-A1	79375

L829-1J1T-43



**NEW!**



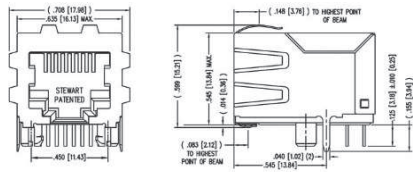
Part No.	Description
L829-1J1T-43	low profile, green-orange/yellow, tab up
Part No.	Ord.No.
L829-1J1T-43	79376

## Passive JACK Connectors

### 1xport CAT5

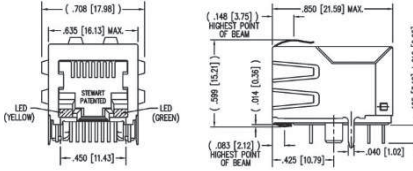
SS64800-056F

**NEW!**



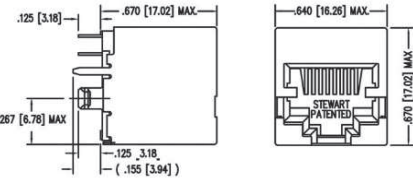
SS74800-038F

**NEW!**



SS71800-027F

**NEW!**



Part No.	Description
SS64800-056F	horizontal, shielded, NO LED, tab down, 8p/8c
SS74800-038F	horizontal, shielded, yellow/green, tab down, 8p/8c
SS71800-027F	vertical, shielded, NO LED, 8p/8c

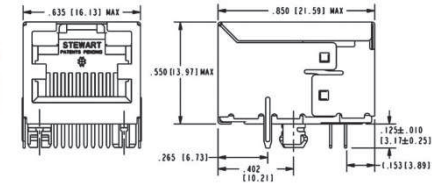
  

Part No.	Ord.No.
SS64800-056F	80588
SS74800-038F	80589
SS71800-027F	80582

### 1xport CAT6

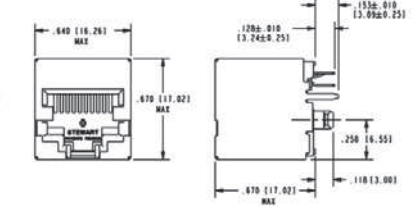
SS60000-009

**NEW!**



SS60000-008

**NEW!**



Part No.	Description
SS60000-009	horizontal, shielded, NO LED, tab up, 8/8c
SS60000-008	vertical, shielded, NO LED, 8p/8c

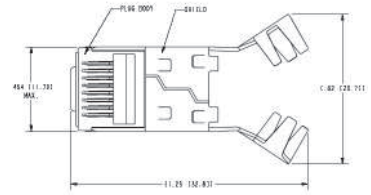
  

Part No.	Ord.No.
SS60000-009	79377
SS60000-008	79378

## CAT6 Plugs

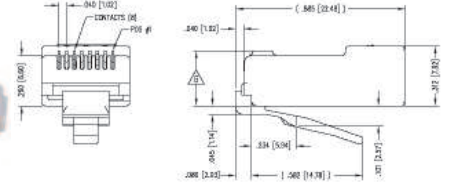
SS-39200-012

**NEW!**



SS-39100-004

**NEW!**



Part No.	Description
SS-39200-012	shielded, plug+load bar, 8p/8c, requires hand tool 2980070-01
SS-39100-004	unshielded, plug + manager bar, 8p/8c

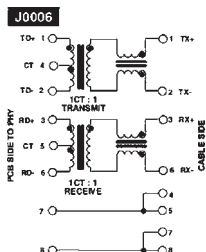
Part No.	Ord.No.
SS-39200-012	79379
SS-39100-004	79380

## PULSE JACK Connectors

PULSE connectors are designed to support applications, such as SOHO (ADSL modems), LAN-on-Motherboard (LOM), hub and switches as well as different modules with TCP/IP communication.

### J0006D21BNL

PULSE jack 10/100 Base-TX RJ45 1x1 Tab-DOWN with LEDs 8-pin (J0 series) integrated magnetics connector (ICM), without internal resistors (left-green, right-yellow). Matching to RTL8019

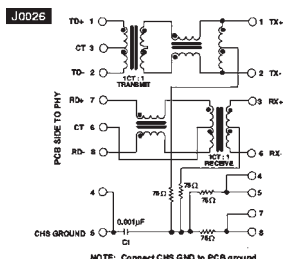
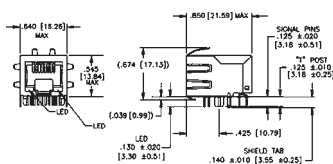


Part No.	Ord.No.
S J0006D21BNL	57105
S J0026D21BNL	56977

We can supply other types on offer.

### J0026D21BNL

PULSE jack RJ45 connector, shielded with integrated transformer, with LEDs, without internal resistors (left-green, right-yellow).



NOTE: Connect CHS GND to PCB ground.

## NE8MC



## NE8MC-1



Part No.	Ord.No.	Description
S NE8MC	60992	cable mount
O NE8MC-1	60878	cable mount

MC-1 version - sealing kit SE8FD to achieve IP54 water protection.

## BSE-0

Black bushing for NE8MC-1 and NE8MC-B-1 cable connectors

## NE8FF

Coupler/adaptor for RJ45 EtherCon B-1 cable connectors



Part No.	Ord.No.
O BSE-0	60993
O NE8FF	69017

## EtherCon Connectors

The etherCON® series is a ruggedized and lockable RJ45 connector system, optimized for proaudio, video and lightning network applications.

### NE8FAV



### NE8FA V-SD



### NE8FBH



Part No.	Ord.No.	Description
O NE8FAV	60727	panel/PCB
O NE8FAV-SD	60728	panel/PCB + fix
S NE8FBH	69015	panel/PCB 90°

### NE8FBH-LED



### NE8FBH-S



### NE8FDV



Part No.	Ord.No.	Description
O NE8FBH-LED	69016	panel/PCB shield. LED
S NE8FBH-S	60879	panel/PCB shielded
O NE8FDV	69022	panel/PCB "D"size

### NE8FAV-YK



### NE8FDP



### NE8FDV-Y110-B



Part No.	Ord.No.	Description
O NE8FAV-YK	69021	panel mount, IDC
S NE8FDP	60994	panel mount, connector
O NE8FDV-Y110-B	69023	panel mount, IDC "D"size

## BNC Connectors

### Cable Mount

#### UG 88/U

BNC Plug for soldering, clamp, 50 Ohm



Part No.	Ord.No.
S UG 88/U	16706
S UG 88/U GPS	27023

#### UG 88/U GPS

BNC crimp plug with screwtop, plastic cap and solder pins, 50 Ohm



#### UG 88/U C 58

BNC crimp plug for RG 58/U cable with gold pin, 50 Ohm.



Part No.	Ord.No.
S UG 88/U C 58	22295
S UG 88/U C 59	22976

#### UG 88/U C 59

BNC crimp plug for RG 59/U cable with gold pin, 75 Ohm.



#### BNC 50-58

BNC Terminator 50 Ohm.



Part No.	Ord.No.
S BNC 50-58	29108
O NBNC75BLP7	61161

#### NBNC75BLP7

The RearTwist® BNC cable connector M 75 Ohm, cable mount. Perfectly suitable for HD applications





## BNC Connectors (continued)

### Panel Mount

#### UG 1094/U

BNC Jacks for crimping and soldering Wave resistance: 50 Ohm



#### UG 1094/U ISO

BNC-Bulkhead jack insulated, chassis sockets with nut and washer 50 Ohm.



Part No.	Ord.No.
S UG 1094/U	16708
S UG 1094/U ISO	24245

### Miscellaneous

#### UG 274/U

BNC male > 2 x BNC female T type adaptor



#### UG 914/U

BNC female > BNC female, 50 Ohm



#### PROT-RG58

BNC plastic cable relief - black for RG 58, 50 Ohm



Part No.	Ord.No.
S UG 274/U	16709
S UG 914/U	20791
S PROT RG58	33123

## N Connectors

#### N 501 A

N male clamp type with Ø=5,2mm, gold pin for RG 58 cable, solder



#### N 501 D

N male clamp type Ø=10,7mm, gold pin for RG8, RG 213 cable, solder



#### N 504 A

N male crimp type Ø=5,2 mm, w. gold pin, for RG 58 cable, solder



Part No.	Ord.No.
S N 501 A	22277
S N 501 D	22545
S N 504 A	46228

#### N 504 D

N male clamp type with Ø=11mm for RG213



#### N 108

N female crimp type for RG 58 cable with gold pins



#### N 514C

N female connector for RG213 cable, Ø=11mm, solder, with gold central pin



Part No.	Ord.No.
S N 504 D	22280
S N 108	46229
S N 514 C	43073

#### N 512

N female connector, panel, 4 screws



#### N 505

N connector adapter female/female



Part No.	Ord.No.
S N 512	22289
S N 505	22281

## UHF Connectors

#### PL 259

UHF plug for max. 10 mm cable RG 213, solder



#### PL 259 NK

UHF plug for max. 6 mm cable RG 58



#### PL 259-6

UHF plug for max. 5,3 mm cable RG 59



Part No.	Ord.No.
S PL 259	16690
S PL 259-6	16691
S PL 259 NK	16692

#### SO 239

UHF female socket with flange



#### PL 258

Connector UHF female > UHF female



Part No.	Ord.No.
S SO 239	16693
S PL 258	16696

## SMA Connectors

SMA (SubMiniature version A) connectors are designed to wide range signal transmission - from DC up to 18 GHz. Applications: WLAN networks for antennas connection, access points, PC card connection etc. All SMA connectors we offer are gold-plated and with teflon insulation (PTFE). Impedance: 50 Ohm.

#### SMA C 58G

SMA-Plug Crimp/Solder RG58C/U, 5mm



#### SMA C 174

SMA-Plug Crimp/Solder RG174U, 2,6mm



Part No.	Ord.No.
S SMA C 58G	7621
S SMA C 174	52569

#### SMA BC 58G

SMA-female connector Crimp/Solder RG58C/U, 5mm



#### SMA BC 174

SMA female connector Crimp for RG174 cable, 2,6mm



Part No.	Ord.No.
S SMA BC 58G	55189
S SMA BC 174	55188

#### SMA 02

Adapter SMA F / SMA F



#### SMA 03

Adapter SMA M / SMA M



Part No.	Ord.No.
S SMA 02	55222
S SMA 03	55223

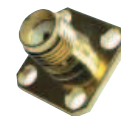
#### SMA E

SMA female connector, panel, with center lock nut



#### SMA 90

SMA female connector, panel, 4screws



Part No.	Ord.No.
S SMA E	55221
S SMA 90	55190

## SMA PCMT

SMA female connector, board edge, 1,5mm PCB



## SMA P

SMA female connector, straight, PCB



## SMA PCBW

SMA PCBW/EC SMA female connector, angled, PCB



Part No.	Ord.No.
S SMA P	61249
S SMA PCBW	55220
S SMA PCBW/EC	65231
S SMA PCMT	69397

## SMA (Reverse) Connectors

The term "reverse-polarised connectors" is used where, for example, a standard cable plug has a female centre contact, instead of a male centre contact. Reverse-polarised connectors are very popular in WLAN applications.

### SMA REVERSE M RG58

SMA-crimp plug RG-58C/U, 50Ohm, goldplated



- plug

### SMA REVERSE M RG174/316

SMA-crimp plug, RG174/316, 50Ohm, goldplated



- plug

Part No.	Ord.No.
S SMA REVERSE M RG58	52899
S SMA REVERSE M RG174/316	52900

### SMA REVERSE F RG58

SMA-Straight jack RG-58C/U, 50 Ohm, goldplated



- jack

### SMA REVERSE F RG174/316

SMA-Straight jack RG174/316 cable, 50Ohm, goldplated, solder/crimp



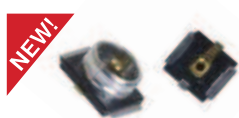
- jack

Part No.	Ord.No.
S SMA REVERSE F RG58	52897
S SMA REVERSE F RG174/316	52898

## Other Connectors

### MM9329-2700B

µFL connector, coaxial, (chip type receptacle), SMT (GSC) male



NEW!

### U.FL-R-SMT(01)

uFl Connector, Coaxial, SMT male



NEW!

Part No.	Ord.No.
S MM9329-2700B MURATA	69261
S U.FL-R-SMT(01) HIROSE	72066

## F - Connectors

### Plugs

#### FST 40

Screw cable plug 4mm,



#### FST 70

Screw cable plug 7mm,



#### FST 70 q

Crimp cable plug 7mm,



Part No.	Ord.No.
S FST 40	36024
S FST 70	2266
S FST 70 q	2257

## Jacks

### FE 01

Solder panel jack



### F 94 FL/2o

Panel jack, thread L=14mm



Part No.	Ord.No.
S FE 01	36025
S F 94 FL/2o	6320

## Adapters

### FBFB 3

Adapter F-F



### FSFS 4

Adapter M-M



### FSFK 5

Angled adapter F-M



Part No.	Ord.No.
S FBFB 3	2261
S FSFS 4	2262
S FSFK 5	2260

## IEC Connectors

### T 1503

Cable plug, straight



### T 1506

Cable plug, angled



Part No.	Ord.No.
S T 1503	2263
S T 1506	2924

### T 1504

Cable coupler, straight



### T 1505

Cable coupler, angled



Part No.	Ord.No.
S T 1504	2264
S T 1505	2926

### AB 248

Panel jack



### EU 297

Panel/PCB jack



Part No.	Ord.No.
S AB 248	6167
S EU 297	6168

### T 1507

Adapter plug/plug



### T 1508

Adapter jack/jack



### T 1509

Coaxial inline coupler



Part No.	Ord.No.
S T 1507	36018
S T 1508	36019
S T 1509	4052

## TV Components - Splitters, Combiners (diplexers), Amplifiers

### PLASTIC SPLITTER/COMBINER

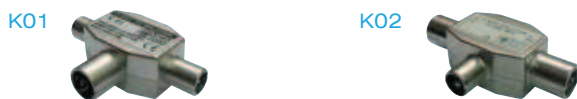
Components in plastic housing with standard TV (IEC) connectors.  
 AA01=splitter, 1x jack / 2x plug  
 AA 01 N= splitter TV 2x plug / 1x jack, plastic  
 AA 02 N= combiner(diplexer) TV 2x jack / 1x plug, plastic



Part No.	Ord.No.
S AA 01	36016
S AA 01 N	69546
S AA 02 N	69547

### METAL SPLITTER/COMBINER

Components in metal housing with standard TV (IEC) connectors, loss 4dB, frequency range 5-860 MHz.  
 K01=splitter, 1x jack / 2x plug  
 K02=combiner(diplexer), 2x jack / 1x plug



Part No.	Ord.No.
S K01	2771
S K02	2913

### SPLITTERS WITH F-CONNECTORS

Splitters in metal housing with F-connectors, loss 5,5dB, frequency range 5-860 MHz.  
 2242-F2=splitter, 1x input / 2x output  
 2243-F3=splitter, 1x input / 3x output  
 2244-F4=splitter, 1x input / 4x output



Part No.	Ord.No.
S 2242-F2	2999
S 2243-F3	3000
S 2244-F4	3001

### TV AND SAT SIGNALS COMBINER

Combiner with F-connectors used to combine TV (5-860 MHz) and SAT (950-2250 MHz) signals.  
 EW3=2x jack / 1x plug



Part No.	Ord.No.
S EW3	2906

### SAT Protector 01

SAT surge protector 68V, 5-2400MHz



Part No.	Ord.No.
S SAT Protector 01	69549

### SAT V 04

SAT inline amplifier 47-2400MHz  
 20dB 15Vdc



### SAT V MINI DVB-T/SAT

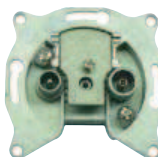
Amplifier 5-2300MHz 5dB 5-18V/  
 25mA



Part No.	Ord.No.
S SAT V 04	69548
S SAT V MINI DVB-T/SAT	69550

### TV+RADIO WALL PLATES

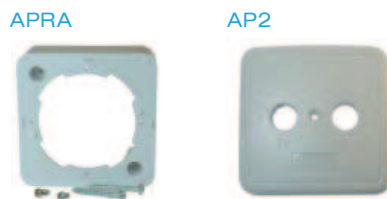
Wall plates without plastic cover with 2xIEC connector (plug, jack) for TV and radio outlet signals.  
 BKSD2=end jack 5-860  
 BKDD2=through jack



Part No.	Ord.No.
S BKSD2	2910
S BKDD2	3125

### PANEL PLASTIC COVERS

Panel plastic covers for BKSD2 and BKDD2 wall plates  
 APRA=plastic rim case  
 AP2=outer plastic cover for APRA rim case  
 What you need to get the full solution: 1x wall plate (BKSD2, BKDD2, SAT...) and 1x APRA + AP2



Part No.	Ord.No.
S AP2	8317
S APRA	8316

### SAT, TV AND RADIO WALL PLATES

Wall plates with plastic cover and 3 outlets (SAT=F-connector, TV and radio=IEC connectors)  
 SAT DD3K=through jack with DC signal transfer 5 - 2400MHz  
 SAT SD3K=end jack 5 - 2400MHz



Part No.	Ord.No.
S SAT DD3K	3734
S SAT SD3K	2904

Please find antenna cables in chapter G.

## HF Adapters

**FKKK 9**  
Adapter TV IEC F-jack/TV-jack



Part No.	Ord.No.
S FKKK 9	2985
S FKKS 8	2984

**FKKS 8**  
Adapter TV IEC F-jack/TV-plug



**FSKK 7**  
Adapter F-plug/ TV IEC jack



Part No.	Ord.No.
S FSKK 7	2349
S FSKS 6	2982

**FSKS 6**  
Adapter F-plug/ TV IEC plug



**N 502**  
Adapter N-plug/UHF-jack



Part No.	Ord.No.
S N 502	22278
S N 510	22287

**N 510**  
Adapter N-jack/UHF- plug



**K 200**  
Adapter plug BNC/  
jack UHF



Part No.	Ord.No.
S K 200	16674
S K 201	16675
S ADAPTER 125	28177

**K 201**  
Adapter plug UHF/jack  
BNC



**Adapter 125**  
Adapter BNC plug/2x  
banana jack 4mm



## Car Antenna Connectors

**AAS-1**  
Antenna cabel plug, straight



Part No.	Ord.No.
S AAS-1	12991
S AAB-3	2115

**AAB-3**  
Antenna jack, for panel mounting



**AA-10**  
Antenna adapter M old - F new



Part No.	Ord.No.
S AA-10	12990
S AA-30	12992

**AA-30**  
Antenna adapter M/F, 90° angled



# Ordering online



**electroniconline**

[www.soselectronic.com](http://www.soselectronic.com)



## CENTRONICS Connectors

**SE57xxM**  
Cable plug, solder pins



**SE5736 F**  
Cable jack, solder pins



**SE57xx FRKL**  
PCB jack, angled



Part No.	Ord.No.	Description
S SE 5724 M	18612	24 pole
S SE 5736 M	18613	36 pole
S SE 5750 M	18614	50 pole
S SE 5736 F	18617	36 pole
S SE 5724 FRKL	22324	24 pole, PCB
S SE 5736 FRKL	20079	36 pole, PCB
S SE 5750 FRKL	4469	50 pole, PCB

**SE5750 FRM**  
CENTRONICS flat cable plug, IDC

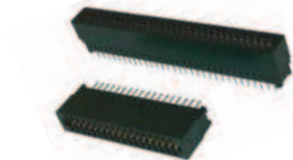


Part No.	Ord.No.	Description
O SE 5750 FRM	22365	50 pole IDC

Cables with Centronics connectors  
- see chapter G.

## PCB Slots

**SLOT 2 x xx**  
Direct connectors for double-sided PCB with terminals - PCB poles, RM=2,54mm

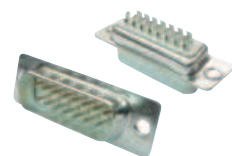


Part No.	Ord.No.	Description
S SLOT 2 x 18	24776	2x18 pole
S SLOT 2 x 31	20073	2x31 pole

## D-SUB (CANNON) Connectors

### Cable Mount

**DSxxL SERIES**  
Cable plug Cannon, solder cups



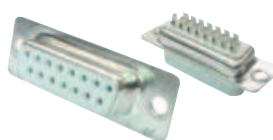
**DSFxxLC SERIES**  
Flat cable plug Cannon, IDC, blue body



Part No.	Ord.No.	Description
S DS 09L	19224	M 9-pole
S DS 15L	19225	M 15-pole
S DS 25L	19226	M 25-pole
S DS 37L	19227	M 37-pole
S DSF 09 LC	19020	M 9-pole
S DSF 25 LC	19022	M 25-pole
S DSF 37 LC	19023	M 37-pole

## Cable Mount

**DFxxLL SERIES**  
Cable jack Cannon, solder cups



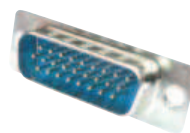
**DFFxxLC SERIES**  
Flat cable jack Cannon, IDC, connector's blue body



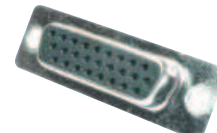
Part No.	Ord.No.	Description
S DF 09 LL	19229	F 9-pole
S DF 15 LL	19230	F 15-pole
S DF 25 LL	19231	F 25-pole
S DF 37 LL	19232	F 37-pole
S DFF 09 LC	19030	F 9-pole
S DFF 25 LC	19032	F 25-pole
S DFF 37 LC	19033	F 37-pole

## High Density (HD) Cable Plugs

**HD xx M**  
**DS 50L**  
HD cable plug Cannon, solder cups



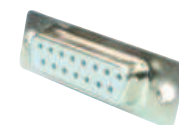
**HD xx F**  
**DF 50 LL**  
HD cable jack Cannon, solder cups



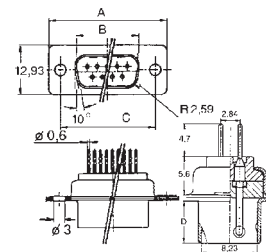
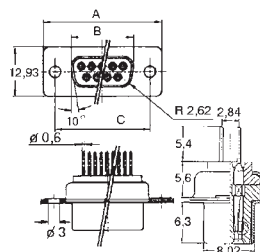
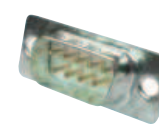
Part No.	Ord.No.	Description
S HD 15 M	23566	HD, M 15-pole
S HD 26 M	26369	HD, M 26-pole
S DS 50L	19228	HD, M 50-pole
S HD 15 F	23567	HD, F 15-pole
S HD 26 F	26372	HD, F 26-pole
S DF 50 LL	19233	HD, F 50-pole

## PCB Mount

**DFxxPP SERIES**  
PCB jack Cannon, PCB poles - straight



**DSxxP SERIES**  
PCB plug Cannon, PCB poles - straight

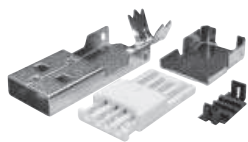


Part No.	Ord.No.	Description
S DF 09 PP	20182	9-pole
S DF 15 PP	20183	15-pole
S DF 25 PP	20184	25-pole
S DF 37 PP	20185	37-pole
S DS 09 P	20173	9-pole
S DS 15 P	20174	15-pole
S DS 25 P	20175	25-pole
S DS 37 P	20176	37-pole

## USB Connectors

### Cable Mounting USB Connectors

USB/ST1A



USB/HA



Part No.	Description
USB/ST1A	USB cable connector A-M
USB/HA	USB hood for connector A

Part No.	Ord.No.
s USB/ST1A	8044
s USB/HA	47252

USB/ST1B



USB/HB



Part No.	Description
USB/ST1B	USB cable connector B-M
USB/HB	USB hood for connector B

Part No.	Ord.No.
s USB/ST1B	40943
s USB/HB	47253

USB-MINI-C-M5



Part No.	Description
USB-MINI-C-M5	MINI-USB cable connector B-M, 5-pole

Part No.	Ord.No.
s USB-MINI-C-M5	69401

### PCB Mounting USB Connectors

USB/BU1A

USB/BU1A/SMD

USB/BU2A



Part No.	Description
USB/BU1A	USB PCB mounting connector A-F, 90°
USB/BU1A/SMD	USB Connector A-F, SMD
USB/BU2A	USB Connector A-F, dual port

Part No.	Ord.No.
s USB/BU1A	6721
s USB/BU1A/SMD	48591
s USB/BU2A	40942

USB/BU1B



USB/BU1B/SMD



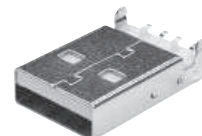
Part No.	Description
USB/BU1B	USB PCB connector B-F, 90°
USB/BU1B/SMD	USB connector B-F, SMD

Part No.	Ord.No.
s USB/BU1B	6722
s USB/BU1B/SMD	48592

USB/ST1A/PCB



USB/ST1A/PCB/SMD



Part No.	Description
USB/ST1A/PCB	USB PCB connector A-M, 90°
USB/ST1A/PCB/SMD	USB connector A-M, SMD

Part No.	Ord.No.
s USB/ST1A/PCB	49333
s USB/ST1A/PCB/SMD	47314

USB/BUM5



USB/BUM5/SMD



Part No.	Description
USB/BUM5	MINI-USB PCB connector B-F, 5-pole
USB/BUM5/SMD	MINI-USB connector B-F, 5-pole SMD

Part No.	Ord.No.
s USB/BUM5	49057
s USB/BUM5/SMD	49058



### Panel Mount USB Connectors

NAUSB



Part No.	Description
NAUSB	Reversible USB genderchanger A-F/B-F (B-A)

Part No.	Ord.No.
o NAUSB	67343

USB cables - see chapter G.

## USB Industrial Connectors

### USB Buccaneer® Series



The USB Buccaneer is designed to confirm the latest USB version 2 specifications and provide an environmental seal to IP68. This dust and waterproof USB connector is suitable for industrial or hostile environments where a high speed computer interface is required.

PX0842/A



IP68

PX0843/A



IP68

Part No.	Description
PX0842/A	Front panel mounted USB-A-F-IP68 connector, USB B at rear
PX0843/A	Front panel mounted USB-A-F-IP68 connector, cable at rear

Part No.	Ord.No.
S PX0842/A	52067
O PX0843/A	69393

PX0842/B



IP68

PX0843/B



IP68

Part No.	Description
PX0842/B	Front panel mounted USB-B-F-IP68 connector, USB A at rear
PX0843/B	Front panel mounted USB-B-F-IP68 connector, cable with NSG25-5 connector, NSL25-5G(W) mate needed.

Part No.	Ord.No.
S PX0842/B	51423
O PX0843/B	69392

PX0711



IP68

PX0733



IP68

PX0835



IP68

Part No.	Description
PX0711	Sealing cap for rear USB Buccaneer IP68 connector (PX0848,9,5)
PX0733	Sealing cap for front USB Buccaneer IP68 connector (PX0842,3)
PX0835	Sealing cap for cable USB Buccaneer IP68 connector (PX0840,1)

Part No.	Ord.No.
O PX0711	69383
S PX0733	51425
S PX0835	69382

## USB Adapters

MA 04



USBADAPAF/AF



Part No.	Description
MA04	USB F / PS2M adapter
USBADAPAF/AF	USB (connector) A-F / A-F adapter

Part No.	Ord.No.
S MA04	52510
S USBADAPAF/AF	61298

## Fire Wire Connectors (IEEE 1394)

### Cable Mounting IEEE 1394 Connectors

#### IEEE 1394/ST6

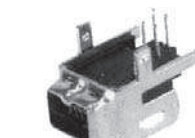


Part No.	Description
IEEE1394/ST6	Fire Wire M cable plug, 6 pole

Part No.	Ord.No.
S IEEE1394/ST6	51052

### PCB Mounting IEEE 1394 Connectors

#### IEEE 1394/BU4



#### IEEE 1394/BU6



Part No.	Description
IEEE1394/4	PCB mounted Fire Wire F connector, 4 pole
IEEE1394/6	PCB mounted Fire Wire F connector, 6 pole

Part No.	Ord.No.
S IEEE 1394/BU4	51051
S IEEE 1394/BU6	51050

### Panel Mount IEEE 1394 Connectors

#### NA1394-6-B

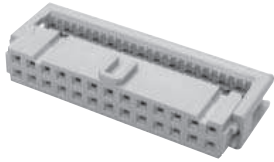


Part No.	Description
NA1394-6-B	Panel mounted Firewire F/F 1394-6 connector/adapter

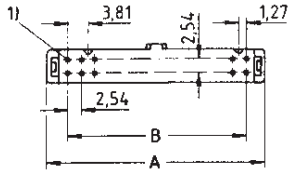
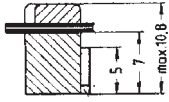
Part No.	Ord.No.
O NA1394-6-B	69024

## IDC Connectors

### FL Series



Flat cable socket for cable with pitch 1,27mm, grey, precise. Pitch=2,54mm  
Max.current 1A  
Test voltage 1000V  
Operating temperature -55°C to +125°C  
Contact resistance < 20 mOhm  
Golden plated contacts and tinned outlets  
(IDC = Insulation Displacement Connector system)



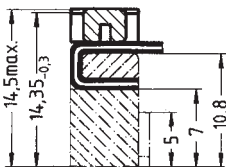
Part No.	A [mm]	B [mm]
FL 06-pin	12,2	5,08
FL 10-pin	17,3	10,16
FL 14-pin	22,4	15,24
FL 16-pin	24,9	17,78
FL 20-pin	30	22,86
FL 26-pin	37,6	30,48
FL 34-pin	47,8	40,64
FL 40-pin	55,4	48,26
FL 50-pin	68,1	60,96
FL 60-pin	80,8	73,66

Part No.	Part Number	Description
FL 06	09 18 506 7803	IDC female connector 2x3P
FL 10	09 18 510 7803	IDC female connector 2x5P
FL 14	09 18 514 7803	IDC female connector 2x7P
FL 16	09 18 516 7803	IDC female connector 2x8P
FL 20	09 18 520 7803	IDC female connector 2x10P
FL 26	09 18 526 7803	IDC female connector 2x13P
FL 34	09 18 534 7803	IDC female connector 2x17P
FL 40	09 18 540 7803	IDC female connector 2x20P
FL 50	09 18 550 7803	IDC female connector 2x25P
FL 60	09 18 560 7803	IDC female connector 2x30P
FL 64	09 18 564 7803	IDC female connector 2x32P

Part No.	Ord.No.
S FL 06	25556
S FL 10	25557
S FL 14	25558
S FL 16	25559
S FL 20	25560
S FL 26	25561
S FL 34	25562
S FL 40	25563
S FL 50	25564
O FL 60	25565
O FL 64	25566

### FLZ Series

Female strain relief for FL connectors. Securely connectors against self-disassembling.



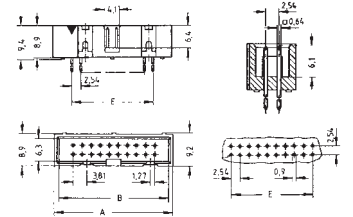
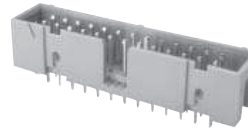
Part No.	A [mm]
FLZ 06	12,2
FLZ 10	17,3
FLZ 14	22,4
FLZ 16	24,9
FLZ 20	30
FLZ 26	37,6
FLZ 34	47,8
FLZ 40	55,4
FLZ 50	68,1

Part No.	Part Number	Description
FLZ 06	09 18 506 9002	Female strain relief clamp for FL06
FLZ 10	09 18 510 9002	Female strain relief clamp for FL10
FLZ 14	09 18 514 9002	Female strain relief clamp for FL14
FLZ 16	09 18 516 9002	Female strain relief clamp for FL16
FLZ 20	09 18 520 9002	Female strain relief clamp for FL20
FLZ 26	09 18 526 9002	Female strain relief clamp for FL26
FLZ 34	09 18 534 9002	Female strain relief clamp for FL34
FLZ 40	09 18 540 9002	Female strain relief clamp for FL40
FLZ 50	09 18 550 9002	Female strain relief clamp for FL50

Part No.	Ord.No.
S FLZ 06	25567
S FLZ 10	25568
S FLZ 14	25569
S FLZ 16	25570
S FLZ 20	25571
S FLZ 26	25572
S FLZ 34	25573
S FLZ 40	25574
S FLZ 50	25575

### MLWxxG Series

IDC male headers for PCB, straight. Pitch=2,54mm, max.current 1A, test voltage 1000V, operating temperature -55°C to +125°C, contact resistance < 20 mOhm. Golden plated contacts and tinned outlets.



Part No.	A [mm]	B [mm]	E [mm]
MLW 06G	15,2	12,78	5,08
MLW 10G	20,3	17,86	10,16
MLW 14G	25,4	22,94	15,24
MLW 16G	27,9	25,48	17,78
MLW 20G	33	30,56	22,86
MLW 26G	40,6	38,18	30,48
MLW 34G	50,8	48,34	40,64
MLW 40G	58,4	55,96	48,26
MLW 50G	71,3	68,66	60,96

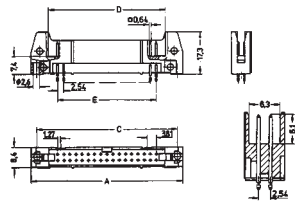
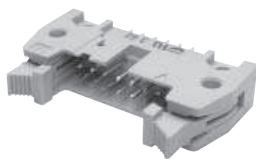
Part No.	Part Number	Description
MLW 06G	09 18 506 7324	IDC male header for PCB 2x3P straight
MLW 10G	09 18 510 7324	IDC male header for PCB 2x5P straight
MLW 14G	09 18 514 7324	IDC male header for PCB 2x7P straight
MLW 16G	09 18 516 7324	IDC male header for PCB 2x8P straight
MLW 20G	09 18 520 7324	IDC male header for PCB 2x10P straight
MLW 26G	09 18 526 7324	IDC male header for PCB 2x13P straight
MLW 34G	09 18 534 7324	IDC male header for PCB 2x17P straight
MLW 40G	09 18 540 7324	IDC male header for PCB 2x20P straight
MLW 50G	09 18 550 7324	IDC male header for PCB 2x25P straight

Part No.	Ord.No.
S MLW 06G	26381
S MLW 10G	20041
S MLW 14G	20042
S MLW 16G	20043
S MLW 20G	20044
S MLW 26G	20045
S MLW 34G	20046
S MLW 40G	20047
S MLW 50G	20048



## MLxxGK Series

IDC male header, PCB, short latch straight pins, pitch=2,54mm, max.current 1A, test voltage 1000V, operating temperature -55°C to +125°C, contact resistance < 20 mOhm. Golden-plated contacts and tinned outlets



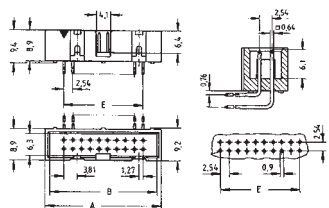
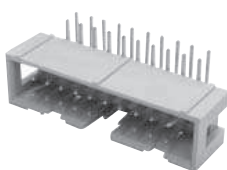
Part No.	A [mm]	B [mm]	D [mm]	C [mm]
ML 10 GK	32	27,94	17,53	10,16
ML 14 GK	37,1	33,02	22,61	15,24
ML 16 GK	39,6	35,56	25,15	17,78
ML 20 GK	44,7	40,64	30,23	22,86
ML 26 GK	52,3	48,26	37,85	30,48
ML 34 GK	62,5	58,42	48,01	40,64
ML 40 GK	70,1	66,04	55,63	48,26
ML 50 GK	82,8	78,74	68,33	60,96

Part No.	Part Number	Description
ML 10 GK	09 18 510 7914	IDC male, PCB 2x5P straight, short latch
ML 14 GK	09 18 514 7914	IDC male, for PCB 2x7P straight, short latch
ML 16 GK	09 18 516 7914	IDC male, for PCB 2x8P straight, short latch
ML 20 GK	09 18 520 7914	IDC male, for PCB 2x10P straight, short latch
ML 26 GK	09 18 526 7914	IDC male, for PCB 2x13P straight, short latch
ML 34 GK	09 18 534 7914	IDC male, for PCB 2x17P straight, short latch
ML 40 GK	09 18 540 7914	IDC male, for PCB 2x20P straight, short latch
ML 50 GK	09 18 550 7914	IDC male, for PCB 2x25P straight, short latch

Part No.	Ord.No.
S ML 10 GK	25601
S ML 14 GK	25602
S ML 16 GK	25603
S ML 20 GK	25604
S ML 26 GK	25605
S ML 34 GK	25606
S ML 40 GK	25607
S ML 50 GK	25608

## MLWxxA Series

IDC male headers, 90° pins, pitch=2,54mm, max.current 1A, test voltage 1000V, operating temperature -55°C to +125°C, contact resistance < 20 mOhm. Golden-plated contacts and tinned outlets



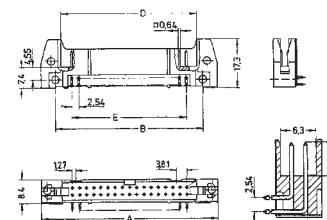
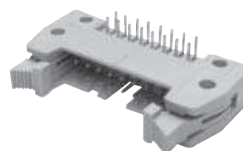
Part No.	A [mm]	B [mm]	E [mm]
MLW 06 A	15,2	12,78	5,08
MLW 10 A	20,3	17,86	10,16
MLW 14 A	25,4	22,94	15,24
MLW 16 A	27,9	25,48	17,78
MLW 20 A	33	30,56	22,86
MLW 26 A	40,6	38,18	30,48
MLW 34 A	50,8	48,34	40,64
MLW 40 A	58,4	55,96	48,26
MLW 50 A	71,3	68,66	60,96

Part No.	Part Number	Description
MLW 06 A	09 18 506 7323	IDC male header, PCB 2x3P angled
MLW 10 A	09 18 510 7323	IDC male header, PCB 2x5P angled
MLW 14 A	09 18 514 7323	IDC male header, PCB 2x7P angled
MLW 16 A	09 18 516 7323	IDC male header, PCB 2x8P angled
MLW 20 A	09 18 520 7323	IDC male header, PCB 2x10P angled
MLW 26 A	09 18 526 7323	IDC male header, PCB 2x13P angled
MLW 34 A	09 18 534 7323	IDC male header, PCB 2x17P angled
MLW 40 A	09 18 540 7323	IDC male header, PCB 2x20P angled
MLW 50 A	09 18 550 7323	IDC male header, PCB 2x25P angled

Part No.	Ord.No.
S MLW 06 A	26379
S MLW 10 A	20050
S MLW 14 A	20051
S MLW 16 A	20052
S MLW 20 A	20053
S MLW 26 A	20054
S MLW 34 A	20055
S MLW 40 A	20056
S MLW 50 A	20057

## MLxxAK Series

IDC male headers, PCB, short latch 90° pins, pitch=2,54mm, max.current 1A, test voltage 1000V, operating temperature -55°C to +125°C, contact resistance < 20 mOhm. Golden-plated contacts and tinned outlets. Suitable mate - FL without strain relief clamp FLZ.



Part No.	A [mm]	B [mm]	D [mm]	E [mm]
ML 10 AK	32	21,84	17,53	10,16
ML 14 AK	37,1	26,92	22,61	15,24
ML 16 AK	39,6	29,46	25,15	17,78
ML 20 AK	44,7	34,54	30,23	22,86
ML 26 AK	52,3	42,16	37,85	30,48
ML 34 AK	62,5	52,32	48,01	40,64
ML 40 AK	70,1	59,94	55,63	48,26
ML 50 AK	82,8	72,64	68,33	60,96

Part No.	Part Number	Description
ML 10 AK	09 18 510 7913	IDC male header 2x5P angled for short latch
ML 14 AK	09 18 514 7913	IDC male header 2x7P angled for short latch
ML 16 AK	09 18 516 7913	IDC male header 2x8P angled for short latch
ML 20 AK	09 18 520 7913	IDC male header 2x10P angled for short latch
ML 26 AK	09 18 526 7913	IDC male header 2x13P angled for short latch
ML 34 AK	09 18 534 7913	IDC male header 2x17P angled for short latch
ML 40 AK	09 18 540 7913	IDC male header 2x20P angled for short latch
ML 50 AK	09 18 550 7913	IDC male header 2x25P angled for short latch

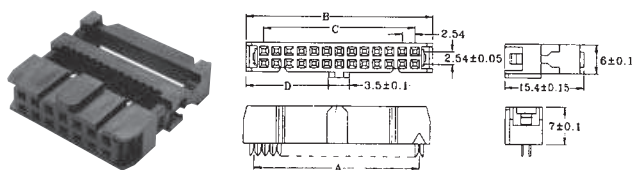
Part No.	Ord.No.
S ML 10 AK	25580
S ML 14 AK	25581
S ML 16 AK	25582
S ML 20 AK	25583
S ML 26 AK	25584
S ML 34 AK	25585
S ML 40 AK	25586
S ML 50 AK	25587

## IDC Connectors (continued)

ECONOMIC

### FL xx EC Series

IDC female connectors with strain relief clamp AWG 28(1,27)mm, black. Max. current 1A, test voltage 500V, contact resistance < 20 mOhm. Operating temperature -40°C to +105°C, gold-plated pins. Suitable mate - LPH Series.



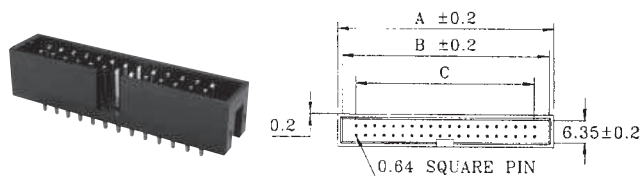
Part No.	A [mm]	B [mm]	C [mm]	D [mm]
FL 06 EC	6,35	12,19	5,08	4,36
FL 10 EC	11,43	17,27	10,16	6,9
FL 14 EC	16,51	22,4	15,24	9,44
FL 16 EC	19,05	24,94	17,78	10,71
FL 20 EC	24,13	30	22,86	13,25
FL 26 EC	31,75	37,58	30,48	17,06
FL 34 EC	41,91	47,8	40,64	22,14
FL 40 EC	49,53	55,37	48,26	25,95
FL 50 EC	62,23	68,18	60,96	32,3
FL 60 EC	74,93	80,8	73,66	38,65

Part No.	Description
FL 06 EC	IDC female connector 2x3P black Economy
FL 10 EC	IDC female connector 2x5P black Economy
FL 14 EC	IDC female connector 2x7P black Economy
FL 16 EC	IDC female connector 2x8P black Economy
FL 20 EC	IDC female connector 2x10P black Economy
FL 26 EC	IDC female connector 2x13P black Economy
FL 34 EC	IDC female connector 2x17P black Economy
FL 40 EC	IDC female connector 2x20P black Economy
FL 50 EC	IDC female connector 2x25P black Economy
FL 60 EC	IDC female connector 2x30P black Economy

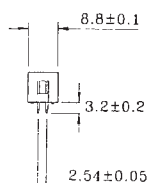
Part No.	Ord.No.
S FL 06 EC	67992
S FL 10 EC	40658
S FL 14 EC	40659
S FL 16 EC	40660
S FL 20 EC	40661
S FL 26 EC	40662
S FL 34 EC	40663
S FL 40 EC	40664
S FL 50 EC	40665
S FL 60 EC	40666

### LPHxxS Series

IDC male headers, PCB, straight, black. Max. current 3A, test voltage 500V, contact resistance < 20 mOhm. Operating temperature -25°C to +105°C, gold-plated pins. Suitable mate - FL xx EC Series.



Part No.	A [mm]	B [mm]	C [mm]
LPH10S	20,3	18,1	10,16
LPH14S	25,38	23,18	15,24
LPH16S	27,92	25,72	17,78
LPH20S	33	30,8	22,85
LPH26S	40,62	38,42	30,48
LPH34S	50,8	48,58	40,64
LPH40S	58,4	56,2	48,26
LPH50S	71,1	68,9	60,96

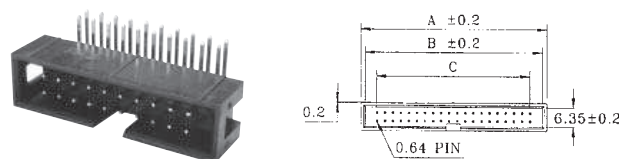


Part No.	Description
LPH10S	IDC male header 2x5P straight EC
LPH14S	IDC male header 2x7P straight EC
LPH16S	IDC male header 2x8P straight EC
LPH20S	IDC male header 2x10P straight EC
LPH26S	IDC male header 2x13P straight EC
LPH34S	IDC male header 2x17P straight EC
LPH40S	IDC male header 2x20P straight EC

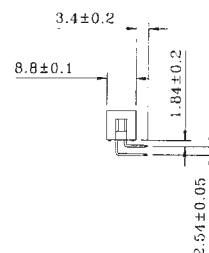
Part No.	Ord.No.
S LPH10S	7749
S LPH14S	8126
S LPH16S	8127
S LPH20S	8128
S LPH26S	8129
S LPH34S	7750
S LPH40S	8130

### LPHxxRA Series

IDC male headers, PCB, angled, black. Max. current 3A, test voltage 500V, contact resistance < 20 mOhm. Operating temperature -25°C to +105°C, gold-plated pins. Suitable mate - FL xx EC Series.



Part No.	A [mm]	B [mm]	C [mm]
LPH10RA	20,3	18,1	10,16
LPH14RA	25,38	23,18	15,24
LPH16RA	27,92	25,72	17,78
LPH20RA	33	30,8	22,85
LPH26RA	40,62	38,42	30,48
LPH34RA	50,8	48,58	40,64
LPH40RA	58,4	56,2	48,26



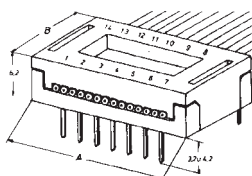
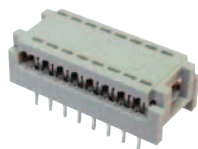
Part No.	Description
LPH10RA	IDC male header for PCB 2x5P angled EC
LPH14RA	IDC male header for PCB 2x7P angled EC
LPH16RA	IDC male header for PCB 2x8P angled EC
LPH20RA	IDC male header for PCB 2x10P angled EC
LPH26RA	IDC male header for PCB 2x13P angled EC
LPH34RA	IDC male header for PCB 2x17P angled EC
LPH40RA	IDC male header for PCB 2x20P angled EC

Part No.	Ord.No.
S LPH10RA	8132
S LPH14RA	8133
S LPH16RA	8134
S LPH20RA	8135
S LPH26RA	8136
S LPH34RA	8137
S LPH40RA	8138

## IDC Connectors for PCBs

### ADIP Series

IDC male header, PCB, straight, suitable also for IC sockets (RM 2,54 mm).



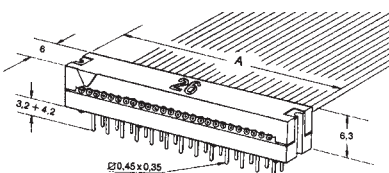
Part No.	A [mm]	B [mm]
ADIP 14 Z	22,44	10,7
ADIP 16 Z	24,98	10,7
ADIP 24 Z	35,14	18,3

Part No.	Description
ADIP 14 Z	IDC connector DIP 14P RM2,54/7,62
ADIP 16 Z	IDC connector DIP 16P RM2,54/7,62
ADIP 24 Z	IDC connector DIP 24P RM2,54/15,24

Part No.	Ord.No.
S ADIP 14 Z	18483
S ADIP 16 Z	18484
S ADIP 24 Z	18485

### AWLP Series

IDC male header, PCB, straight, suitable also for BL2. RM 2,54 x 2,54 mm.



Part No.	A [mm]	Type	A [mm]
AWLP 10	17,5	AWLP 26	37,9
AWLP 14	22,6	AWLP 34	48,1
AWLP 16	25,1	AWLP 40	55,7
AWLP 20	30,2		

Part No.	Description
AWLP 10	IDC connector for PCB 10P RM2,54
AWLP 14	IDC connector for PCB 14P RM2,54
AWLP 16	IDC connector for PCB 16P RM2,54
AWLP 20	IDC connector for PCB 20P RM2,54
AWLP 26	IDC connector for PCB 26P RM2,54
AWLP 34	IDC connector for PCB 34P RM2,54
AWLP 40	IDC connector for PCB 40P RM2,54

Part No.	Ord.No.
S AWLP 10	18474
S AWLP 14	18475
S AWLP 16	18476
S AWLP 20	18477
S AWLP 26	18478
S AWLP 34	18479
S AWLP 40	18480

Suitable pliers HT-214D  
see chapter K.



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## Industrial Connectors Han®



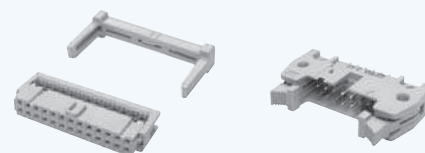
Han® industrial connectors with degree of protection IP 65 / IP 67 represent the worldwide connector standard with regard to safe installation, efficient commissioning and servicing of machines and plants.



## DIN connectors



HARTING offers a wide product range of DIN 41 612 connectors for data, signal and power lines, including corresponding accessories.



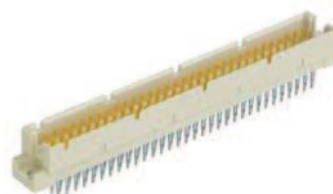
## I/O connectors and equipment



We supply the whole range of Harting assortment

## DIN 41612 Connectors

High-quality connectors designed for frequent connecting. Operating life is cca 400 mating cycles.



Part No.	Description
09 03 096 0501	Shell housing DIN 41612 for female connectors C, D
09 03 132 6921	Male connector DIN 41612 C 32-pin 3R / A+C PCB 90°
09 03 164 6951	Male connector DIN 41612 C 62+2pin 3R / A+C PCB 90°
09 03 164 6921	Male connector DIN 41612 C 64-pin 3R / A+C PCB 90°
09 03 264 6825	Female connector DIN 41612 C 64-pin 3R / A+C for PCB
09 03 264 6821	Female connector DIN 41612 C 64-pin 3R / A+C wire wrap
09 03 264 6828	Female connector DIN 41612 C 64-pin 3R / A+C flat cable
09 03 296 6821	Female connector DIN 41612 C 96-pin 3R/A+B+C wire wrap

Part No.	Ord.No.
S 09 03 096 0501	2205
S 09 03 132 6921	17655
S 09 03 164 6921	17660
S 09 03 164 6951	64337
S 09 03 264 6825	17659
S 09 03 264 6821	17657
S 09 03 264 6828	2646
S 09 03 296 6821	60318

## DIN 41612 Connectors

(continued)



ASSMANN

FED xx AB-B

MES xx AB90-B

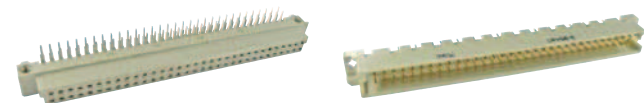


Part No.	Contact arrangement	Description
FED 64 AB-B		DIN 41612 B Female 64-pin 2R/A+B PCB
MES 64 AB90-B		DIN 41612 B Male 64-pin 2R/A+B PCB 90°

Part No.	Ord.No.
S FED 64 AB-B	7449
S MES 64 AB90-B	7450

FED xx AB90-Q

MES xx AB-Q



Part No.	Contact arrangement	Description
FED 64 AB90-Q		DIN 41612 Q Female 64-pin 2R / A+B for PCB 90°
MES 64 AB-Q		DIN 41612 Q Male 64-pin 2R/A+B for PCB

Part No.	Ord.No.
S FED 64 AB90-Q	4338
S MES 64 AB-Q	44546

FED xx ABC-C

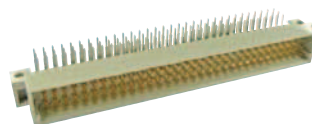
MES xx ABC-C



Part No.	Contact arrangement	Description
FED 32 AC-C-5,08		DIN 41612 C Female 32-pin 3R / A+C PCB 09 03 232 7825
FED 64 AC-C		DIN 41612 C Female 64-pin 3R / A+C PCB 09 03 264 7825
FED 96 ABC-C		DIN 41612 C Female 96-pin 3R / A+B+C PCB 09 03 296 7825
MES 32 AC-C-5,08		DIN 41612 C Male 32-pin 3R / A+C PCB 0903 132 7922
MES 64 AC-C		V DIN 41612 C Male 64-pin 3R / A+C PCB 09 03 164 7922
MES 96 ABC-C		DIN 41612 C Male 96-pin 3R / A+B+C PCB 09 03 196 7922

Part No.	Ord.No.
S FED 32 AC-C-5,08	40337
S FED 64 AC-C	40338
S FED 96 ABC-C	40339
S MES 32 AC-C-5,08	40351
S MES 64 AC-C	40352
S MES 96 ABC-C	40353

MES xx ABC90-C

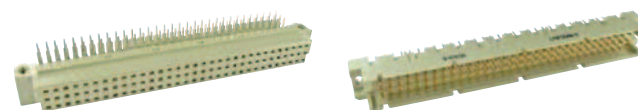


Part No.	Contact arrangement	Description
MES 32 AC90-C-5,08		DIN 41612 C Male 32-pin 3R/A+C PCB 90°
MES 64 AC90-C		DIN 41612 C Male 64-pin 3R/A+C PCB 90°
MES 96 ABC90-C		DIN 41612 C Male 96-pin 3R/A+B+C PCB 90°

Part No.	Ord.No.
S MES 32 AC90-C-5,08	40332
S MES 64 AC90-C	40333
S MES 96 ABC90-C	40334

FED xx ABC90-R

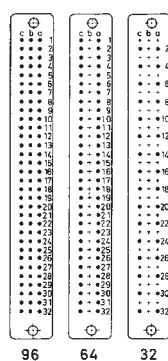
MES xxABC-R



Part No.	Contact arrangement	Description
FED 64 AC-R		DIN 41612 R Female 64-pin 3R / A+C PCB
FED 96 ABC-R		DIN 41612 R Female 96-pin 3R / A+B+C PCB
MES 64 AC-R		DIN 41612 R Male 64-pin 3R / A+C PCB
MES 96 ABC-R		DIN 41612 R Male 96-pin 3R / A+B+C PCB

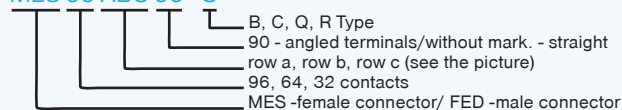
Part No.	Ord.No.
S FED 64 AC-R	7158
S FED 96 ABC-R	48448
S MES 64 AC-R	69487
S MES 96 ABC-R	69488

Contact arrangement (view from termination side)



Numbering system:

MES 96 ABC 90 - C



Note:

32 contacts version is characterized by every other contact in a row, marked 5,08

Other Harting connectors on request  
Other Assmann connectors on request

Circular connectors M8/M12



Connecting cables



Rectangular connectors GDM-Series



Rectangular connectors G-Series



Rectangular connectors ST-Series



Circular connectors CA/CM-Series



Circular connectors NR-Series



Solar systems connectors SunCon Series



## Industrial Connectors



CA-/CM-series are circular connectors for extremely rough environments. The robust circular connectors of the CA-/CM-series meet the most stringent requirements of general equipments in the field of measurement, control and regulation technology.

### Technical features:

- extremely high vibration resistance even under high stress
- high resistance to external influences
- extremely installation-friendly due to fewer components
- suitable for various types of cables
- the CM-series is compatible with metal connectors as per MIL-C-5015 or VG95342
- robust housing made of impact resistant, glass fiber reinforced plastic
- available in 4- and 7-pole variants (including PE) in CA-series and in 3- to 17-pole variants in CM-series
- for voltages up to 400V (CA-series) / 50V (CM-series) and for currents up to 16A
- protection class up to IP67

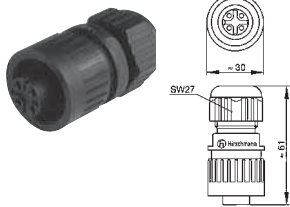
### Applications:

The CA-/CM-series is optimally suitable for all areas of applications in hydraulics, pneumatics, device and equipment manufacturing and traffic control technology as well as in photovoltaic-area.

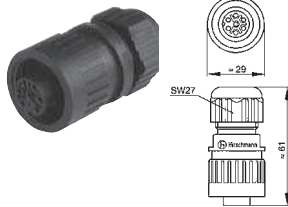
## CA Series cable diameter 6-12mm



### CA 3 LD



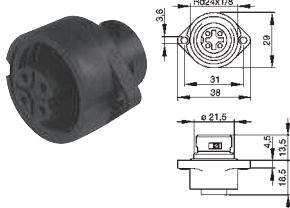
### CA 6 LD



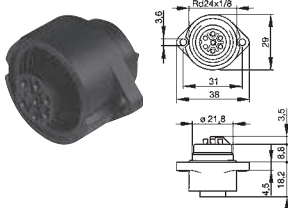
Technical Parameters	CA 3 LD	CA 6 LD
Type	IDC female connector	IDC female connector
Number of contacts	3 + PE	6 + PE
Max. conductor size	2,5 mm <sup>2</sup>	0,75 mm <sup>2</sup>
Rated voltage	250 VDC/400 VAC	250 VDC/250 VAC
Rated current	10 A DC/16 A AC	10 A DC/10 A AC
Protection class	IP67	IP67
Type of termination	screw	solder
Suitable mate	CA 3 LS, CA 3 GS	CA 6 LS, CA 6 GS

Part No.	Ord.No.
S CA 3 LD	49985
S CA 6 LD	38125

### CA 3 GD



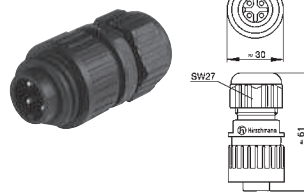
### CA 6 GD



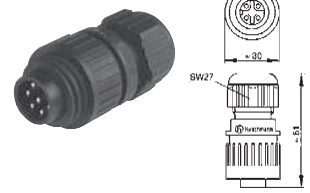
Technical Parameters	CA 3 GD	CA 6 GD
Type	panel-mounted socket with flange	panel-mounted socket with flange
Number of contacts	3 + PE	6 + PE
Max. conductor size	2,5 mm <sup>2</sup>	0,75 mm <sup>2</sup>
Rated voltage	250 VDC/400 VAC	250 VDC/250 VAC
Rated current	10 A DC/16 A AC	10 A DC/10 A AC
Protection class	IP67	IP67
Type of termination	screw	solder
Suitable mate	CA 3 LS	CA 6 LS

Part No.	Ord.No.
S CA 3 GD	36558
S CA 6 GD	36559

### CA 3 LS



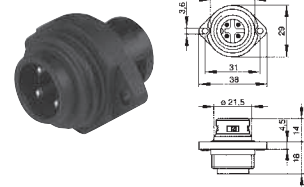
### CA 6 LS



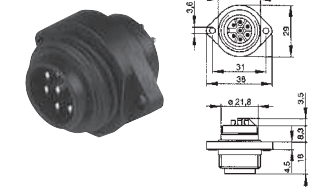
Technical Parameters	CA 3 LS	CA 6 LS
Type	Straight cable plug integrated strain relief	Straight cable plug integrated strain relief
Number of contacts	3 + PE	6 + PE
Max. conductor size	2,5 mm <sup>2</sup>	0,75 mm <sup>2</sup>
Rated voltage	250 VDC/400 VAC	250 VDC/250 VAC
Rated current	10 A DC/16 A AC	10 A DC/10 A AC
Protection class	IP67	IP67
Type of termination	screw	solder
Suitable mate	CA 3 LD, CA 3 GD	CA 6 LD, CA 6 GD

Part No.	Ord.No.
S CA 3 LS	41121
S CA 6 LS	50373

### CA 3 GS



### CA 6 GS



Technical Parameters	CA 3 GS	CA 6 GS
Type	panel-mounted connector with flange	panel-mounted connector with flange
Number of contacts	3 + PE	6 + PE
Max. conductor size	2,5 mm <sup>2</sup>	0,75 mm <sup>2</sup>
Rated voltage	250 VDC/400 VAC	250 VDC/250 VAC
Rated current	10 A DC/16 A AC	10 A DC/10 A AC
Protection class	IP67	IP67
Type of termination	screw	solder
Suitable mate	CA 3 LD	CA 6 LD

Part No.	Ord.No.
S CA 3 GS	36556
S CA 6 GS	36557

### CA 00 SD 1



### CA 00 SD 4



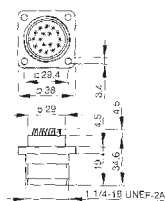
Part No.	Description
CA 00 SD 1	Protection cap for cable plugs CA-series with variable loop
CA 00 SD 4	Protection cap for panel-mounted sockets with fixed loop

Part No.	Ord.No.
S CA 00 SD 1	3607
S CA 00 SD 4	3610

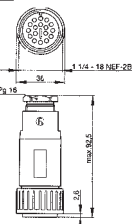
## CM - Series cable diameter 12-14mm



### CM 02 E 20-29 P



### CM 06 EA 20-29 S



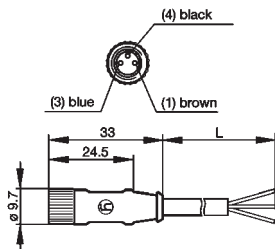
Technical Parameters	CM 02 E	CM 06 EA
Type	surface mounted connector, with flange, with solder bucket	straight cable socket, strain relief by means of a clamping cage
Number of contacts	17 + PE	17 + PE
Max. conductor size	1,5 mm <sup>2</sup>	1,5 mm <sup>2</sup>
Rated voltage	50 V DC/AC	50 V DC/AC
Rated current	4 A	4 A
Protection class	IP67	IP67
Type of termination	solder	solder
Suitable mate	CM 06 EA 20-29 S	CM 02 E 20-29 P

Part No.	Ord.No.
S CM 02 E 20-29 P	50808
S CM 06 EA 20-29 S	50809

## E08 Series with Molded Lead

Innovative sensor-circular connectors of the E-series excel because of their ergonomic design, and with their clearly defined gripping surfaces and numbering arrangement, they simply have more to offer. In general, the E-series is perfectly suitable for applications involving all types of sensors and actuators in automation and offers excellent fail-safety even in the presence of high reversed-bending stresses (for example in drag chains).

### E08 CA3A1A Straight

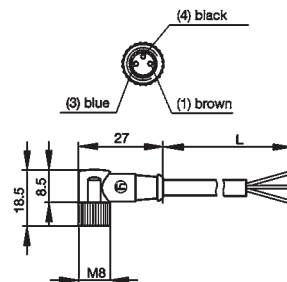


Technical Parameters	E08-CA3A1A-DF0200C1-XA500-AC	E08-CA3A1A-FL0500C1-XA500-AB
Marking *	RKMV 3-06/2M	RKMV 3-224/5M
Type	straight cable socket, integrally molded lead, plastic	
Number of contacts	3	3
Thread diameter	8 mm	8 mm
Cable material	PVC	PUR
Cable type	LiFYY	LiF9Y11Y
Cable length	2m	5m
Conductor size	0,25 mm <sup>2</sup>	0,25 mm <sup>2</sup>
Rated voltage	60 V DC/AC	60 V DC/AC
Rated current	4 A	4 A
Protection class	IP65	IP65

\* Alternative supplies also marked as LUMBERG. Hirschmann and Lumberg companies belong to the BELDEN group.

Part No.	Manuf. No.	Ord.No.
○ E08-CA3A1A-D-F0200C1-XA500-AC	934555-001	69717
○ E08-CA3A1A-FL0500C1-XA500-AB	934555-008	69718

### E08 CA3A1A Angled

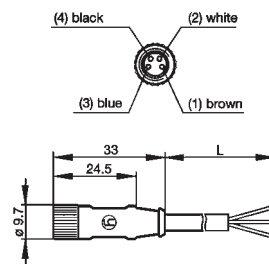


Technical Parameters	E08-CC3A1A-FL0200C1-XA500-AC	E08-CC3A1A-D-F0500C1-XA500-AB
Marking *	RKMVW 3-224/2M	RKMVW 3-06/5M
Type	angled cable socket, with integrally molded lead	
Number of contacts	3	3
Thread diameter	8 mm	8 mm
Cable material	PUR	PVC
Cable type	LiF9Y11Y	LiFYY
Cable length	2m	5m
Conductor size	0,25 mm <sup>2</sup>	0,25 mm <sup>2</sup>
Rated voltage	60 V DC/AC	60 V DC/AC
Rated current	4 A	4 A
Protection class	IP65	IP65

\* Alternative supplies also marked as LUMBERG. Hirschmann and Lumberg companies belong to the BELDEN group.

Part No.	Manuf. No.	Ord.No.
○ E08-CC3A1A-FL0200C1-XA500-AC	934556-010	69721
○ E08-CC3A1A-D-F0500C1-XA500-AB	934556-002	69930

### E08 4P F straight



Technical Parameters	E08-CA4A1A-DG0500C1-XA500-AB	E08-CA4A1A-FM0200C1-XA500-AC	E08-CA4A1A-FM0500C1-XA500-AB
Marking *	RKMV 4-07/5M	RKMV 4-225/2M	RKMV 4-225/5M
Type	cable socket, plastic		
Number of contacts	4	4	4
Thread diameter	8 mm	8 mm	8 mm
Cable material	PVC	PUR	PUR
Cable type	LiFYY	LiF9Y11Y	LiF9Y11Y
Cable length	5m	2m	5m
Conductor size	0,25 mm <sup>2</sup>	0,25 mm <sup>2</sup>	0,25 mm <sup>2</sup>
Rated voltage	60 V DC/AC	60 V DC/AC	60 V DC/AC
Rated current	4 A	4 A	4 A
Protection class	IP65	IP65	IP65

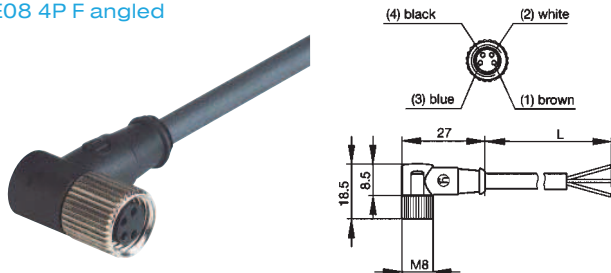
\* Alternative supplies also marked as LUMBERG. Hirschmann and Lumberg companies belong to the BELDEN group.

Part No.	Manuf. No.	Ord.No.
○ E08-CA4A1A-FM0200C1-XA500-AC	934555-010	69719
○ E08-CA4A1A-FM0500C1-XA500-AB	934555-011	69720
S E08-CA4A1A-D-G0500C1-XA500-AB	934555-005	69693

## E08 Series with Molded Lead HIRSCHMANN


(continued)

### E08 4P F angled

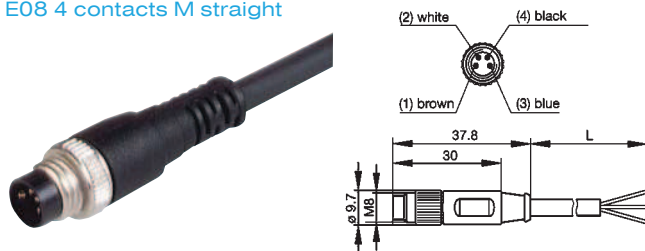


Technical Parameters	E08-CC4A1A-FM0500C1-XA500-AB
Marking *	RKMVV 4-225/5M
Type	cable socket, plastic, angled
Number of contacts	4
Thread diameter	8 mm
Cable material	PUR
Cable type	LiF9Y11Y
Cable length	5m
Conductor size	0,25 mm <sup>2</sup>
Rated voltage	60 V DC/AC
Rated current	4 A
Protection class	IP65

\* Alternative supplies also marked as LUMBERG. Hirschmann and Lumberg companies belong to the BELDEN group.



Part No.	Manuf. No.	Ord.No.
 E08-CC4A1A-FM0500C1-XA500-AB	934556-017	69722

### E08 4 contacts M straight



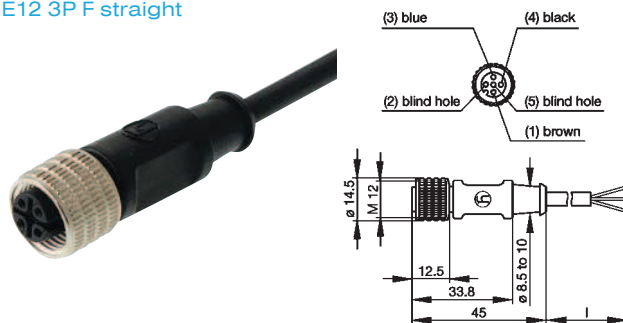
Technical Parameters	E08-CB4A1A-FM0200C1-XA500-AC	E08-CB4A1A-FM0500C1-XA500-AB
Marking *	RSMV 4-225/2M	RSMV 4-225/5M
Type	straight cable plug	
Number of contacts	4	4
Thread diameter	8 mm	8 mm
Cable material	PUR	PUR
Cable type	LiF9Y11Y	LiF9Y11Y
Cable length	2m	5m
Conductor size	0,25 mm <sup>2</sup>	0,25 mm <sup>2</sup>
Rated voltage	60 V DC/AC	60 V DC/AC
Rated current	4 A	4 A
Protection class	IP65	IP65

\* Alternative supplies also marked as LUMBERG. Hirschmann and Lumberg companies belong to the BELDEN group.

Part No.	Manuf. No.	Ord.No.
 E08-CB4A1A-FM0200C1-XA500-AC	934557-010	69723
 E08-CB4A1A-FM0500C1-XA500-AB	934557-011	69724



## E12 Series with Molded Lead HIRSCHMANN

### E12 3P F straight





Technical Parameters	E12-AA3A1A-FA0200C1-XA500-AC	E12-AA3A1A-FA0500C1-XA500-AB	E12-AA3A1A-FA1000C1-XA500-AA
Marking *	RKT 4-3-224/2M	RKT 4-3-224/5M	RKT4-3-224/10M
Type	straight cable socket, self-securing screw locking		
Number of contacts	3	3	3
Thread diameter	12 mm	12 mm	12 mm
Cable material	PUR	PUR	PUR
Cable type	Li9YH-11YH	Li9YH-11YH	Li9YH-11YH
Cable length	2m	5m	10m
Conductor size	0,34 mm <sup>2</sup>	0,34 mm <sup>2</sup>	0,34 mm <sup>2</sup>
Rated voltage	250 V DC/AC	250 V DC/AC	250 V DC/AC
Rated current	4 A	4 A	4 A
Protection class	IP65	IP65	IP65

\* Alternative supplies also marked as LUMBERG. Hirschmann and Lumberg companies belong to the BELDEN group.

Part No.	Manuf. No.	Ord.No.
 E12-AA3A1A-FA0200C1-XA500-AC	934551-005	69728
 E12-AA3A1A-FA0500C1-XA500-AB	934551-006	69729
 E12-AA3A1A-FA1000C1-XA500-AA	934551-034	69730

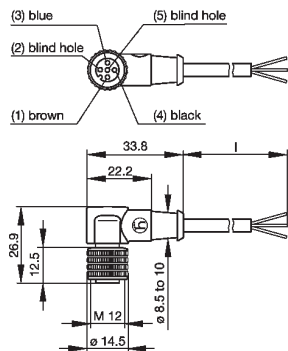
Technical Parameters	E12-AA3A1A-AC0200C1-XA500-AC	E12-AA3A1A-AC0500C1-XA500-AB	E12-AA3A1A-AC1000C1-XA500-AA
Marking *	RKT 4-3-06/2M	RKT 4-3-06/5M	RKT 4-3-06/10M
Type	straight cable socket, self-securing screw locking		
Number of contacts	3	3	3
Thread diameter	12 mm	12 mm	12 mm
Cable material	PVC	PVC	PVC
Cable type	LiYY	LiYY	LiYY
Cable length	2m	5m	10m
Conductor size	0,34 mm <sup>2</sup>	0,34 mm <sup>2</sup>	0,34 mm <sup>2</sup>
Rated voltage	250 V DC/AC	250 V DC/AC	250 V DC/AC
Rated current	4 A	4 A	4 A
Protection class	IP65	IP65	IP65

\* Alternative supplies also marked as LUMBERG. Hirschmann and Lumberg companies belong to the BELDEN group.

Part No.	Manuf. No.	Ord.No.
 E12-AA3A1A-AC0200C1-XA500-AC	934551-001	69725
 E12-AA3A1A-AC0500C1-XA500-AB	934551-002	69726
 E12-AA3A1A-AC1000C1-XA500-AA	934551-033	69727



## E12 3P F angled



Technical Parameters	E12-AC3A1A-FA0200C1-XA500-AC	E12-AC3A1A-FA0500C1-XA500-AB	E12-AC3A1A-FA1000C1-XA500-AA
Marking *	RKWT4-3-224/2M	RKWT 4-3-224/5M	RKW T4-3-224/10M
Type	angled cable socket		
Number of contacts	3	3	3
Thread diameter	12 mm	12 mm	12 mm
Cable material	PUR	PUR	PUR
Cable type	Li9YH-11YH	Li9YH-11YH	Li9YH-11YH
Cable length	2m	5m	10m
Conductor size	0,34 mm <sup>2</sup>	0,34 mm <sup>2</sup>	0,34 mm <sup>2</sup>
Rated voltage	250 V DC/AC	250 V DC/AC	250 V DC/AC
Rated current	4 A	4 A	4 A
Protection class	IP65	IP65	IP65

\* Alternative supplies also marked as LUMBERG. Hirschmann and Lumberg companies belong to the BELDEN group.

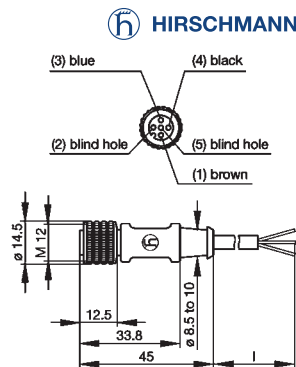
Part No.	Manuf. No.	Ord.No.
○ E12-AC3A1A-A0200C1-XA500-AC	934552-005	69738
○ E12-AC3A1A-FA0500C1-XA500-AB	934552-006	69739
○ E12-AC3A1A-FA1000C1-XA500-AA	934552-034	69740

Technical Parameters	E12-AC3A1A-AC0200C1-XA500-AC	E12-AC3A1A-AC0500C1-XA500-AB	E12-AC3A1A-AC1000C1-XA500-AA
Marking *	RKWT 4-3-06/2M	RKWT 4-3-06/5M	RKWT 4-3-06/10M
Type	angled cable socket, self-securing screw locking		
Number of contacts	3	3	3
Thread diameter	12 mm	12 mm	12 mm
Cable material	PVC	PVC	PVC
Cable type	LiYY	LiYY	LiYY
Cable length	2m	5m	10m
Conductor size	0,34 mm <sup>2</sup>	0,34 mm <sup>2</sup>	0,34 mm <sup>2</sup>
Rated voltage	250 V DC/AC	250 V DC/AC	250 V DC/AC
Rated current	4 A	4 A	4 A
Protection class	IP65	IP65	IP65

\* Alternative supplies also marked as LUMBERG. Hirschmann and Lumberg companies belong to the BELDEN group.

Part No.	Manuf. No.	Ord.No.
○ E12-AC3A1A-AC0200C1-XA500-AC	934552-001	69735
○ E12-AC3A1A-AC0500C1-XA500-AB	934552-002	69736
○ E12-AC3A1A-AC1000C1-XA500-AA	934552-03	69737

## E12 4P F straight



Technical Parameters	E12-AA4A1A-FB0200C1-XA500-AC	E12-AA4A1A-FB0500C1-XA500-AB	E12-AA4A1A-FB1000C1-XA500-AA
Marking *	RKT 4-225/2M	RKT 4-225/5M	RKT 4-225/10M
Type	straight cable plug		
Number of contacts	4	4	4
Thread diameter	12 mm	12 mm	12 mm
Cable material	PUR	PUR	PUR
Cable type	Li9YH-11YH	Li9YH-11YH	Li9YH-11YH
Cable length	2m	5m	10m
Conductor size	0,34 mm <sup>2</sup>	0,34 mm <sup>2</sup>	0,34 mm <sup>2</sup>
Rated voltage	250 V DC/AC	250 V DC/AC	250 V DC/AC
Rated current	4 A	4 A	4 A
Protection class	IP65	IP65	IP65

\* Alternative supplies also marked as LUMBERG. Hirschmann and Lumberg companies belong to the BELDEN group.

Part No.	Manuf. No.	Ord.No.
○ E12-AA4A1A-FB0200C1-XA500-AC	934551-013	69732
○ E12-AA4A1A-FB0500C1-XA500-AB	934551-014	69733
○ E12-AA4A1A-FB1000C1-XA500-AA	934551-036	69734

Technical Parameters	E12-AA4A1A-AD0200C1-XA500-AC	E12-AA4A1A-AD0500C1-XA500-AB	E12-AA4A1A-AD1000C1-XA500-AA
Marking *	RKT 4-07/2M	RKT 4-07/5M	RKT 4-07/10M
Type	straight cable plug		
Number of contacts	4	4	4
Thread diameter	12 mm	12 mm	12 mm
Cable material	PVC	PVC	PVC
Cable type	LiYY	LiYY	LiYY
Cable length	2m	5m	10m
Conductor size	0,34 mm <sup>2</sup>	0,34 mm <sup>2</sup>	0,34 mm <sup>2</sup>
Rated voltage	250 V DC/AC	250 V DC/AC	250 V DC/AC
Rated current	4 A	4 A	4 A
Protection class	IP65	IP65	IP65

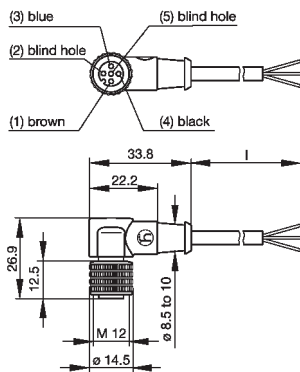
\* Alternative supplies also marked as LUMBERG. Hirschmann and Lumberg companies belong to the BELDEN group.

Part No.	Manuf. No.	Ord.No.
S E12-AA4A1A-AD0200C1-XA500-AC	934551-009	69694
S E12-AA4A1A-AD0500C1-XA500-AB	934551-010	69695
○ E12-AA4A1A-AD1000C1-XA500-AA	934551-035	69731

## E12 Series with Molded Lead HIRSCHMANN

(continued)

### E12 4P F angled



Technical Parameters	E12-AC4A1A-FB0200C1-XA500-AC	E12-AC4A1A-FB0500C1-XA500-AB	E12-AC4A1A-FB1000C1-XA500-AA
Marking *	RKWT 4-225/2M	RKWT 4-225/5M	RKWT 4-225/10M
Type	angled cable plug		
Number of contacts	4	4	4
Thread diameter	12 mm	12 mm	12 mm
Cable material	PUR	PUR	PUR
Cable type	Li9YH-11YH	Li9YH-11YH	Li9YH-11YH
Cable length	2m	5m	10m
Conductor size	0,34 mm <sup>2</sup>	0,34 mm <sup>2</sup>	0,34 mm <sup>2</sup>
Rated voltage	250 V DC/AC	250 V DC/AC	250 V DC/AC
Rated current	4 A	4 A	4 A
Protection class	IP65	IP65	IP65

\* Alternative supplies also marked as LUMBERG. Hirschmann and Lumberg companies belong to the BELDEN group.

Part No.	Manuf. No.	Ord.No.
 E12-AC4A1A-FB0200C1-XA500-AC	934552-013	69745
 E12-AC4A1A-FB0500C1-XA500-AB	934552-014	69746
 E12-AC4A1A-FB1000C1-XA500-AA	934552-036	69744

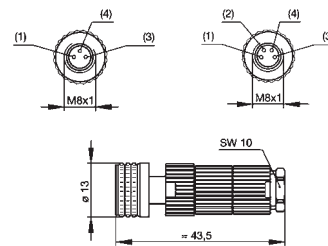
Technical Parameters	E12-AC4A1A-AD0200C1-XA500-AC	E12-AC4A1A-AD0500C1-XA500-AB	E12-AC4A1A-AD1000C1-XA500-AA
Marking *	RKWT 4-07/2M	RKWT 4-07/5M	RKWT 4-07/10M
Type	angled cable plug		
Number of contacts	4	4	4
Thread diameter	12 mm	12 mm	12 mm
Cable material	PVC	PVC	PVC
Cable type	LiYY	LiYY	LiYY
Cable length	2m	5m	10m
Conductor size	0,34 mm <sup>2</sup>	0,34 mm <sup>2</sup>	0,34 mm <sup>2</sup>
Rated voltage	250 V DC/AC	250 V DC/AC	250 V DC/AC
Rated current	4 A	4 A	4 A
Protection class	IP65	IP65	IP65

\* Alternative supplies also marked as LUMBERG. Hirschmann and Lumberg companies belong to the BELDEN group.

Part No.	Manuf. No.	Ord.No.
 E12-AC4A1A-AD0200C1-XA500-AC	934552-009	69741
 E12-AC4A1A-AD0500C1-XA500-AB	934552-010	69742
 E12-AC4A1A-AD1000C1-XA500-AA	934552-035	69743



## ELKA Series HIRSCHMANN

### ELKA x008 V

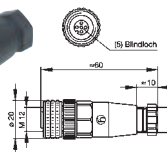


Technical Parameters	ELKA 3008 V	ELKA 4008 V
Marking *	RKMCK 3	RKMCK 4
Type	straight cable socket	straight cable socket
Number of contacts	3	4
Conductor size	0,14 - 0,34 mm <sup>2</sup>	0,14 - 0,34 mm <sup>2</sup>
Cable diameter	4 - 5 mm	4 - 5 mm
Rated voltage	60 V AC/DC	30 V AC/DC
Rated current	3 A	3 A
Type of termination	pin penetration	pin penetration
Protection class	IP67	IP67
Operating temperature	-25°C to 70°C	-25°C to 70°C

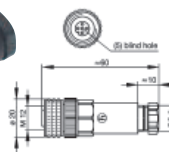
\* Alternative supplies also marked as LUMBERG. Hirschmann and Lumberg companies belong to the BELDEN group.

Part No.	Manuf. No.	Ord.No.
 ELKA 3008 V	933366-100	44042
 ELKA 4008 V	933367-100	57406

### ELKA 4012 PG7 Black





### ELKA 4012 PG9



Technical Parameters	ELKA 4012 PG7 Black	ELKA 4012 PG9
Marking *	RKC 4/7	RKC 4/9
Type	straight socket	straight socket
Number of contacts	4	4
Conductor size	max. 0,75 mm <sup>2</sup>	max. 0,75 mm <sup>2</sup>
Cable diameter	4 - 6 mm	6 - 8 mm
Rated voltage	250 V AC/DC	250 V AC/DC
Rated current	4 A	4 A
Type of termination	screw	screw
Protection class	IP67	IP67
Operating temperature	-25°C to 90°C	-25°C to 90°C

\* Alternative supplies also marked as LUMBERG. Hirschmann and Lumberg companies belong to the BELDEN group.

Part No.	Manuf. No.	Ord.No.
 ELKA 4012 PG7	933139-100	38129
 ELKA 4012 PG9	933169-100	1647

### ELKA 5012 PG9

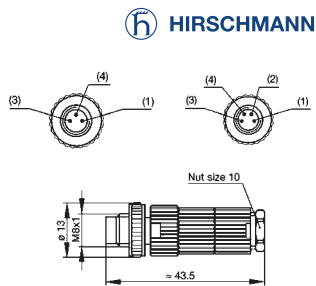
Technical Parameters	ELKA 5012 PG9
Marking *	RKC 5/9
Type	straight socket
Number of contacts	5
Conductor size	max. 0,75 mm <sup>2</sup>
Cable diameter	6 - 8 mm
Rated voltage	250 V AC/DC
Rated current	4 A
Type of termination	screw
Protection class	IP67
Operating temperature	-25°C to 90°C

\* Alternative supplies also marked as LUMBERG. Hirschmann and Lumberg companies belong to the BELDEN group.

Part No.	Manuf. No.	Ord.No.
 ELKA 5012 PG9	933171-100	42885

## ELST Series

### ELST x008 V

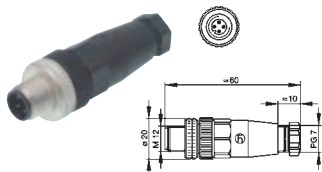


Technical Parameters	ELST 3008 V	ELST 4008 V
Marking *	RSMC 3	RSMC 4
Type	straight plug	straight plug
Number of contacts	3	4
Conductor size	0,14 - 0,34 mm <sup>2</sup>	0,14 - 0,34 mm <sup>2</sup>
Cable diameter	4 - 5 mm	4 - 5 mm
Rated voltage	60 V AC/DC	20 V AC/DC
Rated current	3 A	4 A
Type of termination	pin penetration	pin penetration
Protection class	IP67	IP67
Operating temperature	-25°C to 70°C	-25°C to 70°C

\* Alternative supplies also marked as LUMBERG. Hirschmann and Lumberg companies belong to the BELDEN group.

Part No.	Manuf. No.	Ord.No.
S ELST 3008 V	933406-100	51408
S ELST 4008 V	933407-100	57407

### ELST 4012 PG7



### ELST 4012 PG9



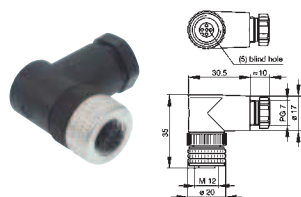
Technical Parameters	ELST 4012 PG7	ELST 4012 PG9
Marking *	RSC 4/7	RSC 4/9
Type	straight plug	straight plug
Number of contacts	4	4
Conductor size	max. 0,75 mm <sup>2</sup>	max. 0,75 mm <sup>2</sup>
Cable diameter	4 - 6 mm	6 - 8 mm
Rated voltage	250 V AC/DC	250 V AC/DC
Rated current	4 A	4 A
Type of termination	screw	screw
Protection class	IP67	IP67
Operating temperature	-25°C to 90°C	-25°C to 90°C

\* Alternative supplies also marked as LUMBERG. Hirschmann and Lumberg companies belong to the BELDEN group.

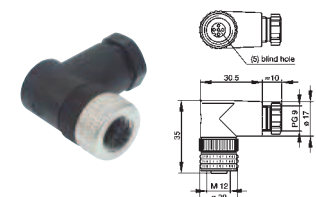
Part No.	Manuf. No.	Ord.No.
S ELST 4012 PG7	933098-100	38132
S ELST 4012 PG9	933162-100	50343

## ELWIKA Series

### ELWIKA 4012 PG7 Black



### ELWIKA 4012 PG9

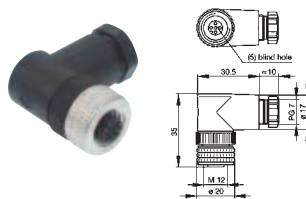


Technical Parameters	ELWIKA 4012 PG7	ELWIKA 4012 PG9
Marking *	RKCW 4/7	RKCW 4/9
Type	angled socket	angled socket
Number of contacts	4	4
Conductor size	max. 0,75 mm <sup>2</sup>	max. 0,75 mm <sup>2</sup>
Cable diameter	4 - 6 mm	6 - 8 mm
Rated voltage	250 V AC/DC	250 V AC/DC
Rated current	4 A	4 A
Type of termination	screw	screw
Protection class	IP67	IP67
Operating temperature	-25°C to 90°C	-25°C to 90°C

\* Alternative supplies also marked as LUMBERG. Hirschmann and Lumberg companies belong to the BELDEN group.

Part No.	Manuf. No.	Ord.No.
S ELWIKA 4012 PG7	933172-100	38130
S ELWIKA 4012 PG9	933174-100	1648

### ELWIKA 5012 PG9 Black



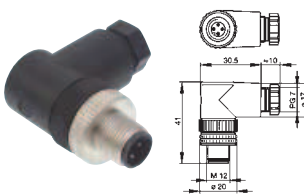
Technical Parameters	ELWIKA 5012 PG9 Black
Marking *	RKCW 5/9
Type	angled socket
Number of contacts	5
Conductor size	max. 0,75 mm <sup>2</sup>
Cable diameter	6 - 8 mm
Rated voltage	50 V AC/DC
Rated current	4 A
Type of termination	screw
Protection class	IP67
Operating temperature	-25°C to 90°C

\* Alternative supplies also marked as LUMBERG. Hirschmann and Lumberg companies belong to the BELDEN group.

Part No.	Manuf. No.	Ord.No.
S ELWIKA 5012 PG9 Black	933176-100	71978

## ELWIST Series

### ELWIST 4012 PG7



### ELWIST 4012 PG9



Technical Parameters	ELWIST 4012 PG7	ELWIST 4012 PG9
Marking *	RSCW 4/7	RSCW 4/9
Type	angled plug	angled plug
Number of contacts	4	4
Conductor size	max. 0,75 mm <sup>2</sup>	max. 0,75 mm <sup>2</sup>
Cable diameter	4 - 6 mm	6 - 8 mm
Rated voltage	250 V AC/DC	250 V AC/DC
Rated current	4 A	4 A
Type of termination	screw	screw
Protection class	IP67	IP67
Operating temperature	-25°C to 90°C	-25°C to 90°C

\* Alternative supplies also marked as LUMBERG. Hirschmann and Lumberg companies belong to the BELDEN group.

Part No.	Manuf. No.	Ord.No.
S ELWIST 4012 PG7	933165-100	38131
S ELWIST 4012 PG9	933166-100	51121

## GDM Series

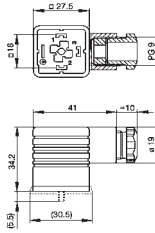


The rectangular connectors of the GDM-series for hydraulic, pneumatic and electro-magnetic actuators in all forms are well-equipped to handle heavy stresses in the field. This series with a high loading capacity is especially well-suited for use with solenoid valves, pressure sensors, flow controllers and in heating equipment in control systems for gas appliances and oil burners. Even in vibration-endangered devices and structural components such as construction machines or in conveyor installations, it is possible to have a highly durable solution with the use of crimp technology. The GDM series can be used wherever a "metal-free" environment is required, for example in the food sector and the chemical industry.

### GDM 2009    GDM 2009 J    GDM 3009



**NEW!**



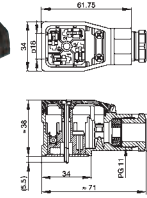
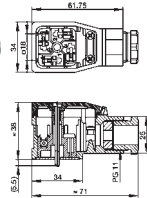
Technical Parameters	GDM 2009	GDM 2009 J Black	GDM 3009
Type	cable socket with central screw, black		
Number of contacts	2 + PE	2 + PE	3 + PE
Conductor size	1,5 mm <sup>2</sup>	1,5 mm <sup>2</sup>	1,5 mm <sup>2</sup>
Cable diameter	4.5 - 7 mm	4.5 - 7 mm	4.5 - 7 mm
Rated voltage	250 V AC/DC	250 V AC/DC	250 V AC/DC
Rated current	16 A	16 A	16 A
Type of termination	screw	screw/cable shoe /cable eye	screw
Protection class	IP65	IP65	IP65
Operating temp.	-40°C to 125°C	-40°C to 125°C	-40°C to 125°C

Part No.	Manuf. No.	Ord.No.
S GDM 2009	931965-100	49987
S GDM 2009 J Black	931236-100	67641
S GDM 3009	931969-100	40069

### GDME 2011

### GDME 3011

Strain relief and transparent cover, possibility to fit electronic inserts...



Technical Parameters	GDME 2011	GDME 3011
Type	cable socket with central screw M 3 x 40	
Number of contacts	2 + PE	3 + PE
Conductor size	1,5 mm <sup>2</sup>	1,5 mm <sup>2</sup>
Cable diameter	10 - 14 mm	10 - 14 mm
Rated voltage	400 V AC / 250 V DC	400 V AC / 250 V DC
Rated current	16 A	16 A
Type of termination	screw	screw
Protection class	IP65	IP65
Operating temperature	-40°C to 85°C	-40°C to 85°C

Part No.	Manuf. No.	Ord.No.
O GDME 2011	933029-100	67995
O GDME 3011	933022-100	69539

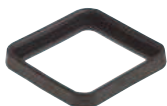
## Gaskets for GDM Series



**GDM 3-16 NBR**  
Operating temperature range: -30°C to 90°C

**GDM 3-7 NBR**  
Operating temperature range: -30°C to 90°C

**GDM 3-21 EPDM**  
Operating temperature range: -40°C to 125°C

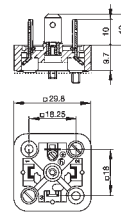


Part No.	Manuf. No.	Ord.No.
S GDM 3-16 NBR	731531-002	36573
S GDM 3-7 NBR	730801-002	50804
S GDM 3-21 EPDM	731739-004	8549

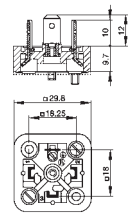
## GSA Series



### GSA 2000



### GSA 3000



Technical Parameters	GSA 2000	GSA 3000
Type	appliance connector with retaining nut	
Number of contacts	2 + PE	3 + PE
Rated voltage	400 V AC/DC	400 V AC/DC
Rated current	16 A	16 A
Type of termination	screw, solder	screw, solder
Protection class	IP65	IP65
Operating temperature	-40°C to 125°C	-40°C to 125°C

Part No.	Manuf. No.	Ord.No.
S GSA 2000	932591-100	40192
S GSA 3000	932597-100	7227

## Gaskets for GSA Series



### GSA 200-7 EPDM

Operating temperature range: -40°C to 125°C

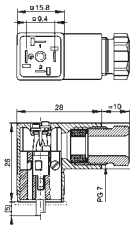


Part No.	Manuf. No.	Ord.No.
S GSA 200-7 EPDM	730268-003	7229

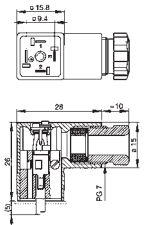
## GDS Series



### GDS 207



### GDS 307



Technical Parameters	GDS 207	GDS 307
Type	cable socket with central screw	
Number of contacts	2 + PE	3 + PE
Conductor size	0,75 mm <sup>2</sup>	0,75 mm <sup>2</sup>
Cable diameter	4,5 - 6 mm	4,5 - 6 mm
Rated voltage	250 V AC/DC	250 V AC/DC
Rated current	6 A	6 A
Type of termination	screw	screw
Protection class	IP65	IP65
Operating temperature	-40°C to 125°C	-40°C to 125°C

Part No.	Manuf. No.	Ord.No.
O GDS 207	933138-106	69545
O GDS 307	933024-100	69544

## Gaskets for GDS Series



### GDS 307-2 NBR

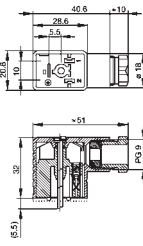
Operating temperature range: -30°C to 90°C



Part No.	Manuf. No.	Ord.No.
O GDS 307-2 NBR	730185-002	58308

## GMN Series

### GMN 209 NJ



**GMN 209-3 NBR**  
Gasket, operating temperature  
range: -30°C to 90°C



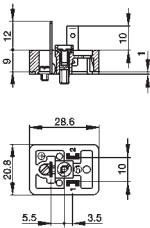
#### Technical Parameters

GMN 209 NJ	
Type	cable socket with central screw
Number of contacts	2 + PE
Conductor size	0,7 mm <sup>2</sup>
Cable diameter	4,5 - 7 mm
Rated voltage	250 V AC/DC
Rated current	6 A
Type of termination	screw
Protection class	IP65
Operating temperature	-40°C to 125°C

Part No.	Manuf. No.	Ord.No.
o GMN 209 NJ	932987-100	36574
o GMN 209-3 NBR	733273-002	36570

## GSN Series

### GSN 20



**GSN 20-3 NBR**  
Gasket, operating temperature  
range: -30°C to 90°C



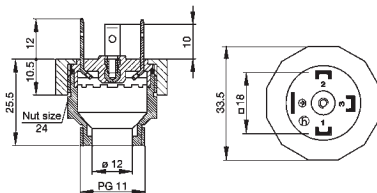
#### Technical Parameters

GSN 20	
Type	appliance connector with central screw (hollow)
Number of contacts	2 póly + PE
Rated voltage	250 V AC/DC
Rated current	16 A
Type of termination	screw, solder
Protection class	IP65
Operating temperature	-40°C to 125°C

Part No.	Manuf. No.	Ord.No.
o GSN 20	932421-100	36575
o GSN 20-3 NBR	733275-002	36576

## GSP Series

### GSP 311 PG11



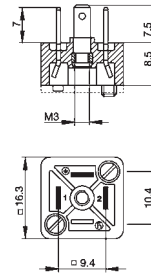
#### Technical Parameters

GSP 311 PG11	
Type	appliance connector with thread
Number of contacts	3 + PE
Rated voltage	400 V AC/DC
Rated current	16 A
Type of termination	solder
Protection class	IP65
Operating temperature	-40°C to 125°C

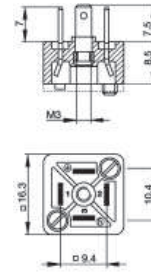
Part No.	Manuf. No.	Ord.No.
s GSP 311 PG11	931297-001	9257

## GSSA Series

### GSSA 200



### GSSA 300



#### Technical Parameters

GSSA 200		GSSA 300	
Type	appliance connector with central nut and 2 screws		
Number of contacts	2 + PE	3 + PE	
Rated voltage	250 V AC/DC	250 V AC/DC	
Rated current	4 A	4 A	
Type of termination	solder	solder	
Protection class	IP65	IP65	
Operating temperature	-40°C to 125°C	-40°C to 125°C	

Part No.	Manuf. No.	Ord.No.
o GSSA 200	933117-100	60895
o GSSA 300	933116-100	63447

## Gaskets for GSSA Series

### GSSA 300-5 NBR

Operating temperature  
range: -30°C to 90°C



Part No.	Manuf. No.	Ord.No.
o GSSA 300-5 NBR	730233-002	63448

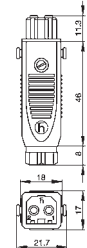
## STAK Series

The rectangular connectors of the compact ST-series have been specially designed for power applications and are intended for current supply and signal transmission in industrial installations, in machinery manufacture as well as in indoor and outdoor building automation. For this reason, you will find the universally stable ST-series both in small drives such as in shutters, tube and servo drives as well as in domestic water supply installations and in the mains voltage supply to lighting equipment, in wind turbine control systems and manufacturing equipment. The highly reliable ST-connectors perform excellently even in current supply under extremely demanding conditions, for example in sensitive measuring devices.

### STAK 2



### STAK 20



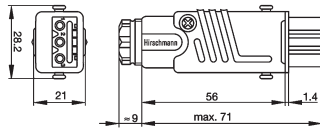
#### Technical Parameters

		STAK 2		STAK 20	
Type	Cable socket without/with strain relief, grey colour				
Number of contacts	2 + PE	2 + PE		2 + PE	
Conductor size	1,5 mm <sup>2</sup>	1,5 mm <sup>2</sup>		1,5 mm <sup>2</sup>	
Cable diameter	4,5 - 6,5 mm	4,5 - 6,5 mm		4,5 - 6,5 mm	
Rated voltage	250 V AC/DC	250 V AC/DC		250 V AC/DC	
Rated current	16 A AC / 10 A DC	16 A AC / 10 A DC		16 A AC / 10 A DC	
Type of termination	screw	screw		screw	
Protection class	IP54	IP54		IP54	
Operating temperature	-30°C to 90°C	-30°C to 90°C		-30°C to 90°C	

Part No.	Manuf. No.	Ord.No.
s STAK 2	930621-106	40097
s STAK 20	931264-106	50810

## STAK Series (continued)

### STAK 3 N



Technical Parameters		STAK 3 N
Type	cable socket with strain relief, grey colour	
Number of contacts	3 + PE	
Conductor size	1,5 mm <sup>2</sup>	
Cable diameter	6 - 10mm	
Rated voltage	400 V AC/ 250 V DC	
Rated current	16 A AC / 10 A DC	
Type of termination	screw	
Protection class	IP54	
Operating temperature	-30°C to 90°C	

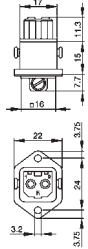
Part No.	Manuf. No.	Ord.No.
S STAK 3 N	932140-106	49984

## STAKEI Series

### STAKEI 2



### STAKEI 3 N



Technical Parameters		STAKEI 2	STAKEI 3 N
Type	panel-mounted socket, added gasket		
Number of contacts	2 + PE	3 + PE	
Conductor size	1,5 mm <sup>2</sup>	1,5 mm <sup>2</sup>	
Rated voltage	250 V AC/DC	400 V AC/ 250 V DC	
Rated current	16 A AC / 10 A DC	16 A AC / 10 A DC	
Type of termination	screw	screw	
Protection class	IP54	IP54	
Operating temperature	-30°C to 90°C	-30°C to 90°C	

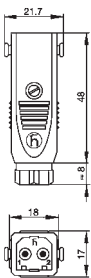
Part No.	Manuf. No.	Ord.No.
S STAKEI 2	930647-106	42755
S STAKEI 3 N	932142-106	51122

## STAS Series

### STAS 2



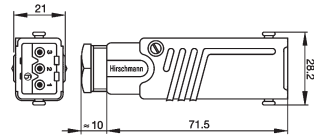
### STAS 20



Technical Parameters		STAK 2	STAK 20
Type	cable plug without / with strain relief		
Number of contacts	2 + PE		
Conductor size	1,5 mm <sup>2</sup>		
Cable diameter	4 - 6,5mm		
Rated voltage	250 V AC/DC		
Rated current	16 A AC / 10 A DC		
Type of termination	screw		
Protection class	IP54		
Operating temperature	-30°C to 90°C		

Part No.	Manuf. No.	Ord.No.
S STAS 2	930620-106	50812
S STAS 20	931265-106	50811

## STAS 3 N



Technical Parameters		STAS 3 N
Type	cable plug with strain relief	
Number of contacts	3 + PE	
Conductor size	1,5 mm <sup>2</sup>	
Cable diameter	6 - 10mm	
Rated voltage	400 V AC/ 250 V DC	
Rated current	16 A AC / 10 A DC	
Type of termination	screw	
Protection class	IP54	
Operating temperature	-30°C to 90°C	

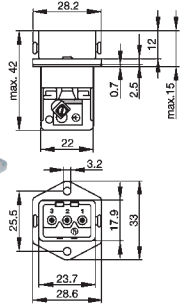
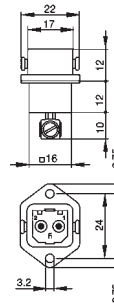
Part No.	Manuf. No.	Ord.No.
S STAS 3 N	932143-106	36565

## STASEI Series

### STASEI 2



### STASEI 3 N



Technical Parameters		STASEI 2	STASEI 3 N
Type	panel-mounted connector with added gasket		
Number of contacts	2 + PE	3 + PE	
Conductor size	1,5 mm <sup>2</sup>	1,5 mm <sup>2</sup>	
Rated voltage	250 V AC/DC	400 V AC/ 250 V DC	
Rated current	16 A AC / 10 A DC	16 A AC / 10 A DC	
Type of termination	screw	screw	
Protection class	IP54	IP54	
Operating temperature	-30°C to 90°C	-30°C to 90°C	

Part No.	Manuf. No.	Ord.No.
S STASEI 2	930622-106	40096
S STASEI 3 N	932145-106	36571

## Safety Brackets

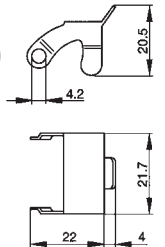
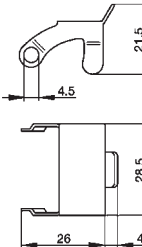


### STASI 2

Safety bracket for 2 + PE - versions, tin-plated brass.

### STASI 3

Safety bracket for 3 + PE - versions, tin-plated brass.



Part No.	Manuf. No.	Ord.No.
S STASI 2	731531-002	36567
S STASI 3	730801-002	36568

## Pin Headers

WW-series of pin headers are made from brass with gold-plating. The pin's cross-section is square-shaped 0,635x0,635mm, they are suitable for Wire-Wrap connections. Pin strips may be easily broken into smaller sections. Max. rated current is 3A.

### Pitch 2,54mm

#### WWS xx G Series

Single row Wire-Wrap PCB pin strips, straight Dip type. Dimensions: A=11,6mm, B=5,9mm, C=3,2mm. 8-, 10-, 20-, 36-contacts versions available.



Part No.	Ord.No.	Description
S WWS 08 G	25326	1x8 RM2,54 Au
S WWS 10 G	25327	1x10 RM2,54 Au
S WWS 20 G	25328	1x20 RM2,54 Au
S WWS 36 G	19012	1x36 RM2,54 Au
S WWS 40 G	55112	1x40 RM2,54 Au

#### WWS xx A Series

Single row Wire-Wrap PCB pin headers, right angled. Dimensions: A=13,2mm, B=6mm, C=3mm. 10, 20, 36-contacts versions available.



Part No.	Ord.No.	Description
S WWS 10 A	25330	1x10 RM2,54 Au
S WWS 20 A	25331	1x20 RM2,54 Au
S WWS 36 A	20074	1x36 RM2,54 Au

#### WWD xx G Series

Double-row Wire-Wrap PCB pin headers, straight type. Dimensions: A=11,6mm, B=6mm, C=3mm. 2x8, 2x10, 2x20, 2x36 contacts versions available.



Part No.	Ord.No.	Description
S WWD 16 G	25332	2x8 RM2,54 Au
S WWD 20 G	25333	2x10 RM2,54 Au
S WWD 40 G	25334	2x20 RM2,54 Au
S WWD 72 G	18491	2x36 RM2,54 Au

#### WWD xx A Series

Double-row Wire-Wrap PCB pin headers, right angled. Dimensions: A=14,5mm, B=6mm, C=3,2mm. 2x8, 2x10, 2x20, 2x36 contacts versions available.



Part No.	Ord.No.	Description
S WWD 16 A	25335	2x8 RM2,54 Au
S WWD 20 A	25336	2x10 RM2,54 Au
S WWD 40 A	25337	2x20 RM2,54 Au
S WWD 72 A	18492	2x36 RM2,54 Au

#### WWT xx G Z Series

Triple-row Wire-Wrap PCB pin headers, straight. Only 96 contact versions is available.



Part No.	Ord.No.	Description
S WWT 96 G Z	8185	3x32 RM2,54 Sn

#### SPL xx Series

Precise single row PCB pin headers, straight. Round cross-section, mating BLxxxG-PSO4,1 Series. 20, 32, 64 - contacts versions available.



Part No.	Ord.No.	Description
S SPL 20	20094	1x20 RM2,54 Au
S SPL 32	24766	1x32 RM2,54 Au
S SPL 64	25683	1x64 RM2,54 Au

#### SL5

Single row Wire-Wrap PCB pin headers, straight contacts. Length A=36,0mm, tin-plated contacts. 10 contacts version available.



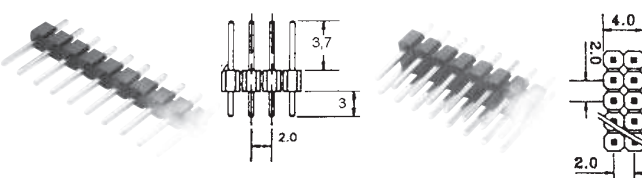
Part No.	Ord.No.	Description
S SL 5/360 10Z	4443	1x10 RM2,54

### Pitch 2mm

Wire-Wrap PCB pin headers, straight. Contact's cross-section is 0,5x0,5mm.

#### WWS 40G 2

#### WWD 80G 2



Part No.	Ord.No.	Description
S WWS 40G 2	6715	1x40 RM2 Au
S WWD 80G 2	6716	2x40 RM2 Au

## Jumpers

Jumpers (connectors) with 2,54mm pitch, except the MINIJUMP, with 2mm pitch. Max. current is 3A, gold-plated pins.



Part No.	Description
JUMP-OF BK	Jumper RM2,54 open, black, Au, 4,36mm high
JUMP-OF/TAG SW	Jumper RM2,54 tag, black, Au
JUMP-OF RD	Jumper RM2,54 red, Au
MINIJUMP-BK	Jumper RM2 black, Au

Part No.	Ord.No.
S JUMP-OF BK	11264
S JUMP-OF/TAG SW	51095
S JUMP-OF RD	11263
S MINIJUMP-BK	4187

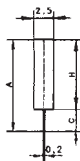
## Sockets

Female headers were designed for connecting with Wire-Wrap pin headers with square cross-section of 0,635x0,635mm.

### Pitch 2,54mm

#### Single-row, height 5,5mm

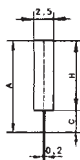
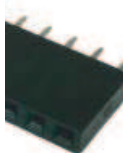
Female headers for connecting with Wire-Wrap pin headers. Dimensions: H=5,5mm, C=3mm. Female sockets can not be broken into smaller sections. Plating: "G" - gold - flash, "Z" - tin.



Part No.	Ord.No.	Description
S BL1X05G-ST5,5	6894	1x5 RM2,54 Au
S BL1X10G-ST5,5	65499	1x10 RM2,54 Au
S BL1X20Z-ST5,5	20075	1x20 RM2,54 Sn

#### Single-row, height 8,5mm

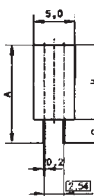
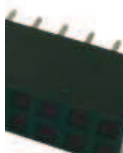
Female headers for connecting with Wire-Wrap pin headers. Dimensions: H=8,5mm, C=3,2mm. Plating: "G" - gold - flash, "Z" - tin. Female sockets can not be broken into smaller sections.



Part No.	Ord.No.	Description
S BL1X05G-ST8,5	8190	1x5 RM2,54 Au
S BL1X10G-ST8,5	7276	1x10 RM2,54 Au
S BL1X20G-ST8,5	22364	1x20 RM2,54 Au
S BL1X20Z-ST8,5	22363	1x20 RM2,54 Sn

#### Double-row, height 8,5mm

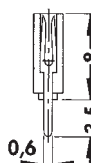
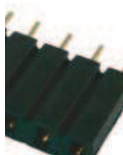
Double-row female headers for connecting with Wire-Wrap pin strips. Dimensions: H=8,5mm, C=3,2mm. Plating: "G" - gold - flash, "Z" - tin. Female sockets can not be broken into smaller sections.



Part No.	Ord.No.	Description
S BL2X05G-ST8,5	47322	2x5 RM2,54 Au
S BL2X10G-ST8,5	8193	2x10 RM2,54 Au
S BL2X20G-ST8,5	45211	2x20 RM2,54 Au

#### Single-row, height 8 mm

PCB female headers with straight pins, strips may be broken into smaller parts. Plating: "G" - gold - flash, "Z" - tin.

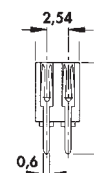


Part No.	Ord.No.	Description
S BL1X20G-SO8	2931	1x20 RM2,54 Au
S BL1X30Z-SO8	2181	1x30 RM2,54 Sn
S BL1X36G-SO8	7536	1x36 RM2,54 Au



#### Double-row, height 8mm

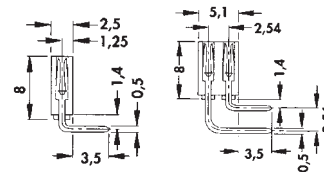
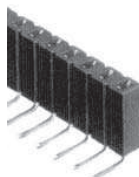
PCB double-row female headers with straight contacts, strips may be broken into smaller parts. Plating: "G" - gold - flash.



Part No.	Ord.No.	Description
S BL2X17G-SO8	5175	2x17 RM2,54 Au
S BL2X20G-SO8	8194	2x20 RM2,54 Au
S BL2X36G-SO8	3629	2x36 RM2,54 Au

#### Single-row - angled, height 8mm

PCB single-row (BL3) and double-row (BL4) with angled contacts female headers, strips may be broken into smaller parts. Plating: "G" - gold - flash.

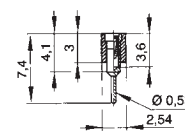


Part No.	Ord.No.	Description
S BL1X20G-SO8-90	8195	1x20 RM2,54 Au
S BL2X20G-SO8-90	8196	2x20 RM2,54 Au

### Pitch 2,54mm - precise

#### Single-row, height 3,6mm

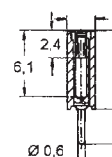
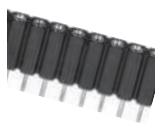
Precise PCB single-row female headers with straight gold-plated contacts mating with SPL series pin headers. Strips may be broken into smaller parts.



Part No.	Ord.No.	Description
S BL1X20G-PSO4,1	13275	1x20 RM2,54 Au
S BL1X32G-PSO4,1	13276	1x32 RM2,54 Au
S BL1X64G-PSO4,1	24767	1x64 RM2,54 Au

#### Single-row, height 7mm

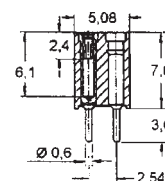
Precise PCB single-row female headers with straight gold-plated contacts mating with 0,635x0,635mm pin headers as well as with round pin headers with max. 0,85mm cross-section. Strips may be broken into smaller parts.



Part No.	Ord.No.	Description
S BL1X20G-PSO7	7325	1x20 RM2,54 Au
S BL1X36G-PSO7	2883	1x36 RM2,54 Au

#### Double-row, height 7mm

Precise PCB double-row female headers with straight gold-plated contacts mating with 0,635x0,635mm pin headers as well as with round pin headers with max. 0,85mm cross-section.

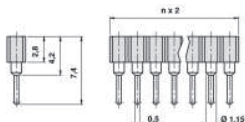


Part No.	Ord.No.	Description
S BL2X20G-PSO7	8197	2x20 RM2,54 Au
S BL2X36G-PSO7	4427	2x36 RM2,54 Au



## Pitch 2mm

Single-row 9-contacts female header with RM=2mm. Suitable e.g. for EA DIP series LCD displays...

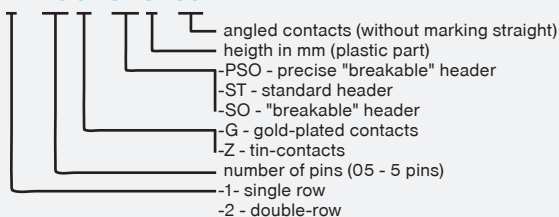


Part No.	Description
BL1X09G-PSO4,2-RM2	Female header 1x9 RM2 straight Au - precise
BL1X12G-ST4,3-RM2	Female header 1x12 RM2 straight Au

Part No.	Ord.No.
S BL1X09G-PSO4,2-RM2	47734
S BL1X12G-ST4,3-RM2	59420

## Female headers numbering

BL 1 x 40G - ST 8 - 90

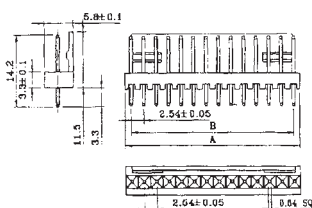
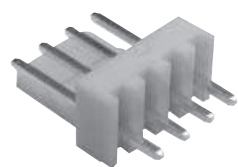


## Wire to Board Connectors

### Pitch 2,54mm

#### NSL 25-xx G Series

Wire-to-Board PCB straight headers, RM=2,54mm. 2, 3, 4, 5, 6, 8, 10 pins versions available.

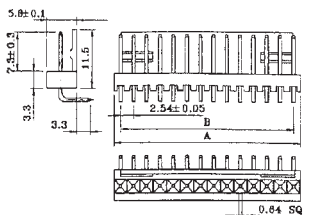


2,54

Part No.	Ord.No.	A[mm]	B[mm]
S NSL 25-2 G	4927	5,08	2,54
S NSL 25-3 G	4932	7,62	5,08
S NSL 25-4 G	4933	10,16	7,62
S NSL 25-5 G	7083	12,7	10,16
S NSL 25-6 G	8642	15,24	12,7
S NSL 25-8 G	5683	20,32	17,78
S NSL 25-10 G	5684	25,4	22,86

#### NSL 25-xx W Series

Wire-to-Board PCB angled headers, RM=2,54mm. 2, 3, 4, 5, 6, 8, 10 pins versions available.

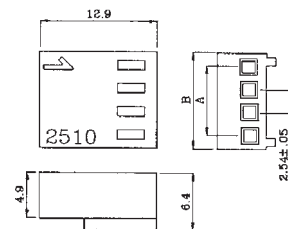
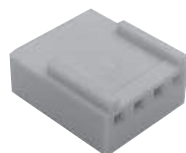


2,54

Part No.	Ord.No.	A[mm]	B[mm]
S NSL 25-2 W	4939	5,08	2,54
S NSL 25-3 W	4940	7,62	5,08
S NSL 25-4 W	4941	10,16	7,62
S NSL 25-5 W	5746	12,7	10,16
S NSL 25-6 W	43991	15,24	12,7
S NSL 25-8 W	5685	20,32	17,78
S NSL 25-10 W	5686	25,4	22,86

## NSG 25-xx Series

Plastic housings for NS25 plugs, RM=2,54mm. Suitable crimp terminals are NSK 25-0 Series. 2-, 3-, 4-, 5-, 6-, 8-, 10- pins versions available.

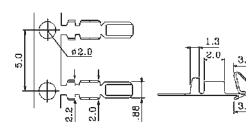


2,54

Part No.	Ord.No.	A[mm]	B[mm]
S NSG 25-2	4934	2,54	5,6
S NSG 25-3	4935	5,08	8,1
S NSG 25-4	4936	7,62	10,7
S NSG 25-5	5256	10,16	13,2
S NSG 25-6	8641	12,7	15,74
S NSG 25-8	5680	17,78	20,8
S NSG 25-10	5681	22,86	25,9

## NSK 25-0

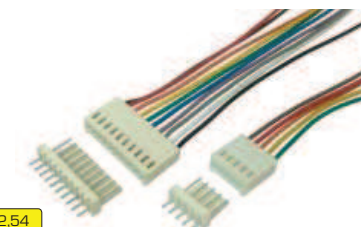
Crimp terminal 3A/250V for NSG housings with RM=2,54mm. Suitable crimp pliers HT-225D are presented in chapter K.



Part No.	Ord.No.
S NSK 25-0	4937

## P3500x Series

Female connector (NSG25) with 20cm long AWG26 cable and mating WTB straight header (NSL25), RM=2,54mm.

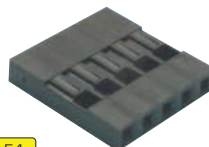


2,54

Part No.	Ord.No.
S P 35002	6174
S P 35003	6175
S P 35004	6176
S P 35005	6177
S P 35006	6178
S P 350010	6180

## CGx Series

Crimp terminal housing, black, pitch 2,54mm



2,54

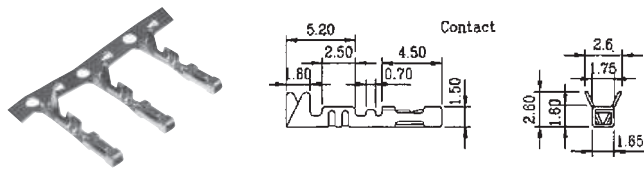
Part No.	Ord.No.	A[mm]	B[mm]
S CG2	42648	2,54	5,08
S CG3	43075	5,08	7,62
S CG4	43076	7,62	10,16
S CG5	43077	10,16	12,7

## WIRE TO BOARD Connectors

(continued)

### CKA

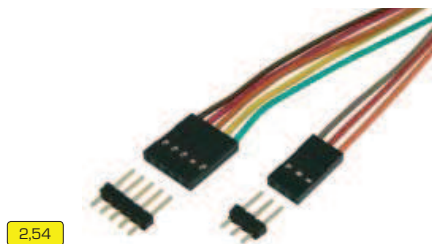
Polarising key for CGx. Suitable for AWG22 up to 28, max. 1,7mm.



Part No.	Ord.No.
S CKA	42649

### P254x Series

Connector (CGx) with 20cm long AWG26 cable and WWS PCB pin header with RM=2,54mm.



2,54

Part No.	Ord.No.
S P 2542	6170
S P 2543	6171
S P 2544	6172
S P 2545	6173

Recommended crimp pliers: HT-225D

See chapter K



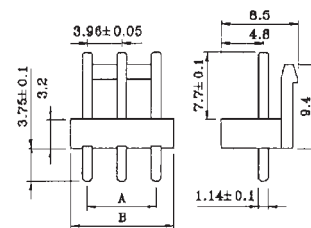
## Pitch 3,96mm

### NSL 39-xx G Series

PCB Wire-to-Board straight headers, RM=3,96mm. 2-, 3-, 4-, 5-pin versions available.



3,96



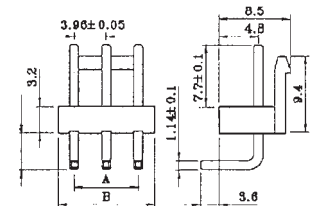
Part No.	Ord.No.	A[mm]	B[mm]
S NSL 39-2G	8645	3,96	7,92
S NSL 39-3G	7989	7,92	11,92
S NSL 39-4G	8644	11,88	15,84
S NSL 39-5G	43954	15,84	19,8

### NSL 39-xx W Series

PCB Wire-to-Board angled headers, RM=3,96mm. 2-, 3-, 4-, 5-pin versions are available.



3,96



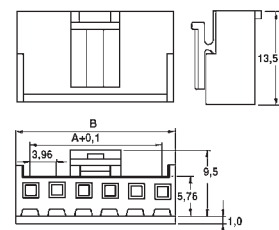
Part No.	Ord.No.	A[mm]	B[mm]
S NSL 39-2W	44142	3,96	7,92
S NSL 39-3W	5913	7,92	11,92
S NSL 39-4W	44143	11,88	15,84
S NSL 39-5W	44146	15,84	19,8

### NSG 39-xx Series

Plastic housing with RM=3,96mm. Recommended crimp terminals NSK 39-0 series. 2-, 3-, 4-, 5-pin versions are available



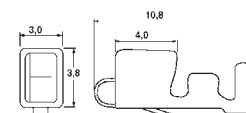
3,96



Part No.	Ord.No.	A[mm]	B[mm]
S NSG 39-2	44132	3,96	8,04
S NSG 39-3	5914	7,92	12,1
S NSG 39-4	44131	11,88	15,96
S NSG 39-5	44133	15,84	19,8

### NSK 39-0

Crimp terminal 3A/50V for NSG with RM=3,96mm.

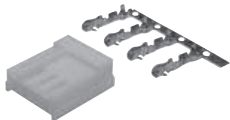


Part No.	Ord.No.
S NSK 39-0	5915

## DC Connectors for PC

### SE-LC3

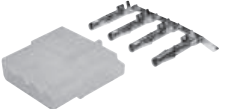
DC female connector for PC Floppy 3,5"



Part No.	Ord.No.
S SE-LC3	23565

### SE-LC4

DC female connector for Floppy 5,25"



Part No.	Ord.No.
S SE-LC4	20576
S SEM 4	22730

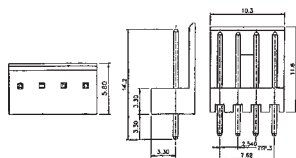
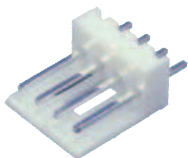
### SEM 4

DC connector for PC Floppy 5,25"



### FK 03 P

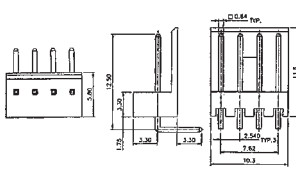
DC connector for PC 3,5" PCB, RM=2,54mm, straight



S FK 03 P	47026
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### FK 03 PW

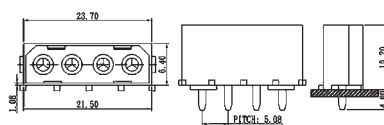
DC connector for PC 3,5" PCB, RM=2,54mm, angled



Part No.	Ord.No.
S FK 03 PW	47027

### FK 05 P

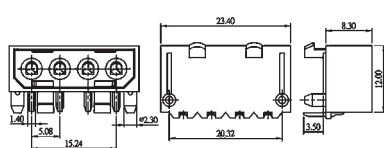
DC connector for PC 5,25" PCB, RM=5,08mm, straight



Part No.	Ord.No.
S FK 05 P	46944

### FK 05 PW

DC connector for PC 5,25" PCB, RM=5,08mm, angled



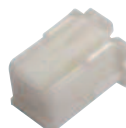
Part No.	Ord.No.
S FK 05 PW	46945

## XA Series Connectors



### XAP-02V-1

2-,3-pole, standard type RM2,5mm



### XARR-02V

2-,3-pole with panel locks, RM2,5mm



Part No.	Ord.No.	Pole
S XAP-02V-1	68671	2
S XAP-03V-1	68672	3
S XARR-02V	68669	2
S XARR-03V	68670	3

### SXA-001T-P0.6



### SXAM-001T-P0.6



Socket contact 0,08-0,33mm<sup>2</sup> for XA connectors

Part No.	Ord.No.
S SXA-001T-P0.6	68674
S SXAM-001T-P0.6	68673

## Mini-Universal Mate-N-Lok Series Connectors

### Housing Type - Plug



Possibility to combine male or female headers.

Part No.	Ord.No.	Description
S 0-0172165-1	1407	2P, RM 4,14mm
S 0-0172166-1	70850	3P, RM 4,14mm
S 0-0172167-1	1408	2x2P, RM 4,14mm
S 0-0172168-1	1409	2x3P, RM 4,14mm
S 0-0172169-1	1410	3x3P, RM 4,14mm
S 0-0350777-1	50820	2P, RM 6,35mm
S 0-0350766-1	2723	3P, RM 6,35mm

### Housing Type - Receptacle (Cap)



Possibility to combine male or female headers. Suitable also for panel mounting (except \*).

Part No.	Ord.No.	Description
S 0-0172157-1	1401	2P, RM 4,14mm
S 0-0172233-1	70851	2P, RM 4,14mm *
S 0-0172158-1	62638	3P, RM 4,14mm
S 0-0172234-1	70852	3P, RM 4,14mm *
S 0-0172159-1	1402	2x3P, RM 4,14mm
S 0-0172160-1	1403	2x3P, RM 4,14mm
S 0-0172161-1	1404	3x3P, RM 4,14mm
S 0-0350778-1	46147	2P, RM 6,35mm

### AMP 0-0170364-1

Crimp contact pin for 0,3-0,89mm<sup>2</sup> brass/Sn



### AMP 0-0170366-1

Crimp contact socket 0,3-0,89mm<sup>2</sup> brass/Sn

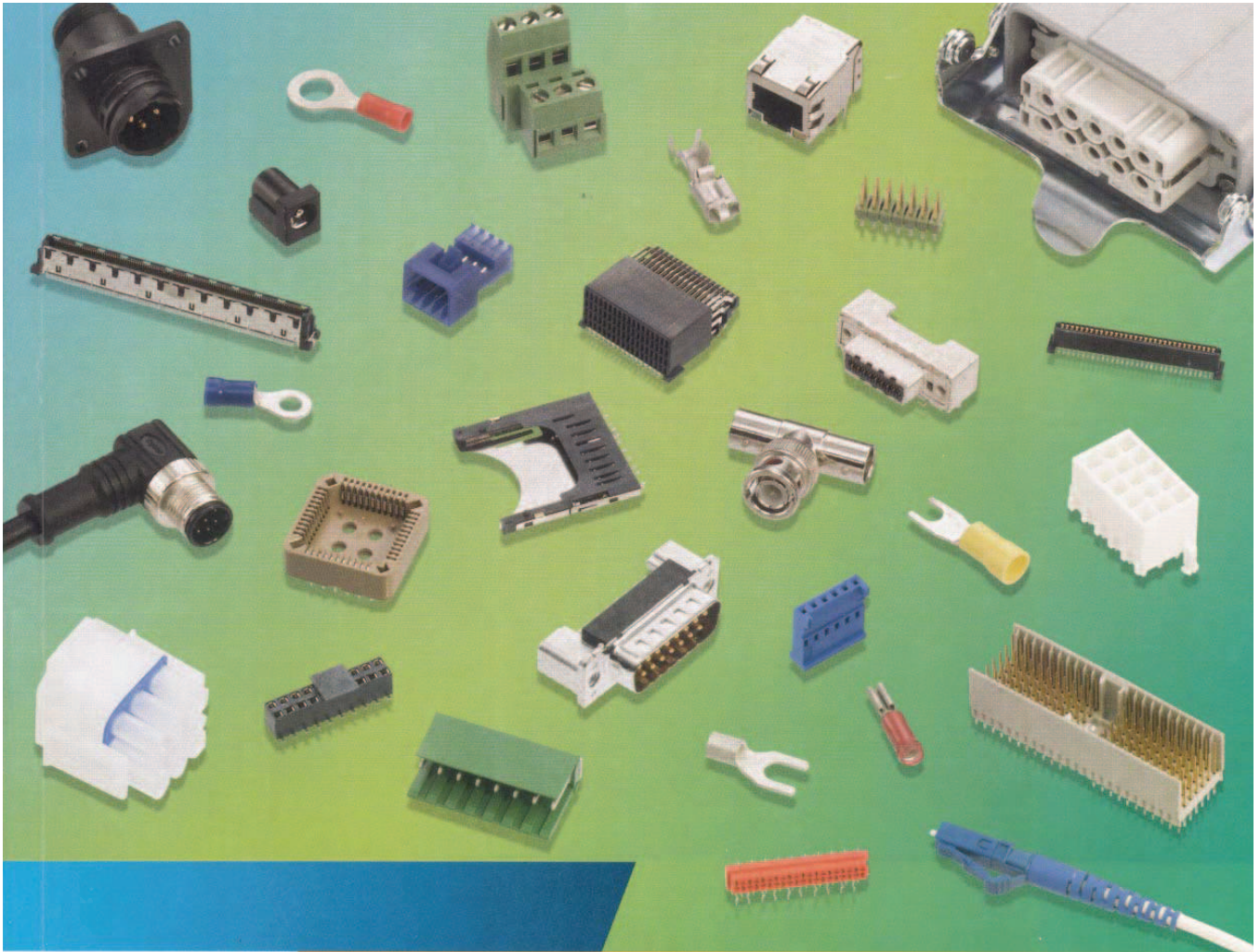


Part No.	Ord.No.	Description
S 0-0170364-1	1418	0,3-0,89mm2
S 0-0170366-1	1420	0,3-0,89mm2

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Our commitment. Your advantage.



Tyco Electronics Brand Overview

**AMP**  
**Augat**  
**Axicom**  
**CII**  
**Corcom**  
**Elcon**

**Elo Touchsystems**  
**Hartman**  
**HTS**  
**Kilovac**  
**Madison Cable**  
**Microdot Connectors**

**OEG**  
**Potter & Brumfield**  
**Precision Interconnect**  
**Raychem**  
**Schrack**  
**Transpower**

## Smart Card Connectors

### ISO Cards

7334L2625F04LF

This L26 connector uses a "sliding" contact technology suitable for most applications. It has been designed for easy mounting on the PCB. 8 gold-plated contacts and durability is 10 000 card insertions.



ISO

Part No.	Ord.No.
S 7334L2625F04LF	42579

### SIM / SAM Cards

MOLEX 91228-0001

Surface mounting connector for SIM cards: low profile, tray ejection, 6 contacts for card, 2 additional contacts signalling tray insertion. Delivered without tray for card.

MOLEX 91236-0001

Plastic SIM card holder for MOLEX 91228-0001 connector.



SIM

Part No.	Ord.No.
S MOLEX 91228-0001	51624
S MOLEX 91236-0001	56160

SCH-10

SIM/SAM cards 25x15mm size holder. It has been designed for SMT mounting on the PCB, contains push-push ejector, 6 contacts and signalling tray insertion.

ECONOMIC



SIM

Part No.	Ord.No.
S SCH-10	67958

9162-006-206-175

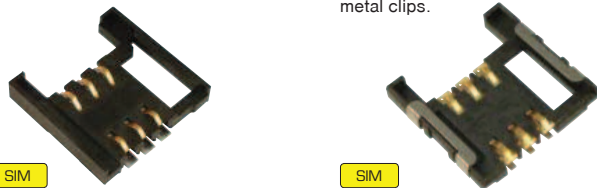
SIM card reader with terminals for SMD mounting and ejector.



SIM0125

SIM card reader with terminals for SMD mounting, the card is plugged in metal clips.

ECONOMIC



SIM

Part No.	Ord.No.
S 9162-006-206-175	57849
S SIM0125	64272

115A-BDA0-R01

SIM card holder 6-pin + SCP, push-push ejector

SIM\_A\_003C

SIM card holder.

C707-10M006-0492

SIMLOCK connector for SIM/SAM cards

ECONOMIC



SIM

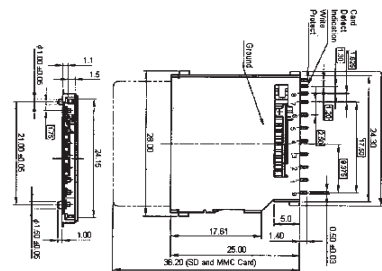
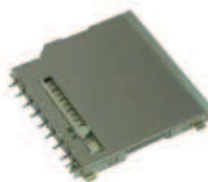
Part No.	Ord.No.
S 115A-BDA0-R01	71452
S SIM_A_003C	73201
S C707-10M006-0492	57814

## Secure Digital Cards

ECONOMIC

SDCMF-10915W0T0

SD memory card connector with metal cover and SMT mounting contacts.



SD

Part No.	Ord.No.
S SDCMF-10915W0T0	49845

4120SM-09M

SD memory card connector with SMT mounting contacts.

ECONOMIC



SD

Part No.	Ord.No.
S 4120SM-09M	57137

2908-05WB-MG

Micro SD™ card connector, normal polarization, push-push ejector, surface mount.



MicroSD

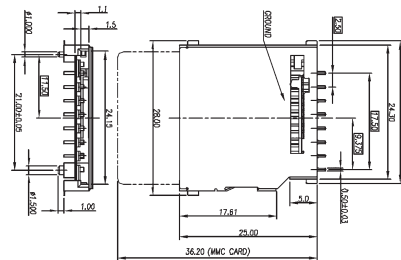
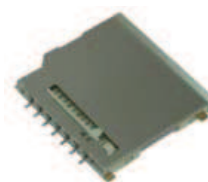
Part No.	Ord.No.
S 2908-05WB-MG	64174

## MultiMedia Cards

ECONOMIC

SDCMF-10715W1T0

Multi Media card connector, metal cover type, designed for SMT mounting.



MMC

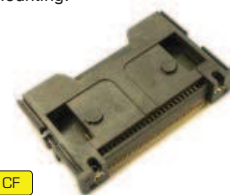
Part No.	Ord.No.
S SDCMF-10715W1T0	49846

## Compact Flash cards



62453-022

Compact Flash single deck, non-eject header (type II), designed for SMT mounting.



CF

Part No.	Ord.No.
S 62453-022LF	5769

## Crimp Terminals

Fast-on (FON) and Fast-in (FIN) crimp terminals of 6,3mm; 4,8mm and 2,8mm width, made from brass. R - red, B - blue and Y - yellow colour of insulation. ISO - full-insulated Fast-on's, O - angled Fast-on's.

### FAST ON



Part No.	Ord.No.	Conductor size
<b>Dimensions: 2,8x0,8 mm</b>		
S FON28	6626	0,75-1 mm <sup>2</sup>
S FON28-R	40729	0,5-1,5 mm <sup>2</sup>
<b>Dimensions: 4,8x0,8 mm</b>		
S FON48	6646	0,5-1 mm <sup>2</sup>
S FON48-R	40724	0,5-1,5 mm <sup>2</sup>
S FON48-R ISO	51077	0,5-1,5 mm <sup>2</sup>
S FON48-B	6647	1,5-2,5 mm <sup>2</sup>
<b>Dimensions: 6,3x0,8 mm</b>		
S FON63-R	40435	0,5-1,5 mm <sup>2</sup>
S FON63-R ISO	40725	0,5-1,5 mm <sup>2</sup>
S FON63-RO	40456	0,5-1,5 mm <sup>2</sup>
S FON63	10553	1,5-2,5 mm <sup>2</sup>
S FON63-B	40436	1,5-2,5 mm <sup>2</sup>
S FON63-B ISO	40726	1,5-2,5 mm <sup>2</sup>
S FON63-BO	40457	1,5-2,5 mm <sup>2</sup>
S FON63-Y	40437	4,0-6,0 mm <sup>2</sup>
S FON63-Y ISO	53796	4,0-6,0 mm <sup>2</sup>
S FON63-YO	40458	4,0-6,0 mm <sup>2</sup>

### FAST IN



Part No.	Ord.No.	Conductor size
<b>Dimensions: 2,8x0,8 mm</b>		
S FIN28-R	40727	0,5-1,5 mm <sup>2</sup>
<b>Dimensions: 4,8x0,8 mm</b>		
S FIN48-R	40728	0,5-1,5 mm <sup>2</sup>
S FIN48-B	53795	1,5-2,5 mm <sup>2</sup>
<b>Dimensions: 6,3x0,8 mm</b>		
S FIN63-R	40438	0,5-1,5 mm <sup>2</sup>
S FIN63	10531	1,5-2,5 mm <sup>2</sup>
S FIN63-B	40439	1,5-2,5 mm <sup>2</sup>
S FIN63-Y	40440	4,0-6,0 mm <sup>2</sup>

### FAST ON for PCB

FON63-P

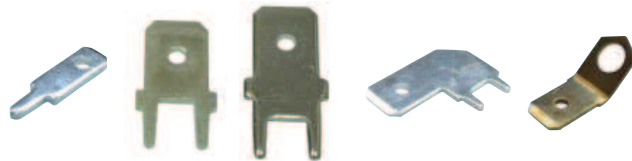


Part No.	Ord.No.	Length
<b>Dimensions: 6,3x0,8 mm</b>		
S FON63-P	10942	L15,3mm

## FAST IN for PCB

Fastins designed for PCB mounting. N - quick-fit , P - solder.

FIN28-P FINxx-P FINxx-P2 FINxx-P90 FINxx-N45



Part No.	Ord.No.	Length
<b>Dimensions: 2,8x0,8 mm</b>		
S FIN28-P	6627	L10,5mm
S FIN28-P2	10927	L13mm
S FIN28-P90	45315	L12mm
<b>Dimensions: 4,8x0,8 mm</b>		
S FIN48-P	6539	L12,8mm
S FIN48-P2	10931	L13,5mm
S FIN48-P90	6628	L13,5mm
S FIN48-N45	60910	L17,5mm
<b>Dimensions: 6,3x0,8 mm</b>		
S FIN63-P	6002	L14mm
S FIN63-P2	10940	L16,8mm
S FIN63-P90	10944	L16,2mm
S FIN63-N45	10948	L19mm

## Round FAST ONs and FAST INs

Round Fastons (KON) and Fastins (KIN). The number in the Type specifies the diameter in mm, the following capital letter specifies the colour (R=red, B=blue, Y=yellow).



Part No.	Ord.No.	Conductor size
<b>Round FASTON</b>		
S KON4-R	40441	0,5-1,5mm <sup>2</sup>
S KON5-B	40442	1,5-2,5mm <sup>2</sup>
S KON5-Y	40443	4,0-6,0mm <sup>2</sup>
<b>Round FASTIN</b>		
S KIN4-R	40444	0,5-1,5mm <sup>2</sup>
S KIN5-B	40445	1,5-2,5mm <sup>2</sup>
S KIN5-Y	40446	4,0-6,0mm <sup>2</sup>

## FAST ON Set

FASTON set 175  
Set of 175pcs in plastic box.

ECONOMIC



Part No.	Ord.No.
S FASTON set 175	62345

## Push-Wire Connectors

ECONOMIC

LUSTERKLEMME 1,5-2,5  
Push-wire connectors 12pcs. Conductor size 1,5-2,5 mm<sup>2</sup>.



Part No.	Ord.No.
S LUSTERKLEMME 1,5-2,5	49098

Crimping tools - see chapter K

## Cable Couplers

SPO series cable couplers are designed for permanent crimping connection of two conductors. Allowed conductors' diameters are defined in table below. SPO-FAST connector is designed for repeat usage. Insulation's colour: R=red, B=blue, Y=yellow.

SPO-B,SPO-R,SPO-Y



SPO-FAST



Part No.	Ord.No.	Conductor size
S SPO-R	40447	0,5-1,0 mm2
S SPO-B	40448	1,5-2,5 mm2
S SPO-Y	40449	4,0-6,0 mm2
S SPO-FAST	40459	1,5-2,5 mm2

## Ring and Fork Terminals

Cable forks (VID) or cable rings (OKO) with internal diameter 4,3mm. Crimp to conductors with specific size. Insulation's colour: R=red, B=blue, Y=yellow.

OKO...



VID...

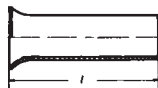


Part No.	Ord.No.	Conductor size
S OKO43-R	40453	0,5-1,5mm2
S OKO43-B	40454	1,5-2,5mm2
S OKO43-Y	40455	4,0-6,0mm2
S VID43-R	40450	0,5-1,5mm2
S VID43-B	40451	1,5-2,5mm2
S VID43-Y	40452	4,0-6,0mm2

## Cable End-Sleeves

**Non-insulated cable end-sleeves**

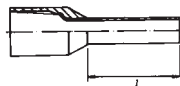
They are made from copper and tin-plated, intended for conductors with specific diameters: NIT diameter [mm] x length [mm].



Part No.	Ord.No.
S NIT 0,25x5	10897
S NIT 0,34x5	10898
S NIT 0,5x6	10899
S NIT 0,75x6	10900
S NIT 1x6	10901
S NIT 1,5x7	10902
S NIT 2,5x7	10903

**Insulated cable end-sleeves**

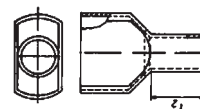
They are made from copper and tin-plated, polypropylene insulation, intended for conductors with specific diameters: NITI diameter [mm] x length [mm]. Operating temperature range is -55°C to +105°C. Using insulated cable end-sleeves raises work safety and saves mounting time.



Part No.	Ord.No.	Colour
S NITI 0,14x8 GY	70125	grey
S NITI 0,25x8 BU	10859	lightblue
S NITI 0,34x8 TQ	10861	turquoise
S NITI 0,5x10 OG	11029	orange
S NITI 0,5x8 WH	10864	white
S NITI 0,75x8 GY	10868	grey
S NITI 1x8 RD	10869	red
S NITI 1,5x8 BK	10874	black
S NITI 2,5x8 BU	10877	blue
S NITI 4x9 GY	10881	grey

**Twin cable end-sleeves**

They are made from copper and tin-plated, polypropylene insulation, intended for two conductors with specific diameters: NITI Diameter [mm] x Length [mm]. Operating temperature range is -55°C to +105°C. Using insulated cable end-sleeves raises work safety and saves mounting time.



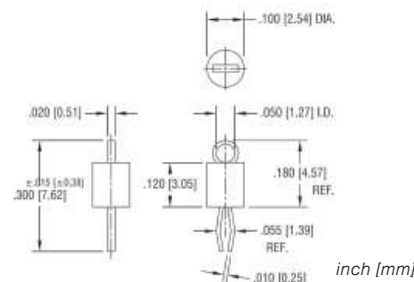
Part No.	Ord.No.	Colour
S NITI 2x0,5x8 WH	10886	white
S NITI 2x0,75x8 GY	10888	grey
S NITI 2x1,5x8 BK	10894	black
S NITI 2x1x8 RD	10893	red
S NITI 2x2,5x9 BU	10896	blue

## Miscellaneous



### SMT Test Points

KEYSTONE 5000



Part No.	Ord.No.	Colour
S Keystone 5000	53596	red
S Keystone 5002	60705	white
S Keystone 5003	56965	orange

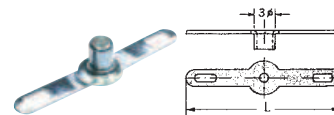
### Soldering pins

Soldering pins for PCB mounting (solder/rivet). Dimensions are specified in the table below.

SPOC-30

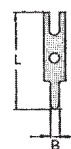
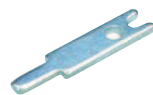


SPOC-3

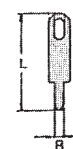
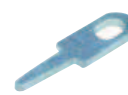


Part No.	Ord.No.	Dimensions
S SPOC-30	44110	d=3/L=12mm
S SPOC-3	10919	d=3/L=24mm

SPOC-4

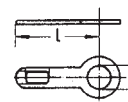


SPOC-5



Part No.	Ord.No.	Dimensions
S SPOC-4	10575	B=0,9/L=8,5mm
S SPOC-5	10579	B=1,2/L=11,3mm

SPOC-00, 0, 1, 2

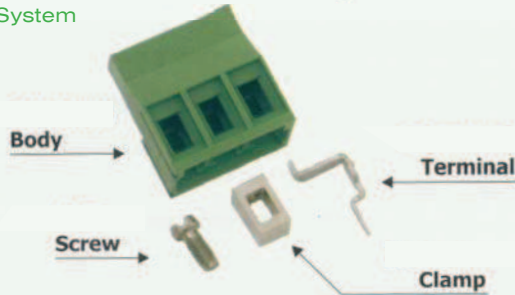


Part No.	Ord.No.	Dimensions
S SPOC-2	10912	d=3,2/L=12mm
S SPOC-00	10914	d=4,3/L=12mm
S SPOC-0	10913	d=4,3/L=18mm
S SPOC-1	10915	d=6,4/L=12mm

# euroclamp



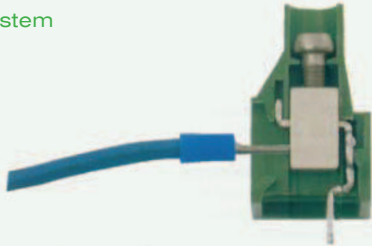
## LIFT System



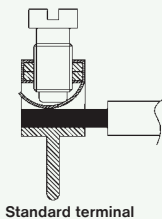
The clamp is made of tin-plated copper alloy. Its dimensions is related the wire it will accept. The pin (terminal) is made of nickleled copper alloy. Its main feature is the surface lining that improves the wiring strenghtness.

Its point has a particular geometry that helps mounting on PCB's. Soldering is made possible thanks to the specific surface threating. The screw, that permits the cable connection, is case hardened in order to grant a high number of actuations. Its surface threating ensures the use in aggressive environments.

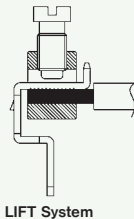
## LIFT System



The insulating body of euroclamp terminal blocks and connectors is realized with a moulding process. The material is polyamide, which is the most used technical plastic in electrical components. It is V0 self-extinguishing (standard UL94) and acquires elasticity ni time. It is therefore unbreakable even at high temperatures.



Standard terminal



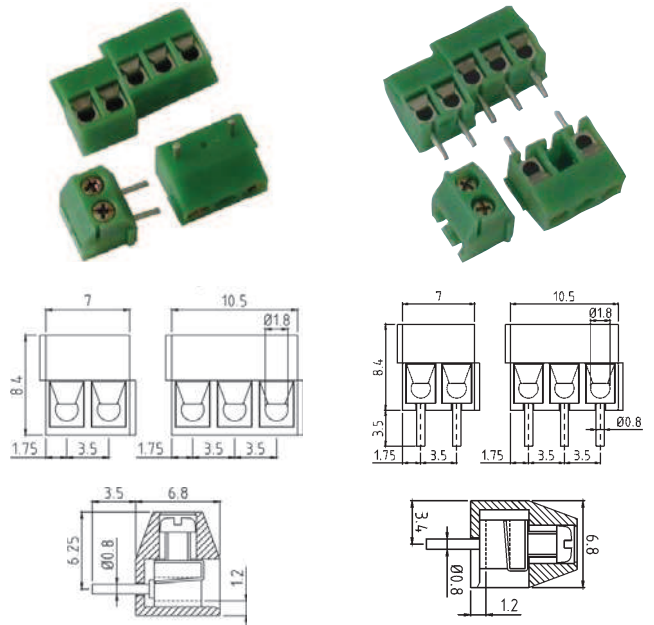
LIFT System

## Single Deck Terminal Blocks with Rising Clamp

Pitch 3,5 and 3,81mm

MLK13x-3,5-H

MLK13x-3,5-V

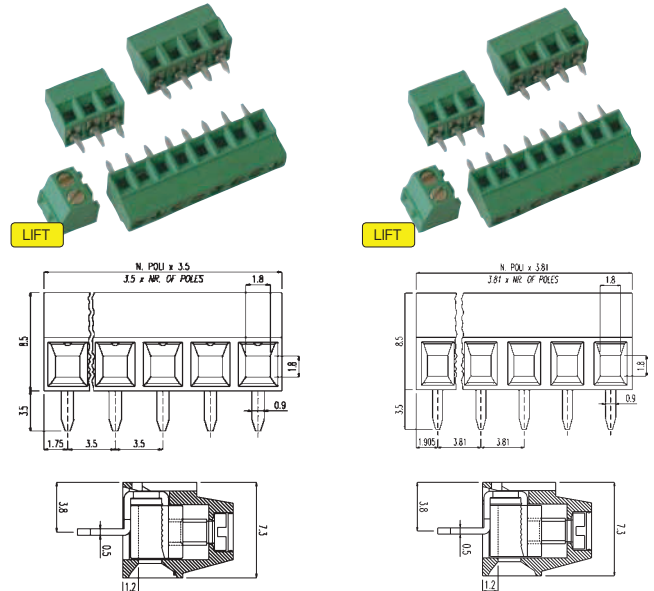


Technical Parameters	MLK13x-3,5-H	MLK13x-3,5-V
Pitch	3,5mm	3,5mm
Mounting Position	horizontal	vertical
Wire Section	1,0mm <sup>2</sup> strand. (AWG17) 1,5mm <sup>2</sup> solid (AWG16)	1,0mm <sup>2</sup> strand. (AWG17) 1,5mm <sup>2</sup> solid (AWG16)
Rated Voltage	130V	130V
Rated Current	10A	10A
Stripping length	6mm	6mm
Modular	yes	yes
Lift System	-	-
Working Temperature	85°C	85°C
Colour	green	green

Part No.	Ord. No.
S MLK132-3,5-H	51438
S MLK133-3,5-H	51439
S MLK132-3,5-V	50670
S MLK133-3,5-V	50671

MV13x-3,5-V-L

MV13x-3,81-V-L



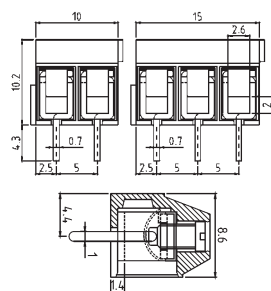


Technical Parameters	MV13x-3,5-V-L	MV13x-3,81-V-L
Pitch	3,5mm	3,81mm
Mounting Position	vertical	vertical
Wire Section	1,0mm <sup>2</sup> strand. (AWG17) 1,5mm <sup>2</sup> solid (AWG16)	1,0mm <sup>2</sup> strand. (AWG17) 1,5mm <sup>2</sup> solid (AWG16)
Rated Voltage	130V	130V
Rated Current	12A	12A
Stripping Length	6,1mm	6,1mm
Modular	-	-
Lift System	yes	yes
Working Temperature	125°C	125°C
Colour	green	green

Part No.	Ord. No.
S MV132-3,5-V-L	50672
S MV133-3,5-V-L	50673
S MV132-3,81-V-L	50674
S MV133-3,81-V-L	50675

## Pitch 5mm

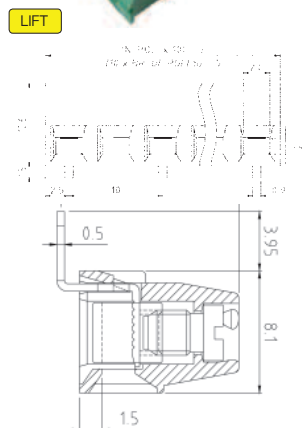
### MBE15x-5-V



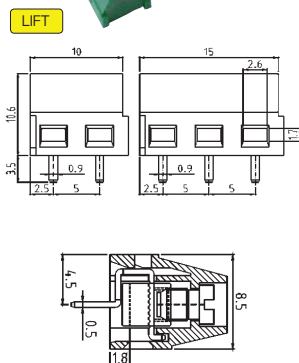
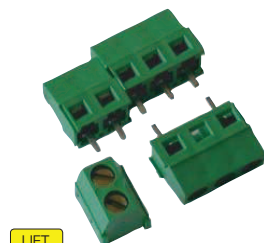
Technical Parameters	MBE15x-5-V
Pitch	5mm
Mounting Position	vertical
Wire Section	1,5mm <sup>2</sup> stranded (AWG16) 2,5mm <sup>2</sup> solid (AWG14)
Rated Voltage	450V
Rated Current	17,5A
Stripping Length	8mm
Modular	yes
Lift System	-
Working Temperature	125°C
Colour	green

Part No.	Ord. No.
S MBE152-5-V	50676
S MBE153-5-V	50677

### MV15x-5-H



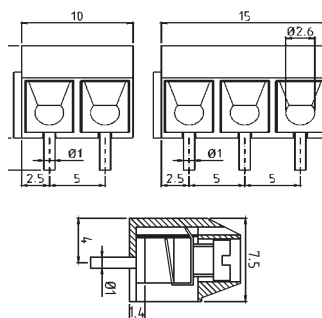
### MV15x-5-V



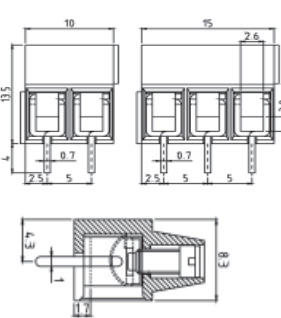
Technical Parameters	MV15x-5-H	MV15x-5-V
Pitch	5mm	5mm
Mounting Position	horizontal	vertical
Wire Section	1,5mm <sup>2</sup> strand. (AWG16) 1,5mm <sup>2</sup> solid (AWG16)	1,5mm <sup>2</sup> strand. (AWG16) 1,5mm <sup>2</sup> solid (AWG16)
Rated Voltage	250V	250V
Rated Current	13,5A	13,5A
Stripping Length	6,7mm	6,7mm
Modular	yes	yes
Lift System	yes	yes
Working Temperature	125°C	125°C
Colour	green	green

Part No.	Ord. No.
S MV153-5-H	51444
S MV152-5-V	50678
S MV153-5-V	50679

### MVE13x-5-V



### MVE15x-5-V



Technical Parameters	MVE13x-5-V	MVE15x-5-V
Pitch	5mm	5mm
Mounting Position	vertical	vertical
Wire Section	1,5mm <sup>2</sup> strand. (AWG16) 2,5mm <sup>2</sup> solid (AWG14)	1,5mm <sup>2</sup> strand. (AWG16) 2,5mm <sup>2</sup> solid (AWG14)
Rated Voltage	250V	450V
Rated Current	16A	17,5A
Stripping Length	6,7mm	6,8mm
Modular	yes	yes
Lift System	-	-
Working Temperature	-30°C to +120°C	125°C
Colour	black	green

Part No.	Ord. No.
S MVE132-5-V	52231
S MVE133-5-V	52996
S MVE152-5-V	51441
S MVE153-5-V	51442

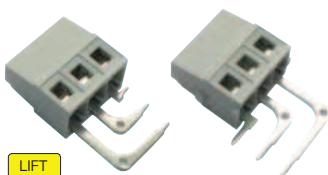
## Single Deck Terminal Blocks with Rising Clamp (continued)



### ML253-5-D(S)-LC

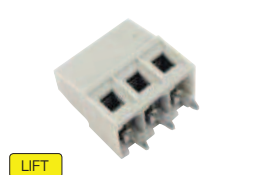
Suitable for enclosures CEM17.

### ML253-5-V-GY

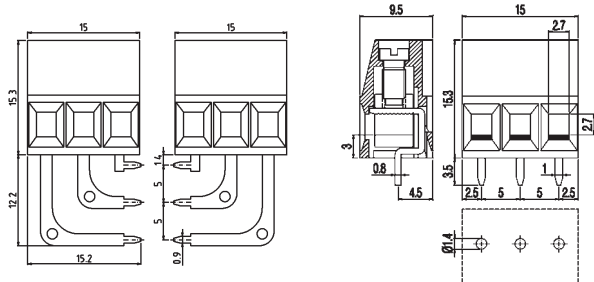
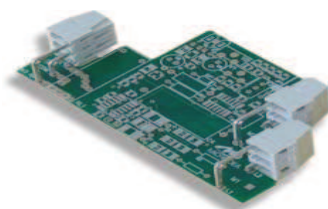


ML253-5-D-LC

ML253-5-S-LC



LIFT

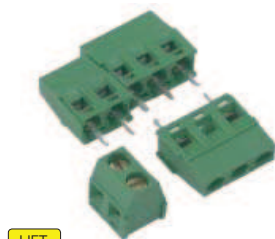


Technical Parameters	ML253-5-D(S)-LC	ML253-5-V-GY
<b>Pitch</b>	5mm	5mm
<b>Mounting Position</b>	pins right D (pins left S)	vertical
<b>Wire Section</b>	2,5mm <sup>2</sup> strand. (AWG14) 4mm <sup>2</sup> solid (AWG12)	2,5mm <sup>2</sup> strand. (AWG14) 4mm <sup>2</sup> solid (AWG12)
<b>Rated Voltage</b>	250V	250V
<b>Rated Current</b>	16A	16A
<b>Stripping Length</b>	7,6mm	7,6mm
<b>Modular</b>	-	-
<b>Lift System</b>	yes	yes
<b>Working Temperature</b>	125°C	125°C
<b>Colour</b>	grey	grey

Part No.	Ord. No.
S ML253-5-D-LC-GY	51910
S ML253-5-S-LC-GY	51911
S ML253-5-V-GY	65320

### MVS15x-5-V

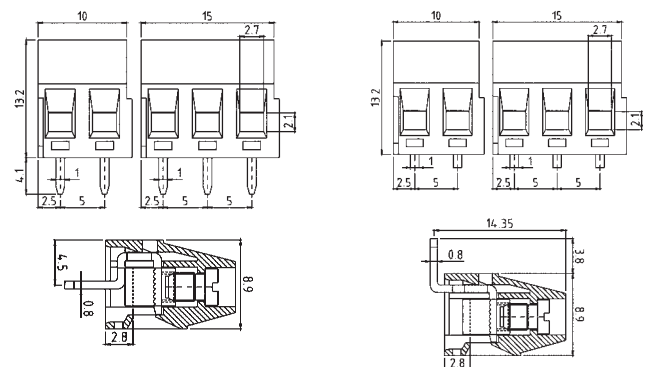
### MVS15x-5-H



LIFT



LIFT

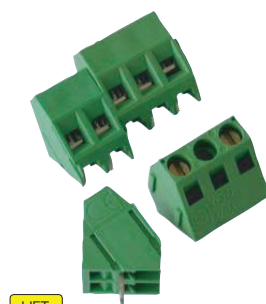


Technical Parameters	MVS15x-5-V	MVS15x-5-H
<b>Pitch</b>	5mm	5mm
<b>Mounting Position</b>	vertical	horizontal
<b>Wire Section</b>	1,5mm <sup>2</sup> strand. (AWG16) 2,5mm <sup>2</sup> solid (AWG14)	1,5mm <sup>2</sup> strand. (AWG16) 1,5mm <sup>2</sup> solid (AWG16)
<b>Rated Voltage</b>	450V	450V
<b>Rated Current</b>	17,5A	17,5A
<b>Stripping Length</b>	6,9mm	6,9mm
<b>Modular</b>	yes	yes
<b>Lift System</b>	yes	yes
<b>Working Temperature</b>	125°C	125°C
<b>Colour</b>	green	green

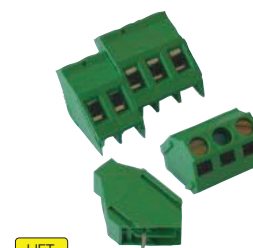
Part No.	Ord. No.
O MVS152-5-H	51445
O MVS153-5-H	51446
S MVS152-5-V	51217
S MVS153-5-V	51218

### MVS15x-5-IT

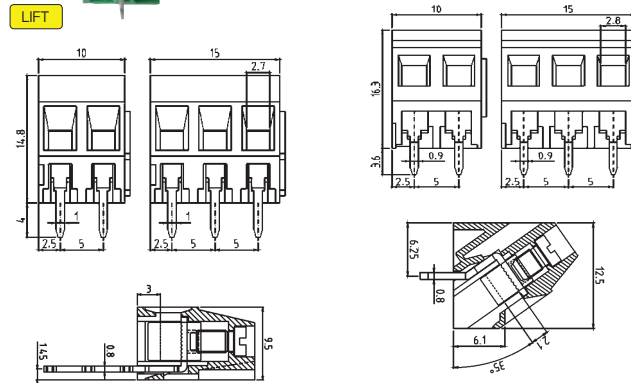
### MI25x-5-IQ



LIFT



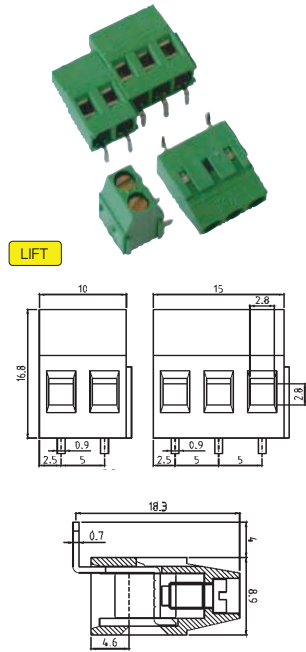
LIFT



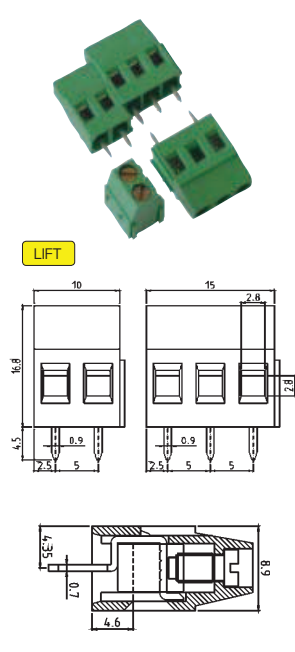
Technical Parameters	MVS15x-5-IT	MI25x-5-IQ
<b>Pitch</b>	5mm	5mm
<b>Mounting Position</b>	angular 35°	angular 45°
<b>Wire Section</b>	1,5mm <sup>2</sup> strand. (AWG16) 2,5mm <sup>2</sup> solid (AWG14)	2,5mm <sup>2</sup> strand. (AWG16) 4mm <sup>2</sup> solid (AWG12)
<b>Rated Voltage</b>	450V	450V
<b>Rated Current</b>	17,5A	16A
<b>Stripping Length</b>	6,9mm	8,3mm
<b>Modular</b>	yes	-
<b>Lift System</b>	yes	yes
<b>Working Temperature</b>	125°C	125°C
<b>Colour</b>	grey	green

Part No.	Ord. No.
S MVS152-5-IT	50680
S MVS153-5-IT	50681
S MI252-5-IQ	51007

## MVE25x-5-H



## MVE25x-5-V

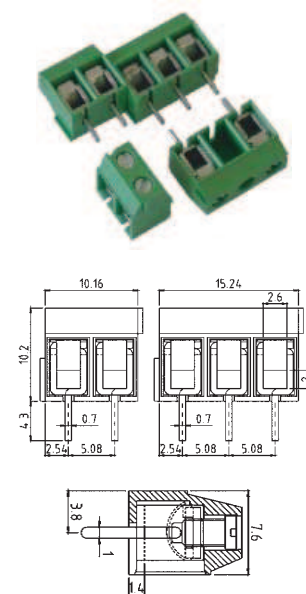


Technical Parameters	MVE25x-5-H	MVE25x-5-V
Pitch	5mm	5mm
Mounting Position	horizontal	vertical
Wire Section	2,5mm <sup>2</sup> strand. (AWG14) 4mm <sup>2</sup> solid (AWG12)	2,5mm <sup>2</sup> strand. (AWG14) 4mm <sup>2</sup> solid (AWG12)
Rated Voltage	250V	450V
Rated Current	16A	16A
Stripping Length	7,1mm	7,1mm
Modular	yes	yes
Lift System	yes	yes
Working Temperature	125°C	125°C
Colour	green	green

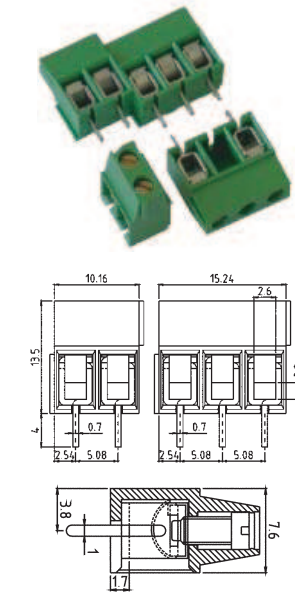
Part No.	Ord. No.
O MVE252-5-H	55127
O MVE253-5-H	55131
S MVE252-5-V	50682
S MVE253-5-V	50683

## Pitch 5,08mm

### MBES15x-5,08-V



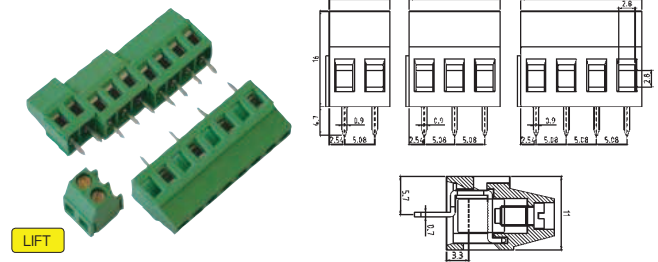
### MVES15x-5,08-V



Technical Parameters	MBES15x-5,08-V	MVES15x-5,08-V
Pitch	5,08mm	5,08mm
Mounting Position	vertical	vertical
Wire Section	1,5mm <sup>2</sup> strand. (AWG16) 2,5mm <sup>2</sup> solid (AWG14)	1,5mm <sup>2</sup> strand. (AWG16) 2,5mm <sup>2</sup> solid (AWG14)
Rated Voltage	250V	250V
Rated Current	17,5A	17,5A
Stripping Length	6,6mm	6,6mm
Modular	yes	yes
Lift System	-	-
Working Temperature	125°C	125°C
Colour	green	green

Part No.	Ord. No.
S MBES152-5,08-V	51605
S MBES153-5,08-V	51606
S MVES152-5,08-V	51607
S MVES153-5,08-V	51608

## MV25x-5,08-V



Technical Parameters	MV25x-5,08-V
Pitch	5,08mm
Mounting Position	vertical
Wire Section	2,5mm <sup>2</sup> strand. (AWG16) 4mm <sup>2</sup> solid (AWG12)
Rated Voltage	450V
Rated Current	16A
Stripping Length	8,3mm
Modular	yes
Lift System	yes
Working Temperature	125°C
Colour	green

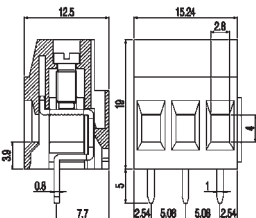
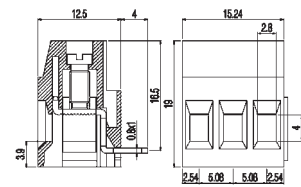
Part No.	Ord. No.
S MV252-5,08-V	51447
S MV253-5,08-V	51448
O MV254-5,08-V	53518

## Single Deck Terminal Blocks with Rising Clamp (continued)



MVSP25x-5,08-H

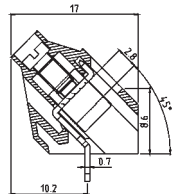
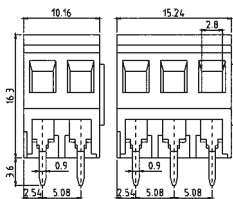
MVSP25x-5,08-V



Technical Parameters	MVSP25x-5,08-H	MVSP25x-5,08-V
Pitch	5,08mm	5,08mm
Mounting Position	horizontal	vertical
Wire Section	2,5mm <sup>2</sup> strand. (AWG16) 4mm <sup>2</sup> solid (AWG12)	2,5mm <sup>2</sup> strand. (AWG16) 4mm <sup>2</sup> solid (AWG12)
Rated Voltage	450V	450V
Rated Current	24A	24A
Stripping Length	9,5mm	9,5mm
Modular	yes	yes
Lift System	yes	yes
Working Temperature	125°C	125°C
Colour	green	green

Part No.	Ord. No.
o MVSP252-5,08-H	51603
o MVSP253-5,08-H	51604
s MVSP252-5,08-V	51601
s MVSP253-5,08-V	51602

MI25x-5,08-IQ

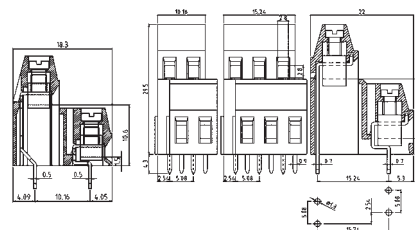
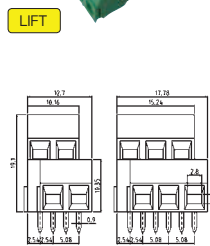
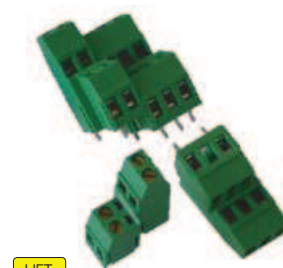
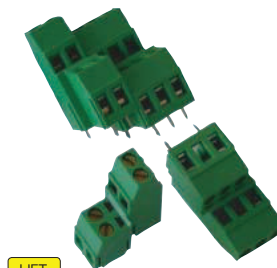


Technical Parameters	MI25x-5,08-IQ
Pitch	5,08mm
Mounting Position	angular 35°
Wire Section	2,5mm <sup>2</sup> strand. (AWG14) 4,0mm <sup>2</sup> solid (AWG12)
Rated Voltage	450V
Rated Current	16A
Stripping Length	8,3mm
Modular	yes
Lift System	yes
Working Temperature	125°C
Colour	green

Type	Ord. No.
s MI252-5,08-IQ	51451
s MI253-5,08-IQ	51452

MVD15x-5,08-V

MVD25x-5,08-V



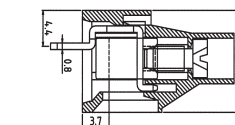
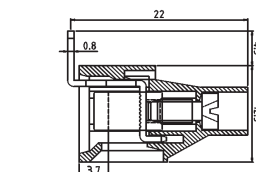
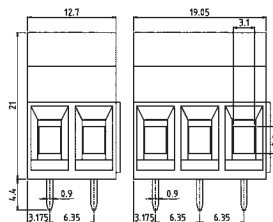
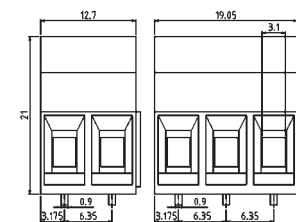
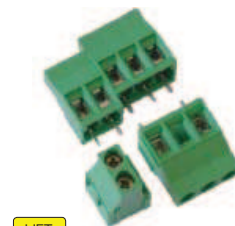
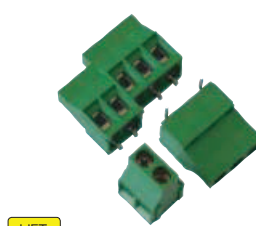
Technical Parameters	MVD15x-5,08-V	MVD25x-5,08-V
Pitch	5,08mm	5,08mm
Mounting Position	vertical, double deck	vertical, double deck
Wire Section	1,5mm <sup>2</sup> strand. (AWG16) 1,5mm <sup>2</sup> solid (AWG16)	2,5mm <sup>2</sup> strand. (AWG16) 4mm <sup>2</sup> solid (AWG12)
Rated Voltage	250V	450V
Rated Current	13,5A	16A
Stripping Length	6,7mm	8,3mm
Modular	yes	yes
Lift System	yes	yes
Working Temperature	125°C	125°C
Colour	green	green

Part No.	Ord. No.
s MVD152-5,08-V	50694
s MVD153-5,08-V	50695
s MVD252-5,08-V	51470
s MVD253-5,08-V	51471

## Pitch 6,35mm

MV46x-6,35-H

MV46x-6,35-V



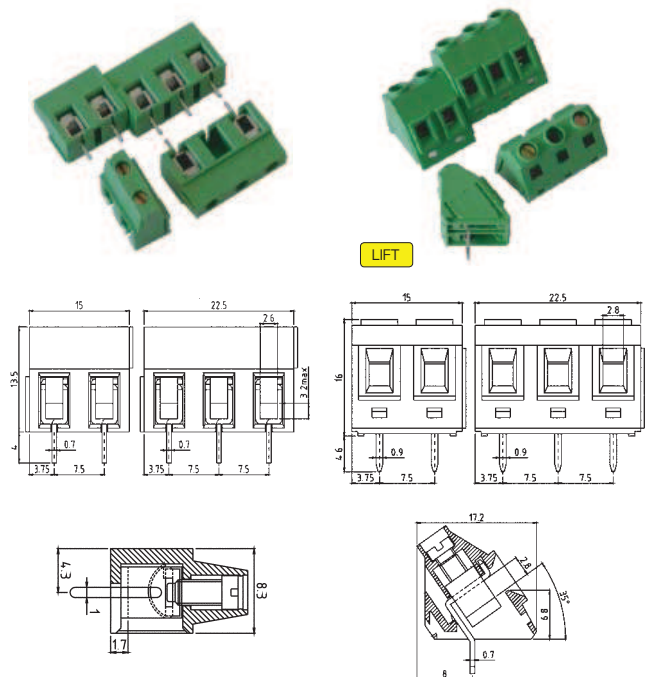
Technical Parameters	MV46x-6,35-H	MV46x-6,35-V
Pitch	6,35mm	6,35mm
Mounting Position	horizontal	vertical
Wire Section	4mm <sup>2</sup> strand. (AWG12) 6mm <sup>2</sup> solid (AWG10)	4mm <sup>2</sup> strand. (AWG12) 6mm <sup>2</sup> solid (AWG10)
Rated Voltage	450V	450V
Rated Current	25A	25A
Stripping Length	9,8mm	9,8mm
Modular	yes	yes
Lift System	yes	yes
Working Temperature	125°C	125°C
Colour	green	green

Part No.	Ord. No.
○ MV462-6,35-H	51457
○ MV463-6,35-H	51458
○ MV462-6,35-V	51455
○ MV462-6,35-V-GY	69832
○ MV463-6,35-V	51456
○ MV463-6,35-V-GY	69833

## Pitch 7,5mm

MVE17x-7,5-V

MI27x-7,5-IT

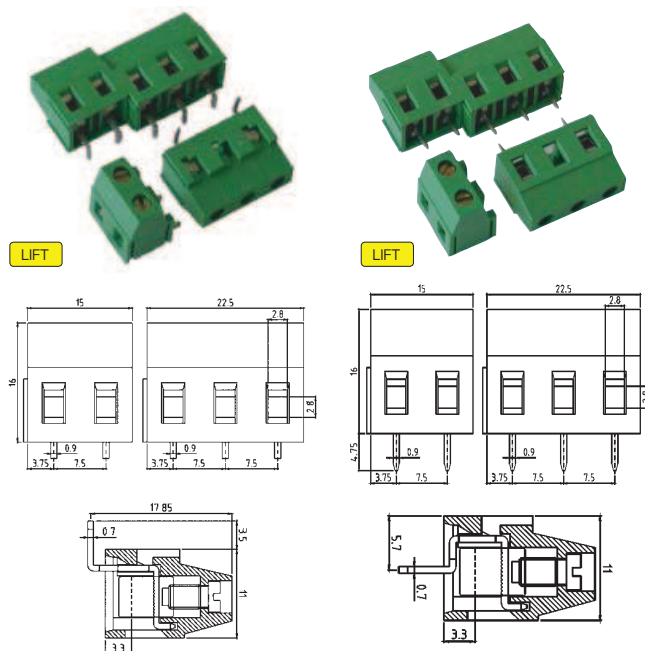


Technical Parameters	MVE17x-7,5-V	MI27x-7,5-IT
Pitch	7,5mm	7,5mm
Mounting Position	vertical	angular 35°
Wire Section	1,5mm <sup>2</sup> strand. (AWG16) 2,5mm <sup>2</sup> solid (AWG14)	2,5mm <sup>2</sup> strand. (AWG14) 4mm <sup>2</sup> solid (AWG12)
Rated Voltage	750V	750V
Rated Current	17,5A	16A
Stripping Length	6,8mm	8,3mm
Modular	yes	yes
Lift System	-	yes
Working Temperature	125°C	125°C
Colour	green	green

Part No.	Ord. No.
○ S MVE172-7,5-V	51460
○ S MVE173-7,5-V	51461
○ MI272-7,5-IT	51611
○ MI273-7,5-IT	51612

MV27x-7,5-H

MV27x-7,5-V



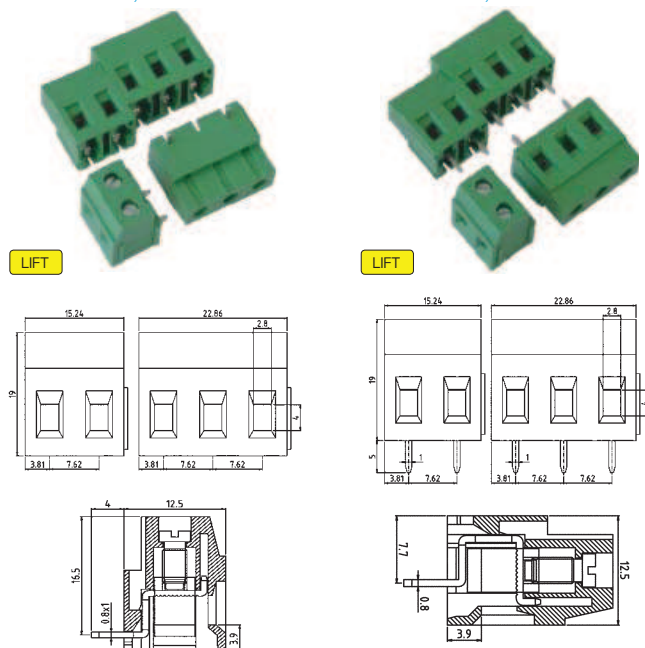
Technical Parameters	MV27x-7,5-H	MV27x-7,5-V
Pitch	7,5mm	7,5mm
Mounting Position	horizontal	vertical
Wire Section	2,5mm <sup>2</sup> strand. (AWG14) 4mm <sup>2</sup> solid (AWG12)	2,5mm <sup>2</sup> strand. (AWG14) 4mm <sup>2</sup> solid (AWG12)
Rated Voltage	750V	750V
Rated Current	16A	16A
Stripping Length	8,3mm	8,3mm
Modular	yes	yes
Lift System	yes	yes
Working Temperature	125°C	125°C
Colour	green	green

Part No.	Ord. No.
○ S MV272-7,5-H	51462
○ S MV273-7,5-H	51463
○ S MV272-7,5-V	50686
○ S MV273-7,5-V	50687

## Pitch 7,62mm

MVSP27x-7,62-H

MVSP27x-7,62-V



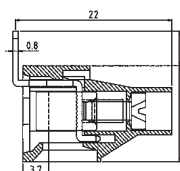
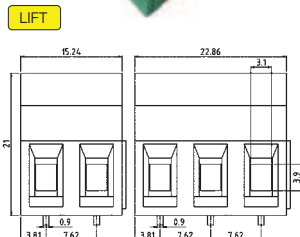
## Single Deck Terminal Blocks with Rising Clamp (continued)



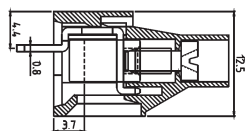
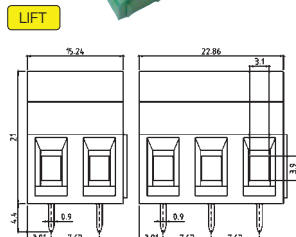
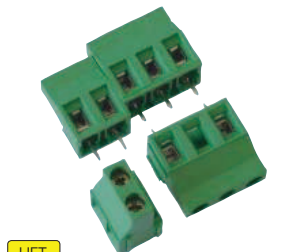
Technical Parameters	MVSP27x-7,62-H	MVSP27x-7,62-V
Pitch	7,62mm	7,62mm
Mounting Position	horizontal	vertical
Wire Section	2,5mm <sup>2</sup> strand. (AWG12) 4mm <sup>2</sup> solid (AWG10)	2,5mm <sup>2</sup> strand. (AWG12) 4mm <sup>2</sup> solid (AWG10)
Rated Voltage	750V	750V
Rated Current	24A	24A
Stripping Length	9,5mm	9,5mm
Modular	yes	yes
Lift System	yes	yes
Working Temperature	125°C	125°C
Colour	green	green

Part No.	Ord. No.
O MVSP272-7,62-H	51599
O MVSP273-7,62-H	51600
S MVSP272-7,62-V	51597
S MVSP273-7,62-V	51598

### MV47x-7,62-H



### MV47x-7,62-V

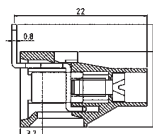
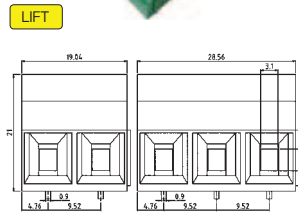


Technical Parameters	MV47x-7,62-H	MV47x-7,62-V
Pitch	7,62mm	7,62mm
Mounting Position	horizontal	vertical
Wire Section	4mm <sup>2</sup> strand. (AWG12) 6mm <sup>2</sup> solid (AWG10)	4mm <sup>2</sup> strand. (AWG12) 6mm <sup>2</sup> solid (AWG10)
Rated Voltage	750V	750V
Rated Current	25A	25A
Stripping Length	9,8mm	9,8mm
Modular	yes	yes
Lift System	yes	yes
Working Temperature	125°C	125°C
Colour	green	green

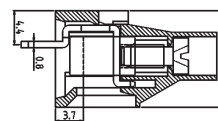
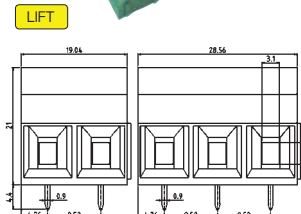
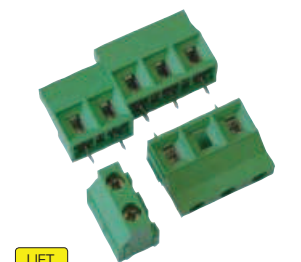
Part No.	Ord. No.
O MV472-7,62-H	51464
O MV473-7,62-H	51465
S MV472-7,62-V	50688
S MV473-7,62-V	50689

## Pitch 9,52mm

### MV49x-9,52-H



### MV49x-9,52-V

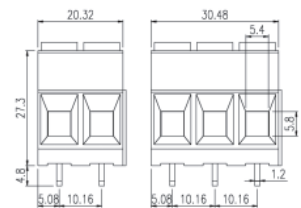
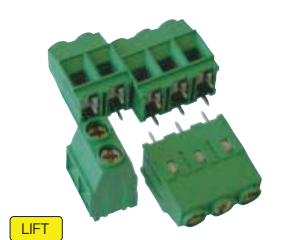


Technical Parameters	MV49x-9,52-H	MV49x-9,52-V
Pitch	9,52mm	9,52mm
Mounting Position	horizontal	vertical
Wire Section	4mm <sup>2</sup> strand. (AWG12) 6mm <sup>2</sup> solid (AWG10)	4mm <sup>2</sup> strand. (AWG12) 6mm <sup>2</sup> solid (AWG10)
Rated Voltage	750V	750V
Rated Current	25A	25A
Stripping Length	9,8mm	9,8mm
Modular	yes	yes
Lift System	yes	yes
Working Temperature	125°C	125°C
Colour	green	green

Part No.	Ord. No.
O MV492-9,52-H	51468
O MV493-9,52-H	51469
S MV492-9,52-V	51466
S MV493-9,52-V	51467

## Pitch 10,16mm

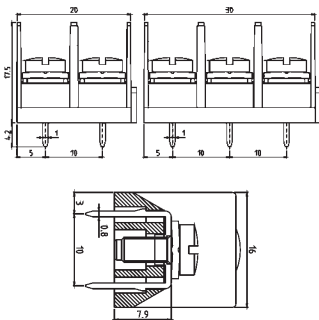
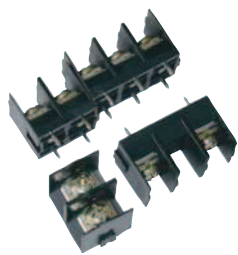
### MV10x-10,16-V



Technical Parameters	MV10x-10,16-V
Pitch	10,16mm
Mounting Position	vertical
Wire Section	10mm <sup>2</sup> strand. (AWG6) 16mm <sup>2</sup> solid (AWG6)
Rated Voltage	750V
Rated Current	57A
Stripping Length	15mm
Modular	yes
Lift System	yes
Working Temperature	125°C
Colour	green

Part No.	Ord. No.
S MV102-10,16-V	50692
S MV103-10,16-V	50693

## MT21x-10



Technical Parameters	MT21x-10
Pitch	10mm
Mounting Position	vertical under screw
Wire Section	2x2,5mm <sup>2</sup> stranded (AWG14) 4mm <sup>2</sup> solid (AWG12)
Rated Voltage	750V
Rated Current	25A
Stripping Length	11mm
Modular	yes
Working Temperature	125°C
Colour	black

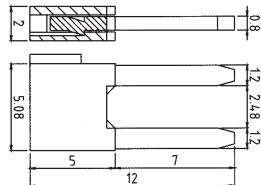
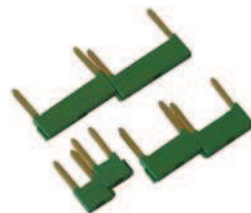
Part No.	Ord. No.
S MT212-10	50690
S MT213-10	50691

## Accessories

### PT5-5,08

Insertion Bridge

Pitch: 5,08mm  
Maximum current: 24A  
Dimensions: 5,08x12mm  
Colour: green

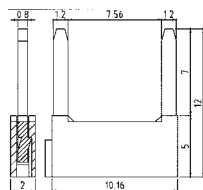
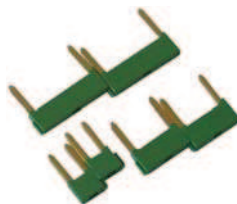


Part No.	Ord. No.
S PT5-5,08	50715

### PT10-10,16

Insertion Bridge

Pitch: 10,16mm  
Maximum current: 24A  
Dimensions: 10,16x12mm  
Colour: green

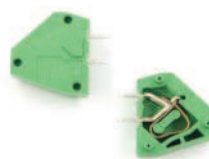


Part No.	Ord. No.
S PT10-10,16	50714

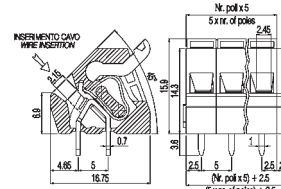
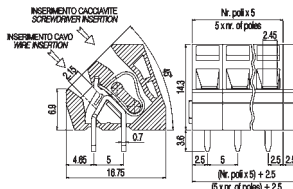
## Single Deck Terminal Blocks with Spring



### MM151-5



### MM151-5-P



Technical Parameters	MM151-5	MM151-5-P
Pitch	5 mm	5 mm
Mounting Position	angular 135°	angular 135°
Wire Section	1,5mm <sup>2</sup> strand. (AWG16) 1,5mm <sup>2</sup> solid (AWG16)	1,5mm <sup>2</sup> strand. (AWG16) 1,5mm <sup>2</sup> solid (AWG16)
Rated Voltage	250V	250V
Rated Current	16A	16A
Stripping Length	9mm	9mm
Modular	yes	yes
Working Temperature	125°C	125°C
Colour	green	green

Part No.	Ord. No.
S MM151-5	64315
S MM151-5-P	64316
S MM15-CL	64317

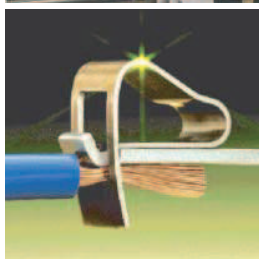
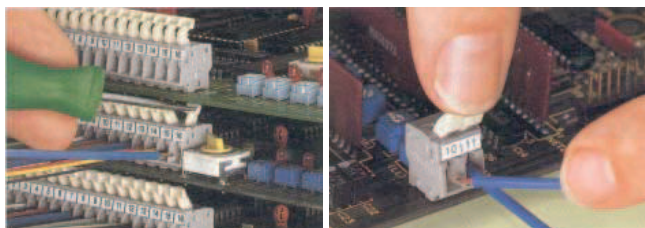
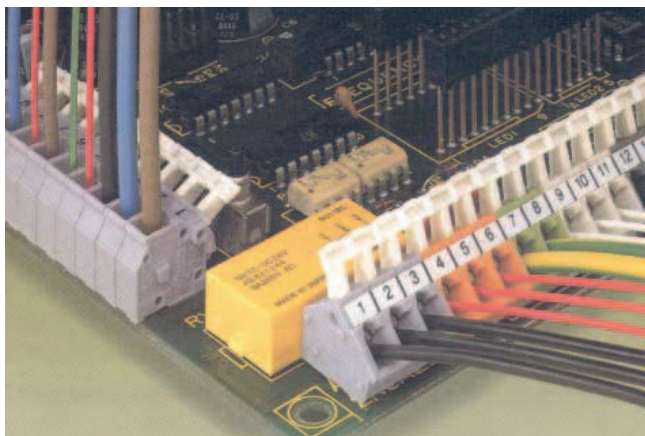
### MM15-CL

End plate for MM151



Part No.	Ord. No.
S MM15-CL	64317

## PCB Terminal Blocks with Cage Clamp

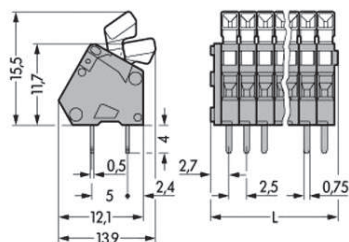


**CAGE CLAMP®**

The CAGE CLAMP® is a universal clamping system for solid, stranded and fine-stranded conductors with rated cross sections from AWG 28 to 2 (0.08 mm to 35 mm).

- **Time saving** - CAGE CLAMP® technology reduces labour charges due to significantly reduced wiring times.
- The **maintenance-free** feature results from the excellent long term consistency of the electrical and mechanical properties of the clamping connection.
- The **vibration-proof** properties of CAGE CLAMP® connections were tested and verified in a vibration test.

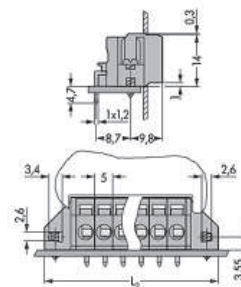
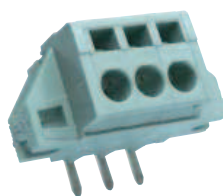
### 233-xxx



Technical Parameters	233-xxx
Pitch	2,5mm
Mounting Position	angular 45°
Wire Section	0,08-0,5mm <sup>2</sup>
Maximum Voltage	250V
Maximum Current	6A
Stripping Length	6mm
Modular	-
Maximum Temperature	105°C
Note	with lever

Part No.	Ord. No.	Poles	Package
S 233-202	41898	2	6x100 pcs
S 233-203	41899	3	4x125 pcs

### 231-xxx



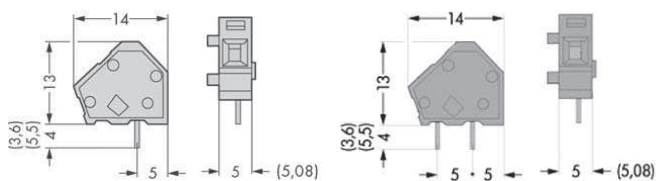
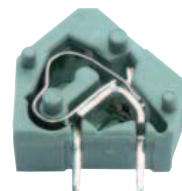
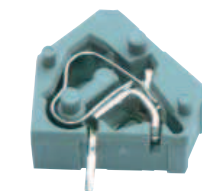
Multiconnection system

Technical Parameters	231-xxx
Pitch	5mm
Mounting Position	vertical
Wire Section	0,08-2,5mm <sup>2</sup>
Maximum Voltage	250V
Maximum Current	16A
Stripping Length	9mm
Modular	-
Maximum Temperature	105°C

Part No.	Ord. No.	Poles	Package
S 231-603/017-000	41863	3	100 pcs
S 231-604/017-000	41864	4	50 pcs

### 236-101

### 236-4xx 236-7xx



Technical Parameters	236-xxx
Pitch	5mm
Mounting Position	angular 45°
Wire Section	0,08-2,5mm <sup>2</sup>
Maximum Voltage	250V
Maximum Current	16A
Stripping Length	6mm
Modular	yes
Maximum Temperature	105°C
Suitable end-plates	236 series
Note	236-101: only 1pin/pole, others: 2pins/ pole

Part No.	Ord. No.	Colour
S 236-101	41939	grey
S 236-401	41948	grey
S 236-742	41964	dark grey
S 236-743	41965	light grey
S 236-744	41966	blue
S 236-746	41967	orange
S 236-747	41968	green

Package: 6x100 pcs.

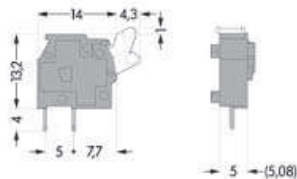


## End Plates 236-xxx



Part No.	Ord. No.	Colour
S 236-100	41938	grey
S 236-200	41942	dark grey
S 236-300	41943	light grey
S 236-400	41947	blue
S 236-600	41955	orange
S 236-700	41956	green

## 255-xxx



Technical Parameters	255-xxx
Pitch	5mm
Mounting Position	horizontal
Wire Section	0,08-2,5mm <sup>2</sup>
Maximum Voltage	250V
Maximum Current	16A
Stripping Length	6mm
Modular	yes
Maximum Temperature	105°C
Suitable End Plates	255 series
Note	with bend lever

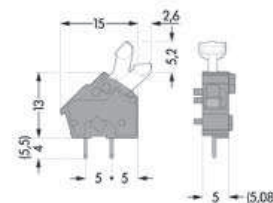
Part No.	Ord. No.	Colour
S 255-401	41997	grey
S 255-742	42003	dark grey
S 255-744	42005	blue
S 255-746	42006	orange
S 255-747	42007	green

## End plates 255-xxx



Part No.	Ord. No.	Colour
S 255-100	41993	grey
S 255-200	41994	dark grey
S 255-400	41996	blue
S 255-600	42001	orange
S 255-700	42002	green

## 256-xxx



Technical Parameters	256-xxx
Pitch	5mm
Mounting position	angular 45°
Wire Section	0,08-2,5mm <sup>2</sup>
Maximum Voltage	250V
Maximum Current	16A
Stripping Length	6mm
Modular	yes
Maximum Temperature	105°C
Suitable End Plates	256 series
Note	with straight lever

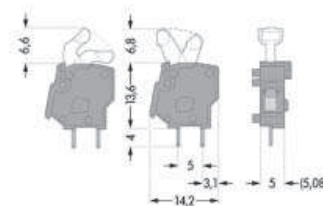
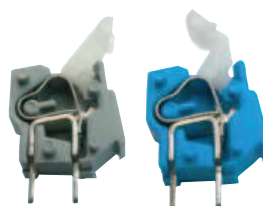
Part No.	Ord. No.	Colour
S 256-401	42010	grey
S 256-742	42019	dark grey
S 256-744	42020	blue
S 256-746	42021	orange
S 256-747	42022	green

## End Plates 256-xxx



Part No.	Ord. No.	Colour
S 256-100	42008	grey
S 256-200	48994	dark grey
S 256-400	42009	blue
S 256-600	42017	orange
S 256-700	42018	green

## 257-4xx 257-84x

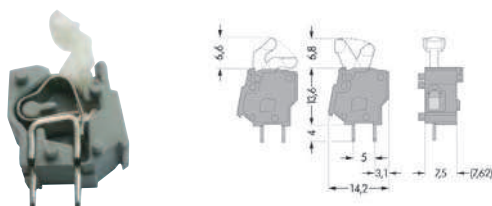


Technical Parameters	257-4xx 257-84x
Pitch	5mm
Mounting Position	vertical
Wire Section	0,08-2,5mm <sup>2</sup>
Maximum Voltage	250V
Maximum Current	16A
Stripping Length	6mm
Modular	yes
Maximum Temperature	105°C
Suitable end Plates	257 Series
Note	257-401: straight lever, others bend lever

Part No.	Ord. No.	Colour
S 257-401	42027	grey
S 257-451	42028	grey
S 257-844	42040	blue
S 257-846	42041	orange
S 257-847	42042	green

## PCB Terminal Blocks with Cage Clamp (continued)

257-55x  
257-85x



Technical Parameters		257-55x 257-85x
Pitch		7.5mm
Mounting Position		vertical
Wire Section		0,08-2,5mm <sup>2</sup>
Maximum Voltage		400V
Maximum Current		16A
Stripping Length		6mm
Modular		yes
Maximum Temperature		105°C
Suitable End Plates		257 series
Note		with bend lever

Part No.	Ord. No.	Colour
S 257-551	42031	grey
S 257-854	42043	blue
S 257-857	42045	green

### End Plates 257-xxx

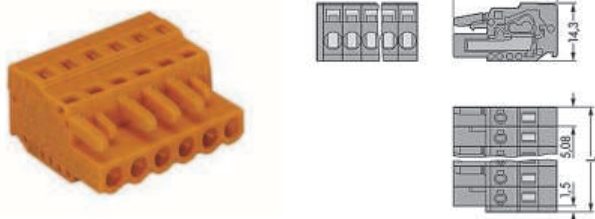


Part No.	Ord. No.	Colour
S 257-100	42025	grey
S 257-400	42026	blue
S 257-600	42034	orange
S 257-700	42035	green

## Multi Connection System



### 231-30x/026-000

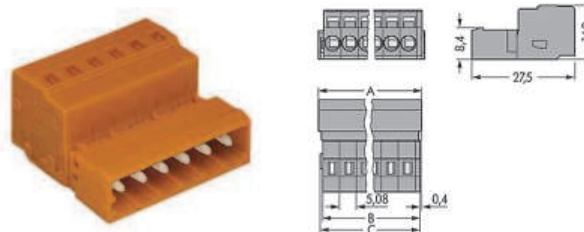


Technical Parameters		231-30x/026-000
Pitch		5,08mm
Wire Section		0,08-2,5mm <sup>2</sup>
Maximum Voltage		250V

Maximum Current	16A
Stripping Length	8mm
Modular	yes
Maximum Temperature	105°C

Part No.	Ord. No.	Colour	Package
o 231-302/026-000	41819	2-poles	200 pcs
o 231-303/026-000	41820	3-poles	100 pcs
o 231-304/026-000	41821	4-poles	100 pcs
o 231-305/026-000	41822	5-poles	100 pcs
o 231-308/026-000	41825	8-poles	50 pcs
o 231-312/026-000	60249	12-poles	25 pcs
o 231-316/026-000	41830	16-poles	25 pcs

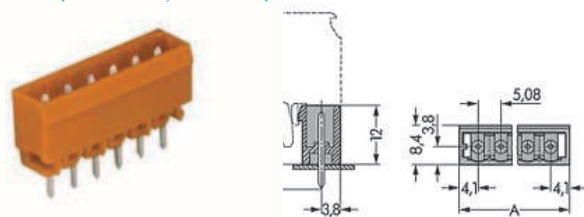
### 231-63x



Technical Parameters		231-63x
Pitch		5,08mm
Wire Section		0,08-2,5mm <sup>2</sup>
Maximum Voltage		250V
Maximum Current		12A
Stripping Length		8mm
Modular		yes
Maximum Temperature		105°C

Part No.	Ord. No.	Description	Package
o 231-632	70131	2-poles	200 pcs
o 231-633	41867	3-poles	100 pcs
o 231-634	41868	4-poles	100 pcs
o 231-635	70132	5-poles	50 pcs
o 231-638	44529	8-poles	50 pcs
o 231-642	70133	12-poles	25 pcs
o 231-646	44531	16-poles	25 pcs

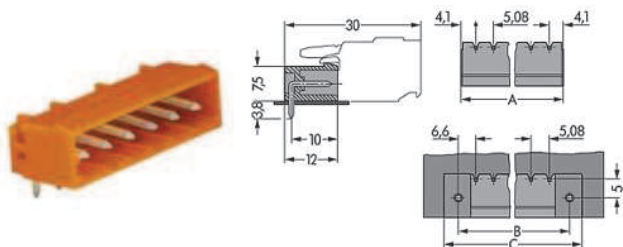
### 231-33x/001-000, 231-34x/001-000



Technical Parameters		231-33x/001-000, 231-34x/001-000	
Pitch		5,08mm	
Mounting Position		straight	
Maximum Voltage		250V	
Maximum Current		12A	
Maximum Temperature		105°C	

Part No.	Ord. No.	Descr.	Package
o 231-332/001-000	41832	2-poles	200 pcs
o 231-333/001-000	70129	3-poles	200 pcs
o 231-334/001-000	41835	4-poles	200 pcs
o 231-335/001-000	41836	5-poles	200 pcs
o 231-338/001-000	41840	8-poles	100 pcs
o 231-342/001-000	70130	12-poles	100 pcs
o 231-346/001-000	41843	16-poles	50 pcs

## 231-53x/001-000, 231-54x/001-000

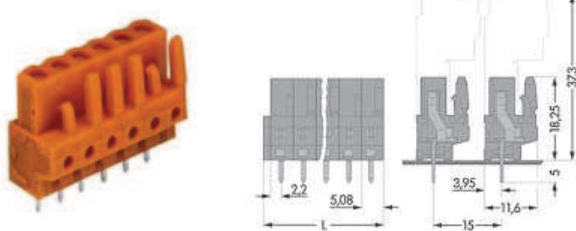


### Technical Parameters 231-53x/001-000, 231-54x/001-000

Pitch	5,08mm
Mounting Position	right angle
Maximum Voltage	250V
Maximum Current	12A
Maximum Temperature	105°C

Part No.	Ord. No.	Descr.	Package
○ 231-532/001-000	41853	2-poles	200 pcs
○ 231-533/001-000	41854	3-poles	200 pcs
○ 231-534/001-000	41855	4-poles	200 pcs
○ 231-535/001-000	41856	5-poles	200 pcs
○ 231-538/001-000	41858	8-poles	100 pcs
○ 231-542/001-000	41861	12-poles	100 pcs
○ 231-546/001-000	41862	16-poles	50 pcs

## 232-16x

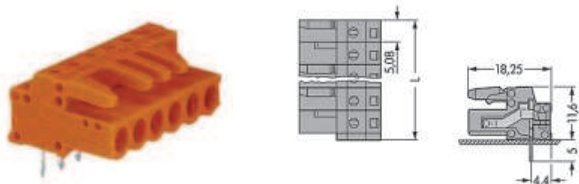


### Technical Parameters 232-16x

Pitch	5,08mm
Mounting Position	straight
Maximum Voltage	250V
Maximum Current	6A
Maximum Temperature	-60°C + 85°C

Part No.	Ord. No.	Description	Package
○ 232-162	70135	2-poles	200 pcs
○ 232-163	41883	3-poles	100 pcs

## 232-26x



Minimum order: 1 package.

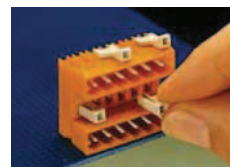
### Technical Parameters 232-26x

Pitch	5,08mm
Mounting Position	right angle
Maximum Voltage	250V
Maximum Current	6A
Maximum Temperature	-60°C + 85°C

Part No.	Ord. No.	Description	Package
○ 232-262	41887	2-poles	200 pcs
○ 232-263	70134	3-poles	100 pcs

## 231-129

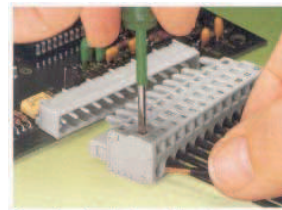
Coding key, snap-on type



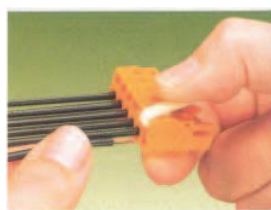
Part No.	Ord. No.	Package
S 231-129	41805	200 pcs



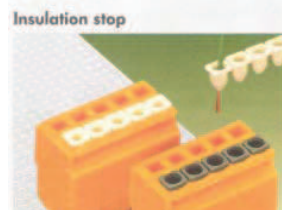
Connection of conductors - front-entry



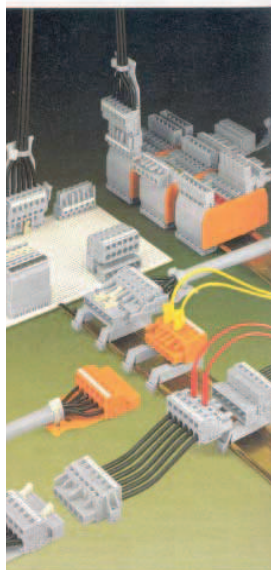
Connection of conductors - side-entry



Connection of conductors - side-entry wiring with snap-on lever. Item No. 231-131



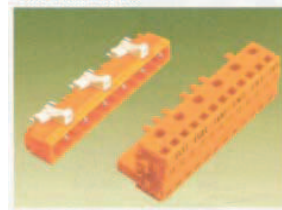
Insulation stop



Testing

Testing with test plug 2 mm/0.079 in Ø or 2.3 mm/0.091 in Ø

Pin spacings 10 mm/0.394 in and 10.16 mm/0.4 in



Here shown with 10.16 mm/0.4 in spacing, contact factory

Coding



Coding of a header - fitting of coding key(s)

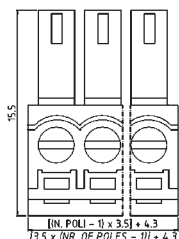
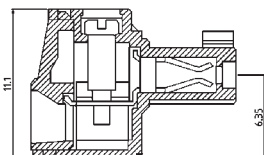
## Plug-in Connectors



SHxx-3,5



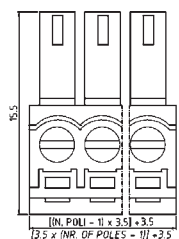
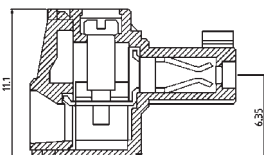
LIFT



SHxx-3,5-M



LIFT stackable side-by-side



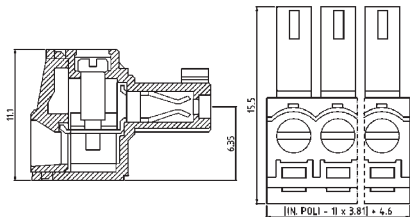
Technical Parameters	SHxx-3,5	SHxx-3,5-M
Pitch	3,5mm	3,5mm
Mounting Position	horizontal	horizontal
Wire Section	1,0mm <sup>2</sup> stranded 1,5mm <sup>2</sup> solid	1,0mm <sup>2</sup> stranded 1,5mm <sup>2</sup> solid
Hole	1,6x2,4mm	1,6x2,4mm
Rated Voltage	130V	130V
Rated Current	8A	8A
Stripping Length	7mm	7mm
Lift System	yes	yes
Working Temperature	-40°C to +130°C	-40°C to +130°C
Colour	green	green
Suitable for	PHxx-3,5-P PVxx-3,5-P	PHxx-3,5-P PVxx-3,5-P
Note	wide, not suitable to blocks	-

Part No.	Ord. No.	Description
S SH04-3,5	51475	4-poles
S SH05-3,5	51476	5-poles
S SH06-3,5	51477	6-poles
O SH09-3,5	51479	9-poles
S SH12-3,5	51481	12-poles
S SH16-3,5	51482	16-poles
S SH02-3,5-M	51473	2-poles
S SH03-3,5-M	51474	3-poles
S SH08-3,5-M	51478	8-poles
S SH10-3,5-M	51480	10-poles

SHxx-3,81



LIFT



Technical Parameters	SHxx-3,81
Pitch	3,81mm

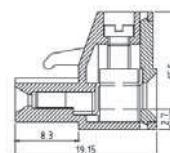
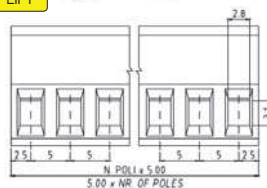
Mounting Position	horizontal
Wire Section	1,0mm <sup>2</sup> stranded 1,5mm <sup>2</sup> solid
Hole	1,6x2,4mm
Rated Voltage	130V
Rated Current	8A
Stripping Length	7mm
Lift System	yes
Working Temperature	-40°C to +130°C
Colour	green
Suitable for	PHxx-3,81-P, PVxx-3,81-P

Part No.	Ord. No.	Description
S SH02-3,81	50699	2-poles
S SH03-3,81	50700	3-poles
S SH04-3,81	51483	4-poles
S SH05-3,81	51484	5-poles
S SH06-3,81	51485	6-poles
S SH08-3,81	51486	8-poles
S SH09-3,81	51487	9-poles
S SH10-3,81	51488	10-poles
O SH12-3,81	51489	12-poles

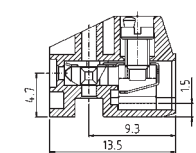
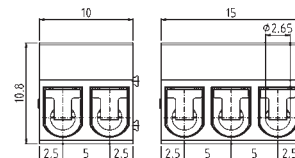
SHxx-5



LIFT



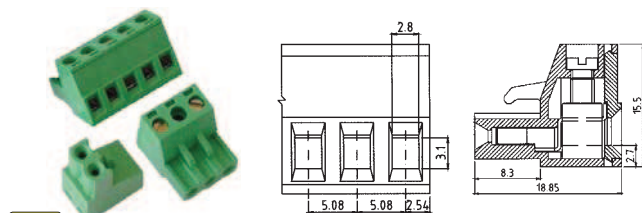
SHSxx-5



Technical Parameters	SHxx-5	SHSxx-5
Pitch	5mm	5mm
Mounting Position	horizontal	horizontal/vertical
Wire Section	2,5mm <sup>2</sup> stranded 4,0mm <sup>2</sup> solid	1,5mm <sup>2</sup> stranded 1,5mm <sup>2</sup> solid
Hole	2,8x3,1mm	f2mm
Rated Voltage	450V	250V
Rated Current	16A	10A
Stripping Length	7,5mm	6,2mm
Lift System	yes	-
Working Temperature	+125°C	+125°C
Colour	green	black
Suitable for	PHxx-5-P PVxx-5-P	PVSxx-5

Part No.	Ord. No.	Description
S SH02-5	51493	2-poles
O SH03-5	51494	3-poles
O SH04-5	51495	4-poles
O SH05-5	51496	5-poles
S SH06-5	51497	6-poles
O SH08-5	51498	8-poles
O SH09-5	51499	9-poles
O SH10-5	51500	10-poles
S SHS02-5	51292	2-poles
S SHS03-5	51293	3-poles

## SHxx-5,08



LIFT

Technical Parameters		SHxx-5,08
Pitch		5,08mm
Mounting Position		horizontal
Wire Section		2,5mm <sup>2</sup> stranded 4mm <sup>2</sup> solid
Hole		2,8x3,1mm
Rated Voltage		450V
Rated Current		16A
Stripping Length		7,5mm
Lift System		yes
Working Temperature		+125°C
Colour		green
Suitable for		PHxx-5,08 / PHxx-5,08-P PVxx-5,08 / PVxx-5,08-P

Part No.	Ord. No.	Description
S SH02-5,08	50705	2-poles
S SH03-5,08	50706	3-poles
S SH04-5,08	51502	4-poles
S SH05-5,08	51503	5-poles
S SH06-5,08	51324	6-poles
O SH07-5,08	53362	7-poles
S SH08-5,08	51504	8-poles
S SH10-5,08	51506	10-poles
S SH12-5,08	51507	12-poles

## SVxx-5,08-F

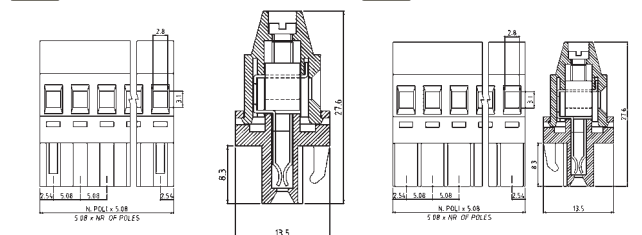


LIFT

## SVxx-5,08-P



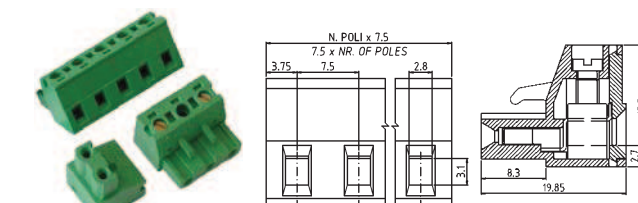
LIFT



Technical Parameters		SVxx-5,08-F	SVxx-5,08-P
Pitch		5,08mm	5,08mm
Mounting Position		vertical, front	vertical, rear
Wire Section		2,5mm <sup>2</sup> stranded 4mm <sup>2</sup> solid	2,5mm <sup>2</sup> stranded 4mm <sup>2</sup> solid
Hole		2,8x3,1mm	2,8x3,1mm
Rated Voltage		450V	450V
Rated Current		16A	16A
Stripping Length		9,1mm	9,1mm
Lift System		yes	yes
Working Temperature		+125°C	+125°C
Colour		green	green
Suitable for		PHxx-5,08 / PHxx-5,08-P PVxx-5,08 / PVxx-5,08-P	PHxx-5,08 / PHxx-5,08-P PVxx-5,08 / PVxx-5,08-P

Part No.	Ord. No.	Description
S SV02-5,08-F	50711	2-poles
S SV03-5,08-F	50712	3-poles
S SV02-5,08-P	61247	2-poles
S SV03-5,08-P	53880	3-poles
S SV04-5,08-P	52061	4-poles
S SV08-5,08-P	52062	8-poles
S SV10-5,08-P	52063	10-poles
S SV12-5,08-P	54940	12-poles
S SV16-5,08-P	52064	16-poles
S SV24-5,08-P	52065	24-poles

## SHxx-7,5



LIFT

Technical Parameters		SHxx-7,5
Pitch		7,5mm
Mounting Position		horizontal
Wire Section		2,5mm <sup>2</sup> stranded 4,0mm <sup>2</sup> solid
Hole		2,8x3,1mm
Rated Voltage		450V
Rated Current		16A
Stripping Length		8,3mm
Lift System		yes
Working Temperature		+125°C
Colour		green
Suitable for		PHxx-7,5-P PVxx-7,5-P

Part No.	Ord. No.	Description
O SH03-7,5	53147	2-poles
O SH04-7,5	52459	3-poles

## SHxx-7,62

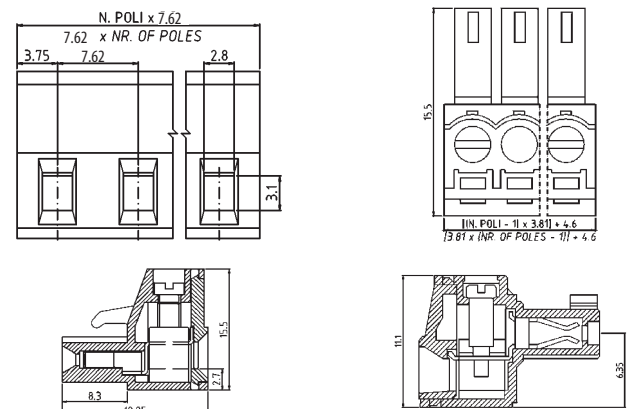


LIFT

## SHxx-7,62-S



LIFT



## Plug-in Connectors

(continued)

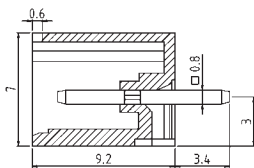
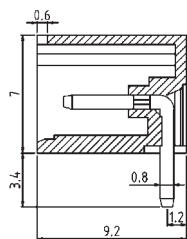
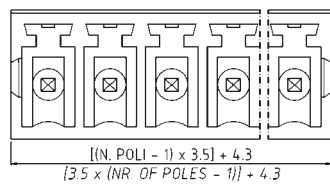
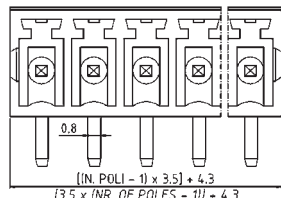
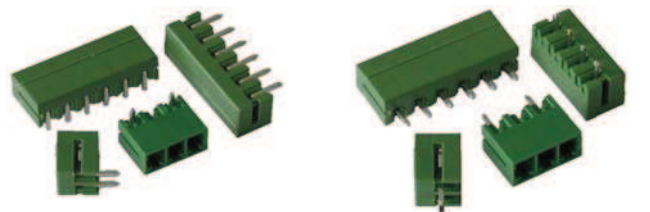


Technical Parameters	SHxx-7,62	SHxx-7,62-S
Pitch	7,62mm	7,62mm
Mounting Position	horizontal	horizontal
Wire Section	2,5mm <sup>2</sup> stranded 4,0mm <sup>2</sup> solid	1,0mm <sup>2</sup> stranded 1,5mm <sup>2</sup> solid
Hole	2,4x3,3mm	1,6x2,4mm
Rated Voltage	750V	130V
Rated Current	16A	8A
Stripping Length	8,3mm	7mm
Lift System	yes	yes
Working Temperature	+125°C	-40°C / +130°C
Colour	green	green
Suitable for	PHxx-7,62-P PVxx-7,62-P	PHxx-7,62-P-S / PHxx-3,81 PVxx-7,62-P-S / PVxx-3,81

Part No.	Ord. No.	Description
S SH02-7,62	53877	2-poles
O SH02-7,62-S	53387	2-poles
O SH04-7,62	53878	4-poles
O SH04-7,62-S	53388	4-poles
O SH10-7,62	53879	10-poles
S SH10-7,62-S	53020	10-poles

### PVxx-3,5-H-P

### PVxx-3,5-V-P



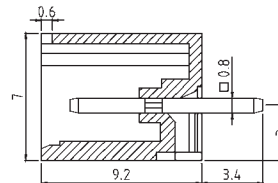
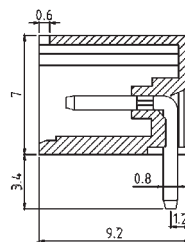
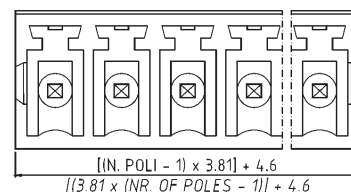
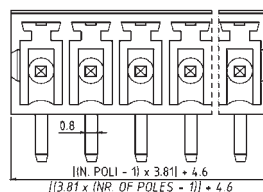
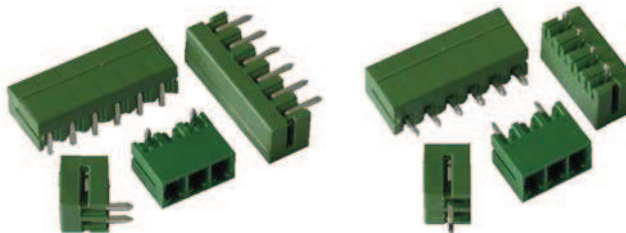
Technical Parameters	PVxx-3,5-H-P	PVxx-3,5-V-P
Pitch	3,5mm	3,5mm
Mounting Position	horizontal with closed end	vertical with closed end
Rated Voltage	130V	130V
Rated Current	8A	8A
Working Temperature	-40°C to +130°C	-40°C to +130°C
Colour	green	green
Suitable for	SHxx-3,5	SHxx-3,5

Part No.	Ord. No.	Description
S PV02-3,5-H-P	51583	2-poles
S PV03-3,5-H-P	51584	3-poles
S PV04-3,5-H-P	51585	4-poles
S PV05-3,5-H-P	51586	5-poles
S PV06-3,5-H-P	51587	6-poles
S PV08-3,5-H-P	51588	8-poles
Part No.	Ord. No.	Description

S PV09-3,5-H-P	51589	9-poles
O PV10-3,5-H-P	51590	10-poles
S PV16-3,5-H-P	51592	16-poles
S PV02-3,5-V-P	51573	2-poles
S PV03-3,5-V-P	51574	3-poles
S PV04-3,5-V-P	51575	4-poles
S PV05-3,5-V-P	51576	5-poles
S PV06-3,5-V-P	51577	6-poles
S PV08-3,5-V-P	51578	8-poles
O PV09-3,5-V-P	51579	9-poles
S PV10-3,5-V-P	51580	10-poles

### PVxx-3,81-H-P

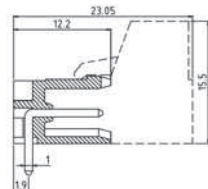
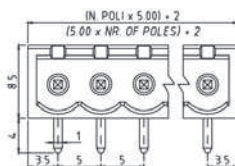
### PVxx-3,81-V-P



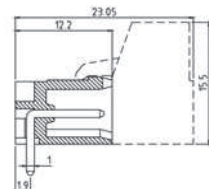
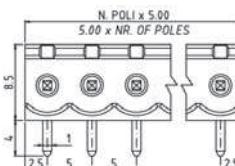
Technical Parameters	PVxx-3,81-H-P	PVxx-3,81-V-P
Pitch	3,81mm	3,81mm
Mounting Position	horizontal with closed end	vertical with closed end
Rated Voltage	130V	130V
Rated Current	8A	8A
Working Temperature	-40°C to +130°C	-40°C to +130°C
Colour	green	green
Suitable for	SHxx-3,81	SHxx-3,81

Part No.	Ord. No.	Description
S PV02-3,81-H-P	50703	2-poles
S PV03-3,81-H-P	50704	3-poles
S PV05-3,81-H-P	51524	5-poles
S PV06-3,81-H-P	51525	6-poles
S PV08-3,81-H-P	51526	8-poles
S PV09-3,81-H-P	51527	9-poles
S PV10-3,81-H-P	51528	10-poles
S PV12-3,81-H-P	51529	12-poles
S PV02-3,81-V-P	50701	2-poles
S PV03-3,81-V-P	50702	3-poles
S PV04-3,81-V-P	51516	4-poles
S PV05-3,81-V-P	51517	5-poles
S PV06-3,81-V-P	51518	6-poles
S PV08-3,81-V-P	51519	8-poles
O PV09-3,81-V-P	51520	9-poles
O PV10-3,81-V-P	51521	10-poles
S PV12-3,81-V-P	51522	12-poles

## PHxx-5



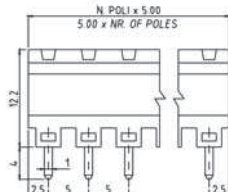
## PHxx-5-P



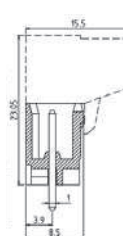
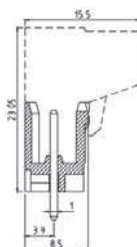
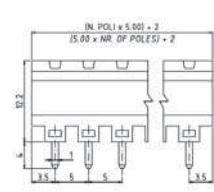
Technical Parameters	PHxx-5	PHxx-5-P
Pitch	5mm	5mm
Mounting Position	horizontal	horizontal with closed end
Rated Voltage	450V	450V
Rated Current	16A	16A
Working Temperature	125°C	125°C
Colour	green	green
Suitable for	SHxx-5	SHxx-5

Part No.	Ord. No.	Description
S PH02-5	51548	2-poles
O PH03-5	51549	3-poles
S PH04-5	51552	4-poles
O PH05-5	51553	5-poles
S PH02-5-P	51564	2-poles
O PH03-5-P	51565	3-poles
O PH04-5-P	51566	4-poles
O PH05-5-P	51567	5-poles
O PH06-5-P	51568	6-poles
O PH08-5-P	51569	8-poles
O PH09-5-P	51570	9-poles
O PH10-5-P	51571	10-poles
O PH12-5-P	51572	12-poles

## PVxx-5



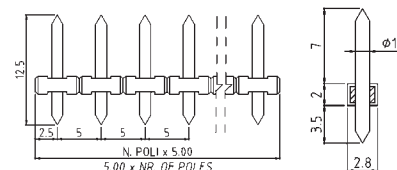
## PVxx-5-P



Technical Parameters	PVxx-5	PVxx-5-P
Pitch	5mm	5mm
Mounting Position	vertical	vertical with closed end
Rated Voltage	450V	450V
Rated Current	16A	16A
Working Temperature	125°C	125°C
Colour	green	green
Suitable for	SHxx-5	SHxx-5

Part No.	Ord. No.	Description
O PV02-5	51547	2-poles
O PV03-5	51550	3-poles
O PV04-5	51551	4-poles
O PV05-5	51554	5-poles
O PV02-5-P	51555	2-poles
O PV04-5-P	51557	4-poles
O PV03-5-P	51556	3-poles
O PV05-5-P	51558	5-poles
O PV06-5-P	51559	6-poles
O PV09-5-P	51561	9-poles
O PV10-5-P	51562	10-poles

## PVSxx-5



Tin plated copper alloy

Technical Parameters	PVSxx-5
Pitch	5mm
Mounting Position	vertical
Rated Voltage	250V
Rated Current	10A
Working Temperature	125°C
Colour	black
Suitable for	SHSxx-5

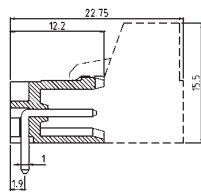
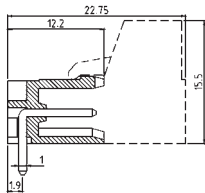
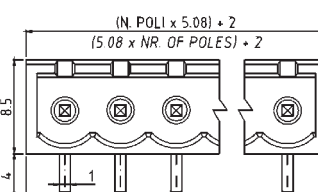
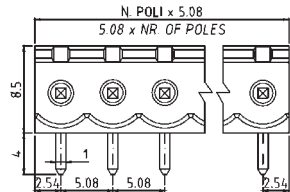
Part No.	Ord. No.	Description
S PVS02-5	51296	2-poles
S PVS03-5	51297	3-poles
S PVS04-5	51298	4-poles
S PVS06-5	56525	6-poles
S PVS08-5	51299	8-poles
S PVS09-5	51300	9-poles
S PVS14-5	51301	14-poles
S PVS24-5	51472	24-poles

## Plug-in Connectors

(continued)

PHxx-5,08

PHxx-5,08-P

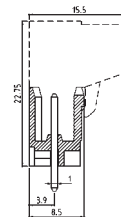
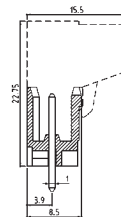
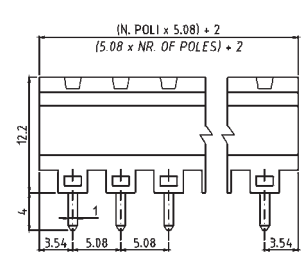
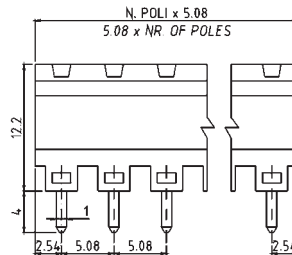


Technical Parameters	PHxx-5,08	PHxx-5,08-P
<b>Pitch</b>	5,08mm	5,08mm
<b>Mounting Position</b>	horizontal	horizontal with closed end
<b>Rated Voltage</b>	450V	450V
<b>Rated Current</b>	16A	16A
<b>Working Temperature</b>	+125°C	+125°C
<b>Colour</b>	green	green
<b>Suitable for</b>	SHxx-5,08 SVxx-5,08-F	SHxx-5,08 SVxx-5,08-F

Part No.	Ord. No.	Description
S PH02-5,08	50709	2-poles
S PH03-5,08	50710	3-poles
O PH04-5,08	51513	4-poles
S PH05-5,08	51515	5-poles
O PH06-5,08	52293	6-poles
S PH08-5,08	53125	8-poles
S PH10-5,08	53381	10-poles
S PH12-5,08	53382	12-poles
S PH02-5,08-P	51533	2-poles
S PH03-5,08-P	51534	3-poles
S PH04-5,08-P	51535	4-poles
S PH05-5,08-P	51536	5-poles
S PH06-5,08-P	51326	6-poles
S PH08-5,08-P	51537	8-poles
O PH09-5,08-P	51327	9-poles
S PH10-5,08-P	51538	10-poles
S PH12-5,08-P	51539	12-poles
O PH18-5,08-P	55459	18-poles
O PH22-5,08-P	55607	22-poles
O PH24-5,08-P	70142	24-poles

PVxx-5,08

PVxx-5,08-P

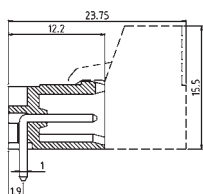
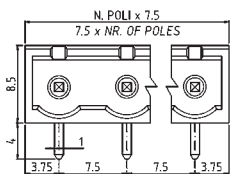


Technical Parameters	PVxx-5,08	PVxx-5,08-P
<b>Pitch</b>	5,08mm	5,08mm
<b>Mounting Position</b>	vertical	vertical with closed end
<b>Rated Voltage</b>	450V	450V
<b>Rated Current</b>	16A	16A
<b>Working Temperature</b>	+125°C	+125°C
<b>Colour</b>	green	green
<b>Suitable for</b>	SHxx-5,08 SVxx-5,08-F	SHxx-5,08 SVxx-5,08-F

Part No.	Ord. No.	Description
S PV02-5,08	50707	2-poles
S PV03-5,08	50708	3-poles
S PV04-5,08	51511	4-poles
O PV05-5,08	51512	5-poles
S PV08-5,08	53022	8-poles
O PV06-5,08	52822	6-poles
S PV10-5,08	54502	10-poles
S PV12-5,08	53383	12-poles
S PV02-5,08-P	51540	2-poles
S PV03-5,08-P	51541	3-poles
S PV04-5,08-P	51542	4-poles
S PV05-5,08-P	51543	5-poles
S PV06-5,08-P	51328	6-poles
S PV08-5,08-P	51544	8-poles
S PV10-5,08-P	51545	10-poles
S PV12-5,08-P	51546	12-poles
O PV16-5,08-P	52059	16-poles
O PV24-5,08-P	52060	24-poles



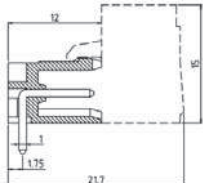
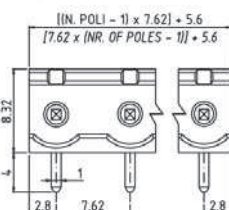
## PHxx-7,5-P



Technical Parameters	PHxx-7,5-P	PVxx-7,5
Pitch	7,5mm	7,5mm
Mounting Position	horizontal with closed end	vertical
Rated Voltage	750V	750V
Rated Current	16A	16A
Maximum Temperature	+125°C	+125°C
Colour	green	green
Suitable for	SHxx-7,5	SHxx-7,5

Part No.	Ord. No.	Description
PH03-7,5-P	53148	3-poles
PV04-7,5	52460	4-poles

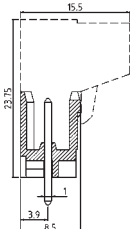
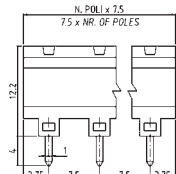
## PHxx-7,62



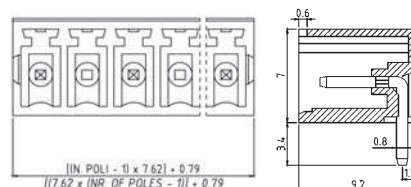
Technical Parameters	PHxx-7,62	PHxx-7,62-P
Pitch	7,62mm	7,62mm
Mounting Position	horizontal	horizontal with closed end
Rated Voltage	750V	750V
Rated Current	16A	16A
Maximum Temperature	125°C	125°C
Colour	green	green
Suitable for	SHxx-7,62	SHxx-7,62

Part No.	Ord. No.	Description
PH10-7,62	53884	10-poles
PH10-7,62-P	53883	10-poles

## PVxx-7,5



## PHxx-7,62-P-S

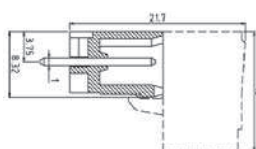
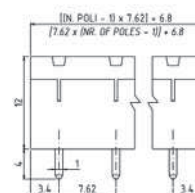


Technical Parameters	PHxx-7,62-P-S
Pitch	7,62mm
Mounting Position	horizontal with closed end
Rated Voltage	130V
Rated Current	8A
Maximum Temperature	-40°C to +130°C
Colour	green
Suitable for	SHxx-7,62

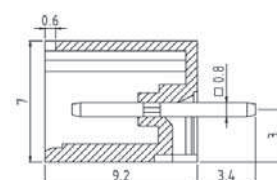
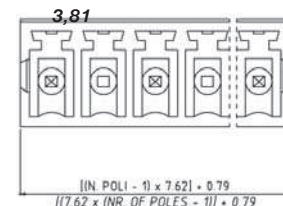
  

Part No.	Ord. No.	Description
PH10-7,62-P-S	53021	10-poles

## PVxx-7,62-P



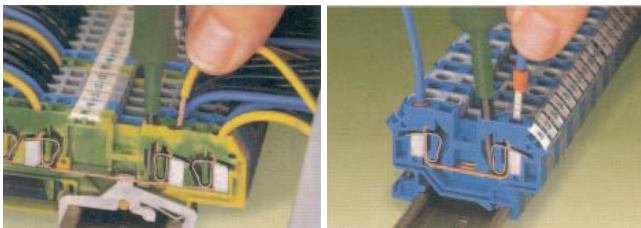
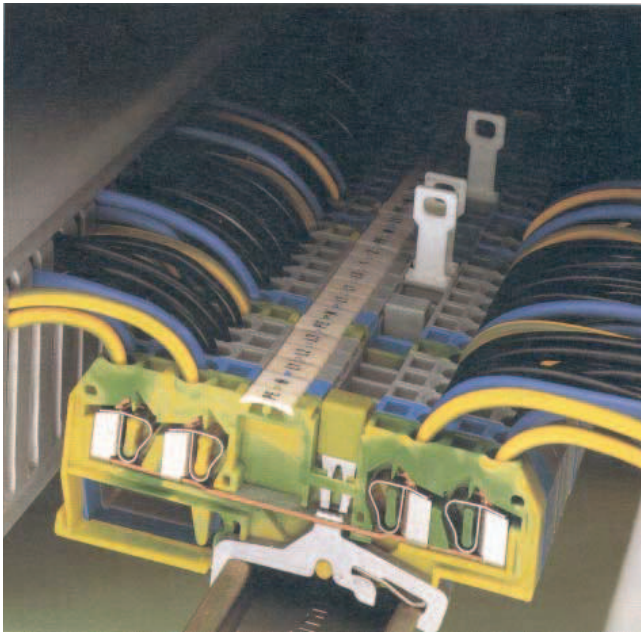
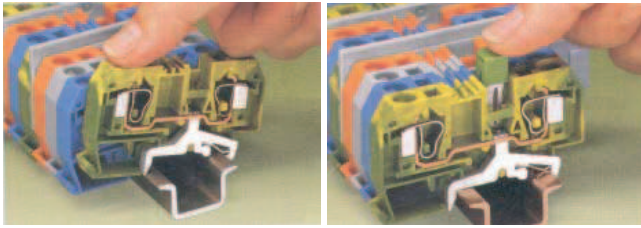
## PVxx-7,62-P-S



Technical Parameters	PVxx-7,62-P	PVxx-7,62-P-S
Pitch	7,62mm	7,62mm
Mounting Position	vertical with closed end	vertical with closed end
Rated Voltage	750V	750V
Rated Current	16A	16A
Maximum Temperature	+125°C	+125°C
Colour	green	green
Suitable for	SHxx-7,62	SHxx-7,62

Part No.	Ord. No.	Description
PV02-7,62-P	53881	2-poles
PV02-7,62-P-S	53385	2-poles
PV04-7,62-P	53882	4-poles
PV04-7,62-P-S	53386	4-poles
PV10-7,62-P-S	53384	10-poles

## Rail - Mounted Terminal Blocks with Cage Clamp®S



### Cage Clamp®S

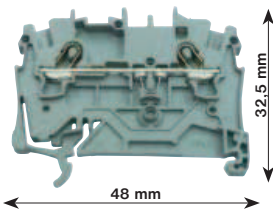


**Wire connection – Push-in connection**  
Solid wires ranging from at least two sizes below to one size above the rated cross section can be pushed in directly without tools.

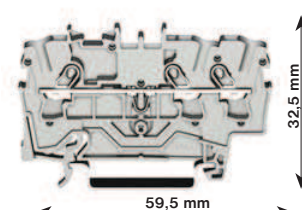
**Stranded conductors** with ferrules ranging from at least two sizes below the rated cross section up to the rated cross section can also be easily inserted without using any tools.

### Front Entry Wiring Type

#### 2001-120x



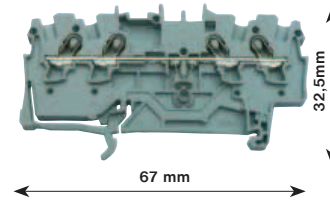
#### 2001-130x



Technical Parameters	2001-120x	2001-130x
Number of Wires	2	3
Wire Section	0,25-1,5mm <sup>2</sup>	0,25-1,5mm <sup>2</sup>
Stripping Length	11mm	11mm
Maximum Voltage	800V	800V
Maximum Current	18A	18A
Maximum Temperature	105°C	105°C
Suitable End Plate	2002-1291	2002-1391

Part No.	Ord. No.	Colour
S 2001-1201	54307	grey
O 2001-1202	54310	orange
O 2001-1204	54309	blue
O 2001-1207	54311	green-yellow
O 2001-1301	54312	grey
O 2001-1302	54314	orange
O 2001-1304	54313	blue
O 2001-1307	54315	green-yellow

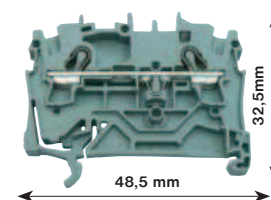
#### 2001-140x



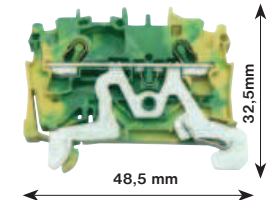
Technical Parameters	2001-1401
Number of Wires	4
Wire Section	0,25-1,5mm <sup>2</sup>
Stripping Length	11mm
Maximum Voltage	800V
Maximum Current	18A
Maximum Temperature	105°C
Suitable End Plate	2002-1491

Part No.	Ord. No.	Colour
S 2001-1401	54316	grey
O 2001-1402	54318	orange
O 2001-1404	54317	blue
O 2001-1407	54319	green-yellow

#### 2002-1201



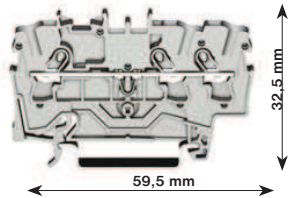
#### 2002-1207



Technical Parameters	2002-120x
Number of Wires	2
Wire Section	0,25-2,5mm <sup>2</sup>
Stripping Length	12mm
Maximum Voltage	800V
Maximum Current	24A
Maximum Temperature	105°C
Suitable End Plate	2002-1291

Part No.	Ord. No.	Colour
S 2002-1201	54320	grey
O 2002-1202	54323	orange
S 2002-1204	54321	blue
S 2002-1207	54324	green-yellow

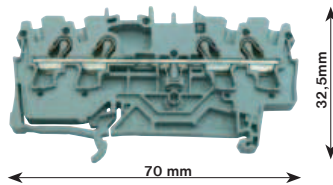
2002-130x



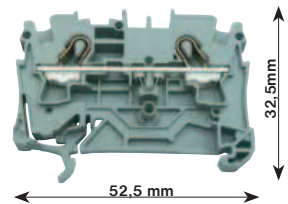
Technical Parameters	2002-13xx	2002-1401
Number of Wires	3	4
Wire Section	0,25-2,5mm <sup>2</sup>	0,25-2,5mm <sup>2</sup>
Stripping Length	12mm	12mm
Maximum Voltage	800V	800V
Maximum Current	24A	24A
Maximum Temperature	105°C	105°C
Suitable End Plate	2002-1491	2002-1491

Part No.	Ord. No.	Colour
o 2002-1301	54325	grey
o 2002-1302	54327	orange
o 2002-1304	54326	blue
o 2002-1307	54328	green-yellow
s 2002-1401	54329	grey
o 2002-1402	54331	orange
o 2002-1404	54330	blue
o 2002-1407	54332	green-yellow

2002-140x



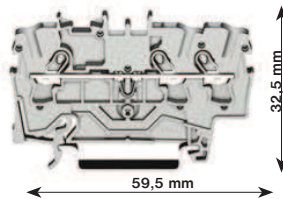
2004-120x



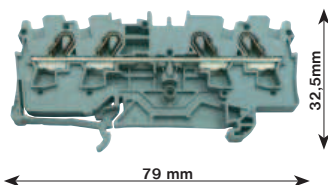
Technical Parameters	2004-120x	2004-130x
Number of Wires	2	3
Wire Section	0,5-4mm <sup>2</sup>	0,5-4mm <sup>2</sup>
Stripping Length	13mm	13mm
Maximum Voltage	800V	800V
Maximum Current	32A	32A
Maximum Temperature	105°C	105°C
Suitable End Plate	2004-1291	2004-1391

Part No.	Ord. No.	Colour
s 2004-1201	54333	grey
o 2004-1202	54335	orange
o 2004-1204	54334	blue
o 2004-1207	54336	green-yellow
o 2004-1301	54337	grey
o 2004-1302	54339	orange
o 2004-1304	54338	blue
o 2004-1307	54340	green-yellow

2004-130x



2004-140x

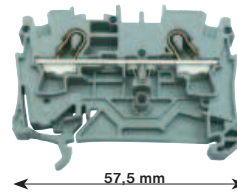


Technical Parameters

Technical Parameters	2004-1401
Number of Wires	4
Wire Section	0,5-4mm <sup>2</sup>
Stripping Length	13mm
Maximum Voltage	800V
Maximum Current	32A
Maximum Temperature	105°C
Suitable End Plate	2004-1491

Part No.	Ord. No.	Colour
s 2004-1401	54342	grey
o 2004-1402	54345	orange
o 2004-1404	54344	blue
o 2004-1407	54347	green-yellow

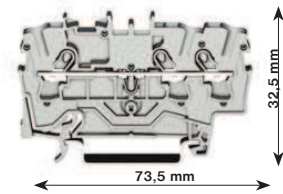
2006-120x



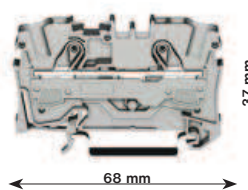
Technical Parameters	2006-120x	2006-130x
Number of Wires	2	3
Wire Section	0,5-6mm <sup>2</sup>	0,5-6mm <sup>2</sup>
Stripping Length	13mm	13mm
Maximum Voltage	800V	800V
Maximum Current	41A	41A
Maximum Temperature	105°C	105°C
Suitable End Plate	2006-1291	2006-1391

Part No.	Ord. No.	Colour
o 2006-1201	54351	grey
o 2006-1202	54353	orange
o 2006-1204	54352	blue
o 2006-1207	54354	green-yellow
o 2006-1301	54355	grey
o 2006-1302	54357	orange
o 2006-1304	54356	blue
o 2006-1307	54358	green-yellow

2006-130x



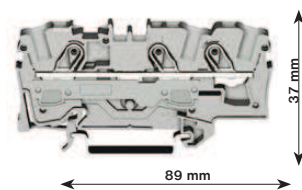
2010-120x



Technical Parameters	2010-120x	2010-130x
Number of Wires	2	3
Wire Section	0,5-10mm <sup>2</sup>	0,5-10mm <sup>2</sup>
Stripping Length	17mm	17mm
Maximum Voltage	800V	800V
Maximum Current	57A	57A
Maximum Temperature	105°C	105°C
Suitable End Plate	2010-1291	2010-1391

Part No.	Ord. No.	Colour
o 2010-1201	54360	grey
o 2010-1202	54363	orange
o 2010-1204	54362	blue
o 2010-1207	54364	green-yellow
o 2010-1301	54365	grey
o 2010-1302	54367	orange
o 2010-1304	54366	blue
o 2010-1307	54368	green-yellow

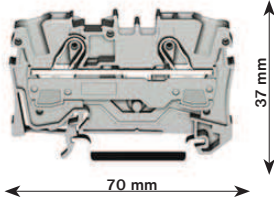
2010-130x



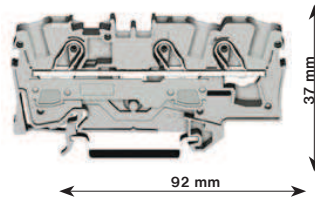
## Rail - Mounted Terminal Blocks with Cage Clamp®S (continued)



2016-120x



2016-130x



Technical Parameters	2016-120x	2016-130x
Number of Wires	2	3
Wire Section	0,5-16mm <sup>2</sup>	0,5-16mm <sup>2</sup>
Stripping Length	18mm	18mm
Maximum Voltage	800V	800V
Maximum Current	76A	76A
Maximum Temperature	105°C	105°C
Suitable End Plate	2016-1291	2016-1391

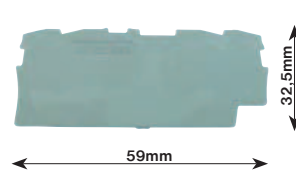
Part No.	Ord. No.	Colour
o 2016-1201	54369	grey
o 2016-1202	54371	orange
o 2016-1204	54370	blue
o 2016-1207	54372	green-yellow
o 2016-1301	54373	grey
o 2016-1302	54375	orange
o 2016-1304	54374	blue
o 2016-1307	54376	green-yellow

## End plates

2002-129x

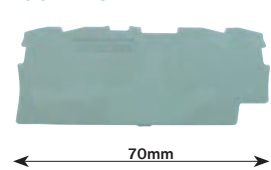


2002-139x

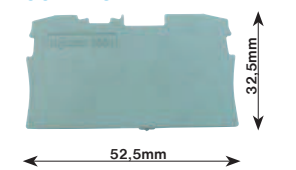


Part No.	Ord. No.	Colour
s 2002-1291	54406	grey
o 2002-1292	54308	orange
o 2002-1391	54408	grey
o 2002-1392	54407	orange

2002-149x



2004-129x

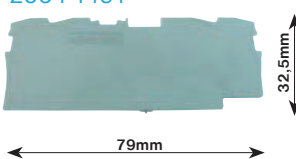


Part No.	Ord. No.	Colour
s 2002-1491	54410	grey
o 2002-1492	54409	orange
s 2004-1291	54412	grey
o 2004-1292	54411	orange

2004-139x

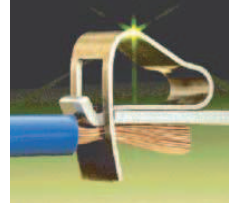


2004-1491



Part No.	Ord. No.	Colour
o 2004-1391	54414	grey
o 2004-1392	54413	orange
s 2004-1491	56436	grey

## Rail - Mounted Terminal Blocks with Cage Clamp®



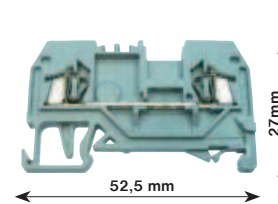
### CAGE CLAMP®

The CAGE CLAMP® is the internationally known trademark of the cage clamp spring pressure connection system. It is a universal clamping system for solid, stranded and fine-stranded conductors with rated cross sections from AWG 28 to 2 (0.08 mm, to 35 mm<sup>2</sup>).

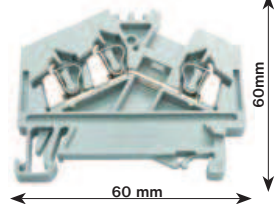
The clamping unit also consists of only two elements: the cage clamp and the current bar. These two form a self-contained contact unit, which does not transfer any load to the insulation housing. The CAGE CLAMP® is made of high-quality chrome nickel spring steel. Irrespective of the type of conductor, the CAGE CLAMP® has to be opened using a screwdriver to introduce the conductor. After the conductor has been inserted into the clamping unit and the spring been released, the conductor is clamped safely in a defined contact zone with a pre-programmed cross section-adequate clamping force. Other than with screw clamp systems, this spring clamp system rules out the possibility that a conductor is inserted into the clamping unit but not secured.

## Front-Entry Wiring Type

279-901



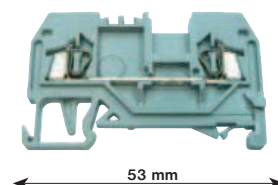
280-641



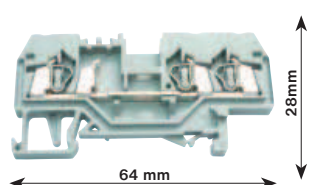
Technical Parameters	279-901	280-641
Number of Wires	2	3 (45°)
Wire Section	0,08-1,5mm <sup>2</sup>	0,08-2,5mm <sup>2</sup>
Stripping Length	9mm	9mm
Maximum Voltage	800V	800V
Maximum Current	18A	24A
Maximum Temperature	105°C	105°C
Suitable Side Cover	279-325	280-312
Suitable Adjacent Jumper	279-402	280-402
		780-452/780-453/780-454
Suitable End Plate	249-116 249-117	249-116 249-117

Part No.	Ord. No.	Colour
s 279-901	42145	grey
s 280-641	42216	grey

280-901



280-681



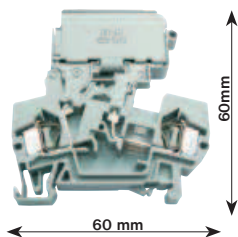
Technical Parameters	280-901	280-681
Number of Wires	2	3
Wire Section	0,08-2,5mm <sup>2</sup>	0,08-2,5mm <sup>2</sup>
Stripping Length	9mm	9mm
Maximum Voltage	800V	800V
Maximum Current	24A	24A
Maximum Temperature	105°C	105°C
Suitable Side Cover	280-308	280-324
Suitable Adjacent Jumper	280-402	280-402
	780-452/780-453/780-454...	780-452/780-453/780-454...
Suitable End Plate	249-116 249-117	249-116 249-117

Part No.	Ord. No.	Colour
s 280-681	42219	grey
s 280-901	42224	grey

## Front-Entry Wiring Type

### 281-611

Terminal with fuse holder 5x20mm max.10A T/6,3A FF, without signaling errors.



Technical Parameters		281-611
Number of Wires		-
Wire Section		0,08-4mm <sup>2</sup>
Stripping Length		10mm
Maximum Voltage		800V
Maximum Current		10A
Maximum Temperature		105°C
Suitable Side Cover		281-311
Suitable Adjacent Jumper		281-402
Suitable End Plate		249-116 249-117

Part No.	Ord. No.	Colour
S 281-611	42258	grey

### 279-402



### 28x-402



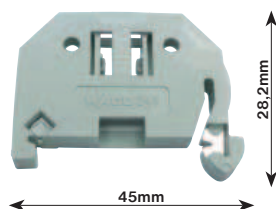
### 780-45x



Part No.	Ord. No.	Description
S 279-402	42139	Adjacent Jumper 15A
S 280-402	42180	Adjacent Jumper 24A
S 281-402	42247	Adjacent Jumper 32A
S 282-402	42283	Adjacent Jumper 41A
S 283-402	42295	Adjacent Jumper 70A
S 284-402	42304	Adjacent Jumper 57A
S 780-452	42368	1. 2. position 24A
S 780-453	42369	1. 3. position 24A
S 780-454	42370	1. 4. position 24A

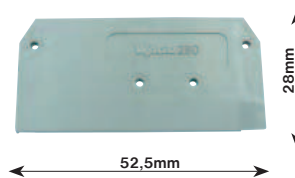
### 249-116, 249-117

DIN rail end plate for 279 to 285.

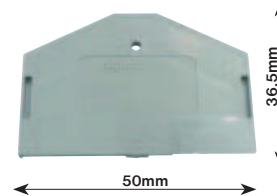


Part No.	Ord. No.	Colour
S 249-116	41986	thickness 6mm
S 249-117	41987	thickness 10mm

### 280-308



### 280-312

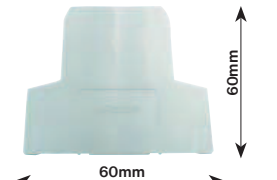


Part No.	Ord. No.	Description
S 280-308	42153	thickness 2,5mm
S 280-312	42156	thickness 2,5mm

### 280-324

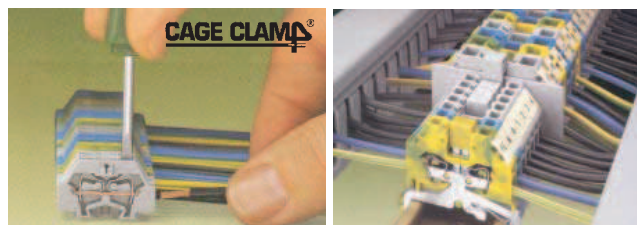


### 281-311

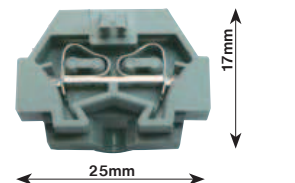


Part No.	Ord. No.	Description
S 280-324	42165	thickness 2,5mm
S 281-311	42235	thickness 2,5mm

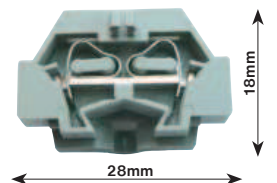
## Side-Entry Wiring Type



### 260-3xx



### 261-3xx



Technical Parameters	260-30x/260-33x	261-30x/261-33x
Number of Wires	2 / 4	2 / 4
Wire Section	0,08-1,5mm <sup>2</sup>	0,08-2,5mm <sup>2</sup>
Stripping Length	9mm	9mm
Maximum Voltage	400V	500V
Maximum Current	18A	24A
Maximum Temperature	105°C	105°C
Suitable Side Cover	260-361	261-361
Suitable Adjacent Jumper	260-402	261-402
Suitable End Plate	249-116 249-117	249-116 249-117
Mounting Adapter	209-120 209-123 209-188	209-120 209-123 209-188

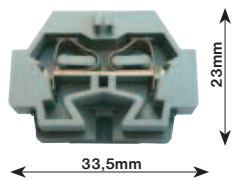
Part No.	Ord. No.	Colour / Width
S 260-301	42055	grey / 5 mm
S 260-304	42057	blue / 5 mm
S 260-306	42058	orange / 5 mm
S 260-307	42059	green-yellow / 5 mm
S 260-331	42060	grey / 8 mm
S 260-334	42061	blue / 8 mm
S 260-336	42062	orange / 8 mm
S 260-337	42063	green-yellow / 8 mm
S 261-301	42068	grey / 6 mm
S 261-304	42069	blue / 6 mm
S 261-307	42071	green-yellow / 6 mm
S 261-331	42072	grey / 10 mm

## Rail - Mounted Terminal Blocks with Cage Clamp (continued)

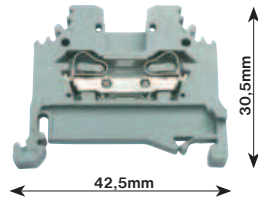


### Side-Entry Wiring Type

262-3xx



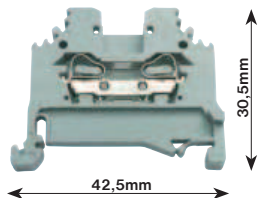
279-101



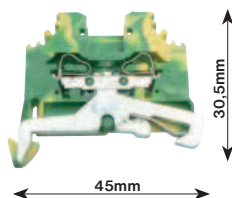
Technical Parameters	262-30x/262-33x	279-10x
Number of Wires	2 / 4	2
Wire Section	0,08-4mm <sup>2</sup>	0,08-1,5mm <sup>2</sup>
Stripping Length	10mm	9mm
Maximum Voltage	630V	800V
Maximum Current	24A / 32A	18A
Maximum Temperature	105°C	105°C
Suitable Side Cover	262-361	280-301
Suitable Adjacent Jumper	262-402	279-402
Suitable End Plate	249-116 249-117 209-120	249-116 249-117
Mounting Adapter	209-123 209-188	249-117

Part No.	Ord. No.	Colour / Width
S 262-301	42078	grey / 7 mm
S 262-304	42079	blue / 7 mm
S 262-307	42080	green-yellow / 7 mm
S 262-331	42081	grey / 12 mm
S 279-101	42133	grey / 4 mm

280-101



280-104

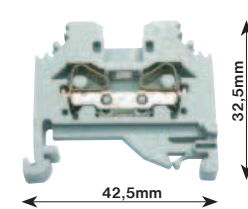


280-107

Technical Parameters	280-10x
Number of Wires	2
Wire Section	0,08-2,5mm <sup>2</sup>
Stripping Length	9mm
Maximum Voltage	800V
Maximum Current	24A
Maximum Temperature	105°C
Suitable Side Cover	280-301
Suitable Adjacent Jumper	280-402 / 780-452 780-453 / 780-454
Suitable End Plate	249-116
Mounting Adapter	249-117

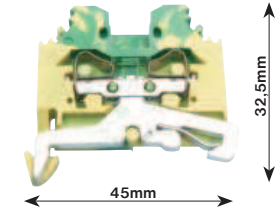
Part No.	Ord. No.	Colour / Width
S 280-101	42147	grey / 5 mm
S 280-104	42148	blue / 5 mm
S 280-107	42149	green-yellow / 5 mm

281-101



281-104

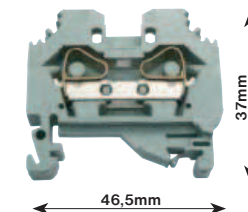
281-107



Technical Parameters	281-10x
Number of Wires	2
Wire Section	0,08-4mm <sup>2</sup>
Stripping Length	10mm
Maximum Voltage	800V
Maximum Current	32A
Maximum Temperature	105°C
Suitable Side Cover	281-301
Suitable Adjacent Jumper	281-402
Suitable End Plate	249-116
Mounting Adapter	249-117

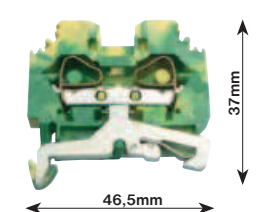
Part No.	Ord. No.	Colour / Width
S 281-101	42229	grey / 6 mm
S 281-104	42230	blue / 6 mm
S 281-107	42231	green-yellow/6 mm

282-101



282-104

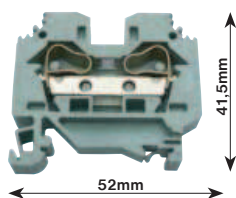
282-107



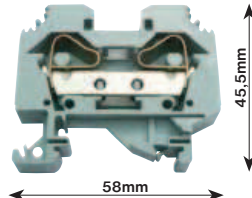
Technical Parameters	282-10x
Number of Wires	2
Wire Section	0,2-6mm <sup>2</sup>
Stripping Length	13mm
Maximum Voltage	800V
Maximum Current	41A
Maximum Temperature	105°C
Suitable Side Cover	282-301
Suitable Adjacent Jumper	282-402
Suitable End Plate	249-116
Mounting Adapter	249-117

Part No.	Ord. No.	Colour / Width
S 282-101	42273	grey / 5 mm
S 282-104	42274	blue / 5 mm
S 282-107	42275	green-yellow/ 5 mm

284-10x



283-10x

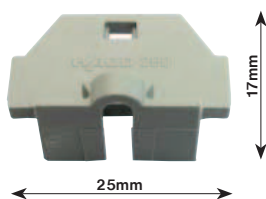


Technical Parameters	284-10x	283-10x
Number of Wires	2	2
Wire Section	0,2-10mm <sup>2</sup>	0,2-16mm <sup>2</sup>
Stripping Length	13mm	17mm
Maximum Voltage	800V	800V
Maximum Current	57A	76A
Maximum Temperature	105°C	105°C
Suitable Side Cover	284-301	283-301
Suitable Adjacent Jumper	284-402	283-402
Suitable End Plate	249-116	249-116
Mounting Adapter	249-117	249-117

Part No.	Ord. No.	Colour / Width
S 284-101	42298	grey / 10 mm
S 283-101	43015	grey / 12 mm
S 283-104	46093	blue / 16 mm

## End Plates

260-361



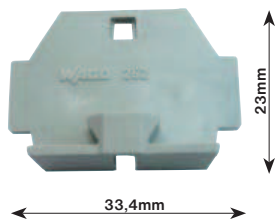
261-361



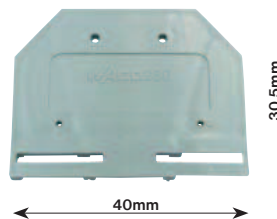
Part No.	Description
260-361	End plate grey thickness 3mm
261-361	End plate grey thickness 3mm

Part No.	Ord. No.
S 260-361	42064
S 261-361	42076

262-361



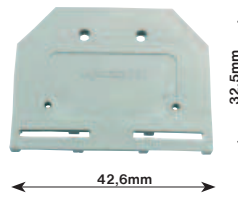
280-301



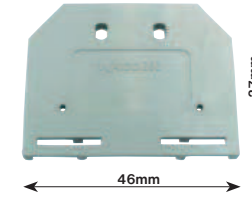
Part No.	Description
262-361	End plate grey thickness 3mm
280-301	End plate grey thickness 2,5mm

Part No.	Ord. No.
S 262-361	42084
S 280-301	42150

281-301



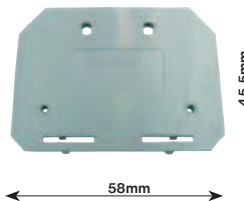
282-301



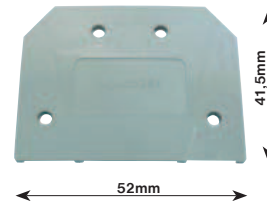
Part No.	Description
281-301	End plate grey thickness 3mm
282-301	End plate grey thickness 4mm

Part No.	Ord. No.
S 281-301	42232
S 282-301	42276

283-301



284-301

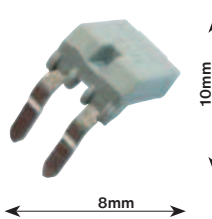


Part No.	Description
283-301	End plate grey thickness 4mm
284-301	End plate grey thickness 2mm

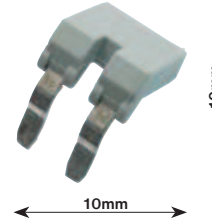
Part No.	Ord. No.
S 283-301	43016
S 284-301	42301

## Adjacent Jumpers

260-402



261-402



Part No.	Ord. No.	Description
S 260-402	42065	Adjacent Jumper 10A
S 261-402	42077	Adjacent Jumper 16A

279-402



28x-402



780-45x



Part No.	Ord. No.	Description
S 279-402	42139	Adjacent Jumper 15A
S 280-402	42180	Adjacent Jumper 24A
S 281-402	42247	Adjacent Jumper 32A
S 282-402	42283	Adjacent Jumper 41A
S 283-402	42295	Adjacent Jumper 70A
S 284-402	42304	Adjacent Jumper 57A
S 780-452	42368	1. 2. position 24A
S 780-453	42369	1. 3. position 24A
S 780-454	42370	1. 4. position 24A

## Accessories



### Mounting Feet (TS 35)

#### 209-120

Mounting foot for 35mm DIN rail. Suitable for terminals 260, 261, 262 series. Width: 6,4mm.



#### 209-123

Mounting foot with screw for 35mm DIN rail. Suitable for terminals 260, 261, 262 series. Width: 6,4mm.



#### 209-188

Mounting foot with alignable fixings for 35mm DIN rail. Suitable for terminals 260, 261, 262 series. Width: 6,4mm.

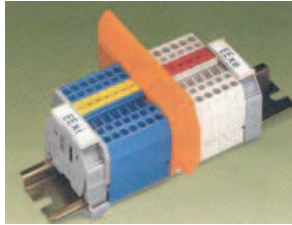
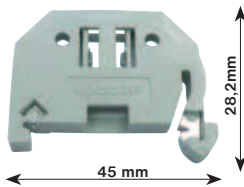


Part No.	Ord. No.
S 209-120	41677
S 209-123	41678
S 209-188	48645

### Screwless End Stop

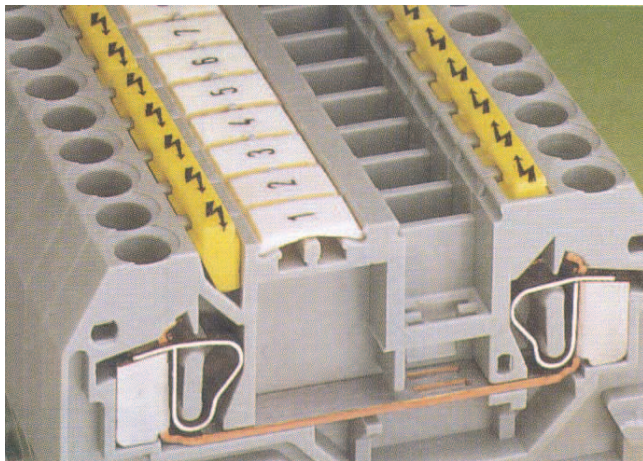
#### 249-116, 249-117

for 35mm DIN rail  
Suitable for terminals 260, 261, 262, 279, 280, 281, 282, 283, 284 series. Width 6mm (W249-116), 10mm (W249-117).



Part No.	Ord. No.
S 249-116	41986
S 249-117	41987

### Marking Accessories



#### 209-50x

Wago quick marking system white colour. 10 strips of 10 markers per strip (100) per card



#### 249-119

Marker carrier with adjustable height. Suitable for end stop parts W249-116, W249-117 series.

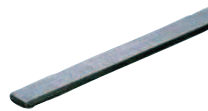


Part No.	Ord. No.	Description
S 209-501	41697	Clear
S 209-502	41701	Marks 1-10
S 209-503	41703	Marks 11-20
S 209-504	41704	Marks 21-30
S 249-119	41989	Marker carrier

### Carrier Rails (TS 35)

#### 210-133

N Bus bar, tin plated, length 1m, Cu 10mmx3mm, weight 270g.



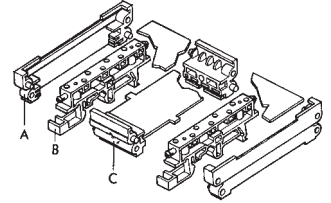
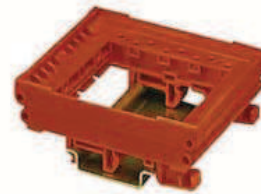
#### 210-112

Carrier rail 35x7,5mm 1mm/0,039 in thick Steel, zinc-plated, slotted



Part No.	Ord. No.
S 210-112	41746
S 210-133	41750

### Mounting Carrier for PCBs for DIN Rail



This enclosure consist of 3 parts:

A. Side corner 210-266

B. Fixing foot for mounting on DIN 35 rails (210-263)

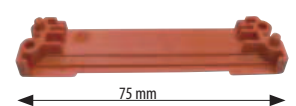
C. Distance insert - two sizes: 210-272 (25.4 mm) and 210-273 (101,6 mm) - sets the width of the carrier

For more complete carrier you need 2 feets, 2 distance inserts and 2 side corners.

#### 210-263

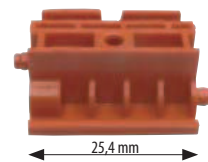


#### 210-266

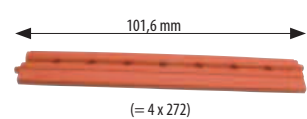


Part No.	Ord. No.
S 210-263	41759
S 210-266	41762

#### 210-272



#### 210-273



Part No.	Ord. No.
S 210-272	41768
S 210-273	41769



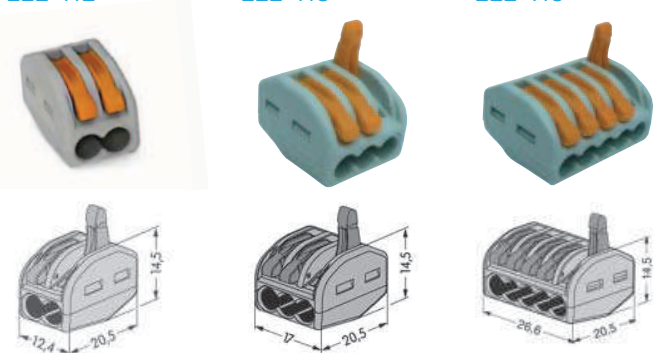
## Lighting Connectors



222-412

222-413

222-415

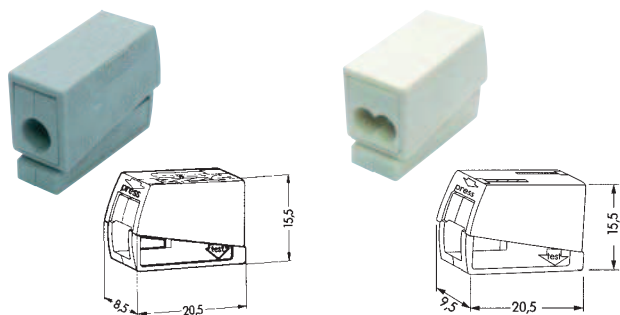


Technical Parameters	222-412	222-413	222-415
Number of Wires	2	3	5
Stranded Wire	0,08-4mm <sup>2</sup>	0,08-4mm <sup>2</sup>	0,08-4mm <sup>2</sup>
Solid Wire	0,08-2,5mm <sup>2</sup>	0,08-2,5mm <sup>2</sup>	0,08-2,5mm <sup>2</sup>
Stripping Length	10mm	10mm	10mm
Maximum Voltage	400V	400V	400V
Maximum Current	32A	32A	32A
Maximum Temperature	85°C	85°C	85°C
Colour	grey	grey	grey

Part No.	Ord. No.
S 222-412	62793
S 222-413	45933
S 222-415	52689

224-101  
224-104

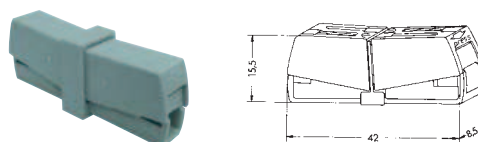
224-112



Technical Parameters	224-101 / 224-104	224-112
Number of Wires	1	2
Stranded Wire	0,5-2,5mm <sup>2</sup>	0,5-2,5mm <sup>2</sup>
Solid Wire	1-2,5mm <sup>2</sup>	2 x 1-2,5mm <sup>2</sup>
Stripping Length	11mm	11mm
Maximum Voltage	400V	400V
Maximum Current	24A	24A
Maximum Temperature	105°C	105°C
Colour	grey	white

Part No.	Ord. No.
O 224-101	41789
S 224-112	41791

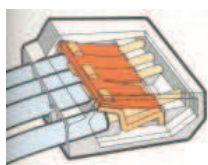
224-201



Technical Parameters	224-201
Number of Wires	1
Stranded Wire	2 x 0,5-2,5mm <sup>2</sup>
Solid Wire	-
Stripping Length	11mm
Maximum Voltage	400V
Maximum Current	24A
Maximum Temperature	105°C
Colour	grey

Part No.	Ord. No.
O 224-201	41792

## Push-Wire Connectors for Junction Boxes



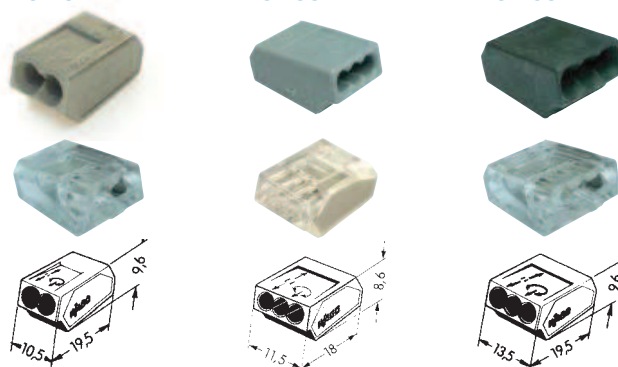
Push-wire connector for junction boxes for quick and safe installations  
 Strip insulation: Strip solid conductor 10-13 mm / 0.45 in  
 Push-wire connection: Insert stripped solid conductor FULLY  
 Push-wire connection: Removing: Hold wire to be removed and twist alternately left and right while pulling the connector  
 Testing - via separate test slot



273-112  
273-252

273-100  
273-153

273-104  
273-253



Technical Parameters	273-112/ 273-252	273-100/ 273-153	273-104/ 273-253
Number of Wires	2	3	3
Wire Section	1-2,5mm <sup>2</sup>	0,75-1,5mm <sup>2</sup>	1-2,5mm <sup>2</sup>
Stripping Length	13mm	13mm	13mm
Maximum Voltage	400V	400V	400V
Maximum Current	24A	18A	24A
Maximum Temperature	105°C	105°C	105°C
Colour	dark grey/ water clear	grey/ water clear	dark grey/ water clear

Part No.	Ord. No.	Description
S 273-100	42431	grey 1,5mm <sup>2</sup> 3P
S 273-153	48423	plexi 1,5mm <sup>2</sup> 3P
S 273-112	42122	grey 2,5mm <sup>2</sup> 2P
S 273-252	42125	plexi 2,5mm <sup>2</sup> 2P
S 273-104	42119	grey 2,5mm <sup>2</sup> 3P
S 273-253	42126	plexi 2,5mm <sup>2</sup> 3P

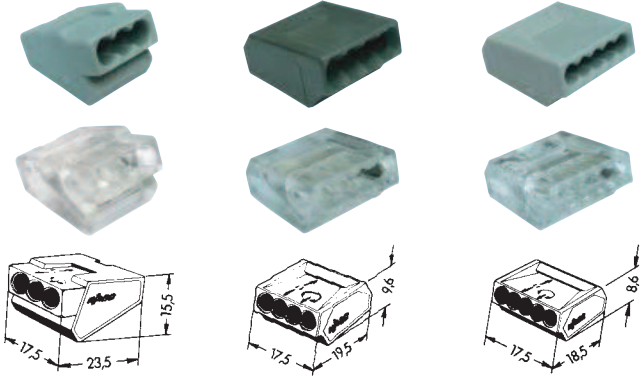
## Push-Wire Connectors for Junction Boxes (continued)



273-403  
273-453

273-102  
273-254

273-101  
273-155



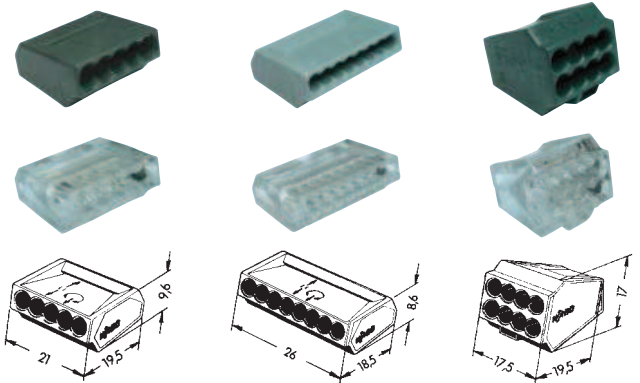
Technical Parameters	273-403/ 273-453	273-102/ 273-254	273-101/ 273-155
Number of Wires	3	4	5
Wire Section	1,5-4mm <sup>2</sup>	1-2,5mm <sup>2</sup>	0,75-1,5mm <sup>2</sup>
Stripping Length	15mm	13mm	13mm
Maximum Voltage	400V	400V	400V
Maximum Current	32A	24A	18A
Maximum Temperature	105°C	105°C	105°C
Colour	grey/ transparent	dark grey/ transparent	grey/ transparent

Part No.	Ord. No.	Description
S 273-101	42116	grey 1,5mm <sup>2</sup> 5P
S 273-155	42123	plexi 1,5mm <sup>2</sup> 5P
S 273-102	42117	grey 2,5mm <sup>2</sup> 4P
S 273-254	42127	plexi 2,5mm <sup>2</sup> 4P
S 273-403	42130	grey 4,0mm <sup>2</sup> 3P
S 273-453	42131	plexi 4,0mm <sup>2</sup> 3P

273-105  
273-255

273-108  
273-158

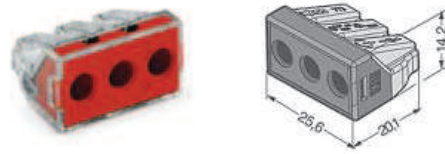
273-103  
273-258



Technical Parameters	273-105/ 273-255	273-108/ 273-158	273-103/ 273-258
Number of Wires	5	8	8
Wire Section	1-2,5mm <sup>2</sup>	0,75-1,5mm <sup>2</sup>	1-2,5mm <sup>2</sup>
Stripping Length	13mm	13mm	13mm
Maximum Voltage	400V	400V	400V
Maximum Current	24A	18A	24A
Maximum Temperature	105°C	105°C	105°C
Colour	dark grey/ transparent	grey/ transparent	dark grey/ transparent

Part No.	Ord. No.	Description
S 273-108	42121	grey 1,5mm <sup>2</sup> 8P
S 273-158	42124	plexi 1,5mm <sup>2</sup> 8P
S 273-105	42120	grey 2,5mm <sup>2</sup> 5P
S 273-255	42128	plexi 2,5mm <sup>2</sup> 5P
S 273-103	42118	grey 2,5mm <sup>2</sup> 8P
S 273-258	42129	plexi 2,5mm <sup>2</sup> 8P

773-173

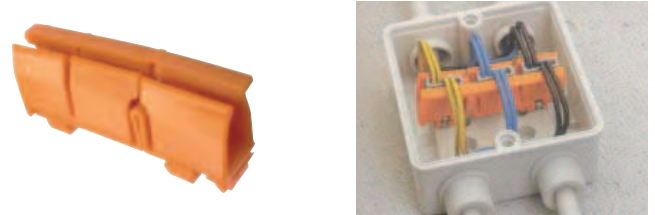


Technical Parameters	773-173
Number of Wires	3
Wire Section	2,5 - 6mm <sup>2</sup>
Stripping Length	12mm
Maximum Voltage	400V
Maximum Current	41A
Maximum Temperature	105°C
Colour	red/transparent

Part No.	Ord. No.	Description
S 273-108	42121	grey 1,5mm <sup>2</sup> 8P

273-150

Adaptor for 3 terminals of 273 series to DIN rail or screws mounting. Colour orange.

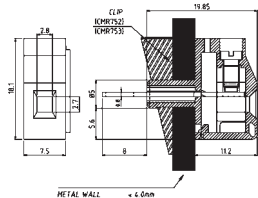
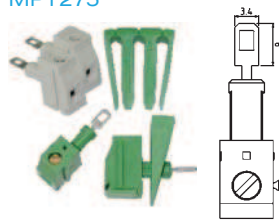


Part No.	Ord. No.
S 273-150	53011

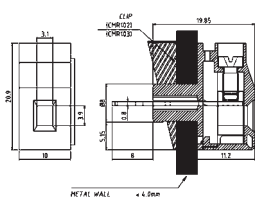
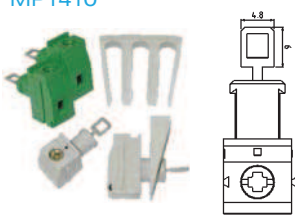
## Panel Feed-Through Blocks



### MPT275



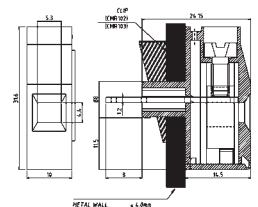
### MPT410



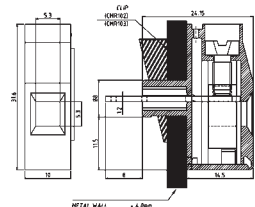
Technical Parameters	MPT275	MPT410
Pitch	7,5mm	10mm
Mounting Position	vertical	vertical
Wire Section	2,5mm <sup>2</sup> strand. (AWG14) 4mm <sup>2</sup> solid (AWG12)	4mm <sup>2</sup> strand. (AWG12) 6mm <sup>2</sup> solid (AWG10)
Hole	2,8x2,7mm	3,1x3,9mm
Rated Voltage	450V	450V
Rated Current	24A	32A
Stripping Length	10,1mm	10,1mm
Modular	yes	yes
Lift System	yes	yes
Maximum Temperature	125°C	125°C
Screw	-	-
Mounting Wedges	CMR752, CMR753	CMR102, CMR103

Part No.	Ord. No.	Colour
S MPT275-GN	51214	green
S MPT275-GY	57125	grey
O MPT410-GN	50696	green
S MPT410-GY	57634	grey

### MPT610



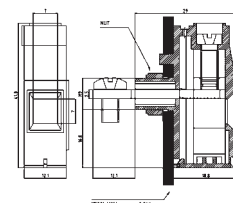
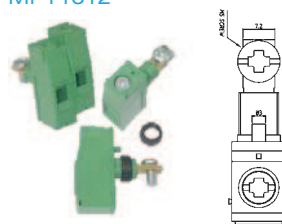
### MPT1010



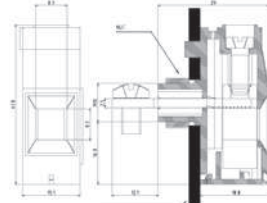
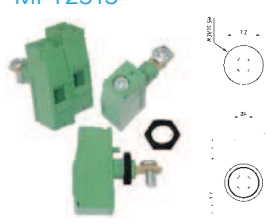
Technical Parameters	MPT610	MPT1010
Pitch	10mm	10mm
Mounting Position	vertical	vertical
Wire Section	6mm <sup>2</sup> strand. (AWG10) 10mm <sup>2</sup> solid (AWG8)	10mm <sup>2</sup> strand. (AWG8) 16mm <sup>2</sup> solid (AWG6)
Hole	5,3x4,4mm	5,3x5,3mm
Rated Voltage	750V	750V
Rated Current	41A	57A
Stripping Length	13,4mm	13,4mm
Modular	yes	yes
Lift System	yes	yes
Maximum Temperature	125°C	125°C
Screw	-	-
Mounting Wedges	CMR102, CMR103	CMR102, CMR103

Part No.	Ord. No.	Colour
O MPT610-GN	51593	green
S MPT610-GY	63000	grey
O MPT1010-GN	51161	green
O MPT1010-GY	60657	grey

### MPT1612



### MPT2515

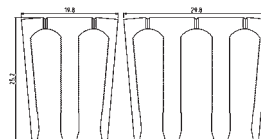


Technical Parameters	MPT1612	MPT2515
Pitch	12,1mm	15,1mm
Mounting Position	vertical with screw	vertical with screw
Wire Section	16mm <sup>2</sup> strand. (AWG6) 25mm <sup>2</sup> solid (AWG4)	25mm <sup>2</sup> strand. (AWG4) 35mm <sup>2</sup> solid (AWG2)
Hole	7x7mm	8x8,3mm
Rated Voltage	450V	750V
Rated Current	76A	101A
Stripping Length	17mm	17mm
Modular	yes	yes
Lift System	yes	yes
Maximum Temperature	125°C	125°C
Screw (of the supply)	DZP9	DZP10
Mounting Wedges	-	-

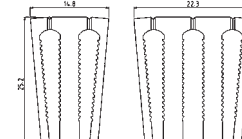
Part No.	Ord. No.	Colour
O MPT1612-GN	51594	green
S MPT1612-GY	62999	grey
S MPT2515-GN	51595	green
S MPT2515-GY	61419	grey

## Mounting Wedges

### CMR102/CMR103





### CMR752/CMR753







Part No.	Ord. No.	Description
O CMR102-GN	50697	for MPT410
S CMR102-GY	61246	for MPT410
S CMR103-GN	50698	for MPT410
S CMR103-GY	65007	for MPT410
S CMR752-GN	51215	for MPT275
S CMR752-GY	57124	for MPT275
S CMR753-GN	78076	for MPT 275
S CMR753-GY	51216	for MPT275



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www.soselectronic.com

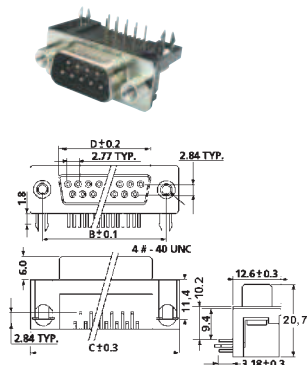
e-mail:  
sales@soselectronic.com  
info@soselectronic.com

fax:  
+421 55 78 604 45

technical support:  
technik@soselectronic.com

## DMRxxM SERIES

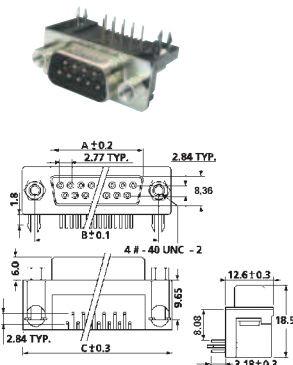
PCB plug, angled



Part No.	Ord.No.	Description
S DMR 09 M	26366	M 9-pole
S DMR 09 M US 8,08	51039	M 8,08mm 9p
S DMR 15 M	26367	M 15-pole
S DMR 15 M US 8,08	51038	M 8,08mm 15p
S DMR 25 M	24761	M 25-pole
S DMR 25 M US 8,08	51040	M 8,08mm 25p
S DMR 37 M	28722	M 37-pole
O DMR 37 M US 8,08	51041	M 8,08mm 37p

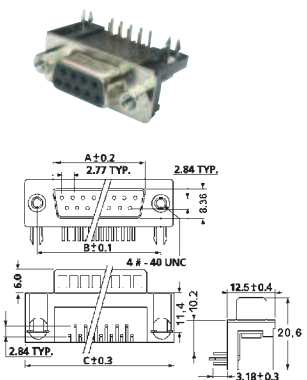
## DMRxxM-8,08 SERIES

PCB plug, angled, US type



## DMRxxF SERIES

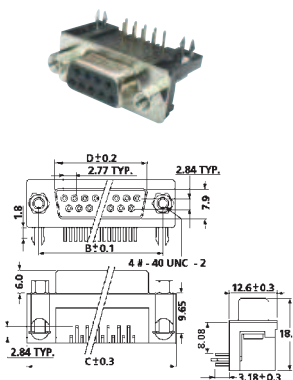
PCB jack, angled



Part No.	Ord.No.	Description
S DMR 09 F	24759	F 9-pole
S DMR 09 F US 8,08	51036	F 8,08mm 9p
S DMR 15 F	26368	F 15-pole
S DMR 15 F US 8,08	51037	F 8,08mm 15p
S DMR 25 F	24760	F 25-pole
S DMR 25 F US 8,08	48976	F 8,08mm 25p
S DMR 37 F	28723	F 37-pole
O DMR 37 F US 8,08	51035	F 8,08mm 37p

## DMRxxF-8,08 SERIES

PCB jack, angled, US type



## D-SUB Cannon Adapters

### COM 914

### COM 916

D-SUB Cannon adapters, plastic  
COM 914 = D-SUB 9F / D-SUB 25M.  
COM 916 = D-SUB 9M / D-SUB 25F.



Part No.	Ord.No.
S COM 914	22903
S COM 916	25659

## Hoods and Accessories

### GPxxG SERIES

Plastic hood, grey colour, two-part, screw mounting



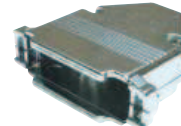
### GPxxGM SERIES

Metallized plastic hood, two-part, screw mounting



### GPxxVM SERIES

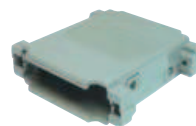
Metal hood, two-part, screw mounting (included in delivery)



Part No.	Ord.No.	Description
S GP 09 G	22306	plastic 9-pole
S GP 09 GM	20197	metal, plastic 9-pole
S GP 09 VM	22311	metal 9-pole
S GP 15 G	22307	plastic 15-pole
S GP 15 GM	20198	metal, plastic 15-pole
S GP 15 VM	22312	metal 15-pole
S GP 25 G	22308	plastic 25-pole
S GP 25 GM	20199	metal, plastic 25-pole
S GP 25 VM	22313	metal 25-pole
S GP 37 G	22309	plastic 37-pole
S GP 37 GM	22310	metal, plastic 37-pole
S GP 37 VMT	48421	metal 37-pole
S GP 50 G	28724	plastic 50-pole

### COM 938

D-SUB adapter case  
CANNON DS25 / DS25



### COM 941

D-SUB adapter case  
CANNON DS9 / DS25  
metallized



### COM 942

D-SUB adapter case  
CANNON DS9 / DS9



Part No.	Ord.No.
S COM 938	20157
S COM 941	24109
S COM 942	24110

### SV-B

D-SUB mounting set with UNC 4-40 (6mm) thread



### SV-U

D-SUB mounting set, obsahujúca 2x screw (7mm long with UNC 4-40 thread), 2x fem.screw and 2x washer (total length: 12mm)



Part No.	Ord.No.
S SV-U	20196
S SV-B SW5x6mm	27216

## Cables and Wires

Single Conductor Cables



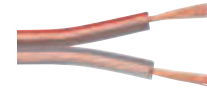
G 3

Multi Conductor Cables



G 4

Audio, Video, TV and PC Cables



G 8

Power Cords



G 10

Audio-Video Cords



G 11

Computer Cords



G 13

Various Cords



G 18

Measuring and Testing Equipments



G 21



**ÖLFLEX®**  
Power- and control cables

ÖLFLEX® is used in machinery, machine tools, system and appliance engineering, measuring, control, heating and air conditioning technologies. For permanent connections or in cable chains, halogenfree or internationally certified, you can choose from our comprehensive range of standard products.



**HITRONIC®**  
Optical transmission systems

HITRONIC® fibre optic cables are designed to transfer large volumes of data. Communications media via fibre optics are fast, efficient, and secure. Not even electromagnetic interference can affect HITRONIC® fibre optic cable. The HITRONIC® range of products includes cables for office communications, industrial applications, simplex, duplex, hybrid wiring, or cable chain applications.



**UNITRONIC®**  
Data communication systems

Lapp produces a full range of data cables for fast and secure transfers of large volumes of data. From machine electronics and bus systems to super-fast LAN data networks or highly-versatile applications: We have the data cables you need for virtually any situation.



**SKINTOP®**  
Cable glands

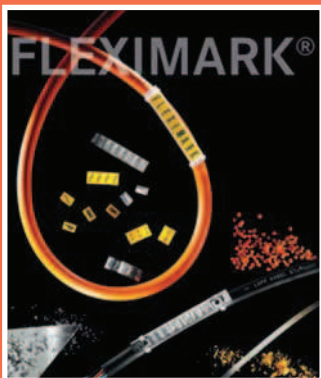
SKINTOP® cable glands guarantee secure connections every time. Simply thread the cable and twist. That's all! Your cables are perfectly centered, secured, hermetically sealed, and ready for action. Choose from ÖLFLEX® Power- and control cables a wide range of models in plastic or brass, for EX and EMC applications, halogen-free types or anti-kink protection, metric, PG or NPT.



### SILVYN®

#### Protective cable conduit systems and cable carrier systems

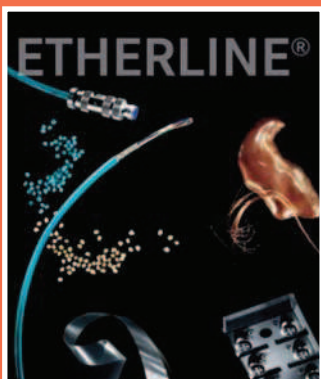
In many applications cables have to be additionally protected against mechanical and chemical stress. For this type of application, Lapp Group can supply the universal SILVYN® protective cable conduit program. Cable conduits manufactured from metal or plastic material, which can be used with matching glands to form a perfect system connection. The complete system results in all round protection for cables in indoor and outdoor installations. With SILVYN® CHAIN, Lapp Group's widely variable programme of power chains we offer both cable protection and guidance for highly dynamic applications.



### FLEXIMARK®

#### Cable marking products

Labels on single cores, cables, and control cabinets need to remain legible for years to come. This is the best way to keep things well organized and avoid potential problems. From plastic to durable stainless steel, manual or electronic identification, with FLEXIMARK® you can be sure that your labels will last a lifetime.



### ETHERLINE®

#### Data communication systems for ETHERNET-Technology

The Lapp Group is now in a position to offer comprehensive system solutions in the field of industrial networking. Its Factory Automation division supplies active network components that are used to supplement existing cable and plug technologies. These include services and security systems incorporating firewall solutions, in addition to distribution components such as switches, routers, cables and plug connectors. For its industrial customers, all of this means that a solution from the Lapp Group represents a considerable step forward in terms of security, safety and availability.



### EPIC®

#### Industrial connectors

When we talk about secure connections, you can take us at our word. EPIC® industrial connectors produce an absolutely secure connection in combination with ÖLFLEX® cables. We provide the right contact for all your needs: From rectangular or circular connectors, to housings, inserts, contacts and accessories, bus or fibre optic cable applications.



## Single Conductor Cables

### H01N2-D



**Benefits:** High flexibility

**Application range:** For the transmission of high currents from the electric welding device to the welding tool. Use outdoors or in dry and damp rooms

**Design:** Copper wire acc. to HAR bare or tinned

Stranding corresponds up to 95 mm<sup>2</sup> approximately to class 6 and from 120 mm<sup>2</sup> approximately to class 5 acc. to VDE 0295

Separator of synthetic foil or paper

Outer jacket of rubber Type EM5

**Product features:** Flame retardant according to IEC 60332-1-2, good medium resistance

Rated voltage: U<sub>0</sub>/U: 100/100 V

Test voltage: 1000 V

Range of temperature: flexible use: -25°C up to +85°C

Standard stock units 100m.



Part No.	Description
H01N2-D 1x10mm <sup>2</sup> 100m	Cable Neopren 85°C D=7,7-9,7mm
H01N2-D 1x16mm <sup>2</sup> 100m	Cable Neopren 85°C D=8,8-11,0mm
H01N2-D 1x25mm <sup>2</sup> 100m	Cable Neopren 85°C D=10,1-12,7mm
H01N2-D 1x35mm <sup>2</sup> 100m	Cable Neopren 85°C D=11,4-14,2mm

Part No.	LAPP No.	Ord.No.
o H01N2-D 1x10mm <sup>2</sup> 100m	2310026	61853
o H01N2-D 1x16mm <sup>2</sup> 100m	2210700	61854
o H01N2-D 1x25mm <sup>2</sup> 100m	2210701	61855
o H01N2-D 1x35mm <sup>2</sup> 100m	2210702	61856

D= outer cable diameter

### H05V-K



**Application range:** Internal wiring of devices, protected laying in and on lights, signal systems in and on plaster in tubes

**Design:** Strands of bare copper wires, core insulation: Based on PVC

**Product features:** flame retardant according to IEC 60332-1-2

Nominal voltage U<sub>0</sub>/U: 300/500V.

Temperature range: static: -40 °C to +70 °C

Standard stock units 100m.



Part No.	Description
H05V-K 0,5 GN-YE 100m	Cable Single Core 0,5mm <sup>2</sup> green-yellow
H05V-K 0,5 BK 100m	Cable Single Core 0,5mm <sup>2</sup> black
H05V-K 0,5 BU 100m	Cable Single Core 0,5mm <sup>2</sup> blue
H05V-K 0,5 BN 100m	Cable Single Core 0,5mm <sup>2</sup> brown
H05V-K 0,5 RD 100m	Cable Single Core 0,5mm <sup>2</sup> red
H05V-K 0,75 GN-YE 100m	Cable Single Core 0,75mm <sup>2</sup> green-yellow
H05V-K 0,75 BK 100m	Cable Single Core 0,75mm <sup>2</sup> black
H05V-K 0,75 BU 100m	Cable Single Core 0,75mm <sup>2</sup> blue
H05V-K 0,75 BN 100m	Cable Single Core 0,75mm <sup>2</sup> brown
H05V-K 0,75 RD 100m	Cable Single Core 0,75mm <sup>2</sup> red
H05V-K 1,0 GN-YE 100m	Cable Single Core 1,0mm <sup>2</sup> green-yellow
H05V-K 1,0 BK 100m	Cable Single Core 1,0mm <sup>2</sup> black
H05V-K 1,0 BU 100m	Cable Single Core 1,0mm <sup>2</sup> blue
H05V-K 1,0 BN 100m	Cable Single Core 1,0mm <sup>2</sup> brown
H05V-K 1,0 RD 100m	Cable Single Core 1,0mm <sup>2</sup> red

Part No.	LAPP No.	Ord.No.
o H05V-K 0,5 GN-YE	4510001	70544
s H05V-K 0,5 BK	4510011	70545
o H05V-K 0,5 BU	4510021	70546
o H05V-K 0,5 BN	4510031	70547
s H05V-K 0,5 RD	4510041	70548
o H05V-K 0,75 GN-YE	4510002	70549
s H05V-K 0,75 BK	4510012	70550
o H05V-K 0,75 BU	4510022	70551
o H05V-K 0,75 BN	4510032	70552
s H05V-K 0,75 RD	4510042	70553
o H05V-K 1,0 GN-YE	4510003	70554
s H05V-K 1,0 BK	4510013	70555
o H05V-K 1,0 BU	4510023	70556
o H05V-K 1,0 BN	4510033	70557
s H05V-K 1,0 RD	4510043	70558

## ÖLFLEX SOLAR plus



LAPPTHERM® SOLAR product line offers the optimal solution for the connection of the individual solar cells among themselves or for the terminal box and the frequency converters. The cables are designed for the use all over the world and for every different climate area.

LAPPTHERM® SOLAR plus is flame retardant according to IEC 60332.1. A flowage of the isolation in the case of short-circuit is prevented by the cross-linked insulation material and in addition best values concerning weather and UV resistance, will be achieved. The extended temperature range allows the application even in extreme climatic areas, prevents specifically heat aging and guarantees therefore the perfect function to the system at each season. The cable is "type approved" according TÜV standard.

Outer sheath: special TPE, Colour: black, red resp. blue

Nominal voltage U<sub>0</sub>/U: AC: 600/1000 V, DC: 900/1500 V

Temperature range: -50°C to +120°C, temperature at short circuit +250 °C.

Standard stock units 10m.



Part No.	Description
ÖLFLEX SOLAR plus BU 1x2,5 10m	Single Core TPE 120°C D=5,8mm blue
ÖLFLEX SOLAR plus RD 1x2,5 10m	Single Core TPE 120°C D=5,8mm red

Part No.	LAPP No.	Ord.No.
s ÖLFLEX SOLAR plus BU	0026091	70508
s ÖLFLEX SOLAR plus RD	0026088	70509

## ÖLFLEX SOLAR XL multi



LAPPTHERM® SOLAR product line offers the optimal solution for the connection of the individual solar cells among themselves or for the terminal box and the frequency converters. The cables are designed for the use all over the world and for every different climate area.

LAPPTHERM® SOLAR XL is halogen free and flame retardant according to IEC 60332.1. A flowage of the isolation and outer sheath in the case of short-circuit is prevented by the cross-linked materials and in addition best values concerning weather and UV resistance, will be achieved. The extended temperature range allows the application even in extreme climatic areas, prevents specifically heat aging and guarantees therefore the perfect function to the system at each season.

Outer sheath: modified polyolefine, cross-linked Colour: black

Nominal voltage U<sub>0</sub>/U: AC: 600/1000 V DC: 900/1500 V

Temperature range: -40°C to +120°C, temperature at short circuit: +250 °C.

Standard stock units 100m.



Part No.	Description
ÖLFLEX SOLAR XL multi BK 1x2,5 100m	Single Core 120°C D=5,6mm black
ÖLFLEX SOLAR XL multi BU 1x2,5 100m	Single Core 120°C D=5,6mm blue
ÖLFLEX SOLAR XL multi RD 1x2,5 100m	Single Core 120°C D=5,6mm red

Part No.	LAPP No.	Ord.No.
o ÖLFLEX SOLAR XL multi BK	0026585	70670
o ÖLFLEX SOLAR XL multi BU	0026579A	70671
o ÖLFLEX SOLAR XL multi RD	0026574A	70672

## DR 05

Isolated solid core with diameter 0,5mm, PVC isolation.  
Max. load 1,5A/350V.



Part No.	Description
DR 05-10BK	Insulated Wire D 0,5mm/10m black
DR 05-10BU	Insulated Wire D 0,5mm/10m blue
DR 05-10GN	Insulated Wire D 0,5mm/10m green
DR 05-10RD	Insulated Wire D 0,5mm/10m red
DR 05-10WH	Insulated Wire D 0,5mm/10m white
DR 05-10YE	Insulated Wire D 0,5mm/10m yellow

Part No.	Ord.No.
S DR 05-10BK	6142
S DR 05-10BU	6140
S DR 05-10GN	6143
S DR 05-10RD	6141
S DR 05-10WH	60019
S DR 05-10YE	57994

*D* = outer cable diameter

## LA 014

Isolated copper wire strand with cross section 0,14mm<sup>2</sup>, PVC isolation. Standard stock units 10m.



Part No.	Description
LA 014-10BK	Wire isolated - black 10m
LA 014-10BU	Wire isolated - blue 10m
LA 014-10GN	Wire isolated - green 10m
LA 014-10RD	Wire isolated - red 10m

Part No.	Ord.No.
S LA 014-10BK	5079
S LA 014-10BU	5076
S LA 014-10GN	5077
S LA 014-10RD	5078

## TAV 0,07B

Isolated teflon solid wire with diameter 0,9mm. Isolated stability up to 200°C. Silver plated copper wire.



Part No.	Description
TAV0,07B 100m	Wire Cu Solid Ag-plated isolated 200°C D=0,9mm white
TAV0,07C 100m	Wire Cu Solid Ag-plated isolated 200°C D=0,9mm black

Part No.	Ord.No.
S TAV0,07B 100m	53449
S TAV0,07C 100m	59653

*D* = outer cable diameter

# Multi Conductor Cables

## UNITRONIC LIYY



Unitronic® LIYY cables are data transmission cables which have been developed from well proven types based on the specification VDE 0812. They are also used in control and signal lines in electronics for computer systems, electronic control equipment, weighing scales etc.

Fine or multi-wire (0,34mm<sup>2</sup>) strands of plain copper wire, PVC based core insulation, cores laid up in various colours, as per DIN colour code, outer sheath of special PVC-based compound, flame retardant according to VDE 0472, part 804, test type B (IEC 332.1), pebble grey (RAL 7032).  
Test voltage: 0,14 mm<sup>2</sup>: 1200 V, > 0,14 mm<sup>2</sup>: 1500 V.  
Temperature range: static: -30 °C to +70 °C.  
Standard stock units 100m.



### UNITRONIC LIYY with cross section 0,14mm<sup>2</sup>

Part No.	Description
LIYY 2x0,25mm <sup>2</sup> UNITRONIC 100m	Unshielded cable 2 wires D=3,8mm
LIYY 3x0,25mm <sup>2</sup> UNITRONIC 100m	Unshielded cable 3 wires D=4,0mm
LIYY 4x0,25mm <sup>2</sup> UNITRONIC 100m	Unshielded cable 4 wires D=4,3mm
LIYY 5x0,25mm <sup>2</sup> UNITRONIC 100m	Unshielded cable 5 wires D=4,7mm
LIYY 7x0,25mm <sup>2</sup> UNITRONIC 100m	Unshielded cable 7 wires D=5,1mm
LIYY 8x0,25mm <sup>2</sup> UNITRONIC 100m	Unshielded cable 8 wires D=6,2mm
LIYY 10x0,25mm <sup>2</sup> UNITRONIC 100m	Unshielded cable 10 wires D=6,8mm

Part No.	LAPP No.	Ord.No.
S LIYY 2x0,14mm <sup>2</sup> UNITRONIC	0028202	421
S LIYY 3x0,14mm <sup>2</sup> UNITRONIC	0028203	423
S LIYY 4x0,14mm <sup>2</sup> UNITRONIC	0028204	38574
O LIYY 5x0,14mm <sup>2</sup> UNITRONIC	0028205	55716
O LIYY 7x0,14mm <sup>2</sup> UNITRONIC	0028207	62026
S LIYY 8x0,14mm <sup>2</sup> UNITRONIC	0028208	38575
S LIYY 10x0,14mm <sup>2</sup> UNITRONIC	0028210	38576

*D* = outer cable diameter

### UNITRONIC LIYY with cross section 0,25mm<sup>2</sup>

Part No.	Description
LIYY 2x0,25mm <sup>2</sup> UNITRONIC 100m	Unshielded cable 2 wires D=3,8mm
LIYY 3x0,25mm <sup>2</sup> UNITRONIC 100m	Unshielded cable 3 wires D=4,0mm
LIYY 4x0,25mm <sup>2</sup> UNITRONIC 100m	Unshielded cable 4 wires D=4,3mm
LIYY 5x0,25mm <sup>2</sup> UNITRONIC 100m	Unshielded cable 5 wires D=4,7mm
LIYY 7x0,25mm <sup>2</sup> UNITRONIC 100m	Unshielded cable 7 wires D=5,1mm
LIYY 8x0,25mm <sup>2</sup> UNITRONIC 100m	Unshielded cable 8 wires D=6,2mm
LIYY 10x0,25mm <sup>2</sup> UNITRONIC 100m	Unshielded cable 10 wires D=6,8mm

Part No.	LAPP No.	Ord.No.
S LIYY 2x0,25mm <sup>2</sup> UNITRONIC	0028302	435
S LIYY 3x0,25mm <sup>2</sup> UNITRONIC	0028303	436
S LIYY 4x0,25mm <sup>2</sup> UNITRONIC	0028304	438
O LIYY 5x0,25mm <sup>2</sup> UNITRONIC	0028305	42769
O LIYY 7x0,25mm <sup>2</sup> UNITRONIC	0028307	62030
O LIYY 8x0,25mm <sup>2</sup> UNITRONIC	0028308	60766
O LIYY 10x0,25mm <sup>2</sup> UNITRONIC	0028310	62031

*D* = outer cable diameter



## Multi Conductor Cables (continued)

### UNITRONIC LIYCY



Unitronic® LIYCY data transmission cables are a specific extension to the Uni-tronic® 100-CY range, but with DIN colour coding. These data and signal cables are used in computer systems, electronic control equipment, weighing scales - anywhere screened cables of small dimensions are needed. Fine or multi-wire (0.34mm<sup>2</sup>) strands of plain copper wire, PVC based core insulation, cores twisted in layers, various colours, as per DIN colour code. Wrapping of plastic film. Screen braiding of tinned copper wires. Outer sheath of special PVC-based compound, flame retardant according to VDE 0472, part 804, test type B (IEC 332.1), pebble grey (RAL 7032).  
Test voltage: 0,14 mm<sup>2</sup>: 1200 V, > 0,14 mm<sup>2</sup>: 1500 V.  
Temperature range: Static: -30 °C to +70 °C.  
Standard stock units 100m.



#### UNITRONIC LIYCY with cross section 0,14mm<sup>2</sup>

Part No.	Description
LIYCY 2x0,14mm <sup>2</sup> UNITRONIC 100m	Shielded cable 2 wires D=3,9mm
LIYCY 3x0,14mm <sup>2</sup> UNITRONIC 100m	Shielded cable 3 wires D=4,1mm
LIYCY 4x0,14mm <sup>2</sup> UNITRONIC 100m	Shielded cable 4 wires D=4,3mm
LIYCY 5x0,14mm <sup>2</sup> UNITRONIC 100m	Shielded cable 5 wires D=4,6mm
LIYCY 6x0,14mm <sup>2</sup> UNITRONIC 100m	Shielded cable 6 wires D=4,9mm
LIYCY 7x0,14mm <sup>2</sup> UNITRONIC 100m	Shielded cable 7 wires D=4,9mm
LIYCY 8x0,14mm <sup>2</sup> UNITRONIC 100m	Shielded cable 8 wires D=5,8mm
LIYCY 10x0,14mm <sup>2</sup> UNITRONIC 100m	Shielded cable 10 wires D=6,1mm

Part No.	LAPP No.	Ord.No.
S LIYCY 2x0,14mm <sup>2</sup> UNITRONIC	0034302	11120
S LIYCY 3x0,14mm <sup>2</sup> UNITRONIC	0034303	2406
S LIYCY 4x0,14mm <sup>2</sup> UNITRONIC	0034304	23153
S LIYCY 5x0,14mm <sup>2</sup> UNITRONIC	0034305	11121
S LIYCY 6x0,14mm <sup>2</sup> UNITRONIC	0034306	22314
O LIYCY 7x0,14mm <sup>2</sup> UNITRONIC	0034307	56534
S LIYCY 8x0,14mm <sup>2</sup> UNITRONIC	0034308	22315
S LIYCY 10x0,14mm <sup>2</sup> UNITRONIC	0034310	22316

D= outer cable diameter

#### UNITRONIC LIYCY with cross section 0,25mm<sup>2</sup>

Part No.	Description
LIYCY 2x0,25mm <sup>2</sup> UNITRONIC 100m	Shielded cable 2 wires. D=4,5mm
LIYCY 3x0,25mm <sup>2</sup> UNITRONIC 100m	Shielded cable 3 wires D=4,7mm
LIYCY 4x0,25mm <sup>2</sup> UNITRONIC 100m	Shielded cable 4 wires D=5,0mm
LIYCY 5x0,25mm <sup>2</sup> UNITRONIC 100m	Shielded cable 5 wires D=5,6mm
LIYCY 6x0,25mm <sup>2</sup> UNITRONIC 100m	Shielded cable 6 wires D=6,0mm
LIYCY 7x0,25mm <sup>2</sup> UNITRONIC 100m	Shielded cable 7 wires D=6,0mm
LIYCY 8x0,25mm <sup>2</sup> UNITRONIC 100m	Shielded cable 8 wires D=7,1mm
LIYCY 10x0,25mm <sup>2</sup> UNITRONIC 100m	Shielded cable 10 wires D=7,5mm

Part No.	LAPP No.	Ord.No.
O LIYCY 2x0,25mm <sup>2</sup> UNITRONIC	0034402	54504
O LIYCY 3x0,25mm <sup>2</sup> UNITRONIC	0034403	42771
S LIYCY 4x0,25mm <sup>2</sup> UNITRONIC	0034404	558
O LIYCY 5x0,25mm <sup>2</sup> UNITRONIC	0034405	42770
O LIYCY 6x0,25mm <sup>2</sup> UNITRONIC	0034406	38546
O LIYCY 7x0,25mm <sup>2</sup> UNITRONIC	0034407	42846
O LIYCY 8x0,25mm <sup>2</sup> UNITRONIC	0034408	38547
O LIYCY 10x0,25mm <sup>2</sup> UNITRONIC	0034410	560

D= outer cable diameter

#### UNITRONIC LIYCY with cross section 0,34mm<sup>2</sup>

Part No.	Description
LIYCY 2x0,34mm <sup>2</sup> UNITRONIC 100m	Shielded cable 2 wires D=4,9mm
LIYCY 3x0,34mm <sup>2</sup> UNITRONIC 100m	Shielded cable 3 wires D=5,1mm
LIYCY 4x0,34mm <sup>2</sup> UNITRONIC 100m	Shielded cable 4 wires D=5,7mm
LIYCY 5x0,34mm <sup>2</sup> UNITRONIC 100m	Shielded cable 5 wires D=6,2mm
LIYCY 6x0,34mm <sup>2</sup> UNITRONIC 100m	Shielded cable 6 wires D=6,8mm
LIYCY 7x0,34mm <sup>2</sup> UNITRONIC 100m	Shielded cable 7 wires D=6,8mm
LIYCY 8x0,34mm <sup>2</sup> UNITRONIC 100m	Shielded cable 8 wires D=7,8mm
LIYCY 10x0,34mm <sup>2</sup> UNITRONIC 100m	Shielded cable 10 wires D=8,3mm

Part No.	LAPP No.	Ord.No.
S LIYCY 2x0,34mm <sup>2</sup> UNITRONIC	0034502	562
S LIYCY 3x0,34mm <sup>2</sup> UNITRONIC	0034503	54396
S LIYCY 4x0,34mm <sup>2</sup> UNITRONIC	0034504	563
O LIYCY 5x0,34mm <sup>2</sup> UNITRONIC	0034505	58065
O LIYCY 6x0,34mm <sup>2</sup> UNITRONIC	0034506	62097
O LIYCY 7x0,34mm <sup>2</sup> UNITRONIC	0034507	62098
O LIYCY 8x0,34mm <sup>2</sup> UNITRONIC	0034508	2902
S LIYCY 10x0,34mm <sup>2</sup> UNITRONIC	0034510	54395

D= outer cable diameter

#### UNITRONIC LIYCY with cross section 0,75mm<sup>2</sup>

Part No.	Description
LIYCY 2x0,75mm <sup>2</sup> UNITRONIC 100m	Shielded cable 2 wires D=6,0mm
LIYCY 3x0,75mm <sup>2</sup> UNITRONIC 100m	Shielded cable 3 wires D=6,3mm
LIYCY 4x0,75mm <sup>2</sup> UNITRONIC 100m	Shielded cable 4 wires D=7,0mm
LIYCY 5x0,75mm <sup>2</sup> UNITRONIC 100m	Shielded cable 5 wires D=7,6mm
LIYCY 7x0,75mm <sup>2</sup> UNITRONIC 100m	Shielded cable 7 wires D=8,2mm
LIYCY 10x0,75mm <sup>2</sup> UNITRONIC 100m	Shielded cable 10 wires D=10,5mm

Part No.	LAPP No.	Ord.No.
O LIYCY 2x0,75mm <sup>2</sup> UNITRONIC	0034702	52165
O LIYCY 3x0,75mm <sup>2</sup> UNITRONIC	0034703	312
S LIYCY 4x0,75mm <sup>2</sup> UNITRONIC	0034704	313
S LIYCY 5x0,75mm <sup>2</sup> UNITRONIC	0034705	5167
O LIYCY 7x0,75mm <sup>2</sup> UNITRONIC	0034707	314
O LIYCY 10x0,75mm <sup>2</sup> UNITRONIC	0034710	58334

D= outer cable diameter

### UNITRONIC PUR CP



UNITRONIC® PUR CP is a multi-conductor shielded signal and control cable designed with a durable PUR jacket. The PUR jacket is oil and scratch resistant making it suitable for use in applications with high mechanical stress and chemicals. The overall braid shield provides protection against electrical interference and EMI emissions. Recommended for use with computers, data transmission, office equipment and process controls and instruments.  
Test voltage: 0,14 mm<sup>2</sup>: 1200 V, > 0,14 mm<sup>2</sup>: 1500 V.  
Temperature range: Static: -30 °C to +80 °C.  
Standard stock units 100m.



#### UNITRONIC PUR CP with cross section 0,25mm<sup>2</sup>

Part No.	Description
UNITRONIC PUR CP 2x0,25 100m	Shielded cable PUR D=4,5mm
UNITRONIC PUR CP 3x0,25 100m	Shielded cable PUR D=4,7mm
UNITRONIC PUR CP 4x0,25 100m	Shielded cable PUR D=5,0mm
UNITRONIC PUR CP 5x0,25 100m	Shielded cable PUR D=5,6mm
UNITRONIC PUR CP 7x0,25 100m	Shielded cable PUR D=6,0mm
UNITRONIC PUR CP 10x0,25 100m	Shielded cable PUR D=7,5mm

Part No.	LAPP No.	Ord.No.
O UNITRONIC PUR CP 2x0,25	0032800	61970
O UNITRONIC PUR CP 3x0,25	0032801	61971
O UNITRONIC PUR CP 4x0,25	0032802	61972
O UNITRONIC PUR CP 5x0,25	0032803	61973
O UNITRONIC PUR CP 7x0,25	0032804	61974
O UNITRONIC PUR CP 10x0,25	0032805	61975

D= outer cable diameter

## UNITRONIC - FD



UNITRONIC® FD is a highly flexible, multi-conductor, data transmission cable designed for automated production processes requiring increased flex life characteristics and durability.

The specially blended PVC jacket is resistant to mineral oils, synthetic oils and water based coolants, while preventing the cable from adhering to adjacent cables and cable track. Also available in a shielded version, UNITRONIC® FD CY with an overall tinned copper braid.

Test voltage: 1500 V.

Temperature range: -5 °C to +70 °C, static: -40 °C to +70 °C

Standard stock units 100m.



### UNITRONIC-FD with cross section 0,14mm<sup>2</sup>

Part No.	Description
UNITRONIC-FD 3x0,14 100m	Unshielded cable PVC D=4,1mm
UNITRONIC-FD 4x0,14 100m	Unshielded cable PVC D=4,4mm
UNITRONIC-FD 5x0,14 100m	Unshielded cable PVC D=4,7mm
UNITRONIC-FD 7x0,14 100m	Unshielded cable PVC D=5,4mm
UNITRONIC-FD 10x0,14 100m	Unshielded cable PVC D=6,4mm

Part No.	LAPP No.	Ord.No.
○ UNITRONIC-FD 3x0,14	0027841	61941
○ UNITRONIC-FD 4x0,14	0027842	61942
○ UNITRONIC-FD 5x0,14	0027843	61943
○ UNITRONIC-FD 7x0,14	0027844	61944
○ UNITRONIC-FD 10x0,14	0027845	61945

D= outer cable diameter

## ÖLFLEX CLASSIC 110 BK



ÖLFLEX® Classic 110 is a multi-conductor, flexible control cable designed for use in all electrical equipment in dry, damp and wet conditions.

Recommended applications include machine tools, assembly lines, control systems, data processing equipment, connections between control panels and machines, CNC machining centers, grinding machines and bottling equipment.

Finely stranded bare copper conductors; PVC insulation; conductors cabled with non-wicking fillers; dry lubricant, color: grey, silver.

Nominal Voltage: U<sub>0</sub>/U: 300/500 V,

Temperature range: -5 °C to +70 °C, static: -40 °C to +80 °C.

Standard stock units 100m.



### ÖLFLEX CLASSIC 110 BK with cross section 0,75mm<sup>2</sup>

Part No.	Description
ÖLFLEX CLASSIC 110 BK 2X0,75 100m	Unshielded cable PVC D=8,3mm
ÖLFLEX CLASSIC 110 BK 3G0,75 100m	Unshielded cable PVC D=8,7mm
ÖLFLEX CLASSIC 110 BK 3X0,75 100m	Unshielded cable PVC D=8,7mm
ÖLFLEX CLASSIC 110 BK 4G0,75 100m	Unshielded cable PVC D=9,2mm
ÖLFLEX CLASSIC 110 BK 4X0,75 100m	Unshielded cable PVC D=9,2mm

Part No.	LAPP No.	Ord.No.
○ ÖLFLEX CLASSIC 110 BK 2X0,75	1119802	61862
○ ÖLFLEX CLASSIC 110 BK 3G0,75	1119103	61863
○ ÖLFLEX CLASSIC 110 BK 3X0,75	1119803	61864
○ ÖLFLEX CLASSIC 110 BK 4G0,75	1119104	61865
○ ÖLFLEX CLASSIC 110 BK 4X0,75	1119804	61866

D= outer cable diameter

G= with yellow-green grounding wire

X= without yellow-green grounding wire

## ÖLFLEX CLASSIC 115 CY



ÖLFLEX® Classic 115 CY is a multi-conductor, shielded, flexible control cable with a smaller OD for tighter installations. It is designed for use in all electrical equipment in dry, damp, or wet conditions. An overall tinned copper braid is recommended whenever electrical interference distorts signal transmission, or when EMI emissions need to be suppressed. Recommended applications include machine tools, assembly lines, control systems, data processing equipment, connections between control panels and machines, CNC machining centers, grinding machines and bottling equipment.

Finely stranded bare copper conductors; PVC insulation; conductors cabled with non-wicking fillers; dry lubricant; insulating plastic foil; tinned copper braid (85% coverage); silver gray PVC jacket.

Nominal Voltage: U<sub>0</sub>/U: 300/500 V, Temperature range: -5 °C to +70 °C,

Static: -40 °C to +80 °C.



### ÖLFLEX CLASSIC 115 CY with cross section 0,75mm<sup>2</sup>

Part No.	Description
ÖLFLEX CLASSIC 115 CY 2X0,75 100m	Shielded cable PVC D=6,2mm
ÖLFLEX CLASSIC 115 CY 3G0,75 100m	Shielded cable PVC D=6,5mm
ÖLFLEX CLASSIC 115 CY 3X0,75 100m	Shielded cable PVC D=6,5mm
ÖLFLEX CLASSIC 115 CY 4G0,75 100m	Shielded cable PVC D=7,0mm
ÖLFLEX CLASSIC 115 CY 4X0,75 100m	Shielded cable PVC D=7,0mm

Part No.	LAPP No.	Ord.No.
○ ÖLFLEX CLASSIC 115 CY 2X0,75	1136802	61927
○ ÖLFLEX CLASSIC 115 CY 3G0,75	1136103	61928
○ ÖLFLEX CLASSIC 115 CY 3X0,75	1136803	61929
○ ÖLFLEX CLASSIC 115 CY 4G0,75	1136104	61930
○ ÖLFLEX CLASSIC 115 CY 4X0,75	1136804	61931

D= outer cable diameter

G= with yellow-green grounding wire

X= without yellow-green grounding wire



## Multi Conductor Cables (continued)

### ÖLFLEX ROBUST 210

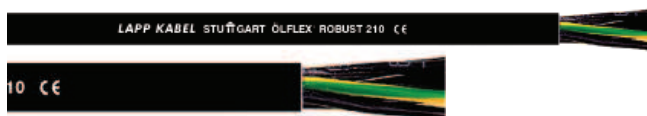


ÖLFLEX® ROBUST 210 is the number coded control cable version of the new ÖLFLEX® ROBUST product family. Based on Lapp Kabels unique ÖLFLEX® NATUR TPE-material, having special resistance characteristics to vegetable based oils (Bio-Oils). Suitable for free, not continuously moving applications without tensile load or compulsory guidance as well as for fixed laying. Indoor & outdoor use in dry, damp and wet interiors at medium mechanical stress. Well performed for usage in the food & beverage industry, especially for production- and processing equipments of milk and meat products. Best performance to machine tool-, medical-, laundry-, car-wash- & chemical industry applications, sewageplants. ÖLFLEX® ROBUST offers advantages: A better priceperformance ratio. Its extended performance opens up a wider field of applications which comes along with a significant better price level. All-weather performance due to its improved UV-light protection, water- and chemical resistance characteristic. Materials are halogen free. Predestinated for use in environments, where exposed to oils, greases, waxes, (vegetable & animal based oils and fats, mineral or synthetic oils and fats) or emulsions. Its very high resistance characteristic against water (cold and warm) as well as in-water-mixed detergents/cleaners/lotions (soaps, tensides) makes this cable indispensable everywhere periodically cleaning processes follow contamination processes.

Cores twisted in layers having short laylength, robust outer sheath made of halogenfree TPE, arctic grade, UV-light resistant, black (RAL 9005).

Nominal voltage  $U_0/U$ : 300/500 V, Temperature range: -40 °C to +80 °C, Static: -50 °C to +80 °C.

Standard stock units 100m.



### ÖLFLEX ROBUST 210 with cross section 0,75mm<sup>2</sup>

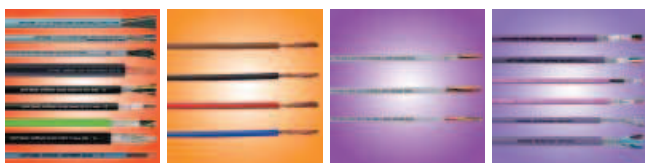
Part No.	Description
ÖLFLEX ROBUST 210 2X0,75 100m	Cable flexi 300/500V TPE D=5,5mm
ÖLFLEX ROBUST 210 3G0,75 100m	Cable flexi 300/500V TPE D=5,8mm
ÖLFLEX ROBUST 210 3X0,75 100m	Cable flexi 300/500V TPE D=5,8mm
ÖLFLEX ROBUST 210 4G0,75 100m	Cable flexi 300/500V TPE D=6,3mm
ÖLFLEX ROBUST 210 4X0,75 100m	Cable flexi 300/500V TPE D=6,3mm

Part No.	LAPP No.	Ord.No.
○ ÖLFLEX ROBUST 210 2X0,75	0021897	62000
○ ÖLFLEX ROBUST 210 3G0,75	0021898	62002
○ ÖLFLEX ROBUST 210 3X0,75	0021899	62003
○ ÖLFLEX ROBUST 210 4G0,75	0021900	62004
○ ÖLFLEX ROBUST 210 4X0,75	0021901	62006

D= outer cable diameter

G= with yellow-green grounding wire

X= without yellow-green grounding wire



### ÖLFLEX CRANE



Cables maintain all the positive properties for years;

Types up to max. 24 cores can also be used in power chains

**Application range:** For use in machinery and installations which are constantly exposed to bad weather conditions, handling and hoisting gear, construction machinery, dockyard installations. Suitable for use in special conditions such as industrial or sea water

**Design:** Strands of bare copper wires, core insulation - rubber

**Technical data:**

Specific insulation resistance > 20 GOhm x cm

Rated voltage:  $U_0/U$ : 300/500 V

Test voltage: 3000 V

Range of temperature: Flexible use: -25°C up to +80°C, Fixed installation: -40°C up to +80°C

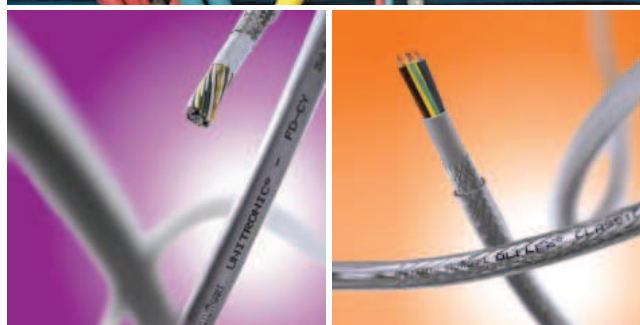
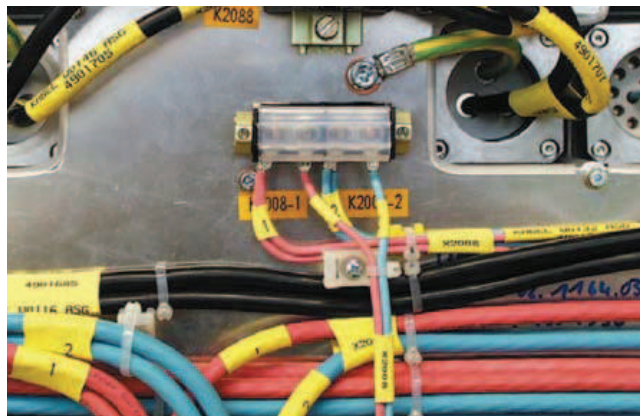


### ÖLFLEX CRANE with cross section 1,5mm<sup>2</sup>

Part No.	Description
ÖLFLEX CRANE 3G1,5mm <sup>2</sup> 100m	Cable Neopren 80°C D=13,6mm
ÖLFLEX CRANE 4G1,5mm <sup>2</sup> 100m	Cable Neopren 80°C D=14,3mm
ÖLFLEX CRANE 5G1,5mm <sup>2</sup> 100m	Cable Neopren 80°C D=15,3mm
ÖLFLEX CRANE 7G1,5mm <sup>2</sup> 100m	Cable Neopren 80°C D=19,1mm

Part No.	LAPP No.	Ord.No.
○ ÖLFLEX CRANE 3G1,5mm <sup>2</sup>	0039018	61845
○ ÖLFLEX CRANE 4G1,5mm <sup>2</sup>	00390193	61846
○ ÖLFLEX CRANE 5G1,5mm <sup>2</sup>	00390203	61847
○ ÖLFLEX CRANE 7G1,5mm <sup>2</sup>	0039061	61848

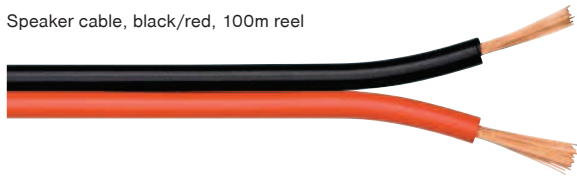
D= outer cable diameter



## Speaker Cables

### CYH Series

Speaker cable, black/red, 100m reel



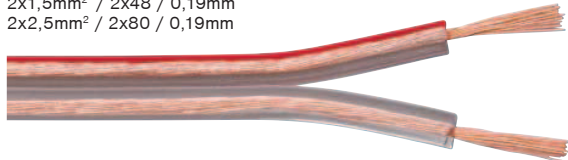
Part No.	Description
CYH 015x2 200m	2x0,15mm <sup>2</sup> black/red 200m
CYH 050x2 100m	2x0,50mm <sup>2</sup> black/red 100m
CYH 075x2 100m	2x0,75mm <sup>2</sup> black/red 100m
CYH 150x2 100m	2x1,50mm <sup>2</sup> black/red 100m

Part No.	Ord.No.
S CYH 015x2 200m	5105
S CYH 050x2 100m	5104
S CYH 075x2 100m	70529
O CYH 150x2 100m	70530

### LSC Series

Speaker cable with transparent isolation, 100m reel  
Dimensions:

2x0,75mm<sup>2</sup> / 2x42 CU wires / 0,12mm  
2x1,0mm<sup>2</sup> / 2x30 / 0,19mm  
2x1,5mm<sup>2</sup> / 2x48 / 0,19mm  
2x2,5mm<sup>2</sup> / 2x80 / 0,19mm



Part No.	Description
LSC 2x0,75mm <sup>2</sup> 100m	Speaker cable Ag/Cu, 100m
LSC 2x1,0mm <sup>2</sup> 100m	Speaker cable Ag/Cu, 100m
LSC 2x1,5mm <sup>2</sup> 100m	Speaker cable Ag/Cu, 100m
LSC 2x2,5mm <sup>2</sup> 100m	Speaker cable Ag/Cu, 100m
LSC 2x4,0mm <sup>2</sup> 100m	Speaker cable Ag/Cu, 100m

Part No.	Ord.No.
S LSC 2x0,75mm <sup>2</sup> 100m	48357
S LSC 2x1,0mm <sup>2</sup> 100m	47546
S LSC 2x1,5mm <sup>2</sup> 100m	48358
S LSC 2x2,5mm <sup>2</sup> 100m	48359
O LSC 2x4,0mm <sup>2</sup> 100m	48360

### PA 50 Series

Speaker cable 2x1,50mm<sup>2</sup>, suitable for XLR or SPEACON connectors, 50m reel.  
Double robust isolation, suitable for outside use.



Part No.	Description
PA 50 - 50m	Speaker cable 2x1,50mm <sup>2</sup> for XLR, 50m, outer diameter 6,9mm

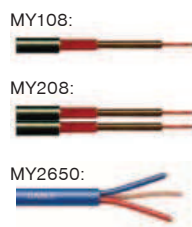
Part No.	Ord.No.
S PA 50 - 50m	70531

## Microphone Cables

### MY x08, MY 2650 Series

Tinned, flexible, PVC isolation  
100m or 50m reels (see table).

MY 108 1-wire, 0,25mm<sup>2</sup>  
MY 208 2-wires, 2x0,25mm<sup>2</sup>  
MY 2650 2-wires, 2x0,35mm<sup>2</sup>, balanced,  
outer diameter 6mm, flexible, for professional  
use, common jacket.  
CMK 222 2-wires, 2x0,22mm<sup>2</sup>, PVC, balan-  
ced, high performance, 100m reel, common  
jacket.



Part No.	Description
MY 108 100m	Microphone cable 1x0,25mm <sup>2</sup> 100m, black
MY 208 100m	Microphone cable 2x0,25mm <sup>2</sup> 100m, black
MY 2650 BK 50m	Microphone cable 2x0,35mm <sup>2</sup> black balanced, 50m
MY 2650 BU 50m	Microphone cable 2x0,35mm <sup>2</sup> blue balanced, 50m
MY 2650 RD 50m	Microphone cable 2x0,35mm <sup>2</sup> red balanced, 50m
MY 2650 YE 50m	Microphone cable 2x0,35mm <sup>2</sup> yellow balanced, 50m
CMK222 100m	Microphone cable 2x0,22mm <sup>2</sup> PVC, balanced, 100m

Part No.	Ord.No.
S MY 108 100m	5111
S MY 208 100m	5110
S MY 2650 BK 50m	47785
O MY 2650 BU 50m	66636
S MY 2650 RD 50m	66637
O MY 2650 YE 50m	66638
S CMK222 100m	73624

## Telephone Cables

### TEL Series

Suitable for RJ connectors, 100m reel



Part No.	Description
TEL4-BK	TK 44 SW Telephone cable black 100m 4-wire
TEL4-WH	TK 44 WS Telephone cable white 100m 4-wire
TEL6-BK	TK 66 SW Telephone cable black 100m 6-wire
TEL6-WH	TK 66 WS Telephone cable white 100m 6-wire
TEL8-BK	TK 88 SW Telephone cable black 100m 8-wire
TEL8-WH	TK 88 WS Telephone cable white 100m 8-wire

Part No.	Ord.No.
S TEL4-BK	29674
S TEL4-WH	29092
S TEL6-BK	29676
S TEL6-WH	29094
S TEL8-BK	29678
S TEL8-WH	29096

## Cables for TV, SAT and PC

### STV Series

Impedance 75 Ohm  $\pm 3$ , capacity 55 pF/m, shielding 80dB/95dB, attenuation 100 MHz 4,9 dB/100m, 2050 MHz 28,2 dB/100m. Inside wire diameter 1,13mm copper, isolation diameter 5,0mm polyethylene foam. Shielding - silver plated polyester foil + copper braid 128x0,12.



Part No.	Description
STV 1,1/5,0B 100m	Coaxial cable 75R, shielding 80dB, digital
STV 1,1/5,0DG 100m	Coaxial cable 75R, shielding 95dB, digital

Part No.	Ord.No.
O STV 1,1/5,0B 100m	5591
O STV 1,1/5,0DG 100m	5596

### SAT Series

Impedance 75 Ohm  $\pm 3$ , shielding 100dB, at-  
tenuation 100 MHz 5,2dB/100m, 2050 MHz  
inside wire diameter 1,13mm copper, isolation  
diameter 6,8mm polyethylene foam. Shielding  
- silver plated polyester foil + copper braid.  
Package: 25m.



Part No.	Description
SAT KK 100-68 25m	Coaxial cable 75R, shielding 100dB, 1,13/6,8mm

Part No.	Ord.No.
S SAT KK 100-68 25m	70534

## Cables for TV, SAT and PC (continued)

### RG Series

RG 58 - Coaxial data cable 50 Ohm, D=4,95mm, capacity 100pF/m PE isolation.

RG 174 - Coaxial data cable 50 Ohm, D=2,8mm, capacity 101pF/m PE isolation.



Part No.	Description
RG 174 A/U BK 100m	Coaxial cable 50 Ohm D=2,80mm black
RG 58 C/U BK 100m	Coaxial cable 50 Ohm D=4,95mm black

Part No.	Ord.No.
S RG 174 A/U BK 100m	55219
S RG 58 C/U BK 100m	31463

### CAT5, CAT6 Series

Network cables for ETHERNET, LAN... 4x twisted pair with shielding, SSTP - shielding foil + copper braid. 100m reel.

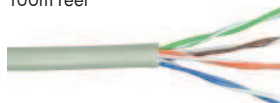


Suitable tools - see chapter K

Part No.	Description
FTP CAT5e	Cable FTP 4xTwistedPair-solid wire CAT5e AWG24/1
FTP CAT5e PATCH	Cable FTP 4xTwistedPair-wire strand, AWG26/7
SSTP CAT6 PIMF LSOH	Cable 4xTwistedPair-solid wire AWG23/1 grey

Part No.	Ord.No.
S FTP CAT5e 100m	1459
S FTP CAT5e PATCH 100m	51694
S SSTP CAT6 PIMF LSOH 100m	69910

Network cables for ETHERNET, LAN, 4x twisted pair without shielding, 100m reel



Part No.	Description
CAT5 SOLID UTP	Cable 4xTwistedPair AWG24/1 Grey
CAT5 SOLID UTP CCA	Cable 4xTwistedPair AWG24/1 Grey
CAT5 SOLID UTP LSOH	Cable 4xTwistedPair AWG24/1 Grey

Part No.	Ord.No.
O CAT5 SOLID UTP 100m	76374
O CAT5 SOLID UTP CCA 100m	76375
O CAT5 SOLID UTP LSOH 100m	62363

### USB Series



Part No.	Description
U2Z100 100m	USB Cable, Pair AWG28 (data)+2xAWG24 (power) D=4,7mm

Part No.	Ord.No.
S U2Z100 100m	75449

### Flat Cables

#### AWG 28 x F



Flat color cable, tinned, PVC isolation, high flexibility. Suitable for self-cutting connectors.

Wire area 0,087 mm<sup>2</sup>  
RM 1,27 mm

Working voltage max. 300V  
Working temperature -20°C to 105°C  
30,5m reel.

Part No.	Description
AWG 28-10 F 30,5m	Cable flat colour 30,5m 10-wire
AWG 28-20 F 30,5m	Cable flat colour 30,5m 20-wire
AWG 28-34 F I 30,5m	Cable flat colour 30,5m 34-wire
AWG 28-40 F I 30,5m	Cable flat colour 30,5m 40-wire

Part No.	Ord.No.
S AWG 28-10 F 30,5m	18512
S AWG 28-20 F 30,5m	18515
S AWG 28-34 F I 30,5m	18518
S AWG 28-40 F I 30,5m	18519

### AWG 28 x G



Flat grey cable, suitable for self-cutting connectors.

Wire area 0,087 mm<sup>2</sup>

RM 1,27 mm

Max. voltage 300V

Working temperature -40°C to 105°C  
30,5m reel.

Part No.	Description
AWG 28-10 G I 30,5m	Cable flat grey 30,5m 10-wire
AWG 28-14 G I 30,5m	Cable flat grey 30,5m 14-wire
AWG 28-16 G I 30,5m	Cable flat grey 30,5m 16-wire
AWG 28-20 G I 30,5m	Cable flat grey 30,5m 20-wire
AWG 28-25 G I 30,5m	Cable flat grey 30,5m 25-wire
AWG 28-26 G I 30,5m	Cable flat grey 30,5m 26-wire
AWG 28-34 G I 30,5m	Cable flat grey 30,5m 34-wire
AWG 28-40 G I 30,5m	Cable flat grey 30,5m 40-wire
AWG 28-50 G I 30,5m	Cable flat grey 30,5m 50-wire
AWG 28-60 G I 30,5m	Cable flat grey 30,5m 60-wire
AMP 0-0971111-4	Cable Flat Grey AWG28/34-wire 152m

Part No.	Ord.No.
S AWG 28-10 G I 30,5m	18498
S AWG 28-14 G I 30,5m	18499
S AWG 28-16 G I 30,5m	18501
S AWG 28-20 G I 30,5m	18502
S AWG 28-25 G I 30,5m	18504
S AWG 28-26 G I 30,5m	18505
S AWG 28-34 G I 30,5m	18506
S AWG 28-40 G I 30,5m	18508
S AWG 28-50 G I 30,5m	18509
S AWG 28-60 G I 30,5m	18510
S AMP 0-0971111-4 152m	53782

### FBL Series

Flat color cables for universal use. 10m reel.

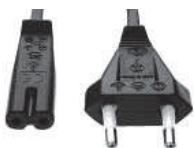


Part No.	Description
FBL-A10/0,25 10m	Cable flat colour 10x0,25mm <sup>2</sup> RM1,39mm
FBL-A10/0,50 10m	Cable flat colour 10x0,5mm <sup>2</sup> RM1,78mm
FBL-X10/0,14 10m	Cable flat colour 10x0,14mm <sup>2</sup> RM1,27mm

Part No.	Ord.No.
S FBL-A10/0,25 10m	51005
S FBL-A10/0,50 10m	51006
S FBL-X10/0,14 10m	44614

## 2-Wire Power Cords

### CAB MGF



Part No.	Description
CAB MGF	Power cord 1,75m, 2x0,75mm <sup>2</sup>

Part No.	Ord.No.
S CAB MGF	5115

### CAB EURO



Part No.	Description
CAB EURO	Power cord twisted, very flexible 0,5-2m

Part No.	Ord.No.
S CAB EURO	7766

## FLEXO Series



Part No.	Description
FLEXO 2x0,75 WH 2M	Cord FLEXO white 2m
FLEXO 2x0,75 BK 2M	Cord FLEXO black 2m

Part No.	Ord.No.
S FLEXO 2x0,75 WH 2M	5027
S FLEXO 2x0,75 BK 2M	5034

## 3-Wire Power Cords

### CAB 503-2



### CAB 504-2 CAB 508-2 MSL-202



Part No.	Description
CAB 503-2	Power cord monitor-PC, black 2m, 3x0,75mm <sup>2</sup>
CAB 504-2	Power cord EURO grey, 1,8m, 3x0,75mm <sup>2</sup>
CAB 508-2 NGL	Power cord EURO black 1,8m, 3x0,75mm <sup>2</sup>
MSL-202 (CAB 508-2 LGN)	Power cord 3x0,75mm <sup>2</sup> , black, 2m

Part No.	Ord.No.
S CAB 503-2	22268
S CAB 504-2	23555
S CAB 508-2 NGL	45279
S MSL-202 (CAB 508-2 LGN)	23558

### CAB 508/90-1,8



Part No.	Description
CAB 508/90-1,8	Power cord EURO 3G 0,75mm <sup>2</sup> uhlová black 1,8m

Part No.	Ord.No.
S CAB 508/90-1,8	70581

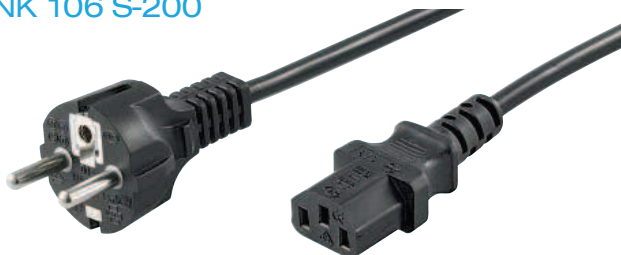
### CAB 516



Part No.	Description
CAB 516	Power cord for notebooks black 2m

Part No.	Ord.No.
S CAB 516	51049

## NK 106 S-200



Part No.	Description
NK 106 S-200	Power cord EURO 3G 0,75mm black 2m

Part No.	Ord.No.
S NK 106 S-200	64446

## FLEXO Series



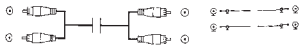
Part No.	Description
FLEXO 3x0,75 BK 2M	Cord FLEXO black, tinned wires 2,0m
FLEXO 3x0,75 GR 2M	Cord FLEXO grey, tinned wires 2,0m
FLEXO 3x1 QMM BK 2M	Cord FLEXO black 2m
FLEXO 3x1 QMM WH 2M	Cord FLEXO white 2m
FLEXO 3x1 QMM BK 3M	Cord FLEXO black 3m, tinned wires
FLEXO 3x1 QMM WH 3M	Cord FLEXO white 3m
FLEXO 3x1 QMM BK 5M	Cord FLEXO black 5m
FLEXO 3x1 QMM WH 5M	Cord FLEXO white 5m
FLEXO 3x1,5 BK 1,8M	Cord FLEXO black 1,8m

Part No.	Ord.No.
S FLEXO 3x0,75 BK 2M	54466
S FLEXO 3x0,75 GR 2M	54465
S FLEXO 3x1 QMM BK 2M	7711
S FLEXO 3x1 QMM WH 2M	7710
S FLEXO 3x1 QMM BK 3M	5035
S FLEXO 3x1 QMM WH 3M	7437
S FLEXO 3x1 QMM BK 5M	5037
S FLEXO 3x1 QMM WH 5M	7436
S FLEXO 3x1,5 BK 1,8M	61352



## Standard Audio - Video Cords

### AVK 128 Series



Blister pack

Part No.	Description
AVK 128-050	Cord 2xCinch-M / 2xCinch-M length 0,5m
AVK 128-150	Cord 2xCinch-M / 2xCinch-M length 1,5m
AVK 128-250	Cord 2xCinch-M / 2xCinch-M length 2,5m
AVK 128-500	Cord 2xCinch-M / 2xCinch-M length 5m

Part No.	Ord.No.
S AVK 128-050	3480
S AVK 128-150	5062
S AVK 128-250	3482
S AVK 128-500	3483

### AVK 132 - 200

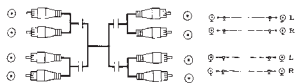
HQ



Part No.	Description
AVK 132-200	Cord HQ 2xCinch-M / 2xCinch-M length 2,0m audio

Part No.	Ord.No.
S AVK 132-200	70562

### AVK 133



Part No.	Description
AVK 133	Cord 4xCinch-M / 4xCinch-M length 1,5m

Part No.	Ord.No.
S AVK 133	3484

### AVK 354 - 200

Blister pack



Part No.	Description
AVK 354-200	Cord 3xCinch-M / 3xCinch-M length 2,0m video+2x audio

Part No.	Ord.No.
S AVK 354-200	59351

### AVK 607 - 200

HQ

Blister pack



Part No.	Description
AVK 607-200	Cord HQ 3xCinch-M / 3xCinch-M length 2,0m RGB 75R

Part No.	Ord.No.
S AVK 607-200	59357

### XA-9008

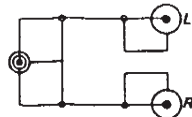
HQ



Part No.	Description
XA-9008	Cord HQ 2xCinch-M / jack3,5-M 3,0m

Part No.	Ord.No.
S XA-9008	60495

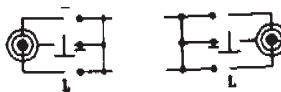
### AVK 118 Series



Part No.	Description
AVK 118-150	Cord 2xCinch-M / jack3,5-M 1,5m
AVK 118-500	Cord 2xCinch-M / jack3,5-M 5m
AVK 118-1000	Cord 2xCinch-M / jack3,5-M 10m
AVK 118-2000	Cord 2xCinch-M / jack3,5-M 20m

Part No.	Ord.No.
S AVK 118-150	5058
S AVK 118-500	54933
S AVK 118-1000	52482
O AVK 118-2000	52484

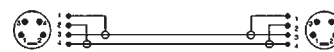
### AVK 119



Part No.	Description
AVK 119	Cord jack3,5-M / jack3,5-M length 1,5m

Part No.	Ord.No.
S AVK 119	5064

### AVK 157 Series



Part No.	Description
AVK 157-100	Cord S-VHS MDIN4-M / MDIN4-M 1,0m
AVK 157-500	Cord S-VHS MDIN4-M / MDIN4-M 5,0m
AVK 157-1000	Cord S-VHS MDIN4-M / MDIN4-M 10,0m
AVK 157-1500	Cord S-VHS MDIN4-M / MDIN4-M 15,0m
AVK 157-2000	Cord S-VHS MDIN4-M / MDIN4-M 20,0m

Part No.	Ord.No.
S AVK 157-100	45791
S AVK 157-500	45793
S AVK 157-1000	45798
O AVK 157-1500	45799
O AVK 157-2000	45800

## AVK 216 Series

Fiber Optic cord 2,2mm TOSLINK/TOSLINK.



Part No.	Description
AVK 216-100	Fiber Optic Cord 2,2mm TOSLINK/TOSLINK 1,0m
AVK 216-150	Fiber Optic Cord 2,2mm TOSLINK/TOSLINK 1,5m
AVK 216-200	Fiber Optic Cord 2,2mm TOSLINK/TOSLINK 2,0m
AVK 216-300	Fiber Optic Cord 2,2mm TOSLINK/TOSLINK 3,0m
AVK 216-500	Fiber Optic Cord 2,2mm TOSLINK/TOSLINK 5,0m
AVK 216-1000	Fiber Optic Cord 2,2mm TOSLINK/TOSLINK 10m

Part No.	Ord.No.
S AVK 216-100	48765
O AVK 216-150	48769
O AVK 216-200	48766
O AVK 216-300	48767
O AVK 216-500	48768
O AVK 216-1000	52657

## HDMI 19MM Series

Cord HDMI 1,3b 1080p M/M



Part No.	Description
HDMI 19MM/1	Cord HDMI 1,3b 1080p M/M 1,0m
HDMI 19MM/2	Cord HDMI 1,3b 1080p M/M 2,0m
HDMI 19MM/3	Cord HDMI 1,3b 1080p M/M 3,0m

Part No.	Ord.No.
S HDMI 19MM/1	57732
S HDMI 19MM/2	57731
S HDMI 19MM/3	57733

## HDMI HT 250-150

Cord HDMI 1,3b 1080p M/M



HQ

Part No.	Description
HDMI HT 250-150	Cord HDMI HQ 1,3b/1080p/ferrit M/M 1,5m blister

Part No.	Ord.No.
S HDMI HT 250-150	70662

## HDMI M / DVI M 2m

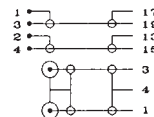
Cord HDMI 1,3b 1080p M/M



Part No.	Description
HDMI M / DVI M 2m	Cord HDMI-M / DVI-M 2,0m

Part No.	Ord.No.
S HDMI M / DVI M 2m	59360

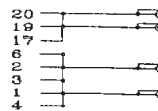
## AVK 160



Part No.	Description
AVK 160	Cord SCART-M / SVHS+2xCinch OUT 1,5m

Part No.	Ord.No.
S AVK 160	8277

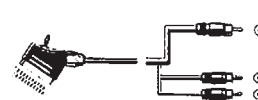
## AVK 162



Part No.	Description
AVK 162 - K1292	Cord SCART-M / 4xCinch-M

Part No.	Ord.No.
S AVK 162 - K1292	5057

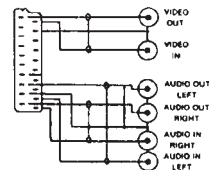
## AVK 183 SW



Part No.	Description
AVK 183 SW	Cord SCART-M/3xCinch-M switch 2,0m

Part No.	Ord.No.
S AVK 183 SW	8276

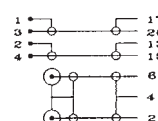
## AVK 197



Part No.	Description
AVK 197	Cord SCART / 6xCinch AV 1,5m

Part No.	Ord.No.
S AVK 197	8274

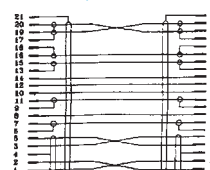
## AVK 161



Part No.	Description
AVK 161	Cord SCART-M / SVHS+2xCinch IN 1,5m

Part No.	Ord.No.
S AVK 161	8278

## SK-2115, SK21-150G



Part No.	Description
SK-2115	Cord SCART-M / SCART-M 21P 1,5m
SK21-150G	Cord SCART-M / SCART-M gold plated High-Q 1,5m

Part No.	Ord.No.
S SK-2115=VK20D1,5-7	2928
S SK21-150G	8279

Audio-Video Cords (continued)

SCART-KIT



Part No.	Description
SCART-KIT	Cord Audio-Video Set, 14pcs
Part No.	Ord.No.
S SCART-KIT	5056

AVK 164-050



Part No.	Description
AVK 164-050	Scart Hub 2xScart F 1xScart M length 0,5m
Part No.	Ord.No.
S AVK 164-050	48021

AVK 466-050



Part No.	Description
AVK 466-050	Scart Hub 3xScart F 1xScart M length 0,5m
Part No.	Ord.No.
S AVK 466-050	49865

AVK 165-050



Part No.	Description
AVK 165-050	Scart Hub 5xScart F 1xScart M length 0,5m
Part No.	Ord.No.
S AVK 165-050	49866

DVD SET GOLD BLISTER (DVD-KIT1)

Set consist of: cord S-VHS (M)/S-VHS (M) 10m, cord 2xCINCH (M)/2xCINCH (M) 10m, adaptor S-VHS (F)/CINCH (M) 0,13m, adaptor SCART (M) with switch IN-OUT/3xCINCH (F) + S-VHS (F), adaptor 3,5mm JACK (M)/2xCINCH (F).



Part No.	Description
DVD Set Gold Blister	Cords Audio-Video PC, TV 10m
Part No.	Ord.No.
S DVD Set Gold Blister	44139

DVD-KIT2 LC

Set consist of: cord S-VHS (M)/S-VHS (M) 5m, cord 2xCINCH (M)/3,5mm JACK (M) 5m, adaptor SCART (M) with switch IN-OUT/3xCINCH (F) + S-VHS (F).



Part No.	Description
DVD-KIT2 LC	Cords Audio-Video PC, TV 5m
Part No.	Ord.No.
S DVD-KIT2 LC	49153

PC USB Cords

USB cords (Universal Serial Bus).  
USB 1.1 data rate max. 12Mbps, USB 2.0 data rate max. 480 Mbps.

USB-AA Series

USB cords A / A.



Part No.	Description
USB-AA-1M	USB Cord A/A 1m USB 2.0/1.1
USB-AA-2M	USB Cord A/A 2m USB 2.0/1.1
Part No.	Ord.No.
S USB-AA-1M	6723
S USB-AA-2M	6726

USB-AB Series

USB cords A / B.



Part No.	Description
USB-AB-1M	USB Cord A/B 1m USB 2.0/1.1
USB-AB-2M	USB Cord A/B 2m USB 2.0/1.1
Part No.	Ord.No.
S USB-AB-1M	6724
S USB-AB-2M	6725

## USB-AM/BM MINI4 Series

USB cords A / B4 mini



Part No.	Description
USB-AM/BM Mini4/1M	USB Cord A/B4mini 1m, USB 2.0/1.1
USB-AM/BM Mini4/2M	USB Cord A/B4mini 2m, USB 2.0/1.1
USB-AM/BM Mini4/3M	USB Cord A/B4mini 3m, USB 2.0/1.1
USB-AM/BM Mini4/5M	USB Cord A/B4mini 5m, USB 2.0/1.1

Part No.	Ord.No.
S USB-AM/BM Mini4/1M	49933
S USB-AM/BM Mini4/2M	49934
O USB-AM/BM Mini4/3M	49935
O USB-AM/BM Mini4/5M	49936

## USB-AM/BM MINI5 Series

USB cords A / B5 mini



Part No.	Description
USB-AM/BM Mini5/1M	USB Cord A/B5mini 1m, USB 2.0/1.1
USB-AM/BM Mini5/1,8M	USB Cord A/B5mini 1,8m, USB 2.0/1.1
USB AM/BM Mini5/5M	USB Cord A/B5mini 5m, USB 2.0/1.1

Part No.	Ord.No.
S USB-AM/BM Mini5/1M	49937
S USB-AM/BM Mini5/1,8M	49938
O USB AM/BM Mini5/5M	54780

## USB 200

USB extension cord, male/female



Part No.	Description
USB-AM/B-Micro 1,8M	Cord Computer USB A / B-Micro 1,8m

Part No.	Ord.No.
S USB-AM/B-Micro 1,8M	73058

## USB 200

USB extension cord, male/female



Part No.	Description
USB 200	USB Cable A-M / A-F 2M, USB 2.0/1.1

Part No.	Ord.No.
S USB 200	41062



USB

Double USB connector A Female PC		
1	VCC	Power, +5 VD C
2	-Data 0	Neg. Data Channel 0
3	+Data 0	Pos. Data Channel 0
4	GND	Ground
5	VCC	+5V
6	-Data 1	Neg. Data Channel 1
7	+Data 1	Pos. Data Channel 1
8	GND	Ground

## PX0840/A/2M00

USB A-IP68 / USB B-Standard 2m



IP 68

Part No.	Description
PX0840/A/2M00	Cord USB A-IP68 /USB B-Standard 2m

Part No.	Ord.No.
S PX0840/A/2M00	69384

## PX0840/B/2M00

USB B-IP68 / USB A-Standard 2m



IP 68

Part No.	Description
PX0840/B/2M00	Cord USB B-IP68 /USB A-Standard 2m

Part No.	Ord.No.
S PX0840/B/2M00	51424

## PX0841/AB/2M00

USB B-IP68 / USB A-IP68 2m



IP 68

Part No.	Description
PX0841/AB/2M00	Cord USB B-IP68 /USB A-IP68 2m

Part No.	Ord.No.
S PX0841/AB/2M00	69386

Mating connectors - see chapter F

## UC232A CONVERTER

Cord/Converter USB/RS232 USB-AM/DSHB9M 35cm



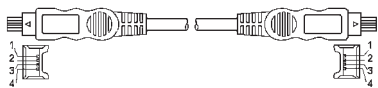
Part No.	Description
UC232A CONVERTER	Cord/converter USB/RS232 USB-AM/DSUB9M 35cm

Part No.	Ord.No.
S UC232A CONVERTER	49939

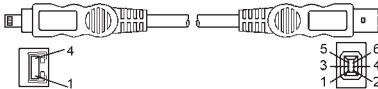
## PC FIRE-WIRE Cords

For connection IEEE1394 devices (videocamera, CD, DVD players) with PC. Max. transfer rate 400 Mbps.

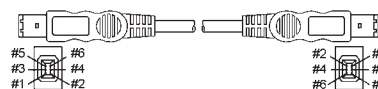
### FW4/4M1,8



### FW6/4M1,8



### FW6/6M1,8

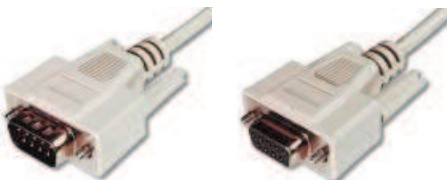


Part No.	Description
FW4/4M1,8	Cord FIRE-WIRE 4pin-4pin 1,8m
FW6/4M1,8	Cord FIRE-WIRE 6pin-4pin 1,8m
FW6/6M1,8	Cord FIRE-WIRE 6pin-6pin 1,8m

Part No.	Ord.No.
S FW4/4M1,8	51093
S FW6/4M1,8	51092
S FW6/6M1,8	51089

## PC Communication Cords

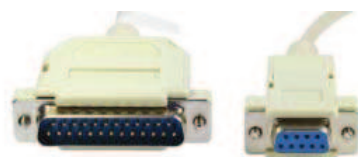
### CAB 230, CAB 261, CAB 699



Part No.	Description
CAB 230 MO	Extension Cord 1:1 9M-9F 2m
CAB 261 MO	Extension Cord 1:1 9M-9F 5m
CAB 699	Cord 9F-9F 5m

Part No.	Ord.No.
S CAB 230 MO	27373
S CAB 261 MO	29332
S CAB 699	29399

### CAB 125, CAB 331



Part No.	Description
CAB 125	Cord 9F-25M 2m
CAB 331	Cord 9F-25M 5m

Part No.	Ord.No.
S CAB 125	22245
S CAB 331	29344

## PC Communication Cords

### CAB 402, CAB 408



Part No.	Description
CAB 402	Extension Cord 25M-25M 5m
CAB 408	Extension Cord 25F-25F 5m

Part No.	Ord.No.
S CAB 402	22257
S CAB 408	22261

### CAB 404, CAB 456



Part No.	Description
CAB 404	Extension Cord 25M-25F 2m
CAB 456	Extension Cord 25M-25F 10m

Part No.	Ord.No.
S CAB 404	20349
S CAB 456	29358

### CAB 734, CAB 735



Part No.	Description
CAB 734	Cord Parallel 25M-25M 2m
CAB 735	Cord Parallel 25M-25M 5m

Part No.	Ord.No.
S CAB 734	36438
S CAB 735	36439

## PC CENTRONICS Cords

### CAB 101, CAB 103



Part No.	Description
CAB 101	Cord PC printer D-SUB 25M / CENTR.36M 25 wires 1,8m
CAB 103	Cord PC printer D-SUB 25M / CENTR.36M 5m

Part No.	Ord.No.
S CAB 101	22940
S CAB 103	22239

## PC Monitor Cords

CAB 551, CAB 562, CAB 563



Part No.	Description
CAB 551 MO	Cord VGA 15M-15F 2m
CAB 562 MO	Cord VGA 15M-15F 3m
CAB 563 MO	Cord VGA 15M-15F 5m

Part No.	Ord.No.
S CAB 551 MO	25893
S CAB 562 MO	29372
S CAB 563 MO	29373

## CAB 550, CAB 561



Part No.	Description
CAB 550 MO	Cord VGA 15M-15M 2m
CAB 561 MO	Cord VGA 15M-15M 5m

Part No.	Ord.No.
S CAB 550 MO	25892
S CAB 561 MO	29371

## CAB 564



Part No.	Description
CAB 564 MO	Cord VGA 15M-15M with ferrite 2m

Part No.	Ord.No.
S CAB 564 MO	40902

## CAB 570



Part No.	Description
CAB 570 MO	Cord VGA 15M-15F with ferrite 2m

Part No.	Ord.No.
S CAB 570 MO	40903

## PC Keyboard Cords

CAB 140

PC keyboard adaptor PS/2



Part No.	Description
CAB 140 MO	PC keyboard adaptor PS/2 0,1m

Part No.	Ord.No.
S CAB 140 MO	36465

## CAB 549

Extension keyboard Cord PS/2



Part No.	Description
CAB 549 MO	Extension keyboard Cord MD6M / MD6M 2m

Part No.	Ord.No.
S CAB 549 MO	38168

## CAB 556

Extension keyboard Cord PS/2



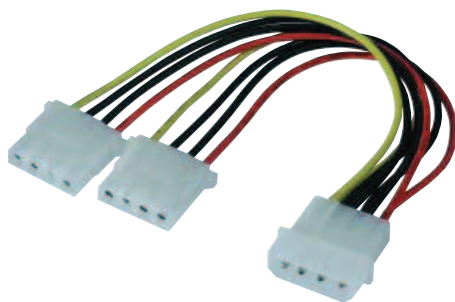
Part No.	Description
CAB 556 MO	Extension keyboard Cord MD6M / MD6F 2m

Part No.	Ord.No.
S CAB 556 MO	28693

## PC Power Cords

### PC Power Cords FDD/HDD

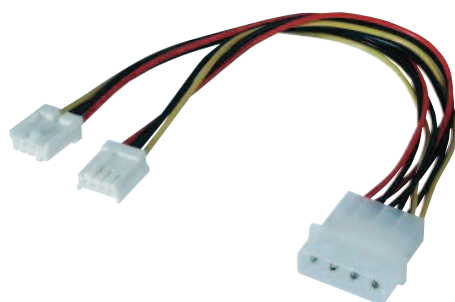
CAB 319



Part No.	Description
CAB 319	Cord Y FLOPPY 5,25" MFF

Part No.	Ord.No.
S CAB 319	22535

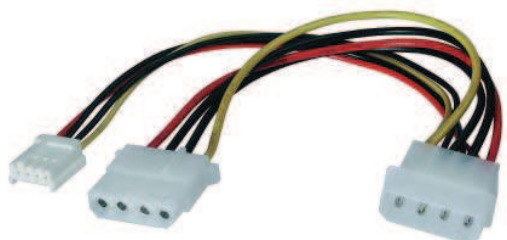
CAB 320



Part No.	Description
CAB 320	Cord Y FLOPPY 3,5" FF / 5,22" M

Part No.	Ord.No.
S CAB 320	25898

CAB 321



Part No.	Description
CAB 321	Cord Y FDD 3,5" F + 5.25" FM

Part No.	Ord.No.
S CAB 321	25899

CAB 912

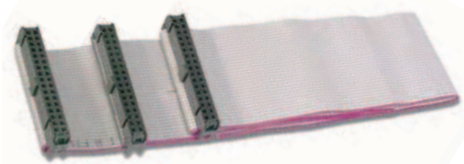


Part No.	Description
CAB 912	Power adaptor S-ATA

Part No.	Ord.No.
S CAB 912	51053

## PC Data Cords FDD/HDD

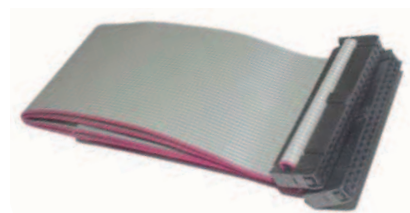
CAB 677



Part No.	Description
CAB 677	Cord FDD 3xFL34

Part No.	Ord.No.
S CAB 677	29384

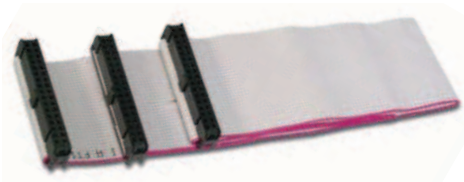
CAB 670



Part No.	Description
CAB 670	Cord AT-BUS FL40-FL40

Part No.	Ord.No.
S CAB 670	29379

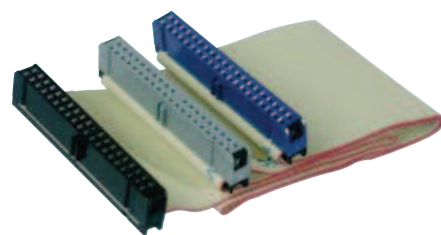
CAB 671



Part No.	Description
CAB 671	Cord AT-BUS 3xFL40

Part No.	Ord.No.
S CAB 671	29380

CAB 830



Part No.	Description
CAB 830	Cord PC ATA 100/133 3xFL40 80-wire 0,4m

Part No.	Ord.No.
S CAB 830	51054

CAB 917



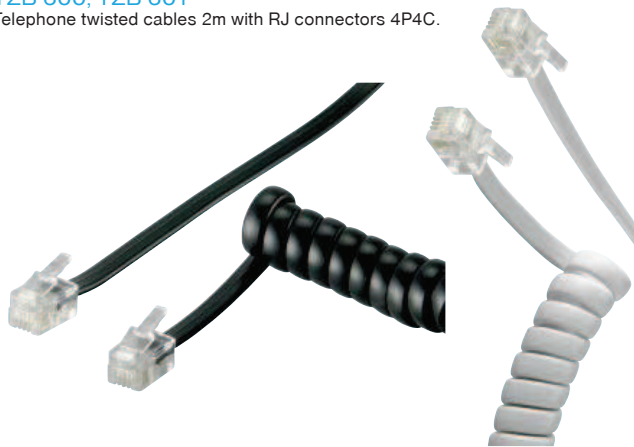
Part No.	Description
CAB 917	Cord PC S-ATA 0,5m

Part No.	Ord.No.
S CAB 917	51055

## Telephone Cables

TZB 600, TZB 601

Telephone twisted cables 2m with RJ connectors 4P4C.



Part No.	Description
TZB 600	Telephone twisted cable 4P4C M-4P4C M 2m black
TZB 601	Telephone twisted cable 4P4C M-4P4C M 2m white

Part No.	Ord.No.
S TZB 600	1263
S TZB 601	6605

## Patch Cables

### CAT 50x E PBF Series

Patch cables shielded, SFTP CAT5e.

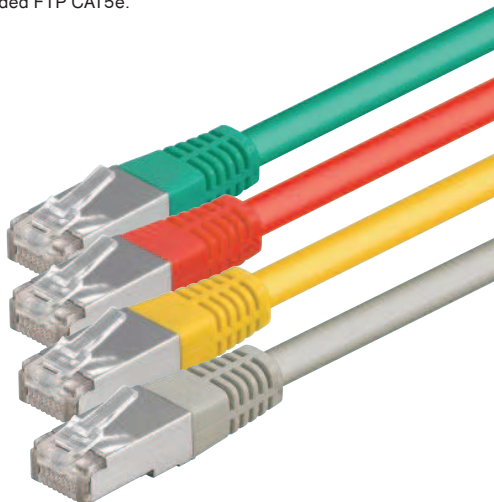


Part No.	Description
CAT 501 E PBF	Patch cable shielded SFTP CAT5e 1,0m grey
CAT 502 E PBF	Patch cable shielded SFTP CAT5e 2,0m grey
CAT 503 E PBF	Patch cable shielded SFTP CAT5e 3,0m grey

Part No.	Ord.No.
S CAT 501 E PBF	38179
S CAT 502 E PBF	60852
S CAT 503 E PBF	62404

### CAT 5-xxx FTP Series

Patch cables shielded FTP CAT5e.

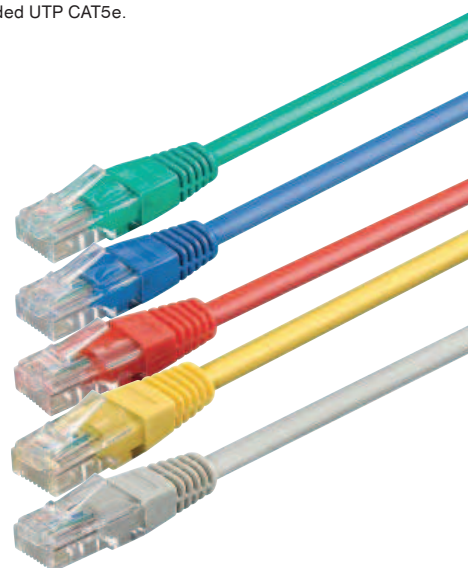


Part No.	Description
CAT 5-025 FTP	Patch cable shielded FTP CAT5e 0,25m grey
CAT 5-050 FTP	Patch cable shielded FTP CAT5e 0,50m grey
CAT 5-100 FTP	Patch cable shielded FTP CAT5e 1,00m grey
CAT 5-200 FTP	Patch cable shielded FTP CAT5e 2,00m grey
CAT 5-300 FTP	Patch cable shielded FTP CAT5e 3,00m grey
CAT 5-500 FTP	Patch cable shielded FTP CAT5e 5,00m grey
CAT 5-700 FTP	Patch cable shielded FTP CAT5e 7,00m grey
CAT 5-1000 FTP	Patch cable shielded FTP CAT5e 10,00m grey
CAT 5-1500 FTP	Patch cable shielded FTP CAT5e 15,00m grey

Part No.	Ord.No.
S CAT 5-025 FTP	63705
S CAT 5-050 FTP	63706
S CAT 5-100 FTP	63707
S CAT 5-200 FTP	63708
S CAT 5-300 FTP	63709
S CAT 5-500 FTP	63710
S CAT 5-700 FTP	63711
S CAT 5-1000 FTP	63712
S CAT 5-1500 FTP	63713

### CAT 5-xxx UTP Series

Patch cords unshielded UTP CAT5e.



Part No.	Description
CAT 5-025 UTP	Patch cable unshielded UTP CAT5e 0,25m grey
CAT 5-050 UTP	Patch cable unshielded UTP CAT5e 0,50m grey
CAT 5-100 UTP	Patch cable unshielded UTP CAT5e 1,00m grey
CAT 5-200 UTP	Patch cable unshielded UTP CAT5e 2,00m grey
CAT 5-300 UTP	Patch cable unshielded UTP CAT5e 3,00m grey
CAT 5-500 UTP	Patch cable unshielded UTP CAT5e 5,00m grey
CAT 5-700 UTP	Patch cable unshielded UTP CAT5e 7,00m grey
CAT 5-1000 UTP	Patch cable unshielded UTP CAT5e 10,00m grey
CAT 5-1500 UTP	Patch cable unshielded UTP CAT5e 15,00m grey

Part No.	Ord.No.
S CAT 5-025 UTP	63658
S CAT 5-050 UTP	63659
S CAT 5-100 UTP	63660
S CAT 5-200 UTP	63661
S CAT 5-300 UTP	63662
S CAT 5-500 UTP	63663
S CAT 5-700 UTP	63664
S CAT 5-1000 UTP	63665
S CAT 5-1500 UTP	63666



## TV/SAT Cables

### AK Series

Coaxial cable with TV(IEC) connectors M/F, white color.

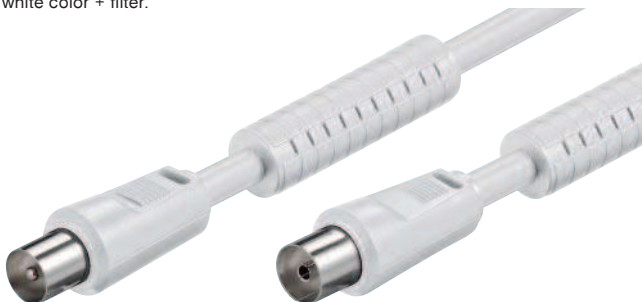


Part No.	Description
AK 150	Cable TV/SAT 1,5m
AK 250	Cable TV/SAT 2,5m
AK 500	Cable TV/SAT 5m
AK 750	Cable TV/SAT 7,5m
AK 1000	Cable TV/SAT 10m

Part No.	Ord.No.
S AK 150	33269
S AK 250	33270
S AK 500	33271
S AK 750	33272
S AK 1000	33273

### AKM Series

Coaxial cable for 100Hz TV, with TV(IEC) connectors M/F, white color + filter.



Part No.	Description
AKM 150 W	Cable TV/SAT 1,5m for 100Hz TV with filter white 95dB
AKM 250 W	Cable TV/SAT 2,5m for 100Hz TV with filter white 95dB
AKM 500 W	Cable TV/SAT 5m for 100Hz TV with filter white 95dB
AKM 750 W	Cable TV/SAT 7,5m for 100Hz TV with filter white 95dB
AKM 1000W	Cable TV/SAT 10m for 100Hz TV with filter white 95dB

Part No.	Ord.No.
O AKM 150 W	55180
O AKM 250 W	55182
O AKM 500 W	55184
O AKM 750 W	55185
O AKM 1000W	55186

### MSF 0,1m BK

Coaxial TV/SAT galvanic isolator with overvoltage protection Length 0,1m, black color.



Ground Breaker

Part No.	Description
MSF 0,1m BK	Coaxial TV/SAT galvanic isolator, 0,1m

Part No.	Ord.No.
S MSF 0,1m BK	69552

## Cable Testers

### Audio Cable Tester

Simple continuity tester, for audio cables: XLR, Speakon, Cinch, DIN5, Jack 6,3mm. Power supply: 9V battery.



Part No.	Description
AUDIO CABLE TESTER	Cable tester XLR, Speakon, Cinch, DIN5, Jack 6,3

Part No.	Ord.No.
S AUDIO CABLE TESTER	56284

### Network Cable Tester

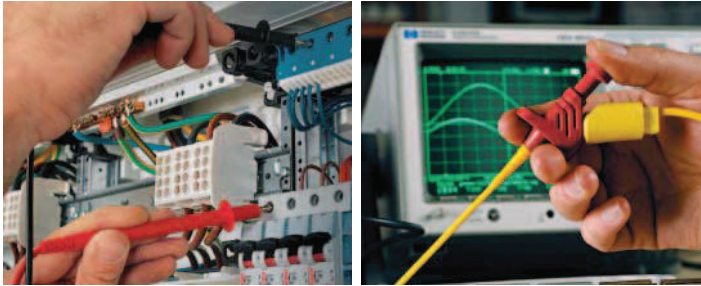
Simple tester network cables, RJ45 and BNC.



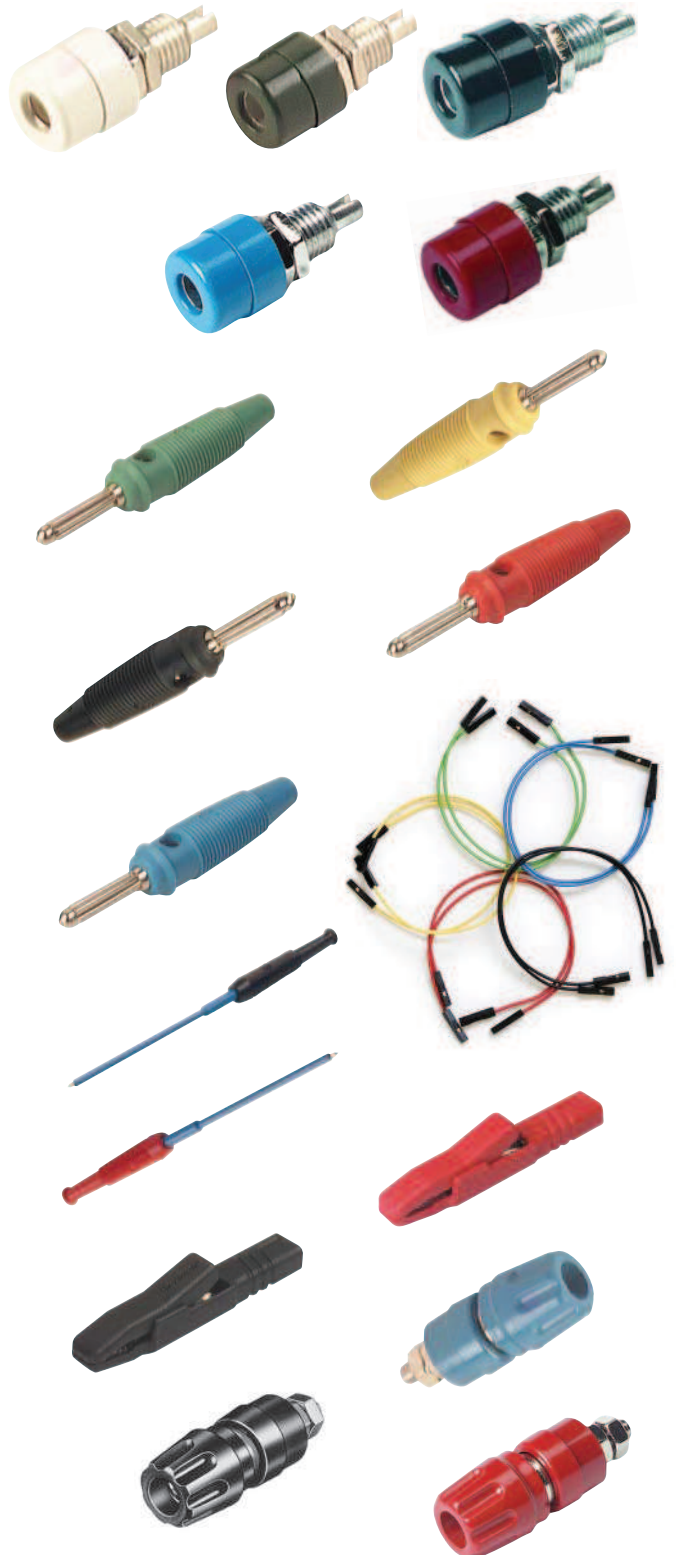
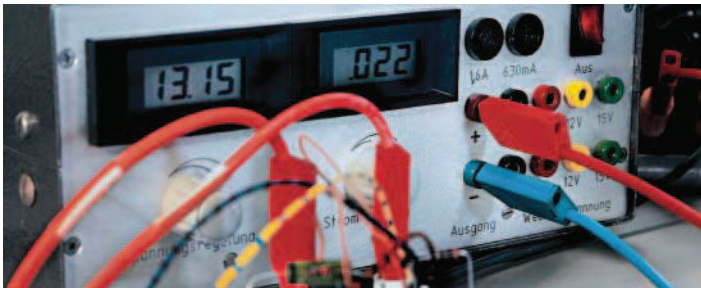
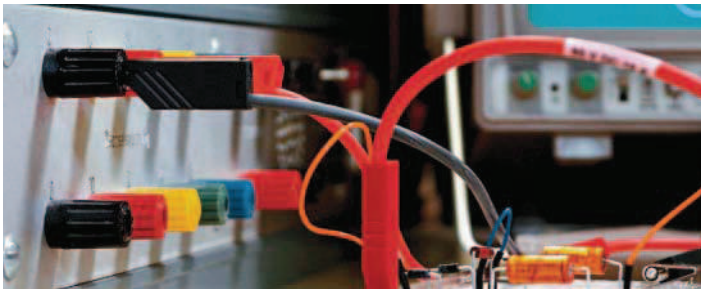
Part No.	Description
NETWORK CABLE TESTER S1007	Cable tester, RJ45, BNC

Part No.	Ord.No.
S NETWORK CABLE TESTER S1007	52603

SOS electronic - oficial distributor



TEST AND MEASURING EQUIPMENT



## Systems description



### 0,64mm system

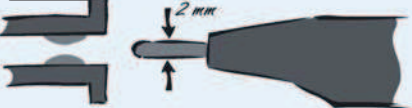
max.60V



The 0.64mm System is compatible with all standard 0.64mm printed circuit board contacts. (On board poles, connectors..) This system is used to test miniature components as used i.e. with SMD technology.

### 2mm system

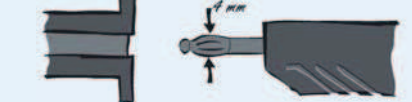
max.60V



The 2mm System consist of a solid pin and a spring loaded socket. The small, high quality contact pin is protected against mechanical influences to ensure reliable contact and durability.

### 4mm system

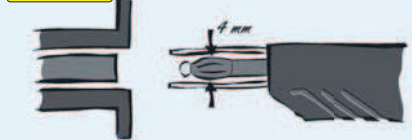
max.60V



The 4mm System has a spring-loaded contact pin and a springless socket. This is the world-wide most used test system and compliant to a broad range of Test equipment.

### 4mm safety system

max.1000V



The 4mm SafetySystem has a protected spring-loaded contact pin and a protected springless socket. The Hirschmann's safety system design complies to the IEC 61010 standards and is rated up to 1000V. Compliance to most test system used above 60V and all key Measurement tool - OEM's.

## Sockets

### MBI 1 Series



2 mm diameter miniature socket, insulated, tin-plated copper beryllium contact spring, with solder connection. Suitable for installation in equipment chassis and switch panels up to a maximum wall thickness of 5 mm.

Max. current 6A

Contact resistance 6mΩ

Temperature range: -20°C to +60°C.

2 mm



Part No.	Description
MBI 1 BK	Socket 2mm panel mount 6A M5 21mm black
MBI 1 RD	Socket 2mm panel mount 6A M5 21mm red

Part No.	Ord.No.
s MBI 1 BK	36622
s MBI 1 RD	36623

### BIL 20 Series

Socket with insulated head and ring for installation in equipment chassis and switchpanels with a wall thickness up to 2 mm. 4 mm diameter tin-plated brass socket, with solder connection.

Max. current 16A

Contact resistance 5mΩ

Temperature range -25°C to +85°C.

4 mm



Part No.	Description
BIL 20 BK	Socket 4mm panel mount 32A M6 23,5mm black
BIL 20 BU	Socket 4mm panel mount 32A M6 23,5mm blue
BIL 20 GN	Socket 4mm panel mount 32A M6 23,5mm green
BIL 20 RD	Socket 4mm panel mount 32A M6 23,5mm red
BIL 20 WH	Socket 4mm panel mount 32A M6 23,5mm white

Part No.	Ord.No.
s BIL 20 BK	36709
s BIL 20 BU	36711
s BIL 20 GN	36713
s BIL 20 RD	36710
s BIL 20 WH	48535

## PKI 10 A Series



Pole clamp with claw edge and captive insulated head and insulated ring. 4 mm diameter nickel-plated brass threaded bolt with 2 mm diameter transverse hole. For insulated, non-rotating installation in equipment chassis and switchpanels with a wall thickness up to 2 mm.

Max. current 16A

Contact resistance 2mΩ

Temperature range -25°C to +100°C.

4 mm



Part No.	Description
PKI 10 A BK	Socket 4mm screw panel mount izol.35A 42mm, black
PKI 10 A BU	Socket 4mm screwpanel mount izol.35A 42mm, blue
PKI 10 A RD	Socket 4mm screw panel mount izol.35A 42mm, red

Part No.	Ord.No.
s PKI 10 A BK	36715
s PKI 10 A BU	36717
s PKI 10 A RD	36716

## KUN 30 Series



Shatter-proof, flexible, insulated coupling for a 4 mm diameter plug and solder connection up to a cable cross-section of 2.5 mm<sup>2</sup>. Tin-plated brass socket. Length 48mm.

Max. current 16A

Contact resistance 3mΩ

Temperature range -25°C to +70°C.

4 mm



Part No.	Description
KUN 30 BK	Socket 4mm solderable for cable 16A 48mm black
KUN 30 RD	Socket 4mm solderable for cable 16A 48mm red

Part No.	Ord.No.
s KUN 30 BK	37480
s KUN 30 RD	37481

## SEB 2600G Series



Safety built-in socket, 4 mm diameter, touch-protected, M 4 threaded connection and soldering hole, gold-plated brass. For installation into switch-panels and equipment chassis with wall thicknesses up to 6 mm. Accessory BES 1000. Installation hole: 12.2 mm diameter.

Max. voltage 1000VDC

Max. current 32A

Contact resistance 5mΩ

Temperature range -40°C to +80°C.

4 mm SAFE



Part No.	Description
SEB 2600 G M4 BK	Safety socket 4mm panel mount M12 39mm black
SEB 2600 G M4 RD	Safety socket 4mm panel mount M12 39mm red

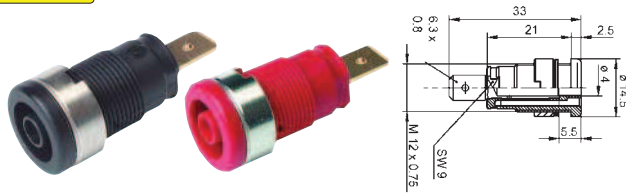
Part No.	Ord.No.
s SEB 2600 G M4 BK	40136
s SEB 2600 G M4 RD	40137

## SEB 2620 F6,3 Series



Safety built-in socket, 4mm diameter, contact-protected, with 6.3 x 0.8 tab connector complying with DIN 46 244, gold-plated brass. For installation into switchpanels and equipment chassis with wall thicknesses up to 6mm. Accessory BES 1000. Installation hole: 12.2mm diameter.  
 Max. voltage 1000VDC  
 Max. current 32A  
 Contact resistance 5mΩ  
 Temperature range -40°C to +80°C.

4mm SAFE



Part No.	Description
SEB 2620 F6,3 BK	Safety socket 4mm panel mount faston 6,3x0,8mm M12
SEB 2620 F6,3 RD	Safety socket 4mm panel mount faston 6,3x0,8mm M12

Part No.	Ord.No.
S SEB 2620 F6,3 BK	40139
S SEB 2620 F6,3 RD	40140

## B 73 Series

ECONOMIC

Panel sockets 4mm.

4mm



Part No.	Description
B 73 BK	Socket 4mm panel mount black
B 73 BU	Socket 4mm panel mount blue
B 73 GN	Socket 4mm panel mount green
B 73 RD	Socket 4mm panel mount red
B 73 WH	Socket 4mm panel mount white
B 73 YE	Socket 4mm panel mount yellow

Part No.	Ord.No.
S BB 73 BK	2093
S B 73 BU	2095
S B 73 GN	2094
S B 73 RD	9131
S B 73 WH	2097
S B 73 YE	2096

## B 74 Series

ECONOMIC

Panel sockets 4mm.

4mm



Part No.	Description
B 74 BK	Socket 4mm panel mount black
B 74 BU	Socket 4mm panel mount blue
B 74 GN	Socket 4mm panel mount green
B 74 RD	Socket 4mm panel mount red

Part No.	Ord.No.
S B 74 BK	6630
S B 74 BU	6629
S B 74 GN	6631
S B 74 RD	6632

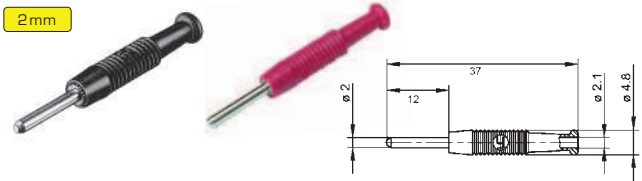
## Plugs



### MST 3 Series

2mm diameter miniature connector, nickel-plated brass pin with solder connection. Flexible, shatterproof insulated sleeve. For making up connecting leads with a maximum external diameter of 1.9mm.  
 Max. current 6A  
 Contact resistance 6mΩ  
 Temperature range -25°C to +60°C.

2mm



Part No.	Description
MST 3 BK	Plug 2mm solderable 6A 37mm black
MST 3 RD	Plug 2mm solderable 6A 37mm red

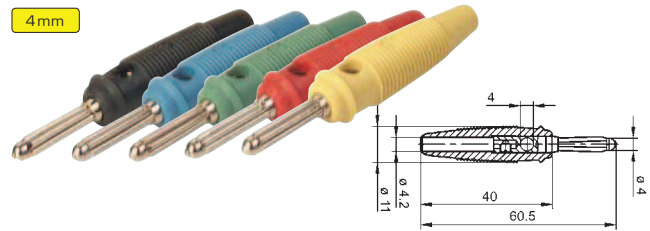
Part No.	Ord.No.
S MST 3 BK	36614
S MST 3 RD	36615

### BULA 20 K Series



4mm multiple-spring wire plug, shatter-proof, flexible insulated sleeve with transverse hole. The tapering sleeve end also serves as kinking protection for the lead. Screw connection up to maximum cable cross-section of 1.5mm<sup>2</sup>. Nickel-plated brass contact material.  
 Max. current 16A  
 Contact resistance 3mΩ  
 Temperature range -25°C to +70°C.

4mm



Part No.	Description
BULA 20 K BK	Plug 4mm, screw 16A cross socket 4mm 60,5mm
BULA 20 K BU	Plug 4mm, screw 16A cross socket 4mm 60,5mm
BULA 20 K GN	Plug 4mm, screw 16A cross socket 4mm 60,5mm
BULA 20 K RD	Plug 4mm, screw 16A cross socket 4mm 60,5mm
BULA 20 K YE	Plug 4mm, screw 16A cross socket 4mm 60,5mm

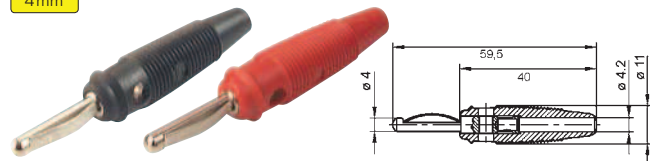
Part No.	Ord.No.
S BULA 20 K BK	36653
S BULA 20 K BU	36655
S BULA 20 K GN	36657
S BULA 20 K RD	36654
S BULA 20 K YE	36656

### VQ 30 Series



4mm fully mating connector, shatter-proof, flexible insulated sleeve with transverse hole. The tapering sleeve end also serves as kinking protection for the lead. Solder connection up to maximum cable cross-section of 2.5mm<sup>2</sup>. Nickel-plated brass contact material.  
 Max. current 30A  
 Contact resistance 3mΩ  
 Temperature range -25°C to +70°C.

4mm



Part No.	Description
VQ 30 BK	Plug 4mm solderable 30A cross socket 4mm 59,5mm
VQ 30 RD	Plug 4mm solderable 30A cross socket 4mm 59,5mm

Part No.	Ord.No.
S VQ 30 BK	48722
S VQ 30 RD	48723

## Plugs (continued)



### VON 30 Series

4mm fully mating connector, shatter-proof, flexible insulated sleeve. The tapering sleeve end also serves as kinking protection for the lead. Solder connection up to maximum cable cross-section of 2.5 mm<sup>2</sup>. Nickelplated brass contact material. Max. current 30A, contact resistance 3mΩ, temperature range -25°C to +70°C.

4mm



Part No.	Description
VON 30 BK	Plug 4mm solderable 30A 51mm black
VON 30 RD	Plug 4mm solderable 30A 51mm red

Part No.	Ord.No.
S VON 30 BK	36686
S VON 30 RD	36687

## Adaptors

### MZS 2 Series



Injection-moulded adapter plug from 2mm diameter plug to 4mm diameter socket. This adapter plug enables the use of 4mm plugs and 2mm measuring leads. Max. current 6A, contact resistance 6mΩ, temperature range -20°C to +60°C.

2/4mm



Part No.	Description
MZS 2 BK	Adapter plug 2mm/socket 4mm 6A black
MZS 2 RD	Adapter plug 2mm/socket 4mm 6A red

Part No.	Ord.No.
S MZS 2 BK	36675
S MZS 2 RD	36676

### MZS 4 Series



Injection-moulded adapter plug from 4mm diameter plug to 2mm diameter socket. This adapter plug enables the use of 2mm system plugs and 4mm system measuring leads. Max. current 6A, contact resistance 6mΩ a temperature range -20°C to +60°C.

4/2mm



Part No.	Description
MZS 4 BK	Adapter plug 4mm/socket 2mm 6A black
MZS 4 RD	Adapter plug 4mm/socket 2mm 6A red

Part No.	Ord.No.
S MZS 4 BK	36677
S MZS 4 RD	36678

## Plugs

ECONOMIC

### B 71 Series

Plug 4mm. Screw connection up to maximum cable cross-section of 1,5 mm<sup>2</sup>.

4mm



Part No.	Description
B 71 BK	Plug 4mm, screw, black, wire max. 1,5 mm <sup>2</sup>
B 71 BU	Plug 4mm, screw, blue, wire max. 1,5 mm <sup>2</sup>
B 71 GN	Plug 4mm, screw, green, wire max. 1,5 mm <sup>2</sup>
B 71 RD	Plug 4mm, screw, red, wire max. 1,5 mm <sup>2</sup>
B 71 YE	Plug 4mm, screw, yellow, wire max. 1,5 mm <sup>2</sup>

Part No.	Ord.No.
S B 71 BK	2159
S B 71 BU	2492
S B 71 GN	4864
S B 71 RD	2157
S B 71 YE	4911

### BS 819 Series

ECONOMIC

Plug 4mm with socket. Screw connection up to maximum cable cross-section of 1,5 mm<sup>2</sup>.

4mm



Part No.	Description
BS 819 BK	Plug 4mm, wire max 1,5mm <sup>2</sup> + plug 4mm, black
BS 819 RD	Plug 4mm, wire max 1,5mm <sup>2</sup> + plug 4mm, red

Part No.	Ord.No.
S BS 819 BK	6159
S BS 819 RD	6158

### IMG 2 Banana Plug Set

ECONOMIC

Plug set 2x red, 2x black.



Part No.	Description
IMG 2	Plug set 2x red, 2x black

Part No.	Ord.No.
S IMG 2	66675

## Alligator Clips



### MA 1 Series

Miniature alligator clip with unbreakable insulation. Nickel-plated brass jaws. The flat part of the jaws (fine wire section) allows a secure contact to be made when clamping even the thinnest wires. Capable of clamping flat components (soldering eyes) and wires up to a maximum diameter of 4 mm. Contact resistance 5mΩ, temperature range -25°C to +100°C.



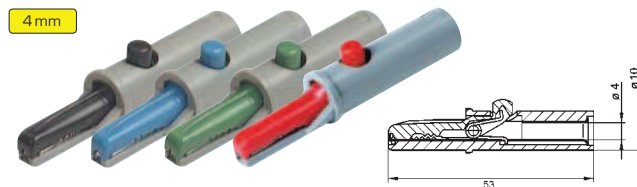
Part No.	Description
MA 1 BK	Alligator clip isolated 41,5mm, plug 2mm black
MA 1 RD	Alligator clip isolated 41,5mm, plug 2mm red

Part No.	Ord.No.
S MA 1 BK	37610
S MA 1 RD	37611

### AK 10 Series



Insulated alligator clip. Clamping range up to 6 mm bolt diameter. Fine wire section for very thin wires. Only the lower part of the clip has a tin-plated, brass contact insert. 4 mm diameter socket connection. Total length 53mm. Max. current 6A, contact resistance 15mΩ. Max. voltage 60VDC, temperature range -25°C to +60°C.

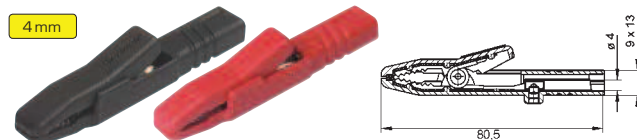


Part No.	Description
AK 10 BK	Alligator clip isolated 53mm plug 4mm 6A black
AK 10 BU	Alligator clip isolated 53mm plug 4mm 6A blue
AK 10 GN	Alligator clip isolated 53mm plug 4mm 6A green
AK 10 RD	Alligator clip isolated 53mm plug 4mm 6A red

Part No.	Ord.No.
S AK 10 BK	36643
S AK 10 BU	36645
S AK 10 GN	36647
S AK 10 RD	36644

### AK 2 S Series

Insulated, unbreakable alligator clip. Clamping range up to 9.5 mm bolt diameter. The flat part of the jaws (fine wire section) allows even the finest wires to be clamped. 4 mm diameter socket connection and screw connection up to 1.5 mm<sup>2</sup>. Total length 80,5mm. Max. current 25A, contact resistance 10mΩ. Max. voltage 60VDC, temperature range -25°C to +80°C.



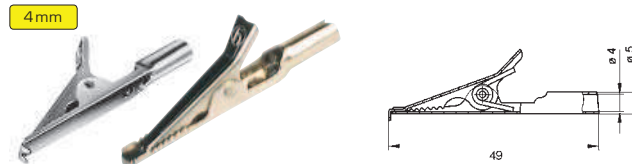
Part No.	Description
AK 2 S BK	Alligator clip isolated 80,5mm plug 4mm 25A black
AK 2 S RD	Alligator clip isolated 80,5mm plug 4mm 25A red

Part No.	Ord.No.
S AK 2 S BK	36599
S AK 2 S RD	36600

### AGF 20



Nickel-plated steel alligator clip. The special shape allows clamping of both extremely fine and thick wires. Maximum bolt diameter 10 mm. 4 mm diameter socket connection and solder connection possible. Total length 49mm. Contact resistance 15mΩ. Max. voltage 60VDC, temperature range -25°C to +100°C.



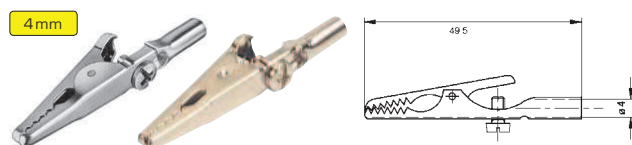
Part No.	Description
AGF 20	Steel alligator clip 49mm plug 4mm

Part No.	Ord.No.
S AGF 20	36685

### AGS 20



Nickel-plated steel alligator clip. Clamping range up to a maximum bolt diameter 5 mm. 4 mm diameter socket connection, connection possible by terminal screw and solder connection. Total length 49,5mm. Contact resistance 10mΩ. Max. voltage 60VDC, temperature range -25°C to +100°C.



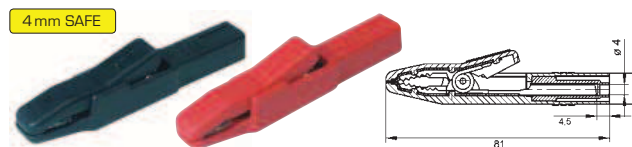
Part No.	Description
AGS 20	Steel alligator clip 49,5mm screw plug 4mm

Part No.	Ord.No.
S AGS 20	38870

### AK 2 B Series



Contact-protected, unbreakable alligator clip. Clamping range up to a bolt diameter of 9.5 mm. The flat section of the clamping jaws allows extremely fine wires to be clamped. 4 mm diameter brass socket connection. Total length 81mm. Max. voltage 300VDC, Max. current 25A, contact resistance 10mΩ, temperature range -25°C to +80°C.



Part No.	Description
AK 2 B BK	Alligator clip isolated 81mm plug 4mm 25A black
AK 2 B RD	Alligator clip isolated 81mm plug 4mm 25A red

Part No.	Ord.No.
S AK 2 B BK	36601
S AK 2 B RD	36602

### KK 01 Series

ECONOMIC

Steel alligator clip with plug 4mm, length 51mm.



Part No.	Description
KK 01	Steel alligator clip with plug 4mm, length 51mm.

Part No.	Ord.No.
S KK 01	28187

## Alligator Clips (continued)

### KK 02 Series

Steel alligator clip with 4mm plug, length 55mm.



ECONOMIC

Part No.	Description
KK 02 BK	Steel alligator clip with plug 4mm, black
KK 02 RD	Steel alligator clip with plug 4mm, red

Part No.	Ord.No.
S KK 02 BK	28189
S KK 02 RD	28188

### KK 03 Series

Steel alligator clip with 4mm plug, length 56mm.



ECONOMIC

Part No.	Description
KK 03 BK	Steel alligator clip with plug 4mm, black
KK 03 RD	Steel alligator clip with plug 4mm, red

Part No.	Ord.No.
S KK 03 BK	28191
S KK 03 RD	28190

### KK 05 Series

Steel alligator clip, isolated, length 32,5mm.



ECONOMIC

Part No.	Description
KK 05 B	Steel alligator clip, isolated, length 32,5mm, black
KK 05 R	Steel alligator clip, isolated, length 32,5mm, red

Part No.	Ord.No.
S KK 05 B	6637
S KK 05 R	6636

### KK 06 Series

Steel alligator clip, isolated, solderable, length 43mm.



ECONOMIC

Part No.	Description
KK 06 BK	Steel alligator clip, isolated, length 43mm, black
KK 06 RD	Steel alligator clip, isolated, length 43mm, red

Part No.	Ord.No.
S KK 06 BK	28193
S KK 06 RD	28192

### KK 07 Series

Steel alligator clip, solderable, length 35mm.

ECONOMIC



Part No.	Description
KK 07 B	Steel alligator clip 35mm, black
KK 07 R	Steel alligator clip 35mm, red

Part No.	Ord.No.
S KK 07 B;	6638
S KK 07 R	6639

### KK 81 Series

Alligator clip, isolated, length 53mm, plug 4mm.

ECONOMIC



Part No.	Description
KK 81 BK	Alligator clip, isolated, length 53mm, plug 4mm, black
KK 81 RD	Alligator clip, isolated, length 53mm, plug 4mm, red

Part No.	Ord.No.
S KK 81 BK	6161
S KK 81 RD	6160

### KK E54 Series

Alligator clip, isolated, length 61mm, plug 2mm.

ECONOMIC



Part No.	Description
KK E54-BK	Alligator clip, isolated, length 61mm, plug 2mm, black
KK E54-RD	Alligator clip, isolated, length 61mm, plug 2mm, red

Part No.	Ord.No.
S KK E54-BK	71576
S KK E54-RD	71577

### KK SET Series

ECONOMIC



KK SET 6

KK SET 28

Part No.	Description
KK SET 6	Alligator clip isolated, length 55mm, 30A/250Vac, 6pcs
KK SET 28	Alligator clip, 28pcs

Part No.	Ord.No.
S KK SET 6	72018
S KK SET 28	72019

## Test Probes

### KLEPS 1 MICRO Series

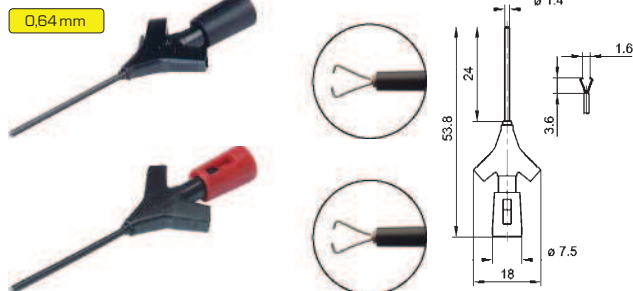
Miniature clamp-type test probe with rotating grip jaws (SMD technology). The insulated shaft can be bent up to 35°. Suitable for very thin wires and densely packed contact points (1.27 mm IC spacing pitch).

Max. current 2A

Contact resistance 10mΩ

Temperature range: -25°C to +100°C

Connects with MKL 0,64/25-0,64 or MAL 4-0,64/100-0,25

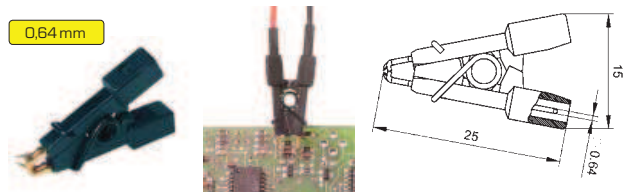


Part No.	Description
KLEPS 1 MICRO BK	Clamp-Type test probe SMD connector 0,64mm black
KLEPS 1 MICRO RD	Clamp-Type test probe SMD connector 0,64mm red

Part No.	Ord.No.
S KLEPS 1 MICRO BK	40191
S KLEPS 1 MICRO RD	45880

### MICRO-SMD CLIP 1

Spring-loaded, two-pole test clip, specially designed for SMD components. Gold-plated, hardened tip for testing circuits, flat-nosed grips for individual components; notch for gripping thin wires. Balanced spring force permits testing of large and small components; 0,64mm pin connection; electrically insulated spring. Connects with MKL 0,64/25-0,64 or MAL 4-0,64/100-0,25. Clamping range up to 8mm bolt diameter. Contact resistance 6mΩ, temperature range -30°C to +100°C.



Part No.	Description
MICRO-SMD CLIP 1	Two-pole test clip, 0,64 mm pin connection

Part No.	Ord.No.
S MICRO-SMD CLIP 1	50935

### KLEPS 2 Series

Miniature clamp-type test probe with solder connection. Gold-plated sprung bronze contact hook for wires up to a maximum diameter of 2mm. Remove actuator button for soldering, when cable is connected, press back on until it engages. Max. current 6A, contact resistance 15mΩ, temperature range -25°C to +100°C.

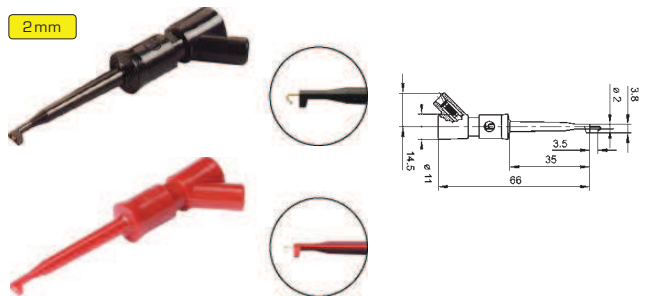


Part No.	Description
KLEPS 2 BK	Clamp-Type test probe, solderable 57,5mm black
KLEPS 2 RD	Clamp-Type test probe, solderable 57,5mm red

Part No.	Ord.No.
S KLEPS 2 BK	48534
S KLEPS 2 RD	48533

### KLEPS 2 BU Series

Miniature clamp-type test probe with 2mm diameter socket connection. Gold-plated copper beryllium contact spring. Gold-plated sprung bronze contact hook for wires up to a maximum diameter of 2mm. Suitable for connection to wrap posts up to a maximum of 1x1mm. Max. current 6A, contact resistance 15mΩ, temperature range -25°C to +100°C.



Part No.	Description
KLEPS 2 BU BK	Clamp-Type test probe, socket 2mm 66mm black
KLEPS 2 BU RD	Clamp-Type test probe, socket 2mm 66mm red

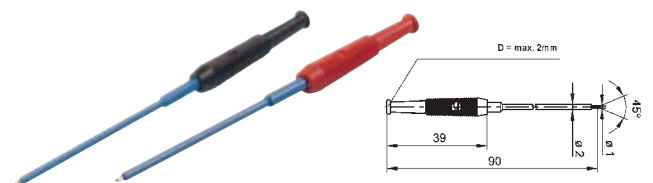
Part No.	Ord.No.
S KLEPS 2 BU BK	36587
S KLEPS 2 BU RD	36588

### PRUF 1 Series

Miniature test probe for sampling extremely small measuring points. Shatter-proof grip, may be unscrewed. The stainless steel tip easily penetrates insulation and oxide layers. Solder connection up to 0.5mm<sup>2</sup>.

Contact resistance 50mΩ

Temperature range -25°C to +60°C.



Part No.	Description
PRUF 1 BK	Miniature test probe solderable 90mm black
PRUF 1 RD	Miniature test probe solderable 90mm red

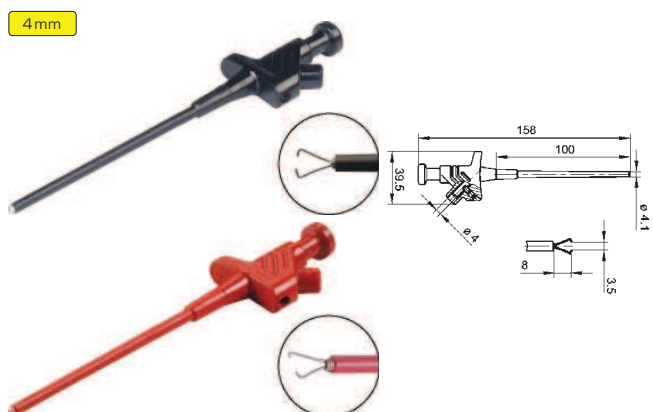
Part No.	Ord.No.
S PRUF 1 BK	36593
S PRUF 1 RD	36594

### KLEPS 30 Series

Clamp-type test probe with rotating grip jaws and flexible shaft. The special form of the grip jaws allows clamping of pins and wires up to a maximum of 4mm diameter. 4mm diameter brass socket connection with side screw, grip jaws additionally nickel-plated.

Contact resistance 50mΩ

Temperature range -25°C to +80°C.



Part No.	Description
KLEPS 30 BK	Clamp-Type test probe, socket 4mm 158mm black
KLEPS 30 RD	Clamp-Type test probe, socket 4mm 158mm red

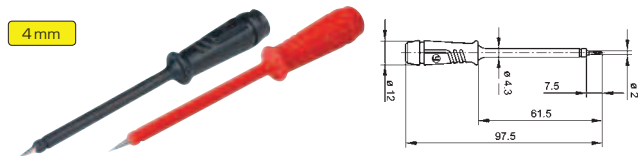
Part No.	Ord.No.
S KLEPS 30 BK	36589
S KLEPS 30 RD	36590



## Test Probes (continued)

### PRUF 2 Series

Test probe with elastic, shatter-proof insulated sleeve. Insulation and oxide layers can be penetrated by the slender stainless steel tip (2mm). 4 mm diameter brass socket connection. Total length 98mm. Contact resistance 50mOhm. Max. voltage, 60VDC, temperature range -25°C to +80°C.



Part No.	Description
PRUF 2 BK	Test probe 2mm with socket 4mm, black
PRUF 2 RD	Test probe 2mm with socket 4mm, red

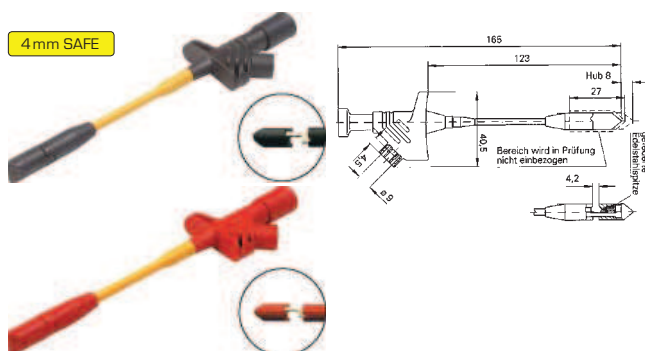
  

Part No.	Ord.No.
S PRUF 2 BK	36595
S PRUF 2 RD	36596

### KLEPS 2700 Series

#### Piercing Clip

Safety clamp-type test probe with split test clamp. The sprung stainless steel tip can contact insulated leads with cross-sections between 0.25 mm<sup>2</sup> and 1.5 mm<sup>2</sup> (3.5 mm diameter) without the need to strip them. 4 mm diameter brass socket connection. Max. voltage 1000VDC, max. current 10A, contact resistance 100mΩ, temperature range -25°C to +80°C.



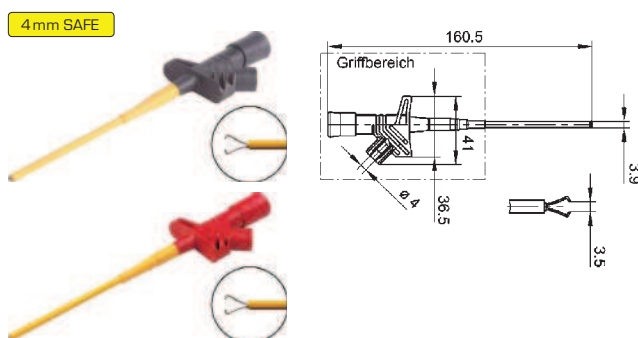
Part No.	Description
KLEPS 2700 BK	Safety test probe with socket 4mm „Piercing Clip“
KLEPS 2700 RD	Safety test probe with socket 4mm „Piercing Clip“

Part No.	Ord.No.
S KLEPS 2700 BK	39456
S KLEPS 2700 RD	39457

### KLEPS 2600 Series

Safety clamp-type test probe with rotating grip jaws and flexible shaft. Wires and pins with up to a maximum diameter of 4 mm can be clamped thanks to the special form of the grip jaws. 4 mm diameter brass socket connection. Total length 160,5mm. Max. voltage 1000VDC, contact resistance 50mΩ, temperature range -25°C to +80°C.



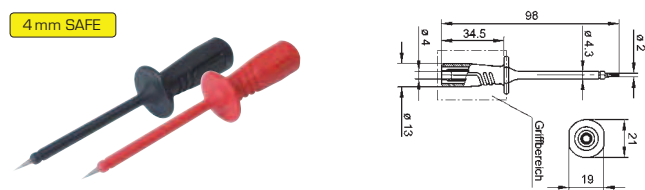
Part No.	Description
KLEPS 2600 BK	Safety Clamp-Type test probe, socket 4mm 160,5mm
KLEPS 2600 RD	Safety Clamp-Type test probe, socket 4mm 160,5mm

Part No.	Ord.No.
S KLEPS 2600 BK	39454
S KLEPS 2600 RD	39455

### PRUF 2600 Series

Test probe with elastic, shatter-proof insulated sleeve and slender stainless steel tip. Tip for penetration of insulation and oxide layers. 4 mm diameter brass socket connection. Connects with safety measuring leads. Total length 98mm. Max. voltage 1000VDC, contact resistance 50mΩ, temperature range -25°C to +80°C.



Part No.	Description
PRUF 2600 BK	Test probe, socket 4mm, length 98mm black
PRUF 2600 RD	Test probe, socket 4mm, length 98mm red

Part No.	Ord.No.
S PRUF 2600 BK	39463
S PRUF 2600 RD	39462

### IC 3000 Series

Clamp-type test probe, length 55mm.



Part No.	Description
IC 3000 BK	Clamp-Part No. test probe black 60VDC 3A
IC 3000 RD	Clamp-Part No. test probe red 60VDC 3A

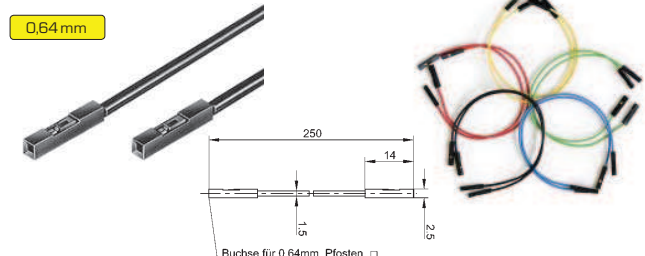
  

Part No.	Ord.No.
S IC 3000 BK	19004
S IC 3000 RD	19003

### Measuring Leads

#### MKL 0,64/25-0,25

Measuring lead with two insulated sockets for 0.64 mm round pillar and 0.64 mm rectangular pillar. Highly flexible 0.25mm two stranded wire with two 0.64 mm diameter sockets. Max. current 3A, contact resistance 20mΩ, temperature range -40°C +60°C.



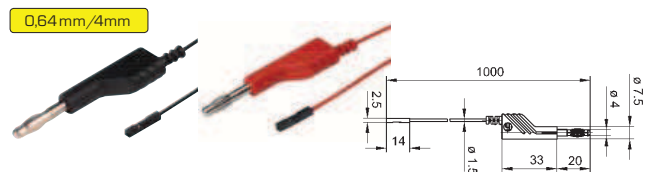
Part No.	Description
MKL 0,64/25-0,25	Measuring lead 25cm socket/socket .0,64mm 0,25mm <sup>2</sup>

Part No.	Ord.No.
S MKL 0,64/25-0,25 BLACK	43135

### MAL N4-0,64/100-0,25 Series

Measuring lead, 1m flexible wire 0,25m<sup>2</sup>, isolated PVC, black. 4mm plug/0,64mm socket, max. current 3A, contact resistance 70mΩ, temperature range -15°C +70°C.



Part No.	Description
MAL N 4-0,64/100-0,25 BK	Measuring lead 1m plug 4mm/socket 0,64mm
MAL N 4-0,64/100-0,25 RD	Measuring lead 1m plug 4mm/socket 0,64mm

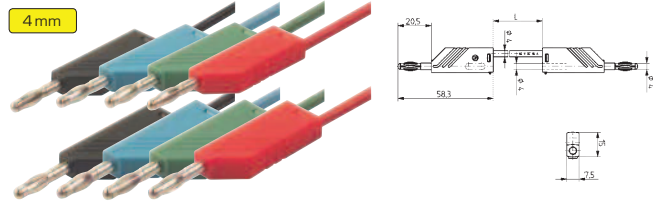
  

Part No.	Ord.No.
S MAL N 4-0,64/100-0,25 BK	43136
S MAL N 4-0,64/100-0,25 RD	43137

## MLN Series

### MLN 50/1, MLN 100/1, MLN 200/1

Measuring lead, at either end 4mm diameter plug with caged spring and 4mm diameter socket for tower construction. Nickel-plated copper beryllium contact spring. Highly flexible, double insulated stranded lead, grip and lead shatter-proof. Conductor size 1mm<sup>2</sup>. Max. current 16A, contact resistance MLN 50/1=13mΩ, MLN 100/1=22mΩ, MLN 200/1=40mΩ, temperature range -15°C +70°C.



Part No.	Description
MLN 50/1 BK	Measuring lead 50cm 1mm <sup>2</sup> , plug/plug 4mm black
MLN 50/1 BU	Measuring lead 50cm 1mm <sup>2</sup> , plug/plug 4mm blue
MLN 50/1 GN	Measuring lead 50cm 1mm <sup>2</sup> , plug/plug 4mm green
MLN 50/1 RD	Measuring lead 50cm 1mm <sup>2</sup> , plug/plug 4mm red

Part No.	Ord.No.
S MLN 50/1 BK	37492
S MLN 50/1 BU	37494
S MLN 50/1 GN	37496
S MLN 50/1 RD	37493

### MLN 100/1, MLN 200/1

Part No.	Description
MLN 100/1 BK	Measuring lead 1m 1mm <sup>2</sup> , plug/plug 4mm black
MLN 100/1 BU	Measuring lead 1m 1mm <sup>2</sup> , plug/plug 4mm blue
MLN 100/1 GN	Measuring lead 1m 1mm <sup>2</sup> , plug/plug 4mm green
MLN 100/1 RD	Measuring lead 1m 1mm <sup>2</sup> , plug/plug 4mm red

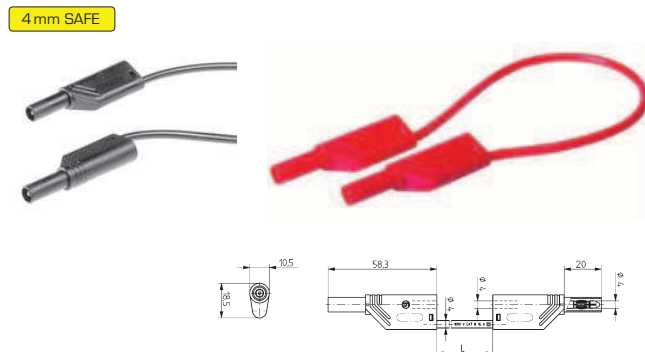
Part No.	Ord.No.
S MLN 100/1 BK	37497
S MLN 100/1 BU	37499
S MLN 100/1 GN	37501
S MLN 100/1 RD	37498

Part No.	Description
MLN 200/1 BK	Measuring lead 2m 1mm <sup>2</sup> , plug/plug 4mm black
MLN 200/1 RD	Measuring lead 2m 1mm <sup>2</sup> , plug/plug 4mm red

Part No.	Ord.No.
S MLN 200/1 BK	37507
S MLN 200/1 RD	37508

## MLS WS 100/1 Series

Safety measuring lead, at either end 4mm diameter safety connector with onward connection capability. Nickel-plated copper beryllium contact spring. Highly flexible, double insulated stranded lead, shatter-proof grip sleeve and lead. Conductor size 1mm<sup>2</sup>. Max. current 16A, contact resistance 13mΩ, temperature range -15°C +70°C.



Part No.	Description
MLS WS 100/1 BK	Measuring lead 1m 1mm <sup>2</sup> safety plug/plug 4mm black
MLS WS 100/1 RD	Measuring lead 1m 1mm <sup>2</sup> safety plug/plug 4mm red

Part No.	Ord.No.
S MLS WS 100/1 BK	40160
S MLS WS 100/1 RD	40161

## Sets

### PMS 4 SET

Test equipment set for 4mm system.  
 2 x Clamp-type test probe KLEPS 20      2 x Test-Probe PRUEF 2  
 2 x Crocodile clip AK 2 S                2 x Test lead MLN 100/1  
 Cable length 100cm, clamping range 4-9,5mm, temperature range -15 to +70°C  
 Each article in black and red

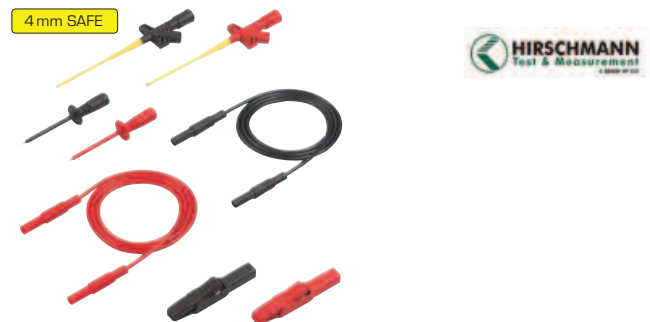


Part No.	Description
PMS 4 SET	Test equipment set, leads and probes

Part No.	Ord.No.
S PMS 4 SET	36639

### PMS 2600 SET

Test equipment set for safety applications, as accessories for measuring instruments.  
 2 x Clamp-type test probe KLEPS 2600      2 x Test-Probe PRUEF 2600  
 2 x Crocodile clip AK 2 B                    2 x Safety test lead MLS GG 100/1  
 Cable length 100cm, clamping range 4-9,5mm, temperature range -15 to +70°C  
 Each article in black and red

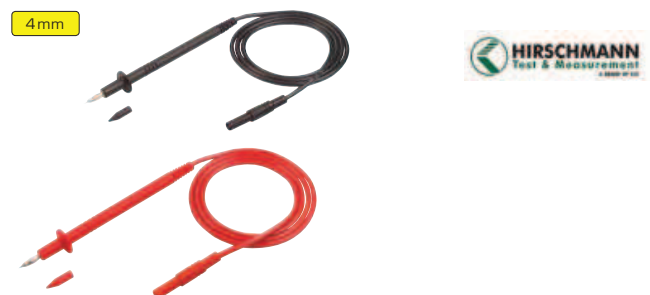


Part No.	Description
PMS 2600 SET	Test sets for safety applications, leads and probes

Part No.	Ord.No.
S PMS 2600 SET	48725

### PL 2600 S SET

Test probe set as accessory for measuring devices.  
 2 x Test lead with integrated probes PL 2600 S  
 Max. voltage 1000 VDC, max. current 16A.  
 Cable length 100cm, temperature range -15 to +70°C  
 Each article in black and red.



Part No.	Description
PL 2600 S SET	Measuring leads set

Part No.	Ord.No.
S PL 2600 S SET	48724

## Sets (continued)

### CAB Series

CAB 800



ECONOMIC

CAB 802

ECONOMIC



CAB 804

ECONOMIC



4mm

Part No.	Description
CAB 800	Measuring leads with alligator clips 10pcs/0,43m
CAB 802	Measuring leads 4mm with plugs 2pcs/red/black 0,9m
CAB 804	Measuring leads 4mm plug/alligator clip, red/black 0,8m

Part No.	Ord.No.
S CAB 800	40070
S CAB 802	40071
S CAB 804	47928

### TS 834 Series

TS 834



ECONOMIC

4mm

Part No.	Description
TS 834 BK	Measuring lead, 2x plug 4mm with socket, black/1m
TS 834 BU	Measuring lead, 2x plug 4mm with socket, blue/1m
TS 834 GN	Measuring lead, 2x plug 4mm with socket, green/1m
TS 834 RD	Measuring lead, 2x plug 4mm with socket, red/1m
TS 834 YE	Measuring lead, 2x plug 4mm with socket, yellow/1m

Part No.	Ord.No.
S TS 834 BK	6153
S TS 834 BU	6149
S TS 834 GN	6151
S TS 834 RD	6152
S TS 834 YE	6150

MK 380

ECONOMIC



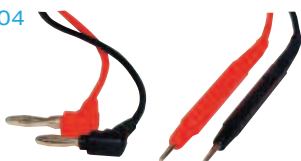
4mm

Part No.	Description
MK 380	Measuring leads, one pair, 4mm length 90cm black/red

Part No.	Ord.No.
S MK 380	71354

### ETM Series

ETM 0302, ETM 0304



ECONOMIC

4mm

Part No.	Description
ETM 0302	Measuring leads, 2mm plug/probe, black/red/1m
ETM 0304	Measuring leads, 4mm plug/probe, black/black/1m

Part No.	Ord.No.
S ETM 0302	1788
S ETM 0304	1787

### UT-L01

Wire length: 450mm  
 Probe length: 5mm  
 Temperature condition: -10°C~40°C  
 Suitable for measuring SMT components  
 CAT II 1000V 2A



4mm

Part No.	Description
UT-L01	Measuring SMT Tweezer 150mm for SMT parts, cable 0,44m

Part No.	Ord.No.
S UT-L01	59924

### UT-L09

Wire length: 1000mm  
 Double insulation,  
 Banana plug  
 One end with 180° connection  
 One end right angle connection  
 Temperature condition: -15°C~40°C  
 CAT III 1000V 2A



Part No.	Description
UT-L09	Measuring Leads 1m 2xplug 90°+ 2xplug 180°/1m

Part No.	Ord.No.
S UT-L09	59926

### UT-L16

Wire length: 1200mm  
 Probe length: 18mm  
 Double insulation  
 Temperature condition: -20°C~50°C  
 CAT III 1000V 10A



4mm

Part No.	Description
UT-L16	Measuring leads, 4mm plug/probe UNI-T, wire length 1,2m

Part No.	Ord.No.
S UT-L16	59927

## Measuring Leads with LED Light

### UT-L17

Wire length: 1000mm  
 Probe length: 16mm  
 With LED suitable for working at dim environment  
 CAT III 1000V 10A  
 Suitable for all UNI-T multimeters



4mm

Part No.	Description
UT-L17	Measuring lead red 1m with LED light, UNI-T

Part No.	Ord.No.
S UT-L17	59928

### UT-L18

Wire length: 1000mm  
 Probe length: 16mm  
 With LED suitable for working at dim environment  
 With live wire detector feature  
 CAT III 1000V 10A  
 Suitable for all UNI-T multimeters



4mm

Part No.	Description
UT-L18	Measuring lead red 1m with LED light and tester, UNI-T

Part No.	Ord.No.
S UT-L18	59929

## Switches, Relays and Fuses

Switches



H 1

Pushbuttons



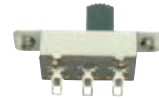
H 4

Toggle Switches



H 6

Rotary and Slide Switches



H 7

PCB Mount Pushbuttons



H 8

Miniature Switches



H 10

Relays



H 12

Reed Switches and Magnets



H 22

Fuses and Fuseholders



H 23

## Rocker Switches



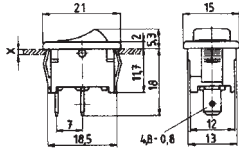
The Marquardt Group is a global player in the high technology switch manufacturing market, and they maintain their position by developing innovative switching solutions that exceed the quality and performance expectations of customers.



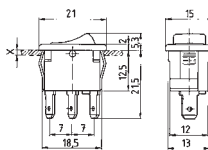
Marquardt Switches provides high quality, innovative switching products to the Global Automotive, Power Tool and Appliance Switch Markets. We are customer-focused, quality-minded and driven to excellence by the best people in the industry.

### 19x13 mm Series

1801.1x02



1800.1102



**Part No.**    **Description**

1800.1102 SPST, 10(4)A/250V, Faston 4,8mm, glim-lamp backlight , ON-OFF

1801.1102 SPST,10(4)A/250V, Faston 4,8mm, ON-OFF

1801.1202 SPDT, 4(2)A/250VAC, Faston 4,8mm, OFF-MOM

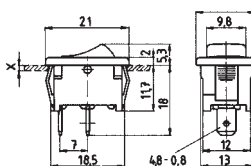
**Part No.**    **Ord. No.**

S 1800.1102    422

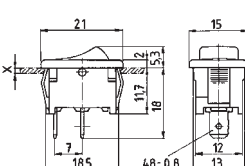
S 1801.1102    426

S 1801.1202    429

1801.1146



1801.1119



**Part No.**    **Description**

1801.1146 SPST, 10(4)A/250V, Faston 4,8mm, ON-OFF

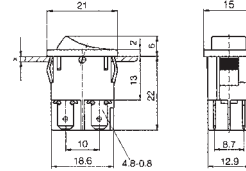
1801.1119 SPST, 10(4)A/250V, Faston 4,8mm , red mark, ON-OFF

**Part No.**    **Ord. No.**

S 1801.1146    428

O 1801.1119    427

1858.1103



**Part No.**    **Description**

1858.1103 DPST, 10(4)A/250V, Faston 4,8mm, non-flammable Powerful with inrush currents (capacitive) up to 100 A, ON-OFF

**Part No.**    **Ord. No.**

S 1858.1103    514

203.089.011



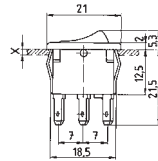
Transparent PVC-protection cap for single-pole switches of size 19x13 mm. Serves as dust and water protection of the actuation side.



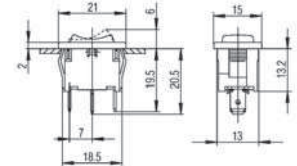
**Part No.**    **Ord. No.**

S 203.089.011    572

1808.1103



1808.1302



**Part No.**    **Description**

1808.1103 SPDT 6(2)A/230V, Faston 4,8mm, ON-OFF-ON

1808.1302 DPNO, 6(4) A/250V, Faston 4,8mm, MOM-OFF-MOM

**Part No.**    **Ord. No.**

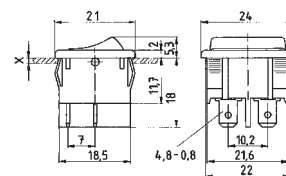
S 1808.1103    443

S 1808.1302    444

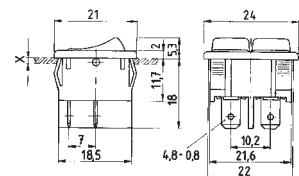
### 19x22 mm Series



1802.1108



1806.1102



**Part No.**    **Description**

1802.1108 DPDT, 10(4)A/250V, Faston 4,8mm, ON-OFF

1806.1102 2xSPST, 10(4)A/250V, Faston 4,8mm, ON-OFF

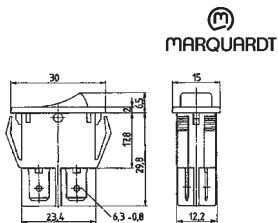
**Part No.**    **Ord. No.**

S 1802.1108    434

S 1806.1102    441

## 27x12mm Series

1555.310x



### Part No. Description

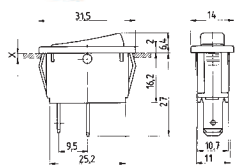
1555.3102 DPST, 16(4)A/250V, Faston 6,3mm, backlight, red, ON-OFF  
 1555.3108 DPST, 16(4)A/250V, Faston 6,3mm, backlight, green, ON-OFF

### Part No. Ord. No. Colour

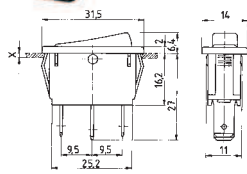
O 1555.3102 297 red  
 S 1555.3108 298 green

## 30x11 mm Series

1831.3312



1830.311x



faston 6,3mm

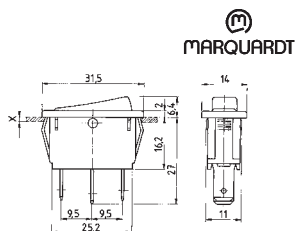
### Part No. Description

1831.3312 SPST, 20(4)A/250V, black, Faston 6,3mm, ON-OFF  
 1830.3112 SPST, glim-lamp, red, 20(4)A/250V, ON-OFF  
 1830.3118 SPST, glim-lamp, green, 20(4)A/250V, ON-OFF

### Part No. Ord. No.

S 1831.3312 473  
 S 1830.3112 468  
 S 1830.3118 469

1838.1509



### Part No. Description

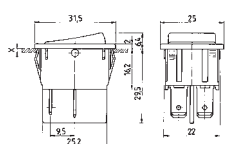
1838.1509 SPDT-Center OFF, 6(4)A/250V, Faston 4,8mm, ON-OFF-ON

### Part No. Ord. No.

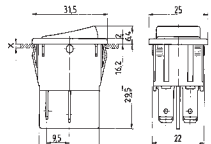
S 1838.1509 488

## 30x22mm Series

1832.3312



1835.310x



### Part No. Description

1832.3312 DPST, 16(4)A/250V, without backlight, Faston 6,3mm, ON-OFF  
 1835.310x DPST, 10(4)A/250V, glim-lamp backlight, Faston 6,3mm, ON-OFF

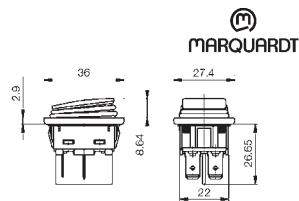
### Part No. Ord. No. Colour

S 1832.3312 478 black  
 S 1835.3102 484 red  
 S 1835.3108 485 green

1935.311x



IP65



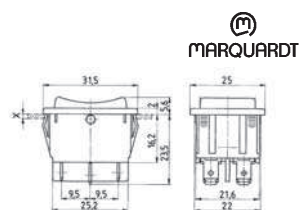
### Part No. Description

1935.311x DPST, 20(4)A/250V, illuminated, IP65, Faston 6,3mm, ON-OFF

### Part No. Ord. No. Colour

O 1935.3112 547 red  
 O 1935.3114 549 orange  
 O 1935.3118 550 green

1839.1407



### Part No. Description

1839.1407 DPDT-CenterOFF, 6(4) A/250V, Faston 4,8mm, ON-OFF-ON

### Part No. Ord. No.

S 1839.1407 48785

203.201.011



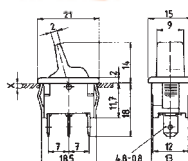
Transparent PVC-protection cap for double-pole switches of size 30x22mm. Serves as dust and water protection of the actuation side.

### Part No. Ord. No.

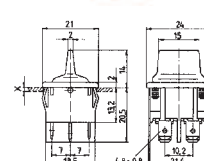
S 203.201.011 575

## Toggle Switches

1811.1102



1812.1102



### Part No. Description

1811.1102 SPDT, 10(4)A/250V, Faston 4,8mm, 19x13mm, ON-OFF  
 1812.1102 DPDT, 10(4)A/250V, Faston 4,8mm, 19x22mm, ON-OFF

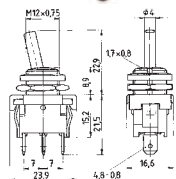
### Part No. Ord. No.

S 1811.1102 450  
 S 1812.1102 451

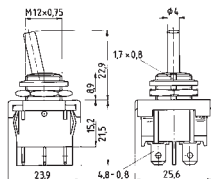
## Toggle Switches

(continued)

1823.1101



1824.1101



MARQUARDT

Part No.	Description
1823.1101	SPDT, 6(4)A/250V, Faston 4,8mm, φ 12,2mm, ON-OFF
1824.1101	DPDT, 6(4)A/250V, Faston 4,8mm, φ 12,2mm, ON-OFF

Part No.	Ord. No.
S 1823.1101	459
S 1824.1101	461

343.001.023



Neopren® - cap for dust and water protection of the actuator side, for MARQ 1823, 1824 series, height 18mm.

MARQUARDT

Part No.	Ord. No.
S 343.001.023	828

## Various Rocker Switches

ECONOMIC

### 19x13mm Series

MRS-101-C2



MRS-101-C3



MRS-112-C2



Part No.	Description
MRS-101-C2	1-pole, 6A/250V, black, ON-OFF
MRS-101-C3	1-pole, 3A/250V, black, I/O, ON-OFF
MRS-112-C2	1-pole, 3A/250V, black, ON-MOM

Part No.	Ord. No.
S MRS-101-C2	57197
S MRS-101-C3	46622
S MRS-112-C2	46627

MRS-201-3



MRS-201-C3



DS 850 LED



MIYAMA

Part No.	Description
MRS-201-3	2-poles, 3A/250V, black, ON-OFF
MRS-201-C3	2-poles, 3A/250V, glim-lamp backlight, ON-OFF
DS 850 LED	1-pole 3A/250V, soldering eyelets, LED (red, green), ON-OFF

Part No.	Ord. No.	Colour
S MRS-201-3	46619	-
S MRS-201-C3	46629	red

Part No.	Ord. No.	Colour
S DS 850 LED RED	28255	red
S DS 850 LED GREEN	28256	green

MRS-103-C6



MRS-203-3C6

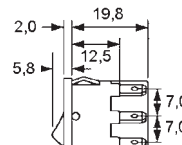


Part No.	Description
MRS-103-C6	1-pole, ON-OFF-ON, 3A/250V, black
MRS-203-3C6	2-poles, ON-OFF-ON, 3A/250V, black

Part No.	Ord. No.
S MRS-103-C6	46621
S MRS-203-3C6	46624

## 19x22mm Series

H8650 VB01



Part No.	Description
H 8650 VB01	2-poles, 10(4)A/250V, Faston 4,8mm, ON-OFF

Part No.	Ord. No.
S H 8650 VB01	2891

## 28x11 mm Series

ECONOMIC

IRS-101-1A3



Part No.	Description
IRS-101-1A3	1-pole, 15A/250V, glim-lamp backlight, ON-OFF

Part No.	Ord. No.
S IRS-101-1A3	49875

## 28x22mm Series

ECONOMIC

RS-201-1A3



IRS-201-1A3



RS-203-1A6



Part No.	Description
RS-201-1A3	2-pole, 15A/250V, non backlight, ON-OFF
IRS-201-1A3	2-pole, 15A/250V, glim-lamp backlight, ON-OFF
RS-203-1A6	2-pole, 15A/250V, red, ON-OFF-ON

Part No.	Ord. No.
S RS-201-1A3	46615
S IRS-201-1A3	46605
S RS-203-1A6	45906

IRS-201-E-1C



RS-2101-1C3



Part No.	Description
IRS-201-E-1C	2x1-pole, 15A/250V, black, glim-lamp backlight, ON-OFF
RS-2101-1C3	2x1-pole, 15A/250V, red, ON-OFF

Part No.	Ord. No.
S IRS-201-E-1C	46606
S RS-2101-1C3	46614

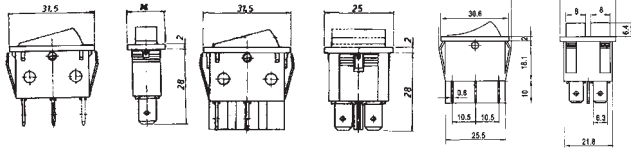
## 30x11 mm, 30x22mm Series

ECONOMIC

IL 901 AN

IL 902 AN

IL 903 AN



### Part No. Description

IL 901 AN 1-pole, 16A/250V, glim-lamp backlight, Faston 6,3mm, ON-OFF  
 IL 902 AN 2-poles, 16A/250V, glim-lamp backlight, Faston 6,3mm, ON-OFF  
 IL 903 AN 2x1-pole,16(4)A/250V,glim-lamp backlight, Faston 6,3mm, ON-OFF

Part No.	Ord. No.
S IL 901 AN	19164
S IL 902 AN	19165
S IL 903 AN	19167

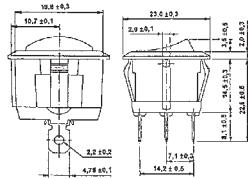
## Round Rocker Switches

WIP 12A0x

ECONOMIC

WIP 12A03

ECONOMIC



### Part No. Description

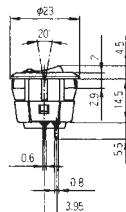
WIP 12A0x 1-pole,6A/250V,Faston 4,8mm,  $\phi$  20,2mm  
 WIP 12A03 SNAP 1P 6A, Faston 4,8mm, ON-OFF-ON

Part No.	Ord. No.	Colour
S WIP 12A01	9065	black
S WIP12A02	55003	white
S WIP12A03	65099	black

IRS-101-8C3

DS 059 SS

MIYAMA



### Part No. Description

IRS-101-8C3 1-pole, 6,5A/250V, glim-lamp backlight,  $\phi$  20,5 mm, Faston 4,8mm, ON-OFF  
 DS 059SS 2-poles, 3A/250V, soldering eyelets,  $\phi$  20mm

Part No.	Ord. No.
S IRS-101-8C3	46607
S DS 059SS	28250

## Automotive Rocker Switches

ASW-01

ASW-02D



### Part No. Description

ASW-01 12VDC/20A 40x17,6mm 5xFON48  
 ASW-02D 12VDC/20A 40x17,6mm 5xFON48 backlight

### Type Ord. No.

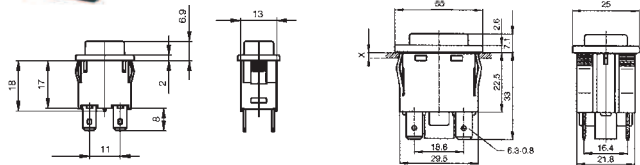
S ASW-01	61645
S ASW-02D	61646

## Pushbutton Switches

1683.1101

1671.5201

MARQUARDT



### Part No. Description

1683.1101 1-pole, 12(8)A/250V, Faston 4,8mm, 19x13mm.  
 1671.5201 2-poles, 16(4)A/250V, Faston 6,3mm, IP 54, 30x22mm.

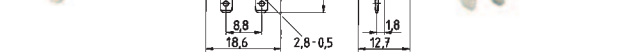
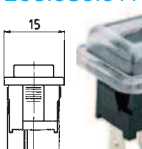
### Part No. Ord. No.

S 1683.1101	55529
S 1671.5201	345

1846.3201

203.089.011

MARQUARDT



### Part No. Description

1846.3201 1-pole, Snap-In, 2 (1) A/250V, Faston 2,8mm, 19x13mm  
 203.089.011 PVC-protection cap for MARQUARDT single-pole switches of size 19x13mm.

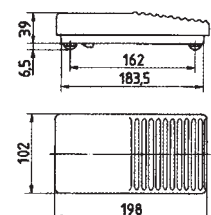
### Part No. Ord. No.

S 1846.3201	506
S 203.089.011	572

## Foot Switches

2410.0401

MARQUARDT



### Part No. Description

1683.1101 1-pole, 6(2,5)A/250V, screw terminal, lifetime 3.10<sup>5</sup> cycles.

### Part No. Ord. No.

S 2410.0401	638
-------------	-----



## Various Pushbutton Switches ECONOMIC

PBS-11x

PBS-12x

PBS-14x



Part No.	Description
PBS-11x	round, button $\varnothing 15$ mm, 1A/250V, red, mounting hole $\varnothing 12$ mm
PBS-12x	square, 15 x 15 mm, 1A/250V, red, mounting hole $\varnothing 12$ mm, button 11 x 11 mm
PBS-14x	octagonal, 15,8 x 15,8 mm, 1A/250V, red, mounting hole $\varnothing 12$ mm, button 11,4 x 11,4 mm

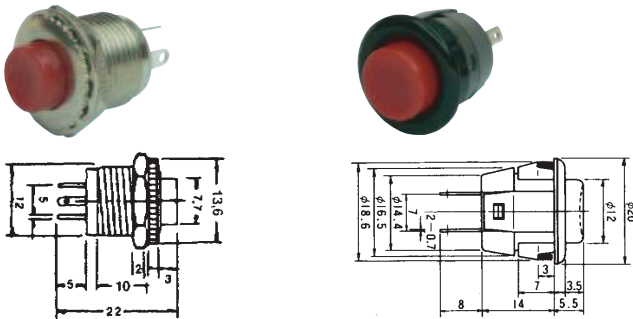
Part No.	Ord. No.	Description
S PBS-11B	44560	SPST-NO OFF-(ON)
S PBS-12B	46639	SPST-NO OFF-(ON)
S PBS-11C	44558	SPST-NC ON-(OFF)
S PBS-12C	46637	SPST-NC ON-(OFF)
S PBS-12A	46636	SPST OFF-ON
S PBS-14A	44559	SPST OFF-ON

CP 018 x

ECONOMIC

DS 412 x

MIYAMA



Part No.	Description
CP 018	3A/125V, outside $\varnothing 13,6$ mm, mounting hole $\varnothing 12$ mm, button $\varnothing 7,7$ mm.
DS 412	3A/125V, soldering eyelets, SNAP-IN, outside $\varnothing 20$ mm, mounting hole $\varnothing 16,8$ mm, button $\varnothing 12$ mm

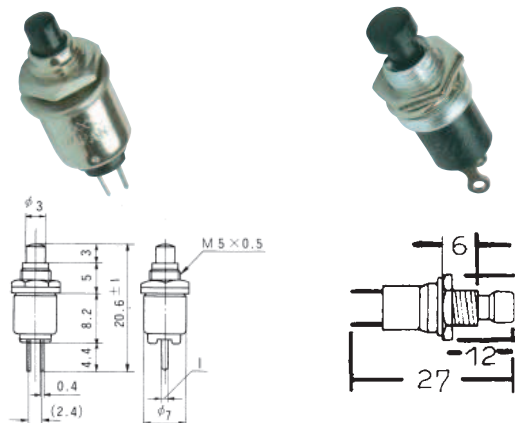
Part No.	Ord. No.	Description
S CP 018 RD	28297	red
S CP 018 BK	28298	black
S DS 412 RD	28293	red
S DS 412 BK	28294	black

MS 402

MIYAMA

T 250 x

ECONOMIC

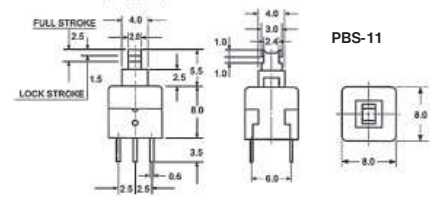


Part No.	Description
MS 402	SPST-NO, 0,5A, 7x20mm, PCB mounting, black.
T 250 A	SPST-NO, 0,5A/250V, length 27mm.
T 250 R	SPST-NC, 0,5A/250V, length 27mm.

Part No.	Ord. No.	Description
S MS 402	19001	black
S T 250 A ROT	16262	red

Part No.	Ord. No.	Description
S T 250 A GR	16263	green
S T 250 A BU	16265	blue
S T 250 A WH	16266	white
S T 250 A BL	16267	black
S T 250 R RD	16268	red
S T 250 R BL	16273	black

P10S, P11S



Part No.	Description
P10S	DPNO 8x8mm 2x0,1A/30V
P11S	DPDT 8x8mm 2x 0,1A/30V

Part No.	Ord. No.
S P10S	2937
S P11S	54606

P-TB-B001

Pushbutton for P10S,P11S, round,  $\varnothing 7$  mm black

P-TB-B003

Pushbutton for P10S,P11S, square 7x7mm black.



Part No.	Ord. No.	0,166	0,120	0,113
S P-TB-B001	56649			
S P-TB-B003	56653	0,182	0,166	0,156

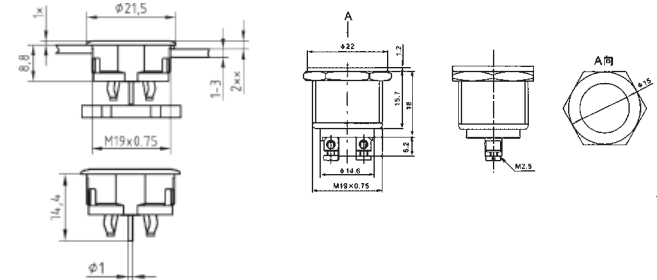
## Antivandal Pushbuttons

MCS 19

**SCHURTER**  
ELECTRONIC COMPONENTS

PBS-28B-2

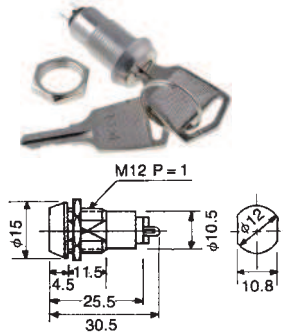
ECONOMIC



Part No.	Description
MCS 19 (1241.2800)	These versions come with a high-quality stainless steel actuator and housing. By using this robust weather-proof material, these switches are ideal for rough environments and outdoor applications. Max. 125mA/48Vdc, IP65, mounting hole 19mm, -25 to +60°C, lifetime >10 mil. cycles
PBS-28B-2	Metallic pushbutton for outdoor applications, 1-pole, max. 4A/125VAC, 2A/250VAC, screw terminals, mounting hole diameter 19mm

Part No.	Ord. No.
S MCS 19	61965
S PBS-28B-2	55645

## KS-31



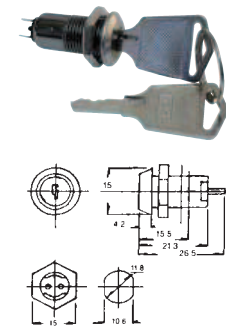
Part No.	Description
----------	-------------

KS-31	Key switch SPST OFF-ON 2 stable positions 1-pole, max.1A, key removable in 2 positions
MSS 02	Key switch 1-pole, max. 1A/125V (0,5A/250V), chrome-plated, key removable in 2 positions

Part No.	Ord. No.
----------	----------

S KS-31	61357
S MSS 02	3958

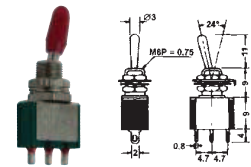
## MSS 02



## Toggle Switches

ECONOMIC

### KNX 1



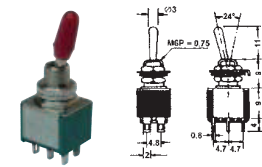
Part No.	Description
----------	-------------

KNX 1	SPDT, 2A/250V, soldering eyes
KNX 2	DPDT, 2A/250V, soldering eyelets

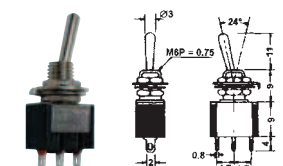
Part No.	Ord. No.
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S KNX 1	19436
S KNX 2	19437

### KNX 2



### KNX 3



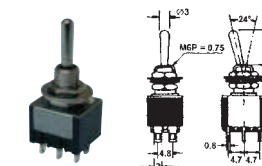
Part No.	Description
----------	-------------

KNX 3	ON-OFF-ON, 1-pole, 3A/250V, soldering eyelets
KNX 4	ON-OFF-ON, 2-poles, 3A/250V, soldering eyelets

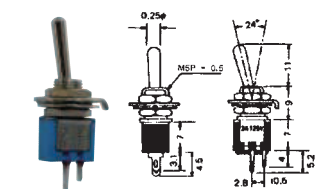
Type	Ord. No.
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S KNX 3	20577
S KNX 4	20578

### KNX 4



### KNX 243



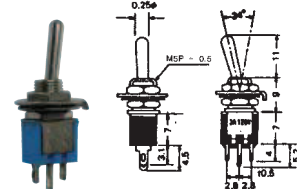
Part No.	Description
----------	-------------

KNX 3	SPST, 3A/125V, soldering eyelets
KNX 4	SPDT, 3A/125V, soldering eyelets

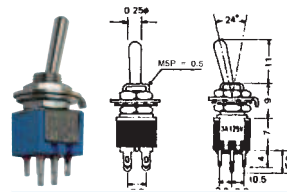
Part No.	Ord. No.
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S KNX 243	28212
S KNX 244	28213

### KNX 244



## KNX 245



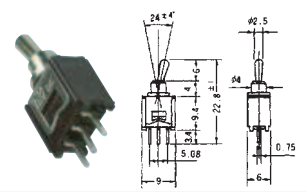
Part No.	Description
----------	-------------

KNX 245	DPDT, 3A/125V, soldering eyelets
MS 621 C	SPDT 1-pole, 0,3A/30V, PCB mounting, miniature

Part No.	Ord. No.
----------	----------

S KNX 245	28214
S MS 621 C	18994

## MS 621 C

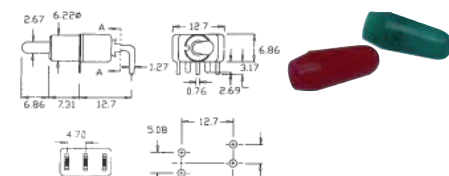


## MIYAMA

## MKS 8019 LP



## CAP



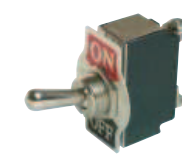
Part No.	Description
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MKS 8019	SPDT, 20mA/20V, PCB mounting
CAP	Plastic cap for KNX toggle switches

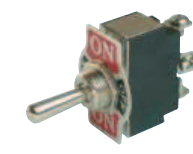
Part No.	Ord. No.
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S MKS 8019 LP	4033
S CAP R RED	4034
S CAP B BLACK	4035
S CAP G GREEN	4038

## KN3B-101A



## KN3B-103A



Part No.	Description
----------	-------------

KN3B-101A	1-pole, ON/OFF, 250VAC/10A 33,5x13mm M12
KN3B-103A	1-pole, ON/OFF/ON, 250VAC/10A, 33,5x13mm M12

Part No.	Ord. No.
----------	----------

S KN3B-101A	61640
S KN3B-103A	61641

## KN3B-201A



## KN3B-203A



Part No.	Description
----------	-------------

KN3B-201A	2-poles ON/OFF 250VAC/10A 33,5x13mm M12
KN3B-203A	2-poles ON/OFF/ON 250VAC/10A, 33,5x13mm M12

Part No.	Ord. No.
----------	----------

S KN3B-201A	61643
S KN3B-203A	61644

## JOYSTICK-SWITCH X-Y



Joystick switch X-Y.  
Max. 440V/10A  
Screw terminal  
Mounting hole  $\varnothing$ 22mm  
Mounting depth 70mm  
Mounting height 70mm

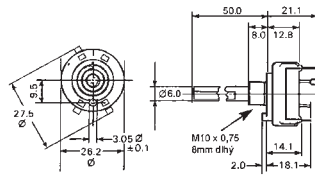
Part No.	Ord. No.
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S JOYSTICK-SWITCH X-Y	52250
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## Rotary Switches

### CK 10xx

- Standard-One-Level rotary switch with maximum 12 operating positions
- The number of switching positions is from 2 to 12, adjustable and limited due to a stopwasher
- Solder pin terminals (PC-contact)
- 5A/300V,

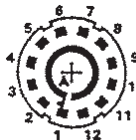


CK 1029

CK 1030

CK 1031

CK 1032



1-pólový,  
12 polóh



2-pólový,  
6 polóh



3-pólový,  
4 polohy



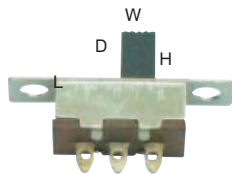
4-pólový,  
3 polohy

Part No.	Ord. No.	Description
S CK-1029	35505	1x12positions
S CK-1030	35506	2x6 positions
S CK-1031	35507	3x4 positions
S CK-1032	35508	4x3 positions

## Slide Switches

### SRS 3 P

1-pole, 0,5A/125V, soldering eyelets mounting holes 15,5mm, slide size 6mm, toggle: WxHxD = 3x4x3mm body depth L=5mm



Part No.	Ord. No.
S SRS 3 P	16256
S SRS22F	63346

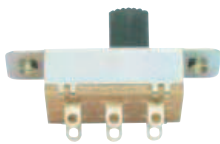
### SRS22F

2-poles, 0,5A/50V, soldering eyelets mounting holes 19mm, slide size 8,9mm, toggle: WxHxD=5,5x9,2x3,8mm body depth L=7mm



### SRR 6 P

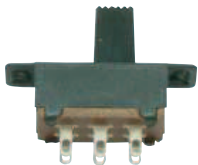
2-poles, 0,3A/125V, soldering eyelets mounting holes 28mm, slide size 12,2mm, toggle: WxHxD=6,6x9x5,6mm body depth L=6,6mm



Part No.	Ord. No.
S SRR 6 P	16254

### S 6 P

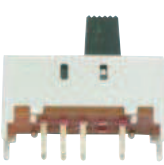
2-poles, 0,3A/125V, soldering eyelets mounting holes 19mm, slide size 8,9mm, toggle WxHxD=5x8,3x3mm body depth L=7mm



Part No.	Ord. No.
S S 6 P	16255
S GS 373	16257

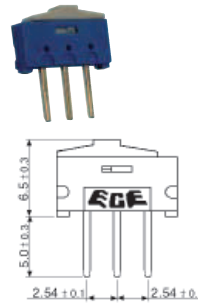
### GS 373

2-poles, 3 positions PCB mounting, distance mounting holes 19mm, slide size 8,9mm, toggle dimensions WxHxD=6x8x4mm, body depth L= 12mm.



### ESP 101

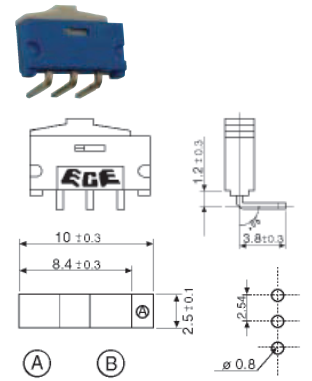
Sub-Slide Switch SPDT PC vertical 1-pole, 0,5A, 12Vdc/1mA



Part No.	Ord. No.
S ESP 101	4111
S ESP 201	4186

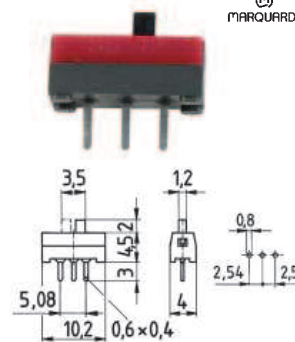
### ESP 201

Sub-Slide Switch SPDT PC horizontal 1-pole, 0,5A, 12Vdc/1mA



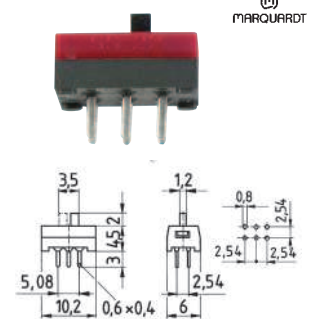
### 9078.0101

Slide switch 1-pole, PCB 30V/100-mA.



### 9078.0201

Slide switch 2-poles, PCB 30V/100-mA.

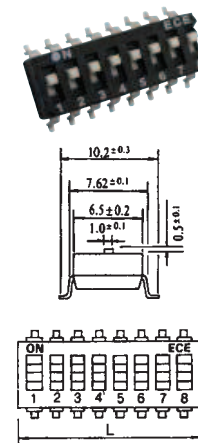


Part No.	Ord. No.
S 9078.0101	60839
S 9078.0201	52183

## DIP Switches

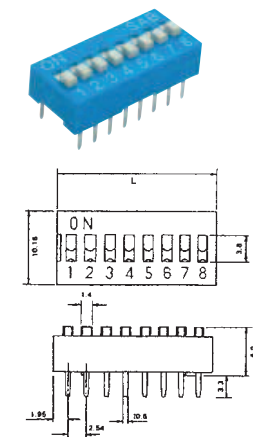
### ESD

SMD DIP switches, RM=2,54mm, 25mA/24Vdc.



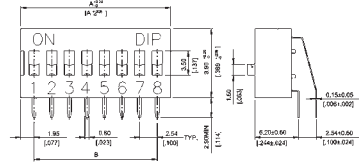
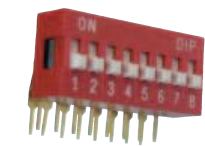
### DS

Mini DIP switches, RM=2,54mm, 50mA/24Vdc.

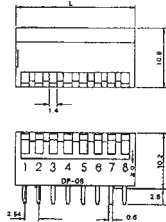
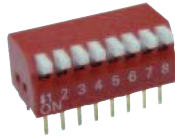


Part No.	Ord. No.
S ESD102EZ SMD	9264
S ESD104EZ SMD	28308
S ESD108EZ SMD	28309
S DS 02	18932
S DS 03	18926
S DS 04	16258
S DS 06	16259
S DS 08	16260
S DS 10	16261

**DA**  
Mini DIP switches, vertical,  
RM=2,54mm, 50mA/24Vdc.



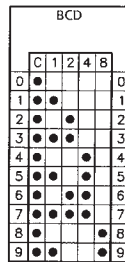
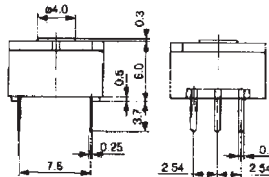
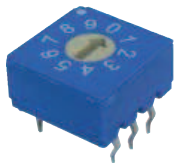
**DP**  
Piano DIP switches, RM=2,54mm,  
50mA/24Vdc.



Part No.	Ord. No.
S DA 02	28332
S DA 04	28334
S DA 08	28338
S DP 02	28329
S DP 04	22644
S DP 08	22646
S DP 10	22647

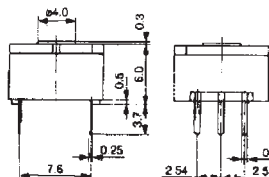
## Rotary DIL Switches

**KDR 10-DEC/BCD**  
10x10mm, PCB mounting.



Part No.	Ord. No.
S KDR 10-DEC/BCD	20407

**KDR 16**  
10x10mm, PCB mounting.

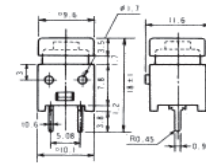


Part No.	Ord. No.
S KDR 16	20408

## PCB Mount Pushbuttons

**DS 660 SS**  
1A/125V, RM=5mm, modular.

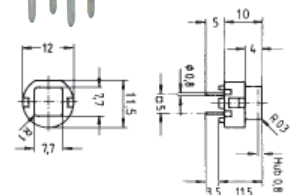
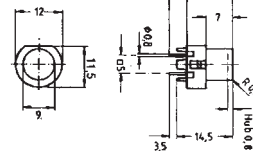
MIYAMA



Part No.	Ord. No.	Description
S DS 660 SS RD	28301	red
S DS 660 SS BL	28302	black

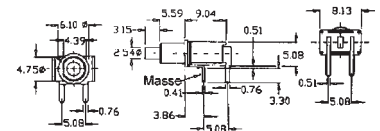
**DT 6**  
Round 9mm PCB mount, 0,1A/100V,  
outside diameter  $\varnothing$ 12mm.

**DTE 6** ECONOMIC  
Square 7,7mm x 7,7mm PCB mount  
0,1A/100V, outside diameter  $\varnothing$ 12mm



Part No.	Ord. No.	Colour
S DT 6 BL	4677	blue
S DT 6 RT	2983	red
S DT 6 SW	2453	black
S DT 6 WS	3316	white
S DTE 6 SW	8563	black

**SDT 21 LP**  
1A/120V, PCB 90, silver-plated contacts



Part No.	Ord. No.
S SDT 21 LP	6078

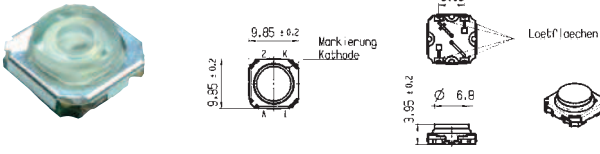
## Tact and Key Switches



One-pole pushbuttons with gold-plated contacts for certain switching. Maximal switching voltage and current 28V/100mA, activation power 0,7N, upthrow 1,6mm, lifetime min. > 1 mil. cycles..

### 3006.xxxx

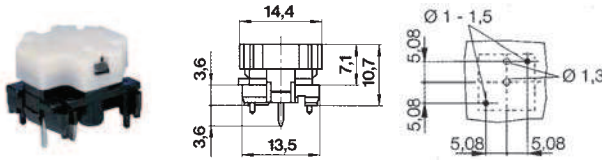
Low height even with integrated LED, extremely large actuator surface  
Dimensions 10x10x4mm  
Max. 28VDC / 50mA, upthrow 0,9mm, lifetime min. 100 000 cycles.



Part No.	Ord. No.	Description
S 3006.2101	52528	yellow LED
O 3006.2102	52548	orange LED
S 3006.2112	75923	red LED
O 3006.2107	57335	green LED

### 6425.0101, 6425.4121

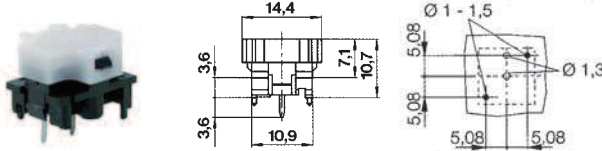
Single-pole normally open contact with or without LEDs, frame 13,55x13,55mm.



Part No.	Ord. No.	Description
S 6425.0101	1325	hole for LED
S 6425.4121	1328	yellow LED

### MARQ.6425.1101

frame 11x13,55mm



Part No.	Ord. No.
S 6425.1101	1326

### MARQ.825.0xx.021

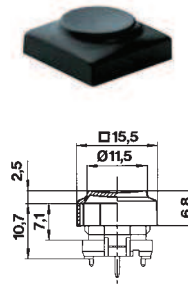
Square key caps with whitw characters, 19x19mm, grey colour, suitable for 6425 series



Part No.	Ord. No.	Mark
S 825.001.021	1472	"1"
S 825.002.021	1473	"2"
S 825.003.021	1474	"3"
S 825.004.021	1475	"4"
S 825.005.021	1476	"5"
S 825.006.021	1477	"6"
S 825.007.021	1478	"7"
S 825.008.021	1479	"8"
S 825.009.021	1480	"9"
S 825.010.021	1481	"0"
S 825.011.021	1482	"."
S 825.053.021	1483	"C"

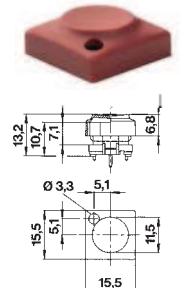
### 826.000.0xx

Square key cap 16x16mm, diferent colours, suitable for 6425 series without LED window



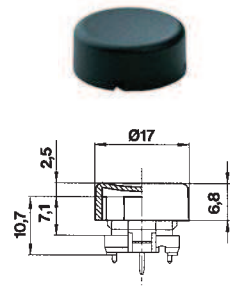
### 829.000.0xx

Square key cap 16x16mm, diferent colours, suitable for 6425 series with LED window



### 840.000.0xx

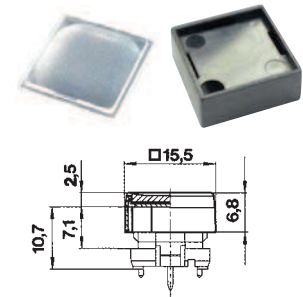
Round key cap, diferent colours, diameter 17mm, heighth 6,8mm, suitable for 6425 series.



Part No.	Ord. No.	Colour
S 826.000.011	1484	black
S 826.000.031	1486	grey
S 826.000.071	1487	red
S 826.000.081	1488	yellow
S 826.000.091	1489	green
S 829.000.011	1513	black
S 829.000.031	1515	grey
S 829.000.071	1516	red
S 840.000.011	1539	black
S 840.000.061	1541	beige
S 840.000.071	1542	red
S 840.000.091	1543	green

### MARQ.835.900.013

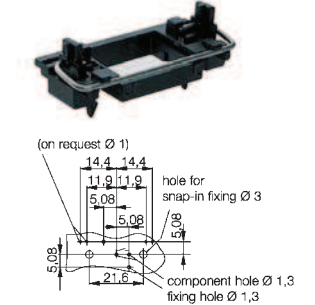
Two-part key cap with snap-on transparent caps. 16x16mm, heighth 6,8mm, Suitable for 6425 series key switches with or without LED



Part No.	Ord. No.
S 835.900.013	1535
S 190.059.013	531

### MARQ.190.059.013

Recommended appliance cut-out and perforation pattern component side. Suitable for 6425 series.

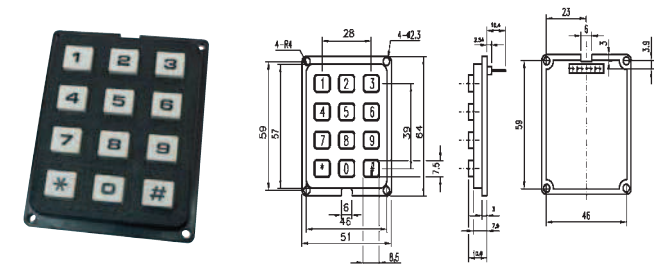


## Keypads

### ECO 12 150 06

Matrix circuit keypad in a black mounting case with white keys and black markings.

Dimensions: 64 x 51 mm. Activation power 1,3 N, upthrow 1,4 mm. Temperature range -20°C to +60°C.



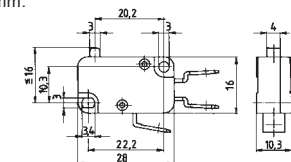
Part No.	Ord. No.
S ECO 12 150 06	50414



## Miniature Snap-Action Switches

1005.1004

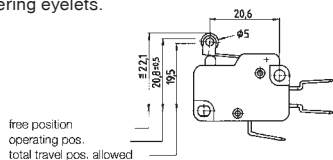
SPDT, 20(4)A 400VAC 1c, faston 6,3mm.



Part No.	Ord. No.
S 1005.1004	67639

1006.0701

SPDT, 10(4)A 400VAC, wheel, soldering eyelets.

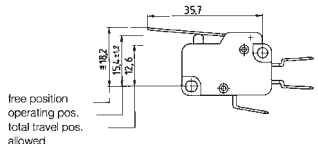


free position  
operating pos.  
total travel pos. allowed

Part No.	Ord. No.
S 1006.0701	70951

1006.0901

SPDT, 10(4)A 400VAC, lever 35,7mm, soldering eyelets.

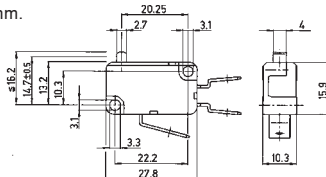


free position  
operating pos.  
total travel pos. allowed

Part No.	Ord. No.
S 1006.0901	52994

1080.0403

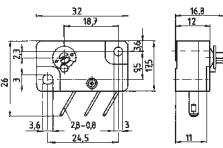
SPDT, 16(8)A 250VAC 1c faston 6,3mm.



Part No.	Ord. No.
S 1080.0403	137

1040.0114

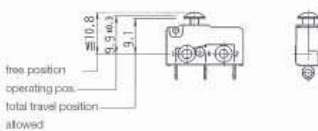
SPDT, 1c Ag 4(1A)/250VAC, actuating lever 80mm long, diameter 0,6mm faston 2,8mm.



Part No.	Ord. No.
S 1040.0114	112

1050.0202

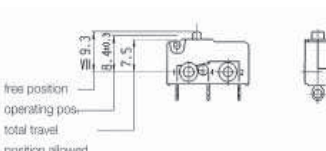
SPDT, 5A 250 VAC, mushroom- shaped actuator



free position  
operating pos.  
total travel position allowed

Part No.	Ord. No.
S 1050.0202	50953

1050.xxx



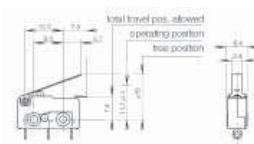
free position  
operating pos.  
total travel position allowed

Part No.	Ord. No.	Description
S 1050.0103	71289	SPDT, 10A

S 1050.1102	118	SPDT, 5A
S 1050.1122	71288	SPNO, 5A
S 1050.2151	71292	SPST, 2A, Gold

1050.5202

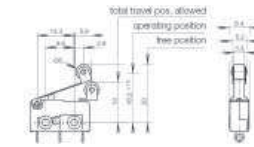
1c 5A/250VAC, straight lever



Part No.	Ord. No.
S 1050.5202	71290

1050.5702

5A/250VAC, roller lever



Part No.	Ord. No.
S 1050.5702	67959

## Various Snap-Action Switches ECONOMIC

MS1

FASTON 6,3mm, max 5A/250V.



Part No.	Ord. No.
S MS 1	6660
S MS 4	6661

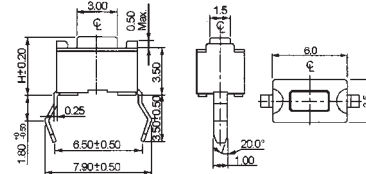
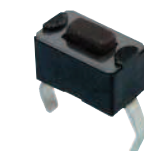
MS4

with lever, FASTON 6,3mm, max 5A/250V



DTS 31N

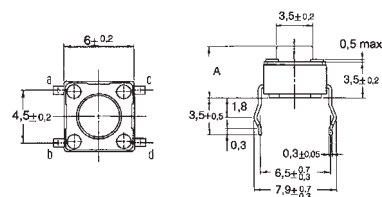
PCB mount, height =4,3mm, activation power 1,6N. Max. 12 VDC/50mA. Lifetime 50 000 cycles, package 100pcs. (SMD version DTSM31N). Manufacturer Diptronics



Part No.	Ord. No.
S DTS31N	8970

KSM 611-614 B

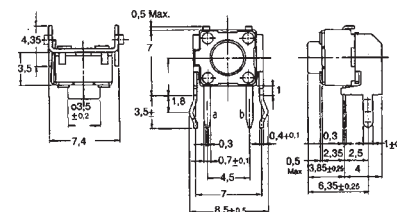
PCB mount 6x6mm, max. 50mA/24V, upthrow 0,5mm, activation power 1,6N.



Part No.	Ord. No.	A [mm]
S KSM 611 B	6652	4,3
S KSM 612 B	29681	5
S KSM 613 B	6653	7
S KSM 614 B	29682	9,4

KSM 632 B

PCB mount 6x6mm, max. 50mA/24V, upthrow 0,5mm, activation power 1,6N, depth 7,85mm.



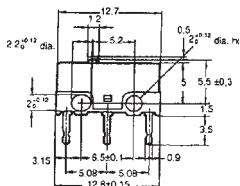
Part No.	Ord. No.
S KSM 632 B	4266

## Microswitches



### D2F-01

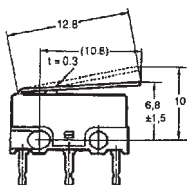
Ultra sub-miniature basic switch. Incorporates a snapping mechanism which ensures long service life.  
SPDT, 0.1A/30VDC, operating temp.: -25° to 65°, RM=5,08mm, PCB mount



Part No.	Ord. No.
S D2F-01	6657

### D2F...L

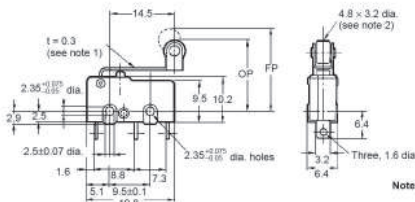
PCB mount, lever, RM=5,08mm  
D2F-01L -max. 0.1A/30VDC, min.1mA/5VDC, contact resistance 30mOhm  
D2F-L -max. 3A/125VAC, min.100mA/5VDC, contact resistance 100mOhm



Part No.	Ord. No.
S D2F-01L	6659
S D2F-L	6658

### SS-5GL2, SS-5GL2D

Economical sub-miniature basic switch with long lifetime (min.30 000 000 cycles), roller lever  
SPDT, max. 5A / 250V, operating temp.: -25°C to +85°C.



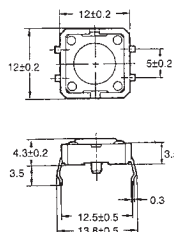
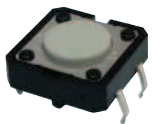
Part No.	Ord. No.	Description
S SS-5GL2	53174	soldering eylet
S SS-5GL2D	55522	PCB pins

## Tactile Switches



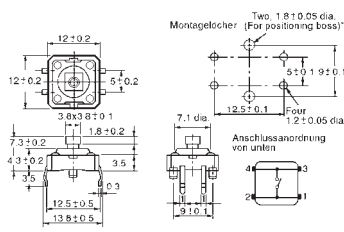
### B3F-4000

Standard flat switch  
SPST-NO, 50mA/24V, 12x12mm, height 4,3mm, upthrow 0,3mm, operating force 1,27 N



### B3F-4050

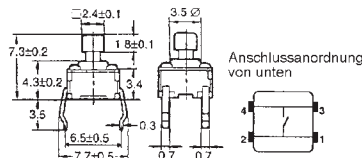
Horizontal projected plunger type,  
SPST-NO, 50mA/24V, 12x12mm, height 7,3mm, upthrow 0,3mm, operating force 1,27 N.



Part No.	Ord. No.
S B3F-4000	9733
S B3F-4050	45161

### B3F-1052

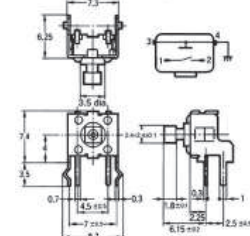
Horizontal, projected plunger type,  
SPST-NO, 6x6mm, height 7,3mm, operating force 1,5N, upthrow 0,28mm.



Part No.	Ord. No.
S B3F-1052	42620
S B3F-3150	55386

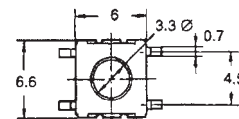
### B3F-3150

Vertical, projected plunger type,  
SPST-NO, 6x6mm, height 6,3mm, 50mA/24V, PCB mounting, upthrow 0,25mm, operating force 0,98 N



### B3S-1000P

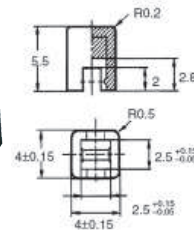
SMD Tactile Switch ideal for high-density mounting. Dust-sealed construction provides high reliability in locations exposed to dust.  
50mA/24V, height 4,3mm, upthrow 0,25mm, operating force 1,57N



Part No.	Ord. No.
S B3S-1000P	6656

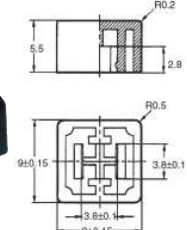
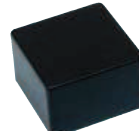
### B32-1010

4x4mm cap for 6x6mm OMRON tactile switches, black



### B32-1210

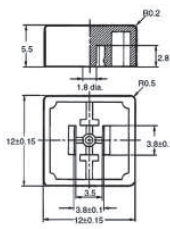
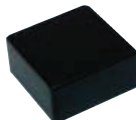
9x9mm cap for 12x12mm black OMRON tactile switches, black



Part No.	Ord. No.
S B32-1010	53256
S B32-1210	43990

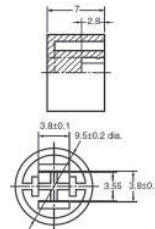
### B32-1310

12x12mm cap for 12x12mm OMRON tactile switches, black



### B32-1610

D9,5xH7mm cap for for 12x12mm OMRON tactile switches, black

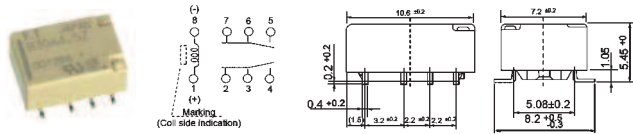


Part No.	Ord. No.
S B32-1310	55384
S B32-1610	55385

## Signal Relays

### FTR-B3 Series, SMD

Ultra miniature low profile relay for surface mounting, with high heat resistant material. Adopted superior contact spring for high frequency characteristic



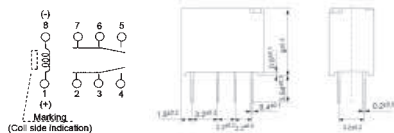
Technical Parameters		FTR-B3 xx
Contacts Type		DPDT
Maximal Switching Power		62,5 VA /30W
Maximal Switching Voltage		250Vac/220Vdc
Maximal Switching Current		2A
Insulating Voltage (coil-contact)		1500V
Operate/Release time		3ms/3ms
Dimensions [mm]		10,6x7,2x5,3mm

Part No.	Ord. No.	Description
O FTR-B3 GA 003 Z	51825	3V 64,3R
O FTR-B3 GA 4.5 Z	51823	4,5V 145R
S FTR-B3 GA 012 Z	7700	12V 1028R
S FTR-B3 GB 003 Z*	53014	3V 90R

\* latching type - 1 coil.

### FTR-B4 Series

Ultra miniature slim type relay. High reliable bifurcated gold overlay silver contact.



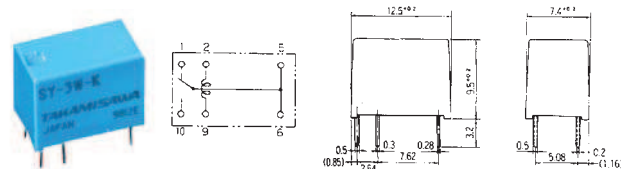
Technical Parameters		FTR-B4 xx
Contacts Type		DPDT
Maximal Switching Power		62,5 VA /30W
Maximal Switching Voltage		250Vac/220Vdc
Maximal Switching Current		2A
Insulating Voltage (coil-contact)		1500V
Operate/Release time		3ms/3ms
Dimensions [mm]		10,6x5,7x9mm

Part No.	Ord. No.	Description
O FTR-B4 CA 04.5 Z	70154	4,5V 145R
S FTR-B4 CA 012 Z	7701	12V 1028R
O FTR-B4 CA 024 Z	49719	24V 2504R
S FTR-B4 CB 4.5 Z*	9095	4,5V 203R

\* latching type - 1 coil.

### SY Series

Very small size and light weight, high sensitivity, wide ambient temperature range, wide operating range, DIL pitch terminals

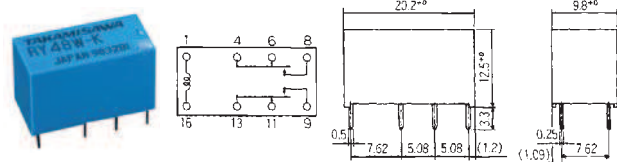


Technical Parameters		SY-xx W-K
Contacts Type		SPDT
Maximal switching power		60VA/24W
Maximal switching voltage		120Vac/60Vdc
Maximal switching current		1A
Insulating voltage (coil-contact)		1000Vac
Operate/Release time		5ms/2ms
Dimensions [mm]		7,4 x 12,5 x 9,5mm

Part No.	Ord. No.	Description
S SY-5 W-K	41319	5V 167R
S SY-12 W-K	31829	12V 960R
S SY-24 W-K	31830	24V 3290R

## RY Series

Ultra high sensitivity, high reliability-bifurcated contacts, wide operating range, DIL pitch terminals

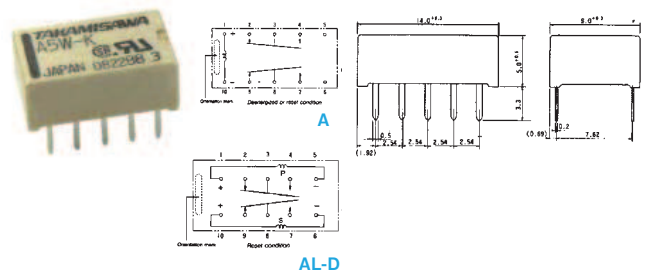


Technical Parameters		RY-xx W-K
Contacts Type		DPDT
Maximal Switching Power		60VA/24W
Maximal Switching Voltage		120Vac/60Vdc
Maximal Switching Current		1,25A
Insulating Voltage (coil-contact)		1000Vac
Operate/Release time		6ms/3ms
Dimensions [mm]		9,8x20,2x12,5mm

Part No.	Ord. No.	Description
S RY-5 W-K	2372	5V 165R
S RY-12 W-K	31827	12V 960R
S RY-24 W-K	31828	24V 2880R

## A Series

Extremely low profile and light weight, high reliability-bifurcated contacts, wide operating range, DIL pitch terminals, AL- latching version, D- double winding type



Technical Parameters		A xx W-K, AL-D xx W-K
Contacts Type		DPDT
Maximal Switching Power		62,5VA/30W
Maximal Switching Voltage		125Vac/110Vdc
Maximal Switching Current		2 x 2A
Insulating Voltage (coil-contact)		1000Vac
Operate/Release time		6ms/4ms
Dimensions [mm]		5 x 14x9mm

Part No.	Ord. No.	Description
S A-5 W-K	2802	5V 178R
S A-12 W-K	31808	12V 1028R
S A-24 W-K	31809	24V 2880R
S AL-D5W-K	31810	5V 125R
O AL-D9W-K	31811	9V 405R
O AL-D12W-K	41321	12V 720R

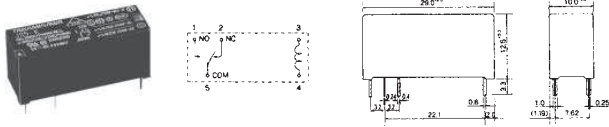


## Power Relays



### JS Series

1 POLE— MEDIUM LOAD CONTROL POWER RELAY. UL class B ( 30°C) coil wire insulation, low profile and space saving, high sensitivity and high isolation in small package

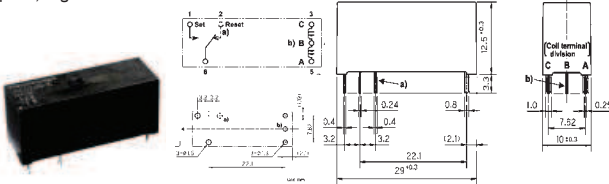


Technical Parameters	JS
Contacts Type	SPDT
Max. Switching Current	10 A
Max. Switching Voltage	400 VAC / 150 VDC
Max. Switching Power	2000 VA, 192 W
Contact Material	JS-x-K: gold plate silver cadmium oxide JS-xN-K: gold plate silver tin oxide
Insulating Voltage	5000 VAC
Operate/Release Time	10 ms / 5 ms
Temperature Range	-40°C to +85°C
Mechanical Lifetime	20mil. cycles
Electrical Lifetime	100 000 (N- 50 000) cycles
Dimensions	10 x 29 x 13 mm

Part No.	Ord. No.	Description
S JS-5-K	5102	5V 112R
S JS-5N-K	70138	5V 112R
S JS-12-K	31841	12V 660R
S JS-12N-K	56061	12V 660R
S JS-24-K	31842	24V 2350R
S JS-24N-K	65008	24V 2350R

### JSL Series

1 POLE— POLARIZED LATCHING TYPE 2 COILS POWER RELAY. Small foot-print, high isolation

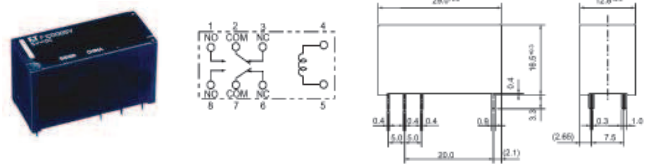


Technical Parameters	JSL
Contacts Type	SPDT
Max. Switching Current	10 A
Max. Switching Voltage	400 VAC / 150 VDC
Max. Switching Power	4000 VA, 480 W
Insulating Voltage	5000 VAC
Contact Material	gold plate silver tin oxide
Operate/Release time	10 ms / 20 ms
Temperature range	-40°C to +70°C
Mechanical lifetime	20mil. cycles
Electrical lifetime	100 000 cycles
Dimensions	12,5 x 29 x 10 mm

Part No.	Ord. No.	Description
S JSL-D5N-K	70158	10A 53R
S JSL-D12N-K	70159	10A 300R
S JSL-D24N-K	70160	10A 1200R

### FTR-F1 Series

2 POLES—5 A LOW PROFILE TYPE POWER RELAY. Higher isolation by employing reinforced insulation construction. Pin configuration compatible to VB series

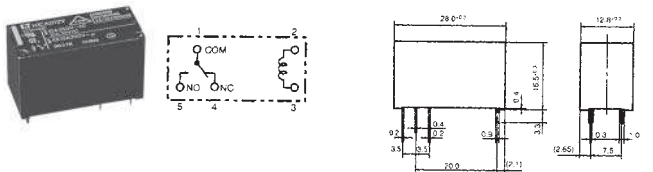


Technical Parameters	FTR-F1
Contacts Type	DPDT
Max. Switching Current	2 x 5 A
Max. Switching Voltage	400 VAC / 300 VDC
Max. Switching Power	1250 VA, 120 W
Insulating Voltage	5000 VAC
Operate/Release Time	15 ms / 5 ms
Temperature Range	-40°C to +75°C
Mechanical Lifetime	20mil. cycles
Electrical Lifetime	100 000 cycles
Dimensions	17 x 29 x 13 mm

Part No.	Ord. No.	Description
S FTR-F1 CA 012 V	9039	12V 270R
S FTR-F1 CA 024 V	8532	24V 1100R

### FTR-H1 Series

1 POLE—10 A LOW PROFILE TYPE POWER RELAY. Type of service: continuous duty, low profile, UL class B (130°C) insulation, high isolation in small package. Pin configuration compatible to VS/ FBR610 Series

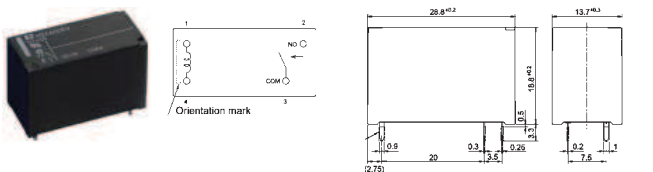


Technical Parameters	FTR-H1
Contacts Type	SPDT
Max. Switching Current	10 A
Max. Switching Voltage	380 VAC / 300 VDC
Max. Switching Power	2500 VA, 300 W
Insulating Voltage	5000 VAC
Operate/Release Time	10 ms / 5 ms
Temperature Range	-40°C to +75°C
Mechanical Lifetime	20mil. cycles
Electrical Lifetime	100 000 cycles
Dimensions	13 x 28 x 17 mm

Part No.	Ord. No.	Description
S FTR-H1 C A 012 V	3050	12V 270R
S FTR-H1 C A 024 V	3051	24V 1100R

### FTR-H3 Series

SILENT POWER RELAY, 1 POLE— 78A/120A INRUSH CURRENT TYPE. Pin compatible with widely used VS and FTR-H1 series power relays, ultra silent relay with patented unique U-shape spring. Noise level is about 50dB at 5cm. Low profile (height 16.5 mm)/ cadmium free contacts, high isolation in small package



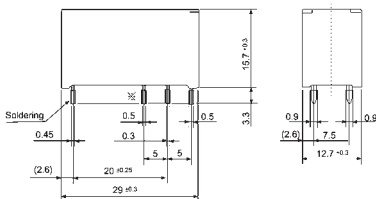
Technical Parameters	FTR-H3
Contacts Type	SPST-NO
Max. Switching Current	10 A
Max. Switching Voltage	400 VAC / 300 VDC
Max. Switching Power	2500 VA, 300 W

<b>Insulating Voltage</b>	5000 VAC
<b>Operate/Release Time</b>	10 ms / 5 ms
<b>Temperature Range</b>	-40°C to +75°C
<b>Mechanical Lifetime</b>	20mil. cycles
<b>Electrical Lifetime</b>	100 000 cycles
<b>Dimensions</b>	13 x 29 x 16 mm

Part No.	Ord. No.	Description
S FTR-H3AA005V	70147	5V 47R
O FTR-H3AA009V	70148	9V 155R
S FTR-H3AA012V	70150	12V 270R
O FTR-H3AA024V	70151	24V 1100R

## FTR-K1 Series

1 POLE- 16A POWER RELAY. High isolation, Cadmium free contacts.

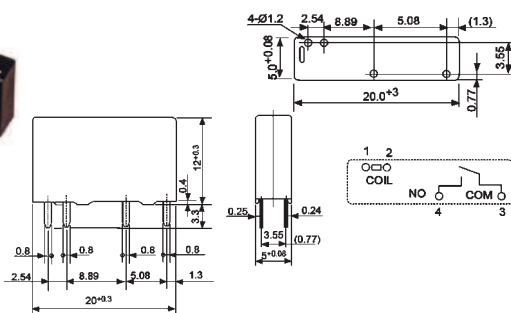


Technical Parameters		FTR-K1
<b>Contacts Type</b>		SPDT
<b>Max. Switching Current</b>		16 A
<b>Max. Switching Voltage</b>		440 VAC / 300 VDC
<b>Max. Switching Power</b>		4000 VA, 384 W
<b>Insulating Voltage</b>		5000 VAC
<b>Operate/Release Time</b>		15 ms / 5 ms
<b>Temperature Range</b>		-40°C to +85°C
<b>Mechanical Lifetime</b>		20mil. cycles
<b>Electrical Lifetime</b>		30 000 cycles (DC)/50 000 cycles (AC)
<b>Dimensions</b>		13 x 29 x 16 mm

Part No.	Ord. No.	Description
S FTR-K1CK005W	51798	5V 1c 62R
S FTR-K1CK012W	51796	12V 1c 360R
S FTR-K1CK024W	51797	24V 1c 1440R

## FTR-MY Series

1 POLE - 5A SLIM POWER RELAY. Width 5mm, height 12mm,(31% smaller than NY series) area 100 mm<sup>2</sup>, super slim, low power, compact and light weight 2.5gr, high reliability, bifurcated gold overlay silver alloy

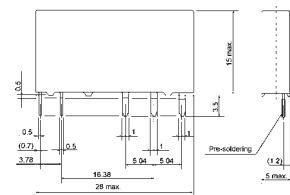


Technical Parameters		FTR-MY
<b>Contacts Type</b>		SPST-NO
<b>Max. Switching Current</b>		5 A
<b>Max. Switching Voltage</b>		277 VAC / 125 VDC
<b>Max. Switching Power</b>		1250 VA, 150 W
<b>Insulating Voltage</b>		3000 VAC
<b>Operate/Release Time</b>		10 ms / 5 ms
<b>Temperature Range</b>		-40°C to +90°C
<b>Mechanical Lifetime</b>		20mil. cycles
<b>Electrical Lifetime</b>		100 000 cycles (3A)/50 000 cycles (5A)
<b>Dimensions</b>		5 x 20 x 12 mm

Part No.	Ord. No.	Description
O FTR-MY AA 005 D	51802	5V 230R
O FTR-MY AA 012 D	51803	12V 1310R
O FTR-MY AA 024 D	51804	24V 5240R

## FTR-LY Series

1 POLE - 6A (MEDIUM LOAD CONTROL), SLIM TYPE POWER RELAY, high insulation in small package, Contains no lead and features cadmium-free contacts

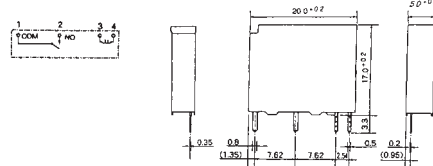
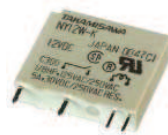


Technical Parameters		FTR-LY
<b>Contacts Type</b>		SPDT
<b>Max. Switching Current</b>		6 A
<b>Max. Switching Voltage</b>		250 VAC
<b>Max. Switching Power</b>		1500 VA
<b>Insulating Voltage</b>		4000 VAC
<b>Operate/Release Time</b>		8 ms / 4 ms
<b>Temperature Range</b>		-40°C to +85°C
<b>Mechanical lifetime</b>		10mil. cycles
<b>Electrical lifetime</b>		60 000 cycles
<b>Dimensions</b>		5 x 28 x 15 mm

Part No.	Ord. No.	Description
O FTR-LY CA 005 Y	51799	5V 147R
S FTR-LY CA 012 Y	51800	12V 847R
S FTR-LY CA 024 Y	51801	24V 3388R

## NY Series

1 POLE-5 A CADMIUM FREE Contacts Type POWER RELAY. Ultra slim type with 5 mm thickness, low power consumption and high sensitivity, SIL pitch terminals, Compatible with solid state I/O module type SN in size and pin (terminal) arrangement



Technical Parameters		NY
<b>Contacts Type</b>		SPST-NO
<b>Max. Switching Current</b>		5 A
<b>Max. Switching Voltage</b>		270 VAC / 150 VDC
<b>Max. Switching Power</b>		750 VA, 90 W
<b>Insulating Voltage</b>		2000 VAC
<b>Operate/Release Time</b>		10 ms / 5 ms
<b>Temperature Range</b>		-40°C to +90°C
<b>Mechanical Lifetime</b>		20mil. cycles
<b>Electrical Lifetime</b>		150 000 cycles
<b>Dimensions</b>		5 x 20 x 17 mm

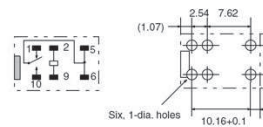
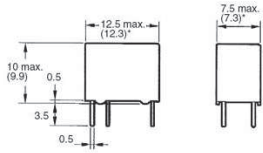
Part No.	Ord. No.	Description
S NY -5 W-K	5509	5V 208R
S NY -12 W-K	41317	12V 1200R
S NY -24 W-K	3393	24V 4800R



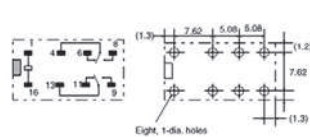
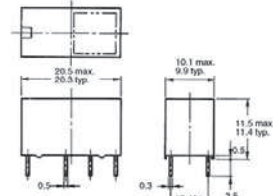
## Signal Relays

### G5V Series

#### G5V-1



#### G5V-2



Technical Parameters	G5V-1	G5V-2
Contacts Type	SPDT	DPDT
Max. Switching Current	1A/24VDC, 0.5A/125VAC	2A/30VDC, 0.5A/125VAC
Max. Switching Voltage	270 VAC, 60 VDC	125 VAC, 125 VDC
Insulating voltage	1000 VAC	1500 VAC
Operate/Release time	5ms/5ms max.	7ms/3ms
Temperature range	-40°C to 70°C	-25°C to 65°C
Mechanical lifetime	5mil. cycles min.	15mil. cycles min.
Electrical lifetime	100 000 cycles min.	100 000 cycles min.
Dimensions	12,5x7,5x10mm	20,5x10,1x11,5mm

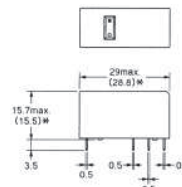
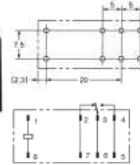
Part No.	Ord. No.	Description
S G5V1-5	6680	5V 167R
S G5V1-12	6681	12V 960R
S G5V1-24	6682	24V 3840R
S G5V2-5	55346	5V 50R
S G5V2-12	43782	12V 288R
S G5V2-24	8790	24V 1152R



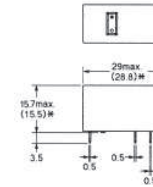
Mechanical lifetime	DC: 20 mil. cycles	20 mil. cycles
Electrical lifetime	100 000 cycles	50 000 cycles
Dimensions	29 x 13 x 26mm	29 x 13 x 16mm

Part No.	Ord. No.	Description
S G2R1-12	55349	12VDC 275R
S G2R1-24	55350	24VDC 1100R
S G2RL1-12	49100	12VDC 360
S G2RL1-24	49464	24VDC 1440R

#### G2RL1E



#### G2RL2



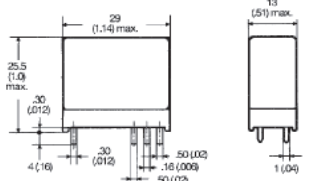
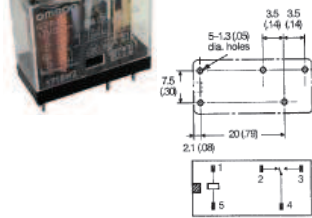
Technical Parameters	G2RL1E	G2RL2
Contacts Type	SPDT	DPDT
Max. Switching Current	16 A	2x 8 A
Max. Switching Voltage	440 VAC, 300 VDC	440 VAC, 300 VDC
Max. Switching Power	3000 VA	3000 VA
Insulating voltage	5000 VAC	5000 VAC
Operate/Release time	15ms / 5ms	15ms / 5ms
Temperature range	-40°C to +85°C	-40°C to +85°C
Mechanical lifetime	20 mil. cycles	20 mil. cycles
Electrical lifetime	50 000 cycles	50 000 cycles
Dimensions	29 x 13 x 16mm	29 x 13 x 16mm

Part No.	Ord. No.	Description
S G2RL1E-12	55351	12VDC 360R
S G2RL1E-24	55352	24VDC 1440R
S G2RL2-12	55347	12VDC 360R
S G2RL2-24	55348	24VDC 1440R

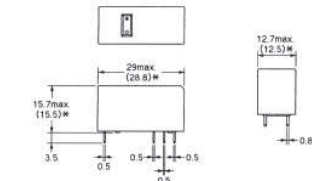
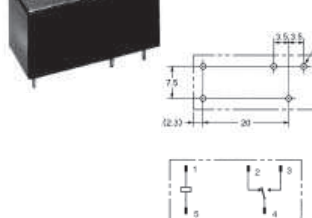
## Power Relays

### G2R Series

#### G2R1



#### G2RL1

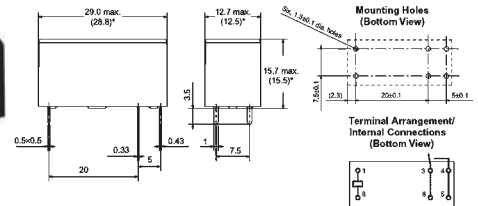


Technical Parameters	G2R1	G2RL1
Contacts Type	SPDT	SPDT
Max. Switching Current	10 A	12 A
Max. Switching Voltage	380 VAC, 125 VDC	440 VAC, 300 VDC
Max. Switching Power	2500 VA, 300W	3000 VA
Insulating voltage	5000 VAC	5000 VAC
Operate/Release time	15ms / 5ms	15ms / 5ms
Temperature range	-40°C to +70°C	-40°C to +85°C



### G5R Series

#### G5RL-1A-E-HR



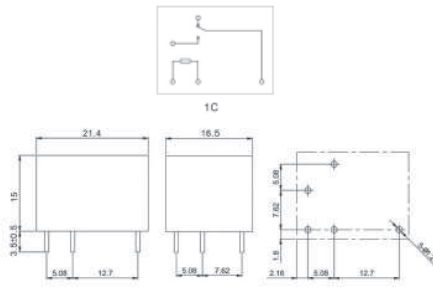
Technical Parameters	G5RL
Contacts Type	SPST-NO
Max. Switching Current	16 A
Max. Switching Voltage	380 VAC, 125 VDC
Max. Switching Power	4000 VA, 384W
Insulating voltage	5000 VAC
Operate/Release time	15ms / 5ms
Temperature range	-40°C to +85°C
Mechanical lifetime	DC: 10 mil. cycles
Electrical lifetime	50 000 cycles
Dimensions	29 x 13 x 16mm

Part No.	Ord. No.	Description
S G5RL-1A-E-HR12VDC	60292	12V 360R
S G5RL-1A-E-HR24VDC	60294	24V 1440R

## Power Relays

ECONOMIC

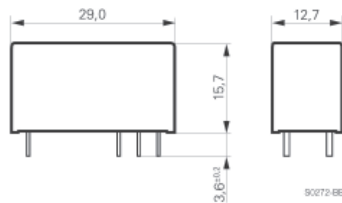
### BTL Series



Technical Parameters	BTL
Contacts Type	SPDT
Max. Switching Current	5 A
Max. Switching Voltage	380 VAC / 110 VDC
Max. Switching Power	625 VA, 140 W
Insulating Voltage	2500 VAC
Operate/Release Time	7 ms / 4 ms
Temperature Range	-40°C to +85°C
Mechanical Lifetime	1 mil. cycles
Electrical Lifetime	100 000 cycles
Dimensions	13 x 29 x 25 mm

Part No.	Ord. No.	Description
S BTL-05-5-1C	57000	5V 56R
S BTL-12-5-1C	57001	12V 320R
S BTL-24-5-1C	57002	24V 1280R

### RT 114730



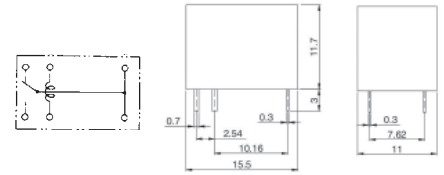
Technical Parameters	RT1
Contacts Type	1 single
Max. Switching Current	12 A
Max. Switching Voltage	250/400VAC
Insulating Voltage	250V
Operate/Release Time	8 ms / 6 ms
Ambient Temperature	-40°C to 85°C
Dimensions	29x15,7x12,7 mm

Part No.	Ord. No.
S RT 114730	40432

## Signal Relays

ECONOMIC

### N4100 Series



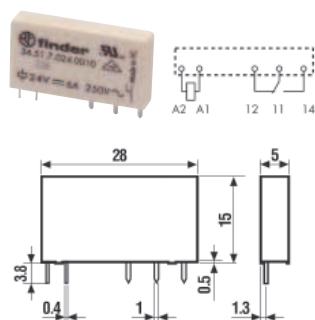
Technical Parameters	N4100-HS3
Contacts Type	SPDT
Max. Switching Current	3 A
Max. Switching Voltage	125 VAC, 30 VDC
Insulating Voltage	500 VAC
Operate/Release Time	5ms/5ms
Temperature Range	-25°C to +55°C
Mechanical Lifetime	10mil. cycles
Electrical Lifetime	100 000 cycles
Dimensions	15,5x11x11,7mm

Part No.	Ord. No.	Description
S N4100-HS3DC5V	56998	5V 125R
S N4100-HS3DC12V	56999	12V 720R
S N4100-HS3DC24V	58063	24V 2880R

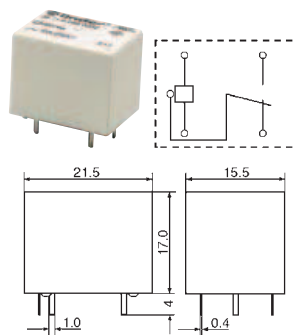
## Power Relays



### F 34.51 SERIES



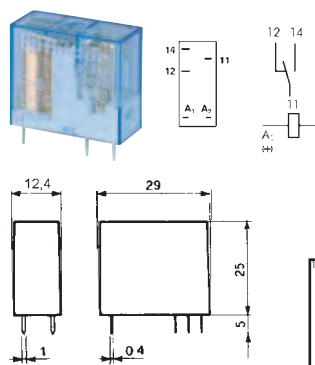
### F 36.11 SERIES



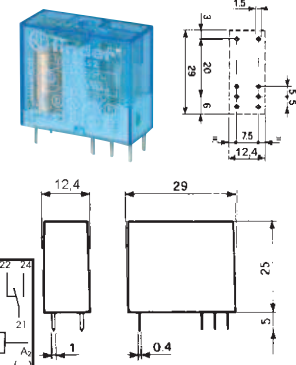
Technical Parameters	F 34.51	F 36.11
Contacts Type	SPDT	SPDT
Max. Switching Current	6 A	10 A
Max. Switching Voltage	250 VAC	250 VAC
Max. Switching Power	1500 VA	2500 VA
Insulating Voltage	6000 VAC	4000 VAC
Operate/Release Time	5 ms / 3 ms	7 ms / 3 ms
Temperature Range	-40°C to +85°C	-40°C to +85°C
Mechanical Lifetime	10 mil. cycles	10 mil. cycles
Electrical Lifetime	60 000 cycles	100 000 cycles
Dimensions	28 x 5 x 15 mm	21,5 x 15,5 x 17,5 mm

Part No.	Ord. No.	Description
S F 34.51.7.012.0010	47738	12VDC 40R
S F 34.51.7.024.0010	51274	24VDC 350R
S F 36.11.9.003.0000	51022	3VDC 25R
S F 36.11.9.005.0000	51023	5VDC 70R
S F 36.11.9.012.0000	7995	12VDC 400R
S F 36.11.9.024.0000	8416	24VDC 600R

### F 40.31 SERIES



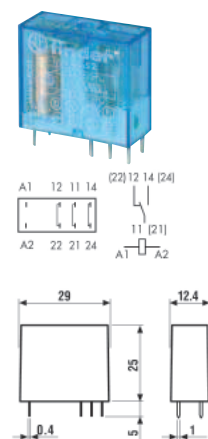
### F 40.52 SERIES



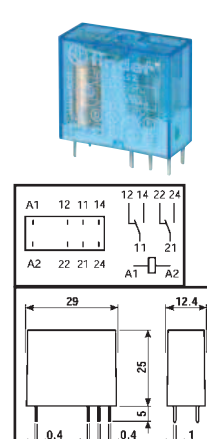
Technical Parameters	F 40.31	F 40.52
Contacts Type	SPDT	DPDT
Max. Switching Current	10 A	2 x 8 A
Max. Switching Voltage	400 VAC	250 VAC
Max. Switching Power	2000 VA	2000 VA
Insulating Voltage	6000 VAC	6000 VAC
Operate/Release Time	7 ms / 3 ms	7 ms / 3 ms
Temperature Range	-40°C to +85°C	-40°C to +85°C
Mechanical Lifetime	10 mil. cycles	10 mil. cycles
Electrical Lifetime	100 000 cycles	100 000 cycles
Dimensions	29 x 12,4 x 25 mm	29 x 12,4 x 25 mm

Part No.	Ord. No.	Description
S F 40.31.8.230.0000	6213	230VAC 28kR
S F 40.31.9.012.0000	6669	12VDC 220R
S F 40.31.9.024.0000	6670	24VDC 900R
S F 40.52.8.024.0000	7258	24VAC 900R
S F 40.52.8.230.0000	6673	230VAC 28kR
S F 40.52.9.005.0000	48512	5VDC 38R
S F 40.52.9.012.0000	4311	12VDC 220R
S F 40.52.9.024.0000	6672	24VDC 900R

### F 40.61 SERIES



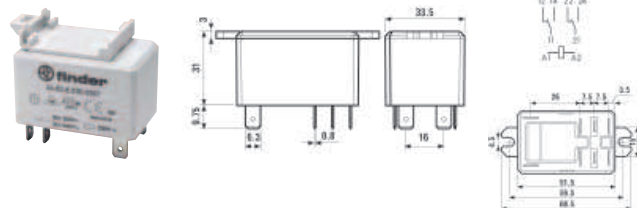
### F 44.62 SERIES



Technical Parameters	F 40.61	F 44.62
Contacts Type	SPDT	DPDT
Max. Switching Current	16 A	10 A
Max. Switching Voltage	400 VAC	500 VAC
Max. Switching Power	4000 VA	2500 VA
Insulating Voltage	6000 VAC	4000 VAC
Operate/Release Time	7 ms / 3 ms	8 ms / 5 ms
Temperature Range	-40°C to +85°C	-40°C to +85°C
Mechanical Lifetime	10 mil. cycles	20 mil. cycles
Electrical Lifetime	100 000 cycles	100 000 cycles
Dimensions	29 x 12,4 x 25 mm	29 x 12,4 x 25 mm

Part No.	Ord. No.	Description
S F 40.61.8.230.0000	6671	230V 28kR
S F 40.61.9.012.0000	4147	12VDC
S F 40.61.9.024.0000	4845	24VDC
O F 44.62.9.012.0000	54113	12VDC 220R
O F 44.62.9.024.0000	54642	24VDC 900R

### F 66.82 SERIES



Technical Parameters	F 66.82
Contacts Type	DPDT
Max. Switching Current	2 x 30 A
Max. Switching Voltage	400 VAC
Max. Switching Power	7500 VA
Insulating Voltage	6000 VAC
Operate/Release Time	8 ms / 15 ms
Temperature Range	-40°C to +70°C
Mechanical Lifetime	10 mil. cycles
Electrical Lifetime	100 000 cycles
Dimensions	51,5 x 33,5 x 31 mm

Part No.	Ord. No.	Description
O F 66.82.8.230.1000	52536	230VAC 4kR
O F 66.82.9.024.1000	52535	24VDC 340R

## Sockets and Accessories

F 95.83.3  
F 95.85.3



F 95.93.3  
F 95.95.3



Part No.	Description
F 95.83.3	Screw terminal socket panel for F4031, for modules 99.80 series
F 95.85.3	Screw terminal socket panel for F4052, for modules 99.80 series
F 95.93.3	Screw terminal socket panel for F4031, for modules 99.80 series
F 95.95.3	Screw terminal socket panel for F4052,-61, for modules 99.80

Part No.	Ord. No.
S F 95.83.3	6678
S F 95.85.3	6679
S F 95.93.3	54456
S F 95.95.3	8906

F 95.03  
F 95.05



F 94.04



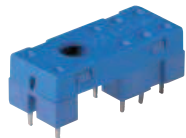
Part No.	Description
F 95.03	Screw terminal socket panel for F4031, for modules 99.02 series
F 95.05	Screw terminal socket panel for F4052,-61, for modules 99.02 ser.
F 94.04	Screw terminal socket panel for F55.34(2), for modules 99.02 ser.

Part No.	Ord. No.
S F 95.03	57209
S F 95.05	57210
S F 94.04	57210

F 95.13.2



F 95.15.2



Part No.	Description
F 95.13.2	PCB Socket for F4031
F 95.15.2	PCB Socket for F4052

Part No.	Ord. No.
S F 95.13.2	6674
S F 95.15.2	6675

### F 99.80 SERIES

Coil indication and EMC suppression modules.



Part No.	Description
F 99.02.9.024.99	LED+reversing of polarity protector diode 24VDC
F 99.80.0.230.59	LED 230V AC
F 99.80.9.024.99	LED+diode module for F958(9)33, F958(9)53

Part No.	Ord. No.
O F 99.02.9.024.99	51619
O F 99.80.0.230.59	50426
S F 99.80.9.024.99	47356

F 095.33  
F 095.51



Part No.	Description
F 090.33	Wire metallic clamp, serie 60
F 095.51	Wire metallic clamp for relay socket 95.13 and 95.15

Part No.	Ord. No.
O F 090.33	64206
S F 095.51	6676

F 094.91.3  
F 095.01  
F 095.91.3



Part No.	Description
F 094.91.3	Eject/retaining clip for 94.04 (serie 55)
F 095.01	Eject/retaining clip for 95.03, 95.05
F 095.91.3	Eject/retaining clip for serie 40

Part No.	Ord. No.
S F 094.91.3	57573
S F 095.01	57255
S F 095.91.3	50483

F 093.20

F 094.06

F 095.08  
F 095.18

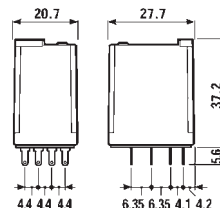
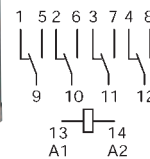


Part No.	Description
F 093.20	20-way jumper link, 36A for sockets 93.01/51
F 094.06	6-way jumper link, 10A/250V, suitable for 94.04
F 095.08	8-way jumper link, max. current 10A, for 95.83.3, 95.85.3
F 095.18	8-way jumper link, max. current 10A, for 95.05, 95.03

Part No.	Ord. No.
S F 093.20	53469
S F 094.06	67844
S F 095.08	68832
S F 095.18	54461

## Industrial Relays

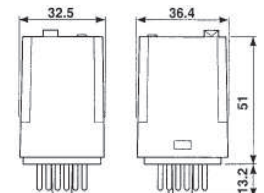
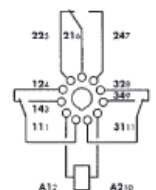
F 55.34 SERIES





F 60.13 SERIES

Alternative of industry standard RP700.

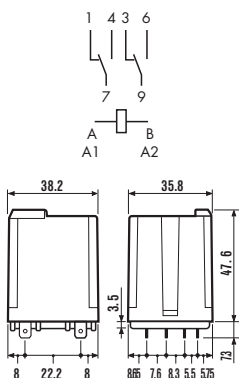


Switches, Relays and Fuses

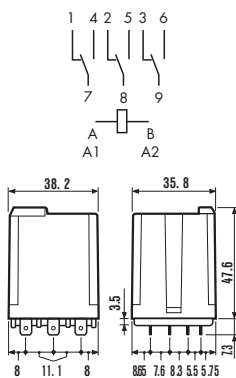
Technical Parameters	F 55.34	F 60.13
Contacts Part No.	4 change over	3 change over
Max. Switching Current	2 x 7 A	3 x 10 A
Max. Switching Voltage	250 VAC	250 VAC
Max. Switching Power	1750 VA	2500 VA
Operate/Release time	9 ms / 3 ms	9 ms / 9 ms
Dimensions	27,5 x 20,6 x 35,0mm	32,5 x 36,4 x 54,2mm

Part No.	Ord. No.	Description
<b>O</b> F 55.34.8.024.0040	8901	24VAC
<b>S</b> F 55.34.8.230.0040	6096	230VAC
<b>S</b> F 55.34.9.024.0040	7181	24VDC 600R
<b>S</b> F 55.34.9.012.0040	7182	12VDC
<b>S</b> F 60.13.8.230.0040	47953	230VAC
<b>S</b> F 60.13.9.024.0040	47952	24VDC 445R

## F 62.32 SERIES



## F 62.33 SERIES



Technical Parameters	F 62.32	F 62.33
Contacts Part No.	DPDT	3 change over
Max. Switching Current	4 x 16 A	3 x 16 A
Max. Switching Voltage	250 VAC	250 VAC
Max. Switching Power	4000 VA	4000 VA
Operate/Release time	10 ms / 10 ms	10 ms / 10 ms
Dimensions	38,2 x 35,8 x 47,6 mm	38,2 x 35,8 x 47,6 mm

Part No.	Ord. No.	Descr.
<b>O</b> F 62.32.9.024.0040	52213	24VDC
<b>O</b> F 62.33.9.024.0040	50767	24VDC

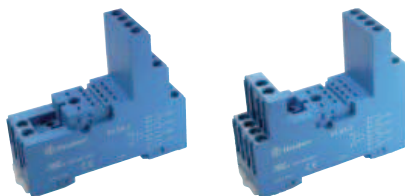
## Socket F 90.03

Screw terminal (Box clamp) socket, panel or 35mm rail mount for 60.13 relay.  
Suitable EMC modules - serie 99.80



## Socket F 94.84.3

Screw terminal (Box clamp) socket, panel or 35mm rail mount for 55.32, 55.34 relay  
Suitable EMC modules - serie 99.80



Part No.	Ord. No.
<b>S</b> F 90.03	47954
<b>S</b> F 94.84.3	8900
<b>S</b> F 94.94.3	52729

## Relay Interface Modules



### F 38 Series



Instant ejection of relay by plastic retaining clip  
Integral coil indication and protection circuit  
35mm rail mounting

Part No.	Description
F 38.51.0.024.0060	Relay interface module-EMR 24VAC/DC 6A 1c
F 38.51.0.240.0060	Relay interface module-EMR 1C/6A coil 230VAC/DC
F 38.51.3.240.0060	Relay interface module-EMR 1C/6A 230VAC
F 38.52.7.024.0050	Relay interface module-EMR 24VDC 8A 2c
F 38.81.7.024.8240	Relay interface module-SSR 24VDC/2A/1c+DIN socket
F 58.34.8.230.0060	Relay interface module-EMR 240VAC 4c/7A
F 58.34.9.024.0050	Relay interface module-EMR 24VDC 4c/7A

Part No.	Ord. No.
<b>S</b> F 38.51.0.024.0060	57223
<b>S</b> F 38.51.0.240.0060	52968
<b>S</b> F 38.51.3.240.0060	57222
<b>S</b> F 38.52.7.024.0050	57224
<b>O</b> F 38.81.7.024.8240	55850
<b>O</b> F 58.34.8.230.0060	57226
<b>O</b> F 58.34.9.024.0050	57227

## Modular Timers



### 80.01 Serie

Multiple-function timer relay with slow to operate. Supply voltage 12-240 VAC/VDC, 6 timer functions, 6 timer ranges 0,1s to 20h. SPDT contacts 16/30A, 400VAC, 4000VA. Protection IP20.



### 82.01 Serie

Multiple-function timer relay with slow to operate and release. Universal supply voltage 24-240 VAC or 24-48 VDC. 4 timer functions, 6 timer ranges 0,05s. to 10h. SPDT contacts 5/20A, 400VAC, 1250VA. Protection IP20.



Part No.	Ord. No.
<b>O</b> F 80.01.0.240.0000	52538
<b>O</b> F 82.01.0.240.0000	52539

### 85.04 Serie

Multiple-function timer relay. 7 timer ranges 0,05s to 100h. DIP switch for setup. suitable sockets 94.84.3 and 94.94.3. 4 change over contacts max 7/15A/1 contact. 250VAC, 1750VA max. Protection IP40.



Part No.	Ord. No.	Supply Voltage
<b>O</b> F 85.04.0.024.0000	42460	24VDC
<b>O</b> F 85.04.8.240.0000	42461	230VAC

## Relays for commercial applications

### F 11.01 Serie - Modular Light Dependent Relay

The 11.01 zero-hysteresis LDR is ideal for use in stairwells, entrance halls or any area, which requires the need for maintained safe and secure lighting, activation 1-30 lx, releasing 20-1000 lx (adjustable). SPDT max. 16A/400VAC. Supply voltage 230VAC. Protection IP20 for relay, IP54 for sensor..



Part No.	Ord. No.
<b>O</b> F 11.01.8.230	52555

### F 14.01 Serie-Modular Electronic Staircase Timer

16A/230V AC SPST-NO  
4 functions-Timing step relay, Step relay, Light constantly ON, Staircase relay  
Time setting from 30 s to 20 min. Protection IP20.



### F 20.21 Serie Modular Step Relays

Single phase switch (SPST-NO)  
35mm rail mount  
Test button with mechanical indicators  
Choice of 6 switches sequences  
16A/250V AC  
Protection IP20.



Part No.	Ord. No.	Supply Volt.
<b>O</b> F 14.01.8.230	52561	230VAC
<b>O</b> F 20.21.8.230.0000	52563	230VAC
<b>O</b> F 20.21.9.024.0000	52562	24VDC



## Energy Meters



### 7E.13.8.230.0000

1-phase kWh energy meter  
nominal current 5(32)A  
17,5mm wide  
35mm rail mount  
7-digit counter



### 7E.16.8.230.0000

1-phase kWh energy meter  
nominal current 10(65)A  
17,5mm wide  
35mm rail mount  
7-digit counter



Part No.	Ord. No.
○ 7E.13.8.230.0000	58105
○ 7E.16.8.230.0000	58111

### 7E.36.8.400.0000

3-phase kWh energy meter, 10(65)A, Single tariff, 70mm wide, 35mm rail mount, 7-digit counter

### 7E.36.8.400.0002

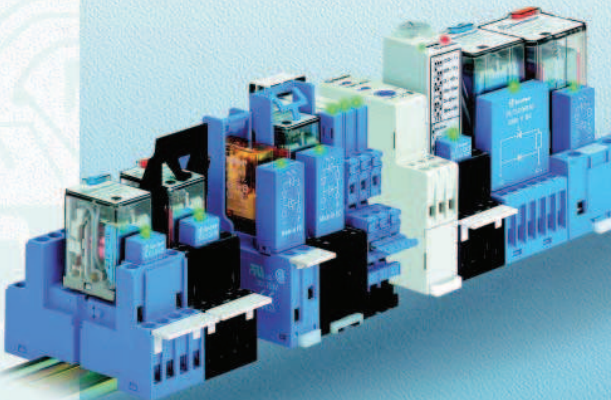
3-phase kWh energy meter, 10(65)A, Dual tariff (day and night), 70mm wide, 35mm rail mount, 2x7-digit counter

### 7E.36.8.400.0010

3-phase kWh energy meter for AC current max. 3x65A. MID compliant version



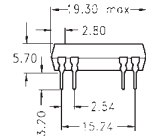
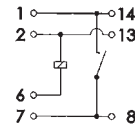
Part No.	Ord. No.
○ 7E.36.8.400.0000	58112
○ 7E.36.8.400.0002	58113
○ 7E.36.8.400.0010	62939



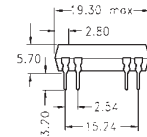
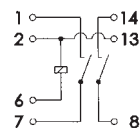
- signal, power relays
- bistable, timer relays
- relays for universal use
- modular interfaces
- relay sockets
- many other accessories

## Reed Relays

### DIP xx 12



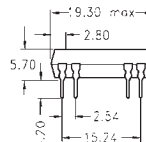
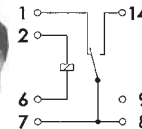
### DIP xx 21



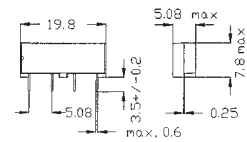
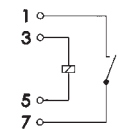
Technical Parameters	DIP xx 12	DIP xx 21
Contacts Type	SPST-NO	2 SPST-NO
Max. Switching Power	15 W	15 W
Max. Switching Current	1 A	1 A
Max. Switching Voltage	200 VDC	200 VDC
Operate/Release Time	0,5 ms / 0,1 ms	0,5 ms / 0,1 ms
Package	DIL	DIL

Part No.	Ord. No.	Description
S DIP 05-1A72-12L	854	5V 500R
S DIP 12-1A72-12L	3575	12V 1000R
S DIP 24-1A72-12L	855	24V 2150R
S DIP 05-2A72-21L	859	5V 140R
S DIP 12-2A72-21L	860	12V 500R
S DIP 24-2A72-21L	861	24V 2150R

### DIP xx 51



### SIL xx 71

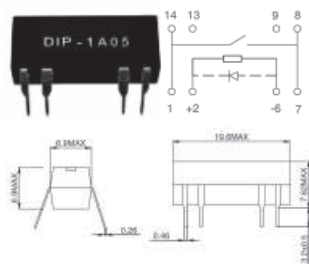


Technical Parameters	DIP xx 51	SIL xx 71
Contacts Type	SPDT	SPST-NO
Max. Switching Power	3 W	15 W
Max. Switching Current	0,25 A	1 A
Max. Switching Voltage	175 VDC	200 VDC
Operate/Release Time	0,7 ms / 0,1 ms	0,5 ms / 0,1 ms
Package	DIL	SIL

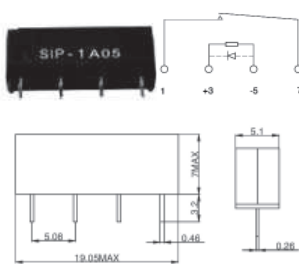
Part No.	Ord. No.	Description
S DIP 05-1C90-51L	851	5V 500R
S DIP 12-1C90-51L	852	12V 1000R
S DIP 24-1C90-51L	853	24V 2150R
S SIL 05-1A7271D*	40512	5V 500R
S SIL 05-1A72-71L	856	5V 500R
S SIL 12-1A72-71L	857	12V 1000R
S SIL 24-1A72-71L	858	24V 2000R

\* D - relay included protector diode. Cathode-pin 3, Anode-pin 5.

## DIP xx 1A



## SIL xx 1A



ECONOMIC

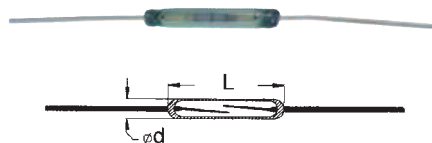
Technical Parameters	DIP xx 1A	SIL xx 1A
Contacts Type	SPST-NO	SPST-NO
Max. Switching Power	10 W	10 W
Max. Switching Current	0,5 A	0,5 A
Max. Switching Voltage	100 VDC	100 VDC
Operate/Release Time	0,5 ms / 0,5 ms	0,5 ms / 0,5 ms
Package	DIL	SIL

Part No.	Ord. No.	Description
S DIP 05-1A	52715	5V 500R
S DIP 12-1A	52716	12V 1000R
S SIL 05-1A	52717	5V 500R
S SIL 12-1A	52718	12V 1000R

## Reed Switches and Magnets

Reed switches consist of two ferromagnetic blades of iron and nickel, hermetically sealed in a glass capsule. The switches are actuated through the introduction or removal of a magnetic field and are for use in wet and dirty environments.

## KSK



MEDER electronic

Technical Parameters	KSK-1A52	KSK-1A66
Contacts Type	SPST-NO	SPST-NO
Max. Switching Power	50 W	10 W
Max. Switching Current	0,5 A	0,5 A
Max. Switching Voltage	250 VDC	200 VDC
Dimensions	21 x 2,75 mm	14 x 2,2 mm

Part No.	Ord. No.
S KSK-1A52-3040	4614
S KSK-1A66-1020	2307

Technical Parameters	KSK-1A87	KSK-1C90
Contacts Type	SPST-NO	SPDT
Max. Switching Power	10 W	20 W
Max. Switching Current	0,5 A	1 A
Max. Switching Voltage	200 VDC	175 VDC
Dimensions	10 x 2 mm	14 x 2,54 mm

Part No.	Ord. No.
S KSK-1A87-1520	2475
O KSK-1C90-1520	47547

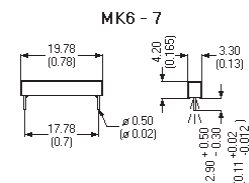
## MK 67 B

magnetically operated reed proximity switch for direct PCB mounting. The sensor should be mounted on a fixed surface with the actuating magnet on the moving surface.

Introduction or removal of the magnetic field determines the closing and opening of the reed switch. SPST-NO 0,5A, 10W



MEDER electronic



Part No.	Ord. No.
S MK 67 B	6690

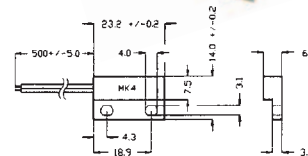
## MK3-3A71B-500W

magnetically operated reed proximity switches in a cylindrical case with an interconnect cable. SPST-NO, 0,5A, 10W



## MK4-1A71B-500W

reed switch SPST-NO, 0,5A, 10W, with cable. Mate: MM4.



Part No.	Ord. No.
S MK03-1A66B-500W	23778
S MK4-1A66B-500W	5239

## MM 4

Magnet 23x14mm, for MK4, material AlNiCo 500.



## MM 312

Magnet diameter 3mm, length 12mm, material AlNiCo 500.



Part No.	Ord. No.
S MM 4	6689
S MM 312	6687

## Level Sensors

MEDER electronic

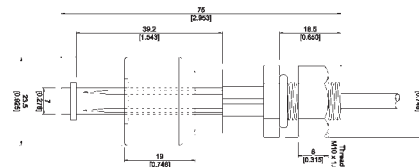
Standard liquid level sensor for water applications and dilute acids. Prichytáva sa maticou. The standard termination is a PVC cable with a cross section of 0.14 mm<sup>2</sup> and a length of 500 mm.

### APPLICATIONS

Liquid container monitoring in household, appliances, automotive applications, test and measurement, and control technology.

### LS02

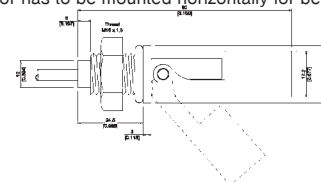
Standard liquid level sensor. The sensor has to be mounted vertically for best result.



Part No.	Ord. No.
S LS02-1A66-PP-500W	5487

### LS03

Standard liquid level sensor. The sensor has to be mounted horizontally for best results.

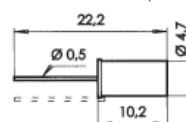


Part No.	Ord. No.
S LS03-1A66-PP-500W	5488

## Movement Switch

### CW 1300-0

Movement switch, mercury free. Max. 60V/0,25A. 3VA, activation angle 15°.



Part No.	Ord. No.
S CW1300-0	1444

## Fuses

### 5x20T Series - Time Lag

Breaking current 35A or 10xIn(max.100A)/250VAC.



118.000 Series

Rating	Ord. No.	Rating	Ord. No.
32mA	28895	800mA	16815
40mA	28896	1A	16816
50mA	16799	1,25 A	16817
63mA	16801	1,4A	16819
80mA	16802	1,6A	16820
100mA	16803	1,8A	16821
125mA	16804	2 A	16822
160mA	16806	2,5A	16823
200mA	16807	3,15A	16824
250mA	16808	4A	16825
315mA	16809	5A	16826
400mA	16810	6,3A	16827
500mA	16811	8A	16828
630mA	16812	10A	16829
700mA	16813	16A	16830

Rating
32mA-40mA
50mA-80mA
100mA-125mA
160mA-16A

### 5x20F Series - Quick Acting

Breaking current 35A or 10xIn(max.63A)/250VAC.



117.000 Series

Rating	Ord. No.	Hodnota	Ord. No.
32mA	28897	800mA	16751
40mA	28898	1A	16752
50mA	28899	1,25 A	16753
63mA	28900	1,6A	16754
80mA	28901	1,8A	16755
100mA	16741	2A	16756
125mA	16742	2,5A	16757
160mA	16743	3,15A	16758
200mA	16744	4A	16759
250mA	16745	5A	16760
315mA	16746	6,3A	16761
400mA	16747	8A	16762
500mA	16748	10A	16763
630mA	16749	16A	16764
700mA	16750		

Rating
32mA-40mA
50mA-80mA
100mA-125mA
160mA-16A



### 6,3x32T Series - Time Lag

Breaking current 35A or 10xIn(max.63A)/250VAC.



Serie 202.000

Rating	Ord. No.	Rating	Ord. No.
400mA	16898	4A	16910
500mA	16899	5A	16911
630mA	16900	6,3A	16912
800mA	16902	8A	16913
1A	16903	10A	16914
1,6A	16906	12A	16915
2A	16907	15A	16916
2,5A	16908	16A	16917
3,15A	16909	20A	16918

Rating
400mA-1,6A
2A-20A

### 6,3x32F Series - Quick Acting

Breaking current 35A or 10xIn(max.100A)/250VAC.



Serie 201.000

Rating	Ord. No.	Rating	Ord. No.
63mA	16862	1,5A	18134
80mA	16863	1,6A	16879
100mA	16864	2 A	16880
125mA	16865	2,5A	16881
160mA	16866	3,15A	16882
200mA	16867	4 A	16884
250mA	16868	5 A	16885
315mA	16869	6,3A	16886
400mA	16871	8 A	16887
500mA	16872	10A	16888
630mA	16873	12,5A	16889
800mA	16875	15A	16890
1A	16876	16A	16891
1,25 A	16877	20A	16892

Rating
63mA-80mA
100mA-125mA
160mA-20A

### 5x20T Series - Time Lag - Ceramic

6,3A, breaking current 1500A.



Rating	Ord. No.
S 522.725 6,3A	50920

### Fuses for request:

#### Glass fuses

- Very quick acting 5x20 FF and 6,3x32 FF
- Medium Time - lag 5x20 M

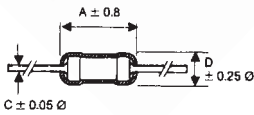
#### Ceramic fuses

- Time lag K 5x20 T
- Quick acting K 5x20 F



PCB Mount Fuses

Subminiature Axial Lead - PICO Series



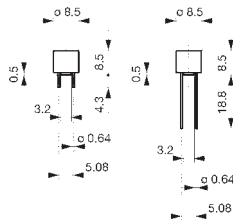
	62 mA - 10 A	12 - 15 A
A	7.14	7.14
C	0.635	0.81
D	2.36	2.36

Technical Parameters

Maximal Voltage	250V
Time Category	M (medium time lag)
Current Value	160mA - 4A

Part No.	Ord. No.
○ PICO 125mA F	23685
○ PICO 500mA F	23688
○ PICO 1,5A F	23691
○ PICO 2,5A F	23693

MST 250T Time Lag Series

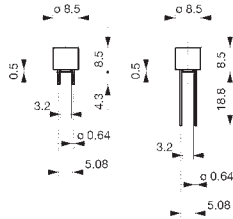


Technical Parameters

Maximal Voltage	250VAC
Rated Current / Voltage	50A/125VAC
Soldering Temperature	260°C (5s)
Current Value	200mA - 4A

Part No.	Ord. No.
S MST250 200mA	63679
S MST250 250mA	63680
S MST250 315mA	63681
S MST250 400mA	63682
S MST250 500mA	63683
S MST250 630mA	63684
S MST250 800mA	63685
S MST250 1A	63676
S MST250 1,25A	63686
S MST250 1,6A	63687
S MST250 2A	63688
S MST250 2,5A	63689
S MST250 3,15A	63690
S MST250 4A	63691

ST250 F Quick Acting Series



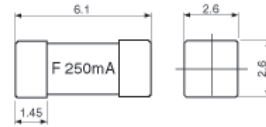
Technical Parameters

Maximal Voltage	250VAC
Rated Current / Voltage	50A/125VAC
Soldering Temperature	260°C (5s)
Current Value	200mA - 4A

Part No.	Ord. No.
S MSF250 125mA	63692
S MSF250 160mA	63693
S MSF250 250mA	63694
S MSF250 315mA	63695
S MSF250 500mA	63696
S MSF250 630mA	63697
S MSF250 800mA	63698
S MSF250 1A	63699
S MSF250 1,25A	63700
S MSF250 1,6A	63701
S MSF250 2A	63702
S MSF250 2,5A	63703
S MSF250 3,15A	63704

SMD Fuses - ESF Series

SMD Fuses rapid quick, ceramic body.

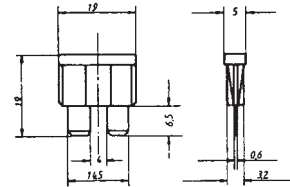


Technical Parameters

Maximal Voltage	125VAC/VDC
Rated Current / Voltage	50A/125VAC
Soldering Temperature	260°C
Dimensions	6,1x2,6x2,6mm

Part No.	Ord. No.
○ ESF0,25-SMD 0,25A	9549
○ ESF0,5-SMD 0,5A	9272
○ ESF1,0-SMD 1,0A	47373
○ ESF2,0-SMD 2,0 A	9271
○ ESF4,0-SMD 4,0A	3650

Automotive Fuses



Part No.	Ord. No.	Description
S FKS 05A	34073	brown
S FKS 10A	34078	red
S FKS 15A	34081	blue
S FKS 20A	34084	yellow
S FKS 25A	34086	white
S FKS 30A	34089	green

Automotive Fuses Set

Automotive fuses set 120pcs - 5/10/15/20/25/30A.



Part No.	Ord. No.
S Automotive set KFZ	62200

## Fuseholders

### SI-HA 128500 (PTF55)

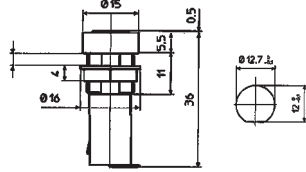
For 5x20 fuses, panel mount/bayonet, max. 6,3A, 250V, 10MOhm, diameter 15mm, length 36mm, mounting hole 12,7mm.



ECONOMIC

### SI-HA 128500 LC

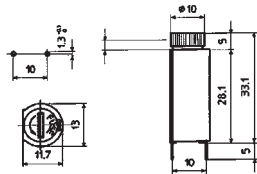
For 5x20 fuses, panel mount/screwed, max. 6,3A, 250V, diameter 15mm, length 36mm, mounting hole 12,5mm.



Part No.	Ord. No.
S SI-HA128500 (PTF55)	23701
S SI-HA128500 LC	56939

### SI-HA 122500 (PTF45)

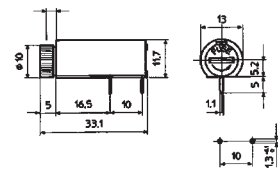
For 5x20 fuses, PCB mount vertical/bayonet, RM=10mm, max. 6,3A, 250V, 10MOhm, diameter 10mm, height 33,1mm, mounting hole 13mm.



Part No.	Ord. No.
S SI-HA 122500 (PTF45)	41198

### SI-HA 123500 (PTF50)

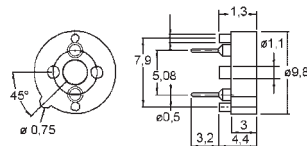
For 5x20 fuses, PCB mount horizontal/bayonet, RM=10mm, max. 6,3A, 250V, 10MOhm, diameter 10mm, length 33,1mm, mounting hole 13mm.



Part No.	Ord. No.
S SI-HA 123500 (PTF50)	16921

### SI-HA 166601

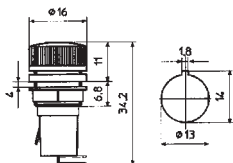
For fuses 165,166 series, PCB mounting, RM = 5mm.



Part No.	Ord. No.
S SI-HA 166601	23703

### SI-HA 125500 (PTF30)

165,166, panel mount/screwed, max. 6,3A, 250V, 10MOhm, diameter 16mm, length 34,2mm, mounting hole 13mm.



Part No.	Ord. No.
S SI-HA 125500 (PTF30)	43955

### SI-HA 199090

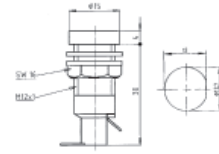
For 5x20 fuses, panel mount/bayonet, max. 10A, 250V, Ø 15mm, length 34mm, Ø mounting hole 12,7mm.



ECONOMIC

### SI-HA 199090 LC

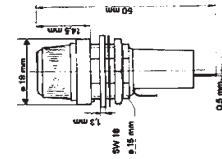
For 5x20 fuses, panel mount/screwed, max. 10A, 250V, diameter 15mm, length 36mm, Ø mounting hole 12mm.



Part No.	Ord. No.
S SI-HA 199090	34058
S SI-HA 199090 LC	56930

### SI-HA 126500

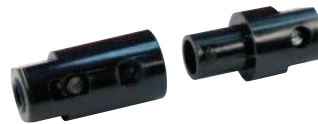
For 6,3x32 fuses, panel mount/screwed, max. 20A, 250V, diameter 18mm, length 50mm, mounting hole 15mm.



Part No.	Ord. No.
S SI-HA 126500	16931

### SI-HA 127100

For 5x20 fuses, cable mount/bayonet, screw cable terminal.



Part No.	Ord. No.
S SI-HA 127100	28911

### SI-HA 127555 (GSH127-5)

For 5x20 fuses, cable mount/bayonet, with wires 2x20cm, max. 5A, 24V.



Part No.	Ord. No.
S SI-HA 127555	6719

### SI-HA 127666 (GSH127-6)

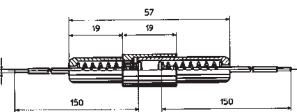
For 6,3x32 fuses, cable mount /bayonet, with wires 2x20cm, max. 6.3A, 24V.



Part No.	Ord. No.
S SI-HA 127666	6720

### SI-HA 127500 (PTF80)

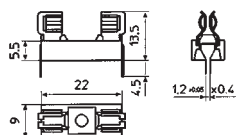
Universal fuseholder with wires 2x15cm, for 5x20, 5x25, 5x30 and 6,3x32mm fuses, max. 6.3A, 250V, bayonet, length 57mm.



Part No.	Ord. No.
S SI-HA 127500 (PTF80)	16933

## SI-HA 112000 (PTF15)

For 5x20 fuses, RM=22,5mm, max. 6,3A, 250V.

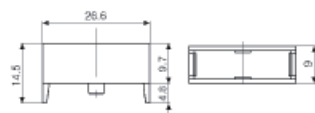


Part No.	Ord. No.
S SI-HA 112000	16934

## SI-HA 112100 LC

Plastic cover for SI-HA 112000.

ECONOMIC

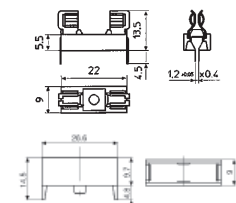
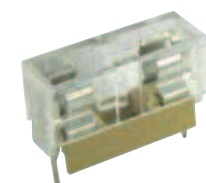


Part No.	Ord. No.
S SI-HA 112100 LC	3759

## SI-HA 112000 + 112100 LC

Fuseholder with cover for 5x20 fuses, RM=22,5mm, max. 6,3A, 250V.

ECONOMIC

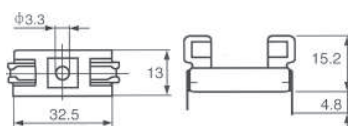
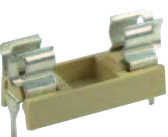


Part No.	Ord. No.
S SI-HA 112000 + 112100 LC	56928

## SI-HA 137500

For 6,3x32 fuses, PCB mounting, RM=32,5mm, max. 6,3A, 250V.

ECONOMIC



Part No.	Ord. No.
S SI-HA 137500	23702

## SI-HA 178000 (PTF78)

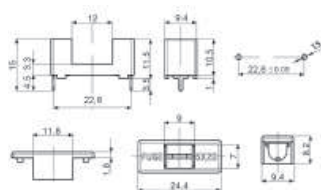
Fuseholder with cover, green colour, for 5x20 fuses, max. 6,3A,250V, 10MOhm, M22,6mm.



## SI-HA 178000 LC

Fuseholder with cover, grey colour, for 5x20 fuses, max. 6,3A,250V, 10MOhm, M22,6mm.

ECONOMIC



Part No.	Ord. No.	
S SI-HA 178000 (PTF78)	2738	green
S SI-HA 178000 LC	56938	grey

## SI-CLIP A

For 5x20 fuses, RM=5mm, max. 10A, material: silver plated brass.



Part No.	Ord. No.
S SI-CLIP A	18628

## SI-CLIP B

For 5x20 fuses, RM=5mm, max. 10A, material: silver plated brass.



Part No.	Ord. No.
S SI-CLIP B	16939

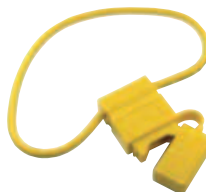
## SI-HA FH15

Fuseholder for automotive fuses, max. 15A, wire 20cm black.



## SI-HA FH20

Fuseholder for automotive fuses, max. 20A, wire 20cm yellow.



## SI-HA FH30

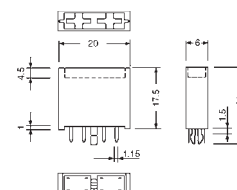
Fuseholder for automotive fuses, max. 30A, wire 20cm green.



Part No.	Ord. No.
S SI-HA FH15	50487
S SI-HA FH20	50488
S SI-HA FH30	50489

## SI-HA FKS

Fuseholder for automotive fuses, max. 20A, 32V, 8-pins (4pins/contact), WxHxD=20x17,5x6mm.



Part No.	Ord. No.
S SI-HA FKS	34062

## Thermal Fuses

### Non-resettable

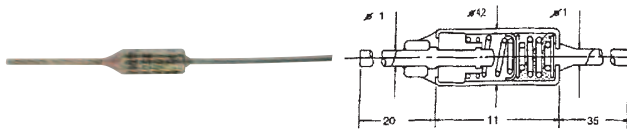
#### TSM xxx BF

Thermal fuses, radial situated pins, PCB mounting. Max. 250V / 2A. Temperature tolerance 10%.



Part No.	Ord. No.		
S TSM 102 BF	56196	102°C	
S TSM 115 BF	50987	115°C	
S TSM 125 BF	55563	125°C	
S TSM 130 BF	50988	130°C	

#### G 4 A xxx



Technical Parameters			
Temperature Range	72 - 240°C		
Maximal Voltage	250 VAC		
Temperature Tolerance	0 - 10%		
Maximal Current	10A (resistive load), 8A ( inductive load)		
Part No.	T <sub>OFF</sub> (°C)	T <sub>c</sub> (°C)	T <sub>M</sub> (°C)
G 4 A 72°C	72	49	100
G 4 A 77°C	77	52	125
G 4 A 93°C	93	68	140
G 4 A 98°C	98	73	140
G 4 A 104°C	104	79	150
G 4 A 110°C	110	82	150
G 4 A 117°C	117	85	150
G 4 A 121°C	121	92	160
G 4 A 128°C	128	103	160
G 4 A 144°C	144	119	175
G 4 A 152°C	152	125	175
G 4 A 167°C	167	142	210
G 4 A 184°C	184	158	210
G 4 A 192°C	192	167	177
G 4 A 216°C	216	200	240
G 4 A 229°C	229	200	240
G 4 A 240°C	240	200	275

T<sub>OFF</sub> - activation temperature for fuse break (irreversible)

T<sub>c</sub> - maximal temperature to contact destroy

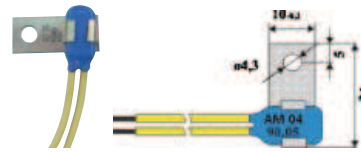
T<sub>M</sub> - maximal temperature, to fuse destroy

Part No.	Ord. No.
S G 4 A 72°C	40099
S G 4 A 77°C	40100
S G 4 A 93°C	40103
S G 4 A 98°C	40104
S G 4 A 104°C	40105
S G 4 A 110°C	40106
S G 4 A 117°C	40107
S G 4 A 121°C	40108
S G 4 A 128°C	40109
S G 4 A 144°C	40111
S G 4 A 152°C	40112
S G 4 A 167°C	40113
S G 4 A 184°C	40114
S G 4 A 192°C	40115
S G 4 A 216°C	40116
S G 4 A 229°C	40117
S G 4 A 240°C	40119

## Bimetallic Thermostats

Bimetallic thermostats (temperature dependant switches) with single contact NC, with 60mm long leads.

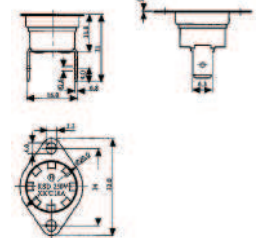
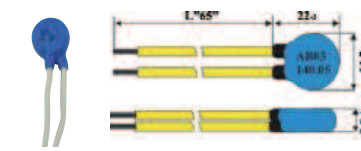
#### AM03/1



#### T23, BT-H



#### AB03



Technical Parameters	
Temperature Range	50 - 150°C
Maximal Voltage	250 VAC
Temperature Tolerance	3 - 4%
Maximal Current	10A (resistive load)

Part No.	Contact Type	Current	Activation Temperature (°C)
AB03-90	NC	6,3 A	90
AB03-100	NC	6,3 A	100
AB03-120	NC	6,3 A	120
AM03/1-90	NC	2,5 A	90
AM03/1-100	NC	2,5 A	100
AM03/1-120	NC	2,5 A	120
AM03-90	NC	2,5 A	90
AM03-100	NC	2,5 A	100
AM03-120	NC	2,5 A	120
BT-H70V	NC	10 A	70
BT-H80V	NC	10 A	80
BT-H100V	NC	10 A	100

Part No.	Contact Type	Current	T <sub>act</sub> (°C)	T <sub>deact</sub> (°C)
T23A050ASR2-15	NC	10 A	50	35
T23A090ASR2-20	NC	10 A	90	70
T23B090ASR2-20	NO	10 A	90	70
T23A112ASR2-15	NC	10 A	112	97

Part No.	Ord. No.
S AB03-90	58319
S AB03-100	58324
S AB03-120	58328
S AM03/1-90	58309
S AM03/1-100	58313
S AM03/1-120	58317
S AM03-90	58298
S AM03-100	58302
S AM03-120	58306
S BT-H70V	58337
S BT-H80V	58339
S BT-H100V	58340
S T23A050ASR2-15	42786
S T23A090ASR2-20	50627
S T23B090ASR2-20	50636
S T23A112ASR2-15	50631

Gas Discharge Tubes



CG Series

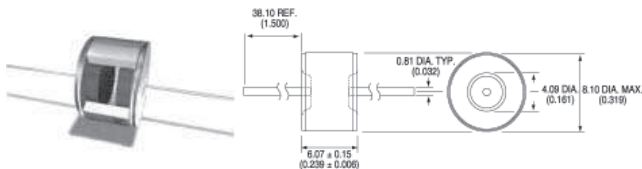
Littelfuse highly reliable CG/CG2 Series GDTs provide a high degree of surge protection in a small size ideal for board level circuit protection.

GDTs function as switches which dissipate a minimum amount of energy and therefore handle currents that far surpass other types of transient voltage protection. Their gas-filled, rugged ceramic metal construction make them well suited to adverse environments.

The CG/CG2 series comes in a variety of forms including surface mount, core, straight and shaped leads, to serve a variety of mounting methods.

The CG Series (75-110V) is ideal for protection of test and communication equipment and other devices in which low voltage limits and extremely low arc voltages are required.

The CG2 Series (145V-1000V) is ideal for protecting equipment where higher voltage limits and holdover voltages are necessary.



Technical Parameters	At Conditions...	CG90L	CG2 230L	
Breakdown Voltage	500V/s			
MIN		72	195	[VDC]
TYP		90	230	[VDC]
MAX		108	265	[VDC]
Breakdown Impulse	100V/us	400	600	[VDC]
Insulating Resistance	50V	1010	-	[Ohm]
	100V		1010	[Ohm]
Rated Current/Voltage	1MHz	1	1	[pF]
Max. Impulse Current		20	20	[kA]
Lifetime	500A (10/1000us)	1000	1000	[breakdowns]
	20kA (8/20us)	5	5	[breakdowns]
Follow On Current		20	20	[A]

Part No.	Ord. No.
S CG90L	9333
S CG2 230L	50454

Polyswitch Resettable Fuses

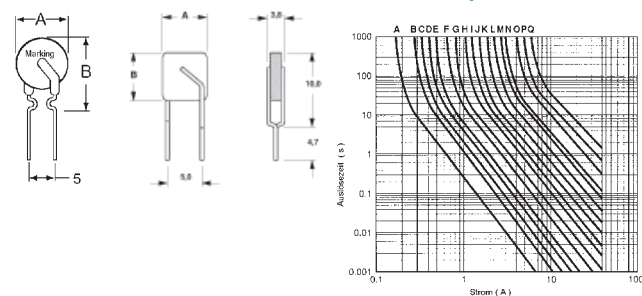


PolySwitch devices are polymeric positive temperature coefficient (PTTC) devices, which are used to help protect against harmful overcurrent surges and overtemperature faults. Like traditional fuses, these devices limit the flow of dangerously high current during fault conditions. However, the PolySwitch device resets after the fault is cleared and power to the circuit is removed, thereby reducing warranty, service and repair costs.

Typical applications for PolySwitch devices include computers and peripherals, rechargeable batteries, power supplies, appliances & HVAC systems, automotive electronics, medical and telecommunications equipment.

RXEF

TR250



Part No.	Rmin [Ω]	Rmax [Ω]	Imin [A]	Imax [A]	Ttrip [s]	A [mm]	B [mm]	Graf
RXEF010	2,50	4,50	0,2	0,10	0,4	7,4	12,7	A
RXEF025	1,25	1,83	0,5	0,25	0,8	7,4	12,7	D
RXEF040	0,55	0,81	0,8	0,40	0,7	7,6	13,5	F

Part No.	Rmin [Ω]	Rmax [Ω]	Imin [A]	Imax [A]	Ttrip [s]	A [mm]	B [mm]	Graf
RXEF065	0,31	0,46	1,3	0,65	0,7	9,7	14,5	H
RXEF135	0,12	0,18	2,7	1,35	2,5	14,5	19,6	L
RXEF185	0,08	0,12	3,7	1,85	5	17,8	22,9	-
TR250-120U	6	10	0,3	0,12	1	6	6	-

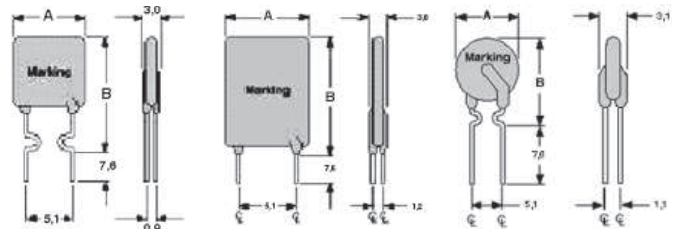
$R_{min}$  - Minimum resistance of device as supplied at 20°C  
 $R_{max}$  - Maximum resistance of device as supplied at 20°C  
 $I_{min}$  - minimum current that will switch the device to high resistance  
 $I_{max}$  - Maximum fault current without damage device at rated voltage.  
 $T_{trip}$  - max. time to switching at  $5xI_{min}$   
 RXE maximal voltage 60V  
 TR250 maximal voltage 60V

Part No.	Ord. No.	Description
S RXEF 010	4781	0,1A/60V
S RXEF 025	4825	0,25A/72V
S RXEF 040	4922	0,4A/72V
S RXEF 065	4826	0,65A/72V
S RXEF 135	4827	1,35A/72V
S RXEF 185	4828	1,85A/72V
S TRF250-120U	4798	0,12A/250V

LP30 - 110,135,185

LP30 - 300

LP60



Part No.	Rmin [Ω]	Rmax [Ω]	Imin [A]	Imax [A]	Ttrip [s]	A [mm]	B [mm]	Graf
LP30-110	0,05	0,10	2,2	1,10	6,6	8,7	14,2	-
LP30-135	0,04	0,08	2,7	1,35	7,3	8,9	13,5	-
LP30-185	0,03	0,06	3,7	1,85	8,7	10,7	15,7	-
LP30-300	0,02	0,05	6,0	3,00	10,8	11,7	17,3	-
LP60-010	2,50	4,50	0,2	0,10	8	7,4	12,7	A
LP60-025	1,00	1,95	0,5	0,25	3,2	7,4	12,7	D
LP60-040	0,52	0,86	0,8	0,40	3,8	7,6	13,5	F
LP60-065	0,27	0,48	1,3	0,65	5,3	9,7	14,5	H

$R_{min}$  - Minimum resistance of device as supplied at 20°C  
 $R_{max}$  - Maximum resistance of device as supplied at 20°C  
 $I_{min}$  - minimum current that will switch the device to high resistance  
 $I_{max}$  - Maximum fault current without damage device at rated voltage.  
 $T_{trip}$  - max. time to switching at  $5xI_{min}$   
 LP30 maximal voltage 30V  
 LP60 maximal voltage 60V

Part No.	Ord. No.	Description
S LP 60-010	44768	0,1A 60V
S LP 60-025	44771	0,25A 60V
S LP 60-040	44773	0,4A 60V
S LP 60-065	44775	0,65A 60V
S LP 30-110	44778	1,1A 30V
S LP 30-135	44779	1,35A 30V
S LP 30-185	44781	1,85A 30V
S LP 30-300	44783	3A 30V





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## Fans and Heatsinks

Fans



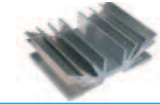
| 1

Fan Accessories



| 12

Heatsinks



| 14

Thermal Interface Materials



| 29

Peltiers Modules



| 30

## Bearing Systems

### Sleeve Bearings

When low cost is priority for an application, sleeve bearing fans are the right choice. Sunon uses sintered sleeve bearings with a special deep lubrication utilizing hydrodynamic effects. This guarantee a high operating period with minimum noise. Sunon fans with sleeve bearings have been tried and tested in numerous applications millions times over. The test series, even with high ambient temperatures, have confirmed an average life span of approx. 50 000 hours.

Sleeve bearing fans are ideally suited for vertically mounted positions, since the operating life expectancy in horizontally mounted positions can be distinctly reduced in comparison to specifications. For horizontal installation, higher capacity, demands and endurance characteristics, preference should be given to fans with VAPO bearing and MAGLEV motor, or fans with ball bearing.

### Ball Bearings

Ball bearings are ideal for use in portable devices with various mounting angles. However, caution should be used to prevent the product from falling and impact damaging the ball bearing, which could lead to noise and shortened product life-time.

Fans with ball bearing are available for high capacity requirements such as operating temperatures up to 70°C, specific installations and extended service intervals.

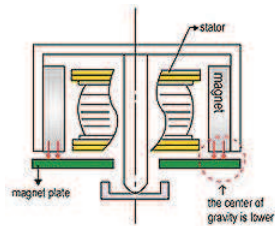
### MagLev Operating Principle and VAPO Bearings

The patented MagLev design is based on magnetic principles and forces that not only propel the fan, but also ensure the stable rotation over its entire 360° movement. Utilizing the attraction of the magnetic levitation force, MagLev Motor Fans eliminate the problems of wobbling and shaking frequently seen on traditional motor fans. With this new technology, the impeller of MagLev Motor Fans is suspended in the air during rotation so that the shaft and the bearing do not come into direct contact with each other to create friction. The result is a new and improved fan with a low noise level, high temperature endurance, and long life.

## MagLev System

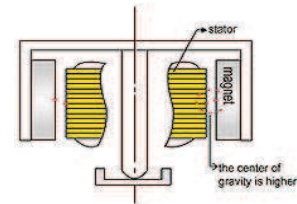
Traditional fans rotate by the principle of like-pole repulsion. As there is no control exerted over blade trajectory, the fan blades tend to produce irregular shuddering and vibrations during operation. After long-term use, the shaft will cause severe abrasion on the bearings, distorting them into a horn shape. The worn-out fan then starts to produce mechanical noises and its life span is shortened as well. The unique feature of Sunon MagLev Motor Fans is the path of the fan blade is magnetically controlled by Sunon's patented MagLev System during operation. The result shows that no matter how the fan is oriented, there is no friction caused by the shaft and the bearing as they have no direct contact. This means that the characteristic abrasion noises of worn-out components are not produced, and also allows a life span of 50,000 hours or even longer at room temperature.

### Comparison Between Sunon MagLev Fan and Traditional Fan



#### SUNON MagLev Fan

Possesses 3 important factors: the magnet plate, the magnet and the stator. The resulting interaction between the magnet plate and the magnet pulls the rotor downward in a full 360°. Through the lower center of gravity, the rotor runs stably in a consistent orbit.



#### Traditional Fan

2 factors: the magnet and the stator. The conventional fan utilizes a deviating magnetic center to attract the rotor downwards. This kind of technology causes the rotor to vibrate violently due to both the lack of a consistent orbit and a deviation of the magnetic center.



## AC Fans

### AC AXIAL FAN

SUNON Axial AC Fan, equipped a shaded-pole motor, die-cast aluminum frame, and UL 94V-0 rated injection molded non-flammable thermoplastic impeller, is the most reliable AC Fan in the field. SUNON AC Fan is available in both life-lubricated ball bearing system and oil-impregnated sintered sleeve bearing system to meet the diverse needs of the market.

**Applications:** Game Machine, Copy Machine, Medical Equipment, Vending Machine, Packing Equipment, Air Conditioner, Heater, Manufacturing Equipment & Electric Products.

### ALVEOLATE SYSTEM

The AC Alveolate motor supplies a high air volume with a low noise level, a system of reducing the temperature and two-speed operation. Counter to traditional models, the Sunon AC coil motor has Alveolate-wire wrapping as well as a condenser start-up guaranteeing low-temperature operation. Moreover, thanks to the reduction in electrical power consumption, the temperature of cellular motor operation is low, producing little heat.

With regard to the internal temperature of the motor (in operation) being 70° C with traditional models, Sunon's new cellular alternating motor constantly stays at 50°C, guaranteeing high reliability and stability. This makes it possible to extend the useful life of the product to over 50,000 hours.

To ensure practical useful life and sound performance of the Sunon product, the AC Alveolate fan is offered with a designed "Thermal limit". When the coil temperature exceeds a limit of 110° C, the thermal limit ensures protection and safety

by automatically cutting the electricity supply. This stops the fan rotating until the temperature returns to around 90°C, then the fan starts working again. Moreover, the fan blades are designed to operate silently and supply a high air flow with a low noise level. Responding to market demands, the Sunon AC Alveolate fan is fitted with a third wire, which allows customisation to personal

### SUNON AC Fans Marking

Example: SF 23080A - 2083 HSL

Code	Feature	Description
SF23080A	Series	SFxxx, DPxxx, *Axxx, **MAxxx
2	Power supply	1=115VAC, 2=230VAC
08	Frame size	17=172mm, 12=120mm, 09=92mm, 08=80mm
3	Frame depth	2=25mm, 3=38mm, 5=51mm
H	Speed	X=Super Air, H=High, M=Medium, L=Low
S	Bearing	S=Sleeve, B=Ball
L	Terminal	T=fastons 2,8x0,3mm, L=wires

\* Alveolate

\*\*VAPO Bearing

## DC Fans

### Structural Configuration DC Fans

Designed as electronically converting direct current motor with Vapo bearing, sintered sleeve bearing system, or precision ball bearing system with additional magnetic levitation force (MagLev), both the frame and impeller are made from filled PBT thermoplastic.

### DC Fans with Motor Protection

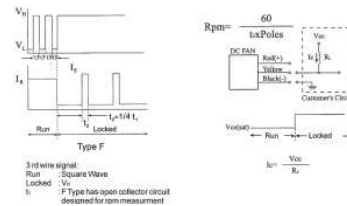
Sunon DC fans from KDE series are also available with improved motor protection (KDE\_A). The motor protection is achieved through an IC developed by Sunon. In the event of failure, the motor is switched off for a short time.

The IC periodically allows the motor to restart until it resets itself. Such problems as foreign objects blocking the motor can be automatically corrected by the protective motor function.

The circuit prevents any further excessive heating up of the motor coils in the event of an error occurring. The motor protection is included in all DC fans with the code letter "A" in classification.

### DC Fans with Output Signal

All Sunon DC fans are available with the option of an output signal, which is transmitted out by a third connecting wire. The connection enables the fan to be monitored and controlled. Therefore, in the event of critical operating conditions, like a blocked fan wheel over the output signal, an alarm can be released. Usually the output is lined out through an open collector terminal of a transistor and must be further wired in the application via a resistor in order to receive, f.e. TTL levels. The logic levels are vary with the individual nominal voltages.



### SUNON DC Fans Marking

Example: KD 1208 PTS 1.13

Code	Feature	Description
KD	Series	KD=axial DC ventilator KDE=axial DC ventilator with VAPO bearing GM = GreenMotor (low power consumption)
12	Power supply	05=5VDC, 12=12VDC, 24=24VDC
08	Frame size	12=120mm, 09=92mm, 08=80mm, 06=60mm, 55=55mm, 05=52mm, 05=50mm, 45=45mm, 04=40mm, 35=35mm, 03=30mm, 02=25mm, 01=20mm, 17=17mm
P	Frame material	P=standard-thermoplastic, V=Venturi
T	Frame depth	M=38mm, T=25mm, K=20mm, H=15mm, F=10mm, D=8mm, E=6mm
S	Bearing	S=Sleeve, B=Ball, V=VAPO (only KDE)
1	Speed	X=Super Air, 1=High, 2=Medium, 3=Low
13	Motor	Motor model

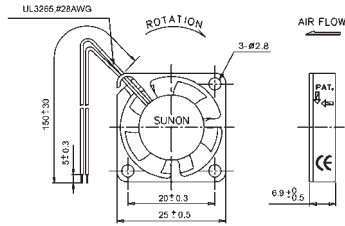
## Packing

Fan Dimensions	Pcs in box
40x40 mm	400 (2x200)
50x50 mm	200 (2x100)
60x60 mm	100 (2x50)
80x80 mm	50 (2x25)
92x92 mm	50 (2x25)
120x120 mm	40 (2x20)
171x151 mm	12 (1x12)

## SUNON Axial DC Fans

GM Series - Sunon's Green Motor has a lower power consumption and reduced internal temperature rise which enhances service life. To special order some versions are available to meet 70°C ambient operating temperature.

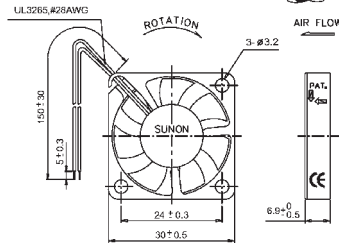
### 25x25mm



Part No.	Width [mm]	Max. V	Max. I [A]	Power [W]	Air Flow [m <sup>3</sup> /hour]	Noise [dBA]	Speed [RPM]	Bearing	Weight [g]
GM 0502 PEV2-8	6	5	0,08	0,4	3,74	23	10000	VAPO	5
GM 0502 PFV2-8	10	5	0,08	0,4	5,09	16	10000	VAPO	7,5
GM 1202 PFV2-8	10	12	0,038	0,5	5,1	16	10000	VAPO	7,5

Part No.	Ord.No.
o GM 0502 PEV2-8	64589
o GM 0502 PFV2-8	59644
o GM 1202 PFV2-8	57071

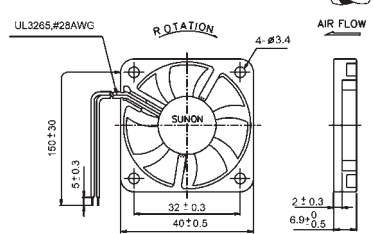
### 30x30mm



Part No.	Width [mm]	Max. V	Max. I [A]	Power [W]	Air Flow [m <sup>3</sup> /hour]	Noise [dBA]	Speed [RPM]	Bearing	Weight [g]
GM 0503 PEV2-8	6	5	0,08	0,4	6,29	24	7500	VAPO	6
GM 0503 PFV1-8	10	5	0,14	0,7	9,34	23	9500	VAPO	8,6
GM 1203 PFV2-8	10	12	0,042	0,5	7,82	20	8000	VAPO	8,5

Part No.	Ord.No.
o GM 0503 PEV2-8	57077
o GM 0503 PFV1-8	59645
o GM 1203 PFV2-8	56931

### 40x40mm

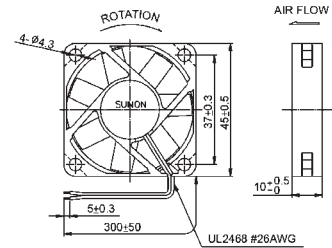


Part No.	Width [mm]	Max. V	Max. I [A]	Power [W]	Air Flow [m <sup>3</sup> /hour]	Noise [dBA]	Speed [RPM]	Bearing	Weight [g]	Note
GM 0504 PEV2-8	6	5	0,07	0,4	6,29	26	6000	VAPO	7,5	
KDE 0504 PFV2.11A	10	5	0,14	0,7	11,89	27	5800	VAPO	17	
KD 1204 PFS2.11	10	12	0,092	1,1	11,89	27	5800	Sleeve	17	
KDE 1204 PFV1.11A	10	12	0,09	1,1	13,59	32	7000	VAPO	17	
KDE 1204 PFV1.11AF	10	12	0,09	1,1	13,59	32	7000	VAPO	17	
KDE 1204 PFV2.11A	10	12	0,08	1,0	11,89	27	5800	VAPO	17	3wires
HA 40101V4	10	12	0,065	0,8	9,00	18,2	4500	VAPO	14,7	silent
KDE 0504 PKV2A	20	5	0,12	0,6	13,08	21	6200	VAPO	30	
KD 1204 PKS2	20	12	0,063	0,8	13,08	21	6200	Sleeve	31	
KDE 1204 PKV2A	20	12	0,05	0,6	13,08	21	6200	VAPO	31	
KDE 1204 PKV1AF	20	12	0,07	0,8	15,12	21	7200	VAPO	31	3wires
HA 40201V4	20	12	0,046	0,6	9,35	12,8	4700	VAPO	30,6	

KD 2404 PKS2	20	24	0,04	0,8	13,08	21	6200	Sleeve	31
KDE 2404 PKV2A	20	24	0,033	0,8	13,08	21	6200	VAPO	31

Part No.	Ord.No.
o GM 0504 PEV2-8	57944
S KDE 0504 PFV2.11A	55896
S KD 1204 PFS2.11	29710
S KDE 1204 PFV1.11A	57763
o KDE 1204 PFV1.11AF	57481
S KDE 1204 PFV2.11A	8967
o HA 40101V4	70193
o KDE 0504 PKV2A	56923
S KD 1204 PKS2	65470
o KDE 1204 PKV2A	52870
o KDE 1204 PKV1AF	56053
o HA 40201V4	70194
o KD 2404 PKS2	8539
o KDE 2404 PKV2A	59518

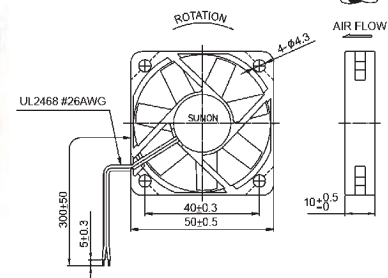
### 45x45mm



Part No.	Width [mm]	Max. V	Max. I [A]	Power [W]	Air Flow [m <sup>3</sup> /hour]	Noise [dBA]	Speed [RPM]	Bearing	Weight [g]
KD 1245 PFS2.11	10	12	0,97	1,2	15,53	27	5000	Sleeve	27
KDE 1245 PFV2.11A	10	12	0,08	1	15,63	27	5000	VAPO	37

Part No.	Ord.No.
S KD 1245 PFS2.11	4865
S KDE 1245 PFV2.11A	8966

### 50x50mm



Part No.	Width [mm]	Max. V	Max. I [A]	Power [W]	Air Flow [m <sup>3</sup> /hour]	Noise [dBA]	Speed [RPM]	Bearing	Weight [g]	Note
KD 1205 PFS2.11	10	12	0,11	1,2	18,7	26	4300	Sleeve	20	
KDE 1205 PFV1.11A	10	12	0,11	1,3	22,09	30	5200	VAPO	20	
KDE 1205 PFV1.11AF	10	12	0,11	1,3	22,09	30	5200	VAPO	20	3wires
KDE 1205 PFV2.11A	10	12	0,09	1,1	18,69	26	4300	VAPO	20	
KD 1205 PHB2	15	12	0,08	0,9	22,08	30	4700	Ball	38	
KD 1205 PHS2	15	12	0,08	1	22,08	29	4700	Sleeve	38	
KDE 1205 PHV2A	15	12	0,05	0,7	22,08	29	4700	VAPO	38	
KD 2405 PHB2	15	24	0,05	1,3	22,08	30	4700	Ball	29	
KD 2405 PHS2	15	24	0,05	1,3	22,08	29	4700	Sleeve	39	
KDE 2405 PHV2A	15	24	0,04	1	22,08	29	4700	VAPO	39	

Part No.	Ord.No.
o KD 1205 PFS2.11	4713
o KDE 1205 PFV1.11A	64456
o KDE 1205 PFV1.11AF	64255
S KDE 1205 PFV2.11A	8965
o KD 1205 PHB2	69481
o KD 1205 PHS2	49897

SUNON Axial DC Fans

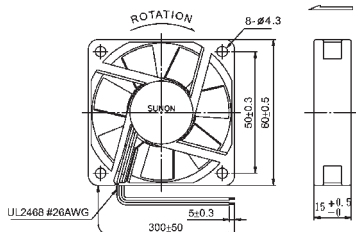
(continued)

50x50mm

o KDE 1205 PHV2A	69485
o KD 2405 PHS2	64364
o KD 2405 PHB2	49879
o KDE 2405 PHV2A	69482



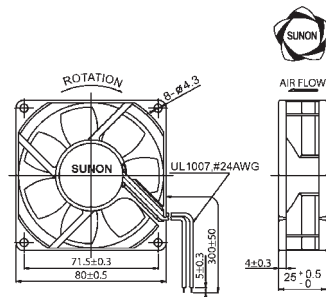
60x60mm



Part No.	Width [mm]	Max. V	Max. I [A]	Max. Power [W]	Air Flow [m3/hour]	Noise [dBA]	Speed [RPM]	Bearing	Weight [g]	Note
KD 0506 PHS2	15	5	0,19	0,9	30,58	31	3800	Sleeve	41	
KD 1206 PHB1	15	12	0,15	1,9	35,68	37	4300	Ball	42	
KD 1206 PHS2	15	12	0,09	1,1	30,58	21	3800	Sleeve	42	
KDE 1206 PFV2A	15	12	0,08	1	23,11	25	3500	VAPO	29	
KDE 1206 PHV2A	15	12	0,08	1	30,58	31	3800	VAPO	42	
KD 2406 PHS2	15	24	0,06	1,3	30,58	31	3800	VAPO	44	
KD 1206 PKS1	20	12	0,154	1,9	39,08	33,5	4500	Sleeve	52	
KDE 1206 PKV1A	20	12	0,15	1,8	39,08	33,5	4500	VAPO	52	
KD 1206 PTB1	25	12	0,15	1,8	39,93	34,5	4500	Ball	55	
KD 1206 PTS1	25	12	0,15	1,8	39,93	33,5	4500	Sleeve	55	
KD 1206 PTS3.13	25	12	0,09	1,1	28,88	25	3400	Sleeve	73	
KDE 1206 PTV1A	25	12	0,14	1,7	39,93	33,5	4500	VAPO	55	
KDE 1206 PTV2A	25	12	0,07	0,8	32,79	29	3800	VAPO	55	
KDE 1206 TVX.AF	25	12	0,23	2,8	45,87	36,5	5200	VAPO	55	3wires
HA 60251V4	25	12	0,06	0,7	23,45	13,8	2500	VAPO	41,5	silent
KD 2406 PTB1	25	24	0,085	2	39,93	34,5	4500	Ball	56	
KD 2406 PTS1	25	24	0,087	2,1	39,93	33,5	4500	Sleeve	56	

Part No.	Ord.No.
S KD 0506 PHS2	5551
o KD 1206 PHB1	9360
S KD 1206 PHS2	32989
S KDE 1206 PFV2A	8964
S KDE 1206 PHV2A	8963
o KD 2406 PHS2	44733
S KD 1206 PKS1	48762
o KDE 1206 PKV1A	8962
S KD 1206 PTB1	7219
S KD 1206 PTS1	32990
S KD 1206 PTS3.13	4063
S KDE 1206 PTV1A	8961
S KDE 1206 PTV2A	55742
o KDE 1206 PTVX.AF	64828
o HA 60251V4	70195
o KD 2406 PTB1	55898
S KD 2406 PTS1	4446

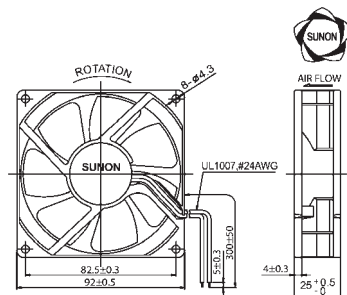
80x80mm



Part No.	Width [mm]	Max. V	Max. I [A]	Max. Power [W]	Air Flow [m3/hour]	Noise [dBA]	Speed [RPM]	Bearing	Weight [g]	Note
KD 1208 PTB1.13	25	12	0,14	1,7	69,66	35	3100	Ball	80	
KD 1208 PTB1.13F	25	12	0,14	1,7	69,67	35	3100	Ball	80	
KD 1208 PTS1.13	25	12	0,15	1,8	67,96	33	3000	Sleeve	80	
KD 1208 PTS3.13	25	12	0,09	1,1	52,67	26	2300	Sleeve	80	
KDE 1208 PTV1.13A	25	12	0,13	1,6	67,96	33	3000	VAPO	80	
KDE 1208 PTV3.13AF	25	12	0,09	1,1	52,67	25	2300	VAPO	80	3wires
PMD 1208 PTV2-A	25	12	0,34	4,1	93,4	44	4300	VAPO	100	
HA 80251V4	25	12	0,066	0,8	40,27	22,1	2000	VAPO	62,4	silent
KD 2408 PTB1.13A	25	24	0,07	1,7	69,66	35	3100	Ball	83	
KD 2408 PTS1.13A	25	24	0,07	1,7	67,96	33	3000	Sleeve	83	
KD 2408 PTS3.13A	25	24	0,04	1	52,67	26	2300	Sleeve	83	
KD 2408 PTSX-6A	25	24	0,206	4,9	78,15	36	3600	Sleeve	100	

Part No.	Ord.No.
S KD 1208 PTB1.13	4581
S KD 1208 PTB1.13F	7931
S KD 1208 PTS1.13	4061
S KD 1208 PTS3.13	20707
S KDE 1208 PTV1.13A	56514
S KDE 1208 PTV3.13AF	56761
S PMD 1208 PTV2-A	68965
o HA 80251V4	70196
S KD 2408 PTB1.13A	3486
S KD 2408 PTS1.13A	2849
S KD 2408 PTS3.13A	5957
o KD 2408 PTSX-6A	69480

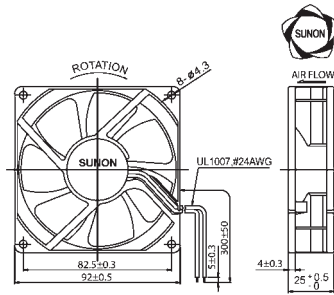
92x92mm



Part No.	Width [mm]	Max. V	Max. I [A]	Max. Power [W]	Air Flow [m3/hour]	Noise [dBA]	Speed [RPM]	Bearing	Weight [g]	Note
KD 1209 PTB1.13	25	12	0,16	1,9	82,25	35	2800	Ball	95	
KD 1209 PTS1.13	25	12	0,16	1,9	83,25	34	2800	Sleeve	95	
KD 1209 PTS3.13	25	12	0,1	1,2	66,26	28	2200	Sleeve	95	
KDE 1209 PTV2.13A	25	12	0,12	1,4	75,60	32	2500	VAPO	95	
KDE 1209 PTV3.13AF	25	12	0,08	1	66,26	28	2200	VAPO	95	3wires
HA 92251V4	25	12	0,073	0,9	47,7	17,7	1700	VAPO	69,7	silent
KD 2409 PTB1.13A	25	24	0,08	1,9	83,25	35	2800	Ball	100	
KD 2409 PTS1.13A	25	24	0,08	1,9	83,25	34	2800	Sleeve	100	

Part No.	Ord.No.
S KD 1209 PTB1.13	6245
S KD 1209 PTS1.13	4267
S KD 1209 PTS3.13	27090
S KDE 1209 PTV2.13A	56332
o KDE 1209 PTV3.13AF	69479
S KD 2409 PTB1.13A	8303
S KD 2409 PTS1.13A	5526
o HA 92251V4	70197

120x120mm



Part No.	Width [mm]	Max. V	Max.I [A]	Power [W]	Air Flow [m³/hour]	Noise [dBA]	Speed [RPM]	Bearing	Weight [g]
KD 1212PTB1-6A	25	12	0,31	3,7	152,9	44,5	3100	Ball	200
KD 1212 PTS1-6A	25	12	0,4	4,8	141,51	44	3000	Sleeve	205
HAC0251S4	25	12	0,155	1,9	93,4	29,6	1600	Sleeve	99
KD 2412 PTB1-6A	25	24	0,18	4,3	152,9	44,5	3100	Ball	200
KD 1212 PMB1.13A	38	12	0,525	6,3	225,5	43,7	2650	Ball	248
KD 1212 PMB1-6A	38	12	0,52	6,2	183,49	42	3100	Ball	326
PMD 1212 PMB1A	38	12	1,6	19,2	322,8	54	4200	Ball	330
KD 2412 PMB1.13A	38	24	0,27	6,5	225,5	43,7	2650	Ball	249
KD 2412PMBX-6A	38	24	0,28	6,7	203,87	46,5	3150	Ball	326
KD 2412PMS1-6A	38	24	0,28	6,7	181,79	41	3000	Sleeve	326

Part No.	Ord.No.
S KD 1212 PTB1-6A	9068
S KD 1212 PTS1-6A	4583
O HAC0251S4	70198
O KD 2412 PTB1-6A	59756
O KD 1212 PMB1.13A	62729
S KD 1212 PMB1-6A	7932
S PMD 1212 PMB1A	69472
O KD 2412 PMB1.13A	69478
O KD 2412 PMBX-6A	8436
S KD 2412 PMS1-6A	3765

SUNON Axial DC Fans

EE, ME New Series

With the introduction of the MagLev technology, Sunon is offering the best optimised performance on the long-term, at the low noise level and attractive prices. Sunon now goes one step further with the introduction of the EE (ball and slide bearing) and ME (Vapo) series. These series are designed and engineered to maximise the air flow and the fan operating life time. Incorporating highly precise components and new impeller design, this series offers you the best compromise between quality and price.

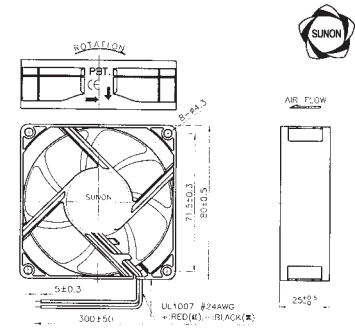


Marking System for EE, ME series

Example: EE80251S1-0000-A99

Code	Feature	Description
EE	Serie	EE=axial DC ventilator with sleeve or ball bearing
80	Dimension	80=80mm, 92=92mm, C0=120mm
25	Frame depth	25=25mm, 38=38mm
1	Power supply	0=5VDC, 1=12VDC, 2=24VDC, 3=36VDC, 4=48VDC
S	Bearing	V=VAPO (serie ME), B=Ball, S=Sleeve
1	Speed	X=super Air, 1=High, 2=Medium, 3=Low
0000	Customer Code	
A99	Function Code	999= NO AUTO RESTART, no 3rd wire A99= AUTO RESTART, no 3rd wire C99= NO AUTO RESTART, with 3rd F-wire G99= AUTO RESTART, with 3rd F-wire

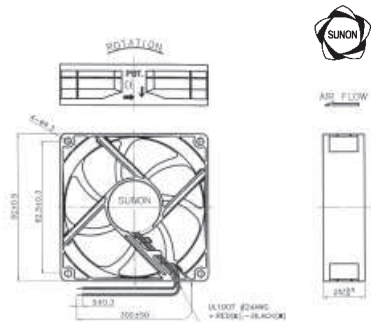
80x80mm



Part No.	Width [mm]	Max. V	Max.I [A]	Power [W]	Air Flow [m³/hour]	Noise [dBA]	Speed [RPM]	Bearing	Weight [g]
EE80251S1-A99	25	12	0,145	1,7	69,7	33	3200	Sleeve	75
EE80251S3-999	25	12	0,09	1,1	56,1	28	2600	Sleeve	75
EE80251B1-A99	25	12	0,145	1,7	69,6	33	3200	Ball	75
ME80251V1-A99	25	12	0,145	1,7	69,7	33	3200	VAPO	77
ME80251V2-999	25	12	0,12	1,4	62,9	30	2900	VAPO	77
ME80251V3-999	25	12	0,09	1,1	56,1	28	2600	VAPO	77

Part No.	Ord.No.
O EE80251S1	70322
S EE80251S3	70324
S EE80251B1-A99	77361
S ME80251V1-A99	70298
O ME80251V2-999	70299
O ME80251V3-999	70300

92x92mm



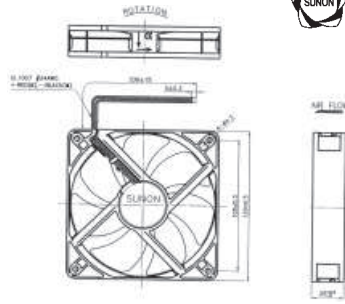
Part No.	Width [mm]	Max. V	Max.I [A]	Power [W]	Air Flow [m³/hour]	Noise [dBA]	Speed [RPM]	Bearing	Weight [g]	Note
EE92251S1-A99	25	12	0,165	2	87,5	34	3000	Sleeve	94	
EE92251S3-999	25	12	0,105	1,3	67,1	28	2400	Sleeve	94	
ME92251V1-A99	25	12	0,165	2	87,5	34	3000	VAPO	96	
ME92251V2-999	25	12	0,135	1,6	76,5	32	2700	VAPO	96	
ME92251V3-999	25	12	0,105	1,3	67,1	28	2400	VAPO	96	
ME92251V3-C99	25	12	0,105	1,3	67,1	28	2400	VAPO	96	3wires
EE92251B1-A99	25	12	0,165	2	87,5	34	3000	Ball	94	
EE92251B1-G99	25	12	0,165	2	87,5	34	3000	Ball	94	3wires

Part No.	Ord.No.
O EE92251S1-A99	70319
O EE92251S3-999	70321
S ME92251V1-A99	70295
O ME92251V2-999	70296
O ME92251V3-999	70297
S ME92251V3-C99	77358
S EE92251B1-A99	77362
S EE92251B1-G99	77363

## SUNON Axial DC Fans

(continued)

### 120x120mm



Part No.	Width [mm]	Max. V	Max. I [A]	Power [W]	Air Flow [m³/hour]	Noise [dBA]	Speed [RPM]	Bearing	Weight [g]
EEC0251B1-A99	25	12	0,445	5,3	183,8	44,5	3100	Ball	157
EEC0251B3-A99	25	12	0,17	2	127,4	34	2200	Ball	157
EEC0252B1-A99	25	24	0,21	5	183,8	44,5	3100	Ball	157
EEC0252B3-A99	25	24	0,086	2,1	127,4	34	2200	Ball	157
MEC0251V1-A99	25	12	0,455	5,5	183,8	44,5	3100	VAPO	162
MEC0251V2-A99	25	12	0,315	3,8	158,0	40,5	2700	VAPO	162
MEC0251V3-A99	25	12	0,19	2,3	127,4	34	2200	VAPO	162
MEC0252V1-A99	25	24	0,225	5,4	183,8	44,5	3100	VAPO	162
MEC0252V2-A99	25	24	0,15	3,6	158,0	40,5	2700	VAPO	162
MEC0252V3-A99	25	24	0,092	2,2	127,4	34	2200	VAPO	162
MEC0254V1-A99	25	48	0,125	6	183,8	44,5	3100	VAPO	162
EEC0381B1-A99	38	12	0,8	9,6	234,5	48	3100	Ball	214
EEC0381B3-A99	38	12	0,255	3,1	158,0	37	2100	Ball	214
EEC0382B1-A99	38	24	0,4	9,6	234,5	48	3100	Ball	214
EEC0382B3-A99	38	24	0,13	3,1	158,0	37	2100	Ball	214
MEC0381V1-A99	38	12	0,845	10,1	234,5	48	3100	VAPO	218
MEC0381V2-A99	38	12	0,5	6	197,1	44	2600	VAPO	218
MEC0381V3-A99	38	12	0,27	3,2	158,0	37	2100	VAPO	218
MEC0382V1-A99	38	24	0,415	10	234,5	48	3100	VAPO	218
MEC0382V2-A99	38	24	0,23	5,5	197,1	44	2600	VAPO	218
MEC0382V3-A99	38	24	0,135	3,2	158	37	2100	VAPO	218
MEC0384V1-A99	38	48	0,245	11,8	234,5	48	3100	VAPO	218

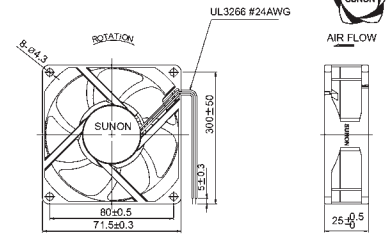
Part No.	Ord.No.
o EEC0251B1-A99	70325
o EEC0251B3-A99	70327
o EEC0252B1-A99	70328
o EEC0252B3-A99	70330
o MEC0251V1-A99	70301
o MEC0251V2-A99	70302
o MEC0251V3-A99	70303
o MEC0252V1-A99	70304
o MEC0252V2-A99	70305
o MEC0252V3-A99	70306
o MEC0254V1-A99	70307
o EEC0381B1-A99	70331
o EEC0381B3-A99	70333
o EEC0382B1-A99	70334
o EEC0382B3-A99	70336
o MEC0381V1-A99	70310
o MEC0381V2-A99	70311
o MEC0381V3-A99	70312
o MEC0382V1-A99	70313
o MEC0382V2-A99	70314
o MEC0382V3-A99	70315
o MEC0384V1-A99	70316

## Axial AC Fans

Alveolate motor AC fan series with automatic motor wire wrapping technology ensures stable performance of high wind volume, low acoustic noise, also available with functions of dual spinning rate and thermal cutout.



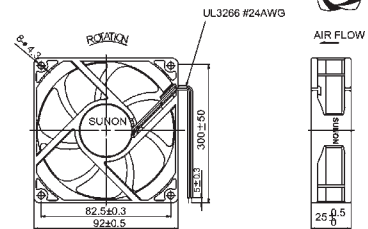
### 80x80mm



Part No.	Width [mm]	Max. V	Max. I [A]	Power [W]	Air Flow [m³/hour]	Noise [dBA]	Speed [RPM]	Bearing	Weight [g]
MA2082HVL	25	230	0,1	3,8	67,1	32,8	3200	VAPO	260
SF23080AT-2082HSL	25	230	0,07	14	28,9	29	3200	Sleeve	260
SF23080A-2083HSL	38	230	0,09	14	39,0	31	2300	Sleeve	340

Part No.	Ord.No.
o MA2082HVL	57302
s SF23080AT-2082HSL	20708
s SF23080A-2083HSL	20709

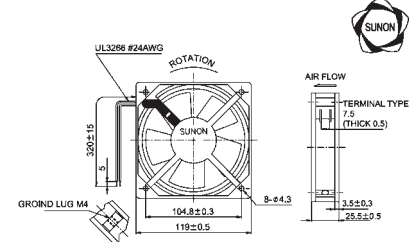
### 92x92mm



Part No.	Width [mm]	Max. V	Max. I [A]	Power [W]	Air Flow [m³/hour]	Noise [dBA]	Speed [RPM]	Bearing	Weight [g]
MA2092HVL	25	230	0,1	3,8	87	31,6	2900	VAPO	280
SF23092A-2092HST	25	230	0,07	14,5	49	36	2250	Sleeve	280

Part No.	Ord.No.
o MA2092HVL	56049
s SF23092A-2092HST	20710

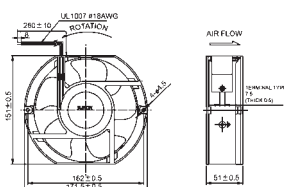
### 120x120mm



Part No.	Width [mm]	Max. V	Max. I [A]	Power [W]	Air Flow [m³/hour]	Noise [dBA]	Speed [RPM]	Bearing	Weight [g]	Note
SP101AT-1122HBL	25	115	0,21	19	112	44	2150	Ball	330	
DP201AT-2122HBT	25	230	0,1	19	112	44	2150	Ball	330	
DP201AT-2122HST	25	230	0,1	19	109	43	2000	Sleeve	330	
SF1212AD-BL	38	230/115	0,13	19,5	161	44	2700	Ball	550	Double voltage
SP100A-1123XBT	38	115	0,26	22	165	45	2850	Ball	550	
SP100A-1123XST	38	115	0,26	22	161	44	2700	Sleeve	550	
SP101A-1123HST	38	115	0,21	20	144	43	2550	Sleeve	550	
A2123HBT	38	230	0,14	23	165	45	2700	Ball	525	
A2123HST	38	230	0,14	23	165	44	2700	Sleeve	525	
DP200A-2123XBL	38	230	0,14	22	165	45	2850	Ball	550	
DP200A-2123XBT	38	230	0,14	22	165	45	2850	Ball	550	
DP200A-2123XSL	38	230	0,14	22	161	44	2700	Sleeve	550	
DP200A-2123XST	38	230	0,14	22	161	44	2700	Sleeve	550	
DP201A-2123HST	38	230	0,125	20	148	45	2750	Ball	550	
DP201A-2123HBT	38	230	0,125	20	144	43	2550	Sleeve	550	
DP209WR-2123HST	38	230	0,13	22	144	41	2500	Sleeve	465	

Part No.	Ord.No.
O SP101AT-1122HBL	59976
S DP201AT-2122HBT	45381
S DP201AT-2122HST	4571
O SF1212AD-BL	9383
O SP100A-1123XBT	56735
O SP100A-1123XST	61903
O SP101A-1123HST	60012
S A2123HBT	52107
S A2123HST	55546
S DP200A-2123XBL	4820
S DP200A-2123XBT	51147
S DP200A-2123XSL	64061
S DP200A-2123XST	3557
S DP201A-2123HST	20711
S DP201A-2123HBT	27093
S DP209WR-2123HST	27094

## 172x151mm

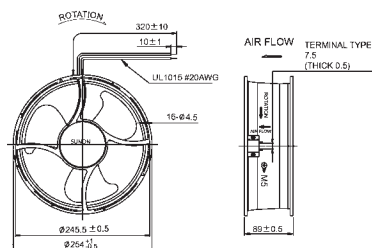


Part No.	Width [mm]	Max. V	Max. I [A]	Power [W]	Air Flow [m³/hour]	Noise [dBA]	Speed [RPM]	Bearing	Weight [g]
A2175 HBT-T	51	230	0,28	39	306	52	2650	Ball	957
A2175 HBT-TC	51	230	0,11	25	345	51	2800	Ball	908

Part No.	Ord.No.
S A2175 HBT-T	56119
O A2175 HBT-TC	46644

## 254x254mm

### A2259 HBT-TC

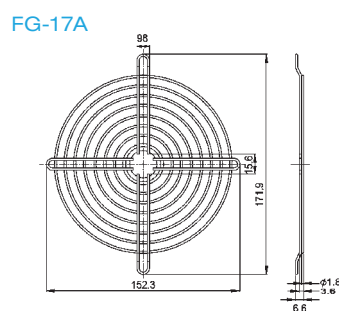
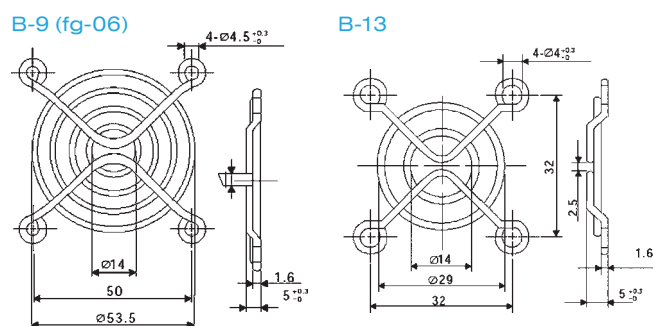
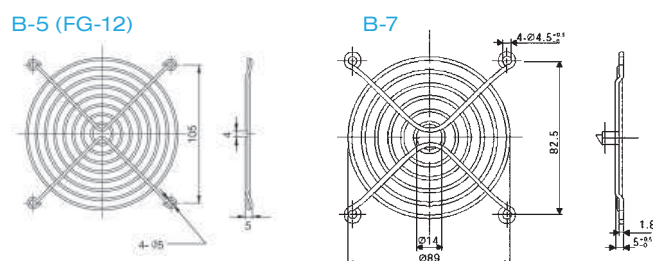
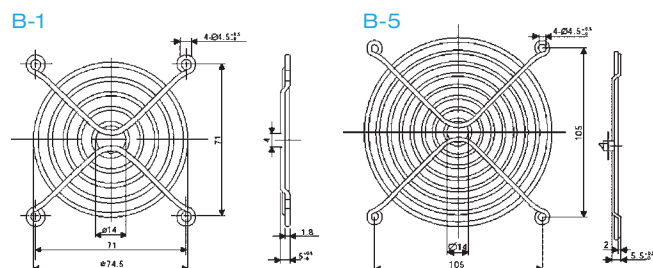


Part No.	Width [mm]	Max. V	Max. I [A]	Power [W]	Air Flow [m³/hour]	Noise [dBA]	Speed [RPM]	Bearing	Weight [g]
A2259 HBT-TC	89	230	0,24	56	1444	62	650	Ball	2300

Part No.	Ord.No.
O A2259 HBT-TC	57565

# Fan Accessories

## Metal Finger Guards



Part No.	Ord.No.	Suitable Fan
S B-1	51024	80x80
S B-5	51026	120x120
S B-7 (FG-09)	51025	92x92
S B-9	6643	60x60
S B-13	5655	40x40
S FG-17A	64489	172x151

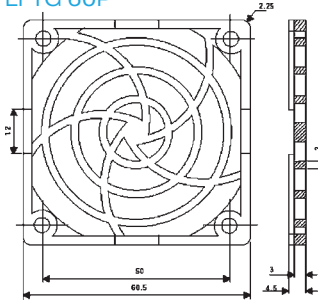


## Fan Accessories

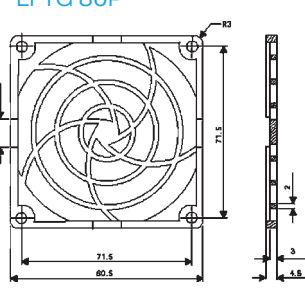
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### Plastic Finger Guards

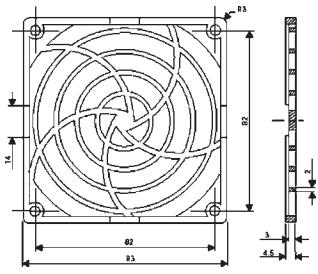
#### LFTG 60P



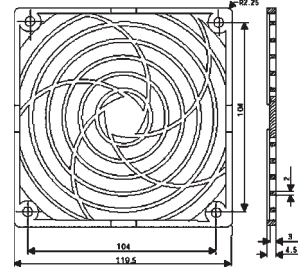
#### LFTG 80P



#### LFTG 92P



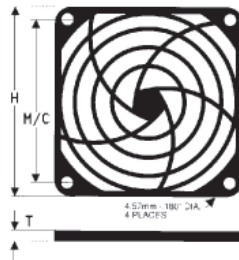
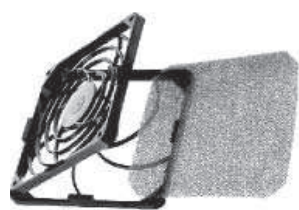
#### LFTG 120P



Part No.	Ord.No.	Suitable Fan
S LFTG 60P	4572	60x60
S LFTG 80P	4573	80x80
S LFTG 92P	4574	92x92
S LFTG 120P	4575	120x120

### Filter Assemblies

Assemblies consist of guard, polyurethan foam filter and media retainer



Part No.	H	T	M/C
LFT 60 FI30	59,95	6,35	50,04
LFT 80 FI30	83,57	9,98	71,37
LFT 92 FI30	96,52	9,98	82,42
LFT 120 FI30	123,70	10,67	104,77

Part No.	Ord.No.	Suitable Fan
S LFT 60 FI30	7981	60x60
S LFT 80 FI30	7831	80x80
S LFT 92 FI30	7982	92x92
S LFT 120 FI30	7698	120x120

### Filters for Plastic Finger Guards

Replacement filters for plastic finger guards LFTXX serie.



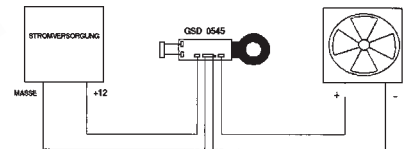
Part No.	Ord.No.	Permeability	Suitable for
o FE40FI30	70565	30ppi	LFT40FI30
o FE40FI45	70566	45ppi	LFT40FI45
o FE60FI30	70563	30ppi	LFT60FI30
o FE60FI45	55955	45ppi	LFT60FI45
o FE80FI30	8571	30ppi	LFT80FI30
o FE80FI45	55953	45ppi	LFT80FI45
o FE92FI30	5123	30ppi	LFT92FI30
o FE92FI45	55954	45ppi	LFT92FI45
o FE120FI30	7581	30ppi	LFT120FI30
o FE120FI45	7582	45ppi	LFT120FI45

### Temperature - Dependent Fan Voltage Control for 12V DC Fans

#### LFTR 104

- Minimizes fan noise
- With NTC as temperature sensor
- For installation in a temperature-sensitive place
- Mounting by screw or cable tie
- LFTR104: mounting designed as cooling vane

Operating Voltage: 12V DC  
Load: 400mA max.  
Connectable Fan: 4,8W max.  
Output Voltage Range: 5,5...11,4V approx.  
Voltage Drop: 0,6V



Part No.	Ord.No.
S LFTR 104	7283

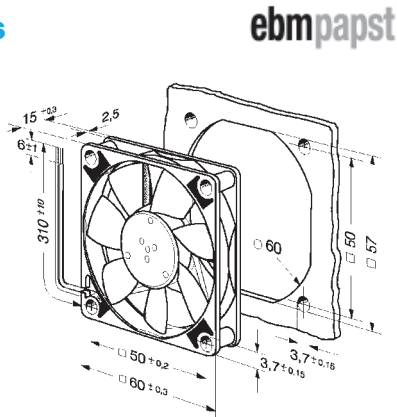
### Fan Connection Cable



Connection cable with black PVC plug  
Suitable for all fans with plug connectors  
3x0,5mm

Part No.	Cable length	Ord.No.
S A2-03	30 cm	61169
S A2-10	1 m	52108
S A2-20	2 m	27105
o A2-06	60 cm	27104

**Axial DC Fans**  
60x60mm

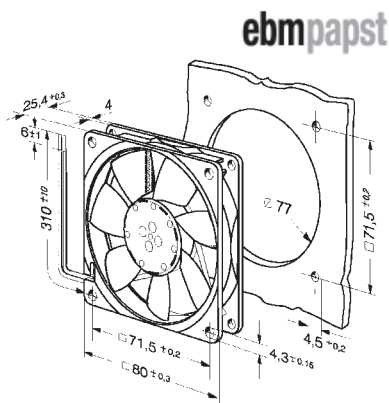


**ebmpapst**

Part No.	Width [mm]	Max. V	Max. I [A]	Power [W]	Air Flow [m3/hour]	Noise [dBA]	Speed [RPM]	Bearing	Weight [g]	Note
PAPST 612 F/2	15	12	0,09	1	29	27	3900	Sleeve	30	Tachosignal

Part No.	Ord.No.
S PAPST 612 F/2	50989

**80x80mm**

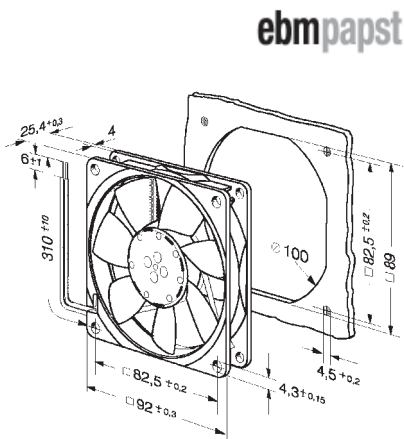


**ebmpapst**

Part No.	Width [mm]	Max. V	Max. I [A]	Power [W]	Air Flow [m3/hour]	Noise [dBA]	Speed [RPM]	Bearing	Weight [g]	Note
PAPST 8412 N/2GM	25	12	0,11	1,3	58	26	2600	Sleeve	95	Tachosignal
PAPST 8412 NGLLE	25	12	0,03	0,35	20	9	1000	Sleeve	95	Super silent

Part No.	Ord.No.
S PAPST 8412 N/2GM	50991
S PAPST 8412 NGLLE	50993

**92x92x25mm**  
PAPST 3412 NGMV



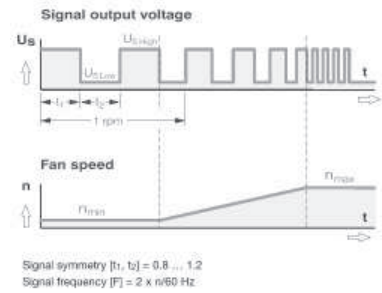
**ebmpapst**

Part No.	Width [mm]	Max. V	Max. I [A]	Power [W]	Air Flow [m3/hour]	Noise [dBA]	Speed [RPM]	Bearing	Weight [g]	Note
PAPST 3412 NGMV	25	12	0,16	2	72	28	2300	Sleeve	100	Variofan

Part No.	Ord.No.
S PAPST 3412 NGMV	50994

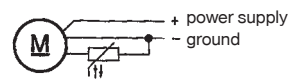
**TACHOSIGNAL**

Sensor integrated in the electronics generates speed-proportional rectangular pulses. In order to monitor the fan speed, the commutation signals of the motor that are required anyway for creating the rotating field can also be used. In both cases, the tach signal is available either at an open collector output, galvanically isolated or TTL-compatible. This means e.g. that the speed of the fan can be monitored in the computer or controlled externally.

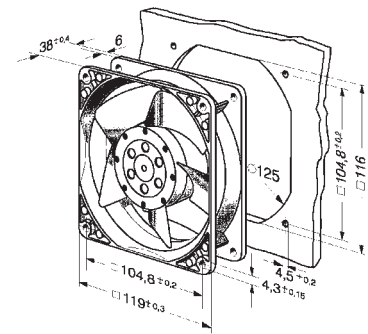


**VARIOFAN**

PAPST VARIOFAN – the fans with IC technology and temperature dependent speed control. VARIOFANs always cool at the speed required by the appliance resulting in speeds as much as 50% lower than those of standard fans and a drastic reduction of the noise level in almost all operating conditions. VARIOFAN are controlled without dissipation losses: At lower speeds their power consumption is reduced proportionally.



**Axial AC Fans**  
119x119mm



**ebmpapst**

all-metal

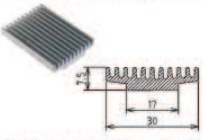
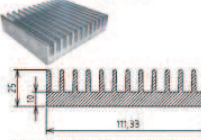
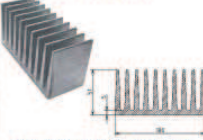
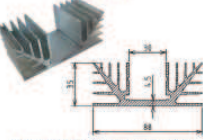
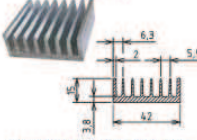
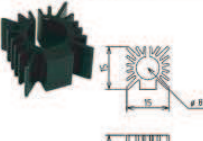
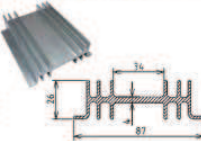
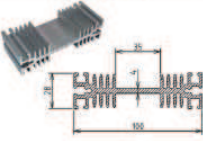
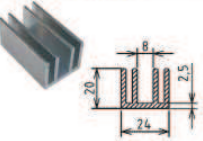
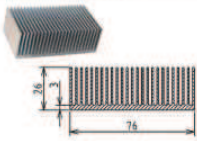
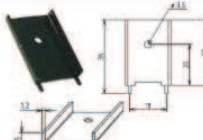
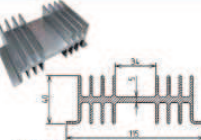
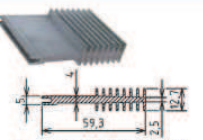
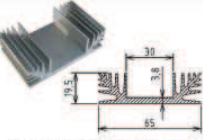
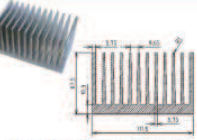
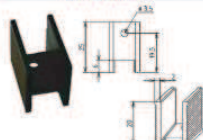
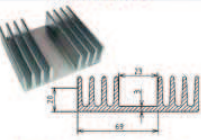
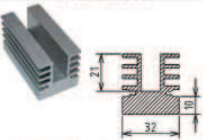
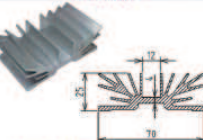
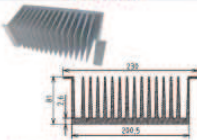
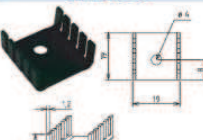
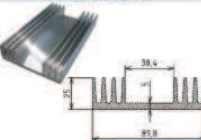
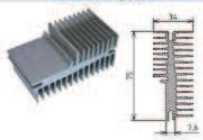
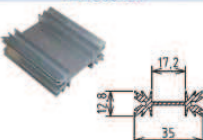
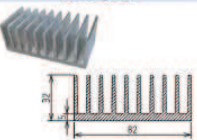
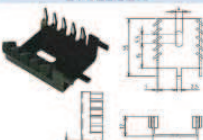
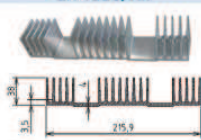
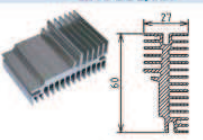
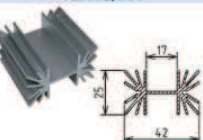
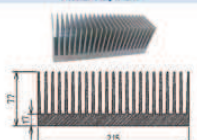
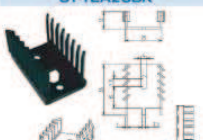
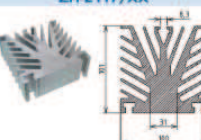
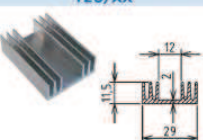

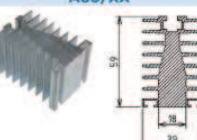


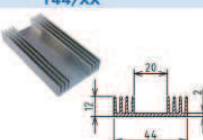
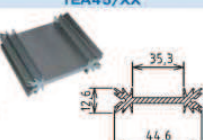
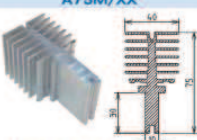


Part No.	Width [mm]	Max. V	Max. I [A]	Power [W]	Air Flow [m3/hour]	Noise [dBA]	Speed [RPM]	Bearing	Weight [g]	Note
PAPST 4606 N	38	115	0,16	18	180	51	3100	Ball	550	All metal
PAPST 4650 N	38	230	0,08	19	160	46	2650	Sleeve	550	All metal

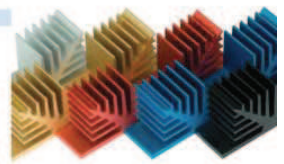
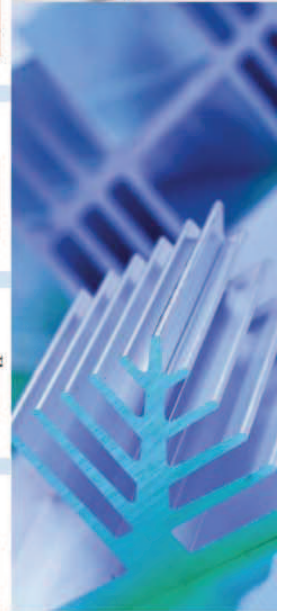
Part No.	Ord.No.
S PAPST 4606 N	7974
S PAPST 4650 N	43414

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# GAMA aluminium

heatsinks

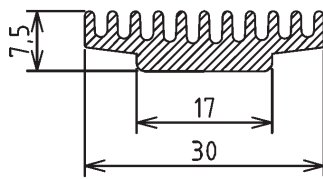
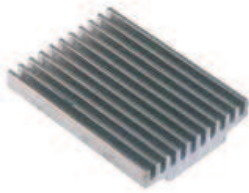
<p><b>ST-KE30/XX</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>	<p><b>ZH-0610/XX</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL, 300AL</p>	<p><b>ZH-2533/XX</b></p>  <p>XX (mm): 40AL, 50BK, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>	<p><b>T88/XX</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>	<p><b>K42/XX</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>
<p><b>ST-T19BK</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>	<p><b>ZH-0752/XX</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>	<p><b>ZH-3089/XX</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>	<p><b>TE25/XX</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>	<p><b>K76/XX</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>
<p><b>ST-T22BK</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>	<p><b>ZH-0753/XX</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>	<p><b>ZH-4611/XX</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>	<p><b>TE65/XX</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>	<p><b>K112/XX</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>
<p><b>ST-T25ABK</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>	<p><b>ZH-1136/XX</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>	<p><b>ZH-7503/XX</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>	<p><b>TE70/XX</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>	<p><b>K230/XX</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>
<p><b>ST-TE19BK</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>	<p><b>ZH-1910/XX</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>	<p><b>ZH-7504/XX</b></p>  <p>XX (mm): 20AL, 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>	<p><b>TEA35/XX</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>	<p><b>KE82/XX</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>
<p><b>ST-TE28BK</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>	<p><b>ZH-1929/XX</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>	<p><b>ZH-7505/XX</b></p>  <p>XX (mm): 20AL, 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>	<p><b>TEA40/XX</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>	<p><b>KE215/XX</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>
<p><b>ST-TEA28BK</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>	<p><b>ZH-2117/XX</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>	<p><b>T29/XX</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>	<p><b>T54/XX</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>	<p><b>A59/XX</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>
<p><b>ZH-0136/XX</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL, 256BK</p>	<p><b>ZH-2428/XX</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL, 300BK</p>	<p><b>T44/XX</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>	<p><b>TEA45/XX</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>	<p><b>A75M/XX</b></p>  <p>XX (mm): 20AL, 40AL, 60AL, 80AL, 100AL, 120AL, 160AL, 200AL</p>
<p><b>ZH-0137/XX</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 130AL, 160AL, 200AL</p>	<p><b>ZH-2476/XX</b></p>  <p>XX (mm): 40AL, 60AL, 80AL, 100AL, 120AL, 130AL, 160AL, 200AL, 289BK</p>			



**GAMA aluminium**

## Standard Heatsinks

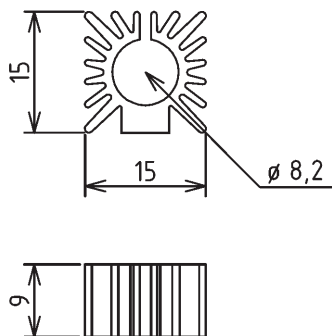
### ST-KE30/XX Series



Part No.	Material/Surface Finish	Description
ST-KE30/40AL	aluminium/non-anodised	L=40mm 30x7,5
ST-KE30/60AL	aluminium/non-anodised	L=60mm 30x7,5

Part No.	Ord.No.
S ST-KE30/40AL	65684
O ST-KE30/60AL	65763

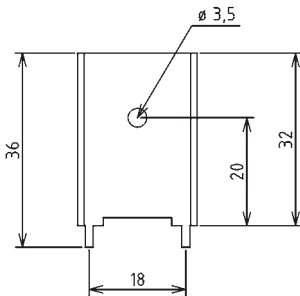
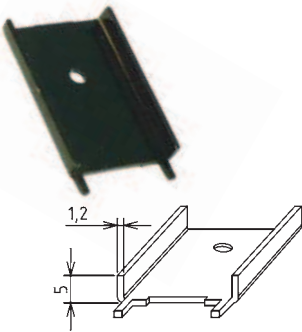
### ST-T19BK Series



Part No.	Material/Surface Finish	Description
ST-T19BK	aluminium/black anodised	15x15x9mm

Part No.	Ord.No.
S ST-T19BK	66164

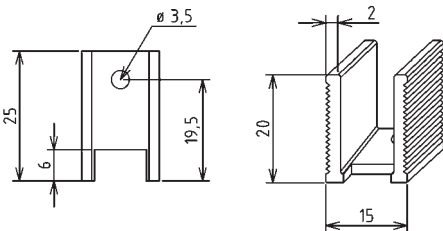
### ST-T22BK Series



Part No.	Material/Surface Finish	Description
ST-T22BK	aluminium/black anodised	18x36x5mm

Part No.	Ord.No.
S ST-T22BK	66165

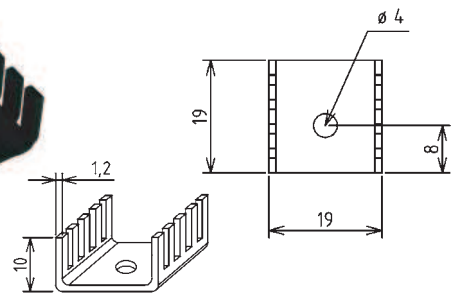
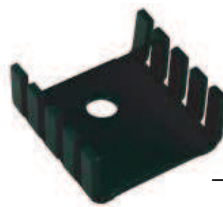
### ST-T25ABK Series



Part No.	Material/Surface Finish	Description
ST-T25ABK	aluminium/black anodised	15x25x20mm

Part No.	Ord.No.
S ST-T25ABK	66166

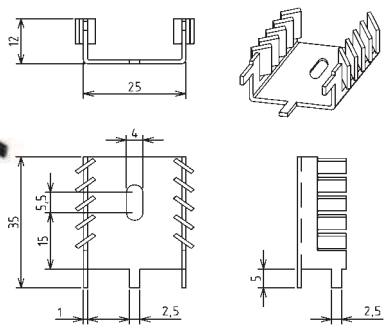
### ST-TE19BK Series



Part No.	Material/Surface Finish	Description
ST-TE19BK	aluminium/black anodised	19x19x10mm

Part No.	Ord.No.
S ST-TE19BK	66167

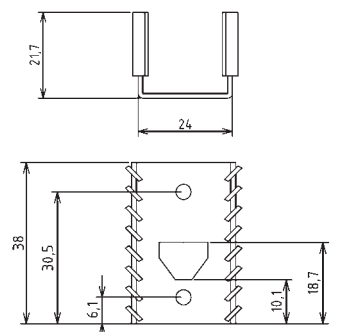
### ST-TE28BK Series



Part No.	Material/Surface Finish	Description
ST-TE28BK	aluminium/black anodised	25x35x12mm

Part No.	Ord.No.
S ST-TE28BK	66168

### ST-TEA28BK Series



Part No.	Material/Surface Finish	Description
ST-TEA28BK	aluminium/black anodised	24x38x21,7mm

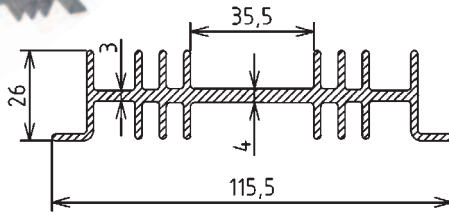
Part No.	Ord.No.
S ST-TEA28BK	66169

## Standard Heatsinks

(continued)

### ZH-0136/XX Series

GAMA aluminium

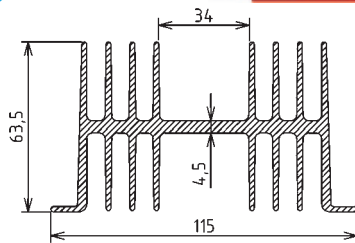
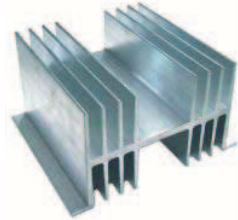


Part No.	Material/Surface Finish	Description
ZH-0136/40AL	aluminium/non-anodised	L=40mm 115,5x26
ZH-0136/80AL	aluminium/non-anodised	L=80mm 115,5x26

Part No.	Ord.No.
S ZH-0136/40AL	65619
S ZH-0136/80AL	65774

### ZH-0137/XX Series

GAMA aluminium

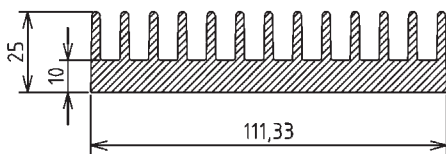
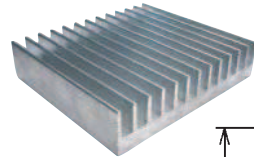


Part No.	Thermal Res.	Mat./Surface Finish	Description
ZH-0137/100AL	1,9K/W/100mm	Al/non-anodised	L=100mm 115x63,5

Part No.	Ord.No.
S ZH-0137/100AL	8076

### ZH-0610/XX Series

GAMA aluminium

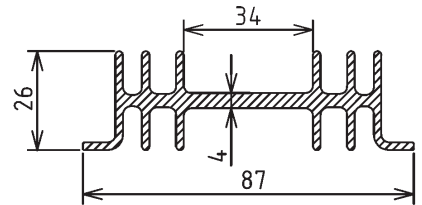
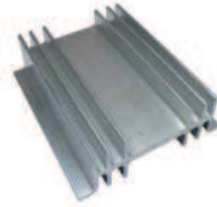


Part No.	Material/Surface Finish	Description
ZH-0610/40AL	aluminium/non-anodised	L=40mm 111,33x25
ZH-0610/100AL	aluminium/non-anodised	L=100mm 111,33x25

Part No.	Ord.No.
O ZH-0610/40AL	65622
S ZH-0610/100AL	8077

### ZH-0752/XX Series

GAMA aluminium

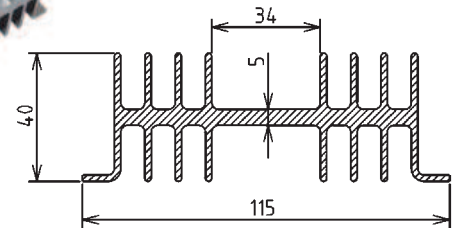


Part No.	Material/Surface Finish	Description
ZH-0752/40AL	aluminium/non-anodised	L=40mm 87x26
ZH-0752/100AL	aluminium/non-anodised	L=100mm 87x26

Part No.	Ord.No.
O ZH-0752/40AL	65623
S ZH-0752/100AL	65854

### ZH-0753/XX Series

GAMA aluminium

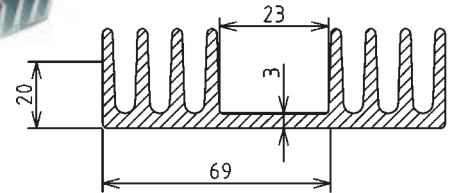
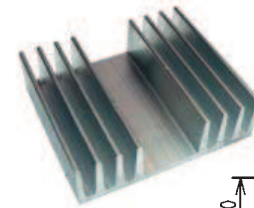


Part No.	Thermal Res.	Mat./Surface Finish	Description
ZH-0753/40AL	1,6K/W/100mm	Al/non-anodised	L=40mm 115x40
ZH-0753/60AL	1,6K/W/100mm	Al/non-anodised	L=60mm 115x40
ZH-0753/100AL	1,6K/W/100mm	Al/non-anodised	L=100mm 115x40
ZH-0753/200AL	1,6K/W/100mm	Al/non-anodised	L=200mm 115x40

Part No.	Ord.No.
O ZH-0753/40AL	65624
S ZH-0753/60AL	65700
S ZH-0753/100AL	8074
S ZH-0753/200AL	8075

### ZH-1136/XX Series

GAMA aluminium



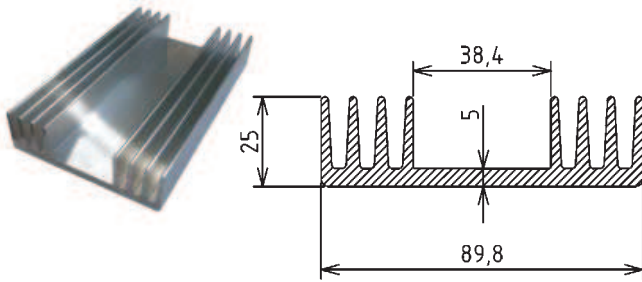
Part No.	Material/Surface Finish	Description
ZH-1136/60AL	aluminium/non-anodised	L=60mm 69x20
ZH-1136/100AL	aluminium/non-anodised	L=100mm 69x20

Part No.	Ord.No.
S ZH-1136/60AL	65701
O ZH-1136/100AL	65855

Note: Heatsink dimensions are marked in mm.  
Code "AL" - Aluminium/non-anodised,  
Code "BK" - Aluminium Anodised Black.

## ZH-1910/XX Series

GAMA aluminium

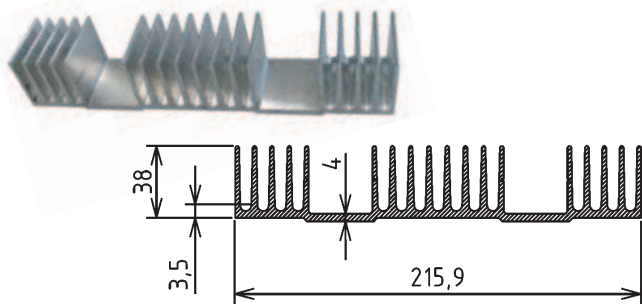


Part No.	Material/Surface Finish	Description
ZH-1910/60AL	aluminium/non-anodised	L=60mm 89,8x25
ZH-1910/100AL	aluminium/non-anodised	L=100mm 89,8x25
ZH-1910/150AL	aluminium/non-anodised	L=150mm 89,8x25

Part No.	Ord.No.
o ZH-1910/60AL	65702
o ZH-1910/100AL	65856
s ZH-1910/150AL	62432

## ZH-1929/XX Series

GAMA aluminium

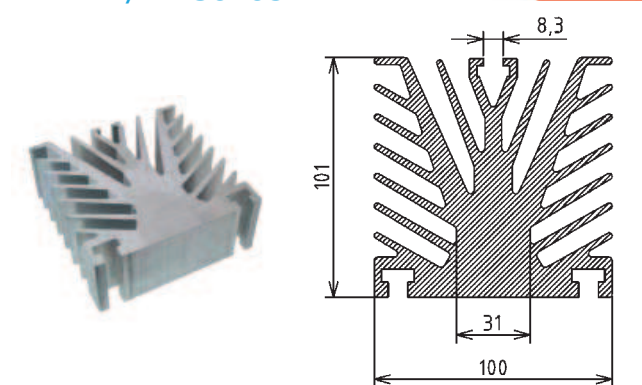


Part No.	Thermal Res.	Mat./Surface Finish	Description
ZH-1929/40AL	0,5K/W/100mm	Al/non-anodised	L=40mm 215,9x38
ZH-1929/60AL	0,5K/W/100mm	Al/non-anodised	L=60mm 215,9x38
ZH-1929/100AL	0,5K/W/100mm	Al/non-anodised	L=100mm 215x38

Part No.	Ord.No.
s ZH-1929/40AL	8080
o ZH-1929/60AL	65703
o ZH-1929/100AL	65857

## ZH-2117/XX Series

GAMA aluminium

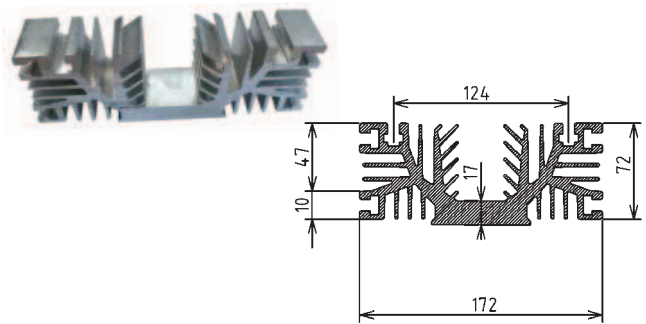


Part No.	Material/Surface Finish	Description
ZH-2117/40AL	aluminium/non-anodised	L=40mm 100x101
ZH-2117/80AL	aluminium/non-anodised	L=80mm 100x101

Part No.	Ord.No.
s ZH-2117/40AL	65627
o ZH-2117/80AL	65781

## ZH-2428/XX Series

GAMA aluminium

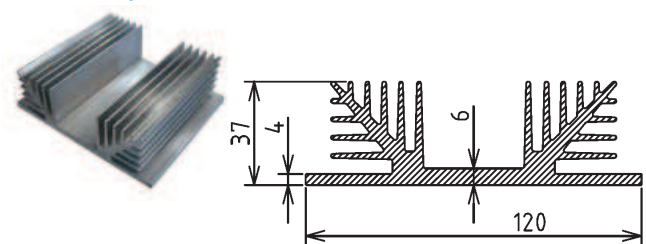


Part No.	Material/Surface Finish	Description
ZH-2428/40AL	aluminium/non-anodised	L=40mm 172x72
ZH-2428/80AL	aluminium/non-anodised	L=80mm 172x72

Part No.	Ord.No.
s ZH-2428/40AL	65628
o ZH-2428/80AL	65782

## ZH-2476/XX Series

GAMA aluminium

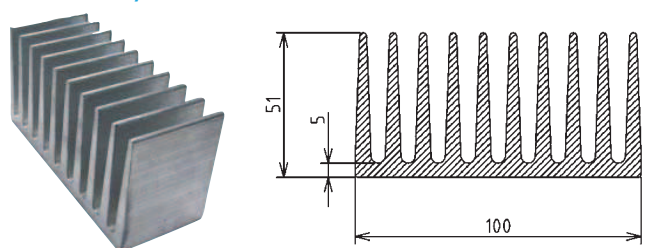


Part No.	Thermal Res.	Mat./Surface Finish	Description
ZH-2476/40AL	0,8K/W/100mm	Al/non-anodised	L=40mm 120x37
ZH-2476/60AL	0,8K/W/100mm	Al/non-anodised	L=60mm 120x37
ZH-2476/80AL	0,8K/W/100mm	Al/non-anodised	L=80mm 120x37
ZH-2476/100AL	0,8K/W/100mm	Al/non-anodised	L=100mm 120x37

Part No.	Ord.No.
s ZH-2476/40AL	8079
o ZH-2476/60AL	65706
o ZH-2476/80AL	62471
s ZH-2476/100AL	65860

## ZH-2533/XX Series

GAMA aluminium



Part No.	Thermal Res.	Mat./Surface Finish	Description
ZH-2533/40AL	0,8K/W/100mm	Al/non-anodised	L=40mm 100x51
ZH-2533/100AL	0,8K/W/100mm	Al/non-anodised	L=100mm 100x51

Part No.	Ord.No.
s ZH-2533/40AL	8078
o ZH-2533/100AL	65861

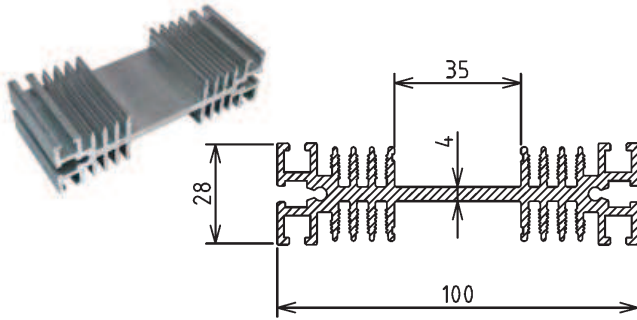
Note: Heatsink dimensions are marked in mm.  
Code "AL" - Aluminium/non-anodised,  
Code "BK" - Aluminium Anodised Black.

## Standard Heatsinks

(continued)

### ZH-3069/XX Series

**GAMA**aluminium

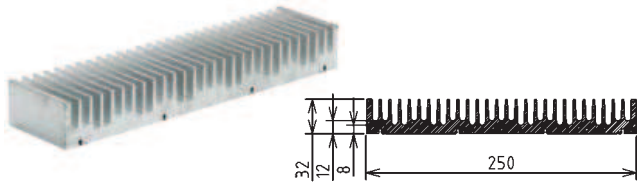


Part No.	Material/Surface Finish	Description
ZH-3069/40AL	aluminium/non-anodised	L=40mm 100x28
ZH-3069/100AL	aluminium/non-anodised	L=100mm 100x28

Part No.	Ord.No.
S ZH-3069/40AL	65629
O ZH-3069/100A	65862

### ZH-4185/XX Series

**GAMA**aluminium

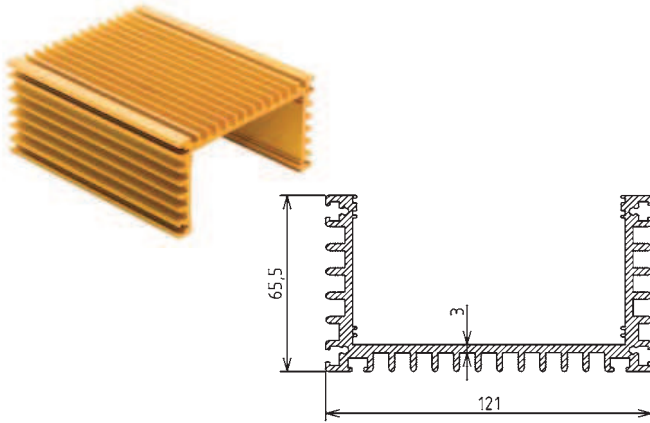


Part No.	Material/Surface Finish	Description
ZH-4185/40AL	aluminium/non-anodised	L=40mm 250x32

Part No.	Ord.No.
O ZH-4185/40AL	65630

### ZH-4268/XX Series

**GAMA**aluminium

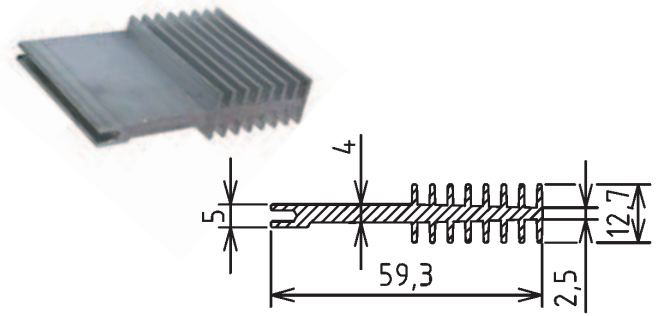


Part No.	Material/Surface Finish	Description
ZH-4268/40AL	aluminium/non-anodised	L=40mm 121x65,5

Part No.	Ord.No.
O ZH-4268/40AL	65631

### ZH-4611/XX Series

**GAMA**aluminium

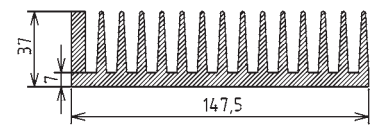


Part No.	Material/Surface Finish	Description
ZH-4611/40AL	aluminium/non-anodised	L=40mm 59,3x12,7
ZH-4611/80AL	aluminium/non-anodised	L=80mm 59,3x12,7

Part No.	Ord.No.
S ZH-4611/40AL	65632
O ZH-4611/80AL	65787

### ZH-5073/XX Series

**GAMA**aluminium

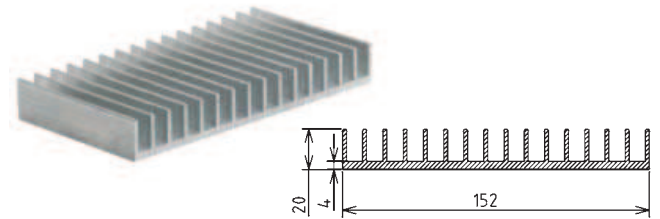


Part No.	Material/Surface Finish	Description
ZH-5073/40AL	aluminium/non-anodised	L=40mm 147,5x37
ZH-5073/100AL	aluminium/non-anodised	L=100mm 147x37

Part No.	Ord.No.
O ZH-5073/40AL	65633
O ZH-5073/100AL	62435

### ZH-6465/XX Series

**GAMA**aluminium

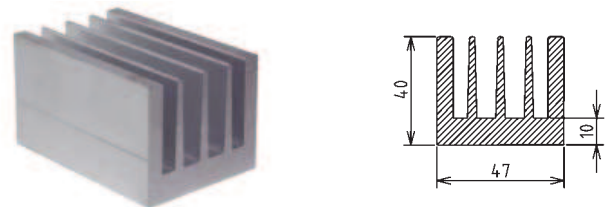


Part No.	Material/Surface Finish	Description
ZH-6465/40AL	aluminium/non-anodised	L=40mm 152x20

Part No.	Ord.No.
O ZH-6465/40AL	65635

### ZH-6789/XX Series

**GAMA**aluminium



Part No.	Material/Surface Finish	Description
ZH-6789/80AL	aluminium/non-anodised	L=80mm 47x40

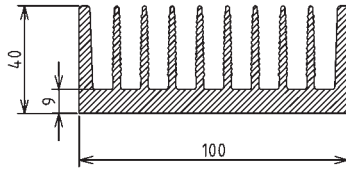
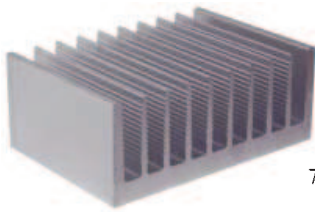
Part No.	Ord.No.
O ZH-6789/80AL	65794

Note: Heatsink dimensions are marked in mm.

Code "AL" - Aluminium/non-anodised,  
Code "BK" - Aluminium Anodised Black.

## ZH-7484/XX Series

**GAMA** aluminium

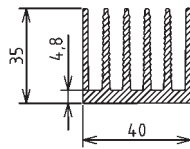
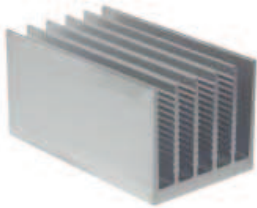


Part No.	Material/Surface Finish	Description
ZH-7484/40AL	aluminium/non-anodised	L=40mm 100x40

Part No.	Ord.No.
S ZH-7484/40AL	65641

## ZH-7485/XX Series

**GAMA** aluminium

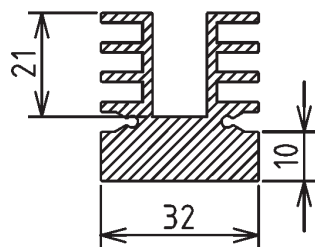
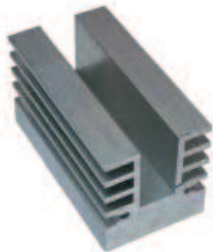


Part No.	Material/Surface Finish	Description
ZH-7485/40AL	aluminium/non-anodised	L=40mm 40x35
ZH-7485/80AL	aluminium/non-anodised	L=80mm 40x35

Part No.	Ord.No.
O ZH-7485/40AL	65642
O ZH-7485/80AL	65797

## ZH-7503/XX Series

**GAMA** aluminium



Part No.	Material/Surface Finish	Description
ZH-7503/40AL	aluminium/non-anodised	L=40mm 32x32
ZH-7503/60AL	aluminium/non-anodised	L=60mm 32x32
ZH-7503/80AL	aluminium/non-anodised	L=80mm 32x32

Part No.	Ord.No.
O ZH-7503/40AL	65643
S ZH-7503/60AL	65722
O ZH-7503/80AL	65798

## CLIP 221007

**NEW!**

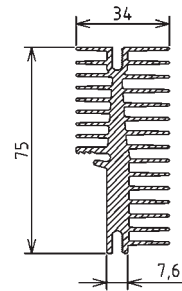
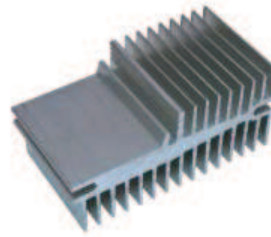


Clip for heatsinks A75, ZH7504, ZH7505

Part No.	Ord.No.
S CLIP 221007	67591

## ZH-7504/XX Series

**GAMA** aluminium

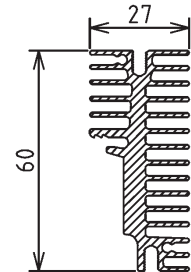


Part No.	Material/Surface Finish	Description
ZH-7504/20AL	aluminium/non-anodised	L=20mm 34x75
ZH-7504/40AL	aluminium/non-anodised	L=40mm 34x75
ZH-7504/60AL	aluminium/non-anodised	L=60mm 34x75
ZH-7504/80AL	aluminium/non-anodised	L=80mm 34x75

Part No.	Ord.No.
S ZH-7504/20AL	67341
S ZH-7504/40AL	65644
O ZH-7504/60AL	65723
S ZH-7504/80AL	65799

## ZH-7505/XX Series

**GAMA** aluminium

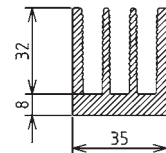
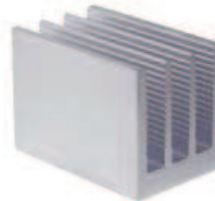


Part No.	Material/Surface Finish	Description
ZH-7505/20AL	aluminium/non-anodised	L=20mm 27x60
ZH-7505/40AL	aluminium/non-anodised	L=40mm 27x60
ZH-7505/60AL	aluminium/non-anodised	L=60mm 27x60
ZH-7505/80AL	aluminium/non-anodised	L=80mm 27x60

Part No.	Ord.No.
O ZH-7505/20AL	67342
S ZH-7505/40AL	65645
O ZH-7505/60AL	65724
S ZH-7505/80AL	65800

## ZH-7770/XX Series

**GAMA** aluminium



Part No.	Material/Surface Finish	Description
ZH-7770/40AL	aluminium/non-anodised	L=40mm 35x40
ZH-7770/60AL	aluminium/non-anodised	L=60mm 35x40
ZH-7770/80AL	aluminium/non-anodised	L=80mm 35x40

Part No.	Ord.No.
O ZH-7770/40AL	65646
O ZH-7770/60AL	65725
O ZH-7770/80AL	65801

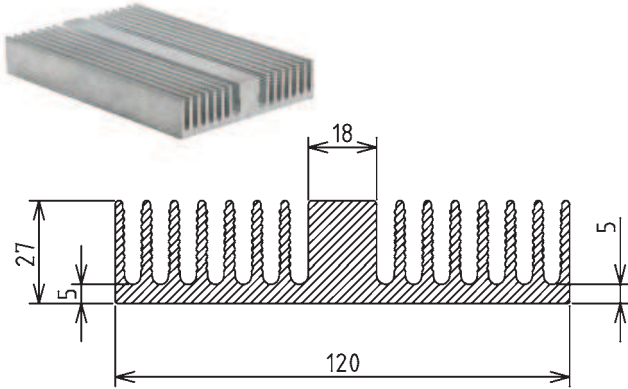
Note: Heatsink dimensions are marked in mm.  
Code "AL" - Aluminium/non-anodised,  
Code "BK" - Aluminium Anodised Black.



## Standard Heatsinks

(continued)

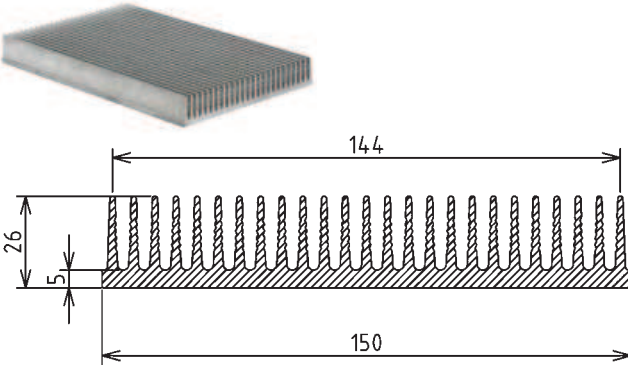
### ZH-7771/XX Series



Part No.	Material/Surface Finish	Description
ZH-7771/40AL	aluminium/non-anodised	L=40mm 120x27
ZH-7771/100AL	aluminium/non-anodised	L=100mm 120x27

Part No.	Ord.No.
o ZH-7771/40AL	65647
o ZH-7771/100AL	65878

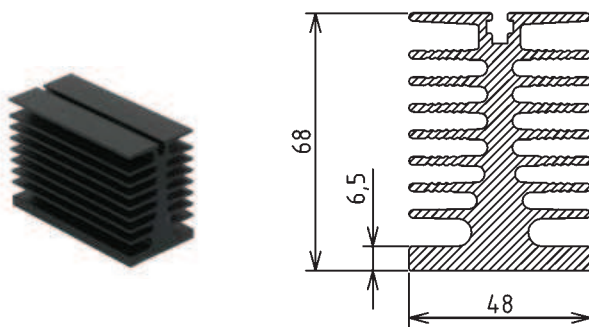
### ZH-8001/XX Series



Part No.	Material/Surface Finish	Description
ZH-8001/40AL	aluminium/non-anodised	L=40mm 150x26

Part No.	Ord.No.
o ZH-8001/40AL	65648

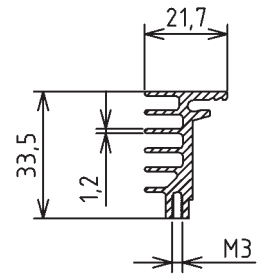
### ZH-8002/XX Series



Part No.	Material/Surface Finish	Description
ZH-8002/40AL	aluminium/non-anodised	L=40mm 48x68
ZH-8002/100AL	aluminium/non-anodised	L=100mm 48x68

Part No.	Ord.No.
o ZH-8002/40AL	65649
o ZH-8002/100AL	65880

### ZH-8247/XX Series



Part No.	Material/Surface Finish	Description
ZH-8247/40AL	aluminium/non-anodised	L=40mm 21,7x33,5
ZH-8247/60AL	aluminium/non-anodised	L=60mm 21,7x33,5
ZH-8247/80AL	aluminium/non-anodised	L=80mm 21,7x33,5

Part No.	Ord.No.
o ZH-8247/40AL	65650
o ZH-8247/60AL	65729
o ZH-8247/80AL	65805

### ZH-8624/XX Series



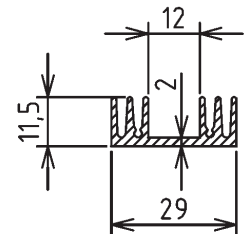
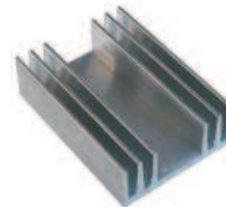
NEW!



Part No.	Material/Surface Finish	Description
ZH-8624/40AL	aluminium/non-anodised	L=40mm 42x15

Part No.	Ord.No.
s ZH-8624/40AL	75467

### T29/XX Series

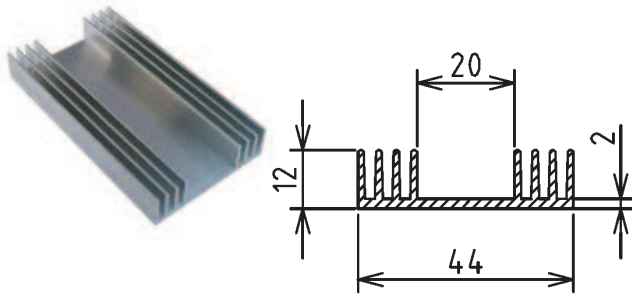


Part No.	Material/Surface Finish	Description
T29/40AL	aluminium/non-anodised	L=40mm 29x11,5
T29/80AL	aluminium/non-anodised	L=80mm 29x11,5

Part No.	Ord.No.
s T29/40AL	65685
s T29/80AL	65842

Note: Heatsink dimensions are marked in mm.  
Code "AL" - Aluminium/non-anodised,  
Code "BK" - Aluminium Anodised Black.

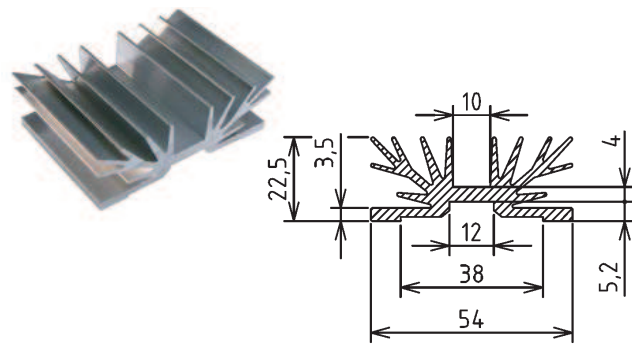
## T44/XX Series



Part No.	Material/Surface Finish	Description
T44/40AL	aluminium/non-anodised	L=40mm 44x12
T44/80AL	aluminium/non-anodised	L=80mm 44x12

Part No.	Ord.No.
S T44/40AL	65686
S T44/80AL	65843

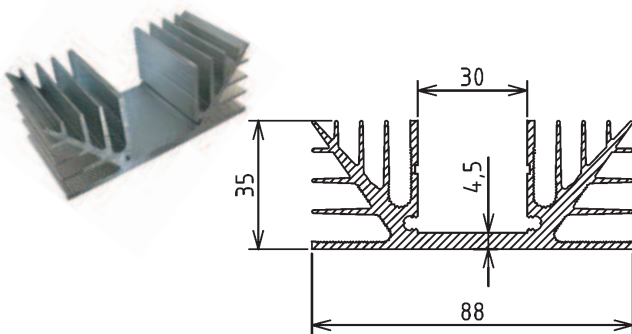
## T54/XX Series



Part No.	Material/Surface Finish	Description
T54/40AL	aluminium/non-anodised	L=40mm 54x22,5
T54/60AL	aluminium/non-anodised	L=60mm 54x22,5
T54/100AL	aluminium/non-anodised	L=100mm 54x22,5

Part No.	Ord.No.
S T54/40AL	65687
O T54/60AL	65766
O T54/100AL	65919

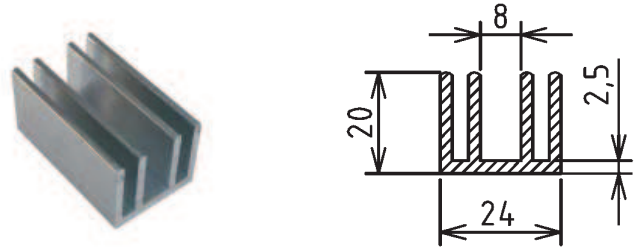
## T88/XX Series



Part No.	Material/Surface Finish	Description
T88/40AL	aluminium/non-anodised	L=40mm 88x35
T88/60AL	aluminium/non-anodised	L=60mm 88x35
T88/80AL	aluminium/non-anodised	L=80mm 88x35

Part No.	Ord.No.
S T88/40AL	65688
O T88/60AL	65767
S T88/80AL	65845

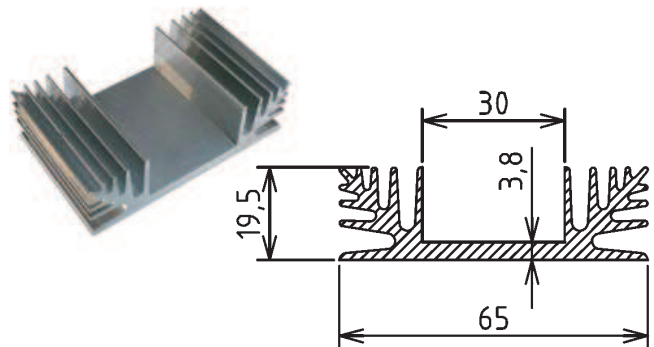
## TE25/XX Series



Part No.	Material/Surface Finish	Description
TE25/40AL	aluminium/non-anodised	L=40mm 24x20
TE25/80AL	aluminium/non-anodised	L=80mm 24x20

Part No.	Ord.No.
S TE25/40AL	65689
O TE25/80AL	65846

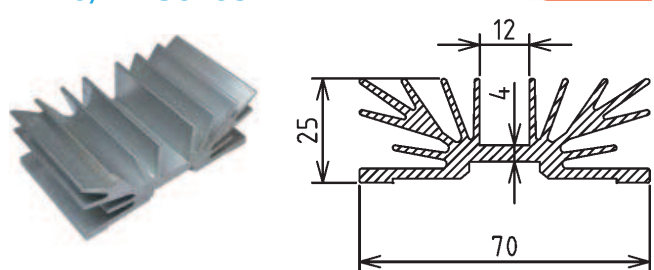
## TE65/XX Series



Part No.	Material/Surface Finish	Description
TE65/40AL	aluminium/non-anodised	L=40mm 65x19,5
TE65/60AL	aluminium/non-anodised	L=60mm 65x19,5
TE65/80AL	aluminium/non-anodised	L=80mm 65x19,5
TE65/100AL	aluminium/non-anodised	L=100mm 65x19,5

Part No.	Ord.No.
S TE65/40AL	65690
O TE65/60AL	65769
O TE65/80AL	65847
O TE65/100AL	65922

## TE70/XX Series



Part No.	Material/Surface Finish	Description
TE70/40AL	aluminium/non-anodised	L=40mm 70x25
TE70/60AL	aluminium/non-anodised	L=60mm 70x25
TE70/80AL	aluminium/non-anodised	L=80mm 70x25

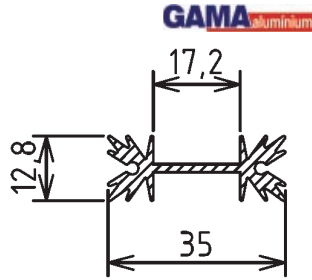
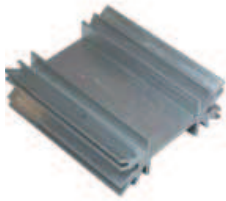
Part No.	Ord.No.
S TE70/40AL	65691
O TE70/60AL	65770
O TE70/80AL	65848

Note: Heatsink dimensions are marked in mm.  
Code "AL" - Aluminium/non-anodised,  
Code "BK" - Aluminium Anodised Black.

## Standard Heatsinks

(continued)

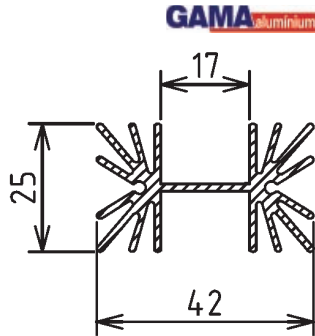
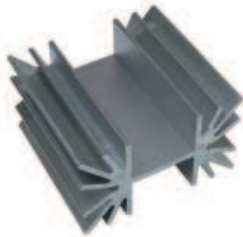
### TEA35/XX Series



Part No.	Material/Surface Finish	Description
TEA35/40AL	Aluminium/non-anodised	L=40mm 35x12,8
TEA35/60AL	Aluminium/non-anodised	L=60mm 35x12,8

Part No.	Ord.No.
S TEA35/40AL	65692
S TEA35/60AL	65771

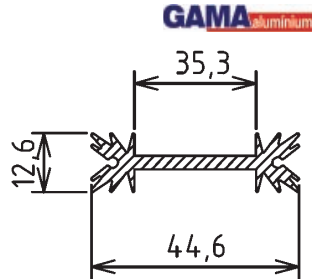
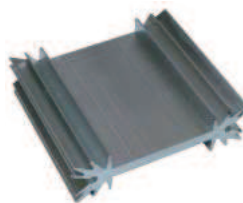
### TEA40/XX Series



Part No.	Material/Surface Finish	Description
TEA40/40AL	Aluminium/non-anodised	L=40mm 42x25
TEA40/60AL	Aluminium/non-anodised	L=60mm 42x25

Part No.	Ord.No.
S TEA40/40AL	65693
S TEA40/60AL	65772

### TEA45/XX Series



Part No.	Material/Surface Finish	Description
TEA45/40AL	Aluminium/non-anodised	L=40mm 44,6x12,6
TEA45/60AL	Aluminium/non-anodised	L=60mm 44,6x12,6

Part No.	Ord.No.
S TEA45/40AL	65694
S TEA45/60AL	65773

### TEAxx Mounting Clips

TEA35 CLIP

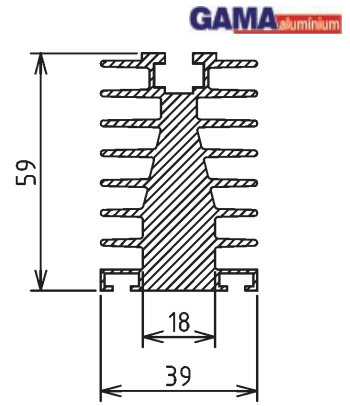
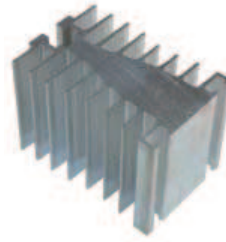
TEA40 CLIP

TEA45 CLIP



Part No.	Ord.No.
S TEA35 CLIP	67588
S TEA40 CLIP	67589
S TEA45 CLIP	67590

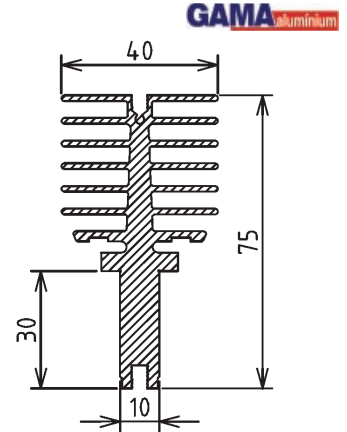
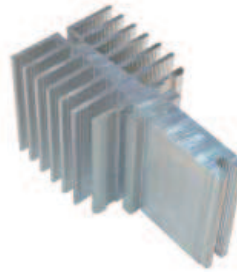
### A59/XX Series



Part No.	Material/Surface Finish	Description
A59/40AL	Aluminium/non-anodised	L=40mm 39x59

Part No.	Ord.No.
S A59/40AL	65651

### A75M/XX Series



Part No.	Material/Surface Finish	Description
A75M/20AL	Aluminium/non-anodised	L=20mm 40x75
A75M/40AL	Aluminium/non-anodised	L=40mm 40x75

Part No.	Ord.No.
S A75M/20AL	67329
S A75M/40AL	65652

### Mounting CLIP 221007



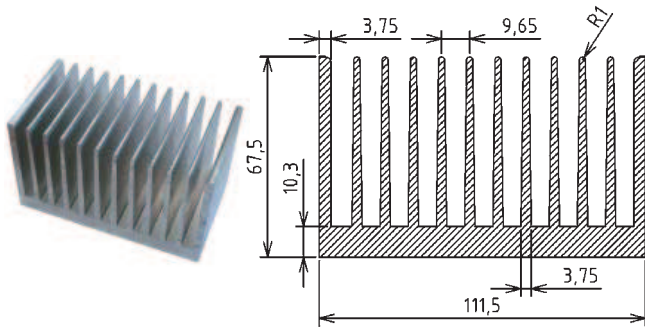
Retaining clip for heatsinks A75, ZH7504, ZH7505

Part No.	Ord.No.
S CLIP 221007	67591

Note: Heatsink dimensions are marked in mm.  
Code "AL" - Aluminium/non-anodised,  
Code "BK" - Aluminium Anodised Black.

S - in-stock product O - on order product. Prices are quoted in EUR excluding VAT and transport costs.

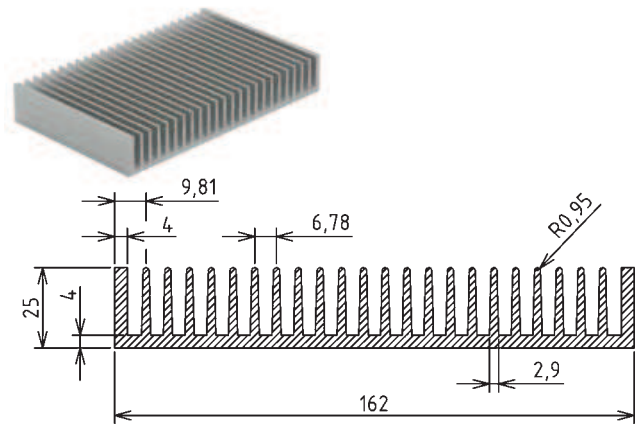
## K112/XX Series



Part No.	Material/Surface Finish	Description
K112/60AL	aluminium/non-anodised	L=60mm 111,5x67,5
K112/80AL	aluminium/non-anodised	L=80mm 111,5x67,5

Part No.	Ord.No.
S K112/60AL	65749
O K112/80AL	65826

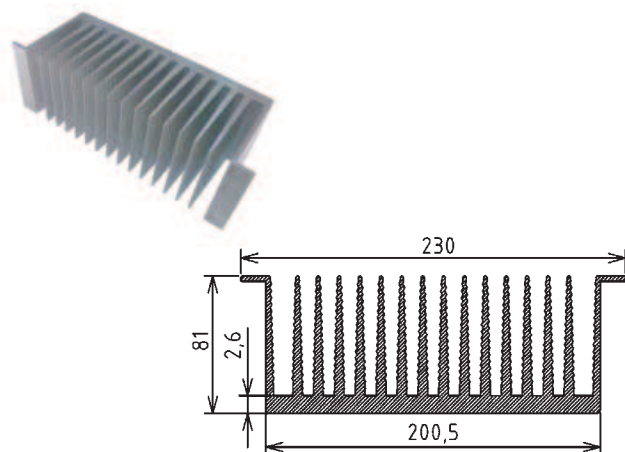
## K163/XX Series



Part No.	Material/Surface Finish	Description
K163/40AL	aluminium/non-anodised	L=40mm 162x25

Part No.	Ord.No.
O K163/40AL	65671

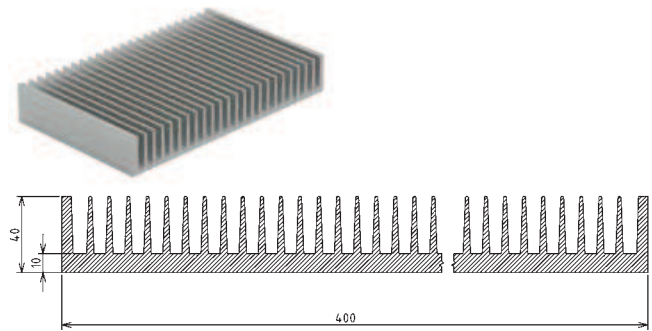
## K230/XX Series



Part No.	Material/Surface Finish	Description
K230/80AL	aluminium/non-anodised	L=80mm 230x81

Part No.	Ord.No.
S K230/80AL	65828

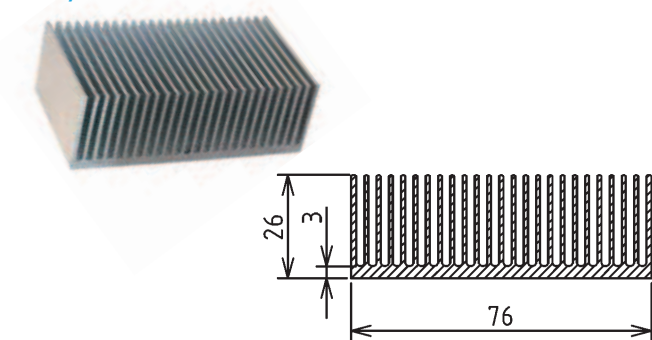
## K400/XX Series



Part No.	Material/Surface Finish	Description
K400/40AL	aluminium/non-anodised	L=40mm 400x40

Part No.	Ord.No.
O K400/40AL	65673

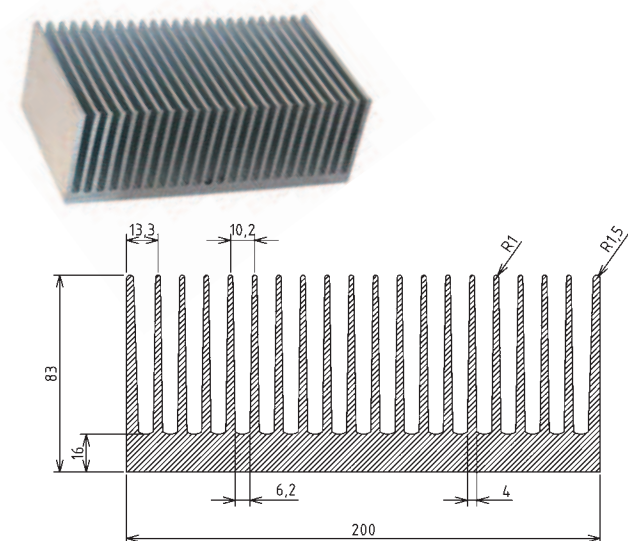
## K76/XX Series



Part No.	Material/Surface Finish	Description
K76/40AL	aluminium/non-anodised	L=40mm 76x26

Part No.	Ord.No.
S K76/40AL	65669

## KA200/XX Series



Part No.	Material/Surface Finish	Description
KA200/40AL	aluminium/non-anodised	L=40mm 200x83
KA200/60AL	aluminium/non-anodised	L=60mm 200x83

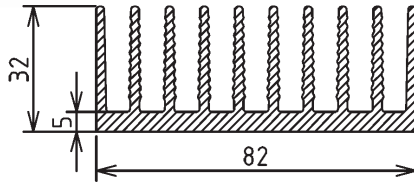
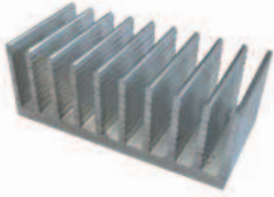
Part No.	Ord.No.
O KA200/40AL	65674
O KA200/60AL	65753

Note: Heatsink dimensions are marked in mm.  
Code "AL" - Aluminium/non-anodised,  
Code "BK" - Aluminium Anodised Black.

## Standard Heatsinks

(continued)

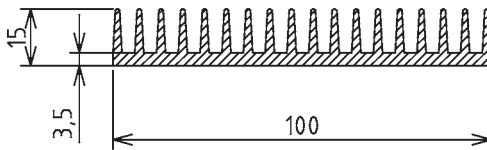
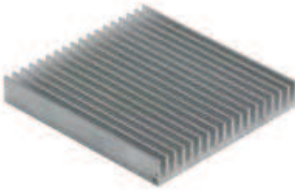
### KE82/XX Series



Part No.	Material/Surface Finish	Description
KE82/40AL	aluminium/non-anodised	L=40mm 82x32

Part No.	Ord.No.
S KE82/40AL	65675

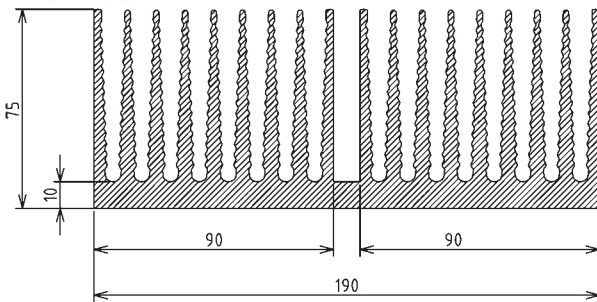
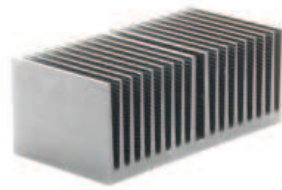
### KE100/XX Series



Part No.	Material/Surface Finish	Description
KE100/40AL	aluminium/non-anodised	L=40mm 100x15

Part No.	Ord.No.
o KE100/40AL	65676

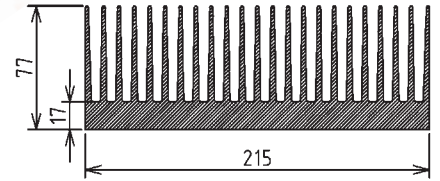
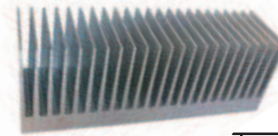
### KE190/XX Series



Part No.	Material/Surface Finish	Description
KE190/40AL	aluminium/non-anodised	L=40mm 190x75

Part No.	Ord.No.
o KE190/40AL	65677

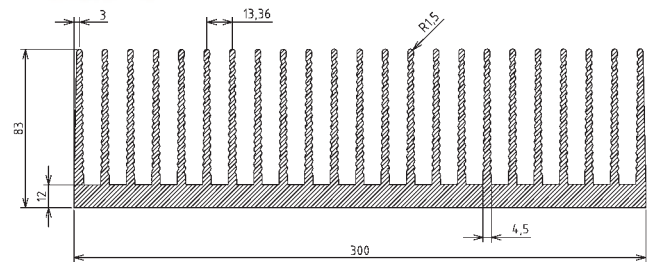
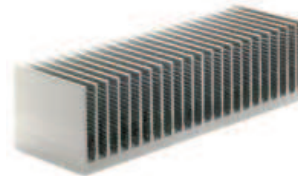
### K215/XX Series



Part No.	Material/Surface Finish	Description
KE215/60AL	aluminium/non-anodised	L=60mm 215x77
KE215/80AL	aluminium/non-anodised	L=80mm 215x77

Part No.	Ord.No.
S KE215/60AL	65757
o KE215/80AL	65834

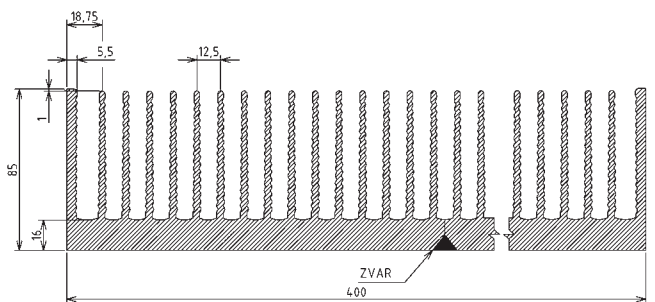
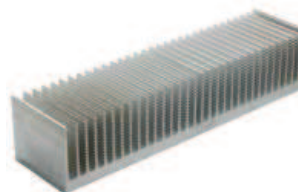
### KE300/XX Series



Part No.	Material/Surface Finish	Description
KE300/60AL	aluminium/non-anodised	L=60mm 300x83
KE300/80AL	aluminium/non-anodised	L=80mm 300x83

Part No.	Ord.No.
o KE300/60AL	65758
o KE300/80AL	65835

### KE400/XX Series

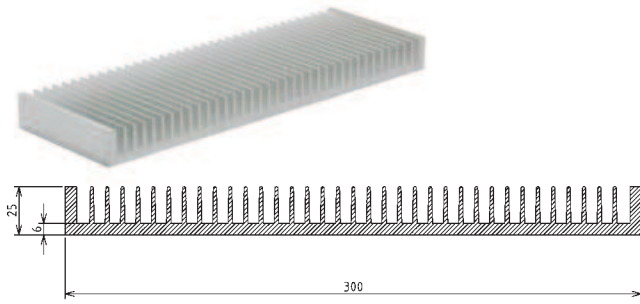


Part No.	Material/Surface Finish	Description
KE400/60AL	aluminium/non-anodised	L=60mm 400x85
KE400/80AL	aluminium/non-anodised	L=80mm 400x85

Part No.	Ord.No.
o KE400/60AL	65759
o KE400/80AL	65836

Note: Heatsink dimensions are marked in mm.  
Code "AL" - Aluminium/non-anodised,  
Code "BK" - Aluminium Anodised Black.

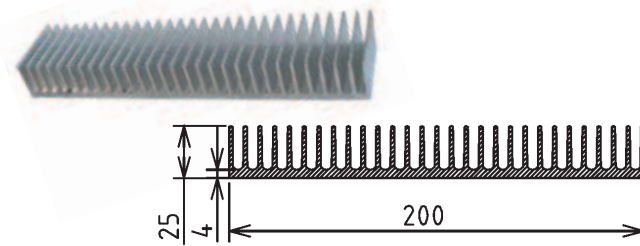
## KEA300/XX Series



Part No.	Material/Surface Finish	Description
KEA300/40AL	aluminium/non-anodised	L=40mm 300x25

Part No.	Ord.No.
o KEA300/40AL	65681

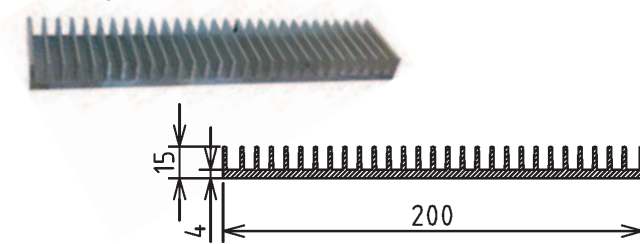
## KEAH200/XX Series



Part No.	Material/Surface Finish	Description
KEAH200/40AL	aluminium/non-anodised	L=40mm 200x25

Part No.	Ord.No.
s KEAH200/40AL	65682

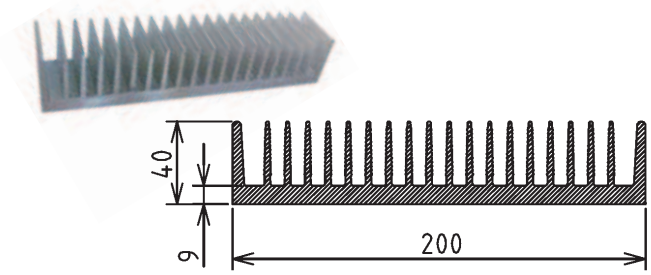
## KK200/XX Series



Part No.	Material/Surface Finish	Description
KK200/40AL	aluminium/non-anodised	L=40mm 200x15

Part No.	Ord.No.
s KK200/40AL	65683

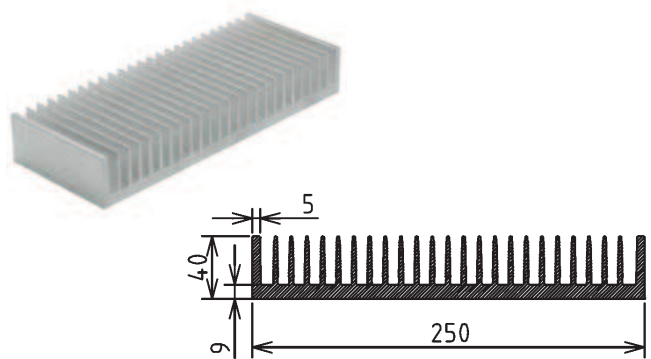
## IT4375/XX Series



Part No.	Material/Surface Finish	Description
IT4375/40AL	aluminium/non-anodised	L=40mm 200x40
IT4375/60AL	aluminium/non-anodised	L=60mm 200x40

Part No.	Ord.No.
s IT4375/40AL	65662
o IT4375/60AL	65741

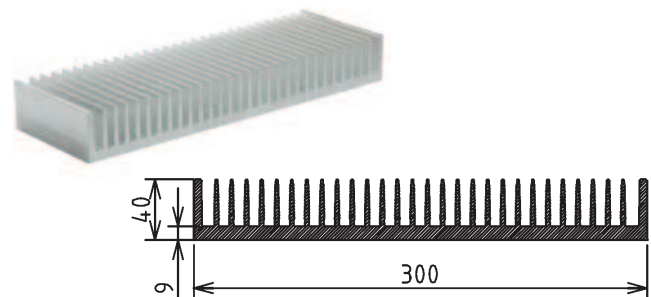
## IT4376/XX Series



Part No.	Material/Surface Finish	Description
IT4376/40AL	aluminium/non-anodised	L=40mm 250x40
IT4376/60AL	aluminium/non-anodised	L=60mm 250x40

Part No.	Ord.No.
o IT4376/40AL	65663
o IT4376/60AL	65742

## IT4377/XX Series



Part No.	Material/Surface Finish	Description
IT4377/40AL	aluminium/non-anodised	L=40mm 300x40
IT4377/60AL	aluminium/non-anodised	L=60mm 300x40

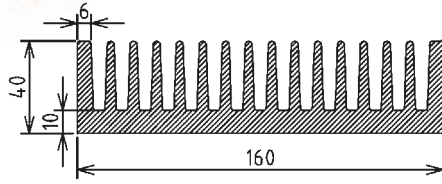
Part No.	Ord.No.
o IT4377/40AL	65664
o IT4377/60AL	65743

Note: Heatsink dimensions are marked in mm.  
Code "AL" - Aluminium/non-anodised,  
Code "BK" - Aluminium Anodised Black.

## Standard Heatsinks

(continued)

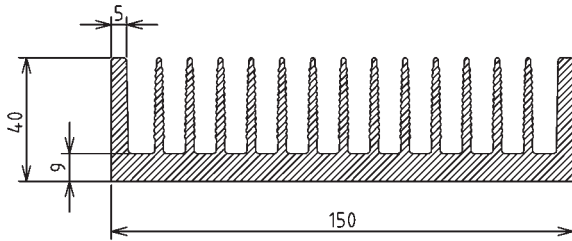
### IT5303/XX Series



Part No.	Material/Surface Finish	Description
IT5303/40AL	aluminium/non-anodised	L=40mm 160x40
IT5303/60AL	aluminium/non-anodised	L=60mm 160x40

Part No.	Ord.No.
S IT5303/40AL	65665
O IT5303/60AL	65744

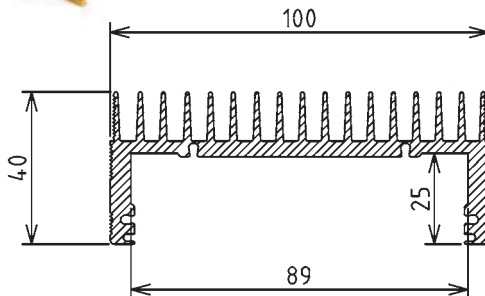
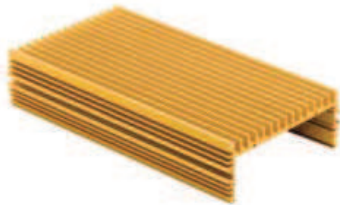
### IT5498/XX Series



Part No.	Material/Surface Finish	Description
IT5498/40AL	aluminium/non-anodised	L=40mm 150x40

Part No.	Ord.No.
O IT5498/40AL	65666

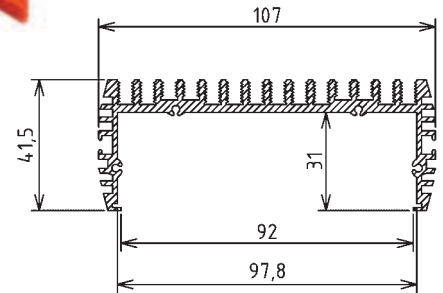
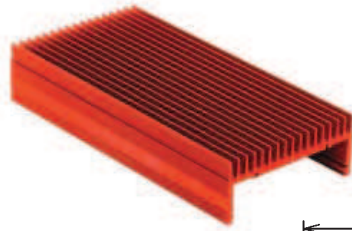
### C100/XX Series



Part No.	Material/Surface Finish	Description
C100/40AL	aluminium/non-anodised	L=40mm 100x40

Part No.	Ord.No.
O C100/40AL	65653

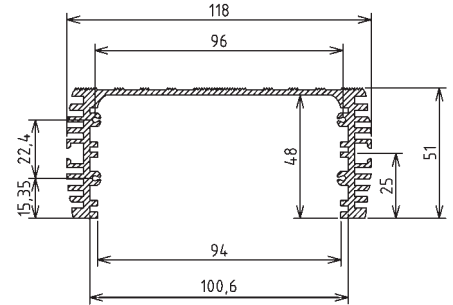
### C107/XX Series



Part No.	Material/Surface Finish	Description
C107/40AL	aluminium/non-anodised	L=40mm 107x41,5

Part No.	Ord.No.
O C107/40AL	65654

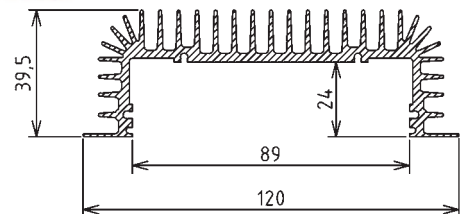
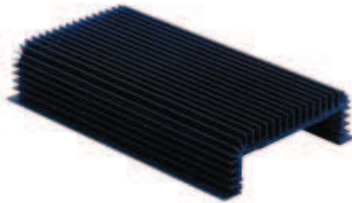
### C118/XX Series



Part No.	Material/Surface Finish	Description
C118/40AL	aluminium/non-anodised	L=40mm 118x51

Part No.	Ord.No.
O C118/40AL	65655

### C120/XX Series

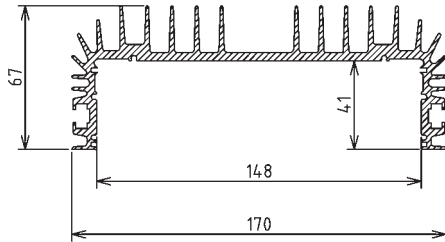
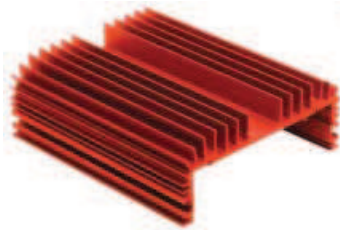


Part No.	Material/Surface Finish	Description
C120/40AL	aluminium/non-anodised	L=40mm 120x39,5

Part No.	Ord.No.
O C120/40AL	65656

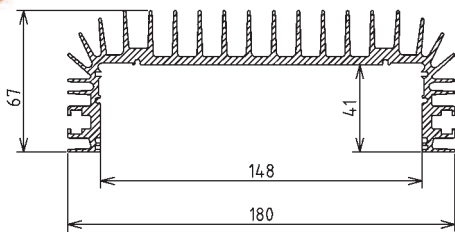
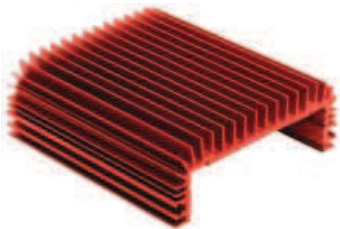
Note: Heatsink dimensions are marked in mm.  
Code "AL" - Aluminium/non-anodised,  
Code "BK" - Aluminium Anodised Black.

## C170/XX Series



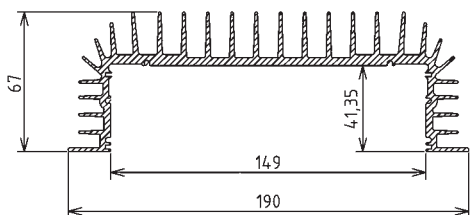
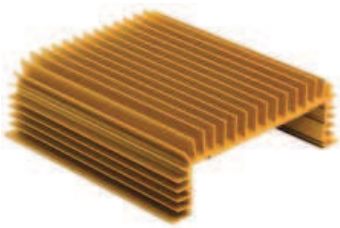
Part No.	Material/Surface Finish	Description
C170/40AL	aluminium/non-anodised	L=40mm 170x67
Part No.	Ord.No.	
o C170/40AL	65657	

## C180/XX Series



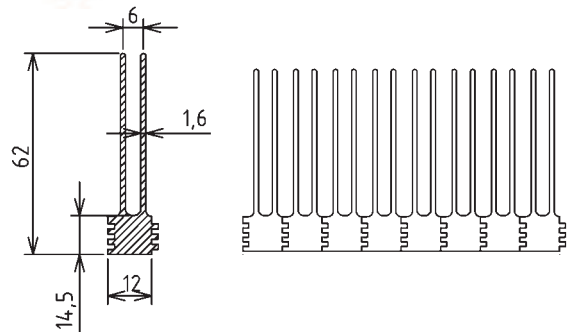
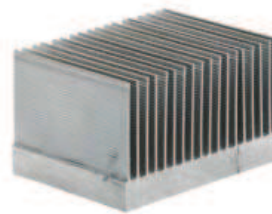
Part No.	Material/Surface Finish	Description
C180/40AL	aluminium/non-anodised	L=40mm 180x67
Part No.	Ord.No.	
o C180/40AL	65658	

## C190/XX Series



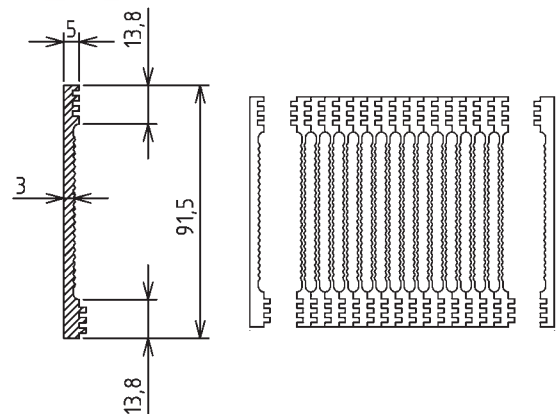
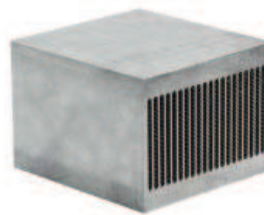
Part No.	Material/Surface Finish	Description
C190/40AL	aluminium/non-anodised	L=40mm 190x67
Part No.	Ord.No.	
o C190/40AL	65659	

## I62D/XX Series



Part No.	Material/Surface Finish	Description
I62D/60AL	aluminium/non-anodised	L=60mm 12x62
Part No.	Ord.No.	
o I62D/60AL	65739	

## I91MF/XX Series



Part No.	Material/Surface Finish	Description
I91MF/40AL	aluminium/non-anodised	L=40mm 5x91,5
I91MF/80AL	aluminium/non-anodised	L=80mm 5x91,5
I91MF/100AL	aluminium/non-anodised	L=100mm 5x91,5

On request.

Note: Heatsink dimensions are marked in mm.  
Code "AL" - Aluminium/non-anodised,  
Code "BK" - Aluminium Anodised Black.



## FISCHER ELEKTRONIK Heatsinks Overview

SK 461 D 28	SK 441 D 28	SK 458 D 28	SK 440 D 28	SK 498 D 28	SK 497 D 28	SK 162 A 57	SK 161 A 57	SK 160 A 57
SK 159 A 57	SK 144 A 83	SK 157 A 54	SK 191 A 55	SK 56 A 53	SK 93 A 55			
SK 158 A 57	SK 102 A 50	SK 479 A 55	SK 501 A 53	SK 438 A 52	SK 82 A 75			
SK 418 A 57	SK 101 A 54	SK 127 A 75	SK 435 A 82	SK 520 A 50	SK 130 A 55			
SK 139 A 53	SK 66 A 54	SK 109 A 81	SK 110 A 81	SK 141 A 80	SK 154 A 46	SK 193 A 50		
SK 439 A 55	SK 416 A 47	SK 190 A 52	SK 199 A 51	SK 91 A 52				
SK 510 A 47	SK 15 A 77	SK 53 A 74	SK 90 A 48	SK 149 A 52	SK 168 A 51	SK 502 A 49		
SK 33 A 43	SK 47 A 50	SK 568 A 54	SK 49 A 51	SK 83 A 79	SK 108 A 81			
SK 155 A 46	SK 163 A 78	SK 507 A 41	SK 198 A 53	SK 446 A 53	SK 523 A 54			
SK 524 A 52	SK 530 A 56	SK 555 A 51	SK 531 A 56	SK 533 A 56				
SK 534 A 56	SK 535 A 56	SK 536 A 56	SK 557 A 50					

## FISCHER ELEKTRONIK Heatsinks Overview

SK 537 A 56		SK 538 A 56		SK 539 A 56	
SK 540 A 56					
SK 569 B 34		SK 570 B 34		SK 571 B 34	
SK 572 B 34		SK 57 A 64		SK 61 A 83	
SK 86 A 75		SK 118 A 51		SK 466 A 44	
SK 467 A 33		SK 519 A 48		SK 412 A 47	
SK 88 A 73		SK 98 A 65		SK 121 A 43	
SK 411 A 43		SK 491 A 33		SK 503 A 47	
SK 506 A 39		SK 43 A 69		SK 67 A 69	
SK 119 A 47		SK 137 A 69		SK 148 A 68	
SK 02 A 66		SK 42 A 49		SK 71 A 64	
SK 80 A 74		SK 85 A 46		SK 94 A 49	
SK 113 A 49		SK 120 A 45		SK 136 A 48	
SK 194 A 82		SK 404 A 65		SK 40 A 83	
SK 89 A 77		SK 140 A 77		SK 463 A 44	
SK 135 A 40		SK 58 A 45		SK 132 A 44	
SK 133 A 45		SK 147 A 74		SK 197 A 65	
SK 413 A 44		SK 415 A 90		SK 504 A 45	
SK 30 A 67		SK 34 A 67		SK 06 A 80	
SK 23 A 80		SK 556 A 77		SK 195 A 71	
SK 408 A 41		SK 442 A 43		SK 464 A 40	
SK 172 A 82		SK 176 A 78		SK 455 A 32	
SK 92 A 42		SK 50 A 38		SK 166 A 49	
SK 04 A 63		SK 20 A 68		SK 403 A 64	
SK 410 A 45		SK 184 A 68		SK 166 A 49	

< 1 K/W	1-1,5 K/W	1,5-2 K/W	2-2,5 K/W
2,5-3 K/W	3-4 K/W	4-5 K/W	> 5 K/W

SOS electronic - distributor of



heatsinks

## FISCHER ELEKTRONIK Heatsinks Overview

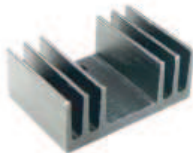
SK 417 	A 46	SK 421 	A 48	SK 429 	A 37	SK 433 	A 42	SK 401 	A 63	SK 08 	A 73	SK 39 	A 67				
SK 74 	A 71	SK 432 	A 83	SK 453 	A 32	SK 14 	A 67	SK 46 	A 79	SK 60 	A 74	SK 84 	A 68	SK 527 	A 36	SK 124 	A 71
SK 79 	A 73	SK 100 	A 39	SK 111 	A 82	SK 436 	A 38	SK 450 	A 34	SK 489 	A 86	SK 419 	A 70	SK 03 	A 66	SK 54 	A 79
SK 187 	A 76	SK 407 	A 40	SK 97 	A 62	SK 508 	A 42		SK 134 	A 28	SK 505 	A 42		SK 72 	A 63		
SK 11 	A 79	SK 16 	A 72	SK 44 	A 90		SK 544 	A 76	SK 73 	A 64		SK 105 	A 90				
SK 175 	A 84	SK 402 	A 62	SK 434 	A 35	SK 445 	A 34	SK 499 	A 88	SK 05 	A 62	SK 405 	A 48		SK 64 	A 70	
SK 18 	A 61	SK 189 	A 31	SK 406 	A 39	SK 487 	A 88	SK 514 	A 87	SK 484 	A 108		SK 475 	A 35	SK 01 	A 66	
SK 25 	A 61	SK 28 	A 63	SK 48 	A 73	SK 52 	A 74	SK 63 	A 61	SK 81 	A 41		SK 481 	A 86	SK 483 	A 88	
SK 19 	A 63	SK 518 	A 92	SK 457 	A 76	SK 165 	A 60	SK 182 	A 40	SK 185 	A 73	SK 414 	A 90	SK 45 	A 62		
SK 181 	A 59	SK 69 	A 71		SK 426 	A 36	SK 65 	A 70	SK 07 	A 72	SK 32 	A 76	SK 68 	A 89	SK 425 	A 34	
SK 482 	A 87	SK 51 	A 60	SK 106 	A 30	SK 424 	A 33	SK 517 	A 92	SK 112 	A 89	SK 495 	A 87	SK 55 	A 84	SK 99 	A 37



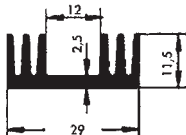
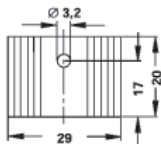
## Standard Heatsinks

(continued)

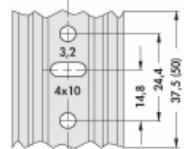
### SK 09 Series



SK 09/20/SA/  
TO220

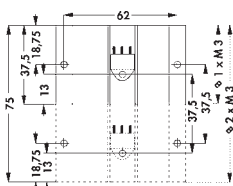
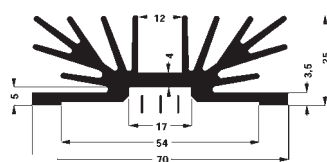


SK 09/37,5/SA/K



Part No.	Rth	Mat./Surface	for Transistor	Length
SK 09 20 SA TO 220	16 K/W	aluminium/black anodised	TO-220	20mm
SK 09 37,5 SA K	11 K/W	aluminium/black anodised	TO-220, SOT-32	37.5mm
Part No.	Ord.No.			
S SK 09 20 SA TO 220	20129			
S SK 09 37,5 SA K	20130			

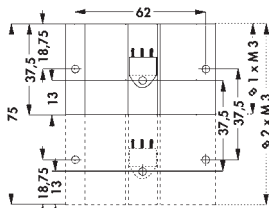
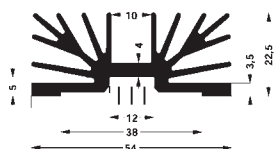
### SK 64 Series



Hole 1xM3

Part No.	Rth	Mat./Surface	for Transistor	Length
SK 64 37,5 AL	2.7 K/W	aluminium/non-anodised	TO-220 without holes	37.5mm
SK 64/37,5/SA/1XM3	2.7 K/W	aluminium/black anodised	TO-220	37.5mm
Part No.	Ord.No.			
S SK 64 37,5 AL	6984			
S SK 64/37,5/SA/1XM3	8017			

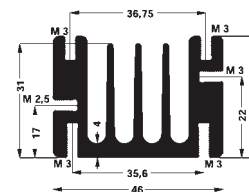
### SK 65/37,5/SA/1xM3 Series



Hole 1xM3

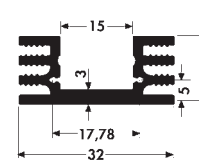
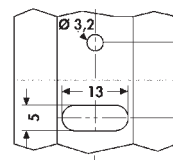
Part No.	Rth	Mat./Surface	for Transistor	Length
SK 65/37,5/SA/1XM3A	3.6 K/W	aluminium/black anodised	SOT-32	37.5mm
Part No.	Ord.No.			
S SK 65/37,5/SA/1XM3	20136			

### SK 68/50/SA Series



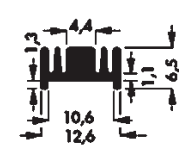
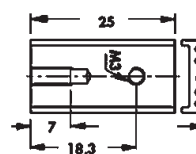
Part No.	Rth	Mat./Surface	Description	Length
SK 68/50/SA	5K/W	aluminium/black anodised	profile threads	50mm
Part No.	Ord.No.			
S SK 68/50/SA	8019			

### SK 75/37,5/SATO 220 Series



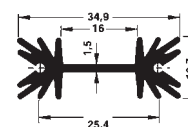
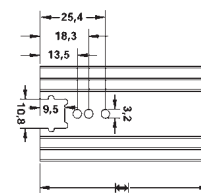
Part No.	Rth	Mat./Surface	for Transistor	Length
SK 75/37,5/SA220	10K/W	aluminium/black anodised	SOT 32, TO-220 without solder pins	37.5mm
Part No.	Ord.No.			
S SK 75/37,5/SA220	8016			

### SK 95/25/SATO220 Series



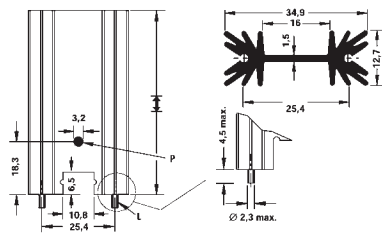
Part No.	Rth	Mat./Surface	for Transistor	Length
SK 95/25/SA	36K/W	aluminium/black anodised	SOT-32, TO-220	25mm
Part No.	Ord.No.			
S SK 95/25/SA	64497			

### SK 104 LS Series



Part No.	Rth	Mat./Surface	for Transistor	Length
SK 104/25,4/LS	14 K/W	aluminium/black anodised	TO-220, horizontal for semiconductor-screw on mounting	25,4mm
SK 104/38,1/LS	11 K/W	aluminium/black anodised	TO-220, horizontal for semiconductor-screw on mounting	38.1mm
SK 104/50,8/LS	9 K/W	aluminium/black anodised	TO-220, horizontal for semiconductor-screw on mounting	50.8mm
Part No.	Ord.No.			
S SK 104/25,4/LS	10009			
S SK 104/38,1/LS	2404			
S SK 104/50,8/LS	2403			

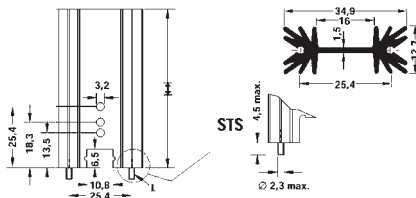
## SK 104 STC Series



Part No.	Rth	Mat./Surface	for Transistor	Length
SK 104/25,4/ STC/TO220	14 K/W	aluminium/black anodised	TO-220 with solder pins clip THF104 required	25,4mm
SK 104/38,1/ STC/TO220	11 K/W	aluminium/black anodised	TO-220 with solder pins clip THF104 required	38,1mm

Part No.	Ord.No.
S SK 104/25,4/STC/TO220	8011
S SK 104/38,1/STC/TO220	8012

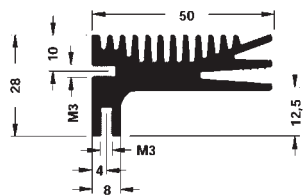
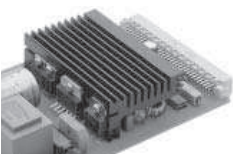
## SK 104 STS Series



Part No.	Rth	Mat./Surface	for Transistor	Length
SK 104/25,4/ STS	14 K/W	aluminium/black anodised	TO-220 with solder pins and insulating ring	25,4mm
SK 104/38,1/ STS	11 K/W	aluminium/black anodised	TO-220 with solder pins and insulating ring	38,1mm
SK 104/50,8/ STS	9 K/W	aluminium/black anodised	TO-220 with solder pins and insulating ring	50,8mm

Part No.	Ord.No.
S SK 104/25,4/STS	25670
S SK 104/38,1/STS	25671
S SK 104/50,8/STS	8015

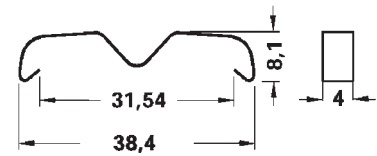
## SK 451/84/SA



Part No.	Rth	Mat./Surface	for Transistor	Width
SK 451/84/SA	4 K/W	aluminium/black anodised	TO220, TO218, PEN- TAWATT for use on Euro cards, profile thread	84mm

Part No.	Ord.No.
S SK 451/84/SA	8018

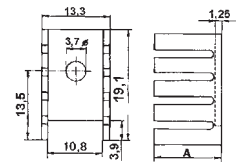
## THF 104



Part No.	Description
THF 104	for transistor-design TO 220, TO 3 P, TO 247, TO 248 suitable for heatsinks SK104

Part No.	Ord.No.
S THF 104	8014

## D xx Series



Part No.	Thermal Res.	Material/Surface Finish	Description
D 01	27 K/W	Aluminium/non-anodised	A=12,7mm
D 01 A	21 K/W	Aluminium/black anodised	A=12,7mm
D 02	28 K/W	Aluminium/non-anodised	A=9,53mm
D 02 A	22 K/W	Aluminium/black anodised	A=9,53mm
D 03	31 K/W	Aluminium/non-anodised	A=6,35mm

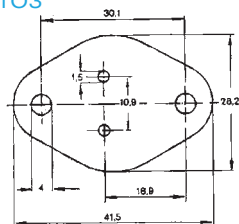
Part No.	Ord.No.
S D 01	2339
S D 01 A	6417
S D 02	2469
S D 02 A	2462
S D 03	4944

## Thermal Interface Materials

### Mica Wafer

- thickness: 0,05mm
- should be used with thermal transfer paste
- minimum ordering quantity is 10pcs

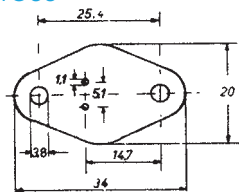
#### GS-TO3



Part No.	Suitable for	Insulating Voltage	Temperature	Thermal Resistance
GS-TO3	TO-3	2,5 kV	550°C	0,3 K/W

Part No.	Ord.No.
s GS-TO3	13283

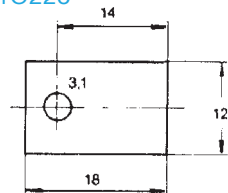
#### GS-TO66



Part No.	Suitable for	Insulating Voltage	Temperature	Thermal Resistance
GS-TO66	TO-66	2,5 kV	550°C	0,8 K/W

Part No.	Ord.No.
s GS-TO66	13284

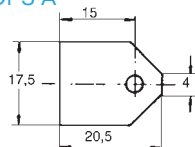
#### GS-TO220



Part No.	Suitable for	Insulating Voltage	Temperature	Thermal Resistance
GS-TO220	TO-220	2,5 kV	550°C	1,2 K/W

Part No.	Ord.No.
s GS-TO220	13287

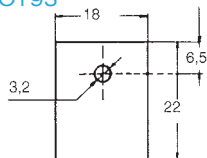
#### GS-TOP3 A



Part No.	Suitable for	Insulating Voltage	Temperature	Thermal Resistance
GS-TOP3 A	TOP-3	2,0 kV	550°C	0,8 K/W

Part No.	Ord.No.
s GS-TOP3 A	13288

#### GS-SOT93



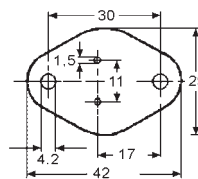
Part No.	Suitable for	Insulating Voltage	Temperature	Thermal Resistance
GS-SOT93	SOT-93	2,0 kV	550°C	0,8 K/W

Part No.	Ord.No.
s GS-SOT93	21936

## Silicone Wafers

- thickness: 0,3mm
- working temperature range -60°C to +200°C
- no thermal transfer paste needed

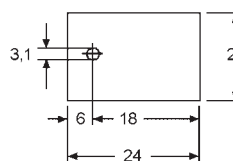
#### SIS30-TO3



Part No.	Suitable for	Insulating Voltage	Temperature	Thermal Resistance
SIS30-TO3	TO-3	7,0 kV	200°C	0,45 K/W

Part No.	Ord.No.
s SIS30-TO3	22509

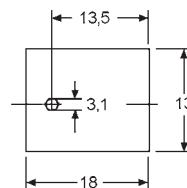
#### SIS30-TOP3



Part No.	Suitable for	Insulating Voltage	Temperature	Thermal Resistance
SIS30-TOP3	TOP-3	7,0 kV	200°C	0,45 K/W

Part No.	Ord.No.
s SIS30-TOP3	22510

#### SIS30-TO220



Part No.	Suitable for	Insulating Voltage	Temperature	Thermal Resistance
SIS30-TO220	TO-220	7,0 kV	200°C	0,45 K/W

Part No.	Ord.No.
s SIS30-TO220	22511

## Transistor Insulating Tube

### TO-3P

Silicone insulating tube, suitable for transistors, 28,5x17,5x5,8mm..



Part No.	Ord.No.
s TO-3P	62608

## Thermal Transfer Paste

### HTC

Non-Silicone Thermal Transfer Paste. High thermal conductivity- 0,9 W/mK. Operating temperature range -50°C to +130 °C.



Part No.	Ord.No.
s HTC 02 S, 2ml	6353
s HTC 10 S, 10ml	6354

## WARMELEITPASTE

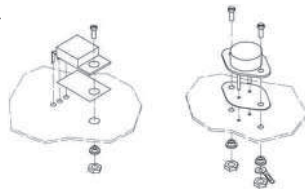
Thermal Transfer Silicon Paste. Thermal conductivity - 1W/mK. Operating temperature range -30°C to +200 °C.



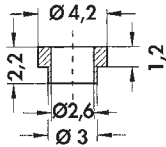
Part No.	Ord.No.	Temp.
S WARMELEITPASTE 1kg	63294	200°C
S WARMELEITPASTE 35g	40267	200°C
S WARMELEITPASTE 5g	14301	200°C

## Insulating Bushes

- For use with screw mounted transistors
- Isolate transistors from heatsinks
- Nylon construction



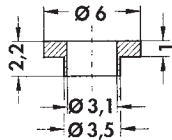
### IB 4



Part No.	Suitable for	Insulating Voltage	Temperature
IB 4	TO-126	>30 KV/mm	170°C

Part No.	Ord.No.
S IB 4	5577

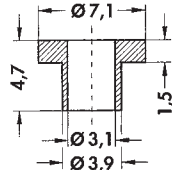
### IB 6



Part No.	Suitable for	Insulating Voltage	Temperature
IB 6	TO-220, TOP-3	>30 KV/mm	163°C

Part No.	Ord.No.
S IB 6	13290

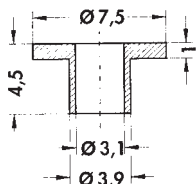
### IB 1



Part No.	Suitable for	Insulating Voltage	Temperature
IB 1	TO-3	>30 KV/mm	170°C

Part No.	Ord.No.
S IB 1	13289

### IB 14

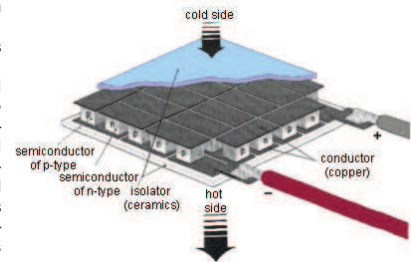


Part No.	Suitable for	Insulating Voltage	Temperature
IB 14	TO-3	>38 KV/mm	200°C

Part No.	Ord.No.
S IB 14	22518

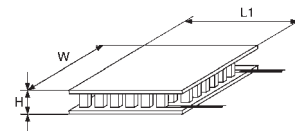
## Peltier Modules

Peltier modules, also known as thermoelectric modules, are small solid-state devices that function as heat pumps. When a DC current is applied heat is moved from one side of the device to the other - where it must be removed with a heatsink. The "cold" side is commonly used to cool an electronic device such as a microprocessor or a photodetector. If the current is reversed the device makes an excellent heater.



### Advantages:

- No moving parts
- Small and lightweight
- Maintenance free
- Solid state reliability
- Acoustically silent and electrically "quiet"
- Heating or cooling
- Wide operating temperature range
- Highly precise temperature control
- Low power requirements (DC powered)
- Localized (spot) cooling
- Processing temperatures to 200°C
- Operation in any orientation
- Operation in zero gravity and high G-levels
- Environmentally friendly



### Applications:

- For avionics/electronic package cooling
- Compact heat exchangers
- Precision device cooling (lasers and microprocessors)
- Long lasting cooling devices
- Small portable/stationary refrigeration
- Wafer thermal characterization
- Silicon wafer cooling
- Charge coupled device coolers
- Constant temperature baths
- Dewpoint hygrometers
- Electrophoresis cell coolers
- Infrared detectors
- Integrated circuit coolers
- Laser diode coolers

6300 / 127 / 060AX						
1.	2.	3.	4.	5.	6.	7.
<b>1. Product Line</b>						
63 = 150°C Maximum operating temperature						
95 = 200°C Maximum operating temperature						
<b>2. Shape</b>						
0 = Standard module						
1 = Undesignated						
2 = 2 stage module						
3 = 3 stage module						
<b>3. Classification number</b>						
0 = Standard module						
1 = Small size module						
2 = Miniature module						
3 = Modules configured for laser diode applications						
4 = High current module						
<b>4. Number of couples</b>						
<b>5. Maximum current</b>						
0.1 Ampere increments						
<b>6. Substrate specification</b>						
<b>A. Standard type—plain ceramic surface</b>						
■ Miniature module (+0.15mm height tolerance)						
■ Standard module (+0.25mm height tolerance)						
■ 2 stage module (+0.35mm height tolerance)						
<b>B. Lapped type – plain ceramic surface</b>						
■ Miniature module (No specification)						
■ Standard module (+0.025mm height tolerance)						
■ 2 stage module (+0.25mm height tolerance)						
<b>H. Solderable metalized ceramic on hot side external surface</b>						
<b>M. Solderable metalized ceramic on both hot and cold side external surface</b>						
<b>7. Options</b>						
S = RTV seal						

Part No.	I <sub>max</sub> [A]	Q <sub>max</sub> [W]	V <sub>max</sub> [V]	DT <sub>max</sub> [°C]s	W [mm]	L [mm]	H [mm]
PELTIER 6300/127/040	4	38	17,5	72	39,7	39,7	4,16
PELTIER 6300/127/060	6	57	17,5	72	39,7	39,7	4,16
PELTIER 6300/127/085	8,5	80	17,5	72	39,7	39,7	3,94
PELTIER 6301/127/030	3	29	15	72	30	30	4,16
PELTIER 6301/127/040	4	36	15	72	30	30	4,16

Part No.	Ord.No.
S PELTIER 6300/127/040	1828
S PELTIER 6300/127/060	1829
S PELTIER 6300/127/085	1830
S PELTIER 6301/127/030	52478
S PELTIER 6301/127/040	52479



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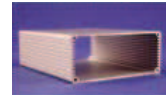
e-mail:  
sales@soselectronic.com  
info@soselectronic.com

fax:  
+421 55 78 604 45

technical support:  
technik@soselectronic.com

## Electronic Enclosures and Assembling Material

HAMMOND Enclosures



J 2

TEKO Enclosures



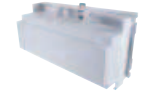
J 12

ECONOMIC Enclosures



J 19

DIN Rail Enclosures



J 31

Assembling Material



J 34



## Enclosures

We are glad to present on the following pages a wide range of plastic and metal enclosures for many different applications - hard industrial environments including. We have prepared a list of important terms and features of well known materials, which we hope will help you to choose the right enclosure for your applications.

### Basic terms and definitions

#### Polystyrene (abbreviated PS)

- is partly amorphous thermoplastic substance. Pure solid polystyrene is a colorless, hard plastic with limited flexibility. It is resistant to aqueous alkalis, as well as mineral acids and most water solutions resistant. In general the polystyrene is not resistant against organic solvents and it's sensitive to UV radiance. The regular polystyrene is hard, sensitive to impact and his features quickly deteriorate by the influence of the time and atmospheric exposures. It can be used up to 70°C temperature, but because of the fast ageing process it is used only up to 55°C. The polystyrene is used in electrotechnics for its good insulating properties. Except cable insulation it is used also in switch, choke, or enclosure production etc.

#### Acrylonitrile butadiene styrene (abbreviated ABS)

- is a common thermoplastic copolymer. The most important mechanical properties of ABS are resistance and toughness. Impact resistance does not fall off rapidly at lower temperatures. It can be used up to 90°C temperature. Even though ABS plastics are used largely for mechanical purposes, they also have good electrical properties that are fairly constant over a wide range of frequencies.

#### Polycarbonate (abbreviated PC)

- in contrast to other thermoplastic substances the PC do not contain toxic additions. The advantage is its mechanical resistance, UV stability and wide range of temperature (-150°C up to +128°C).

### Features of plastic materials

Features	ABS	ABS self extinguishing	Poly-styrene	Poly-carbonate	Fiber reinforced polyester
<b>Heat deflection temperature:</b>					
At 455 KPA	96°C	85°C	87°C	140°C	200°C
At 1820 KPA	83°C	74°C	-	131°C	-
Vican softening temperature	103°C	88°C	95°C	154°C	-
Flame characteristics	HB	V0	HB	HB	V0
Specific volume resistance Ohm/cm	10 E15	10 E13	10 E16	10 E16	10 E15

### Resistance of material to different media

Material	Polystyrene	ABS	ABS self extinguishing	Poly-carbonate
Gasoline	-	0	0	-
Diesel oil	-	+	+	0
Sea water	+	+	+	-
HCl, 10%	+	+	0	+
Weak alkaline	+	+	+	-
Strong alkaline solution	+	+	+	-
Atmospheric influences	0	0	0	+
Lactic acid	+	+	+	+
Acetone	-	-	-	-

Value at room temperature: + = stable, 0 = relatively stable, - = unstable

*Simultaneous exposure to different media may alter the resistive properties of a material! To be safe, it is advisable to test the cases for sufficient resistance to the material under the condition of the specific application.*

## Flammability rating

### Testing specifications for vertical burn

Test samples: 125x13x0,7mm (standard)

- Two sets of 5 test samples are tested.
- The first set is being prepared 48 hours at 23°C and 50% relative humidity before the testing.
- The second set is being prepared 7 days at 70°C before testing.
- Each test sample's longer side is held vertically.
- The distance between the test sample and Bunsen burn is 10mm.
- The blue burner flame is applied in the middle of the set sample lower edge for 10 seconds.
- Cotton is placed 300mm from the test sample.

#### UL94V-0

- Burning stops within 10 seconds after an application of a flame to a test sample.
- The total time of the flame burning is not longer than 50 seconds for 10 applications of a flame at each 5 test samples.
- No test samples emit burning particles.
- The test sample may not smoulder longer than 30 seconds after the second flame removal.

#### UL94V-1

- Burning stops within 30 seconds after an application of a flame to a test sample.
- The total time of the flame burning is not longer than 250 seconds for 10 applications of a flame at each 5 test samples.
- No test samples emit burning particles.
- The test sample may not smoulder longer than 60 seconds after the second flame removal.

#### UL94V-2

- Burning stops within 30 seconds after an application of a flame to a test sample.
- The total time of the flame burning is not longer than 250 seconds for 10 applications of a flame at each 5 test samples.
- No test samples emit burning particles.
- The test sample may not smoulder longer than 60 seconds after the second flame removal.

### Testing specifications for horizontal burn

Dimensions of test samples: 125x13x1,5mm, 125x13x6,0mm

- 3 test samples of each thickness are tested.
- The testing set is being prepared 48 hours at 23°C and 50% relative humidity before the testing.
- Each test sample's longer side is held horizontally and the shorter one at 45° angle.
- There are two marks on the sample: 25 and 100mm from the edge (free end).
- The distance between the test sample and Bunsen burn is 10mm.
- 20mm long blue burn flame is applied for 30 seconds.
- When the test sample starts to burn, the burn time will be measured from mark 25 till burn sample reaches mark 100mm (a burn rate is calculated in mm/min).

#### UL94HB

- The burn rate may not overreach 40mm/min for test samples of 3 up to 13mm thick or
- The burn rate may not overreach 75mm/min for test samples of less than 3mm thick or
- The flame has to die down before reaching 100mm mark.

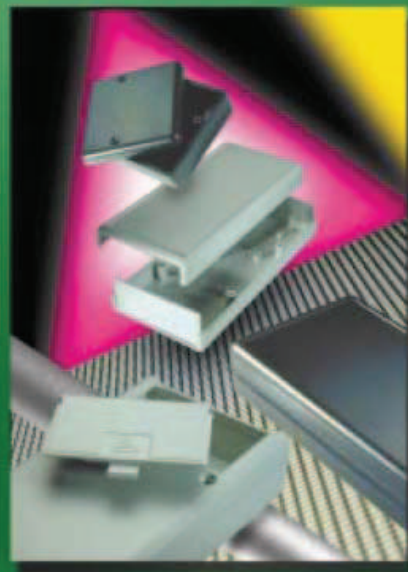
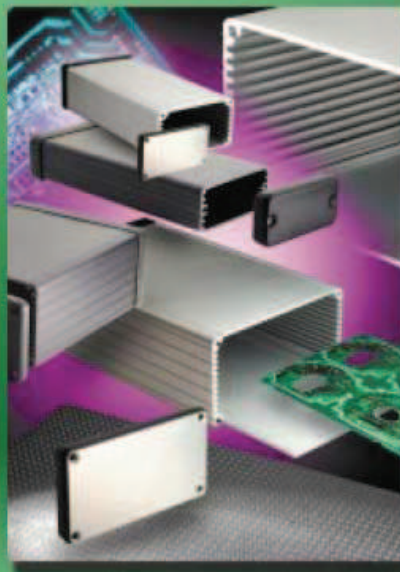


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HAMMOND  
MANUFACTURING™

# Electronic Enclosures



Electronic Enclosures and Assembling Material

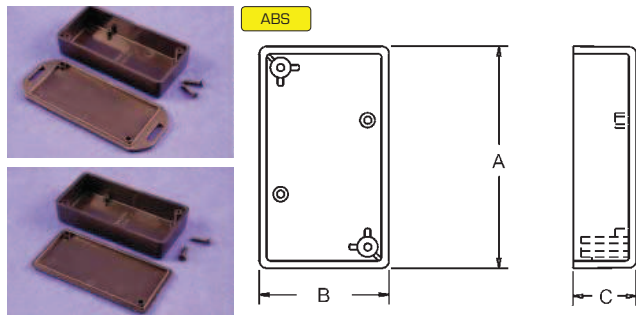
## HAMMOND Plastic Enclosures

### 1551 Series



#### Key Features:

- Ideally suited for mounting small PCBs or used as potting boxes.
- Molded in a choice of black or grey - general purpose ABS plastic.
- Satin texture finish.
- Complete with lid and two self tapping screws.
- This Series is also available with flanged lids.
- Screws are color matched to enclosure (nickel plated screws with grey enclosures and black plated with black enclosures).
- 2 P.C. board standoffs molded into interior.
- Protection against access of dust and splashing water, designed to meet IP54.
- Three sizes (see tables below) are available with a keyring kit.
- Models with key ring kit are predrilled in the narrow side.



Part No.	Description, dimensions A x B x C
1551GBK	Enclosure ABS 50x35x20mm IP54 black
1551GFLBK	Enclosure ABS 50x35x20mm IP54 black, flanged lid
1551GFLGY	Enclosure ABS 50x35x20mm IP54 grey, flanged lid
1551GGY	Enclosure ABS 50x35x20mm IP54 grey
1551GTBU	Enclosure ABS 50x35x20mm IP54 translucent blue
1551HBK	Enclosure ABS 60x35x20mm IP54 black
1551HFLBK	Enclosure ABS 60x35x20mm IP54 black, flanged lid
1551HFLGY	Enclosure ABS 60x35x20mm IP54 grey, flanged lid
1551HGY	Enclosure ABS 60x35x20mm IP54 grey
1551HTBU	Enclosure ABS 60x35x20mm IP54 translucent blue
1551LGY	Enclosure ABS 80x40x15mm IP54 grey
1551KBK	Enclosure ABS 80x40x20mm IP54 black
1551KFLBK	Enclosure ABS 80x40x20mm IP54 black, flanged lid
1551KFLGY	Enclosure ABS 80x40x20mm IP54 grey, flanged lid
1551KGY	Enclosure ABS 80x40x20mm IP54 grey
1551KTBU	Enclosure ABS 80x40x20mm IP54 translucent blue
1551MBK	Enclosure ABS 35x35x20mm IP54 black
1551MFLBK	Enclosure ABS 35x35x20mm IP54 black, flanged lid
1551MFLGY	Enclosure ABS 35x35x20mm IP54 grey, flanged lid
1551MGY	Enclosure ABS 35x35x20mm IP54 grey
1551RGY	Enclosure ABS 50x50x20mm IP54 grey

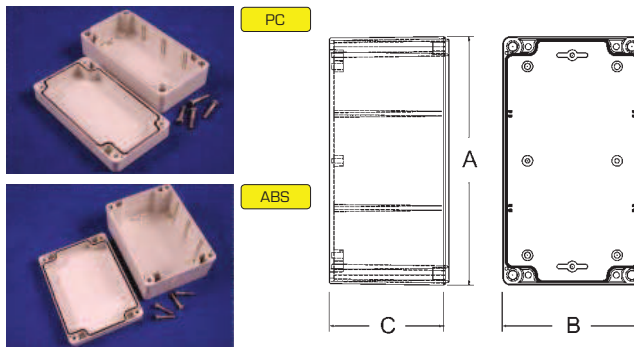
Part No.	Ord.No.
O 1551GBK	58212
O 1551GFLBK	73330
O 1551GFLGY	73331
O 1551GGY	58214
O 1551GTBU	73335
O 1551HBK	58213
S 1551HFLBK	54720
O 1551HFLGY	73043
O 1551HGY	58215
O 1551HTBU	73337
S 1551LGY	54717
S 1551KBK	56860
S 1551KFLBK	54719
O 1551KFLGY	73042
S 1551KGY	56861
O 1551KTBU	73338
O 1551MBK	73324
O 1551MFLBK	73326
O 1551MFLGY	73327
O 1551MGY	73325
S 1551RGY	54718

### 1554 Series



#### Key Features:

- Ideally suited for mounting PCBs or DIN rail mounted components
- Material - General purpose ABS plastic (material carries a UL flammability rating of UL94 HB). Not recommended for outdoor use
- Color is a light gray (RAL 7035).
- Gasketed lid with two piece "tongue & groove" construction provides protection against access of oil, dust and water.
- Gasket is factory poured using high temperature U.L. listed - silicone rubber gasket material.
- Designed to meet IP 66 & NEMA 4, 4X, 12 & 13 ratings.
- Lid is secured with self capturing - M4 stainless steel machine screws (included), threaded into integral stainless steel bushings (for repetitive assembly & disassembly). All stainless steel hardware to avoid corrosion caused by dissimilar metals.
- Lid screws are self capturing (lid holes are threaded with the first installation of lid screws).



Part No.	Description, dimensions A x B x C
1554C2GY	Enclosure Polycarbonate 120x65x40mm IP66 grey, waterproof
1554C2GYCL	Enclosure Polycarbonate 120x65x40mm IP66 clear lid
1554FGY	Enclosure ABS 120x90x60mm IP66 grey, waterproof

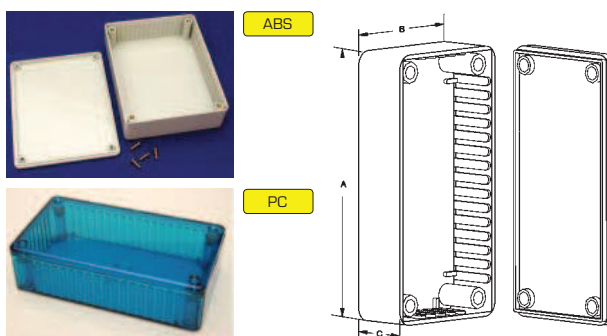
Part No.	Ord.No.
S 1554C2GY	54711
S 1554C2GYCL	71858
S 1554FGY	54712

### 1591 Series



#### Key Features:

- Electronic instrument enclosures, ideally suited for mounting printed circuit boards.
- Integral card guides accept 1.5 mm (0.062") P.C. cards.
- Lap joint construction provides protection against access of dust and splashing water.
- Designed to meet IP54
- Molded from economical black or grey plastic
- Lid is secured with self-tapping #4 x 0.5" philips screws (black screws included with black enclosures, nickel finish included with grey enclosures).



Part No.	Description, dimensions A x B x C
1591ABK	Enclosure ABS 100x50x25mm IP54 black
1591AFLBK	Enclosure ABS 100x55x25mm black, flanged lid
1591AGY	Enclosure ABS 100x50x25mm IP54 grey
1591ATRD	Enclosure Polycarbonate 100x50x25mm IP54 red clear
1591BBK	Multipurpose ABS Enclosure 112x62x27 black
1591BFLBK	Enclosure ABS 112x62x31mm black, flanged lid
1591BGY	Enclosure ABS 112x62x31mm IP54 grey
1591BTBU	Enclosure Polycarbonate 112x62x31mm IP54 blue clear
1591CBK	Enclosure ABS 120x65x40mm IP54 black
1591CFLBK	Enclosure ABS 120x65x40mm black, flanged lid
1591CGY	Enclosure ABS 120x65x40mm IP54 grey
1591DBK	Enclosure ABS 150x80x50mm IP54 black

Part No.	Description, dimensions A x B x C
1591DFLBK	Enclosure ABS 150x80x50mm black, flanged lid
1591DGY	Enclosure ABS 150x80x50mm IP54 grey
1591EBK	Enclosure ABS 191x110x61mm IP54 black
1591EFLBK	Enclosure ABS 191x110x61mm black, flanged lid
1591EGY	Enclosure ABS 191x110x61mm IP54, Grey
1591GBK	Enclosure ABS 121x94x34mm IP54 black
1591GGY	Enclosure ABS 121x94x34mm IP54 grey
1591LBK	Enclosure ABS 85x56x39mm IP54 black
1591LFLBK	Enclosure ABS 85x56x39mm black, flanged lid
1591LGY	Enclosure ABS 85x56x39mm IP54 grey
1591LSBK	Enclosure plastic 85x56x39mm IP54 black
1591MBK	Enclosure ABS 85x56x25mm IP54 black
1591MFLBK	Enclosure ABS 85x56x25mm black, flanged lid
1591MGY	Enclosure ABS 85x56x25mm IP54 grey

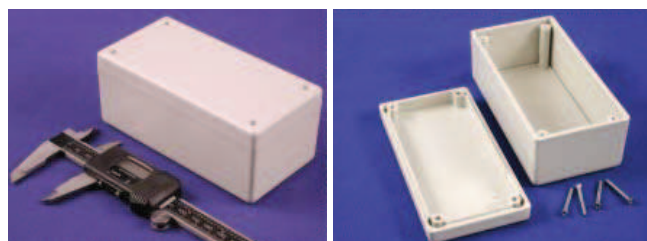
Part No.	Ord.No.
O 1591ABK	58229
O 1591AFLBK	73350
O 1591AGY	58234
S 1591ATRD	54660
O 1591BBK	55539
O 1591BFLBK	64430
S 1591BGY	58236
S 1591BTBU	54659
O 1591CBK	58231
O 1591CFLBK	73351
O 1591CGY	58237
O 1591DBK	73347
O 1591DFLBK	73352
O 1591DGY	73346
S 1591EBK	54641
O 1591EFLBK	73353
S 1591EGY	59543
S 1591GBK	54656
S 1591GGY	54658
S 1591LBK	54657
O 1591LFLBK	73349
O 1591LGY	58233
S 1591LSBK	71201
O 1591MBK	58228
O 1591MFLBK	73348
O 1591MGY	58232

## 1594 Series



### Key Features:

- Rugged electronic instrument enclosures, ideally suited for mounting PCBs.
- Heavy duty, thick wall design with an average wall thickness of 3.3 mm/0.13".
- Molded from flame retardant ABS plastic (carries a UL flammability rating of 94V-0).
- Designed to meet IP54.
- Countersunk lid is secured with four M3 x 0.5 - 0.71" (18 mm) long, Philips machine screws threaded into integral brass bushings. Perfect for applications with repetitive assembly and disassembly are required.
- Stocked in black and grey with matte textured finish.



ABS

Part No.	Description, dimensions A x B x C
1594ABK	Enclosure heavy duty ABS IP54 56x56x40mm black
1594BBK	Enclosure heavy duty ABS IP54 81x56x40mm black
1594CBK	Enclosure heavy duty ABS IP54 105x66x45mm black
1594DBK	Enclosure heavy duty ABS IP54 131x66x55mm black
1594EBK	Enclosure heavy duty ABS IP54 167x107x65mm black

Part No.	Ord.No.
O 1594ABK	61484
O 1594BBK	73582
O 1594CBK	73584
O 1594DBK	73585
O 1594EBK	73587

## 1597 Series



### Key Features:

- Takachi, Snap-Together Enclosures :
- manufactured by Japanese agent - stocked by Hammond
- molded in ABS plastic
- unique rounded side - two piece molded construction
- top & bottom "snap" together
- includes molded in keyhole knockout areas (2) for mounting either vertically or horizontally.
- bottom half includes 6 molded in, P.C. board standoffs



ABS

Part No.	Description, dimensions A x B x C
1597DGY	Enclosure ABS 125x180x35mm grey TAKACHI

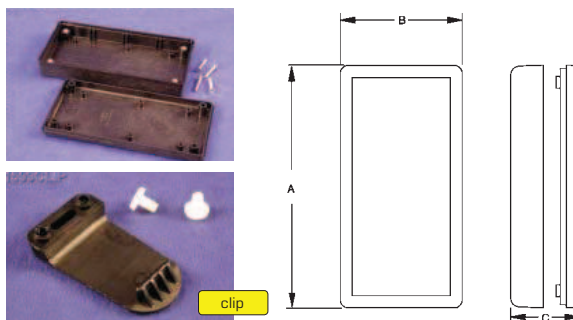
Part No.	Ord.No.
S 1597DGY	71202

## 1599 Series



### Key Features:

- Attractively styled and ergonomically designed for use as a "hand-held" instrument enclosure.
- Molded from flame retardant ABS plastic (material carries a UL flammability rating of 94V-0).
- Recessed top for membrane display or pad.
- Lap joint construction provides protection against dust accumulation and splashing water.
- Extra deep top and ultra shallow base are specifically designed to enhance the aesthetics of the enclosure and provide the user with flexibility and assembly efficiency.
- Designed to meet IP54.
- Lid is secured with Philips machine screws, threaded into tapped integral brass bushings. Perfect for applications with repetitive assembly and disassembly are required.
- Two keyhole knockouts are molded into the inside of the base to facilitate wall mounting installation.



ABS

Part No.	Description, dimensions A x B x C
1599BBK	Enclosure ABS, IP54, 130x65x25mm black
1599BGY	Enclosure ABS, IP54, 130x65x25mm grey
1599BSGY	Enclosure polystyrene 130x65x25mm grey
1599CLIP	Belt/pocket clip for HAMMOND 1599, Nylon, Black
1599CLIPGY	Belt/pocket clip for HAMMOND 1599, Nylon, Grey
1599EBK	Enclosure ABS, IP54, 170x85x34mm black
1599EGY	Enclosure ABS, IP54, 170x85x34mm grey
1599ESGY	Enclosure polystyrene 170x85x34mm grey
1599HBK	Enclosure ABS, IP54, 220x110x44mm black
1599HGY	Enclosure ABS, IP54, 220x110x44mm grey
1599KBK	Enclosure ABS, IP54, 220x140x40,5mm black
1599KGY	Enclosure ABS, IP54, 220x140x40,5mm grey

## 1599 Series (continued)

Part No.	Ord.No.
o 1599BBK	58245
o 1599BGY	58246
o 1599BSGY	58054
s 1599EBK	58247
s 1599EGY	58248
s 1599ESGY	58058
o 1599HBK	58249
o 1599HGY	58250
o 1599KBK	73589
o 1599KGY	73590
Clips	
s 1599CLIP	59966
s 1599CLIPGY	55489

## RL Series



RITEC - project enclosures:

- designed to house P.C. boards - for hand-held use or wall mount
- molded in light grey - general purpose ABS plastic with a light texture
- two part construction
- both halves include smooth recessed area for membrane, label or silkscreen
- P.C. board standoffs are molded into both halves of the enclosure
- designed to meet IP54.
- flanged lid version
- includes four - M3 assembly screws



ABS IP54 flanged lid

Part No.	Description, dimensions A x B x C
RL6115-F	Enclosure ABS, IP54, 80x60x40mm grey, flanged lid
RL6225-F	Enclosure ABS, IP54, 125x80x50mm grey, flanged lid
RL6335-F	Enclosure ABS, IP54, 125x100x60mm grey, flanged lid
RL6365-F	Enclosure ABS, IP54, 125x100x90mm grey, flanged lid
RL6435-F	Enclosure ABS, IP54, 150x100x60mm grey, flanged lid
RL6465-F	Enclosure ABS, IP54, 150x100x90mm grey, flanged lid
RL6555-F	Enclosure ABS, IP54, 175x125x70mm grey, flanged lid

Part No.	Ord.No.
s RL6115-F	73614
s RL6225-F	73615
s RL6335-F	73616
s RL6365-F	73617
s RL6435-F	73618
s RL6465-F	73619
s RL6555-F	73620

## RM Series



RITEC - instrument ABS plastic enclosures:

- designed to house P.C. boards - for instrument use
- molded in light grey - general purpose ABS plastic with a light texture (front & rear panels are smooth)
- two part - clam shell construction
- bottom half includes molded in standoffs for easy P.C. board installation
- larger enclosures also include P.C. board standoffs on the top half
- four short M3 screws included
- front & rear panels are interchangeable and easily removable for modifications
- tongue and groove construction provides protection against dust & water
- designed to meet IP43



ABS

Part No.	Description, dimensions A x B x C
RM2015M	Enclosure ABS, IP43, 130x100x50mm grey
RM2015S	Enclosure ABS, IP43, 130x100x30mm grey
RM2055M	Enclosure ABS, IP43, 190x140x50mm grey
RM2055S	Enclosure ABS, IP43, 190x140x30mm grey
RM2095M	Enclosure ABS, IP43, 250x180x75mm grey
RM2095S	Enclosure ABS, IP43, 250x180x50mm grey

Part No.	Ord.No.
s RM2015M	73592
s RM2015S	73591
s RM2055M	73595
s RM2055S	73594
s RM2095M	73598
s RM2095S	73597

## RP Series



RITEC - watertight ABS plastic:

- ideally suited for mounting printed circuit boards or DIN rail mounted components
- material - general purpose ABS plastic (material carries a UL flammability rating of UL94 HB)
- color is a light gray with a light texture
- gasketed lid with two piece "tongue & groove" construction provides protection against access of oil, dust and water
- rubber gasket is included and must be field installed
- lid includes smooth recessed area for membrane, label or silkscreen
- designed to meet IP 65
- lid is secured with self captivating - M3.5 stainless steel machine screws (included), threaded into integral stainless steel bushings (for repetitive assembly & disassembly). All stainless steel hardware to avoid corrosion caused by dissimilar metals.



ABS IP65

Part No.	Description, dimensions A x B x C
RP1025	Enclosure ABS, IP65, 65x60x40mm grey
RP1065	Enclosure ABS, IP65, 85x80x55mm grey
RP1155	Enclosure ABS, IP65, 105x75x55mm grey, deep lid
RP1175	Enclosure ABS, IP65, 165x85x55mm grey
RP1245	Enclosure ABS, IP65, 165x125x75mm grey

Part No.	Ord.No.
s RP1025	73600
s RP1065	73601
s RP1155	73605
s RP1175	73608
s RP1245	73609

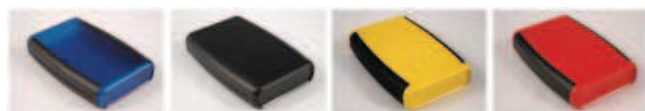
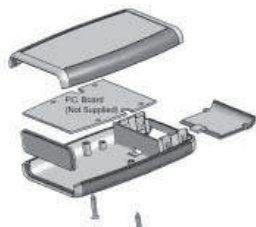
## HAMMOND Hand Held Enclosures

### 1553 Series



#### Key Features:

- Choice of two versions (with or without battery door & compartment) - in two sizes.
- Choice of four colors: black, translucent blue (translucent to blue, white and near white LEDs, readouts & displays), red, "safety" yellow
- Molded in general purpose ABS plastic with a black overmold, soft plastic grip.
- Top cover is recessed for membrane display or keypad.
- P.C. board standoffs are molded into case
- Includes removable front panel (for easy modifications) and assembly hardware.
- Battery door & compartment version includes 4 battery clips (for 2 - AA batteries) and a 9 volt (PP3) battery clip.



Part No.	Description, dimensions A x B x C
1553BBK	Enclosure ABS 117x79x24mm black, soft-sided
1553BBKBAT	Enclosure ABS 117x79x24mm black, soft-sided, battery
1553BGY	Enclosure ABS 117x79x24mm grey, soft-sided
1553BGYBAT	Enclosure ABS 117x79x24mm grey, soft-sided, battery
1553BRDBK	Enclosure ABS 117x79x24mm red, soft-sided
1553BTBUBK	Enclosure ABS 117x79x24mm TransBlue, soft-sided
1553BTBUBKBAT	Enclosure ABS 117x79x24mm translucent blue+battery
1553BYLBK	Enclosure ABS 117x79x24mm yellow, soft-sided
1553DBK	Enclosure ABS 147x89x24mm black, soft-sided
1553DBKBAT	Enclosure ABS 147x89x24mm black, soft-sided, battery
1553DGY	Enclosure ABS 147x89x24mm soft sided hand held
1553DGYBAT	Enclosure ABS 147x89x24mm soft sided hand held
1553DTBUBK	Enclosure ABS 147x89x24mm translucent blue, soft-sided
1553DTBUBKBAT	Enclosure ABS 147x89x24mm translucent blue+battery

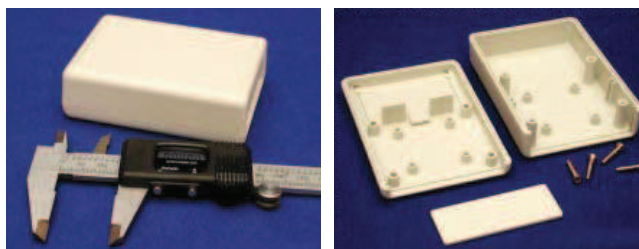
Part No.	Ord.No.
S 1553BBK	54708
S 1553BBKBAT	58072
S 1553BGY	54709
S 1553BGYBAT	55540
S 1553BRDBK	63243
S 1553BTBUBK	63244
O 1553BTBUBKBAT	73340
S 1553BYLBK	63245
S 1553DBK	59985
S 1553DBKBAT	54710
S 1553DGY	55461
S 1553DGYBAT	60424
O 1553DTBUBK	65279
O 1553DTBUBKBAT	73339

### 1593 Series

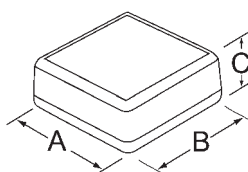


#### Key Features:

- Ergonomically designed for a comfortable fit into the user's hand.
- Recessed top for membrane display or pad.
- Units with battery door use our long life "three snap" door.
- Lap joint construction provides protection against dust accumulation and splashing water.
- ABS plastic with a satin texture.
- Unit is secured with self tapping screws.



ABS



Part No.	Description, dimensions A x B x C
1593JBK	Enclosure ABS hand held, 66x66x28mm, black
1593JGY	Enclosure ABS hand held, 66x66x28mm, grey
1593JTBU	Enclosure ABS hand held, 66x66x28mm, translucent blue
1593KBK	Enclosure ABS hand held, 66x66x28mm, black
1593KGY	Enclosure ABS hand held, 66x66x28mm, grey
1593KTBU	Enclosure ABS hand held, 66x66x28mm, translucent blue
1593LBK	Enclosure ABS hand held, 92x66x28mm, black
1593LGY	Enclosure ABS hand held, 92x66x28mm, grey
1593LTBU	Enclosure ABS hand held, 92x66x28mm, translucent blue
1593PBK	Enclosure ABS hand held, 92x66x28mm black, battery cover
1593PGY	Enclosure ABS hand held, 92x66x28mm, grey, battery door
1593PTBU	Enclosure ABS hand held, 92x66x28mm, trans.blue + battery
1593QBK	Enclosure ABS hand held, 112x66x28mm, black, battery door
1593QGY	Enclosure ABS hand held, 112x66x28mm, grey, battery door
1593QTBU	Enclosure ABS hand held, 112x66x28mm, trans.blue + battery
1593SBK	Enclosure ABS hand held, 92x66x21mm black, battery cover
1593SGY	Enclosure ABS hand held, 92x66x21mm grey, battery cover
1593STBU	Enclosure ABS hand held, 92x66x21mm, transluc.blue + bat.

Part No.	Ord.No.
O 1593JBK	55760
O 1593JGY	73572
O 1593JTBU	73576
S 1593KBK	58242
O 1593KGY	58241
O 1593KTBU	73577
O 1593LBK	71097
O 1593LGY	73575
O 1593LTBU	73579
S 1593PBK	54704
S 1593PGY	60891
O 1593PTBU	73580
O 1593QBK	55365
O 1593QGY	58238
O 1593QTBU	73581
O 1593SBK	73573
O 1593SGY	73574
O 1593STBU	73578



## HAMMOND Extruded Aluminium Enclosures



### 1455 Series

#### Key Features:

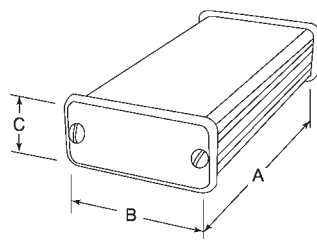
- Designed to house P.C. boards or for equipment interfacing.
- Sized for standard Eurocards.
- P.C. boards mount horizontally by sliding into internal slots extruded into the enclosure body.
- Rugged body constructed from extruded aluminum with a minimum thickness of .06" (1.5 mm).
- Extruded body includes a slide removable "belly" plate - except in smaller "C" sizes (ie..1455C801, 1455C1201 sizes)

#### Includes:

- Two aluminum end panels
- Two black ABS plastic bezels (your option to install)
- Extruded, anodized aluminum body (choice of either clear or black)
- All hardware and rubber feet

NOTE: Recommended screw torque is 5 lb/in

#### 1455 B

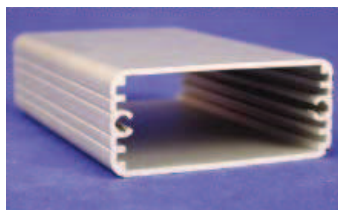


AL

Part No.	Description, dimensions A x B x C
1455B1002	AL enclosure with plastic ends 100x71,7x19mm
1455B1002BK	AL enclosure with plastic ends 100x71,7x19mm, black
1455B1202	AL enclosure with plastic ends 120x71,7x19mm
1455B1202BK	AL enclosure with plastic ends 120x71,7x19mm, black
1455B802	AL enclosure with plastic ends 80x71,7x19mm
1455B802BK	AL enclosure with plastic ends 80x71,7x19mm black

Part No.	Ord.No.
S 1455B1002	60193
S 1455B1002BK	60195
S 1455B1202	60197
S 1455B1202BK	60198
O 1455B802	73311
O 1455B802BK	73312

#### 1455 C



AL

Part No.	Description, dimensions A x B x C
1455C1201	AL enclosure with metal ends 120x54x23mm
1455C1201BK	AL enclosure 120x54x23mm black
1455C1202	AL enclosure with plastic ends 120x54x23mm
1455C801	AL enclosure 80x54x23mm
1455C801BK	AL enclosure 80x54x23mm, black
1455C802	AL enclosure with plastic ends 80x54x23mm
1455C802BK	AL enclosure with plastic ends 80x54x23mm black

Part No.	Ord.No.
S 1455C1201	56098
O 1455C1201BK	73310
S 1455C1202	56097
S 1455C801	56096
S 1455C801BK	60414
O 1455C802	56679
O 1455C802BK	70110

#### 1455 J

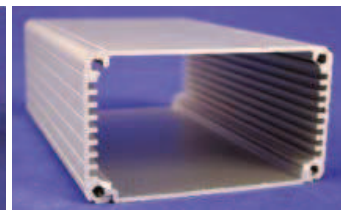


AL

Part No.	Description, dimensions A x B x C
1455J1201	AL enclosure 120x78x27mm
1455J1201BK	AL enclosure 120x78x27mm, black
1455J1202	AL enclosure with plastic ends 120x78x27mm
1455J1202BK	AL enclosure with plastic ends 120x78x27mm, black

Part No.	Ord.No.
S 1455J1201	58252
S 1455J1201BK	60417
S 1455J1202	55538
S 1455J1202BK	55731

#### 1455 K



AL

Part No.	Description, dimensions A x B x C
1455K1201	Al enclosure 120x78x43mm
1455K1201BK	Al enclosure 120x78x43mm black
1455K1202	AL enclosure with plastic ends 120x78x43mm
1455K1202BK	AL enclosure with plastic ends 120x78x43mm black

Part No.	Ord.No.
S 1455K1201	58253
O 1455K1201BK	58069
S 1455K1202	71196
O 1455K1202BK	73313

#### 1455 L

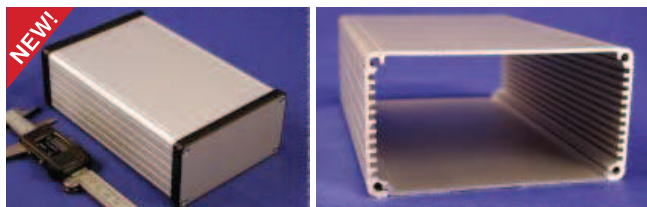


AL

Part No.	Description, dimensions A x B x C
1455L1201	AL enclosure 120x103x30,5mm
1455L1201BK	AL enclosure 120x103x30,5mm black
1455L1202	AL enclosure with plastic ends 120x103x30,5mm
1455L1202BK	AL enclosure with plastic ends 120x103x30mm black
1455L1601	AL enclosure 160x103x30,5mm
1455L2201	AL enclosure 220x103x30,5mm
1455LFBK	Aluminium holder for 1455L, black 39x103mm

Part No.	Ord.No.
O 1455L1201	58254
O 1455L1201BK	60580
O 1455L1202	73315
O 1455L1202BK	73314
S 1455L1601	60507
S 1455L2201	71197
S 1455LFBK	72932

## 1455 N

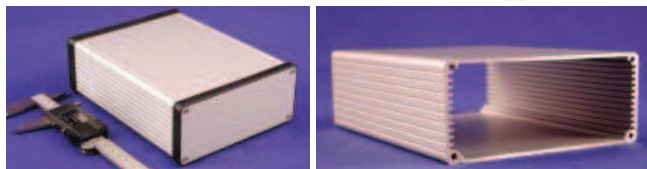


AL

Part No.	Description, dimensions A x B x C
1455N1201	AL enclosure 120x103x53mm
1455N1201BK	AL enclosure 120x103x53mm black
1455N1202	AL enclosure 120x103x53mm
1455N1202BK	AL enclosure with plastic ends 120x103x53mm, black
1455N1601	AL enclosure with metal ends 160x103x53mm
1455N1601BK	AL enclosure 160x103x53mm black
1455N1602	AL enclosure 160x103x53mm
1455N1602BK	AL enclosure with plastic ends 160x103x53mm, Black
1455N2201	AL enclosure 220x103x53mm
1455N2201BK	AL enclosure 220x103x53mm black

Part No.	Ord.No.
O 1455N1201	58255
O 1455N1201BK	59994
O 1455N1202	60467
S 1455N1202BK	59972
S 1455N1601	54706
O 1455N1601BK	59995
S 1455N1602	57016
S 1455N1602BK	59973
S 1455N2201	59981
O 1455N2201BK	56010

## 1455 Q

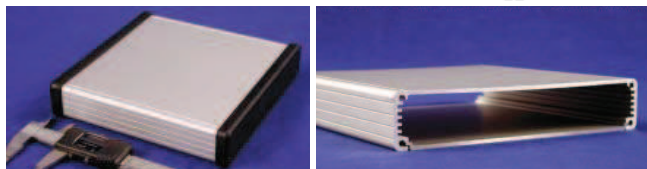


AL

Part No.	Description, dimensions A x B x C
1455Q1601	AL enclosure 160x120,5x51,5mm

Part No.	Ord.No.
S 1455Q1601	59983

## 1455 R

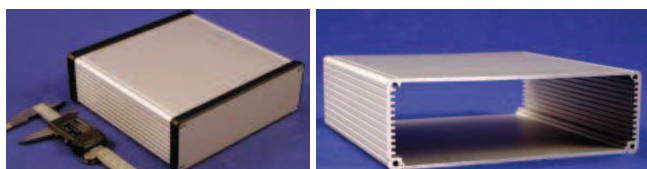


AL

Part No.	Description, dimensions A x B x C
1455R1602	AL enclosure with plastic ends 160x160x30,5mm

Part No.	Ord.No.
S 1455R1602	54707

## 1455 T

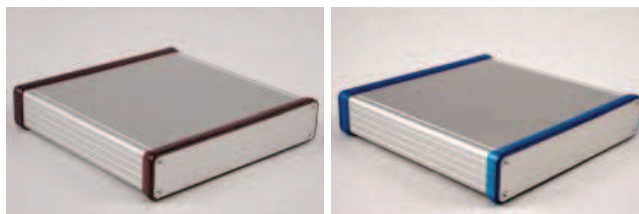


AL

Part No.	Description, dimensions A x B x C
1455T1601	AL enclosure with metal ends 160x160x51,5mm
1455T2201	AL enclosure with metal ends 220x160x51,5mm

Part No.	Ord.No.
S 1455T1601	55052
S 1455T2201	59984

We will supply also enclosures with colour plastic bezels - on the request.



## 1457 Series



### Key Features:

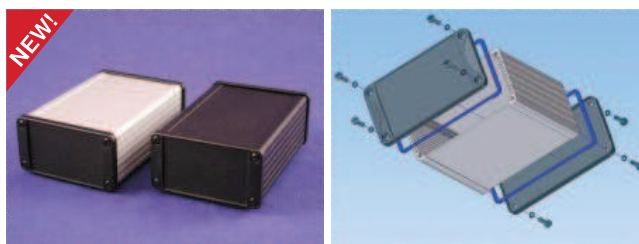
- Watertight - heavy duty extruded enclosures designed to house P.C. boards or for equipment interfacing.
- Sized for standard Eurocards.
- P.C. boards mount horizontally by sliding into internal slots extruded into the enclosure body.
- Rugged body constructed from one piece, extruded aluminum with a minimum thickness of .06" (1.5 mm).
- Extruded aluminum body includes a recessed area for labels or membrane keypad.
- End panels are rugged - yet easy to machine - diecast aluminum with full perimeter self-adhesive gaskets.
- Designed to meet IP 65 ratings.
- Choice of two versions - end panels without flange or flanged lid (for shelf or wall mounting).

### Includes:

- Two diecast aluminum end panels
- Extruded, aluminum body
- Two closed cell polyethylene foam - end plate gaskets & rubber "O" rings for assembly screws.

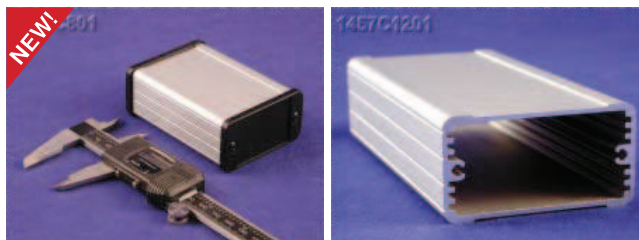
All hardware and self-adhesive feet.

NOTE: Recommended screw torque is 5 lbf/in



IP65 AL

## 1457 C



IP65 AL

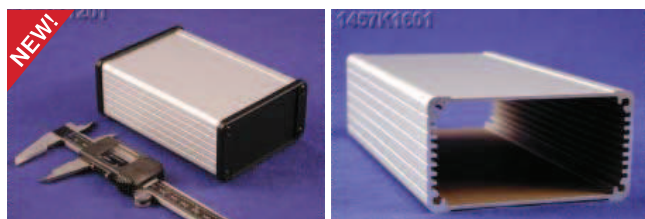
Part No.	Description, dimensions A x B x C
1457C1201	AL enclosure 120x59x30,9mm IP65
1457C801	AL enclosure 80x59x30,9mm IP65
1457C801BK	AL enclosure 80x59x30,9mm Black IP65

Part No.	Ord.No.
O 1457C1201	73299
O 1457C801	73296
O 1457C801BK	73298

## HAMMOND Extruded Aluminium Enclosures (continued)

### 1457 Series (continued)

1457 K

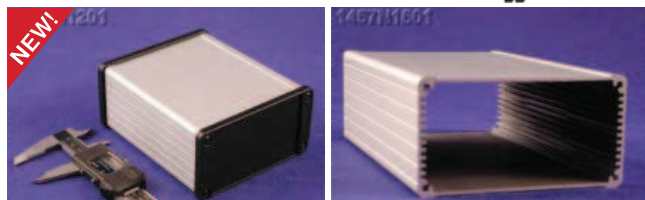


IP65 AL

Part No.	Description, dimensions A x B x C
1457K1201	AL enclosure 120x84x44,1mm IP65
1457K1601	AL enclosure 160x84x44,1mm IP65

Part No.	Ord.No.
o 1457K1201	73300
o 1457K1601	73301

1457 N



IP65 AL

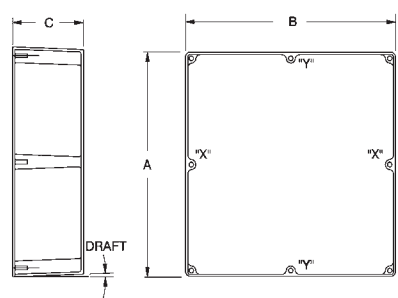
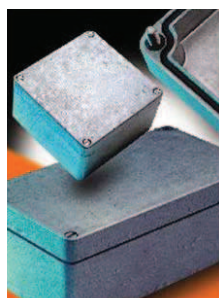
Part No.	Description, dimensions A x B x C
1457N1201	AL enclosure 120x104x54,6mm IP65
1457N1601	AL enclosure 160x104x54,6mm IP65

Part No.	Ord.No.
o 1457N1201	73302
o 1457N1601	73303

## 1590 Diecast Aluminium Series



- rugged, diecast aluminum alloy (tough - yet easy to machine), electronic instrument enclosure
- designed to meet IP54
- two part construction with 4 nickered screws
- lap joint construction provides protection against access of dust and splashing water. Also provides for improved EMI/RFI shielding
- unpainted version is vibra finished for a smooth surface with no sharp edges
- black painted version is painted with tough polyester powder paint for a lasting finish, even after machining. Paint is only applied to the exterior surface to maintain RFI/EMI integrity
- black screws are included to enhance appearance



1590 A

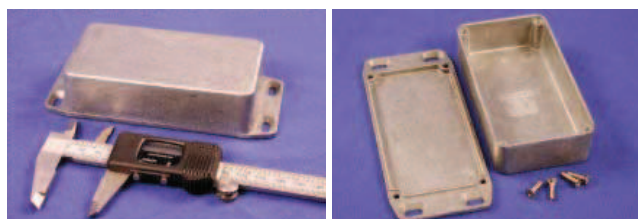


IP54 AL

Part No.	Description, dimensions A x B x C
1590A	Diecast Al enclosure 92,5x38,5x31mm, IP54
1590AFL	Diecast Al enclosure 93x39x31mm, IP54, flanged lid

Part No.	Ord.No.
o 1590A	58259
o 1590AFL	58263

1590 B



IP54 AL

Part No.	Description, dimensions A x B x C
1590B	Diecast Al enclosure 111,5x59,5x31mm IP54
1590BFL	Diecast Al enclosure 111,5x59,5x31mm IP54, flanged lid

Part No.	Ord.No.
s 1590B	54713
s 1590BFL	11696

1590 C

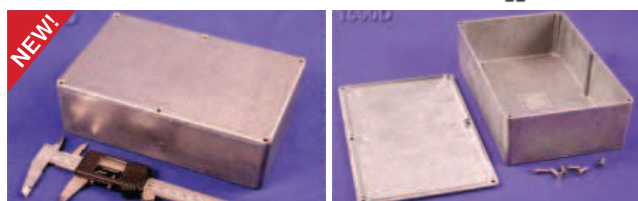


IP54 AL

Part No.	Description, dimensions A x B x C
1590C	Diecast Al enclosure 120x94x56,5mm IP54
1590CFL	Diecast Al enclosure 120x94x56,5 IP54, flanged lid

Part No.	Ord.No.
o 1590C	58260
s 1590CFL	54716

1590 D

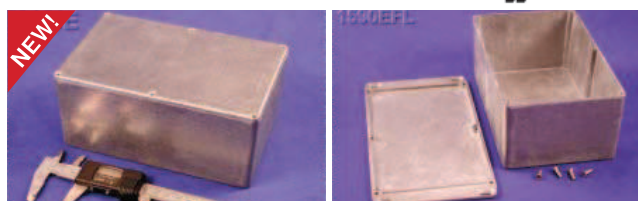


IP54 AL

Part No.	Description, dimensions A x B x C
1590D	Diecast Al enclosure 187,5x119,5x56 IP54
1590DFL	Diecast Al enclosure 188x120x56 IP54, flanged lid

Part No.	Ord.No.
o 1590D	58261
o 1590DFL	55306

1590 E

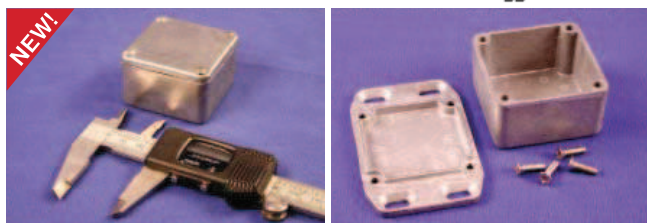


IP54 AL

Part No.	Description, dimensions A x B x C
1590E	Diecast Al enclosure 187,5x119,5x82 IP54
1590EFL	Diecast Al enclosure 188x120x82 IP54, flanged lid

Part No.	Ord.No.
o 1590E	58262
o 1590EFL	55307

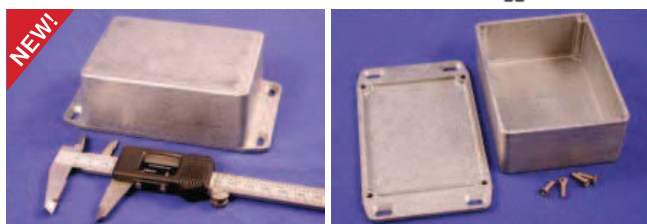
## 1590 LB



Part No.	Description, dimensions A x B x C
1590LB	Diecast AL enclosure 50,5x50,5x31mm IP54
1590LBFL	Diecast AL enclosure 51x51x27, IP54, flanged lid

Part No.	Ord.No.
S 1590LB	54747
S 1590LBFL	60427

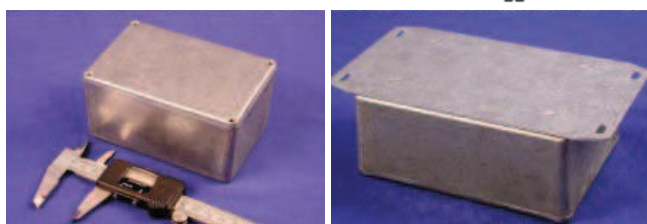
## 1590 SFL



Part No.	Description, dimensions A x B x C
1590SFL	Diecast AL enclosure 111x82x40, IP54, flanged lid

Part No.	Ord.No.
S 1590SFL	60431

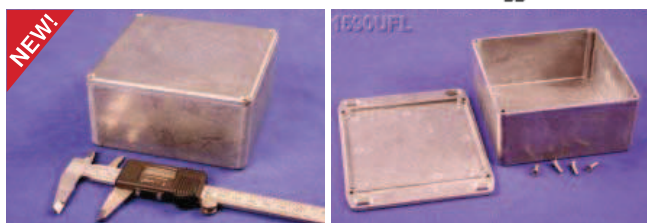
## 1590 T



Part No.	Description, dimensions A x B x C
1590T	Diecast AL enclosure 120,5x79,5x59mm IP54
1590TF	Diecast AL enclosure 121x80x59mm w/ bottom flanges IP54
1590TFBK	Diecast AL enclosure 120,5x79,5x59mm IP54 black, w/flange

Part No.	Ord.No.
S 1590T	54715
S 1590TF	71198
S 1590TFBK	58070

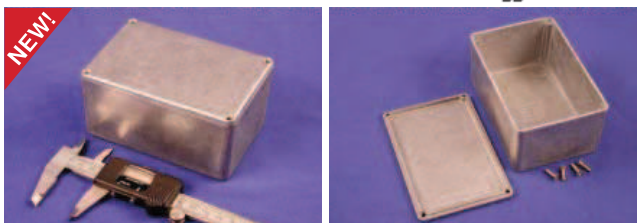
## 1590 U



Part No.	Description, dimensions A x B x C
1590U	Diecast AL enclosure 120x120x55, IP54
1590UFL	Diecast AL enclosure 120x120x55, IP54, flanged lid

Part No.	Ord.No.
S 1590U	60432
S 1590UFL	60433

## 1590 W



Part No.	Description, dimensions A x B x C
1590WT	Diecast AL enclosure 121x80x59mm IP65
1590WTBK	Diecast AL enclosure 121x80x59mm IP65 black

Part No.	Ord.No.
S 1590WT	71199
S 1590WTBK	71200

## 1590 Z



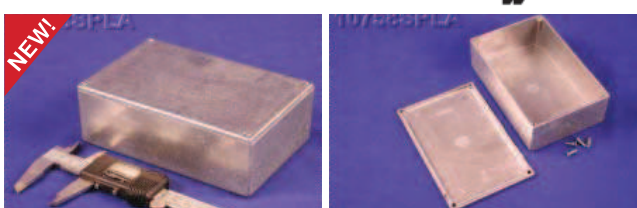
Part No.	Description, dimensions A x B x C
1590Z120	Diecast Al enclosure 125x80x45 + 15,5mm, IP54
1590Z130	Diecast Al enclosure 176x80x42 + 12mm, IP54
1590ZGRP081	Enclosure special polyester (+glass) 80x75x40mm IP65

Part No.	Ord.No.
S 1590Z120	60435
S 1590Z130	60437
S 1590ZGRP081	54598

## EDDYSTONE Series

- rugged, diecast aluminum alloy (tough - yet easy to machine), electronic instrument enclosure
- aluminum alloy to BS1490, LM2M - supplied in natural finish
- Eddystone designed
- lap joint construction provides protection against access of dust and splashing water, also provides excellent EMC performance
- lids are retained by 4 - M3.5 x 6 taptite screws (POZIDRIV No. 2)
- countersunk lid holes
- designed to meet IP54
- low side wall draft angle (2 degrees or less) for easy P.C. board mounting.

## 10758PSLA



Part No.	Description, dimensions A x B x C
10758PSLA	Diecast AL enclosure 145x95x49mm IP54

Part No.	Ord.No.
O 10758PSLA	58267

## 11130PSLA



Part No.	Description, dimensions A x B x C
11130PSLA	Diecast AL enclosure 125x125x79mm IP54

Part No.	Ord.No.
O 11130PSLA	73317

## HAMMOND Diecast Aluminium Enclosures (continued)

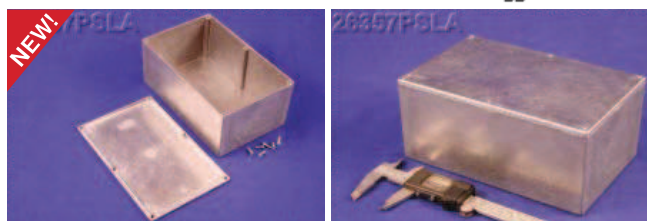
### EDDYSTONE Series (continued)

11451PSLA



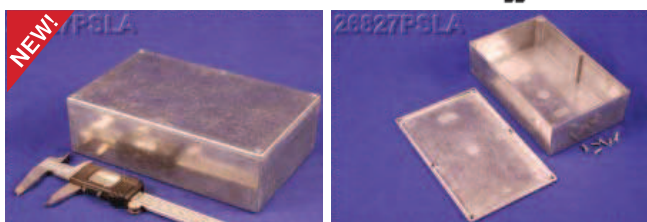
Part No.	Description, dimensions A x B x C
11451PSLA	Diecast AL enclosure 53x38x31mm IP54
Part No.	Ord.No.
o 11451PSLA	58264

26357PSLA



Part No.	Description, dimensions A x B x C
26357PSLA	Diecast AL enclosure 188x120x82mm IP54
Part No.	Ord.No.
o 26357PSLA	58269

26827PSLA



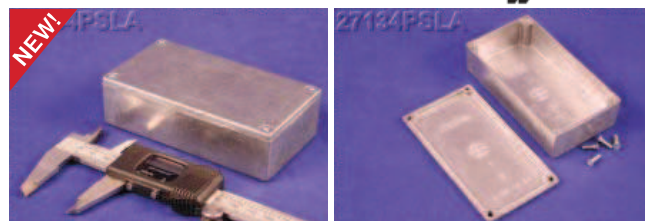
Part No.	Description, dimensions A x B x C
26827PSLA	Diecast AL enclosure 188x120x57mm IP54
Part No.	Ord.No.
o 26827PSLA	58268

26908PDLA / 26908PSLA



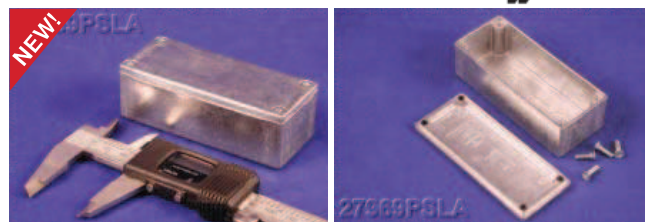
Part No.	Description, dimensions A x B x C
26908PDLA	Diecast AL enclosure 120x95x73.2mm IP54
26908PSLA	Diecast AL enclosure 120x95x57mm IP54
Part No.	Ord.No.
s 26908PDLA	58266
o 26908PSLA	73316

27134PSLA



Part No.	Description, dimensions A x B x C
27134PSLA	Diecast AL enclosure 111x60x31mm IP54
Part No.	Ord.No.
o 27134PSLA	58265

27969PSLA

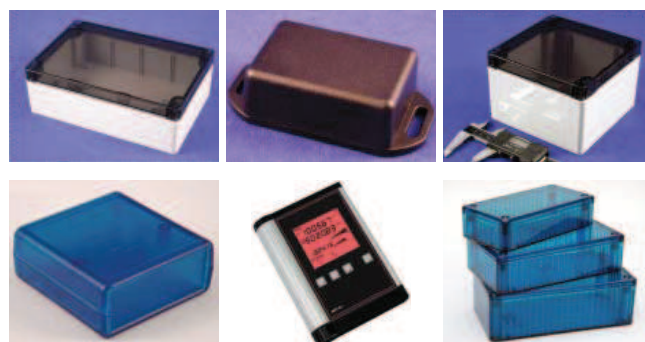


Part No.	Description, dimensions A x B x C
27969PSLA	Diecast AL enclosure 92x38x31mm IP54
Part No.	Ord.No.
o 27969PSLA	56622

29830PSLA



Part No.	Description, dimensions A x B x C
29830PSLA	Diecast AL enclosure 120x95x34mm IP54
Part No.	Ord.No.
o 29830PSLA	56486



We will be glad to supply any other enclosures and accessories from the assortment of



[www.soselectronic.com](http://www.soselectronic.com)

## TEKO Front Panel Plastic Enclosures

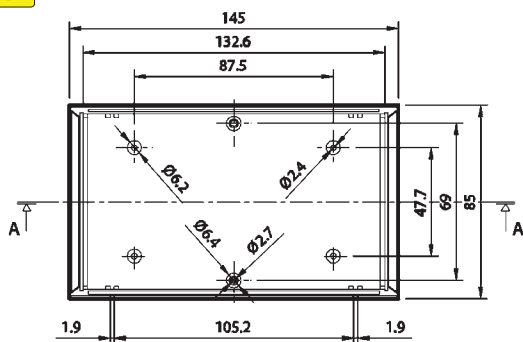


### DESIGNER Series

- Simple stylish enclosures in ABS (UL 94 HB)
- Ideal for desk-top or portable devices
- Colors: black RAL 9004 or light grey, RAL 9018
- Fast assembly by two self-tapping screws
- Supply: Top, base & 2 slide-in aluminum panels



ABS



Part No.	Description, dimensions A x B x C (LxWxH)
10001.5 DESIGNER	TEKO enclosure 145x85x37mm light grey

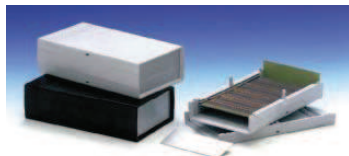
  

Part No.	Ord.No.
S 10001.5 DESIGNER	41436

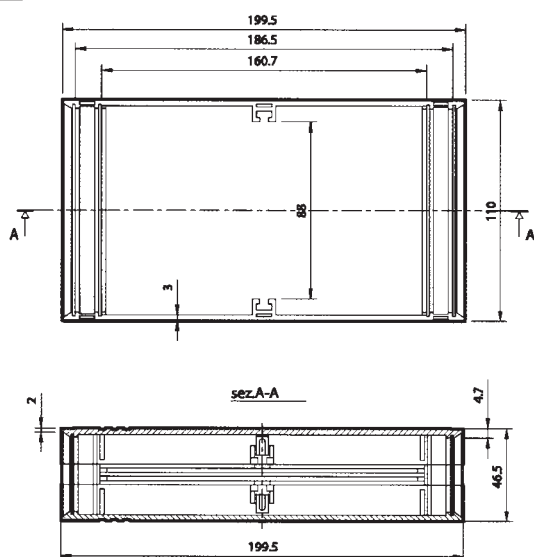
### SNAP DESIGNER Series



- Stylish instrument cases in ABS (UL 94 HB)
- Ideal for desk-top or portable devices
- Colors: black RAL 9004 or light grey, RAL 9018
- Cases snap-together, no screws required
- Central section incorporate horizontal guides for mounting eurocards 100x160mm
- Supply: Top, base & 2 slide-in aluminum panels



ABS



Part No.	Description, dimensions A x B x C (LxWxH)
10004.9 SNAP DESIGNER	TEKO enclosure 199,5x110x46,5mm black

Part No.	Ord.No.
O 10004.9 SNAP DESIGNER	41552

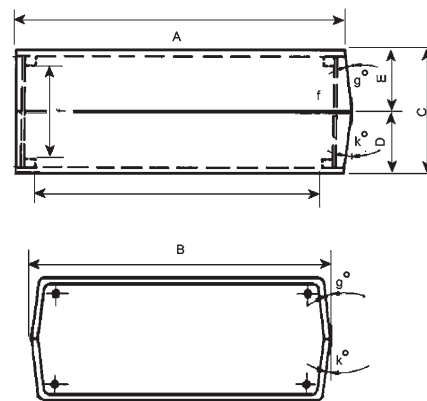
## AUS Series



- Practical instrument enclosures in polystyrene (UL 94 HB)
- Ideal for desk-top or portable devices
- Top & Base panels are ventilated
- Supply: Top, base & 2 aluminum panels
- Colors: black RAL 9004 or light gray RAL 9018
- Internal PCB pillars
- Easy assembly by eight self-tapping screws



ABS



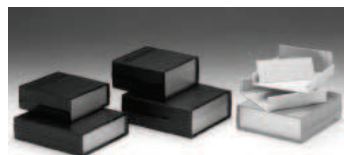
Part No.	Description, dimensions A x B x C (LxWxH)
AUS 11.9	TEKO enclosure 198x178x36mm black
AUS 12.5	TEKO enclosure 198x178x54mm light grey
AUS 22.5	TEKO enclosure 198x178x72mm light grey
AUS 23.5	TEKO enclosure 198x178x90mm light grey

Part No.	Ord.No.
S AUS 11.9	41476
S AUS 12.5	41458
S AUS 22.5	41498
S AUS 23.5	41486

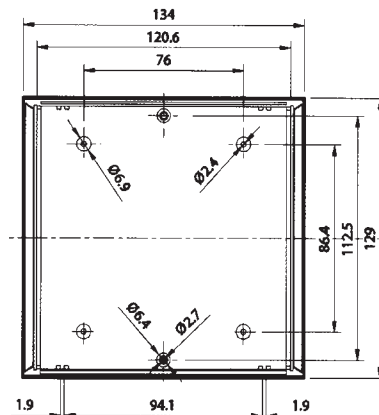
## CAB Series



- Modern enclosures in ABS (UL 94 HB)
- Ideal for table-top devices
- Matt surface finish
- Includes two aluminum front panels (silver RAL 9006)
- Easy assembly by two self-tapping screws
- Four non-slip self-adhesive feet supplied
- Internal PCB mounting pillars and guides



ABS



Part No.	Description, dimensions A x B x C (LxWxH)
CAB 011.5	ABS enclosure, panel AL 134x129x47mm light grey

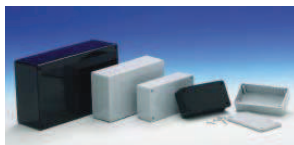
Part No.	Ord.No.
S CAB 011.5	41453

## TEKO Top Cover Plastic Enclosures

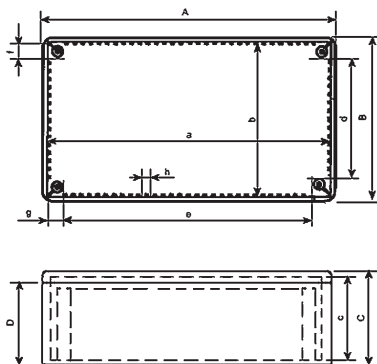
### COFFER Series



- Simple enclosures in ABS (UL 94 HB)
- Smooth round corner design
- Ideal for small electronic devices
- Supplied as a base and top cover
- Colors: black RAL 9004 or light gray RAL 9018
- Multiple PCB guides for high density
- Easy assembly by four self-tapping screws



ABS



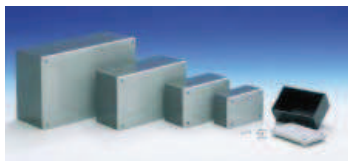
Part No.	Description, dimensions A x B x C (LxWxH)
COFFER 3.5	TEKO enclosure 160x95x49mm light grey
COFFER 4.5	TEKO enclosure 215x130x68,5mm light grey
COFFER A/8.5	TEKO enclosure 215x130x64,5mm light grey

Part No.	Ord.No.
S COFFER 3.5	41440
S COFFER 4.5	41441
S COFFER A/8.5	41443

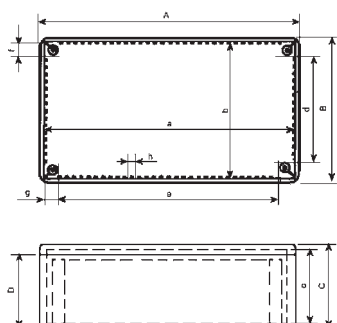
### COVER Series



- Simple enclosures in ABS (UL 94 HB)
- Ideal for small electronic devices
- Supplied as a base and top cover
- Two-tone Color scheme: body - black RAL 9004 or dark gray RAL 7012 and top cover light gray RAL 9018
- PCB pillars inside top cover
- PCB guides in base
- Easy assembly by four self-tapping screws



ABS



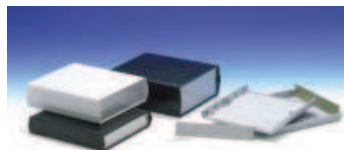
Part No.	Description, dimensions A x B x C (LxWxH)
CP/1.20 COVER	TEKO enclosure 85x56x41,4mm dark/light grey
CP/2.20 COVER	TEKO enclosure 110x70x53,9mm dark/light grey
CP/3.20 COVER	TEKO enclosure 160x96x66,9mm dark/light grey
CP/4.20 COVER	TEKO enclosure 215x130x82,9mm dark/light grey

Part No.	Ord.No.
S CP/1.20 COVER	41548
S CP/2.20 COVER	41535
S CP/3.20 COVER	41438
S CP/4.20 COVER	41439

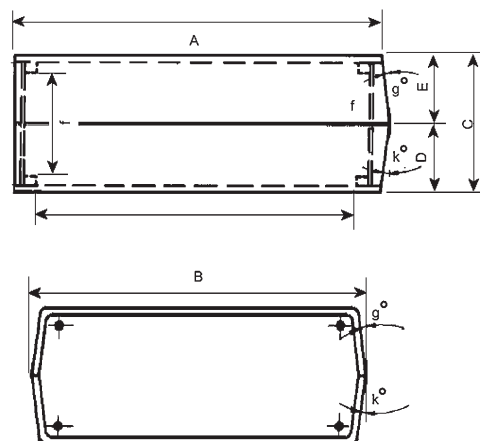
## EURO 93 Series



- Instrument enclosures in ABS (UL 94 HB)
- Ideal for desk-top or portable devices
- Colors: black RAL 9004 or light gray RAL 9018
- Internal PCB pillars and guides
- Top, base & 2 aluminum panels,
- Front panels are captured in the case
- Easy assembly by two self-tapping screws



ABS



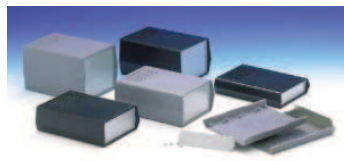
Part No.	Description, dimensions A x B x C (LxWxH)
EURO 931.5	TEKO enclosure 178x131,5x36mm light grey
EURO 934.5	TEKO enclosure 198x178x36mm light grey

Part No.	Ord.No.
S EURO 931.5	41570
S EURO 934.5	41611

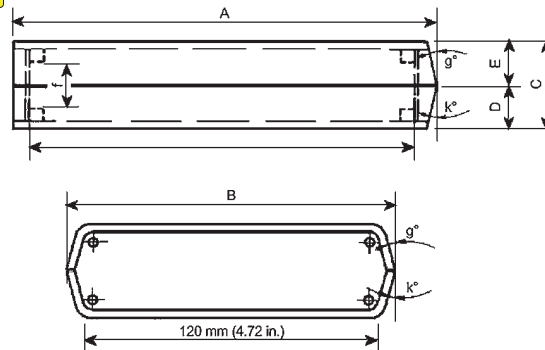
## KL Series



- Practical instrument enclosures in polystyrene (UL 94 HB)
- Ideal for desk-top or portable devices
- Top & Base panels are ventilated
- Supply: Top, base & 2 aluminum panels
- Colors: black RAL 9004 or light gray RAL 9018
- Internal PCB pillars
- Easy assembly by eight self-tapping screws



ABS



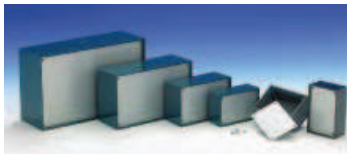
Part No.	Description, dimensions A x B x C (LxWxH)
KL 11.5	TEKO enclosure 178x128x36mm light grey
KL 12.5	TEKO enclosure 178x128x54mm light grey
KL 22.5	TEKO enclosure 178x128x72mm light grey

Part No.	Ord.No.
S KL 11.5	41632
S KL 12.5	41555
S KL 22.5	41456

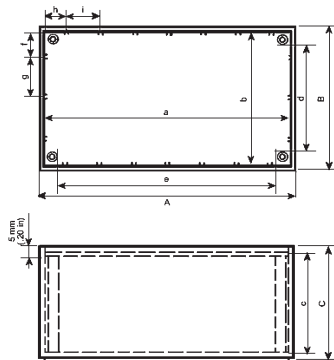
## OPTATIVE Series



- Practical and economic enclosures in ABS (UL 94 HB)
- Easy to machine case design is ideal for installing displays, and switches
- Colors: black RAL 9004, dark gray RAL 7012 & petrol blue RAL 5020
- Assembly by self-tapping screws
- PCB guides in the case walls
- With aluminum top panel



ABS



Part No.	Description, dimensions A x B x C (LxWxH)
P/1.9 OPTATIVE	TEKO enclosure 85x56x35,5mm black
P/2.2 OPTATIVE	TEKO enclosure 110x70x48mm dark grey
P/3.10 OPTATIVE	TEKO enclosure 160x96x61mm blue (petrol)
P/4.10 OPTATIVE	TEKO enclosure 215x130x77mm blue (petrol)

Part No.	Ord.No.
S P/1.9 OPTATIVE	41487
S P/2.2 OPTATIVE	41488
O P/3.10 OPTATIVE	41432
S P/4.10 OPTATIVE	41434

## TEKO Handheld Plastic Enclosures

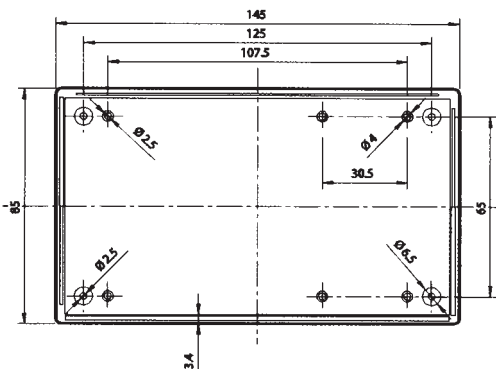
### TENCLOS Series



- Modern stylish enclosures in ABS (UL94 HB)
- Ideal for hand-held and desktop devices
- Colors: black RAL 9004 and light gray RAL 9018
- PCB mounting pillars in top and base
- Top recessed for fitting a membrane keypad
- Version 560.5 - top, base and aluminum panel
- Version 780-B9 - top, base, snap-on battery compartment for a 9V cell cover and aluminum panel



ABS



Part No.	Description, dimensions A x B x C (LxWxH)
560.5 TENCLOS	ABS enclosure / panel AL 145x85x31mm light grey
780-B.9 TENCLOS	ABS enclosure / panel AL 145x85x31mm black

Part No.	Ord.No.
O 560.5 TENCLOS	41558
S 780-B.9 TENCLOS	41500

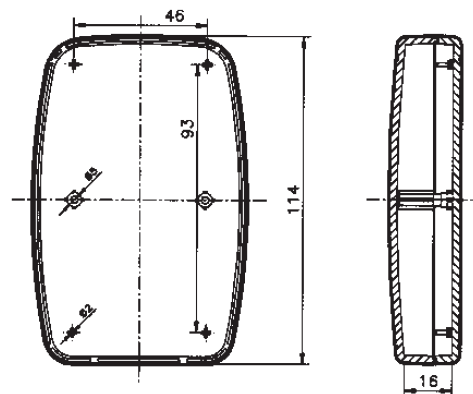
## SPRINT Series



- Ergonomic enclosures in ABS (UL 94 HB)
- Ideal for modern electronics
- ST1-C2 with front slot for a smart card reader and rear cutout for a DB9 connector
- Easy assembly by two self-tapping screws
- Internal PCB mounting pillars
- Colors: anthracite RAL 9016 or white RAL 9002



ABS



Part No.	Description, dimensions A x B x C (LxWxH)
ST1-C2.4 SPRINT	ABS enclosure 118x74x24,7mm dark grey

Part No.	Ord.No.
S ST1-C2.4 SPRINT	41578

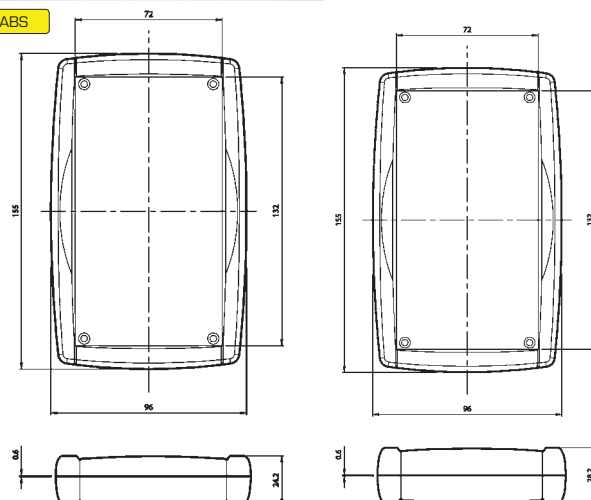
## TEKNET Series



- ABS enclosures with contoured shape
- Soft touch elastomer (TPU) edge grips created by multi-shot molding
- Ergonomic shape ideal for hand-held devices
- Simple assembly by four self-tapping screws
- Recessed top for membrane keypads
- Colors: black/dark gray or white/light gray
- Pillars in top and base for PCB's
- Matt surface finish ideal for printing
- Supply: Top, base & 4 fixing screws
- Accessory: aluminum top panel can be glued into top recess



ABS



Part No.	Description, dimensions A x B x C (LxWxH)
TN12.29 TEKNET	ABS+TPU enclosure 155x96x24,2mm black/dark grey
TN22-B.30 TEKNET	ABS+TPU enclosure 155x96x28,2mm white/light grey

Part No.	Ord.No.
O TN12.29 TEKNET	42977
O TN22-B.30 TEKNET	42984

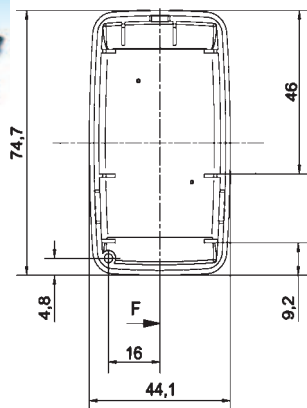




## POCKET Series

### 11124.4 POCKET

- Ergonomic enclosures in ABS (UL 94 HB)
- Ideal for pocket/keyfob devices
- Seven models with 0, 1, 2, 3, 4, 5 and 6 push-buttons
- Internal space for a 12V battery cell (two contacts supplied)
- LED window in top
- Internal PCB locating points
- Simple clip-together assembly
- Case color: dark gray RAL 7016
- Push-buttons: black RAL 9004



Part No.	Description, dimensions A x B x C (LxWxH)
11124.4 POCKET	ABS enclosure 73x43,1x18,3,dark grey, 4push- buttons

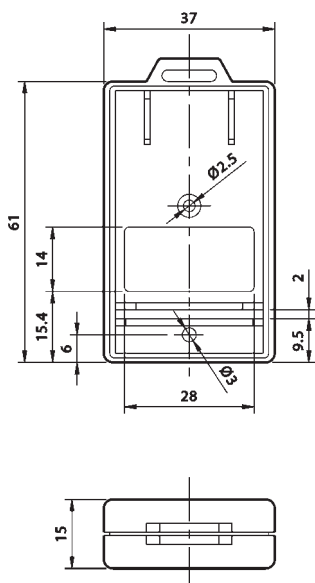
Part No.	Ord.No.
S 11124.4 POCKET	41561

### 10120/2.9 POCKET

- Attractive enclosures in ABS (UL 94 HB)
- Ideal for pocket/keyfob devices
- Two models with 1 or 2 push-buttons
- Internal space for a 12V battery cell (two contacts supplied)
- LED aperture in top
- Internal PCB locating points
- Simple assembly with a single fixing screw
- Case color: black RAL 9004 or dark gray RAL 7012
- Push-buttons: red RAL 3020 or light blue RAL 5010



ABS



Part No.	Description, dimensions A x B x C (LxWxH)
10120/2.9 POCKET	ABS enclosure 61x37x15mm,black,2push-b., tab

Part No.	Ord.No.
S 10120/2.9 POCKET	41466

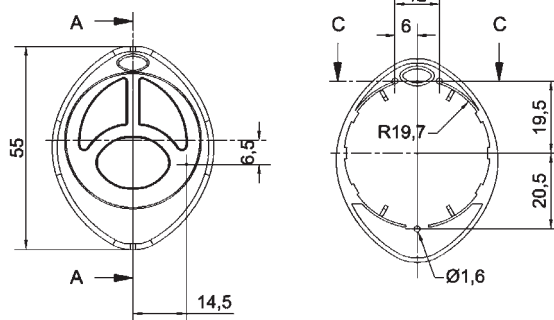


## OVO Series

- Ergonomic pocket enclosures in ABS (UL 94 HB)
- Ideal for remote control electronics
- Supplied with 0, 1, 2 or 3 rubberised push-button covers in blue
- Internal supports for fitting a round (1.378") PCB
- Suitable for a button Part No. battery cell
- Matt surface finish for a modern feel
- Colours: dark gray RAL 7016



ABS



Part No.	Description, dimensions A x B x C (LxWxH)
OVO-3/3.4	ABS pocket enclosure 55x43,7x14mm,dark grey,3 p-bt,tab

Part No.	Ord.No.
o OVO-3/3.4	42987

## Plastic Enclosures for Desktop Applications

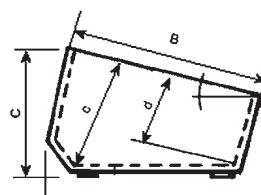
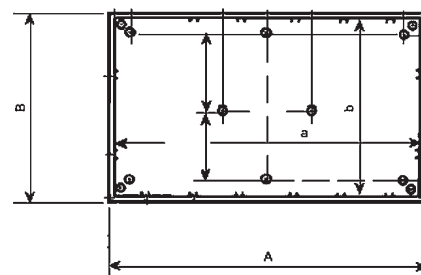
### PULT Series

- Practical 15° sloping enclosures in ABS (UL 94 HB)
- Ideal for desktop devices
- Case molding plus an aluminum front panel
- Color: dark gray RAL 7037
- Internal PCB guides and pillars
- Easy assembly by four self-tapping screws



ABS

AL



Part No.	Description, dimensions A x B x C (LxWxH)
362.8 PULT	ABS enclosure / panel AL 161x97x61,1mm dark grey
363.8 PULT	ABS enclosure / panel AL 216x130x77,7mm dark grey

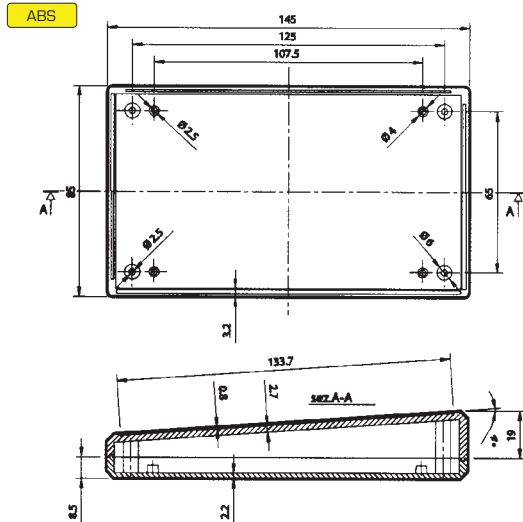
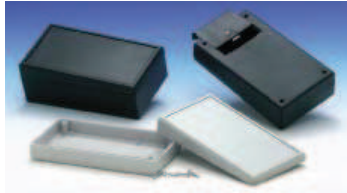
Part No.	Ord.No.
S 362.8 PULT	41564
S 363.8 PULT	41553



## TENCLOS SLANT Series



- Modern ergonomic enclosures in ABS (UL 94 HB)
- Sloping top with 4° incline
- Ideal for hand-held and desktop devices
- Colors: black RAL 9004 or gray RAL 9018
- Easy assembly by four self-tapping screws
- PCB mounting pillars in the base
- Top, base molding

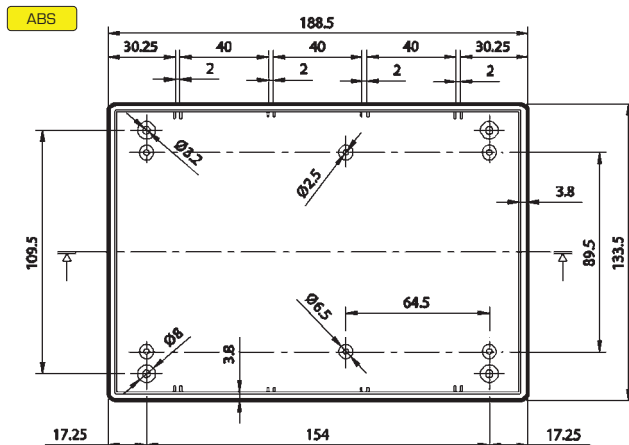


Part No.	Description, dimensions A x B x C (LxWxH)
450S.9 TENCLOS	ABS enclosure for desktop 145x85x27,5mm black
Part No.	Ord.No.
o 450S.9 TENCLOS	41477

## TEKMAR Series



- Modern enclosures in ABS (UL 94 HB)
- Ideal for desktop and portable devices
- Colors: black RAL 9004 and white RAL 9002
- PCB mounting pillars in top and base for Eurocards 100x160mm
- Top recessed for fitting a membrane keypad
- Simple assembly by four self-tapping screws
- Top and base molding



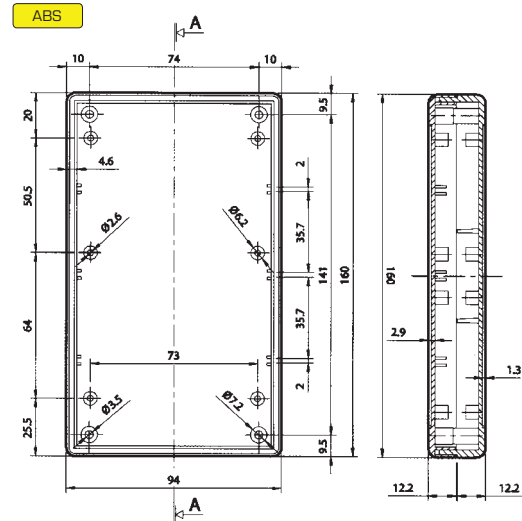
Part No.	Description, dimensions A x B x C (LxWxH)
TK22.9 TEKMAR	ABS enclosure 188,5x133,5x55,5mm black
Part No.	Ord.No.
s TK22.9 TEKMAR	41588

## TB Series



### TB-1.9

- Modern enclosures in ABS (UL 94 HB)
- Ideal for hand-held or table-top electronics
- Recessed top and base panel for fitting membrane keypads and product labels (Recess dims: 4.016" x 2.047" x 0.051")
- Easy assembly by four self-tapping screws
- Internal PCB mounting pillars
- Colors: black RAL 9004 or white RAL 9002
- Top/base recess 5.197" x 2.835 x 0.051"



Part No.	Description, dimensions A x B x C (LxWxH)
TB-1.9	ABS enclosure for memb. keyboards 160x94x25mm black
Part No.	Ord.No.
o TB-1.9	41575

## MOK Series



### MOK 1.7

ABS enclosure with matt surface finish. Base and cover have integral mounting studs for PCB. The bottom is manufactured by transparent Bayblend® and it is suitable for fixing on a 2 / 6-module standard enclosure 503. Snap-on closing.



Part No.	Description, dimensions A x B x C (LxWxH)
MOK 1.7	ABS enclosure 165x102x15(22)mm white
Part No.	Ord.No.
s MOK 1.7	68665

## MOK 2.7

Ergonomically shaped ABS enclosure with matt surface finish and a recessed area for keypad membrane or display. Base and cover have integral mounting studs for PCB. The bottom is manufactured by transparent Bayblend® and it is suitable for fixing on a 2 / 6-module standard enclosure 503. Snap-on closing.



ABS

Part No.	Description, dimensions A x B x C (LxWxH)
MOK 2.7	ABS enclosure 165x102x15mm white

Part No.	Ord.No.
S MOK 2.7	68666

## MINI TEKMAR WALL Series



- Modern mini enclosures in ABS (UL 94 HB)
- Designed for easy wall/cabinet mounting
- Top recessed for fitting a membrane keypad
- **Version MTK-F** - with flat top panel
- **Version MTK-S** - with sloping top panel
- Flat transparent base/wall mounting plate with central cable access aperture, and a series of holes for wall mounting
- Top part clips on to base plate
- Internal PCB mounting pillars
- Color: white RAL 9002



ABS

Part No.	Description, dimensions A x B x C (LxWxH)
MTK-F.7	ABS enclosure 130x100x17mm
MTK-S.7	ABS enclosure, desk 130x100x12(33)mm

Part No.	Ord.No.
S MTK-F.7	68667
S MTK-S.7	68668

## TEKO Aluminium Enclosures

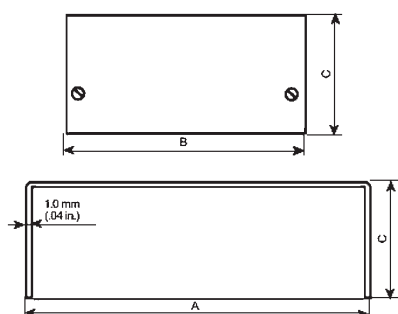


### AL BOX Series

- Simple folded boxes in aluminum
- Easy to assemble with four screws
- Ideal for very low cost applications
- Color: metalised silver RAL 9006



AL



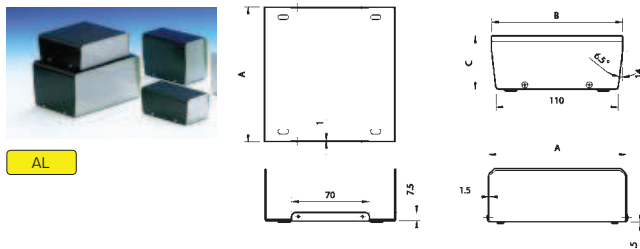
Part No.	Description, dimensions A x B x C (LxWxH)
3/B.1 AL BOX	AL enclosure 103x72x43mm silver
4/B.1 AL BOX	AL enclosure 143x72x43mm silver

Part No.	Ord.No.
S 3/B.1 AL BOX	41599
S 4/B.1 AL BOX	41600

### CH-BC Series



- Simple folded boxes in aluminum
- Hooded top cover
- Easy to assemble with four screws
- Ideal for very low cost applications
- Color: black RAL 9006 & metalised silver RAL 9006



AL

Part No.	Description, dimensions A x B x C (LxWxH)
CH/2.18	AL enclosure 124x118x48mm black/silver
CH/3.18	AL enclosure 163x118x48mm black/silver

Part No.	Ord.No.
O CH/2.18	41506
O CH/3.18	41451

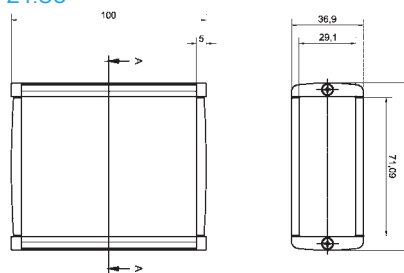
### TEKAL Series



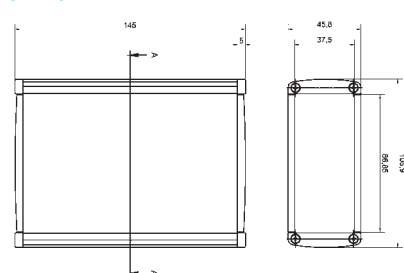
- Extruded aluminum enclosures with high quality painted finish
- Ideal for hand-held instruments
- Supplied with two ABS end panels
- **TEKAL 21.30** - with flat end panels
- **TEKAL 32.29** - end panels with wall mounting ears Internal guides rails for PCBs



#### TEKAL 21.30



#### TEKAL 32.29



Part No.	Description, dimensions A x B x C (LxWxH)
TEKAL 21.30	AL enclosure / ABS panels 100x86x37mm light grey/white
TEKAL 32.29	AL enclosure/ABS panel 145x106x46mm black/dark grey

Part No.	Ord.No.
O TEKAL 21.30	50772
O TEKAL 32.29	50773

## Plastic Enclosures

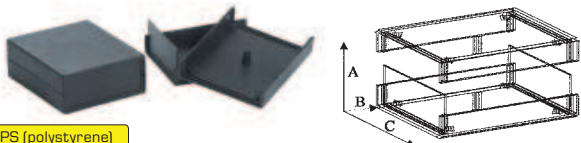
### KP Series

ECONOMIC

KP marked enclosures represent the basic segment of plastic enclosures determined for electronic equipments in undemanding conditions (nonaggressive environment, small temperature fluctuations, low protection class). They are made from polystyrene, whose the best advantage is price. They are black colour - RAL 9004. Enclosures suit to RoHS - 2002/95/EC requirements.

#### KP1, KP2, KP3, KP3B

The enclosure consists of four parts that can be screwed together with one screw.



PS (polystyrene)

Part No.	Description, dimensions A x B x C
KP1	Enclosure 38x90x66mm 4 feet
KP 2	Enclosure 40x90x110mm 4 feet
KP 3	Enclosure 49x90x110mm 4 feet
KP 3 B	Enclosure 48x90x200mm 4 feet

Part No.	Ord.No.
S KP 1	6607
S KP 2	6264
S KP 3	9493
S KP 3 B	5796

#### KP4

The enclosure consists of four parts that can be screwed together with one screw. Contains ventilation holes.



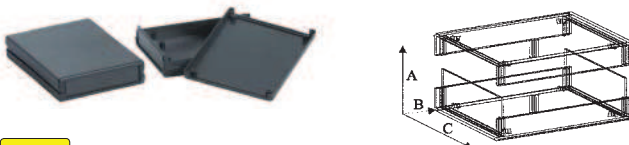
PS

Part No.	Description, dimensions A x B x C
KP 4	Enclosure 69x90x110mm ventilation holes, 4 feet

Part No.	Ord.No.
S KP 4	5493

#### KP5

The enclosure consists of four parts. Snap-on closing. (without screws).



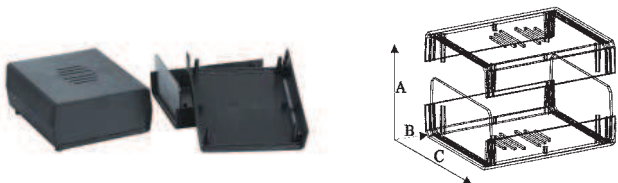
PS

Part No.	Description, dimensions A x B x C
KP 5	Enclosure 25x94x128mm

Part No.	Ord.No.
S KP 5	6431

#### KP6P, KP7P, KP8P, KP9P

The enclosure consists of four parts that can be screwed together by means of four screws. This Part No. is without ventilation holes.



Part No.	Description, dimensions A x B x C
KP 6 P	Enclosure 50x150x130mm 4 feet
KP 7 P	Enclosure 59x159x138mm 4 feet
KP 8 P	Enclosure 70x150x110mm 4 feet
KP 9 P	Enclosure 70x150x179mm 4 feet

Part No.	Ord.No.
S KP 6 P	6071
S KP 7 P	7055
S KP 8 P	5797
S KP 9 P	43203

#### KP10, KP11, KP12, KP12P, KP13, KP14, KP30

The enclosure consists of four parts that can be screwed together by means of four screws with ventilation holes (except KP12P and KP13), 4 feet, screws.



PS

Part No.	Description, dimensions A x B x C
KP 10	Enclosure 90x149x178mm ventilation holes, 4 feet
KP 11	Enclosure 68x176x172mm ventilation holes, 4 feet
KP 12 P	Enclosure 70x188x197mm 4 feet
KP 13	Enclosure 90x250x149mm 4 feet
KP 14	Enclosure 92x235x217mm ventilation holes, 4 feet
KP 30	Enclosure 120x295x215mm ventilation holes, 4 feet

Part No.	Ord.No.
S KP 10	6070
S KP 11	5799
S KP 12 P	43204
S KP 13	6081
S KP 14	5801
S KP 30	6473

#### KP15

The enclosure consists of four parts that can be screwed together by means of four screws.



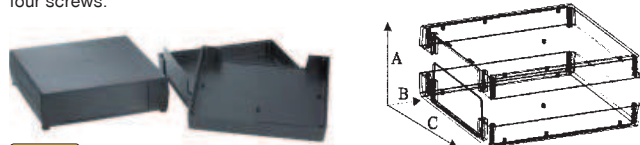
PS

Part No.	Description, dimensions A x B x C
KP 15	Polystyrene enclosure 78/50x220x220mm + 4legs

Part No.	Ord.No.
S KP 15	9523

#### KP16

The enclosure consists of three parts that can be screwed together by means of four screws.



PS

Part No.	Description, dimensions A x B x C
KP 16	Enclosure 60x220x220mm 4 feet

Part No.	Ord.No.
S KP 16	6523

#### KP17

The enclosure consists of two parts that can be screwed together by means of four screws. It can be assembled so that it has moderate inclination towards to its shorter side.



PS

Part No.	Description, dimensions A x B x C
KP 17	Enclosure 38x119x143mm 4 feet

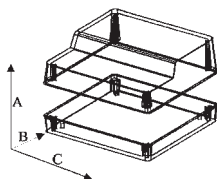
Part No.	Ord.No.
S KP 17	43205

## KP 18, KP 18A

The enclosure consists of two parts that can be screwed together by means of four screws.

KP18 size AxBxC: 57x125x120 mm  
 KP18A size AxBxC: 57x138x88 mm

DPS size: 117 x 112 mm  
 DPS size: 131 x 182 mm



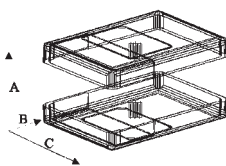
PS [polystyrene]

Part No.	Description, dimensions A x B x C
KP 18	Enclosure 55/37x125x120mm + 4legs
KP 18 A	Enclosure 57/35x138x188mm + 4legs

Part No.	Ord.No.
S KP 18	6406
S KP 18 A	6348

## KP 19, KP19A, KP19AU, KP19B, KP19BU

The enclosure consists of two parts that can be screwed together in the middle with one screw. AU version is flanged on one side.



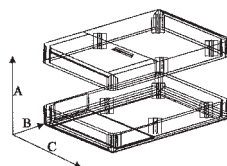
PS

Part No.	Description, dimensions A x B x C
KP 19	Enclosure 30x59x84mm
KP 19 A	Enclosure 22x59x84mm
KP 19 AU	Enclosure 16x59x84mm, flanged
KP 19 B	Enclosure 39x59x84mm
KP 19 BU	Enclosure 23x59x84mm black, flanged

Part No.	Ord.No.
S KP 19	6511
S KP 19 A	9666
S KP 19 AU	50529
S KP 19 B	43207
S KP 19 BU	48772

## KP20

The enclosure consists of two parts that can be screwed together by means of four screws. In the bottom part there is a compartment suitable for a 9V battery with a removable cover.



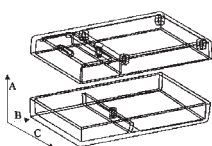
PS

Part No.	Description, dimensions A x B x C
KP 20	Enclosure 27x66x110mm 9V battery compartment

Part No.	Ord.No.
S KP 20	6262

## KP20B

2-parts enclosure, battery compartment suitable for a 9V battery with a removable cover.



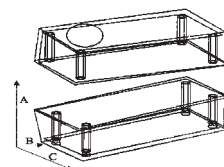
PS

Part No.	Description, dimensions A x B x C
KP 20 B	Enclosure 29x63x82mm 9V battery compartment

Part No.	Ord.No.
S KP 20 B	50530

## KP21

2-parts enclosure, 4 screws.



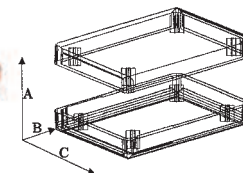
PS

Part No.	Description, dimensions A x B x C
KP 21	Enclosure 46x70x120mm

Part No.	Ord.No.
S KP 21	43209

## KP22, KP24, KP29

2-parts enclosure, 4 screws and 4 feet.



PS

Part No.	Description, dimensions A x B x C
KP 22	Enclosure 45x138x190mm 4 feet
KP 24	Enclosure 28x68x129mm 4 feet
KP 29	Enclosure 36x84x168mm 4 feet

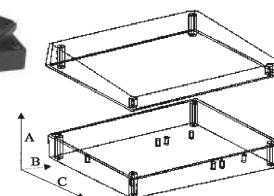
Part No.	Ord.No.
S KP 22	6109
S KP 24	6263
S KP 29	7120

## KP23, KP26

2-parts enclosures, 4 screws, 4 standoffs.

KP23: The enclosure has leaning inclination towards to its longer side.

KP26: The enclosure has leaning inclination towards to its shorter side.



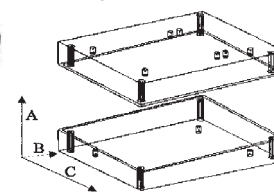
PS

Part No.	Description, dimensions A x B x C
KP 23	Enclosure 45/30x190x138mm 4 feet
KP 26	Enclosure 45/30x138x190mm

Part No.	Ord.No.
S KP 23	43210
S KP 26	43211

## KP24A, KP24AU, KP25

2-parts enclosures, 4 screws and 4 feet, AU version, flanged.



PS

Part No.	Description, dimensions A x B x C
KP 24 A	Enclosure 20x68x129mm, 4 feet
KP 24 AU	Enclosure 15x68x129mm, flanged
KP 25	Enclosure 37x68x129mm, 4 feet

Part No.	Ord.No.
S KP 24 A	43233
S KP 24 AU	44904
S KP 25	43234

## Plastic Enclosures (continued)

ECONOMIC

### KP27

The enclosure consists of four parts, the top and the bottom part with two smaller faces. The enclosure can be screwed together by means of four screws



PS (polystyrene)

Part No.	Description, dimensions A x B x C
KP 27	Enclosure 42x66x125mm +4 feet, black
KP 27 grey	Enclosure 42x66x125mm +4 feet, grey

Part No.	Ord.No.
S KP 27	5800
S KP 27 grey	60360

### KP28

The enclosure consists of four parts that can be screwed together by means of four screws.



PS

Part No.	Description, dimensions A x B x C
KP 28	Enclosure 49x127x257mm, 4 feet

Part No.	Ord.No.
S KP 28	6261

### KP32

A bath-shaped enclosure with a cover to be clicked together.



PS

Part No.	Description, dimensions A x B x C
KP 32	Enclosure 15x31x45mm black

Part No.	Ord.No.
S KP 32	6472

### KP33

The enclosure consists of two identical parts that can be clicked together..



PS

Part No.	Description, dimensions A x B x C
KP 33	Enclosure 33x80x149mm

Part No.	Ord.No.
S KP 33	7121

### KP34B

The enclosure consists of two parts that can be screwed together by means of four screws. Sealing rubber 2 mm in diameter can be inserted into the slot created between the top and the bottom part of the enclosure. This enclosure is manufactured without ventilation holes.



PS

Part No.	Description, dimensions A x B x C
KP 34 P	Enclosure 43x56x100mm

Part No.	Ord.No.
S KP 34 P	43213

### KP35A, KP35AV, KP35B, KP35C

2-parts enclosure with 1 screw. AV version with ventilation holes.



PS

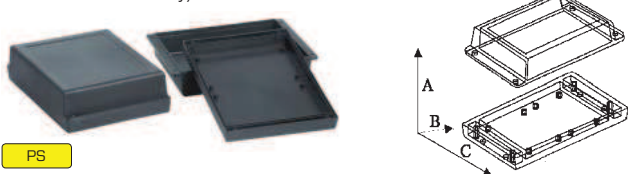
Part No.	Description, dimensions A x B x C
KP 35 A	Enclosure 29x54x104mm
KP 35 AV	Enclosure 29x54x104mm with ventilation holes
KP 35 B	Enclosure 20x54x104mm
KP 35 C	Enclosure 37x54x104mm

Part No.	Ord.No.
S KP 35 A	5804
S KP 35 AV	43214
S KP 35 B	43215
S KP 35 C	43216

### KP36, KP36A

A bath-shaped enclosure with a cover that can be screwed together by means of four screws. Sealing rubber 2 mm in diameter can be inserted into the slot created between the top and the bottom part of the enclosure (sealing rubber is not included in delivery).



PS

Part No.	Description, dimensions A x B x C
KP 36	Enclosure 53x141x195mm black
KP 36 A	Enclosure 73x141x195mm

Part No.	Ord.No.
S KP 36	43217
S KP 36 A	43218

### KP37

The enclosure consists of two parts that can be screwed together by means of two screws. There are holes for mini-loudspeaker on the top.



PS

Part No.	Description, dimensions A x B x C
KP 37	Enclosure 22x49x65mm, holes for mini-loudspeaker

Part No.	Ord.No.
S KP 37	42589

### KP38

The enclosure consists of two parts that can be screwed together by means of one self-cutting screw. It is intended for manufacture of a cartridge.



PS

Part No.	Description, dimensions A x B x C
KP 38	Enclosure 19x68x90mm

Part No.	Ord.No.
S KP 38	50531

### KP39

A bath-shaped enclosure with a cover to be clicked together.



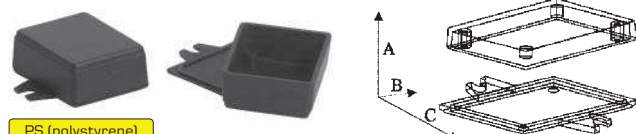
PS

Part No.	Description, dimensions A x B x C
KP 39	Enclosure 20x40x50mm

Part No.	Ord.No.
S KP 39	43219

## KP39U

A bath-shaped enclosure with a cover to be clicked together, flanged



PS (polystyrene)

Part No.	Description, dimensions A x B x C
KP 39 U	Enclosure 20x40x50mm, flanged

Part No.	Ord.No.
S KP 39 U	42763

## KP40

The enclosure consists of two parts that can be screwed together by means of four screws. In the bottom part there is battery compartment suitable for a 9V battery with a removable cover. The enclosure has leaning inclination towards to its shorter side.



PS

Part No.	Description, dimensions A x B x C
KP 40	Enclosure 39/32x81x145mm 9V battery compartment

Part No.	Ord.No.
S KP 40	43220

## KP40A

The enclosure consists of two parts that can be screwed together by means of four screws. In the bottom part there is battery compartment suitable for a 9V battery with a removable cover, the top part with cut-out for display. The enclosure has leaning inclination towards to its shorter side.



PS

Part No.	Description, dimensions A x B x C
KP 40 A	Enclosure 39/32x81x145mm display cut-out 50x20mm, 9V bat.

Part No.	Ord.No.
S KP 40 A	43221

## KP41, KP42

2-parts enclosure, 4 screws, flanged.



PS

Part No.	Description, dimensions A x B x C
KP 41	Enclosure 27x49x152mm, flanged
KP 42	Enclosure 40x74x145mm, flanged

Part No.	Ord.No.
S KP 41	43222
S KP 42	43223

## KP43, KP43A, KP43B

The enclosure consists of four parts that can be screwed together by means of four screws.



PS

Part No.	Description, dimensions A x B x C
KP 43	Enclosure 43x90x142mm 4 feet
KP 43 A	Enclosure 36x142x90mm 4 feet

Part No.	Ord.No.
S KP 43	43224
S KP 43 A	3345
S KP 43 B	43225

## KP44

2 parts enclosure, 4 screws, flanged



PS

Part No.	Description, dimensions A x B x C
KP 44	Enclosure 22x65x90mm, flanged

Part No.	Ord.No.
S KP 44	42707

## KP45, KP45A, KP45B, KP45C, KP45D, KP45E

A bath-shaped enclosure with a cover that can be screwed together by means of four screws. Sealing rubber 2 mm in diameter can be inserted into the slot created between the top and the bottom part of the enclosure to assure enclosure's watertightness (IP65). Wall thickness - is 3mm. Sealing rubber is not included in delivery.



PS

Part No.	Description, dimensions A x B x C
KP 45	Enclosure 41x89x74mm grey
KP 45 A	Enclosure 43x89x64mm grey
KP 45 B	Enclosure 54x79x118mm grey
KP 45 C	Enclosure 54x81x158mm grey
KP 45 D	Enclosure 59x113x123mm grey
KP 45 E	Enclosure 30x40x65mm grey

Part No.	Ord.No.
S KP 45	43226
S KP 45 A	43228
S KP 45 B	43229
S KP 45 C	43230
S KP 45 D	43231
S KP 45 E	50540

Part No.	Description
KP 45 A/SEALING	Rubber seal for enclosure
KP 45 B/SEALING	Rubber seal for enclosure
KP 45 C/SEALING	Rubber seal for enclosure
KP 45 D/SEALING	Rubber seal for enclosure
KP 45 E/SEALING	Rubber seal for enclosure

Part No.	Ord.No.
O KP 45 A/SEALING	50610
S KP 45 B/SEALING	50611
O KP 45 C/SEALING	50612
O KP 45 D/SEALING	50613
O KP 45 E/SEALING	50614

## KP46

The enclosure consists of three parts that can be screwed together with one screw.



PS

Part No.	Description, dimensions A x B x C
KP 46	Enclosure 36x68x73mm

Part No.	Ord.No.
S KP 46	43232

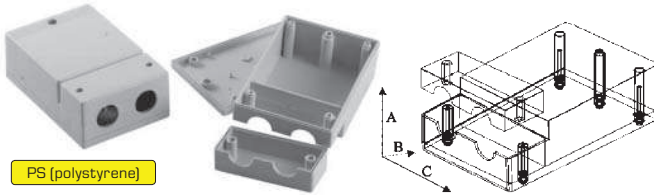


## Plastic Enclosures (continued)

ECONOMIC

### KP47

A bath-shaped enclosure with a cover that can be screwed together by means of four screws. Sealing rubber 1,5 mm in diameter can be inserted into the slot created between the top and the bottom part of the enclosure. Walls are 3mm thick. There are 2 holes of 20mm diameter on the side, suitable for leading through cables by PG13 Series of brushings.



Part No.	Description, dimensions A x B x C
KP 47	Enclosure 43x80x120mm grey, 2x cable gland D20mm

Part No.	Ord.No.
S KP 47	44086

### KP48

A bath-shaped enclosure with a cover to be clicked together.



Part No.	Description, dimensions A x B x C
KP 48	Enclosure 15x17x26mm

Part No.	Ord.No.
S KP 48	43236

### KP48C

A bath-shaped polystyrene enclosure with a cover to be clicked together.



Part No.	Description, dimensions A x B x C
KP 48 C	Enclosure 15x17x26mm trans red

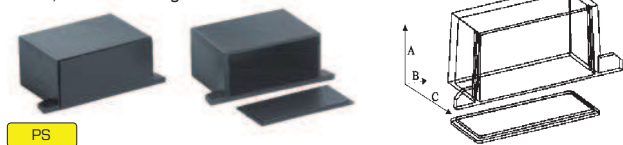
Part No.	Ord.No.
S KP 48 C	43237

## KPA Series

ECONOMIC

### KPA1, KPA2, KPA2 AP

Enclosure with cover.  
KPA2, KPA2AP: flanged



Part No.	Description, dimensions A x B x C
KPA 1	Enclosure 35x36x70mm
KPA 2	Enclosure 35x50x70mm, flanged
KPA 2 AP	Enclosure 26x32x60mm, flanged

Part No.	Ord.No.
S KPA 1	7292
S KPA 2	6489
S KPA 2 AP	43235

### KPA3

The enclosure consists of two parts that can be screwed together from below by means of two screws.



Part No.	Description, dimensions A x B x C
KPA 3	Enclosure 30x98x133mm

Part No.	Ord.No.
S KPA 3	6083

## KM Series

ECONOMIC

### KM2, KM2A

A bath-shaped enclosure with a cover to be clicked together.  
KM2: flanged



Part No.	Description, dimensions A x B x C
KM 2	Enclosure 22x42x48mm, flanged
KM 2 A	Enclosure 22x42x48mm

Part No.	Ord.No.
S KM 2	9572
S KM 2 A	43250

### KM4

A bath-shaped enclosure with a cover to be clicked together. Material used - polystyrene.



Part No.	Description, dimensions A x B x C
KM 4	Enclosure 22x60x89mm

Part No.	Ord.No.
S KM 4	43251

### KM16

The enclosure consists of two parts that can be clicked together.



Part No.	Description, dimensions A x B x C
KM 16	Enclosure 30x32x36mm

Part No.	Ord.No.
S KM 16	43267

### KM18

The enclosure consists of two parts that can be screwed together by means of two screws. Black colour.



Part No.	Description, dimensions A x B x C
KM 18	Enclosure 30x55x55mm black

Part No.	Ord.No.
S KM 18	43269

## KM20

The enclosure consists of two parts that can be screwed together with one screw. Suitable for cartridge manufacturing.



PS (polystyrene)

Part No.	Description, dimensions A x B x C
KM 20	Enclosure 20x68x90mm

Part No.	Ord.No.
S KM 20	43271

## KM21H

The ABS enclosure consists of two parts that can be screwed together by means of two screws. There are flanged and cable holes.



ABS

Part No.	Description, dimensions A x B x C
KM 21H	Enclosure 21x55x72mm, flanged, cable holes

Part No.	Ord.No.
S KM 21H	60451

## KM25, KM25B, KM34

2-parts enclosure, material - polystyrene, flanged.



PS

Part No.	Description, dimensions A x B x C
KM 25	Enclosure 25x70x50mm, flanged
KM 25 B	Enclosure 25x60x32mm, flanged
KM 34	Enclosure 34x50x70mm, flanged

Part No.	Ord.No.
S KM 25	43277
S KM 25 B	43278
S KM 34	43296

## KM26

ABS enclosure, with battery compartment.



ABS

Part No.	Description, dimensions A x B x C
KM 26	Enclosure 25x60x110mm battery compartment

Part No.	Ord.No.
S KM 26	43280

## KM27

The enclosure consists of two parts that can be screwed together with one screw, flanged.



PS

Part No.	Description, dimensions A x B x C
KM 27	Enclosure 24x47x66mm, flanged
KM 27 B	Enclosure 24x47x66mm, flanged, hole 33x13mm

Part No.	Ord.No.
S KM 27	43282
S KM 27 B	43283

## KM29B

2-parts enclosure, polystyrene material, with side gap.



PS

Part No.	Description, dimensions A x B x C
KM 29 B	Enclosure 29x65x90mm, 41x11mm side hole

Part No.	Ord.No.
S KM 29 B	43286

## KM32

The enclosure consists of two parts that can be screwed together by means of one self-cutting screw. Hole 49 x 15mm.



ABS

Part No.	Description, dimensions A x B x C
KM 32	ABS enclosure 34x88x58mm hole 49x15mm, holder
KM 32 B	ABS enclosure 34x88x58mm, holder
KM 32 C	ABS enclosure 34x88x58mm 2x12mm holes, 1x5mm hole, holder

Part No.	Ord.No.
S KM 32	43290
S KM 32 B	43291
S KM 32 C	43292

## KM33

Polystyrene enclosure.



PS

Part No.	Description, dimensions A x B x C
KM 33	Enclosure 29x74x118mm ventilation holes for loudspeaker
KM 33 A	Enclosure 29x74x118mm, 54x14mm hole for display
KM 33 B	Enclosure 29x74x118mm, without ventilation holes
KM 33 C	Enclosure 29x74x118mm, black, 46x18mm ventilation holes

Part No.	Ord.No.
S KM 33	43293
S KM 33 A	50516
S KM 33 B	43294
S KM 33 C	43295

## Plastic Enclosures (continued)

ECONOMIC

### KM37

The enclosure consists of two parts that can be clicked together. Holes for loudspeaker of 46mm diameter. Max. diameter of magnet is 21,5mm.



PS [polystyrene]

Part No.	Description, dimensions A x B x C
KM 37	Enclosure 33x73x128mm ventilation holes for loudspeaker
KM 37 B	Enclosure 33x73x128mm

Part No.	Ord.No.
S KM 37	43303
S KM 37 B	43304

### KM39

The enclosure consists of two parts that can be screwed together by means of four screws..



PS

Part No.	Description, dimensions A x B x C
KM 39	Enclosure 29x120x80mm

Part No.	Ord.No.
S KM 39	43307

### KM40

The enclosure consists of two parts that can be screwed together by means of four screws.



PS

Part No.	Description, dimensions A x B x C
KM 40	Enclosure 35x132x82mm

Part No.	Ord.No.
S KM 40	43308

### KM48 BN

2-parts enclosure, Polystyrene material.



PS

Part No.	Description, dimensions A x B x C
KM 48 BN	Enclosure 48x88x63mm

Part No.	Ord.No.
S KM 48 BN	43313

### KM51

The enclosure consists of two parts that can be screwed together by means of two screws. In the bottom part there is a battery door and compartment. Hole 63 x 18mm.



ABS

Part No.	Description, dimensions A x B x C
KM 51	ABS enclosure 80x170x46mm,display compart. 63x18mm + batt.
KM 51 GR	ABS enclosure 80x170x46mm,display compart. 63x18mm + batt.

Part No.	Ord.No.
S KM 51	43320
S KM 51 GR	60345

### KM52

The enclosure consists of two parts that can be screwed together by means of two screws. The buzzers for piezo converters of max 50mm diameter, distance between clips holes is 62mm. Inside height is 30mm, ABS standard material.



ABS

Part No.	Description, dimensions A x B x C
KM 52	ABS enclosure D=52x30 RM62mm for piezo buzzers

Part No.	Ord.No.
S KM 52	43322

### KM53

2-parts enclosure, polystyrene material, flanged, removable front panel.



PS

Part No.	Description, dimensions A x B x C
KM 53	Enclosure 37x90x115mm, flanged, removable front panel

Part No.	Ord.No.
S KM 53	50510

### KM54

2-parts enclosure, polystyrene material, flanged, front panel ventilation holes.



PS

Part No.	Description, dimensions A x B x C
KM 54	Enclosure 32x63x90mm, flanged, front panel ventilation holes 10x53mm

Part No.	Ord.No.
S KM 54	50512

## KM61, KM62

ABS snap-in enclosure with front transparent panel.



Part No.	Description, dimensions A x B x C
KM 61	ABS enclosure 30x65x71mm Snap-in, front transparent panel
KM 62	ABS enclosure 48x65x71mm Snap-in, front transparent panel

Part No.	Ord.No.
S KM 61	50518
S KM 62	50520

## KM78GR

2-parts enclosure, polystyrene material.



Part No.	Description, dimensions A x B x C
KM 78 GR	Enclosure 27x120x80mm

Part No.	Ord.No.
S KM 78 GR	60346

## KM82

2-parts enclosure, polystyrene material.



Part No.	Description, dimensions A x B x C
KM 82	Enclosure 32x55x68mm

Part No.	Ord.No.
S KM 82	60350

## KM100

2-parts enclosure, ABS material.



Part No.	Description, dimensions A x B x C
KM 100	ABS enclosure 22x55x90mm

Part No.	Ord.No.
S KM 100	60337

## KPZ Series

### KPZ1

2-parts polystyrene enclosure, flanged, black colour.



Part No.	Description, dimensions A x B x C
KPZ 1 AU	Enclosure 17x47x66mm black, flanged
KPZ 1 BU	Enclosure 31x47x66mm black, flanged

Part No.	Ord.No.
S KPZ 1 AU	43242
S KPZ 1 BU	43243

## BK Series

### BK300

Enclosures with knob, for wall mounting, suitable for room thermostats etc.



Part No.	Description, dimensions A x B x C
BK 300	ABS enclosure 25x71x71mm for thermostats, with knob

Part No.	Ord.No.
S BK 300	50647

### BK301

Enclosures for wall mounting, suitable for sensors etc. Possibility for 2 PCB's.



Part No.	Description, dimensions A x B x C
BK 301	ABS enclosure 25x71x71mm for sensors, without knob

Part No.	Ord.No.
S BK 301	50969

### BK600

Enclosures with knob, for wall mounting, suitable form room thermostats etc.



Part No.	Description, dimensions A x B x C
BK 600	ABS enclosure 25x121x70mm for thermostats, with knob

Part No.	Ord.No.
S BK 600	50648

### BK1061 TR

These low cost enclosures meet the IP65 dust and waterproof requirements. They are sealed and as standard delivered in hi-impact flame retardand ABS conforming with UL94-V0 in grey colour. However, they can also be supplied in UV retardant polycarbonate.



Part No.	Description, dimensions A x B x C
BK 1061 TR	ABS enclosure 85x80x55mm, IP65 grey with transp. cover

Part No.	Ord.No.
S BK 1061 TR	53493

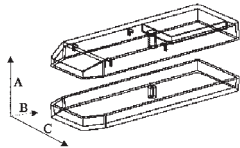
## Plastic Enclosures for Remote Controls

ECONOMIC

### KPDO Series

#### KPDO 1

The enclosure consists of two parts that can be screwed together with one screw.



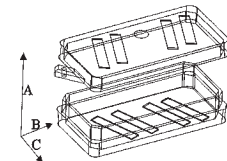
PS

Part No.	Description, dimensions A x B x C
KPDO 1	Enclosure 22x150x49mm, black

Part No.	Ord.No.
S KPDO 1	43239

#### KPDO 2

The box consists of two parts that can be gently clicked together. Suitable for remote controls.



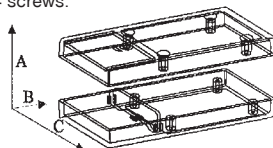
PS

Part No.	Description, dimensions A x B x C
KPDO 2	Enclosure 13x61x31mm, black, 1 button

Part No.	Ord.No.
S KPDO 2	5802

#### KPDO 3, KPDO 3A

2-parts enclosure, 9V battery compartment, 4 screws.



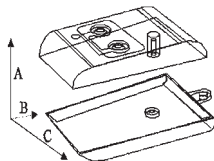
PS

Part No.	Description, dimensions A x B x C
KPDO 3	Enclosure 27x185x59mm, black, 9V bat.
KPDO 3A	Enclosure 38x185x59mm, black, 9V bat.

Part No.	Ord.No.
S KPDO 3	43240
S KPDO 3A	43241

#### KPDO 4

2-parts enclosure with 2 buttons, suitable as remote control, that can be clicked together.



PS

Part No.	Description, dimensions A x B x C
KPDO 4	Enclosure 15x56x36mm, black, 2 buttons

Part No.	Ord.No.
S KPDO 4	5803

#### KPDO 5

2-parts enclosure with 4 buttons, suitable as remote control, that can be clicked together.



PS

Part No.	Description, dimensions A x B x C
KPDO 5	Enclosure 14x36x72mm + 4 buttons

Part No.	Ord.No.
S KPDO 5	50544

#### KPDO 6

2-parts enclosure with 2 buttons and 3mm LED hole, suitable for remote controls, that can be clicked together.



PS

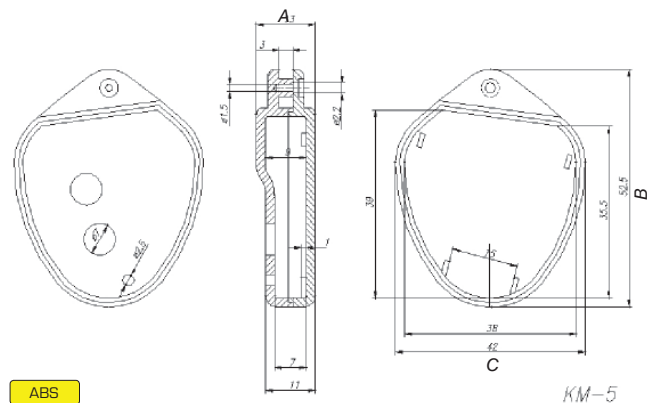
Part No.	Description, dimensions A x B x C
KPDO 6	Enclosure 14x37x49mm+2 buttons, hole for 3mm LED

Part No.	Ord.No.
S KPDO 6	50545

### KM Series

#### KM5

The enclosure consists of two parts that can be screwed together by means of one self-cutting screw. Black colour, protective package with a screw.



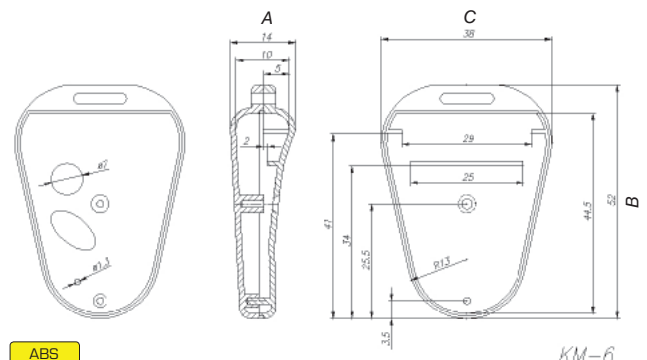
ABS

Part No.	Description, dimensions A x B x C
KM 5	ABS enclosure 13x42x52,5mm, 2 buttons, hole for LED

Part No.	Ord.No.
S KM 5	50505

#### KM6

The enclosure consists of two parts that can be screwed together by means of one self-cutting screw. Black colour, protective package with a screw.



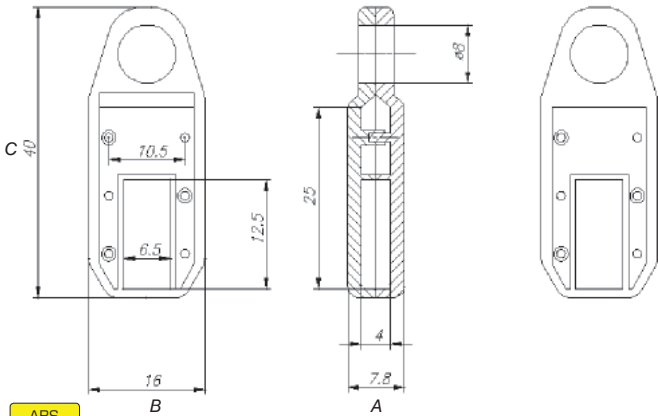
ABS

Part No.	Description, dimensions A x B x C
KM 6	ABS enclosure 14x38x52mm, 2 buttons, hole for LED

Part No.	Ord.No.
S KM 6	50506

## KM8

The enclosure consists of two parts that can be clicked together.



ABS

**Part No.** Description, dimensions A x B x C

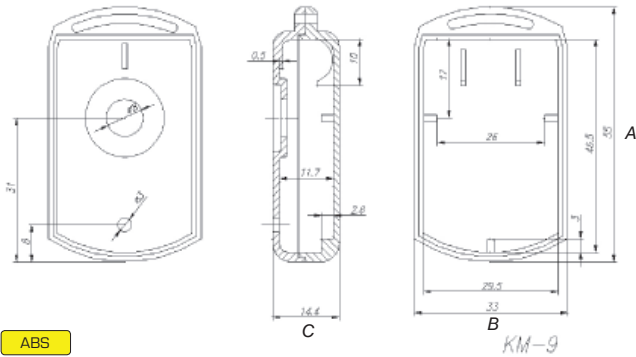
KM 8 ABS enclosure 7,8x16x40mm, black

**Part No.** Ord.No.

S KM 8 43254

## KM9

The enclosure consists of two parts that can be clicked together.



ABS

**Part No.** Description

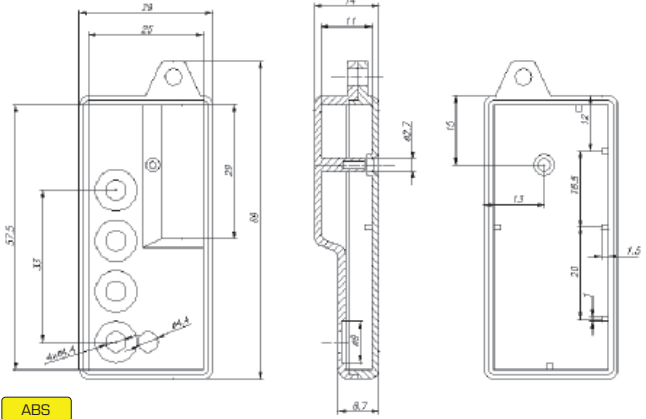
KM 9 ABS enclosure 14,4x33x50mm + 1 button, hole for LED

**Part No.** Ord.No.

S KM 9 43255

## KM11

The enclosure consists of two parts that can be screwed together by means of one self-cutting screw. Black colour, protecting package, including button foil



ABS

**Part No.** Description, dimensions A x B x C

KM 11 B/1 ABS enclosure 10x29x62mm, 1xbutton foil

KM 11 B/1 GR ABS enclosure 10x29x62mm grey, 1x button foil

KM 11 B/2 ABS enclosure 10x29x62mm, 2xbutton foil

KM 11 B/3 ABS enclosure 10x29x62mm, 3xbutton foil

KM 11 B/4 ABS enclosure 10x29x62mm, 4xbutton foil

**Part No.** Ord.No.

S KM 11 B/1 43260

S KM 11 B/1 GR 60449

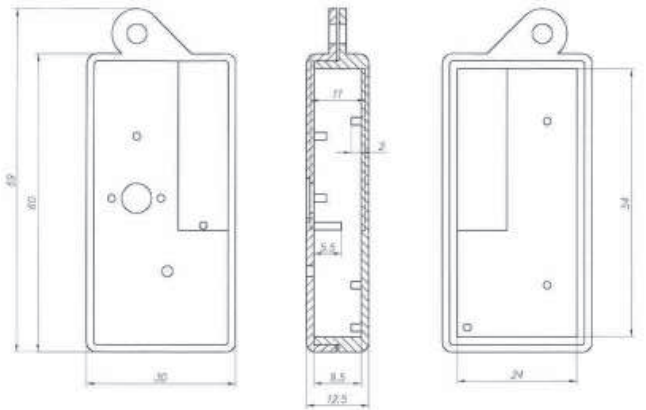
S KM 11 B/2 43256

S KM 11 B/3 43257

S KM 11 B/4 43258

## KM12

The enclosure consists of two parts that can be clicked together.



ABS

**Part No.** Description, dimensions A x B x C

KM 12 ABS enclosure 12x30x68mm, black, 1 button

**Part No.** Ord.No.

S KM 12 43261

## Plastic Enclosures for Remote Controls (continued)

ECONOMIC

### KM14

The enclosure consists of two parts that can be screwed together by means of two screws.



ABS

Part No.	Description, dimensions A x B x C
KM 14	ABS enclosure 14x37x84mm + 1 button
KM 14 N	ABS enclosure 16x36x51mm, black, 1 button, handle
KM 14/6	ABS enclosure 14x37x84mm + 6x button

Part No.	Ord.No.
S KM 14	43263
S KM 14 N	43264
S KM 14/6	60450

### KM96

The enclosure consists of two parts that can be clicked together. Delivered in protective package with 2 rubber buttons.



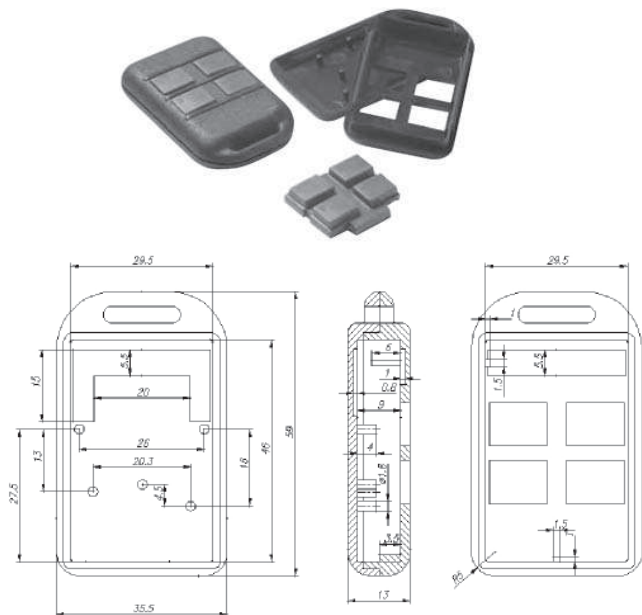
ABS

Part No.	Description, dimensions A x B x C
KM 96	ABS enclosure 46x36x11mm, 2x button

Part No.	Ord.No.
S KM 96	60351

### KM102

The enclosure consists of two parts and rubber buttons.



ABS

Part No.	Description,
KM 102	ABS enclosure 13x36x52mm + 4xbutton

Part No.	Ord.No.
S KM 102	60338

## Plastic Enclosures for Plug-In Power Supplies

ECONOMIC

### EB Series

#### EB 120.65

ABS enclosure with or without ventilation holes. Accessories (DE, FR socket) is included in delivery.



ABS

Part No.	Description, dimensions A x B x C
EB120.65 CLOSE	ABS enclosure 62x120x65mm without ventilation holes
EB120.65 LOW	ABS enclosure 40x120x65mm without ventilation holes
EB120.65 OPEN	ABS enclosure 62x120x65mm with ventilation holes

Part No.	Ord.No.
S EB120.65 CLOSE	60443
S EB120.65 LOW	60445
S EB120.65 OPEN	60444

#### EB 96.56

ABS enclosure with or without ventilation holes. Accessories (DE, FR socket) is included in delivery.



ABS

Part No.	Description, dimensions A x B x C
EB96.56 HIGH CLOSE	ABS enclosure 53x96x56mm without ventilation holes. holes
EB96.56 HIGH OPEN	ABS enclosure 53x96x56mm with ventilation holes
EB96.56 LOW CLOSE	ABS enclosure 31x96x56mm without ventilation holes. holes

Part No.	Ord.No.
S EB96.56 HIGH CLOSE	60446
S EB96.56 HIGH OPEN	60447
S EB96.56 LOW	60448

### KPZ Series

Enclosure with ABS suffix are designed from quality plastic material with higher mechanical resistance and better thermostability. Black colour - RAL 9004. Boxes in ABS version have a valid certificate for use in 230 VAC networks approved by the Electrical Testing Institute in Prague.

#### What does it mean when the plug is unsecured?

The plug is an individual part, not connected with the enclosure. It can be secured by suitable mounting of a transformer or PCB.

#### KPZ 2 ABS, KPZ 3 ABS, KPZ 4 ABS, KPZ 9 ABS

2-parts enclosures with ventilation holes (except KPZ 2 ABS), plug, suitable for adapters. The plug is unsecured.



Part No.	Description, dimensions A x B x C
KPZ 2 ABS	ABS enclosure 52x58x72mm, sock plug, leadthrough
KPZ 3 ABS	ABS enclosure 46x53x81mm, ventilation holes, plug, leadthrough
KPZ 4 ABS	ABS enclosure 55x64x82mm, ventilation holes, plug, leadthrough
KPZ 9 ABS	ABS enclosure 37x47x65mm, ventilation holes, plug, leadthrough

Part No.	Ord.No.
S KPZ 2 ABS	7291
S KPZ 3 ABS	43244
S KPZ 4 ABS	6126
S KPZ 9 ABS	56969

## KPZ 7 B ABS

The enclosure consists of 2 parts, sock plug, leadthrough and 2 screws and is designed with ventilation holes. The sock plug is unsecured.



ABS

**Part No.** Description, dimensions A x B x C

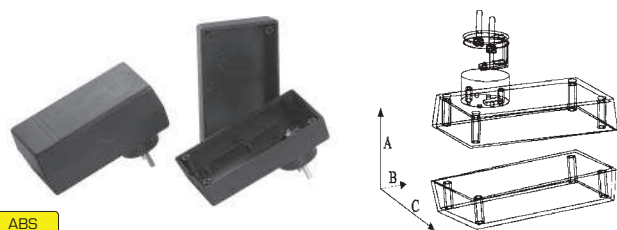
KPZ 7 B ABS ABS enclosure 56x65x89mm, ventilation holes, plug, leadthrough

**Part No.** Ord.No.

S KPZ 7 B ABS 55399

## KPZ 10 ABS

The enclosure consists of two parts and a network plug that can be screwed together by means of four screws. The plug part must be mechanically secured by means of a suitably placed transformer or a printed circuit.



ABS

**Part No.** Description, dimensions A x B x C

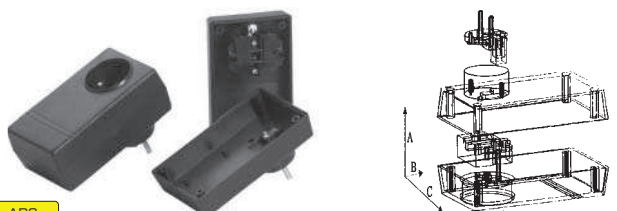
KPZ 10 ABS ABS enclosure 44x70x120mm, plug

**Part No.** Ord.No.

S KPZ 10 ABS 5839

## KPZ 11 ABS

The enclosure consists of two parts and a network plug that can be screwed together by means of four screws.



ABS

**Part No.** Description, dimensions A x B x C

KPZ 11 ABS ABS enclosure 44x70x120mm, plug, power socket

**Part No.** Ord.No.

S KPZ 11 ABS 9472

## KM Series

### KM 46

The enclosure consists of two parts and a network plug that can be screwed together by means of two screws. The plug part must be mechanically secured by means of a suitably placed transformer or a printed circuit.



ABS

**Part No.** Description, dimensions A x B x C

KM 46 ABS enclosure UL94-VO 69x44x44mm plug

**Part No.** Ord.No.

S KM 46 43311

### KM 48

The enclosure consists of two parts and a network plug that can be screwed together by means of three screws and is designed with ventilation holes. The plug part is embedded in the top of the enclosure.



ABS

**Part No.** Description, dimensions A x B x C

KM 48 ABS enclosure UL94-VO 48x73x62mm ventilation holes, plug

**Part No.** Ord.No.

S KM 48 43312

### KM 49

The enclosure consists of two parts and a network plug that can be screwed together by means of four screws. The plug part must be mechanically secured by means of a suitably placed transformer or a printed circuit. Supplied in black colour with plug, 4 screws and a leadthrough.



ABS

**Part No.** Description, dimensions A x B x C

KM 49 ABS enclosure UL94-VO 57x90x65mm ventilation holes, plug, leadthrough

**Part No.** Ord.No.

S KM 49 43315

### KM 49 D ABS

The enclosure consists of two parts and a network plug that can be screwed together by means of four screws. PCB of 59x86mm can be mounted into the enclosure. Contains ventilation holes and a cable is protected by leadthrough. The enclosure is designed from ABS plastic material.



ABS

**Part No.** Description, dimensions A x B x C

KM 49 D ABS ABS enclosure UL94-VO 57x90x65mm, plug, socket, leadthr.

**Part No.** Ord.No.

S KM 49 D ABS 55398

## Plastic Enclosures for Power Supplies

ECONOMIC

### KPZ Series

#### KPZ1

The enclosure consists of two identical parts that can be screwed together by means of two screws. Designed from polystyrene material in black colour.



PS

**Part No.** Description, dimensions A x B x C

KPZ 1 Enclosure 52x47x66mm black colour

KPZ 1 A Enclosure 24x47x66mm black colour

KPZ 1 B Enclosure 38x47x66mm black colour

**Part No.** Ord.No.

S KPZ 1 9492

S KPZ 1 A 9491

S KPZ 1 B 8912



## Plastic Enclosures for Power Supplies (continued)

ECONOMIC

### KPZ5, KPZ5GR

The enclosure consists of two parts that can be screwed together by means of four screws. Supplied in black or grey colour, designed from polystyrene material with 4 feet.



PS

Part No.	Description, dimensions A x B x C
KPZ 5	Enclosure 63x70x114mm black+4feets+2leadthroughs
KPZ 5 GR	Enclosure 63x70x114mm grey+4feets+2leadthroughs
Part No.	Ord.No.
S KPZ 5	5798
S KPZ 5 GR	42945

### KPZ6

The Enclosure consists of two parts that can be screwed together by means of four screws. Supplied in black colour with 4 feet and leadthrough.



PS

Part No.	Description, dimensions A x B x C
KPZ 6	Enclosure 65x76x176mm black+4feets+leadthrough
Part No.	Ord.No.
S KPZ 6	43245

### KPZ8

The enclosure consists of three parts and it can be screwed together by means of four screws. Supplied in black colour.



PS

Part No.	Description, dimensions A x B x C
KPZ 8	Enclosure 74x100x179mm black, ventilation holes+leadthrough
Part No.	Ord.No.
S KPZ 8	43246

## KM Series

### KM 103

The enclosure consists of two parts that can be screwed together by means of four screws. In the bottom part there is a battery compartment for six AA size batteries with a removable cover.

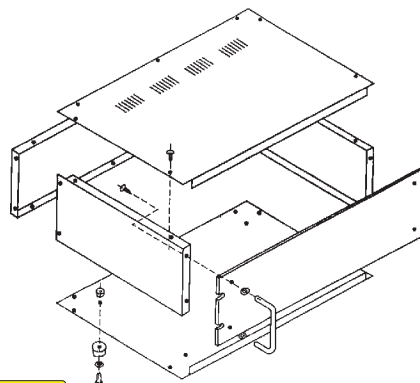


ABS

Part No.	Description, dimensions A x B x C
KM 103	ABS enclosure 190x93x40mm for 6xAA batteries
Part No.	Ord.No.
S KM 103	48203

## Metal Enclosures for 19" Rack 19" RACK Series

Construction from 1,2mm steel sheet. All screws, rubber feet, handles are included in delivery. Front panel width is 480mm. Matt black surface.



ocel 1,2mm

Part No.	Description, Dimensions W x D x H
19"RACK 1HE	19"RACK 440x290x44mm black, 1,2mm steel
19"RACK 2HE	19"RACK 440x290x88mm black, 1,2mm steel
19"RACK 3HE	19"RACK 440x290x132mm čierny, 1,2mm steel
19"RACK 4HE	19"RACK 440x290x176mm čierny, 1,2mm steel

Part No.	Ord.No.
S 19"RACK 1HE	1766
S 19"RACK 2HE	1767
O 19"RACK 3HE	49138
O 19"RACK 4HE	49139

## ITALTRONIC DIN Rail Enclosures

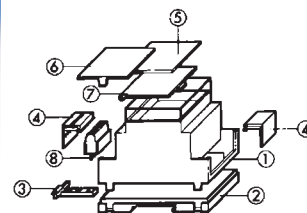
### MODULBOX H53 Series



High quality DIN rail enclosures from ITALTRONIC. Designed from Noryl - self-extinguishing PPO (UL94V-0). Basic setup consists of 3 parts (1=body enclosure, 2=base and 3=hook - see the picture below).

We provide also different accessories for these enclosures: 4=terminal cover, 5=panel, 6=panel with hooks (standard), 7=panel with hinge, 8=terminal.

Please find informative prices of panels (5) and terminals covers (4) in the list below.



Noryl

Part No.	Description + enclosure width
MODULBOX DIN 1M H53	DIN rail enclosure 17,5mm
MODULBOX DIN 2M H53	DIN rail enclosure 36mm
MODULBOX DIN 3M H53	DIN rail enclosure 53mm
MODULBOX DIN 4M H53	DIN rail enclosure 71mm
MODULBOX DIN 6MD H53	DIN rail enclosure 106mm
MODULBOX DIN 9MD H53	DIN rail enclosure 160mm

Part No.	Ord.No.
S MODULBOX DIN 1M H53	57313
S MODULBOX DIN 2M H53	53617
S MODULBOX DIN 3M H53	57314
S MODULBOX DIN 4M H53	53616
S MODULBOX DIN 6MD H53	57315
S MODULBOX DIN 9MD H53	54181

## MODULBOX HC53 Series



Enclosures with the same characteristics as H53 Series but without removable front panel.



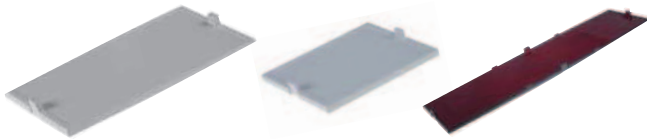
Part No.	Description + enclosure width
MODULBOX DIN 9M HC53	DIN rail enclosure 160mm fixed panel

Part No.	Ord.No.
o MODULBOX DIN 9M HC53	54845

## MODULBOX PANEL Series



The front panel to MODULBOX H53 Series of enclosures. There are available different widths of panels.



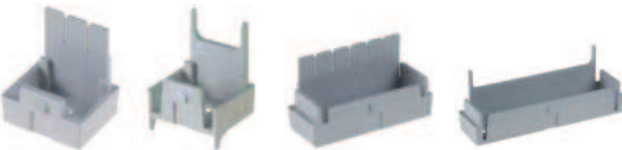
Part No.	Description + enclosure width
MODULBOX PANEL GREY 1M	DIN rail enclosure front panel 17,5mm
MODULBOX PANEL GREY 2M	DIN rail enclosure front panel 36mm
MODULBOX PANEL GREY 3M	DIN rail enclosure front panel 53mm
MODULBOX PANEL GREY 4M	DIN rail enclosure front panel 71mm
MODULBOX PANEL GREY 6M	DIN rail enclosure front panel 106mm
MODULBOX PANEL GREY 9M	DIN rail enclosure front panel 160mm
MODULBOX PANEL RED 9M	DIN rail enclosure front panel 160mm

Part No.	Ord.No.
s MODULBOX PANEL GREY 1M	57316
s MODULBOX PANEL GREY 2M	53618
s MODULBOX PANEL GREY 3M	58049
s MODULBOX PANEL GREY 4M	53619
s MODULBOX PANEL GREY 6M	58050
s MODULBOX PANEL GREY 9M	58051
o MODULBOX PANEL RED 9M	54182

## MODULBOX COVER Series



The terminal covers for MODULBOX H53, HC53 Series of enclosures. There are available 3 Part No.s of terminal covers: with plain cover (without holes), pre-holed cover and pre-moulding terminal cover.



Part No.	Description + enclosure width
MODULBOX COVER 1M	DIN rail enc. terminal cover with premoulding
MODULBOX COVER 1M-5/3	DIN rail enclosure pre-holed terminal cover
MODULBOX COVER 1MPN	DIN rail enclosure terminal cover without holes
MODULBOX COVER 2M	DIN rail enc. terminal cover with premoulding
MODULBOX COVER 2M-5/6	DIN rail enclosure pre-holed terminal cover
MODULBOX COVER 2MPN	DIN rail enclosure terminal cover without holes
MODULBOX COVER 3M	DIN rail enc. terminal cover with premoulding
MODULBOX COVER 3M-5/9	DIN rail enclosure pre-holed terminal cover
MODULBOX COVER 3MPN	DIN rail enclosure terminal cover without holes
MODULBOX COVER 4M	DIN rail enc. terminal cover with premoulding
MODULBOX COVER 4M-5/12	DIN rail enclosure pre-holed terminal cover
MODULBOX COVER 4MPN	DIN rail enclosure terminal cover without holes

Part No.	Ord.No.
s MODULBOX COVER 1M	58043
o MODULBOX COVER 1M-5/3	58041
o MODULBOX COVER 1MPN	58046
s MODULBOX COVER 2M	53622

o MODULBOX COVER 2M-5/6	53620
o MODULBOX COVER 2MPN	58047
s MODULBOX COVER 3M	58044
o MODULBOX COVER 3M-5/9	54183
s MODULBOX COVER 3MPN	54184
s MODULBOX COVER 4M	53623
o MODULBOX COVER 4M-5/12	53621
o MODULBOX COVER 4MPN	58048

## EUROCLAMP DIN Rail Enclosures



### CEM Series

#### CEM17

The electronic housing is designed to accept connections up to 12 poles. The terminal blocks mounted on the pcb have a wire section of 2,5mm and the wide inner space allows the use and mounting of a high number of electronic components. In case some terminal blocks are not needed, the correspondent hole on the housing can be closed so to grant a complete protection of inner components. The housing is realized with a selfextinguishing polyamide standard colour is grey. Special colours, modifications on superior frontal and imprints are available on request.



Part No.	Description + dimensions H x W x D
CEM17-GY	DIN rail enclosure 17,5mm, grey 49,7x87,7x15mm

Part No.	Ord.No.
s CEM17-GY	50946

#### CEM35

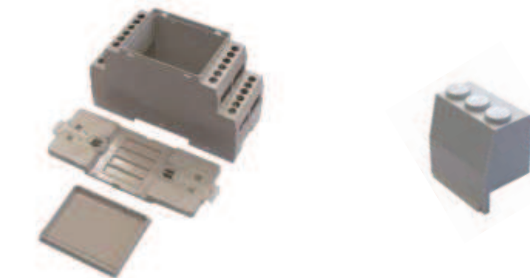
The CEM35 electronic housing is realized for connections up to 24 poles. It is possible to reduce the number of connections thanks to the closing accessory TP35. Simply insert this accessory into the hole you need to close before inserting the board.

Two versions are available:

- the CEM35-V housing, with vertical boards, is designed to accept ML25- LC terminal blocks granting a wire section of 2,5mm<sup>2</sup>.
- the CEM35-H housing, with horizontal boards, is designed to accept ML25-V terminal blocks granting a wire section of 2,5mm<sup>2</sup>.

The wide inner space allows the use and mounting of a high number of electronic components. Special colours, modifications on upper cover and imprints are available on request.

Material: self-extinguishing polyamide 6.6 UL94 V0, standard colour : grey.



Part No.	Description + dimensions H x W x D
CEM35-H-GY	DIN rail enclosure 35mm, grey, with horizontal boards
CEM35-V-GY	DIN rail enclosure 35mm, grey, with vertical boards
TP35-GY	Closing accessory for CEM35 Series of enclosures

Part No.	Ord.No.
s CEM35-H-GY	65318
s CEM35-V-GY	56718
s TP35-GY	65319

All quoted prices in catalogue are informative.

Prices in EURO do not include VAT.

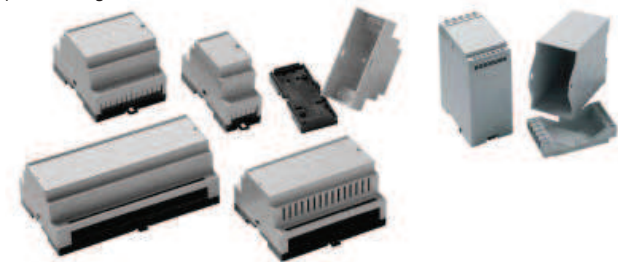
Please find current prices at our web site

[www.soselectronic.com](http://www.soselectronic.com)

## DIN Rail Enclosures (continued)

### BKDIN Series

DIN rail-mounted plastic enclosures consist of 2 parts, which can be clicked together. The clear plexi glass can be added to the top part, which is made from self-extinguishing ABS material UL94 V0 in light grey colour (RAL 7035). The base is made from Noryl (UL94-V0) material in black colour (RAL 7021). Enclosures with P suffix do not have ventilation holes, KO suffix stands for an enclosure with pre-moulding.



ABS

Part No.	Description + dimensions H x W x D
BKDIN 175 P	ABS DIN rail enclos. 53x17,5x89mm, vent. holes for terminal
BKDIN 525 P	ABS DIN rail enclos. 58x52,5x86mm vent. holes for terminal
BKDIN 350 KO/P	ABS DIN rail enclos. 57x35x86mm pre-moulded vent. holes
BKDIN 700 KO/P	ABS DIN rail enclos. 57x70x86mm pre-moulded vent. holes
BKDIN 1050 KO/P	ABS DIN rail enclos. 57x105x86mm pre-moulded vent. holes
BKDIN 1570 KO/P	ABS DIN rail enclos. 57x157x86mm pre-moulded vent. holes
BKDIN 450	ABS DIN rail enclos. 108x78x45mm grey with 2 term.
BKDIN 350 ST	Plexi glass for BKDIN350 enclosure
BKDIN 700 ST	Plexi glass for BKDIN700 enclosure
BKDIN 1050 ST	Plexi glass for BKDIN1050 enclosure
BKDIN 1570 ST	Plexi glass for BKDIN1570 enclosure

Part No.	Ord.No.
S BKDIN 175 P	51810
S BKDIN 525 P	51814
S BKDIN 350 KO/P	51812
S BKDIN 700 KO/P	51813
S BKDIN 1050 KO/P	51808
S BKDIN 1570 KO/P	51809
S BKDIN 450	53481
S BKDIN 350 ST	51969
S BKDIN 700 ST	51970
S BKDIN 1050 ST	51967
S BKDIN 1570 ST	51968

### KPDIN Series

2-parts DIN rail (TS-35) plastic enclosure, 4 screws, light grey colour.



PS

Part No.	Description + dimensions H x W x D
KPDIN 1	DIN rail polystyrene enclosure 64x35x90mm grey
KPDIN 2	DIN rail polystyrene enclosure 66x52x90mm grey
KPDIN 3	DIN rail polystyrene enclosure 66x106x90mm grey
KPDIN 4	DIN rail polystyrene enclosure 66x67x90mm grey
KPDIN 5	DIN rail polystyrene enclosure 64x137x90mm grey

Part No.	Ord.No.
S KPDIN 1	6499
S KPDIN 2	6407
S KPDIN 3	6500
S KPDIN 4	6508
S KPDIN 5	43238

## Potting Storage

### SCx Series

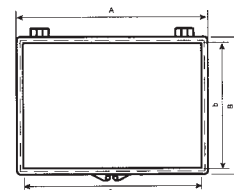


Series of small storage boxes with hinged transparent lid and black bottom. According with the internal dimensions could be utilised up to 3 trays that can be inserted inside, which are available in 20, 28 and 36 sections (Mod. SCA). They are moulded in polystyrene. Glossy surfaces finish.

SCA - compartments. Possible combinations: SC 32 + 3xSC 36 (3 levels) or SC 32 + 1xSC 28 + 1xSC 36.



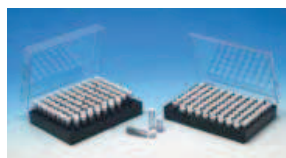
PS



Part No.	Description
SC32.9	Storage Enclosure 180x140,5x38mm black
SCA28.0	PS compartments 28x 175x125x20mm transparent
SCA36.0	PS compartments PS 36x 175x125x10mm transparent

Part No.	Ord.No.
S SC32.9	41522
S SCA28.0	41567
S SCA36.0	41568

### SMD-BOX Series



PS

#### SB25.0

Storage boxes are ideal to store and organise small electronic components. They are moulded in polystyrene with transparent hinged lids. The "SMD" boxes hold eighty-nine tubes.

Replacement tubes



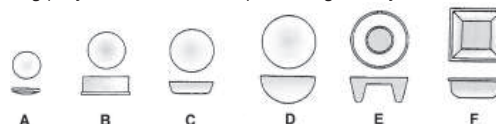
Part No.	Description
SB25.0	SMD storage box 180,5x140,5x38mm

Part No.	Ord.No.
S SB25.0	42988

## Accessories for Enclosures - Casing Legs

### LEG Series

Casing legs of different shapes are made from polyurethane. Allowed operating temperature range is: 0°C up to +65°C. L suffix in "Shape" column stands for self-adhesive leg (acrylate material for transparent legs and synthetic rubber for black legs).



Part No.	E-marking	Dimensions	Shape	Colour
LEG-A1	17.52.081	7,9x2,2mm	A-L	transparent
LEG-B1	17.58.010	12,7x3,5mm	B-L	black
LEG-B2	17.58.110	15,7x10,1mm	B-L	black
LEG-B3	17.58.250	20,6x6,1mm	B-L	black
LEG-C1	17.52.220	20x5,5mm	C-L	black
LEG-D1	17.58.150	16x8,1mm	D-L	black
LEG-D2	17.52.190	19x9,6mm	D-L	black
LEG-E1	17.54.201	20mm for M4	E	black
LEG-E2	17.58.170	22,4x10,1mm	E-L	black
LEG-E3	17.54.301	30mm for M5	E	black
LEG-F2	17.52.200	20,6x20,6x7,6mm	F-L	black

Part No.	Ord.No.
S LEG-A1	10778
S LEG-B1	10791
S LEG-B2	10794
S LEG-B3	10797
S LEG-C1	10785
S LEG-D1	10795
S LEG-D2	10783
S LEG-E1	10789
S LEG-E2	10796
S LEG-E3	10790
S LEG-F2	10784

## Metal Screws, Nuts, Washers

### SKV Series

**ETTINGER**

Cheese head slotted metal screws made from 4.8 steel with nickel plating (M2,5 and M3) or zinc-plating (M4 and M5).



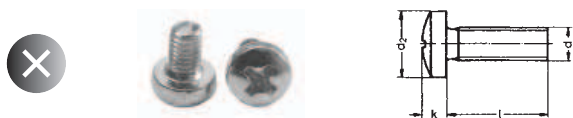
Part No.	d	l	k	D	Description
SKV 25-6	2,5	6	1,6	4,5	Metal screw M2,5 x 6mm, steel/Ni
SKV 25-8	2,5	8	1,6	4,5	Metal screw M2,5 x 8mm, steel/Ni
SKV 25-12	2,5	12	1,6	4,5	Metal screw M2,5 x 12mm, steel/Ni
SKV 25-20	2,5	20	1,6	4,5	Metal screw M2,5 x 20mm, steel/Zn
SKV 30-6	3	6	2	5,5	Metal screw M3 x 6mm, steel/Ni
SKV 30-12	3	12	2	5,5	Metal screw M3 x 12mm, steel/Ni
SKV 30-20	3	20	2	5,5	Metal screw M3 x 20mm, steel/Ni
SKV 30-30	3	30	2	5,5	Metal screw M3 x 30mm, steel/Zn
SKV 40-6	4	6	2,6	7	Metal screw M4 x 6mm, steel/Zn
SKV 40-20	4	20	2,6	7	Metal screw M4 x 20mm, steel/Zn
SKV 50-10	5	10	3,3	8,5	Metal screw M5 x 10mm, steel/Zn

Part No.	Ord.No.	E-marking
S SKV 25-6	9783	01.14.223
S SKV 25-8	9784	01.14.233
S SKV 25-12	9787	01.14.253
S SKV 25-20	9789	01.14.273
S SKV 30-6	9791	01.14.323
S SKV 30-12	9794	01.14.353
S SKV 30-20	9796	01.14.373
S SKV 30-30	50915	01.14.391
S SKV 40-6	9799	01.24.061
S SKV 40-20	9803	01.24.201
S SKV 50-10	9804	01.25.101

### SKS Series

**ETTINGER**

Machine screw pan head phillips are made from 4.8 steel, nickel plated.



Part No.	d	l	k	D	Description
SKS 25-8	2,5	8	2	5	Screw M2,5 x 8mm pan head, steel/Ni
SKS 25-16	2,5	16	2	5	Screw M2,5 x 16mm pan head, steel/Ni
SKS 30-6	3	6	2,4	6	Screw M3 x 6mm pan head, steel/Ni
SKS 30-8	3	8	2,4	6	Screw M3 x 8mm pan head, steel/Ni
SKS30-10	3	10	2,4	6	Screw M3 x 10mm pan head, steel/Ni
SKS30-12	3	12	2,4	6	Screw M3 x 12mm pan head, steel/Ni
SKS30-16	3	16	2,4	6	Screw M3 x 16mm pan head, steel/Ni
SKS 40-16	4	16	3,1	8	Screw M4 x 16mm pan head, steel/Ni
SKS 50-8	5	8	3,8	10	Screw M5 x 8mm pan head, steel/Ni

Part No.	Ord.No.	E-marking
S SKS 25-8	9873	01.17.233
S SKS 25-16	9876	01.17.263
S SKS 30-6	9878	01.17.323
S SKS 30-8	9879	01.17.333
S SKS30-10	9880	01.17.343
S SKS30-12	9881	01.17.353
S SKS30-16	9882	01.17.363
S SKS 40-16	9887	01.17.463
S SKS 50-8	9888	01.17.533

### SKZK Series

**ETTINGER**

Countersunk head phillips drive - metal screws made from 4.8 steel, nickel plated.



Part No.	d	l	k	D	Description
SKZK25-06	2,5	6	1,5	4,7	M2,5x6mm countersunk screw, steel/Ni
SKZK25-10	2,5	10	1,5	4,7	M2,5x10mm countersunk screw, steel/Ni
SKZK25-16	2,5	16	1,5	4,7	M2,5x16mm countersunk screw, steel/Zn
SKZK30-06	3	6	1,7	5,6	M3x6mm countersunk screw, steel/Ni
SKZK30-10	3	10	1,7	5,6	M3x10mm countersunk screw, steel/Ni
SKZK30-16	3	16	1,7	5,6	M3x16mm countersunk screw, steel/Ni
SKZK30-20	3	20	1,7	5,6	M3x20mm countersunk screw, steel/Ni

Part No.	Ord.No.	E-marking
S SKZK25-06	9739	01.12.223
S SKZK25-10	9741	01.12.243
S SKZK25-16	62585	01.12.261
S SKZK30-06	52728	01.12.323
S SKZK30-10	62312	01.12.343
S SKZK30-16	62314	01.12.363
S SKZK30-20	62316	01.12.373

### SKZP Series

**ETTINGER**

Countersunk head slotted - metric, metal screws made from 4.8 steel, nickel or zinc plated.



Part No.	d	l	k	D	Description
SKZP25-06	2,5	6	1,5	4,7	M2,5x6mm countersunk screw, steel/Zn
SKZP25-10	2,5	10	1,5	4,7	M2,5x10mm countersunk screw, steel/Zn
SKZP25-16	2,5	16	1,5	4,7	M2,5x16mm countersunk screw, steel/Ni
SKZP25-20	2,5	20	1,5	4,7	M2,5x20mm countersunk screw, steel/Ni
SKZP30-06	3	6	1,7	5,6	M3x6mm countersunk screw, steel/Ni
SKZP30-10	3	10	1,7	5,6	M3x10mm countersunk screw, steel/Ni
SKZP30-16	3	16	1,7	5,6	M3x16mm countersunk screw, steel/Zn
SKZP30-20	3	20	1,7	5,6	M3x20mm countersunk screw, steel/Ni

Part No.	Ord.No.	E-marking
S SKZP25-06	62586	01.11.221
S SKZP25-10	62587	01.11.241
S SKZP25-16	62269	01.11.263
S SKZP25-20	62270	01.11.273
S SKZP30-06	62271	01.11.323
S SKZP30-10	62308	01.11.343
S SKZP30-16	62438	01.11.361
S SKZP30-20	62309	01.11.373

Please find summary list  
of assembling components at  
[www.soselectronic.com](http://www.soselectronic.com)

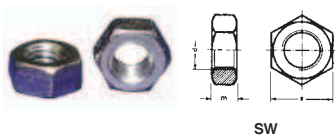
## Metal Screws, Nuts, Washers

(continued)

### MK Series

Hexagon nuts made from steel, nickel plated.

ETTINGER



Part No.	Thread	m	SW
MK25	M2,5	2	5
MP30	M3	2,4	5,5
MP40	M4	3,2	7
MP50	M5	4,0	8

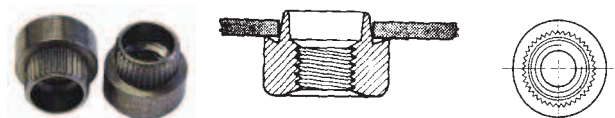
Part No.	For thread	Description
MK25	M2,5	M2,5 x 2,0mm SW5 nut steel/Ni
MK30	M3	M3 x 2,4mm SW5,5 nut steel/Ni
MK40	M4	M4 x 3,2mm SW7 nut steel/Ni
MK50	M5	M5 x 4,0mm SW8 nut steel/Ni

Part No.	Ord.No.	E-marking
S MK25	9935	02.10.023
S MK30	9937	02.10.033
S MK40	9939	02.10.043
S MK50	9940	02.10.053

### MN Series

Swage nuts designed for 1,4-1,6mm boards.

ETTINGER



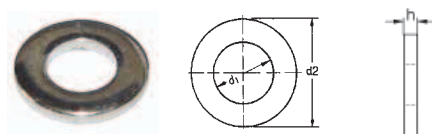
Part No.	M	I1	I	D	d	Description
MN 25	2,5	4,4	2,8	5,5	4,2	Swage nut M2,5 x 4,4(2,8)mm steel
MN 30	3	4,4	2,8	5,5	4,2	Swage nut M3 x 4,4(2,8)mm steel
MN 40	4	4,8	3,2	7	5,5	Swage nut M4 x 4,8(3,2)mm steel
MN 50	5	5,4	3,8	8,5	6,5	Swage nut M5 x 5,4(3,8)mm steel

Part No.	Ord.No.	E-marking
S MN 25	9984	02.15.221
S MN 30	9985	02.15.231
S MN 40	9986	02.15.241
O MN 50	9987	02.15.251

### PODK Series

Flat washers, steel material, nickel plated. Thickness: 0,5 mm (M5: 1 mm).

ETTINGER



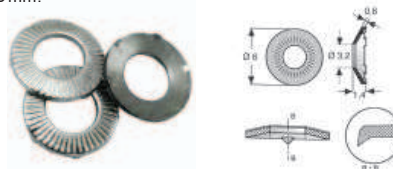
Part No.	d1	d2	h	Description
PODK 25	2,7	6	0,5	Flat washer M2,5 x 0,5mm steel/Ni
PODK 30	3,2	7	0,5	Flat washer M3 x 0,5mm steel/Ni
PODK 40	4,3	9	0,8	Flat washer M4 x 0,8mm steel/Ni
PODK 50	5,3	10	1,0	Flat washer M5 x 1,0mm steel/Ni

Part No.	Ord.No.	E-marking
S PODK 25	10037	03.05.023
S PODK 30	10038	03.05.033
S PODK 40	10039	03.05.043
S PODK 50	10040	03.05.053

### PODKZ Series

ETTINGER

Contact-washer with tooth made from springsteel, zinc plated. Thickness: 0,6mm.



Part No.	d1	d2	k	Description
PODKZ30	3,2	6	1,4	Contact-washer with tooth M3 steel/Zn
PODKZ40	4,2	8	1,4	Contact-washer with tooth M4 steel/Zn
PODKZ50	5,1	10,2	1,5	Contact-washer with tooth M5 steel/Zn
PODKZ60	6,1	12,2	1,8	Contact-washer with tooth M6 steel/Zn
PODKZ80	8,2	16,2	2	Contact-washer with tooth M8 steel/Zn

Part No.	Ord.No.	E-marking
S PODKZ30	56676	03.20.031
S PODKZ40	62083	03.20.041
S PODKZ50	59785	03.20.051
S PODKZ60	62176	03.20.061
S PODKZ80	56896	03.20.081

### Plastic screws, nuts

#### SPV Series

ETTINGER

Pan head slotted - metric screws made from Nylon 66. Operating temperature range: -20°C up to 100°C.



Part No.	M	I	k	D	Description
SPV30-06	3	6	1,8	5,6	Pan Head Slotted, M3x6mm, Nylon 66
SPV30-10	3	10	1,8	5,6	Pan Head Slotted, M3x10mm, Nylon 66
SPV30-16	3	16	1,8	5,6	Pan Head Slotted, M3x16mm, Nylon 66
SPV40-16	4	16	2,4	8	Pan Head Slotted, M4x16mm, Nylon 66
SPV50-20	5	20	3	9,5	Pan Head Slotted, M5x20mm, Nylon 66

Part No.	Ord.No.	E-marking
S SPV30-06	9830	01.45.326
S SPV30-10	9831	01.45.346
S SPV30-16	9833	01.45.366
S SPV40-16	9844	01.45.466
S SPV50-20	9850	01.45.576

#### 01.47.156

ETTINGER

Pan head phillips - metric screws from Nylon 66. Operating temperature range: -20°C up to 100°C.



Part No.	Description
01.47.156	M2X12mm plastic screw

Part No.	Ord.No.	E-marking
S 01.47.156	68620	01.47.156

## MP Series

Hexagon nuts - metric, from Nylon 66. Operating temperature range: -20°C up to 100°C.



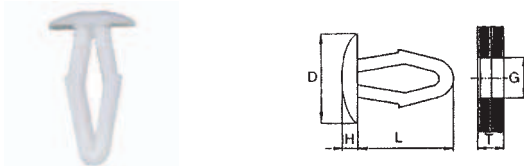
Part No.	Thread	m	SW
MP25	M2,5	2,0	5
MP30	M3	2,4	5,5
MP40	M4	3,2	7
MP50	M5	4,2	8

Part No.	Description
MP20	Plastic nut M2 x 1,6mm SW4, Nylon 66
MP25	Plastic nut M2,5 x 2,0mm SW5, Nylon 66
MP30	Plastic nut M3 x 2,4mm SW5,5, Nylon 66
MP40	Plastic nut M4 x 3.2mm SW7, Nylon 66
MP50	Plastic nut M5 x 4,2mm SW8, Nylon 66

Part No.	Ord.No.	E-marking
S MP20	68621	02.05.016
S MP25	9942	02.05.026
S MP30	9943	02.05.036
S MP40	9945	02.05.046
S MP50	9947	02.12.056

## NITP-39 Series

Drive fastener - hollow body / easy to remov Dimensions: G=3,9mm, D=9mm, L=14mm, T=1 up to 5mm.



Part No.	Description
NITP-39	Push-in-fastener 3,9mm diameter, POM UL94-HB

Part No.	Ord.No.	E-marking
S NITP-39	10666	72.17.741

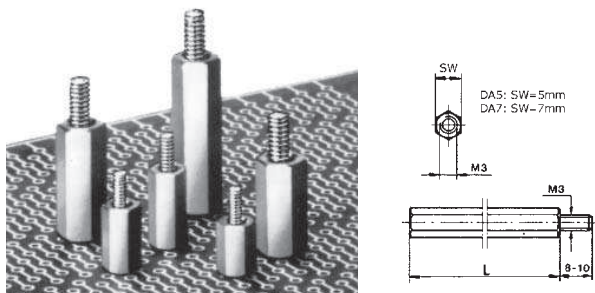
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**ETTINGER**

## Metal Standoffs with Thread

### DA5, DA7

Metal standoffs for reduction with one female and one male thread, made from nickel plated brass. DA5 (or DA7) stands for the thread's size and the standoff's length in mm (without thread part).



Part No.	Description
DA5 M3x05	Hex standoff M/F M3 x 5mm SW5, brass/Ni
DA5 M3x08	Hex standoff M/F M3 x 8mm SW5, brass/Ni
DA5 M3x10	Hex standoff M/F M3 x 10mm SW5, brass/Ni
DA5 M3x12	Hex standoff M/F M3 x 12mm SW5, brass/Ni
DA5 M3x15	Hex standoff M/F M3 x 15mm SW5, brass/Ni
DA5 M3x18	Hex standoff M/F M3 x 18mm SW5, brass/Ni
DA5 M3x20	Hex standoff M/F M3 x 20mm SW5, brass/Ni
DA5 M3x25	Hex standoff M/F M3 x 25mm SW5, brass/Ni
DA5 M3x30	Hex standoff M/F M3 x 30mm SW5, brass/Ni
DA5 M3x35	Hex standoff M/F M3 x 35mm SW5, brass/Ni
DA5 M3x40	Hex standoff M/F M3 x 40mm SW5, brass/Ni
DA5 M3x45	Hex standoff M/F M3 x 45mm SW5, brass/Ni
DA5 M3x50	Hex standoff M/F M3 x 50mm SW5, brass/Ni

Part No.	Ord.No.
S DA5 M3x05	20107
S DA5 M3x08	7078
S DA5 M3x10	20108
S DA5 M3x12	8368
S DA5 M3x15	20109
S DA5 M3x18	8369
S DA5 M3x20	20110
S DA5 M3x25	8370
S DA5 M3x30	20111
S DA5 M3x35	7548
S DA5 M3x40	7241
S DA5 M3x45	7438
S DA5 M3x50	8371



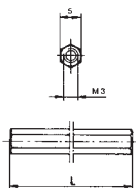
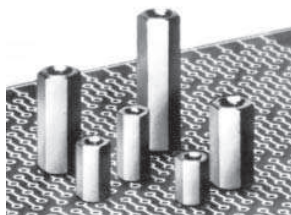
Part No.	Description
DA7 M4x05	Hex standoff M/F M4 x 5mm SW7, brass/Ni
DA7 M4x10	Hex standoff M/F M4 x 10mm SW7, brass/Ni
DA7 M4x15	Hex standoff M/F M4 x 15mm SW7, brass/Ni
DA7 M4x20	Hex standoff M/F M4 x 20mm SW7, brass/Ni
DA7 M4x30	Hex standoff M/F M4 x 30mm SW7, brass/Ni
DA7 M4x50	Hex standoff M/F M4 x 50mm SW7, steel/Zn

Part No.	Ord.No.
S DA7 M4x05	8373
S DA7 M4x10	8381
S DA7 M4x15	8382
S DA7 M4x20	8383
S DA7 M4x30	7079
S DA7 M4x50	10218

## Metal Standoffs with Thread (continued)

### DI5, DI7 Series

Metal standoffs with female threads on both sides, made from nickel plated brass material. DI5 (or DI7) stands for the thread's size and the standoff's length in mm.



Part No.	Description
DI5 M3x05	Hex standoff F/F M3 x 5mm SW5, brass/Ni
DI5 M3x08	Hex standoff F/F M3 x 8mm SW5, brass/Ni
DI5 M3x10	Hex standoff F/F M3 x 10mm SW5, brass/Ni
DI5 M3x12	Hex standoff F/F M3 x 12mm SW5, brass/Ni
DI5 M3x15	Hex standoff F/F M3 x 15mm SW5, brass/Ni
DI5 M3x18	Hex standoff F/F M3 x 18mm SW5, brass/Ni
DI5 M3x20	Hex standoff F/F M3 x 20mm SW5, brass/Ni
DI5 M3x25	Hex standoff F/F M3 x 25mm SW5, brass/Ni
DI5 M3x30	Hex standoff F/F M3 x 30mm SW5, brass/Ni
DI5 M3x35	Hex standoff F/F M3 x 35mm SW5, brass/Ni
DI5 M3x40	Hex standoff F/F M3 x 40mm SW5, brass/Ni
DI5 M3x45	Hex standoff F/F M3 x 45mm SW5, brass/Ni
DI5 M3x50	Hex standoff F/F M3 x 50mm SW5, brass/Ni

Part No.	Ord.No.
S DI5 M3x05	20102
S DI5 M3x08	7732
S DI5 M3x10	20103
S DI5 M3x12	8362
S DI5 M3x15	20104
S DI5 M3x18	8363
S DI5 M3x20	20105
S DI5 M3x25	8364
S DI5 M3x30	20106
S DI5 M3x35	8365
S DI5 M3x40	8366
S DI5 M3x45	8367
S DI5 M3x50	7549



Part No.	Description
DI7 M4x05	Hex standoff F/F M4 x 5mm SW7, brass/Ni
DI7 M4x10	Hex standoff F/F M4 x 10mm SW7, brass/Ni
DI7 M4x15	Hex standoff F/F M4 x 15mm SW7, brass/Ni
DI7 M4x20	Hex standoff F/F M4 x 20mm SW7, brass/Ni
DI7 M4x30	Hex standoff F/F M4 x 30mm SW7, brass/Ni

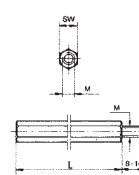
Part No.	Ord.No.
S DI7 M4x05	8384
S DI7 M4x10	8385
S DI7 M4x15	8386
S DI7 M4x20	8387
S DI7 M4x30	8388

## Plastic Standoffs with Thread

### DSMS Series

**ETTINGER**

Hex-standoffs male - female made from Nylon 66, black colour. Allowed operating temperature is +110°C. DSMS stands for the thread's size and the standoff's length in mm (without thread part).



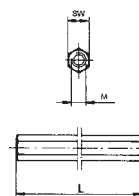
Part No.	Description
DSMS M3x06	Hex standoff M/F M3 x 6mm SW6, Nylon
DSMS M3x10	Hex standoff M/F M3 x 10mm SW6, Nylon
DSMS M3x15	Hex standoff M/F M3 x 15mm SW6, Nylon
DSMS M3x20	Hex standoff M/F M3 x 20mm SW6, Nylon
DSMS M3x30	Hex standoff M/F M3 x 30mm SW6, Nylon
DSMS M4x10	Hex standoff M/F M4 x 10mm SW8, Nylon
DSMS M4x20	Hex standoff M/F M4 x 20mm SW8, Nylon
DSMS M4x30	Hex standoff M/F M4 x 30mm SW8, Nylon

Part No.	Ord.No.	E-marking
S DSMS M3x06	10284	05.43.060
S DSMS M3x10	10286	05.43.100
S DSMS M3x15	10288	05.43.150
S DSMS M3x20	10290	05.43.200
S DSMS M3x30	10292	05.43.300
S DSMS M4x10	10294	05.44.410
S DSMS M4x20	10296	05.44.420
S DSMS M4x30	10297	05.44.430

### DSMM Series

**ETTINGER**

Hex-standoffs female - female on both sides made from Nylon 66, black colour. Allowed operating temperature is +110°C. DSMS stands for the thread's size and the standoff's length in mm.



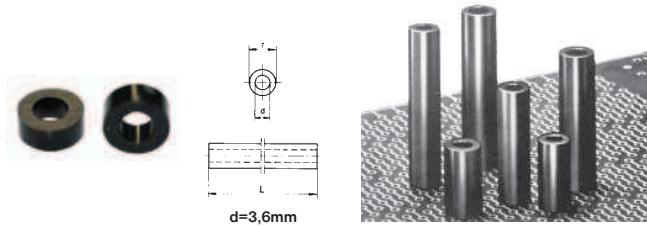
Part No.	Description
DSMM M3X05	Hex standoff F/F M3 x 5mm SW6, Nylon
DSMM M3X10	Hex standoff F/F M3 x 10mm SW6, Nylon
DSMM M3X12	Hex standoff F/F M3 x 12mm SW6, Nylon
DSMM M3X15	Hex standoff F/F M3 x 15mm SW6, Nylon
DSMM M3X20	Hex standoff F/F M3 x 20mm SW6, Nylon
DSMM M3X30	Hex standoff F/F M3 x 30mm SW6, Nylon
DSMM M4X10	Hex standoff F/F M4 x 10mm SW8, Nylon
DSMM M4X20	Hex standoff F/F M4 x 20mm SW8, Nylon

Part No.	Ord.No.	E-marking
S DSMM M3X05	10253	05.30.305
S DSMM M3X10	10255	05.30.310
S DSMM M3X12	10257	05.30.312
S DSMM M3X15	10259	05.30.315
S DSMM M3X20	10260	05.30.320
S DSMM M3X30	10264	05.30.330
S DSMM M4X10	10267	05.30.410
S DSMM M4X20	10269	05.30.420

## Plastic Standoffs Without Thread

### KDR Series

Plastic distance standoffs without thread - sleeves. Made from polystyrol material, black colour. Allowed operating temperature is +70°C. Outside diameter is 7mm, inside diameter d=3,6mm. Number after "KDR" means lenght of a spacer.



Part No.	Length L	Description
KDR 03	3 mm	Round spacer D7x3,6x3,0mm plastic, black, Polystyrol
KDR 04	4 mm	Round spacer D7x3,6x4,0mm plastic, black, Polystyrol
KDR 05	5 mm	Round spacer D7x3,6x5,0mm plastic, black, Polystyrol
KDR 06	6 mm	Round spacer D7x3,6x6,0mm plastic, black, Polystyrol
KDR 08	8 mm	Round spacer D7x3,6x8,0mm plastic, black, Polystyrol
KDR 10	10 mm	Round spacer D7x3,6x10mm plastic, black, Polystyrol
KDR 12	12 mm	Round spacer D7x3,6x12mm plastic, black, Polystyrol
KDR 15	15 mm	Round spacer D7x3,6x15mm plastic, black, Polystyrol
KDR 18	18 mm	Round spacer D7x3,6x18mm plastic, black, Polystyrol
KDR 20	20 mm	Round spacer D7x3,6x20mm plastic, black, Polystyrol
KDR 25	25 mm	Round spacer D7x3,6x25mm plastic, black, Polystyrol
KDR 30	30 mm	Round spacer D7x3,6x30mm plastic, black, Polystyrol
KDR 35	35 mm	Round spacer D7x3,6x35mm plastic, black, Polystyrol

Part No.	Ord.No.
S KDR 03	7925
S KDR 04	7737
S KDR 05	20097
S KDR 06	8827
S KDR 08	8389
S KDR 10	20098
S KDR 12	8390
S KDR 15	20099
S KDR 18	8392
S KDR 20	20100
S KDR 25	8393
S KDR 30	20101
S KDR 35	8394

### 05.81.060

ETTINGER



Part No.	Description
05.81.060	Round spacer D4xd2,2xL6 PA black 110°C

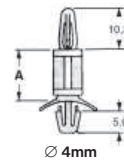
Part No.	Ord.No.
S 05.81.060	68619

## PCB Nylon Spacers

Different Part No.s of nylon spacers are designed to grip 1,6mm thick PCBs. Ø parameter by the dimensioned drawings specifies the holes diameter of the gripping printed circuit. LCBSBM and LCBSB Series are self-adhesive.

### LCMS Series

ETTINGER

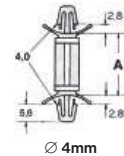


Part No.	A dimension	Description
DSP 06,4 LCBS	A=6,4mm	Circuit board support 6,4mm, Nylon
DSP 09,5 LCBS	A=9,5mm	Circuit board support 9,5mm, Nylon
DSP 12,7 LCBS	A=12,7mm	Circuit board support 12,7mm, Nylon
DSP 22,2 LCBS	A=22,2mm	Circuit board support 22,2mm, Nylon

Part No.	Ord.No.	E-marking
S DSP 06,4 LCBS	10365	06.02.066
S DSP 09,5 LCBS	10369	06.02.096
S DSP 12,7 LCBS	10371	06.02.126
O DSP 22,2 LCBS	10374	06.02.226

### DLCBS1 Series

ETTINGER



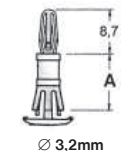
Dual locking circuit board support.

Part No.	A dimension	Description
DSP 06,4 DLCBS1	A=6,4mm	Circuit board support 6,4mm, Nylon
DSP 12,7 DLCBS1	A= 12,7mm	Circuit board support 12,7mm, Nylon

Part No.	Ord.No.	E-marking
S DSP 06,4 DLCBS1	10376	06.03.066
S DSP 12,7 DLCBS1	10379	06.03.126

### RLCBSR Series

ETTINGER



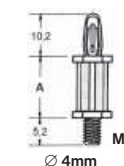
Reverse locking circuit board support, round hole.

Part No.	A dimension	Description
DSP 09,5 RLCBSR	A=9,5 mm	Circuit board support 9,5mm, Nylon

Part No.	Ord.No.	E-marking
S DSP 09,5 RLCBSR	10403	06.81.136

### MSCBS Series

ETTINGER



Locking support, threaded male with male thread.

Part No.	A dimension	Description
DSP 06,4 MSCBS	A=6,4mm	Circuit board support 6,4mm, Nylon
DSP 09,5 MSCBS	A=9,5mm	Circuit board support 9,5mm, Nylon
DSP 12,7 MSCBS	A=12,7mm	Circuit board support 12,7mm, Nylon

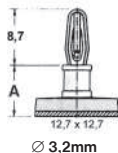
Part No.	Ord.No.	E-marking
S DSP 06,4 MSCBS	10390	06.05.066
S DSP 09,5 MSCBS	10391	06.05.096
S DSP 12,7 MSCBS	10393	06.05.126



## PCB Nylon Spacers (continued)

### LCBSBM Series

ETTINGER



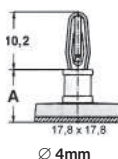
Circuit board support with double adhesive tape.  
Material: Nylon 66  
Flamibility: UL 94 v - 2

Part No.	A dimension	Description
DSP 04,8 LCBSBM	A=4,8mm	Circuit board support 4,8mm adh., Nylon
DSP 06,4 LCBSBM	A=6,4mm	Circuit board support 6,4mm adh., Nylon
DSP 09,5 LCBSBM	A=9,5mm	Circuit board support 9,5mm adh., Nylon
DSP 15,9 LCBSBM	A=15,9mm	Circuit board support 15,9mm adh., Nylon

Part No.	Ord.No.	E-marking
S DSP 04,8 LCBSBM	10414	06.21.043
S DSP 06,4 LCBSBM	10416	06.21.063
S DSP 09,5 LCBSBM	10419	06.21.093
S DSP 15,9 LCBSBM	10423	06.21.153

### LCBSB Series

ETTINGER

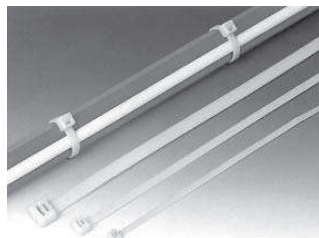


Part No.	A dimen.	Description
DSP 04,8 LCBSB	A=4,8mm	Circuit board support 4,8mm adhesive, Nylon
DSP 06,4 LCBSB	A=6,4mm	Circuit board support 6,4mm, adhesive, Nylon

Part No.	Ord.No.	E-marking
S DSP 04,8 LCBSB	10415	06.21.046
S DSP 06,4 LCBSB	10417	06.21.066

## Cable Ties and Holders

### UB



Plastic refresh cable tie made from polyamide 6.6. Allowed operating temperature is -40°C up to +85°C.

Part No.	Colour	LxB
UB150-NO	white	150x3,6mm
UB150-N	61140	

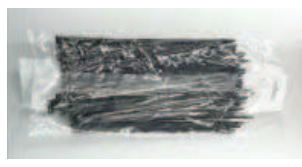
### SECURE-1401



Plastic security tie.  
Unique serial number on the seal.

Part No.	Description
SECURE-1401	Plastic security tie, blue - polypropylene 150 x 2,2mm
Part No.	Ord.No.
S SECURE-1401	61051

## PKB Series



Plastic cable ties in natural and black colour.



Part No.	Description
PKB 2,5X100 NATURAL VE100	Plastic cable tie, natural 100x2,5mm
PKB 2,5X100 NATURAL VE1000	Plastic cable tie, natural 100x2,5mm 1000pcs
PKB 2,5X100 BLACK VE100	Plastic cable tie, natural 100x2,5mm
PKB 2,5X200 NATURAL VE100	Plastic cable tie, natural 200x2,5mm

Part No.	Ord.No.
S PKB 2,5X100 NATURAL VE100	67502
S PKB 2,5X100 NATURAL VE1000	67503
S PKB 2,5X100 BLACK VE100	67501
S PKB 2,5X200 NATURAL VE100	11530

Part No.	Description
PKB 3,6X140 NATURAL VE100	Plastic cable tie, natural 140x3,6mm
PKB 3,6X140 BLACK VE100	Plastic cable tie, black 140x3,6mm

Part No.	Ord.No.
S PKB 3,6X140 NATURAL VE100	67514
S PKB 3,6X140 BLACK VE100	67504

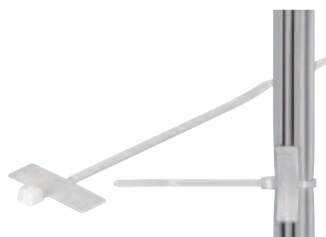
Part No.	Description
PKB 4,8X178 NATURAL VE100	Plastic cable tie, natural 178x4,8mm
PKB 4,8X178 BLACK VE100	Plastic cable tie, black 178x4,8mm
PKB 4,8X290 NATURAL VE100	Plastic cable tie, natural 290x4,8mm
PKB 4,8X290 BLACK VE100	Plastic cable tie, black 290x4,8mm
PKB 4,8X360 NATURAL VE100	Plastic cable tie, natural 360x4,8mm
PKB 4,8X360 BLACK VE100	Plastic cable tie, black 360x4,8mm

Part No.	Ord.No.
S PKB 4,8X178 NATURAL VE100	67506
S PKB 4,8X178 BLACK VE100	67505
S PKB 4,8X290 NATURAL VE100	67508
S PKB 4,8X290 BLACK VE100	67507
S PKB 4,8X360 NATURAL VE100	67510
S PKB 4,8X360 BLACK VE100	67509

Part No.	Description
PKB 7,8X370 NATURAL VE100	Plastic cable tie, natural 370x7,8mm
PKB 7,8X370 BLACK VE100	Plastic cable tie, black 370x7,8mm

Part No.	Ord.No.
S PKB 7,8X370 NATURAL VE100	67513
S PKB 7,8X370 BLACK VE100	67512

## KBM Series

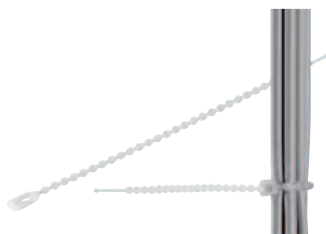


Plastic cable ties with label. KBM100 Part No. has vertical label of 25x8mm size, KBM270 has horizontal label of 28x13mm size. Length and width are shown in table below.

Part No.	Dimension	Description
KBM 100	100 x 2,5 mm	Plastic cable tie 100x2,5 vertical label, natural
KBM 270	270 x 4,6 mm	Plastic cable tie 270x4,6 horizontal label, natural

Part No.	Ord.No.
S KBM 100	8397
S KBM 270	8398

## KBK Series



Knot or demountable cable ties of different sizes.  
Material: PA66  
Colour: natural

Part No.	Length [mm]	Description
KBK 150	150	Knot cable tie, max. diameter 39mm
KBK 180	180	Knot cable tie, max. diameter 45mm

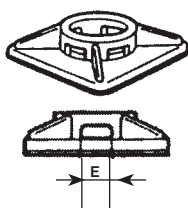
  

Part No.	Ord.No.
S KBK 150	71910
S KBK 180	8400

## DR-LEP Series

**ETTINGER**

Selfadhesive cable tie holders. Maximum width of a cable tie which fits into the holder is marked by "E dimension" and is shown in the table below. As well as the dimensions of holder's base.

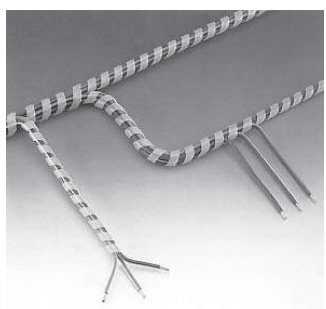


Part No.	Dimensions [mm]	Description
DR-LEP1	19x19, E=3,6	Cable tie holder 19x19mm, E=3,6mm
DR-LEP2	28x28, E=4,8	Cable tie holder 28x28mm, E=4,8mm
DR-LEP3	38x38, E=7,8	Cable tie holder 38x38mm, E=7,8mm
DR-LEP4	19x19, E=4,4	Cable tie holder 19x19mm, E=4,4mm
DR-LEP5	25x25, E=4	Cable tie holder 25x25mm, E=4mm

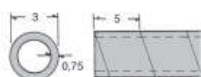
  

Part No.	Ord.No.	E-marking
S DR-LEP1	11503	72.59.131
S DR-LEP2	11504	72.59.741
S DR-LEP3	11502	72.59.471
S DR-LEP4	11494	72.59.149
S DR-LEP5	11496	72.59.231

## TYP 1 Series



Flat harness raps designed to wrap bunch of cables. Made from polyethylene material, natural - transparent colour. Ambient temperature range is -50°C up to +85°C.



Part No.	$f_{zv}$
TYP I/1,5	1,5-7,0mm
TYP I/5,0	5,0-20,0mm
TYP I/10,0	10,0-40,0mm

$f_{zv}$  = diameter of cables bunch

Part No.	E-marking	Description
TYP I/1,5	14.75.111	Harness rap 50m
TYP I/5,0	14.75.121	Harness rap 25m
TYP I/10,0	14.75.131	Harness rap 25m

Part No.	Ord.No.
S TYP I/1,5	10744
S TYP I/5,0	10745
S TYP I/10,0	10746

## Cable Clamps, Bushings, Blinders

### PR-32, PR-48

**ETTINGER**



Cable clamp designed to hold bundles of cables of maximum diameter 3,2mm / 4,8mm

Part No.	Description
PR-32	Cable holder D=3,2mm
PR-48	Cable holder D=4,8mm

Part No.	Ord.No.	E-marking
S PR-32	10721	14.47.031
S PR-48	10722	14.47.041

### PR-95

**ETTINGER**



Self-adhesive cable holder for bundles of cables of maximum diameter 9,5mm. 3M glue guarantees long reliability of sticking upon the base.

Part No.	Description
PR-95	Cable holder D=9.5mm

Part No.	Ord.No.	E-marking
S PR-95	10728	72.51.348

### PR-Set

**ETTINGER**



Set of 80pcs cable holders.

Part No.	Description
PR-Set	Set of cable holders 4x20pcs of 6,7,8 and 9mm diameter

Part No.	Ord.No.
S PR-Set	58052

**SOS electronic**  
- the official distributor of

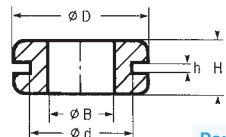
# ETTINGER



## Cable Clamps, Bushings, Blinders

(continued)

### HV 1203



PVC hole grommet from Hellerman. Resistant against the temperature: -10°C to +70°C. D/d/B = 17.5/12/10mm

Part No.	D/d/B [mm]	h/H [mm]
HV 1203	17,5/12/10	2/6,8

Part No.	Description
HV 1203	PVC hole grommet 10 / 17,5x6,8mm h=2mm

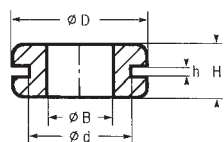
  

Part No.	Ord.No.
S HV 1203	19999

### KDF Series

**ETTINGER**

Hole grommets from soft PVC material, black colour, resistant against the temperature up to +80°C.



Part No.	D/d/B [mm]	h/H [mm]
KDF 4	9.0/6.0/4.0	1.5/5.0
KDF 6	12.0/8.0/6.0	1.5/5.0
KDF 8	13.0/10.0/8.0	1.5/5.0
KDF 8-B	14.2/9.5/8.0	1.5/8.0
KDF 10	15.0/12.0/10.0	1.5/5.5
KDF 10-B	16.0/12.0/10.0	2.0/7.0
KDF 12	25.5/19.0/12.0	1.6/10.0

Part No.	Description
KDF 4	PVC hole grommet 4 / 9x5mm h=1,5mm
KDF 6	PVC hole grommet 6 / 12x5mm h=1,5mm
KDF 8	PVC hole grommet 8 / 13x5mm h=1,5mm
KDF 8-B	PVC hole grommet 8 / 14,2x8mm h=1,5mm
KDF 10	PVC hole grommet 10 / 15x5,5mm h=1,5mm
KDF 10-B	PVC hole grommet 10 / 16x7mm h=2mm
KDF 12	PVC hole grommet 12 / 25,5x10mm h=1,6mm

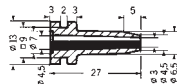
Part No.	Ord.No.	E-marking
S KDF 4	10733	14.60.251
S KDF 6	10735	14.60.543
S KDF 8	10736	14.60.845
S KDF 8-B	10737	14.60.854
S KDF 10	10738	14.62.040
S KDF 10-B	10739	14.62.060
S KDF 12	10742	14.62.252

### VYV Series

**ETTINGER**

Strain reliefs from PVC material, black colour. Available in different lengths and diameters - see dimensioned drawings.

#### VYV30-A

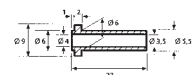


Part No.	Description
VYV30-A	Anti kink pipe for 4,5mm / 27x13mm

Part No.	Ord.No.	E-marking
S VYV30-A	10624	14.02.465

#### VYV35-A

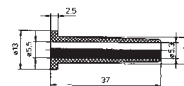


Part No.	Description
VYV35-A	Anti kink pipe for 4mm / 23x9mm

Part No.	Ord.No.	E-marking
S VYV35-A	10623	14.02.350

### VYV55-A

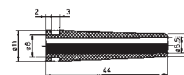


Part No.	Description
VYV55-A	Strain relief for 5,5mm / 37x13mm

Part No.	Ord.No.	E-marking
S VYV55-A	10618	14.02.050

### VYV55-B



Part No.	Description
VYV55-B	Strain relief for 5,5mm / 44x11mm

Part No.	Ord.No.	E-marking
S VYV55-B	10622	14.02.252

### GKT 14-8



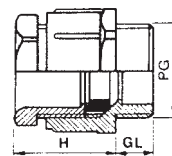
Part No.	Description
GKT 14-8	PVC strain relief for connectors GST106 and GSD104, 8mm

Part No.	Ord.No.
S GKT 14-8	69237

### PG Series

**ETTINGER**



Cable glands with IP54 protection class, made from Polystyrol material, light grey colour RAL 7035. Nut and gasket are not included in delivery. There are 5 sizes available: PG7, PG9, PG11, PG13,5 and PG16. Suitable nuts and sealing rings - see the chart below.

Part No.	PG/LG/H [mm]	cable length [mm]
PG 07	7 / 8 / 20	3.5-6.0
PG 09	9 / 8 / 21	4.5-7.0
PG 11	11 / 8 / 22	6.0-9.0
PG 13.5	13.5 / 9 / 26	9.0-12.0
PG 16	16 / 10 / 28	11.0-14.0

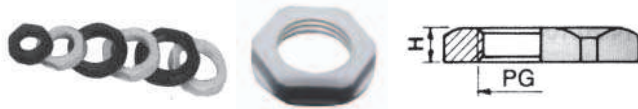
Part No.	Description
PG 07	Cable glands PG7 with sealing ring, IP54, for 3,5-6mm cable
PG 09	Cable glands PG9 with sealing ring, IP54, 4,5-7mm cable
PG 11	Cable glands PG11 with sealing ring, IP54, 6-9mm cable
PG 13,5	Cable glands PG13,5 with sealing ring, IP54, 9-12mm cable
PG 16	Cable glands PG16 with sealing ring, IP54, 11-14mm cable

Part No.	Ord.No.	E-marking
S PG 07	10680	14.30.077
S PG 09	10681	14.30.098
S PG 11	10682	14.30.117
S PG 13,5	10683	14.30.138
S PG 16	10684	14.30.167

## PG x M Series

ETTINGER

Hex Nut PG made from polystyrol, light grey colour (RAL7035).



Part No.	Description
PG 07 M	Hex nut PG7
PG 09 M	Hex nut PG 9
PG 11 M	Hex nut PG 11
PG 13,5 M	Hex nut PG 13,5
PG 16 M	Hex nut PG 16

Part No.	Ord.No.	E-marking
S PG 07 M	10685	14.31.077
S PG 09 M	10686	14.31.097
S PG 11 M	10688	14.31.118
S PG 13,5 M	10689	14.31.138
S PG 16 M	10690	14.31.167

## PG x T-N Series

ETTINGER

Sealing rings for PG cable glands made from NBR - perbunan, which is resistant against petrols and mineral oils.



Part No.	Description
PG 16 T-N	Sealing ring PG 16

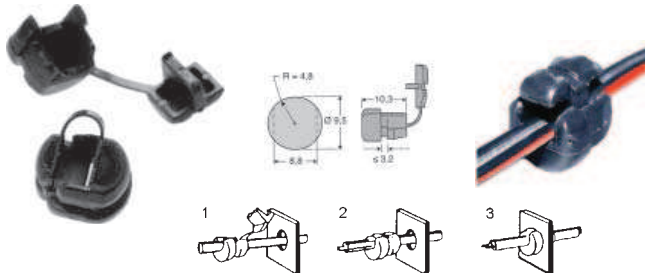
Part No.	Ord.No.	E-marking
S PG 16 T-N	10708	14.39.516

## SRF Series, SR Series

ETTINGER

Straight-thru strain relief bushings for flat/round cables. They consist of 2 parts, which can be connect together. Made from Nylon 6,6. SRF Series is suitable for flat cables, SR Series for round ones.

SRF 23 - 2,8x5,3mm hole, SRF 42 - 3,8x7,6 mm hole.  
SR 5R2 - hole with d=7,4 mm, SR 6R3 - hole with d=9,2 mm.



Part No.	Description
SR 5R2	Staight-thru strain for round cables 6,4-7,4
SR 6R3	Staight-thru strain for round cables 8,2-9,2
SRF 23	Staight-thru strain for round cables 2,8x5,3
SRF 42	Staight-thru strain for round cables 3,8x7,6

Part No.	Ord.No.	E-marking
S SR 5R2	10635	14.04.162
S SR 6R3	10638	14.04.181
S SRF 23	10628	14.04.003
S SRF 42	10630	14.04.020

## Heat Shrinkable Tubes

### CSHN Series

Black colour heat shrinkable tubes, sold by metres (1 pc=1m). The shrinkage ratio is 2:1 at temperature: +90°C . Made from polyolefin material.



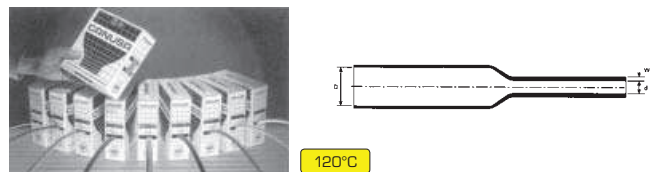
Part No.	Ø of insulation (before/after) [mm]	Description
CSHN 02,5/BK 1m	2,5 / 1,3	Heat shrinkable tube 2:1:black 2,5mm 1m
CSHN 03,5/BK 1m	3,5 / 1,8	Heat shrinkable tube 2:1 black 3,5mm 1m
CSHN 05,0/BK 1m	5,0 / 2,5	Heat shrinkable tube 2:1 black 5,0mm 1m
CSHN 09,0/BK 1m	9,0 / 4,5	Heat shrinkable tube 2:1 black 9,0mm 1m
CSHN 10,0/BK 1m	10,0 / 5,0	Heat shrinkable tube 2:1:black 10,0mm 1m
CSHN 12,0/BK 1m	12,0 / 6,0	Heat shrinkable tube 2:1:black 12,0mm 1m
CSHN 20,0/BK 1m	20,0 / 10,0	Heat shrinkable tube 2:1:black 20,0mm1m
CSHN 25,0/BK 1m	25,0 / 12,5	Heat shrinkable tube 2:1:black 25,0mm 1m
CSHN SET BK		Set of heat shrinkable tube 2:1 100pcs/100mm, black
CSHN SET COLOR		Set of heat shrink. tube 2:1 100pcs/100mm, coloured

Part No.	Ord.No.
S CSHN 02,5/BK 1m	56136
S CSHN 03,5/BK 1m	53814
S CSHN 05,0/BK 1m	53815
S CSHN 09,0/BK 1m	53816
S CSHN 10,0/BK 1m	56829
S CSHN 12,0/BK 1m	53817
S CSHN 20,0/BK 1m	56134
S CSHN 25,0/BK 1m	56135
S CSHN SET BK	61138
S CSHN SET COLOR	61139

### ZB Series

ETTINGER

Black colour heat shrinkable insulations delivered in dispenser boxes. The shrinkage ratio is 2:1 at temperature +120°C. It is possible to use them at temperature range -55°C up to +125°C after shrinking. They are made from polyolefin (PO). The length of insulation in delivery is shown in Part No. symbol ( the chart below).



Part No.	Ø of insulation (before/after) [mm]	Description
ZB016/BK 15m	1,6 / 0,8	Heat shrinkable tube 2:1 black
ZB024/BK 12m	2,4 / 1,2	Heat shrinkable tube 2:1 black
ZB032/BK 12m	3,2 / 1,6	Heat shrinkable tube 2:1 black
ZB048/BK 11m	4,8 / 2,4	Heat shrinkable tube 2:1 black
ZB064/BK 10m	6,4 / 3,2	Heat shrinkable tube 2:1 black
ZB095/BK 7m	9,5 / 4,8	Heat shrinkable tube 2:1 black
ZB127/BK 6m	12,7 / 6,4	Heat shrinkable tube 2:1 black
ZB191/BK 5m	19,0 / 9,5	Heat shrinkable tube 2:1 black
ZB254/BK 4m	25,4 / 12,7	Heat shrinkable tube 2:1 black

Part No.	Ord.No.
S ZB016/BK 15m	11191
O ZB024/BK 12m	11192
S ZB032/BK 12m	11193
S ZB048/BK 11m	11194
S ZB064/BK 10m	11195
S ZB095/BK 7m	11196
S ZB127/BK 6m	11197
S ZB191/BK 5m	11198
S ZB254/BK 4m	11199

## Adhesive Tapes

### P-ELECTRA Series

Insulating adhesive tapes from PVC for universal application. There are available in different colours and sizes. The tape's length in a roll is 10m.



Part No.	Dimension	Description
P-ELECTRA 15 BK	15mm x 10m black	PVC insulating adhesive tape
P-ELECTRA 15 BU	15mm x 10m blue	PVC insulating adhesive tape
P-ELECTRA 15 GNYE	15mmx10mgreen-yellow	PVC insulating adhesive tape
P-ELECTRA 15 RD	15mm x 10m red	PVC insulating adhesive tape
P-ELECTRA 15 WH	15mm x 10m white	PVC insulating adhesive tape
P-ELECTRA 19 BK	19mm x 10m black	PVC insulating adhesive tape

Part No.	Ord.No.
S P-ELECTRA 15 BK	52273
S P-ELECTRA 15 BU	52275
S P-ELECTRA 15 GNYE	52278
S P-ELECTRA 15 RD	52276
S P-ELECTRA 15 WH	52277
S P-ELECTRA 19 BK	52274

### P-TEX Series

Textile adhesive tapes in different colours. There is possibility for labeling and marking. They are strong and resistant against dirt. The tape's length in a roll is 15m.



Part No.	Description
P-TEX15 BK	Textile insulating adhesive tape 15mm x 15m black

Part No.	Ord.No.
S P-TEX15 BK	11354

### P-ROTUNDA Series

Self-amalgamating tape is based on PIB (Polyisobutylene) rubber. It is a versatile material for waterproofing, corrosion protection, jointing and repair of cables - used indoors and outdoors. Product properties and correct application ensure waterproof connections (for fresh and sea water) in a wide range of temperatures.

This self-amalgamating tape provides basic protection of connections in power distribution systems, telecommunications, RF installations - especially outdoors.



Part No.	Dimension	Description
P-ROT19	19mm x 5m	PIB insulation tape

Part No.	Ord.No.
S P-ROT19	11103

### P-OBOJ Series

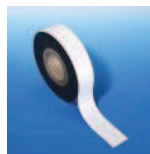
Adhesive tapes with a glue on both sides. Suitable for mounting small enclosures on walls.



Part No.	Dimension	Description
P-OBOJ15	15mm x 10m thickness 1mm	Double sided adhesive tape

Part No.	Ord.No.
S P-OBOJ15	10574

## P-MAGNETIC Series



Magnetic adhesive tape.

Part No.	Description
P-MAGNETIC	Magnetic adhesive tape 750x10, 2mm thickness

Part No.	Ord.No.
O P-MAGNETIC	67072

## Packing Material

### SAC Series



Ziplock transparent bags Minigrip. Unit pack: 100pcs.

Part No.	Dimension	Description
SAC-46	40x60mm	Ziplock bag 40x60
SAC-68	60x80mm	Ziplock bag 60x80
SAC-710	70x100mm	Ziplock bag 70x100
SAC-812	80x120mm	Ziplock bag 80x120
SAC-1015	100x150mm	Ziplock bag 100x150
SAC-1217	120x170mm	Ziplock bag 120x170
SAC-1522	150x220mm	Ziplock bag 150x220
SAC-1825	180x250mm	Ziplock bag 180x250
SAC-2030	200x300mm	Ziplock bag 200x300
SAC-2535	250x350mm	Ziplock bag 250x350
SAC-3040	300x400mm	Ziplock bag 300x400

Part No.	Ord.No.
S SAC-46	22347
S SAC-68	27803
S SAC-710	22349
S SAC-812	22350
S SAC-1015	22351
S SAC-1217	22352
S SAC-1522	22353
S SAC-1825	3862
S SAC-2030	22357
S SAC-2535	22358
S SAC-3040	22359

### PPD Series



Our reclosable - zipping pink antistatic bags are made of polyethylene. Minimum quantity is 10pcs.

Part No.	Dimension	Description
PPD 100	100x150mm	Antistatic PE zipping bag, pink
PPD 150	150x225mm	Antistatic PE zipping bag, pink

Part No.	Ord.No.
S PPD 100	6751
S PPD 150	6753

### MOS Series



Antistatic foam, which is designed to protect electronic components against electrostatic electricity or against mechanical damage during a transport. Dimensions 300x300x6mm.

Part No.	Dimension	Description
MOS-SCHAUM	300x300x6mm	Antistatic foam for ICs, black colour

Part No.	Ord.No.
S MOS-SCHAUM	13291

## Tools

Cutters and Pliers



K 2

Screwdrivers



K 7

Stripping Tools and Tweezers



K 13

Tool Kits



K 14

Miscellaneous Tools



K 17

ESD - Safe Tools



K 19

DREMEL Tools and Accessories



K 22

Electric Tools and Accessories



K 29

## Diagonal Cutters

### Wiha Professional Electric - Quality and safety.

When working on or near electrically live components, the user must not only observe strict requirements but must also maintain the highest level of electrical safety: strong, thick-walled handle insulation must reliably and effectively prevent the possibility of the user of the pliers being injured by electric shocks. Wiha Professional electric pliers do this.

- Valuable chrome plating for long lasting corrosion protection
- Harmonious design of the front part of the handle for an optimum finger hold when applying force
- Hard, comfortable elastomer zones ensure low friction in the movement range of the fingers
- The robust, ergonomic handle is carefully fixed to the pliers
- The stops on the ends of the arms prevent the hands from slipping
- Extra broad arms made of soft, non-slip elastomer are gentle on the parts of the hand that are sensitive to pressure

### Z 12 0 06 Professional Electric Diagonal Cutters



**Insulation 1.000 V AC, VDE-tested and with GS mark.**

**Standards:** DIN ISO 5749. Manufactured acc. to IEC 60900:2004.

**Head shape:** Semi-circular, swedish style.

**Design:** Low wear lap joint, riveted and able to withstand high loads. Lightweight action, clean cutting achieved by specially milled precision cutting edges. Durable cutting edges due to additional induction hardening to approx. 62 HRC.

**Material:** High-quality tool steel, tempered.

**Application:** Universal cutter for cutting soft and hard wires and cables, also suitable for cutting and stripping cables. For all work on or around electrical components up to 1000 V AC.

Part No.	Length [mm]	○	●	●	Weight [g]
Z 12 0 06-140	140	4,0	2,5	1,8	175
Z 12 0 06-160	160	4,0	2,8	2,0	220

Part No.	Ord.No.
S Z 12 0 06-140	63840
S Z 12 0 06-160	63843

### Z 14 0 06 Professional Electric Electrician's Diagonal Cutters



**Insulation 1.000 V AC, VDE-tested and with GS mark**

**Standards:** DIN ISO 5749. Manufactured acc. to IEC 60900:2004.

**Head shape:** Semi-circular, swedish style.

**Design:** Low wear lap joint, riveted and able to withstand high loads. Lightweight action, clean cutting achieved by specially milled precision cutting edges. Durable cutting edges due to additional induction hardening to approx. 62 HRC. With additional boreholes in the cutting edge for stripping copper conductors 1.5 mm<sup>2</sup> and 2.5 mm<sup>2</sup>.

**Material:** Special tool-steel, hardened & tempered.

**Application:** For cutting and stripping of cables in domestic installations. For all work on or around electrical components up to 1000 V AC.

Part No.	Length [mm]	○	●	●	Weight [g]
Z 14 0 06	160	4,0	2,5	-	220

Part No.	Ord.No.
S Z 14 0 06	63830

### Z 16 0 06 Professional Electric Heavy Duty Diagonal Cutters



**Insulation 1.000 V AC, VDE-tested and with GS mark.**

**Standards:** DIN ISO 5749. Manufactured acc. to IEC 60900:2004.

**Head shape:** Semi-circular.

**Design:** Low wear lap joint, riveted and able to withstand high levels of load. Lightweight action, clean cutting achieved by specially milled precision cutting edges. Long term cutting is achieved through additional inductive hardening to approx. 64 HRC.

**Material:** High-quality tool steel, specially tempered.

**Application:** Power-assisted all-round diagonal cutter for cutting soft to extremely hard wires and cables. For all work on or around electrical components up to 1000 V AC.

Part No.	Length [mm]	○	●	●	Weight [g]
Z 16 0 06-160	160	3.5	2.5	2.0	220
Z 16 0 06-200	200	4.2	3.0	2.5	290

Part No.	Ord.No.
S Z 16 0 06-160	63832
S Z 16 0 06-200	63838

### Z 12 9 16 Inomic® VDE Diagonal Cutters



**Insulation up to 1000 V AC, GS-mark.**

**Standards:** Manufactured acc. to IEC 60900:2004.

**Design:** Head of pliers manufactured in MIM technology. Arms of the pliers move in parallel: +25% force transfer. Angled shape (23°) for fatigue-free work. With opening spring and locking mechanism.

**Material:** Head of pliers made of ball-bearing steel, hardened to approx. 60 HRC. Handles made of tough fibre-glass reinforced plastic, ergonomic soft grip zone in the handle.

**Application:** For cutting hard wires in the joint area. Flush, burr-free cutting of soft wires, cables and plastics in the front cutting area.

Part No.	Length [mm]	○	●	●	Weight [g]
Z 12 9 16	160	4,0	2,8	2,0	140

Part No.	Ord.No.
S Z 12 9 16	63908

### Z 50 0 06 Professional Electric Cable Cutters



**Insulation 1.000 V AC, VDE-tested and with GS mark.**

**Standards:** Manufactured acc. to IEC 60900:2004.

**Head shape:** Sickle shaped cutting edge to prevent cables sliding out when cutting.

**Design:** Bolted, adjustable lay on joint. Lightweight action and clean cutting edges achieved by specially ground precision cutting edges for cutting soft cable. Safety lock to prevent fingers being injured after cutting. With opening spring and locking system.

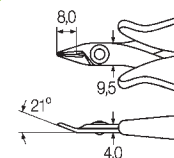
**Material:** Special tool-steel, hardened & tempered.

**Application:** Special cable cutter for copper and aluminium cables. Also appropriate for stripping insulation and surrounds, but not for steel cable, from wires and copper conductors with hard coatings.

Part No.	Length [mm]	Ø[mm]	mm <sup>2</sup>	Weight [g]
Z 50 0 06	170	12	40	330

Part No.	Ord.No.
S Z 50 0 06	63904

### Z 40 0 03 Electronic Micro Diagonal Cutter



**Head shape:** Extra narrow, short head for working in particularly restricted spaces.

**Design:** Cutting edge with full flush cutter function. With opening spring.

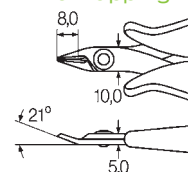
**Material:** C 70 special tool steel.

**Application:** For absolutely flush cutting of soft wires in places which are difficult to access in the electronics industry.

Part No.	Length [mm]	○	Weight [g]
Z 40 0 03	118	0.8	60

Part No.	Ord.No.
S Z 40 0 03	63823

### Z 40 1 03 Electronic Diagonal Cutters with Wire Trapping spring



**Head shape:** Narrow, pointed head.

**Design:** Cutting edge with full flush cutter function. With opening spring and fixture for collecting ends of wires that have been cut off.

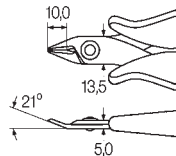
**Material:** C 70 special tool steel.

**Application:** For absolutely flush cutting of soft wires in places which are difficult to access in the electronics industry.

Part No.	Length [mm]	○	Weight [g]
Z 40 1 03	128	1.0	70

Part No.	Ord.No.
S Z 40 1 03	63828

## Z 41 1 03 Electronic Diagonal Cutters



**Head shape:** Wide, pointed head.

**Design:** Cutting edge with full flush cutter function. With opening spring.

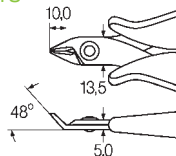
**Material:** C 70 special tool steel.

**Application:** For an absolutely flush cut of soft wires in the electronics industry.

Part No.	Length [mm]	Weight [g]
Z 41 1 03	138	70

Part No.	Ord.No.
S Z 41 1 03	63824
S Z 41 1 03SB (blister pack)	64921

## Z 46 0 03 Electronic Oblique Cutting Nippers



**Head shape:** Wide, pointed head.

**Design:** Cutting edge with full flush cutter function. With cutting edge at 48° for cutting obliquely from above or from the side.

**Material:** C 70 special tool steel.

**Application:** For absolutely flush cutting of soft wires in places which are difficult to access in the electronics industry.

Part No.	Length [mm]	Weight [g]
Z 46 0 03	138	70

Part No.	Ord.No.
S Z 46 0 03	63825

## Z 41 3 04 Professional ESD Diagonal Cutter



**Head shape:** Wide, pointed head.

**Design:** Cutting edge without bevel for absolute flush cutting. Maximum service life of cutting edge achieved through additional inductive hardening to approx. 64 HRC. With opening spring.

**Material:** High alloy carbon steel C 60.

**Application:** For absolutely flush cutting of copper wire.

Part No.	Length [mm]	Weight [g]
Z 41 3 04	115	60

Part No.	Ord.No.
S Z 41 3 04	66289

## Z 43 1 04 Professional ESD Diagonal Cutter



**Standards:** DIN ISO 9654. IEC 61340-5-1.

**Head shape:** Narrow, semi-circular head.

**Design:** Cutting edge with full flush cutter function for virtually flush cutting. Maximum service life of cutting edge achieved through additional inductive hardening to approx. 64 HRC. With opening spring.

**Material:** High alloy carbon steel C 60.

**Application:** For virtually flush cutting of copper wire in places which are difficult to access.

Part No.	Length [mm]	Weight [g]
Z 43 1 04	115	60

Part No.	Ord.No.
S Z 43 1 04	66304

## Z 47 2 04 Professional ESD End Cutting Nippers



**Standards:** DIN ISO 9654. IEC 61340-5-1.

**Head shape:** Wide head.

**Design:** Cutting edge with full flush cutter function for virtually flush cutting. Maximum service life of cutting edge achieved through additional inductive hardening to approx. 64 HRC. With opening spring.

**Material:** High alloy carbon steel C 60.

**Application:** For frontal, virtually flush cutting of thicker, soft wires.

Part No.	Length [mm]	Weight [g]
Z 47 2 04	115	65

Part No.	Ord.No.
S Z 47 2 04	68700

## Z 46 4 04 Professional ESD Oblique End Cutting Nippers



**Standards:** DIN ISO 9654. IEC 61340-5-1.

**Head shape:** Extra narrow head. Cutting edges angled at 40°.

**Design:** Cutting edge with full flush cutter function for virtually flush cutting. Maximum service life of cutting edge achieved through additional inductive hardening to approx. 64 HRC. With opening spring.

**Material:** High alloy carbon steel C 60.

**Application:** For virtually flush cutting thin, soft wires in places which are particularly difficult to access.

Part No.	Length [mm]	Weight [g]
Z 46 4 04	110	42

Part No.	Ord.No.
S Z 476 4 04	69760

## HT- 109

ECONOMIC



Flat profile electronic pliers. High-leverage design provides greater cutting and gripping power, cutter angled at 22,5°, made of finest tool steel, induction hardened, black burnished surface. Spring-loaded, Length: 130mm, for copper wire up to 0,519mm².

Part No.	Ord.No.
S HT-109	6144

## HT - 222

ECONOMIC



Precise electronic pliers, cutter angled at 22,5°, made of finest tool steel, black burnished surface, spring-loaded, Length: 130mm, for copper wire up to 0,79mm² (AWG18).

Part No.	Ord.No.
S HT-222	7706

## KL - 130

ECONOMIC



Precise electronic pliers with insulated handles, for wires up to 0,8mm diameter. With a spring for collecting ends of wires that have been cut off, cutter angled at 20°. Length: 130mm.

Part No.	Ord.No.
S KL 130	14304



## Diagonal Cutters (continued)

KL - 127



ECONOMIC

Cutting pliers for electronics with return spring and insulated orange handles. Length: 127mm.

Part No.	Ord.No.
s KL 127	1819

## Cable Shears

Z 71 4 06 Professional Electric Electrician's / Craftsman's Cutters



**Head shape:** Sturdy model, straight, very robust, micro-toothed cutting.  
**Design:** Precision model with wire stripper; cutting length 50 mm. Concealed, adjustable screw joint. Extruded handle made of impact-resistant plastic for powerful and safe cutting.  
**Material:** High-alloy carbon steel, hardened, black finish  
**Application:** Highly-developed universal cutter for electricians and other trades, also suitable for cutting and stripping copper cables.

Part No.	Length [mm]	Weight [g]
Z 71 4 06	145	120

Part No.	Ord.No.
s Z 71 4 06	63905

HT 206



ECONOMIC

Cable shears for up to 10,5mm cable diameter.

Part No.	Ord.No.
s HT-206	40325



WIHA - premium tools for professionals



WIHA - premium tools for professionals



SOS electronic distributor of



branded tools

### Screwdrivers



### Momentary Screwdrivers



### Reversible Blade Systems



### L-Keys



### Bits



### Pliers and Tweezers



### Soft Faced Hammers



### Measurement Tools



### Articulated Hose Systems



WIHA Tools assortment is available at [www.soselectronic.com](http://www.soselectronic.com)

## Combination Pliers

### Z 01 0 06 Combination pliers Professional Electric



**Insulation 1.000 V AC, VDE-tested and with GS mark.**

**Head shape:** Extra long cutting edge for flat and round cables. Serrated gripper jaws.

**Design:** Cutting edges additionally inductively hardened to approx. 60HRC.

**Material:** High-quality tool steel, tempered.

**Application:** General purpose pliers for gripping and holding as well as cutting soft and hard wires and cables. For all work on or around electrical components up to 1000 V AC.

Part No.	Length [mm]	⊙	●	Weight [g]
Z 01 0 06 - 160	160	3,0	2,0	210
Z 01 0 06 - 180	180	3,3	2,2	250
Z 01 0 06 - 200	200	3,6	2,5	325

Part No.	Ord.No.
S Z 01 0 06 - 160	63868
S Z 01 0 06 - 180	63869
S Z 01 0 06 - 200	63877

### Z 05 0 06 Needle Nose Pliers with Cutting Edge Professional Electric



**Insulation 1.000 V AC, VDE-tested and with GS mark.**

**Standards:** DIN ISO 5745. Manufactured acc. to IEC 60900:2004.

**Head shape:** Straight shape.

**Design:** Extra long cutting edge for flat and round cables. Gripping surfaces serrated in parts. Cutting edges additionally inductively hardened to approx. 60 HRC.

**Material:** High-quality tool steel, tempered.

**Application:** Gripping and holding as well as cutting soft and hard wires and cables. Preferred choice in the electrical sectors. For all work on or around electrical components up to 1000 V AC.

Part No.	Length [mm]	⊙	●	Weight [g]
Z 05 0 06 - 160	160	2,5	1,6	140
Z 05 0 06 - 200	200	2,8	1,8	210

Part No.	Ord.No.
S Z 05 0 06 - 160	63891
S Z 05 0 06 - 200	63892

### Z 05 1 06 Needle Nose Pliers with Cutting Edge Professional Electric



**Insulation 1.000 V AC, VDE-tested and with GS mark.**

**Standards:** DIN ISO 5745. Manufactured acc. to IEC 60900:2004.

**Head shape:** Angled, approx. 40°.

**Design:** Extra long cutting edge for flat and round cables. Gripping surfaces serrated in parts. Cutting edges additionally inductively hardened to approx. 60 HRC.

**Material:** High-quality tool steel, tempered.

**Application:** Gripping and holding as well as cutting soft and hard wires and cables. Preferred choice in the electrical sectors. For all work on or around electrical components up to 1000 V AC.

Part No.	Length [mm]	⊙	●	Weight [g]
Z 05 1 06 - 160	160	2,5	1,6	140
Z 05 1 06 - 200	200	2,8	1,8	210

Part No.	Ord.No.
S Z 05 1 06 - 160	63887
S Z 05 1 06 - 200	63890

### Z 07 0 06 Long-Flat Nose Pliers Langbeck Professional Electric



**Insulation 1.000 V AC, VDE-tested and with GS mark.**

**Standards:** DIN ISO 5745. Manufactured acc. to IEC 60900:2004.

**Head shape:** Extra long head.

**Design:** Ridged gripping surfaces.

**Material:** High-quality tool steel, tempered.

**Application:** Gripping and right-angled bending of wires and sheet metal parts. For all work on or around electrical components up to 1000 V AC.

Part No.	Ord.No.	Length [mm]	Weight [g]
S Z 07 0 06	63844	160	150

### Z 09 0 06 Long-Round Nose Pliers Langbeck Professional Electric



**Insulation 1.000 V AC, VDE-tested and with GS mark.**

**Standards:** DIN ISO 5745. Manufactured acc. to IEC 60900:2004.

**Head shape:** Extra long head.

**Design:** Ridged gripping surfaces.

**Material:** High-quality tool steel, tempered.

**Application:** Gripping and bending of wires and sheet metal parts. For all work on or around electrical components up to 1000 V AC.

Part No.	Ord.No.	Length [mm]	Weight [g]
S Z 09 0 06	63881	160	140

### Z 01 9 16 Combination Pliers Inomic VDE



**Insulation 1.000 V AC.**

**Standards:** Manufactured acc. to IEC 60900:2004.

**Head shape:** Innovative head with three parallel gripping surfaces at opening angles of 2°, 10° and 20° offers an improved and secure hold of the workpiece. Crosswise-profiled gripping surfaces with specially shaped teeth for gripping in all directions

**Design:** Head of pliers manufactured in MIM technology. Arms of the pliers move in parallel: +25% force transfer. Angled shape (23°) for fatigue-free work. With opening spring and locking mechanism.

**Material:** Head of pliers made of ball-bearing steel, hardened to approx. 60 HRC. Handles made of tough fibre-glass reinforced plastic, ergonomic soft grip zone in the handle.

**Application:** For gripping, holding and cutting. With improved access to the objects to be processed.

Part No.	Length [mm]	⊙	●	Weight [g]
Z 01 9 16 Inomic	180	3,3	2,2	155

Part No.	Ord.No.
S Z 01 9 16 Inomic	63906

### Z 06 9 16 Needle Nose Pliers Inomic® VDE.



**Insulation up to 1000 V AC, GS-mark.**

**Standards:** Manufactured acc. to IEC 60900:2004.

**Head shape:** Straight shape with blade and three stripping points 2.5 mm<sup>2</sup>, 1.5 mm<sup>2</sup>, 0.75 mm<sup>2</sup>. Parallel and crosswise profiling for gripping in all directions.

**Design:** Head of pliers manufactured in MIM technology. Arms of the pliers move in parallel: +25% force transfer. Angled shape (23°) for fatigue-free work. With opening spring and locking mechanism.

**Material:** Head of pliers made of ball-bearing steel, hardened to approx. 60 HRC. Handles made of tough fibre-glass reinforced plastic, ergonomic soft grip zone in the handle.

**Application:** For gripping, holding, cutting and stripping. With improved access to the objects to be processed.

Part No.	Length [mm]	⊙	●	Weight [g]
Z 06 9 16 Inomic	160	2,5	1,6	150

Part No.	Ord.No.
S Z 06 9 16 Inomic	63907

## Combination Pliers (continued)

### Z 49 2 03 Electronic Stripping Pliers

**NEW!**



**Head shape:** Wide, long head with ridged gripping surface, shears blade and firm wire stripping stations.

**Design:** Wire stripping stations: 0,8 / 1,0 / 1,3 / 1,6 / 2,0 / 2,6 mm, AWG 20 / 18 / 16 / 14 / 12 / 10. With opening spring and locking mechanism.

**Material:** C 70 special tool steel.

**Application:** For gripping, cutting and stripping of wires with 0,81-2,59mm diameter

Part No.	Length [mm]	Ø [mm]	Weight [g]
Z 49 2 03	180	0,81 - 2,59	70

Part No.	Ord.No.
s Z 49 2 03	76471

### Z 49 7 03 Electronic Stripping Pliers.

**NEW!**



**Head shape:** Wide, long head with ridged gripping surface, shears blade and firm wire stripping stations.

**Design:** Wire stripping stations: 0,4/0,5/0,6/0,8/1,0/1,3 mm, AWG 26/24/22/20/18/16. With opening spring and locking mechanism.

**Material:** C 70 special tool steel.

**Application:** For gripping, cutting and stripping of wires with 0,4 - 1,3mm diameter.

Part No.	Length [mm]	Ø [mm]	Weight [g]
Z 49 7 03	180	0,4 - 1,3	70

Part No.	Ord.No.
s Z 49 7 03	76472

## Crimping Pliers

CIMCO 10 6000  
CIMCO 10 6002



Crimping pliers with interchangeable crimping profile inserts, which slide easily into the jaws of the tool; thereby profile-exchange within seconds without the aid of further tool. Two further crimping profiles are kept captive in the magazine holders, located in the handle of the tool. With click 'n' crimp compared to towards other crimping tools saves time, space, weight and costs

Standard crimping pliers contain 3 the most popular profiles:

CIMCO 10 6000: WNB

CIMCO 10 6002: WNC

"W"=for insulated cable lugs from 0,5 mm<sup>2</sup> to 6 mm<sup>2</sup> (No. 106010)

"N"=for non insulated cable lugs 0,5 mm<sup>2</sup> to 10 mm<sup>2</sup> (No. 106011)

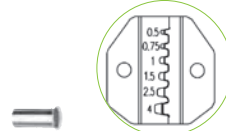
"B"=for wire end ferrules from 1,5 mm<sup>2</sup> to 10 mm<sup>2</sup> (No. 106012)

"C"=for flat receptacles and flat plugs with open crimp claws from 1,5 mm<sup>2</sup> to 6 mm<sup>2</sup> (No. 106013)

Part No.	Ord.No.
s CIMCO 10 6000	49826
s CIMCO 10 6002	49878

## Crimping Pliers for Headers, Cable-End Sleeves and Fastons

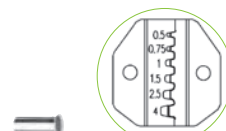
### HT-236 E



Crimping pliers for insulated and un-insulated headers - cable-end sleeves of 0,5 - 0,75 - 1 - 1,5 - 2,5 - 4 mm<sup>2</sup> intersection.

Part No.	Ord.No.
s HT-236 E	40330

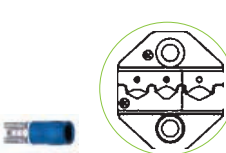
### HT-236 E1



Crimping pliers for end sleeves (insulated and non-insulated crimping sleeves) 6 - 16 mm<sup>2</sup>.

Part No.	Ord.No.
s HT-236 E1	58614

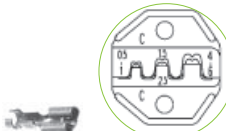
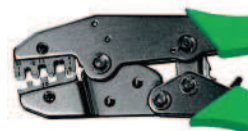
### HT-236 R



Crimping pliers for insulated fastons of 1,25 - 2 - 5,5mm<sup>2</sup> intersection.

Part No.	Ord.No.
s HT-236 R	40329

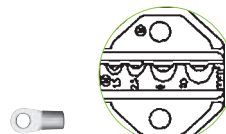
### HT-236 C



Crimping pliers for un-insulated fastons of 0,5-1mm<sup>2</sup> / 1,5-2,5mm<sup>2</sup> / 4-6mm<sup>2</sup> intersection.

Part No.	Ord.No.
s HT-236 C	51134

### HT-236 N



Crimping pliers for un-insulated cable lugs - rings of 1,5 - 2,5 - 6 - 10mm<sup>2</sup> intersection.

Part No.	Ord.No.
s HT-236 N	40328

### HT-225 D



Crimping pliers for NSK (suitable for NSG - Type Wire-to-Board) of 0,05-0,2mm<sup>2</sup> and 0,5-1mm<sup>2</sup> intersection.

Part No.	Ord.No.
s HT-225 D	4612

## HT-236 U



Crimping pliers for non-insulated connectors and receptacles, made of special steel, black burnished surface. Suitable for conductors of 0,25-0,6mm<sup>2</sup> a 0,5-2,5mm<sup>2</sup> intersection.

Part No.	Ord.No.
S HT-236 U	5548

## HT-202 B



General purpose crimping pliers.

Part No.	Ord.No.
S HT-202 B	56774

## Crimping Pliers for FL Connectors

### HT-214



Crimping tool for IDC connectors 6- 27,5mm. Parallel closing action steel tool with black burnished surface, insulated grips. Length: 245mm.

Part No.	Ord.No.
S HT-214 (IDC)	40327

## Crimping Pliers for Coaxial Cables

### HT-336 C



Universal crimping pliers made of special steel, oil-hardened and tempered, black burnished surface, insulated hand grip, crimping jaw with various crimping cavities for different cable types (RG6, RG58, RG59 and RG62); outer and interior wires are crimped, Length: 225mm

Part No.	Ord.No.
S HT-336 C	29104

### HT-336 I



Crimping pliers for coaxial cables: RG6, RG58, RG59 a RG174.

Part No.	Ord.No.
S HT-336 I	40318

## Crimping Pliers for RJ Connectors

### HT-2002 P



Plastic crimping pliers for RJ connectors. Suitable for 4, 6 and 8 pole RJ connectors

Part No.	Ord.No.
S HT-2002 P	49893

## HT-2008 R



3-Way-crimping pliers for 4,6,8 pin telephone modular plugs. Cutting, stripping and crimping using only one tool. Made of special steel, black burnished surface, PVC insulated grips.

Part No.	Ord.No.
S HT-2008 R	38266

## HT-2092 C



Steel crimping pliers for 10pin RJ connectors.

Part No.	Ord.No.	Connector Type
S HT-2092 C	8173	10 pin RJ
S HT-2094 C	29100	4 pin RJ
S HT-2096 C	29101	6 pin RJ11, RJ12
S HT-210 C	29102	8 pin RJ45

## HT-336 Q



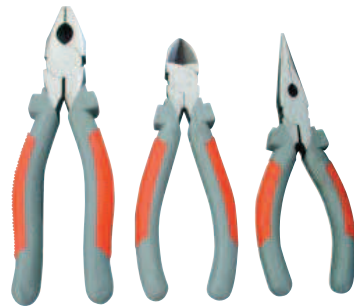
Steel crimping pliers for shielded RJ45 connectors.

Part No.	Ord.No.
O HT-336 Q	55936

## Pliers Set

### Set-KL3 PROFI

ECONOMIC



ANTISLIP

Set of 3 PROFI pliers with antislid insulation:

- combination plier (length of handle is 110mm)
- precise nipper (handle length 80mm)
- flat plier (handle length 100mm).

Part No.	Ord.No.
S Set-KL3 PROFI	48369

### Set-KL6 PROFI

ECONOMIC



Set of 6 pliers with antislip insulation suitable for general electrotechnics and electronics purposes, packed in plastic bag 400x150mm:

- diagonal cutter
- end-cutting nipper
- needle-nose plier
- needle-nose plier angled
- combination plier and flat pliers.

Part No.	Ord.No.
S Set-KL6 PROFI	1824

## WIHA SoftFinish Electric

Applications on live equipment are subject to very special requirements. The focus is on absolute user safety and Wiha demonstrates this with a wealth of details. The high quality blade insulation is moulded directly onto the blade and therefore guarantees safety when working on live equipment up to 1500VDC or 1000VAC.



To maintain this safety, each screwdriver of the SoftFinish® electric series is individually tested in a waterbath at 10000 Volts according to IEC60900:2004.

The roll-off protection and the special handle geometry offer optimum handling and electrical safety, even in critical applications.



The right tool at a glance, thanks to the printed screwsymbol on the handle end.



Easily and safely, the high-quality blade insulation protects the user when working with live components. The insulation is moulded directly onto the blade and cannot be detached from the handle.

## Slotted Insulated Screwdrivers

### 320N Series - SoftFinish Electric Slotted Screwdrivers



**Insulation 1.000 V AC, VDE-tested and with GS mark.**

**Blade:** High quality chrome-vanadium-molybdenum steel, through hardened, black-finish. Insulation moulded directly onto blade.

**Handle:** Ergonomic Wiha SoftFinish® multi-component handle with roll-off protection.

**Standards:** DIN 7437, DIN 5264, ISO 2380. Manufactured acc. to IEC 60900:2004.

**Application:** For all work on or around electrical components up to 1000 V AC

Part No.	⓪	Ⓛ	Ⓜ	Ⓟ	Ⓡ
320N 2,5x0,4x75	2,5	0,4	75	179	23
320N 3,0x0,5x100	3,0	0,5	100	204	23
320N 4,0x0,8x100	4,0	0,8	100	211	30
320N 5,5x1,0x125	5,5	1,0	125	243	36

Part No.	Ord.No.
S 320N 2,5x0,4x75	63639
S 320N 3,0x0,5x100	63723
S 320N 4,0x0,8x100	63724
S 320N 5,5x1,0x125	63725

## Phillips Insulated Screwdrivers

### 321N Series - SoftFinish electric Phillips Screwdrivers



**Insulation 1.000 V AC, VDE-tested and with GS mark.**

**Blade:** High quality chrome-vanadium-molybdenum steel, through hardened, black-finish. Insulation moulded directly onto blade.

**Handle:** Ergonomic Wiha SoftFinish® multi-component handle with roll-off protection.

**Standards:** DIN 7438, ISO 8764. Manufactured acc. to IEC 60900:2004.

**Application:** For all work on or around electrical components up to 1000 V AC

Part No.	⓪	Ⓛ	Ⓜ	Ⓟ	Ⓡ
321N PH0x60	PH0	-	60	164	23
321N PH1x80	PH1	-	80	191	30
321N PH2x100	PH2	-	100	218	36

Part No.	Ord.No.
S 321N PH0x60	63726
S 321N PH1x80	63732
S 321N PH2x100	63734

## POZIDRIV Insulated Screwdrivers

### 324 Series - SoftFinish Electric Pozidriv Screwdrivers



**Insulation 1.000 V AC, VDE-tested and with GS mark.**

**Blade:** High quality chrome-vanadium-molybdenum steel, through hardened, black-finish. Insulation moulded directly onto blade.

**Handle:** Ergonomic Wiha SoftFinish® multi-component handle with roll-off protection.

**Standards:** DIN 7438, ISO 8764. Manufactured acc. to IEC 60900:2004

**Application:** For all work on or around electrical components up to 1000 V AC

Part No.	⓪	Ⓛ	Ⓜ	Ⓟ	Ⓡ
324 PZ0x60	PZ0	60	164	23	
324 PZ1x80	PZ1	80	191	30	
324 PZ2x100	PZ2	100	218	36	

Part No.	Ord.No.
S 324 PZ0x60	63735
S 324 PZ1x80	63736
S 324 PZ2x100	63737

## Hex Nut Screwdrivers

### 322 Series - SoftFinish Electric Hex Nut Driver



**Insulation 1.000 V AC, VDE-tested and with GS mark.**

**Blade:** High quality chrome-vanadium-molybdenum steel, through hardened, black-finish. Insulation moulded directly onto blade. Deep drawn socket.

**Handle:** Ergonomic Wiha SoftFinish® multi-component handle with roll-off protection.

**Standards:** DIN 3125. Manufactured acc. to IEC 60900:2004.

**Application:** For external hex screws and hex nuts.

Part No.	⓪	Ⓛ	Ⓜ	Ⓟ	Ⓡ
322 SW5x125	5	125	236	30	-
322 SW5,5x125	5,5	125	236	30	11,2
322 SW8x125	8	125	243	36	15,2

Part No.	Ord.No.
S 322 SW5x125	63738
S 322 SW5,5x125	63739
S 322 SW8x125	63740

## 1000 V AC Screwdriver Sets

### 320N K6 Series - SoftFinish Electric Slotted/ Phillips Screwdriver Set, 6 pcs



**Insulation 1.000 V AC, VDE-tested and with GS mark.**

**Blade:** High quality chrome-vanadium-molybdenum steel, through hardened, black-finish. Insulation moulded directly onto blade.

**Handle:** Ergonomic Wiha SoftFinish® multi-component handle with roll-off protection.

**Standards:** Manufactured acc. to IEC 60900:2004.

**Application:** For all work on or around electrical components up to 1000 V AC

⓪	Ⓛ	Ⓜ	Ⓟ	Ⓡ
320N	3,0x100	4,0x100	5,5x125	6,5x150
321N	PH1x80	PH2x100	-	-

Part No.	Ord.No.
S 320N K6	63746

## 320N K7 Series - SoftFinish Electric Slotted/Phillips Screwdriver Set, 7pcs



**Insulation 1.000 V AC, VDE-tested and with GS mark.**  
**Blade:** High quality chrome-vanadium-molybdenum steel, through hardened, black-finish. Insulation moulded directly onto blade.  
**Handle:** Ergonomic Wiha SoftFinish® multi-component handle with roll-off protection.  
**Standards:** Manufactured acc. to IEC 60900:2004.  
**Application:** For all work on or around electrical components up to 1000 V AC

Ⓛ	320N	2,5x75	4,0x100	5,5x125	6,5x150
⊕	321N	PH1x80	PH2x100	-	-
Ⓛ	255-3	3,0x60	-	-	-

Part No.	Ord.No.
s 320N K7	63748

## 320N ZK6 SO Series - SoftFinish Electric Slotted/Pozidriv Screwdriver Set, 6pcs



**Insulation 1.000 V AC, VDE-tested and with GS mark.**  
**Blade:** High quality chrome-vanadium-molybdenum steel, through hardened, black-finish. Insulation moulded directly onto blade.  
**Handle:** Ergonomic Wiha SoftFinish® multi-component handle with roll-off protection.  
**Standards:** Manufactured acc. to IEC 60900:2004.  
**Application:** For all work on or around electrical components up to 1000 V AC

Ⓛ	320N	2,5x75	3,5x100	4,5x125	5,5x125
⊕	324	PZ1x80	PZ2x100	-	-

Part No.	Ord.No.	1+	5+
s 320N ZK6 SO	63747		

## 322K5 Series - SoftFinish Electric Hex Nut Driver Set, 5pcs



**Insulation 1.000 V AC, VDE-tested and with GS mark.**  
**Blade:** High quality chrome-vanadium-molybdenum steel, through hardened, black-finish. Insulation moulded directly onto blade. Deep drawn socket.  
**Handle:** Ergonomic Wiha SoftFinish® multi-component handle with roll-off protection.  
**Standards:** Manufactured acc. to IEC 60900:2004.  
**Application:** For all work on or around electrical components up to 1000 V AC  
**Set:** 5 x hex nut drivers: 5,5; 7; 8; 10; 13 x 125mm

Ⓛ	5,5 x125	7x125	8x125	10x125	13x125
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Part No.	Ord.No.
s 322 K5	63745

## 325N K6 01 SoftFinish Electric TORX® Screwdriver Set, 6pcs



**Insulation 1.000 V AC, VDE-tested and with GS mark.**  
**Blade:** High quality chrome-vanadium-molybdenum steel, through hardened, black-finish. Insulation moulded directly onto blade.  
**Handle:** Ergonomic Wiha SoftFinish® multi-component handle with roll-off protection.  
**Standards:** Manufactured acc. to IEC 60900:2004.  
**Application:** For all work on or around electrical components up to 1000 V AC

Ⓛ	325	T8x60	T9x60	T10x60	T15x80	T20x80	T25x80
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Part No.	Ord.No.
s 320N K6 01	63744

## Pico Finish Screwdriver Sets

The PicoFinish is distinguished by top-quality materials and an ergonomic handle design. The comfortable precision screwdriver with multi-component handle, rapid rotating zone and easy-movement rotating cap is a professional tool for all precision work for confined screw applications. To make things even easier for the user working with tiny screws, we've developed a second, smaller handle.

The colour-coded marking of the drive symbol on the rotating cap is also new. This makes it easier to recognise the individual screwdrivers when several are being used at once.

The blades are made of top-quality chrome-vanadium-molybdenum steel to ensure a particularly long tool life. They are subsequently through-hardened in a controlled process and chrome-plated. The precise ChromTop® tip ensures a secure hold in the screw head.

## 260P K6 Series - PicoFinish Slotted/Phillips Screwdriver Set, 6pcs



**Handle with rotating cap and rapid-turning zone.**  
**Blade:** High quality chrome-vanadium-molybdenum steel, through hardened, chrome-plated. Wiha ChromTop® finish on tip for a perfect fit every time.  
**Handle:** Wiha PicoFinish handle for rapid rotation.  
**Application:** Ideal for high-precision work with electro-technical and precision components.  
**Extra:** Practical plastic rack with hanging holes.

Ⓛ	260P	1,5x40	2,0x40	2,5x50	3,0x50
⊕	261P	PH00x40	PH0x50	-	-

Part No.	Ord.No.
s 260P K6	63749

## 260P K7 Series - PicoFinish Slotted/Phillips Screwdriver Set, 7 pcs



**Handle with rotating cap and rapid-turning zone.**  
**Blade:** High quality chrome-vanadium-molybdenum steel, through hardened, chrome-plated. Wiha ChromTop® finish on tip for a perfect fit every time.  
**Handle:** Wiha PicoFinish handle for rapid rotation.  
**Application:** Ideal for high-precision work with electro-technical and precision components.

Ⓛ	260P	1,5x40	2,0x40	2,5x50	3,0x50
⊕	261P	PH00x40	PH0x50	PH1x60	-

Part No.	Ord.No.
s 260P K7	63750

## WIHA Precision ESD Screwdrivers

Electrostatic discharges are a major problem, since even low voltages can damage sensitive components. Various factors have to be considered in order to understand the problem. In ESD protection areas, the electrostatic charge is safely conducted to earth. Users have to wear the appropriate ESD footwear or grounded wrist strap. The tools used also have to be electrostatically protected.

The ESD screwdrivers from Wiha conform to the international ESD Standards IEC61340-5-1. Due to the electrical surface resistance,  $10^6 - 10^9 \Omega$ , defined electrostatic discharge is guaranteed. Thanks to the rotating cap, incremental adjusting is easy. The large handle enables powerful tightening and loosening of screws.

Wiha ESD screwdrivers are noninsulated, therefore not suitable for working on live parts.

## Slotted Screwdrivers

272 Series - Precision ESD Slotted Screwdriver



**Dissipative handle, ESD-safe. zone**

**Blade:** High quality chrome-vanadium-molybdenum steel, through hardened, chrome-plated. Wiha ChromTop® finish on tip for a perfect fit every time.

**Handle:** Precision handle with rotating cap, surface resistance  $10^6 - 10^9 \Omega$ .

**Standards:** IEC 61340-5-1.

**Application:** For working on electrostatically sensitive components.

Part No.	⓪	+	⊖	⦶	+	+
272 1,5x0,25x40	1,5	40	0,25	2,0	120	12,5
272 2,0x0,40x40	2,0	40	0,40	2,0	120	12,5
272 2,5x0,40x50	2,5	50	0,40	2,5	145	13,0
272 3,0x0,50x50	3,0	50	0,50	3,0	145	13,0
272 4,0x0,80x60	4,0	60	0,80	4,0	170	14,0

Part No.	Ord.No.
S 272 1,5x0,25x40	59682
S 272 2,0x0,40x40	59683
S 272 2,5x0,40x50	59685
S 272 3,0x0,50x50	59686
S 272 4,0x0,80x60	59687

## Phillips Screwdrivers

273 Series - Precision ESD Phillips Screwdrivers



**Dissipative handle, ESD-safe. zone**

**Blade:** High quality chrome-vanadium-molybdenum steel, through hardened, chrome-plated. Wiha ChromTop® finish on tip for a perfect fit every time.

**Handle:** Precision handle with rotating cap, surface resistance  $10^6 - 10^9 \Omega$ .

**Standards:** IEC 61340-5-1.

**Application:** For working on electrostatically sensitive components.

Part No.	+	⦶	+	+
273 PH00	40	2,0	120	12,5
273 PH0	50	3,0	145	13,0
273 PH1	60	4,0	170	14,0

Part No.	Ord.No.
S 273 PH00	59688
S 273 PH0	59689
S 273 PH1	59690

### Symbols key

Symbol	Drive
⓪	Slotted
+	Phillips PH
⊖	Pozidriv PZ
⦶	TORX

Symbol	Screwdrivers [mm]
⊖	Tip width
⦶	Blade dimension
+	Blade length
+	Total length
+	Handle width

Symbol	Pliers [mm]
○	Soft wire
○	Medium hard wire
○	Hard wire
○	Piano wire

## Precision ESD Torx Screwdrivers

278 Series - Precision ESD TORX® Screwdriver



**Dissipative handle, ESD-safe. zone**

**Blade:** High quality chrome-vanadium-molybdenum steel, through hardened, chrome-plated. Wiha ChromTop® finish on tip for a perfect fit every time.

**Handle:** Precision handle with rotating cap, surface resistance  $10^6 - 10^9 \Omega$ .

**Standards:** IEC 61340-5-1.

**Application:** For working on electrostatically sensitive components.

Part No.	+	⦶	+	+
278 T4	40	2,5	120	12,5
278 T5	40	2,5	120	12,5
278 T6	40	2,5	120	12,5
278 T7	40	2,5	120	12,5
278 T8	40	2,5	120	12,5

Part No.	Ord.No.
S 278 T4	69428
S 278 T5	59678
S 278 T6	59679
S 278 T7	59680
S 278 T8	59681

## ESD Screwdriver Sets

272 K6 Precision ESD Slotted/ Phillips Screwdriver Set, 6 pcs



**Dissipative handle, ESD-safe. zone**

**Blade:** High quality chrome-vanadium-molybdenum steel, through hardened, chrome-plated. Wiha ChromTop® finish on tip for a perfect fit every time.

**Handle:** Ergonomic Wiha SoftFinish® multi-component handle with roll-off protection.

**Standards:** IEC 60900:2004.

**Application:** For all work on or around electrical components up to 1000 V AC

**Extra:** In plastic box, can be opened and positioned on workbench.

⓪	272	1,5x40	2,0x40	2,5x50	3,0x50
+	273	PH00x40	PH0x50	-	-

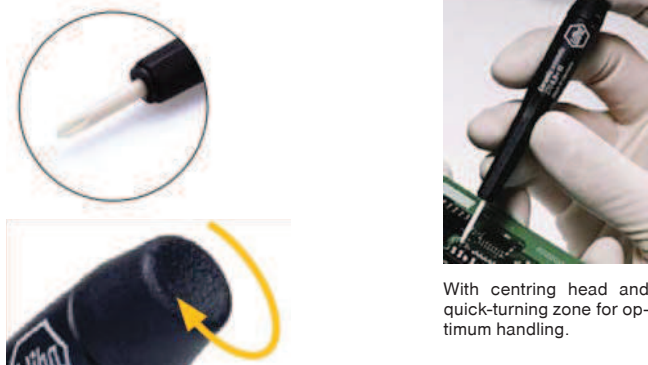
Part No.	Ord.No.
S 272 K6	59677

## WIHA Ceramic

The Wiha Ceramic precision screwdrivers with blades made of hightech zirconium ceramic are the perfect tools for all applications in clean rooms and for delicate electrostatic components. In these areas there are high requirements in terms of eddy-current losses.

The ceramic blades and handles are completely antimagnetic and anti-static. This is a fundamental requirement for working with highly sensitive components, such as capacitors, solenoids and various resistances. The ceramic blades are resistant to mechanical wear, acid corrosion and thermal shock stress. Wiha Ceramic screwdrivers are available with slotted and Phillips tips, as well as in a set.

The ceramic blade and handle are completely anti-magnetic and anti-static.



With centring head and quick-turning zone for optimum handling.

## Ceramic Slotted Screwdrivers

270 Series - Ceramic Slotted Screwdrivers



**Non-static adjustment tool with ceramic blade.**

**Blade:** Made of high-quality special ceramic, anti-static/anti-magnetic.

**Handle:** Wiha Protturn® Precision handle with rotating cap, anti-static/anti-magnetic.

**Application:** Specially designed for tuning and adjusting high frequency devices, suited to cleanrooms.

Part No.	⓪	Ⓜ	Ⓧ	Ⓛ	Ⓜ	Ⓛ
270 0,9x0,35x15	0,9	15	0,35	1,75	94,5	12,5
270 1,3x0,35x15	1,3	15	0,35	1,75	94,5	12,5
270 1,8x0,35x15	1,8	15	0,35	1,75	94,5	12,5
270 2,6x0,35x15	2,6	15	0,35	2,6	94,5	12,5

Part No.	Ord.No.
S 270 0,9x0,35x15	63751
S 270 1,3x0,35x15	63752
S 270 1,8x0,35x15	63753
S 270 2,6x0,35x15	63754

## Ceramic Phillips Screwdrivers

271 Series - Ceramic Phillips Screwdrivers



**Non-static adjustment tool with ceramic blade.**

**Blade:** Made of high-quality special ceramic, anti-static/anti-magnetic.

**Handle:** Wiha Protturn® Precision handle with rotating cap, anti-static/anti-magnetic.

**Application:** Specially designed for tuning and adjusting high frequency devices, suited to cleanrooms.

Part No.	⓪	Ⓜ	Ⓧ	Ⓛ	Ⓜ	Ⓛ
271 PH0x15	PH0	15	2,6	94,5	12,5	

Part No.	Ord.No.
S 271 PH0x15	63756

## Bit Holders with SoftFinish Handle

281 01 Series - Bit Holder with Handle, Magnetic, 1/4"



**Handle:** Ergonomic Wiha Stubby SoftFinish® handle, multi-component with roll-off protection.

**Bit holder:** Stainless steel with strong magnet.

**Suitable for:** DIN 3126 ISO 1173 style D 6,3.

**Application:** For working in confined spaces.

**Extra:** Together with Wiha countersink bits, can be used as manual deburrer.

Part No.	⓪	Ⓜ	Ⓧ	Ⓛ
281 01	1/4	57	34	

Part No.	Ord.No.
S 281 01	63914

384-125 Series - Bit Holder with Handle, Magnetic, 1/4"



**Blade:** High quality chrome-vanadium-molybdenum steel, through hardened, nickel-plated.

**Handle:** Wiha SoftFinish® multi-component handle with roll-off protection

**Bit holder:** Stainless steel with strong magnet.

**Suitable for:** DIN 3126 ISO 1173 style D 6,3.

Part No.	⓪	Ⓜ	Ⓧ	Ⓛ
384-125	1/4	125	225	36

Part No.	Ord.No.
S 384-125	63913

380 25 Series - Magazine Bit Holder, Magnetic, 1/4"



**Insulation 1.000 V AC.**

**Blade:** High quality chrome-vanadium-molybdenum steel, through hardened with outer casing.

**Handle:** Wiha Power handle.

**Bit holder:** Made from stainless steel.

**Suitable for:** DIN 3126 ISO 1173 style D 6,3.

**Standards:** Individually tested in acc. with IEC 60900:2004.

**Bits:** 25mm standard bits, 6pcs.

**Application:** The magazine bit holder for electricians.

⓪	7010 Z	4,5x25	6,5x25
Ⓜ	7011 Z	PH1x25	PH2x25
Ⓧ	7012 Z	PZ1x25	PZ2x25

Part No.	Ord.No.
S 380 25	63910

## Bits and Adapters Range

### Standard Bits



7010 Z Series - Standard Bit, Slotted, Style C 6.3



**Material:** High grade chrome-vanadium steel, through hardened.

**Drive:** DIN 3126 ISO 1173 style C 6,3.

**Application:** For all types of screw applications in trade and industry.

Part No.	⓪	Ⓜ	Ⓧ
7010 Z1	4,5	25	0,6
blister pack 2 pcs	5,5	25	0,8
7010 Z2	6,5	25	1,2
blister pack 2 pcs	8,0	25	1,6

Part No.	Ord.No.
S 7010 Z1(4,5+5,5)	63915
S 7010 Z2(6,5+8,0)	63916



## Bits and Adapters Range

(continued)

### Standard Bits

7011 Z Series - Standard Bit, Phillips, Style C 6,3



**Material:** High quality chrome-vanadium-molybdenum steel, through hardened.  
**Drive:** DIN 3126 ISO 1173 style C 6,3.  
**Application:** For all types of screw applications in trade and industry.

Part No.	+	⊖
7011 Z1	PH1	25
blister pack 3 pcs	PH2	25
	PH3	25

Part No.	Ord.No.
S 7011 Z1	63920

### TORX® AutoFit Bits

7045 Z L Series Standard Bit, TORX®AutoFit, Style E 6,3



**Material:** High grade chrome-vanadium steel, through hardened.  
**Drive:** DIN 3126 ISO 1173 style C 6,3.  
**Extra:** For extra long bits: 70, 90, 110, 150 mm.  
 For all types of screw applications in trade and industry.

Part No.	+	⊖
7045 Z L TORX	T15	90

Part No.	Ord.No.
S 7045 Z L TORX	65162

### Tin-Torsion Bits

7010 TiN Series TiN Torsion Bit, Slotted, Style C 6,3



**Material:** High grade chrome-vanadium steel, through hardened.  
**Geometry:** Patented torsion zone to prevent premature breaking of the bit when under stress.  
**Coating:** Titanium nitride for extended tool life.  
**Drive:** DIN 3126 ISO 1173 style C 6,3.  
**Application:** Particularly suitable for screws that require frequent working.

Part No.	⊖	⊖	⊖
7010 TiN	4,5	25	0,6
blister pack 3 pcs	5,5	25	0,8
	6,5	25	1,2

Part No.	Ord.No.
S 7010 TiN	63918

7011 TiN Series TiN Torsion Bit, Phillips, Style C 6,3



**Material:** High grade chrome-vanadium steel, through hardened.  
**Geometry:** Patented torsion zone to prevent premature breaking of the bit when under stress.  
**Coating:** Titanium nitride for extended tool life.  
**Drive:** DIN 3126 ISO 1173 style C 6,3.  
**Application:** Particularly suitable for screws that require frequent working.

Part No.	+	⊖
7011 TiN 1	PH1	25
blister pack 3 pcs	PH2	25
	PH3	25

Part No.	Ord.No.
S 7011 TiN 1	63924

## WIHA Durabit

7010 DR Series DuraBit, Slotted, Style C 6,3



**Material:** High grade chrome-vanadium steel, through hardened.  
**Geometry:** Patented torsion zone to prevent premature breaking of the bit when under stress

**Coating:** Hard-metal coating, extremely wear-resistant.

**Drive:** DIN 3126 ISO 1173 style C 6,3.

**Application:** For effortless, safe working in demanding industrial applications and on delicate surfaces.

**Extra:** Non-corroding nickel coating in combination with wolfram carbide particles. Extremely wear-resistant, hard-metal coated DuraBit® tip gains a significantly greater service life when compared to conventional diamond-coated bits.

Part No.	⊖	⊖	⊖
7010 DR	4,5	25	0,6
blister pack 3 pcs	5,5	25	0,8
	6,5	25	1,2

Part No.	Ord.No.
S 7010 DR	63919

7011 DR Series DuraBit, Phillips, Style C 6,3



**Material:** High grade chrome-vanadium steel, through hardened.  
**Geometry:** Patented torsion zone to prevent premature breaking of the bit when under stress

**Coating:** Hard-metal coating, extremely wear-resistant.

**Drive:** DIN 3126 ISO 1173 style C 6,3.

**Application:** For effortless, safe working in demanding industrial applications and on delicate surfaces.

**Extra:** Non-corroding nickel coating in combination with wolfram carbide particles. Extremely wear-resistant, hard-metal coated DuraBit® tip gains a secure hold in the screw head and guarantees a significantly greater service life when compared to conventional diamond-coated bits.

Part No.	+	⊖
7011 DR1	PH1	25
blister 3ks	PH2	25
	PH3	25

Part No.	Ord.No.
S 7011 DR1	63925

## L-Keys

### MagicRing® Hexagon L-Key

369R Series Ball End Hex L-Key, Long with MagicRing®



**Blade:** Chrome-vanadium steel, through hardened, chrome-plated.

**Standards:** Based on ISO 2936L.

**Application:** Insert screws into or remove from boreholes, especially in difficult to access areas.

**Extra:** MagicRing® made from spring steel holds all standard screws tight at various angles (available from 3 mm). The ball end enables the user to work at angles up to 25°.

Part No.	⊖	⊖	⊖
369R-3	3	128	23
369R-4	4	142	29
369R-5	5	163	33
369R-6	6	184	38
369R-8	8	206	44
369R-10	10	231	50

Part No.	Ord.No.
S 369R-3	63927
S 369R-4	63928
S 369R-5	63929
S 369R-6	63930
S 369R-8	63931
S 369R-10	63932

## Screwdriver Sets

### IXO Cordless Screwdriver



- the original with lithium-ion technology
  - no memory effect, no self-discharge: always ready for use thanks to lithium-ion technology
  - PowerLight - built-in LED
  - forward/reverse indicator and charge level indicator via LED
- Included in delivery: charger, bit set holder with 10 bits incl. Ikea bit
- Technical data:**  
 Screw diameter up to: 5 mm  
 No-load Strokes per minute: 180 min-1  
 Max. torque: 3 Nm  
 Battery voltage: 3,6 V  
 Charging time: 5 h

Part No.	Ord.No.
s IXO	69699

### IXO IV Set



- Set of cordless screwdriver IXO and:
- Battery charger
  - Eccentric driver head
  - Angle driver head

Part No.	Ord.No.
o IXO IV Set	73686

### DREMEL 1120JA Driver



- This kit includes the Dremel Driver, for any project where precision is required. Perfect for situations where cordless precise drill driving is needed.
- Included in delivery:
- DREMEL DRIVER
  - the charger
  - 8 hexagonal bits and the bit holder pad

**Technical specification:**

- Battery voltage: 7,2 V  
 Battery capacity: 1,0 Ah  
 Charging time: 5 h  
 Weight: 0,430 kg  
 Length: 12,6 cm  
 Variable Strokes per minute: 0 - 300 1/min  
 Max. torque: 5Nm  
 Battery technology: Lithium-Ion

Part No.	Ord.No.
s DREMEL 1120JA	70989

### PK 2062 set, PK 2063 set



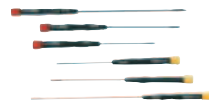
- PK 2062 - set of 6 pcs slotted screwdrivers with following tip sizes: 1,4mm, 1,6mm, 1,8mm, 2mm, 2,4 and 3mm, in useful plastic case.



- PK 2063 - 5 pcs of Phillips screwdrivers: PH0-4, PH0-3, PH00, PH0 a PH1, in useful plastic case.

Part No.	Ord.No.
s PK 2062	6147
s PK 2063	6148

### PK 509 Set



Set of 6 pcs long screwdrivers includes:

- 3x slotted 2,4x75mm; 3x100mm and 3,8x150mm
- 3xPhillips PH1x75, PH2x100 a PH3x150mm.

Part No.	Ord.No.
s PK 509	6145

### TX 620 Set



Set of 7 pcs TORX screwdrivers T5, T6, T7, T8, T10, T15 and T20 in useful plastic case.

Part No.	Ord.No.
s TX 620	6146

### SKR11 Set



Set of 11 pcs screwdrivers for precise watch repairs of all kinds includes:

- 3x Phillips PH00, PH0a PH
- 6x slotted 0,9; 1,2; 1,4; 1,8; 2,4 and 3mm,
- awl and magnet.

Part No.	Ord.No.
s Set-SKR11	1810

### SKR15PREC Set



Profi-set of 15 pcs precise screwdrivers in plastic case includes:

- 4x slotted screwdrivers 1,5; 2; 2,5a 3mm
- 4x Phillips PH000, PH00, PH0, PH0
- 7x Torx T6, T6, T7, T8, T8, T9, T10.

Part No.	Ord.No.
s Set-SKR15PREC	56105

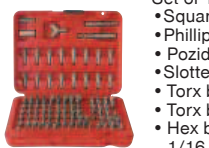
### Set CT-3308M



Set of 8 L-keys (inbus) of 1,5 - 6mm.

Part No.	Ord.No.
s CT-3308M	1809

### Set TM-SD0023



Set of 100 pcs bits includes:

- Square bit: 0/1/2/3
- Phillips bit: 0/1/2/2/2/2/3
- Pozidriv bit: 0/1/2/2/2/2/3
- Slotted bit: 3/4/4,5/5/5,5/6/6,5/7/8
- Torx bit: 8/10/15/20/25/27/30/40/45
- Torx bit with hole: 8/10/15/20/25/27/30/35/40
- Hex bit: 1,5/2/2,5/3/4/5/5,5/6/8/1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4
- Hex with hole: 2/2,5/3/4/5/6/5/32, 9/64, 1/8, 7/64, 3/32, 5/64
- Slotted nuts bit: 4-6-8-10
- Torq-Set (4-Wing): 6-8-10
- Three-Wing (3-Wing): 1-2-3-4
- Twist drill (2-Wing): 1-2-3
- Multi tooth (Twelve point): 5-6-8
- 60mm holder
- Y holder
- 1/4 connector
- 1/4 adapter 25mm, 50mm

Part No.	Ord.No.
s TM-SD0023	64911

### Set-SKR12KL4



Set of 15 pcs screwdrivers in a bag:

- 4x slotted screwdrivers 1,6; 2; 2,4 and 3mm
- 4x Phillips PH000, PH00, PH0 a PH1
- 4x TORX T6, T8, T9 a T10
- 2x combination pliers
- 2x cutters.

Part No.	Ord.No.
s Set-SKR12KL4	56106

The whole tool assortment is available at  
[www.soselectronic.com](http://www.soselectronic.com)

## Stripping Tools

206-124 QUICKSTRIP 10



Wago profi stripping and cutting pliers for wide range of conductors with 0,02 - 10 mm<sup>2</sup> diameter.

Part No.	Ord.No.
S 206-124 QUICKSTRIP 10	48714

AWZ5



**WEICON insulation strippers** - fully insulated, automatic wire stripper for all common stranded and solid cables of 0,2-6,0mm<sup>2</sup> (AWG24...10). The special scanning system adjusts automatically to the wire diameter. Fast and accurate stripping without damage to the outer insulation or the inner wire. Adjustable length stop (5...12mm) stripping can be repeated often to the desired length. Narrow clamping jaw, suitable for hard to reach areas. Integrated, easily accessible side cutter up to max. Ø 2mm

Part No.	Ord.No.
S AWZ5	7968

AWM - 16



**Universal cable stripper** - accurate, fast and safe stripping of all common round cables of 4-16 mm<sup>2</sup>. Easy, fast and exact due to infinitely variable adjustment of the cutting depth preventing damage to the inner conductors. Rotatable inner blade which automatically adjusts from circular to longitudinal stripping, therefore longer cable pieces can be stripped in one step.

Part No.	Ord.No.
S AWM-16	64261

AWM - 28



**Universal cable stripper** for circular cables of 4 - 28mm Ø. Equipped with a hook knife.

Part No.	Ord.No.
S AWM-28	9291

KL-ODIZOL1



**Simple stripping pliers** for common round cable of 0,2-2mm Ø, suitable for stripping as well as for cutting cables.

Part No.	Ord.No.
S KL-ODIZOL1	1772

CIMCO 12 0000



**Universal slicer MULTI-stripper plus** - this innovative tool combines all usual working steps of normal electrical installation in only one tool:

- cable cutter for wires up to 0,5 - 6 mm<sup>2</sup>
- cable and coaxial cable
- screwdriver tool
- and phase - resp. voltage tester for voltage range 110-250V/50-500Hz, optical display via glow lamp, routine check tested.

Part No.	Ord.No.
S CIMCO 12 0000	62207

AWZ501



**Universal Insulation Stripper:**

- for stripping round and flat cables
- easy and variable adjustment of the cutting depth by Phillips screws
- cable cut to required length

Application:

- flat cable: for standard telephone lines, 2-, 4-, 6-, 8- and 10-pole, AWG22-18 (0,324...0,823mm<sup>2</sup>), SPT-1
- round cable: AWG8, AWG12, AWG14, AWG16, SPT-2
- data cable: UTP, STP

Part No.	Ord.No.
S AWZ501	73541

## Coaxial Cable Stripping Tools

HT-332



Stripping pliers with two blades for coaxial cables: RG58, RG59, RG62, RG6, 3C2V.... Length of stripped insulation: 4/6/8/12mm.

Part No.	Ord.No.
S HT-332	40324

AWZ 2



Two- or three-level stripping of all common coaxial cables (e.g. antenna and transmission cables) of 4,8 to 7,5 mm outer Ø. Also strips flexible cables such as 3 x 0,75 mm<sup>2</sup>, 10 and 16 mm<sup>2</sup>. Needs no adjustment of the cutting depth.

Part No.	Ord.No.
S AWZ 2	64264

## Tweezers

PZ-1



Straight tweezers, non-insulated, 1,2 mm round. 120 mm long.

Part No.	Ord.No.
S PZ-1	65186

PTS-01



Straight tweezers, non-insulated. 125 mm long.

Part No.	Ord.No.
S PTS-01	65465

PZ-2



Bent tweezers, non-insulated. 120mm long.

Part No.	Ord.No.
S PZ-2	65466

PZ-27



Straight tweezers, insulated with anti-slip design. Length 160mm.

Part No.	Ord.No.
S PZ-27	65467

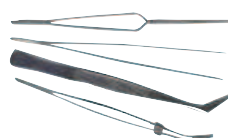
PZ-28



Bent tweezers, insulated with anti-slip design. Length 160mm.

Part No.	Ord.No.
S PZ-28	65468

Set-PI4



Set of 4 different non-insulated tweezers for electronics.

Part No.	Ord.No.
S Set-PI4	1771

## WIHA Professional ESD Tweezers



The new assortment of Wiha electronic tweezers expands the possibilities for exact, and at the same time, careful work with electronic components. These precision, special or universal tweezers are rapidly becoming essential accessories for everyday electronics work due to their high quality design:

ESD safe (antistatic), anti-magnetic, stainless and acid-resistant.

Unlike purely metal tweezers, the special coating here ensures a controlled dissipation of static charges, and therefore safe, standard-compliant use.

### ZP 01 0 14 Universal Tweezers Professional ESD



**Standards:** IEC 61340-5-1.

**Tip form:** Straight with a strong tip.

**Design:** Smooth gripping surfaces, gripping surfaces without grooves. Non-glare black coated, anti-static. Anti-magnetic and acid-resistant.

**Material:** Special alloyed, non-rusting, chromium-nickel stainless steel.

**Application:** Universal tweezers for all current electronics applications.

Part No.	Length [mm]	Type	Weight[g]
ZP 01 0 14	130	AA	19

Part No.	Ord.No.
S ZP 01 0 14	65506

### ZP 46 0 14 Universal Tweezers Professional ESD



**Standards:** IEC 61340-5-1.

**Tip form:** Straight with approx. 4 mm wide, round tip

**Design:** Fine-tooth gripping surface, grooved gripping surface. Non-glare black coated, anti-static. Anti-magnetic and acid-resistant.

**Material:** Special alloyed, non-rusting, chromium-nickel stainless steel.

**Application:** Universal tweezers for all current electronics applications.

Part No.	Length [mm]	Type	Weight [g]
ZP 46 0 14	145	40	29

Part No.	Ord.No.
S ZP 46 0 14	65507

### ZP 24 0 14 Universal SMD Tweezers Professional ESD



**Standards:** IEC 61340-5-1.

**Tip form:** Straight with a curved 45° angle flat, narrow tip

**Design:** Smooth gripping surfaces, gripping surfaces without grooves. Non-glare black coated, anti-static. Anti-magnetic and acid-resistant.

**Material:** Special alloyed, non-rusting, chromium-nickel stainless steel.

**Application:** SMD special tweezers for horizontal gripping of components.

Part No.	Length [mm]	Type	Weight [g]
ZP 24 0 14	120	12	15

Part No.	Ord.No.
S ZP 24 0 14	65508

### ZP 25 2 14 SMD Tweezers Professional ESD



**Standards:** IEC 61340-5-1.

**Tip form:** Straight with flat, wide tip and diagonal alignment of the front gripping edge.

**Design:** Smooth gripping surfaces, gripping surfaces without grooves. Non-glare black coated, anti-static. Anti-magnetic and acid-resistant.

**Material:** Special alloyed, non-rusting, chromium-nickel stainless steel.

**Application:** SMD special tweezers for horizontal gripping of components.

Part No.	Length [mm]	Type	Weight [g]
ZP 25 2 14	120	13	16

Part No.	Ord.No.
S ZP 25 2 14	65509

## Tool Kits

### Hobby Tool Kits

#### CT-862



83 pcs set

**Aluminium case contains:**

- multimeter
- 30W soldering iron
- desoldering pump
- soldering core
- 3 pcs aid solder tool
- long nose pliers 125mm
- cutting pliers 125mm
- bent nose pliers 125mm
- combination pliers 125mm
- crimping pliers 200mm
- stripping pliers 2 pcs
- test screwdriver
- 6 pcs precise screwdrivers
- screwdrivers:
  - Phillips 4 pcs
  - slotted 4 pcs
- electric screwdriver
- bits for electric screwdriver:
  - 20mm socket/5,6,7,8,9,10,11mm
  - 20mm slotted/4,5,6mm
  - 20mm Phillips/PH1, PH2, 2xPH3
- Pozidriv PZ1/PZ2/PZ3
- IC extractor
- 7 pcs hex key set:
  - 1,5/2/2,5/3/4/5/6mm
- 150mm adjustable wrench
- 10 pcs two-way wrench: 4/4,5; 4,5/4; 5/5,5; 5/6; 5,5/6; 6/7; 7/8; 8/9; 9/10; 10/11mm
- big size two-way wrench: 12/13/14/15/17mm
- pipe wrench
- paper knife
- 160mm scissors
- 125mm straight and bent tip tweezer
- 3 pcs needle file
- antistatic wrist strap
- 3m measurement ruler
- vaseline
- case belt

Part No.	Ord.No.
S CT-862	58391

#### CT-840



70 pcs set

**Aluminium case contains:**

- crimping pliers
- test screwdriver
- 6 pcs long precise screwdrivers
- screwdrivers:
  - Phillips 3x75mm, 5x75mm, 6x100, 6x38, 5x150mm
  - slotted 3x75mm, 5x75mm, 6x100, 6x38, 5x150mm
  - TORX T10
  - socket SW5,5x75, SW6x75mm
- 7 pcs hex key set
- 10 pcs set two-way wrench:
  - 2 pcs 4/4,5; 5/5,5; 5/6; 5,5/6; 2 pcs 6/7; 8; 9/10; 10/11mm
- 150mm adjustable wrench
- scissors
- paper knife
- 160mm fixed tweezer
- 135mm straight tip tweezer
- 135mm bent tip tweezer
- 3 pcs needle file
- component box
- plastic alcohol bottle
- plastic dosing box
- torch
- anti-rust lubrication
- antistatic wrist strap
- IC extractor
- PVC tape
- brush
- case belt

Part No.	Ord.No.
S CT-840	58387

#### CT-830



59 pcs set

**Case contains:**

- 30W soldering iron
- desoldering pump
- soldering iron stand
- soldering core 0,8mm
- 3 pcs aid solder tool
- stripping pliers 150mm
- cutting pliers 150mm
- combination pliers 150mm
- long nose pliers 125mm, 150mm
- bent nose pliers 125mm
- crimping pliers
- test screwdriver
- 6 pcs precise screwdrivers
- screwdrivers:
  - Phillips 3x75mm, 5x75mm, 6x100, 6x38mm
  - slotted 3x75mm, 5x75mm, 6x100, 6x38mm
  - socket SW5,5x70, SW6x75mm
- 150mm adjustable wrench
- hex key set 6 pcs
- set two-way wrench: 8/9/10/12/15/19mm
- 125mm pipe wrench
- hammer
- paper knife
- scissors
- fixed tweezer
- 3 pcs needle file
- component box
- torch
- anti-rust lubrication
- IC extractor
- 3m measurement ruler
- brush
- PVC tape
- case belt (cloth covering case)

Part No.	Ord.No.
S CT-830	58385

## Tool Kits (continued)

CT-860



76 pcs set

### Advanced electrician tools case:

- multimeter
- gas soldering iron
- desoldering pump
- soldering core 0,8mm
- soldering iron holder
- 3 pcs aid solder tool
- cutting pliers 115mm
- long nose pliers 115mm
- crimping pliers
- crimping pliers for RJ connectors
- stripping pliers
- screwdrivers:
  - Phillips 3x75mm, 5x75mm, 6x100mm
  - slotted 3x75mm, 5x75mm, 6x100mm
- instrument screwdrivers for electronics
  - Phillips 3,8x150mm, 3x100mm, 2,4x75mm
  - slotted 3,8x150mm, 3x100mm, 2,4x75mm
  - Pozidriv PZ1/PZ2/PZ3 x30mm
  - inner hex key 3/4/5/6/8/AD adapter
- 150mm adjustable wrench
- 2 pcs alignment tools
- 7 pcs socket set in Metric: 5-11 mm
- 7 pcs socket set in S.A.E: 3/16-7/16 mm
- fix tweezers 110mm and 160mm
- round tweezers 125mm
- bent tweezers 125mm
- plastic IC extractor 3 pcs:
  - 14,16/24,28/36,40
- general-purpose stainless steel IC extractor
- insulated stainless steel extractor
- antistatic wrist strap
- brush
- Pin number locking tool case.

Part No.	Ord.No.
S CT-860	58390

CT-850



33 pcs set

### Advanced electrician tools case:

- multimeter
- 30W soldering iron
- desoldering pump
- soldering iron stand
- soldering core 0,8mm
- 3 pcs aid solder tool
- long nose pliers 125mm and 150mm
- stripping pliers 150mm
- cutting pliers 125mm
- multifunction cutting pliers 150mm
- Screwdrivers
  - Phillips 3x75mm, 5x75mm, 6x100mm
  - slotted 3x75mm, 5x75mm, 6x100mm
- hex key set 7 pcs
- straight tip tweezers 135mm
- scissors
- paper knife
- 2 pcs needle file
- component box
- PVC tape

Part No.	Ord.No.
S CT-850	58388

CTN-232



29 pcs set

### Network maintenance kit:

- 30W soldering iron
- desoldering pump
- diagonal micro pliers 125mm
- stripping pliers 150mm
- rotary coaxial cable strippers
- long nose pliers 125mm
- crimping pliers 220mm
- crimping pliers for RJ connectors
- Screwdrivers:
  - socket SW5,0/SW6,0
  - Phillips 3x75mm, 5x75mm, 6x100mm
  - slotted 3x75mm, 5x75mm, 6x100mm
  - TORX T10/T15/T20 x75mm
- hex key set 7 pcs
- 150mm adjustable wrench
- fixed tweezers
- paper knife
- Zipper kit.

Part No.	Ord.No.
S CTN-232	58393

CT-866



16 pcs set

### Advanced electrician tools bag:

- 150mm powerful diagonal micro pliers
- 150mm powerful long nose pliers
- 200mm powerful side cutting pliers
- 150mm adjustable wrench
- 3 m measurement ruler
- test screwdriver
- 125mm straight tip tweezers
- 125mm bent tip tweezers
- insulated Screwdrivers:
  - Phillips 3x75mm, 5x100mm, 6x150mm
  - slotted 3x75mm, 5x100mm, 6x150mm
- paper knife
- logic pen
- Zipper bag.

Part No.	Ord.No.
S CT-866	58392

CT-825



22 pcs set

### Electronic repair tool kit:

- constant-temperature soldering iron
- desoldering pump
- soldering core 0,8mm
- 150mm long nose pliers
- 150mm diagonal micro pliers
- 150mm side cutting pliers
- 150mm adjustable wrench
- electric screwdriver
- straight tip tweezers
- 2 pcs needle file
- PVC tape
- Screwdrivers:
  - Phillips 3x75mm, 5x75mm, 6x100, 6x150mm
  - slotted 3x75mm, 5x75mm, 6x100mm
  - socket SW5,0x75mm, SW6,0x75mm
- desoldering wick
- Zipper kit.

Part No.	Ord.No.
S CT-825	58383

CT-831



25 pcs set

### Electronic repair tool kit:

- 30W soldering iron
- desoldering pump
- soldering core 0,8mm
- 3 pcs aid solder tool
- long nose pliers 125mm
- crimping pliers 200mm
- Screwdrivers:
  - socket SW5,0/SW6,0
  - Phillips 3x75mm, 5x75mm, 6x100mm
  - slotted 3x75mm, 5x75mm, 6x100mm
  - TORX T10x75mm, T15x75mm
- 150mm adjustable wrench
- fixed tweezers
- plastic handle tweezers
- IC extractor
- extractor
- plastic canister
- Zipper kit.

Part No.	Ord.No.
S CT-831	58384

CT-813



13 pcs tools

### Tools kit:

- 30W soldering iron
- desoldering pump
- soldering core 0,8mm
- long nose pliers 125mm
- diagonal micro nippers 125mm
- test screwdriver
- screwdrivers:
  - Phillips 3x75mm, 5x75mm
  - slotted 3x75mm, 5x75mm
- 135mm straight tip tweezers
- IC extractor
- PVC tape
- Zipper kit.

Part No.	Ord.No.
S CT-813	58380

## CT-730



Aluminium tools case with handy compartments.  
Dimensions: 460 x 335 x 155mm

Part No.	Ord.No.
S CT-730	58395

## CIMCO 17 0300



Tool case made of robust cowhide with folding down front with document-bag, bottom, cover and side parts extra-strengthened, heavy carrying handle, 2 locks:  
Content: 3x pliers, 8x screwdrivers, stripping pliers, cable knife, 2x hammer, 2x chisel, voltage tester screwdriver, pocket saw, paint brush, bowl, stripping knife and cutter.  
Dimensions: 430x160x260mm

Part No.	Ord.No.
S CIMCO 17 0300	46183

## Computer-Service-Set 12pcs



Zipper bag with 12 tools: 3 different tweezers, 2 socket keys, 5 different screwdrivers, plastic canister.  
Dimensions: 220x155x30mm

Part No.	Ord.No.
S COMPUTER-SERVICE-SET 12	49123

## Computer-Service-Set 30pcs



Zipper bag with 30 pcs computer service set: socket screwdriver, Phillips screwdriver, slotted screwdriver, 30W soldering iron, soldering wire, slotted pliers, cutting pliers, crimping pliers, 3 different tweezers, IC extractor, mini torch, mini cutter. Dimensions: 255x200x45mm

Part No.	Ord.No.
S COMPUTER-SERVICE-SET 30	47302

## HT-2000 D



Case and bag crimp tool set (Western Modular), with metal crimping pliers HT-2008R for 4,6 and 8-pin connectors, 40 pcs 4P4C connectors, 30 pcs 6P6C connectors and 20 pcs 8P8C connectors. Dimensions: 260x200x48mm.

Part No.	Ord.No.
O HT-2000 D	40321

## HT-330 K



Tool kit featuring everything needed for attaching coaxial cable connectors to all sorts of coaxial cable types. Everything fits in a convenient and rugged plastic carrying case with molded compartments for each kit component. Included are a heavy duty coaxial cable crimp tool with ratchet mechanism, a heavy duty 6-1/2" cable cutter with rounded blades designed to easily cut coaxial cable up to 0.41" diameter and a 4" L COAX stripper for stripping RB 58/59/62/63/C2V. Also included is a screwdriver to assist in removing and installing the appropriate die.

Part No.	Ord.No.
O HT-330 K	40320

## Mechanik 1



25 pcs set

25-piece tool box - ideal toolkit for hobbyists, electronics enthusiasts and professionals. Included in the delivery: 1 side-cutting pliers (115 mm), needle-nose pliers (130 mm), needle-nose pincers (metal), 10 bits (6.35 mm - 1/4"), flat-tip bits (4/5/6 mm), 2 Phillips/Posidrive bits - sizes 1/2; 3 splined bits T10/T15/T20, bit converter from square (6.4 mm) to hexagonal, 4 hexagonal sockets (7/8/9/10 mm), 75 mm extension, 1 bit screwdriver, 4 flat-tip screwdriver widths 1.2/1.6/2.0/3.2 mm, 2 cross-head screwdrivers (sizes 0/1). Supplied in a practical plastic box.

Part No.	Ord.No.
S MECHANIK 1	1421

## PK-700



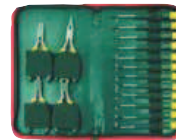
77 pcs set

- voltage tester screwdriver
- 5 pcs needle file set
- 6" tweezer
- IC extracting tweezer
- reverse action tweezer
- 7 pcs folding type hex key set
- 6" stain steel scissors
- 3 pcs soldering aid tools
- carpenter hammer
- oil can
- flash light
- 2 pcs utility component storage box
- IC extractor
- 10 pcs screwdrivers set

- # 3x75, # 5x75, # 6x100, # 6x38mm
- 3x75, 5x75, 6x100, 6x38mm
- 5mm, 6mm
- two detachable pallets with tools
- carrying tool case (pin code locking)
- dimensions: 456 x 330 x 105 mm
- 5" diagonal cutting pliers
- 5" slotted pliers
- 4,5" bent nose slotted pliers
- 6" diagonal cutting pliers
- 6" long slotted pliers
- 8" combination pliers
- 9,5" crimping pliers
- 9,5" adjustable pliers
- 6 pcs electronic screwdriver set
- 6" adjustable wrench
- 6 pcs open-end wrench set
- 30 W soldering iron
- desoldering pump
- desoldering wick
- solder core 63%, SN
- soldering iron stand with sponge
- PVC insulated tape
- brush
- utility knife (3 blades self loading)
- inspection mirror
- alignment tool

Part No.	Ord.No.
S N-1PK-700	42687

## Set-SKR12KL4



- Handy zipper bag includes:
- 4x slotted screwdrivers 1,6; 2; 2,4 and 3mm
  - 4x Phillips PH000, PH00, PH0 and PH1
  - 4x TORX T6, T8, T9 and T10
  - 2x combination pliers
  - 2x diagonal cutting pliers.

Part No.	Ord.No.
S Set-SKR12KL4	56106

## CTK-110 EU



110 pcs set

- The Set includes 110 pieces in high-quality, Chrome-Vanadium (except pliers). All pieces are fixed in a handy plastic case. Sockets matte chromed, pliers chrome/nickel, mirror finish, with co-molded handles.
- 1x Case with blister inlay and 4c coloured display box
  - 1x Tongue & groove plier 7"/175mm, CrNi, with co-molded handles
  - 1x Diagonal cutting plier w/spring 6"/150 mm, CrNi, with co-molded handles
  - 1x Long Nose Plier w/Spring 8"/200mm, CrNi, with co-molded handles
  - 1x Hex Key Holder
  - 8x Hex Keys 1,5/2/2,5/3/4/5/5,5/6 mm

- COOPER Tools**
- 4x Bit Holders
  - 40x Screwdriver Bits 1/4", 25 mm long
  - 1x Magnetic Bit Driver, 125 mm, Cr-V, with left-/right-Drive
  - 2x Screwdriver, Phillips® No. 1 x 75mm and No. 2 x 100 mm
  - 2x Screwdriver, Slotted 6,5 x 100 mm and 5,5 x 75 mm
  - 11x combination Wrenches 8,9, 10, 11,12,13,14,15,17,18,19 mm, CrV
  - 11x 1/4" Sockets 4,5,6,7,8,9,10, 11,12,13,14 mm, CrV, 6 pt
  - 1x 1/4" Flexible Extension 150 mm, CrV
  - 1x 1/4" Universal joint, CrV
  - 2x 1/4" Extension 50 mm and 100 mm, CrV
  - 1x 1/4" Quick release ratcheting Drive, 72-tooth, with cushion grip, CrV
  - 1x 1/2" Spark Plug Socket 21mm, CrV
  - 1x 1/2" Spark Plug Socket 16 mm, CrV
  - 1x 1/2" Sliding T-Handle / Extension 250 mm, CrV
  - 15x 1/2" Sockets 10,11,12,13,14,15, 17,18,19,20,21,22,23,24,27mm, CrV, 6 pt
  - 1x 1/2" Universal Joint, CrV
  - 1x 1/2" Extension 125 mm, CrV
  - 1x 1/2" Quick Release Ratcheting Drive, 72-tooth, with cushion grip, CrV

Part No.	Ord.No.
S CTK-110 EU	74184

## Miscellaneous Tools

### LTS 120 - 22W Magnifying Lamps



All-round magnifying luminaire suitable for a variety of professional uses

- 220-240V/50 Hz
- 22W energy-saving circular fluorescent lamp provides a very high light output with a minimum of heat output
- 3/5/8 diopter circular glass lenses
- 110cm rotary, freely adjustable swing arm, arm's reach 1,1m,
- including 125mm magnifier (LTS 120/x, where "x" is number of dioptries)
- with desk clamp.

Part No.	Ord.No.
s LTS 120/3	44223
s LTS 120/5	52403
s LTS 120/8	52404

### LTS 85 - 12W Magnifying Lamps



Magnifying luminaire suitable for a variety of uses

- 220-240V/50 Hz
- 12W energy-saving circular fluorescent lamp provides a very high light output with a minimum of heat output

LTS85- 3 diopter , 85mm  
LTS95/3+8- 3 diopter, 95mm+25mm 8diopter

Part No.	Ord.No.
o LTS 85	56745
s LTS 95/3+8	67094

### LTS WALL HOLDER



Wallmount holder for LTS Series

Part No.	Ord.No.
s LTS WALL HOLDER	61141

### CK5912-38



Telescopic inspection mirror - features:

- stainless steel
- adjustable multi-angled joint
- pocket clip
- telescope extendable from 125 to 560mm
- diameter: 38mm

Part No.	Ord.No.
s CK5912-38	7967

### TOOL S0864



Set of two telescopic tools:

- inspection mirror with a joint of 50mm diameter and 210-650mm length
- telescopic magnet (450g).

Part No.	Ord.No.
s TOOL S0864	48082

### MHS-90



Magnifier with two adjustable swing arm crocodile handles. Ideally suitable for PCB mounting etc.

Part No.	Ord.No.
s MHS-90	4529

### LSA - PROFI



LSA Push Down and Cutting Tool

- tool for pushing down and cutting twisted pair cables in one operation
- for UTP and STP cables, conductors of 0,4-0,8mm diameter
- with integrated pulling hook and release blade
- plastic body

Part No.	Ord.No.
s LSA-PROFI	3715

### WZ-CAT5



Insertion tool for LSA.  
Dimensions: 176x37x21 mm  
Including handy casing.

Part No.	Ord.No.
s WZ-CAT5	70647

### CH-150



6" chrome-plated adjustable wrench.

Part No.	Ord.No.
s CH-150	58434

### AIW 4



Clamping tool for cable ties - presented in chapter J.

Part No.	Ord.No.
s AIW 4	8083

### CT-201



This mini-vise is suited for all kind of small work or precision work. With 1-1/2" metal jaws and rubber suction base.  
Dimensions: 60x60x70mm

Part No.	Ord.No.
s CT-201	1775

### MV 2



Hobby metal vise with adjustable swing joint (rotates 360°). Clamps to any workbench or table via screw. Jaws can handle things up to 40mm thick.  
Dimensions: 300x120x120mm

Part No.	Ord.No.
s MV 2	1820

### MV 3



Hobby metal vise with adjustable swing joint. Clamps to any workbench or table via rubber suction base. Jaws can handle things up to 70mm thick, jaws width: 75mm  
Base dimensions: 145x145mm

Part No.	Ord.No.
s MV 3	56275

## CT-1100



This mini-vise is suited for all kind of small work or precision work. With 1-1/2" metal jaws Jaws width: 60mm  
Max. opening: 50mm

Part No.	Ord.No.
s CT-1100	58369

## NRU-0085



Universal type - rotary pen (length: 12 cm) with 12 spare glass fiber brushes (Ø 4,0 mm, brush length: 40 mm), used for example to clean connecting surfaces on PCBs.  
Replacement brushes: NRU-0086 Ord.No. 53245 (Ø 4mm, length: 40mm).

Part No.	Ord.No.
s NRU-0085	53244

## OHYB1



Stencils for forming leads of electronic components. Functional, easy structure and operation, stencils for forming leads of diodes, resistors, capacitors before mounting them on PCBs. These plastic devices are suitable for forming different length of components. Selectable bend point, in five distances: 7,5; 10; 12,5; 15; 17,5 mm.

Part No.	Ord.No.
s OHYB1	1262

## PLCC - ZNA



Plastic extractor (not antistatic) for unloading all 20 to 100 pole PLCC-ICs and 32 and 44 pole LCC-ICs.

Part No.	Ord.No.
s PLCC - ZNA	26891

## ZD-508



Hot-melt gun, operating temperature range 180°C to 500°C. Two-step temperature regulation: 1<sup>st</sup> step: 750W / 300°C / 200l/min, 2<sup>nd</sup> step: 1500W / 500°C / 450l/min. Supply voltage 230VAC. Length of cable 1,5m.

Part No.	Ord.No.
s ZD-508	56366

## DC 150 - Digital Caliper



Digital caliper for every situation with LCD display.  
Measuring range: 150mm / 6in  
LCD display resolution:  
0,01mm / 0,0005in  
Max. tolerance:  
0,02mm to 100mm / 0,03mm over 100mm  
Power supply: 1,5V cell  
Delivered including 1,5V cell, in plastic box.

Part No.	Ord.No.
s DC 150	47854

## UNE0 3in1



**BOSCH**  
Technik fürs Leben

The compact 3-in-1 power pack. Hammers, drills and drives screws in any surface – even in concrete. And thanks to lithium-ion technology, not only is it particularly handy, it is also ready for use at all times.  
Rated voltage: V= 14.4  
Rated speed rpm: 0-900  
Weight: 1,1kg  
Charging time: 3h

Part No.	Ord.No.
o UNE0 3in1	71715

## PMF180E MULTI Tool



**BOSCH**  
Technik fürs Leben

Bosch Multifunction Tool PMF 180 E Multi Unbelievably versatile – sawing, cutting and sanding with one tool. Multifunctional and precise due to oscillation function with powerful 180 watts  
Toolholder with universal screw – fast and uncomplicated changing of all accessories with an Allen key.  
Power input: 180 W  
Power output: 74 W  
No-load speed: 15.000 – 21.000 rpm  
Oscillation angle left/right: 1,4 °  
Weight 1,2 kg

Part No.	Ord.No.
o PMF180E MULTI	72658

## DREMEL 1200JA Glue Gun



**DREMEL**

**Contents:**

- DREMEL glue gun
- 3 different nozzles
- 6 glue sticks (dual temperature)

**Features & Benefits:**

- Dual temperature
- LED light
- Kick-stand
- Large 3 finger trigger
- Big foot
- Soft grip
- Standard glue stick size
- Indicator lights
- 3-way switch

The Dremel glue gun - its innovative design and numerous features make it very user friendly and easy to use. The features are specially designed for making the job of glueing easier. The glue gun is the ideal tool for a wide variety of projects: model building, woodworking, scrapbooking or casemodding.

**Technical specification:**  
Supply voltage: 230 - 240 VAC, 50 - 60 Hz  
Rated power input: 30W  
Total weight: 0,645kg  
Dual temperature: 120/195°C  
Temperature indication: LED

Part No.	Ord.No.
s DREMEL 1200JA	69066

## DREMEL GS1 Glue Sticks



**DREMEL**

These glue sticks can be used with any Glue Gun even for dual temperatures. Each package consists of 15 pieces, with a length of 150 mm and 11 mm diameter..

Part No.	Ord.No.
o DREMEL GS1	69218

## DREMEL SG4 Goggles



**DREMEL**

Use the goggles to provide protection for your eyes when working on your projects

Part No.	Ord.No.
o DREMEL SG4	69219

Please find the whole tool assortment at  
[www.soselectronic.com](http://www.soselectronic.com)



## ESD Tools for Electrostatically Sensitive Components

The most serious danger when working with electronic components is posed by electrostatic discharges. Because even with low discharge levels not perceived by people, sensitive structures within components can be damaged or destroyed. Those who wish to counteract this problem must take various aspects into account: ESD-safeworkstations where electrostatic discharge is safely channelled to earth, electrostatically discharging shoes, workwear and an ESD arm band with spiral cable that discharges voltage softly and safely via a large resistance (approx. 1Meg-Ohm) from the operator to earth. A further precondition is that the tools used are also electrostatically safe.

Wiha's ESD tools are equipped with electrostatically discharging (dissipative) handles that have a defined surface resistance of  $10^6 - 10^9$  Ohms. That guarantees "soft discharging" within a set period of time and in a controlled and safe manner, so that sensitive components cannot be damaged. Wiha ESD tools are in accordance with the ESD standard IEC61340-5-1.

### Basic terms:

(L) - Low Charging: or also called "antistatic" packaging material, which minimizes electrostatic discharges

(C) - Conductive: packaging material with surface resistance of  $\geq 1 \times 10^2 \Omega$  to  $< 1 \times 10^5 \Omega$

(D) - Dissipative: packaging material with defined surface resistance of  $\geq 1 \times 10^6 \Omega$  to  $< 1 \times 10^{11} \Omega$

(S) - Shielding: packaging material with current intrusion barrier  
Insulating - packaging material with defined surface resistance of  $\geq 1 \times 10^{11} \Omega$

ESD - Electrostatic discharge

ESDS - Electrostatic sensitive devices

EPA - Electrostatic protected area

### Basic symbols:



Electrostatic sensitive devices.



Symbol for packaging materials \* primary code  
L = Low Charging,  
C = Conductive,  
D = Dissipative,  
S = Shielding



Electrostatic protected area

## WIHA Professional ESD Pliers

Wiha Professional ESD pliers were developed especially for electronic professionals with stringent requirements regarding the precision and durability of cutting edges, clearance and jolt free movement while providing convenient and effortless operation.

Complete anti-static dissipative handle for controlled dissipation of static charges by means of surface resistance of  $10^6 - 10^9$  Ohm. Suitable for electronics work at ESD workplaces according to IEC61340-5-1.

### Z 41 3 04 Diagonal Cutter Professional ESD



**Head shape:** Wide, pointed head.

**Design:** Cutting edge without bevel for absolute flush cutting. Maximum service life of cutting edge achieved through additional inductive hardening to approx. 64 HRC. With opening spring.

**Material:** High alloy carbon steel C 60.

**Application:** For absolutely flush cutting of copper wire.

Part No.	Length [mm]	Weight [g]
Z 41 3 04	115	60

Part No.	Ord.No.
S Z 41 3 04	66289

### Z 43 1 04 Diagonal Cutter Professional ESD



**Standards:** DIN ISO 9654. IEC 61340-5-1.

**Head shape:** Narrow, semi-circular head.

**Design:** Cutting edge with full flush cutter function for virtually flush cutting. Maximum service life of cutting edge achieved through additional inductive hardening to approx. 64 HRC. With opening spring.

**Material:** High alloy carbon steel C 60.

**Application:** For virtually flush cutting of copper wire in places which are difficult to access.

Part No.	Length [mm]	Weight [g]
Z 43 1 04	115	60

Part No.	Ord.No.
S Z 43 1 04	66304

### Z 47 2 04 End Cutting Nippers Professional ESD



**Standards:** DIN ISO 9654. IEC 61340-5-1.

**Head shape:** Wide head.

**Design:** Cutting edge with full flush cutter function for virtually flush cutting. Maximum service life of cutting edge achieved through additional inductive hardening to approx. 64 HRC. With opening spring.

**Material:** High alloy carbon steel C 60.

**Application:** For frontal, virtually flush cutting of thicker, soft wires.

Part No.	Length [mm]	Weight [g]
Z 47 2 04	115	65

Part No.	Ord.No.
S Z 47 2 04	68700

### Z 46 4 04 Oblique End Cutting Nippers Professional ESD



**Standards:** DIN ISO 9654. IEC 61340-5-1.

**Head shape:** Extra narrow head. Cutting edges angled at 40°.

**Design:** Cutting edge with full flush cutter function for virtually flush cutting. Maximum service life of cutting edge achieved through additional inductive hardening to approx. 64 HRC. With opening spring.

**Material:** High alloy carbon steel C 60.

**Application:** For virtually flush cutting thin, soft wires in places which are particularly difficult to access.

Part No.	Length [mm]	Weight [g]
Z 46 4 04	110	42

Part No.	Ord.No.
S Z 476 4 04	69760

## WIHA ESD Screwdrivers



The ESD screwdrivers from Wiha conform to the international ESD Standards IEC61340-5-1. Due to the electrical surface resistance,  $10^6 - 10^9$  Ohm, defined electrostatic discharge is guaranteed. Thanks to the rotating cap, incremental adjusting is easy. The large handle enables powerful tightening and loosening of screws.

Wiha ESD screwdrivers are noninsulated, therefore not suitable for working on live parts.

## Slotted Screwdrivers

### 272 Series - Precision ESD Slotted Screwdrivers



**Dissipative handle, ESD-safe zone**

**Blade:** High quality chrome-vanadium-molybdenum steel, through hardened, chrome-plated. Wiha ChromTop® finish on tip for a perfect fit every time.

**Handle:** Precision handle with rotating cap, surface resistance  $10^6 - 10^9$  Ohm.

**Standards:** IEC 61340-5-1.

**Application:** For working on electrostatically sensitive components.

Part No.	Length [mm]	Blade width [mm]	Blade thickness [mm]	Blade length [mm]	Weight [g]
272 1,5x0,25x40	1,5	40	0,25	2,0	12,5
272 2,0x0,40x40	2,0	40	0,40	2,0	12,5
272 2,5x0,40x50	2,5	50	0,40	2,5	13,0
272 3,0x0,50x50	3,0	50	0,50	3,0	13,0
272 4,0x0,80x60	4,0	60	0,80	4,0	14,0

Part No.	Ord.No.
S 272 1,5x0,25x40	59682
S 272 2,0x0,40x40	59683
S 272 2,5x0,40x50	59685
S 272 3,0x0,50x50	59686
S 272 4,0x0,80x60	59687

## Phillips Screwdrivers

### 273 Series - Precision ESD Phillips Screwdrivers



#### Dissipative handle, ESD-safe zone

**Blade:** High quality chrome-vanadium-molybdenum steel, through hardened, chrome-plated. Wiha ChromTop® finish on tip for a perfect fit every time.

**Handle:** Precision handle with rotating cap, surface resistance 10<sup>6</sup> - 10<sup>9</sup> Ohm.

**Standards:** IEC 61340-5-1.

**Application:** For working on electrostatically sensitive components

Part No.	40	50	60	80
273 PH00	40	2,0	120	12,5
273 PH0	50	3,0	145	13,0
273 PH1	60	4,0	170	14,0

Part No.	Ord.No.
S 273 PH00	59688
S 273 PH0	59689
S 273 PH1	59690

## Precision ESD Torx Screwdrivers

### 278 Series - Precision ESD TORX® Screwdrivers



#### Dissipative handle, ESD-safe zone

**Blade:** High quality chrome-vanadium-molybdenum steel, through hardened, chrome-plated. Wiha ChromTop® finish on tip for a perfect fit every time.

**Handle:** Precision handle with rotating cap, surface resistance 10<sup>6</sup> - 10<sup>9</sup> Ohm

**Standards:** IEC 61340-5-1.

**Application:** For working on electrostatically sensitive components

Part No.	40	50	60	80
278 T4	40	2,5	120	12,5
278 T5	40	2,5	120	12,5
278 T6	40	2,5	120	12,5
278 T7	40	2,5	120	12,5
278 T8	40	2,5	120	12,5

Part No.	Ord.No.
S 278 T4	69428
S 278 T5	59678
S 278 T6	59679
S 278 T7	59680
S 278 T8	59681

## ESD Screwdriver Sets

### 272 K6 Precision ESD Slotted/ Phillips Screwdriver Set, 6 pcs



#### Dissipative handle, ESD-safe zone

**Blade:** High quality chrome-vanadium-molybdenum steel, through hardened, chrome-plated. Wiha ChromTop® finish on tip for a perfect fit every time.

**Handle:** Ergonomic Wiha SoftFinish® multi-component handle with roll-off protection.

**Standards:** Manufactured acc. to IEC 60900:2004.

**Application:** For all work on or around electrical components up to 1000 V AC

**Extra:** In plastic box, can be opened and positioned on workbench.

①	272	1,5x40	2,0x40	2,5x50	3,0x50
⊕	273	PH00x40	PH0x50	-	-

Part No.	Ord.No.
S 272 K6	59677

## WIHA Professional ESD Tweezers

The new assortment of Wiha electronic tweezers expands the possibilities for exact, and at the same time, careful work with electronic components. These precision, special or universal tweezers are rapidly becoming essential accessories for everyday electronics work due to their high quality design:

ESD safe (antistatic), anti-magnetic, stainless and acid-resistant.

Unlike purely metal tweezers, the special coating here ensures a controlled dissipation of static charges, and therefore safe, standard-compliant use.

### ZP 01 0 14



#### ZP 01 0 14 Universal Tweezer Professional ESD

**Standards:** IEC 61340-5-1.

**Tip form:** Straight with a strong tip.

**Design:** Smooth gripping surfaces, gripping surfaces without grooves. Non-glare black coated, anti-static. Anti-magnetic and acid-resistant.

**Material:** Special alloyed, non-rusting, chromium-nickel stainless steel.

**Application:** Universal tweezers for all current electronics applications.

Part No.	Length[mm]	Type	Weight[g]
ZP 01 0 14	130	AA	19

Part No.	Ord.No.
S ZP 01 0 14	65506

### ZP 46 0 14



#### ZP 46 0 14 Universal Tweezer Professional ESD

**Standards:** IEC 61340-5-1.

**Tip form:** Straight with approx. 4 mm wide, round tip

**Design:** Fine-tooth gripping surface, grooved gripping surface. Non-glare black coated, anti-static. Anti-magnetic and acid-resistant.

**Material:** Special alloyed, non-rusting, chromium-nickel stainless steel.

**Application:** Universal tweezers for all current electronics applications.

Part No.	Length[mm]	Type	Weight[g]
ZP 46 0 14	145	40	29

Part No.	Ord.No.
S ZP 46 0 14	65507

### ZP 24 0 14



#### ZP 24 0 14 SMD Tweezer Professional ESD

**Standards:** IEC 61340-5-1.

**Tip form:** Straight with a curved 45° angle flat, narrow tip

**Design:** Smooth gripping surfaces, gripping surfaces without grooves. Non-glare black coated, anti-static. Anti-magnetic and acid-resistant.

**Material:** Special alloyed, non-rusting, chromium-nickel stainless steel.

**Application:** SMD special tweezers for horizontal gripping of components.

Part No.	Length[mm]	Type	Weight[g]
ZP 24 0 14	120	12	15

Part No.	Ord.No.
S ZP 24 0 14	65508

### ZP 25 2 14



#### ZP 25 2 14 SMD tweezers Professional ESD

**Standards:** IEC 61340-5-1.

**Tip form:** Straight with flat, wide tip and diagonal alignment of the front gripping edge.

**Design:** Smooth gripping surfaces, gripping surfaces without grooves. Non-glare black coated, anti-static. Anti-magnetic and acid-resistant.

**Material:** Special alloyed, non-rusting, chromium-nickel stainless steel.

**Application:** SMD special tweezers for horizontal gripping of components.

Part No.	[mm]	Type	[g]
ZP 25 2 14	120	13	16

Part No.	Ord.No.
S ZP 25 2 14	65509

## ESD Tools for Electrostatically Sensitive Components (continued)

### Products for Electrostatic Protected Areas

#### Table Mats and floor Runners



LABESTAT mats are made from a rugged synthetic rubber resistant to hot solder, fluxes and chemicals. The underside layer is black conductive, the top grey layer, glare free surface, has a resistance from  $10^7$  to  $10^9 \Omega$ .

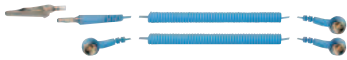
Part No.	Ord.No.	Dimensions
o ESD 7804.148B	58151	50x60 cm
o ESD 1250.75012.S	58159	1,2x1,5 m

#### Wrist Straps



The wrist strap is the most common and effective means of controlling ESD generated from people, it should be worn at all times by anyone at the work station. Our adjustable wrist strap includes an extendible coiled cord fitted with 1M resistor.

7804.190 - banana/socket+wrist strap  
7804.193 - socket/socket+wrist strap



Part No.	Ord.No.
o ESD 7804.190	58155
o ESD 7804.193	58154

#### ASN1



The wrist strap is the most common and effective means of protecting electronic devices from generated ESD. It is made from high-comfort-factor fabric and includes an extendible coiled cord fitted with  $1M\Omega$  resistor.

Length: 1,8 m

Part No.	Ord.No.
s ASN1	1258

#### Antistatic Heel Grounder



Foot grounders function exactly the same way as wrist straps by providing a ground path from the moisture layer on the wearer's skin through the foot grounder to the grounded floor surface. It is recommend that foot grounders are worn on both feet to ensure that one foot is always in contact with the floor or floor mat at all times.

Part No.	Ord.No.
o ESD 7804.202	58153

#### Grounding Cord



female 10mm / cable 3,5m R=1M $\Omega$  / banana and alligator clip

Part No.	Ord.No.
o ESD 7804.883	58156

#### Hard Brush



A range of conductive brushes allows thorough cleaning without the risk of generating static charges. The brush consists of a conductive plastic handle and conductive fibres. Resistance from the tip of the brush to the handle is less than  $1 \times 10^5 \Omega$ . Brushes should be used by operators who are earthed. Hard brushes are for scrubbing whilst soft ones are for brushing of delicate items such as optics and diskettes.

Part No.	Ord.No.
o ESD 7807.301, ESD brush 9x32mm	58161

#### Earth Bonding Point Plug



EBP plug provides a safe, effective and simple method of using the ring mains earth as ground. Made of yellow ABS, Earth Bonding Point plug fits the european CEE(7) VII schuko sockets.

7804.874: Earth Bonding Plug with two 4mm plug sockets, one 10mm stud

Part No.	Ord.No.	
o ESD 7804.874	58157	17,50

#### Personnel Test Station 24V



The station incorporates a WRISTLAB tester, a foot plate and a striking yellow PVC panel. On the panel there is a mounting for the tester and also clearly written operating instructions. ISO9000 Traceable Certificate is supplied.

Part No.	Ord.No.
o ESD 9265.023	58173

#### Permanent Dissipative Bags



Permanent dissipative bags - Labestat A100 (packages of 100pcs)

Material: multilayer polyethylene, green colour, amine free, heat sealable, recyclable  
Print: ESD and Recycle logos, production batch

Thickness: 100 $\mu$ m  
Surface resistivity:  $< 10^{11} \Omega$

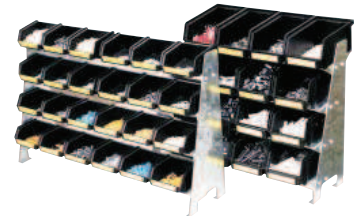
Part No.	Ord.No.
o ESD 7804.239, 76x127mm, green	58164
o ESD 7804.240, 100x150mm, green	58165
o ESD 7804.242, 100x200mm, green	58166
o ESD 7804.244, 150x200mm, green	58167

#### TECOFIX Containers



Conductive polypropylene hopper-front containers for storage and distribution of small parts. They are suitable for all known wall rail and for our Vistafix assembly stand.

Vistafix zinc plated assembly stands are supplied complete of conductive Tecofix bins. They are especially suited for PCBs assembly and take a little space on the work table.



Part No.	Description	Ord.No.
o ESD 7804.715	Container TECOFIX 6 95x100x50mm	58168
o ESD 7804.719	Container TECOFIX 5 175x100x75mm	58169
o ESD 7804.721	Container TECOFIX 5 235x145x125mm	58170
o ESD 7804.739	VISTAFIX 6 stand with 20 cont. Tecofix 6	58171

#### TRESTON Cabinets



Treston cabinets provide systematic storage of small parts or components which are ESD sensitive. The drawers made of conductive polyethylene can be fitted with dividers (optional).

Part No.	Description	Ord.No.
o ESD 7804.640	TRESTON cabinet with 48 containers	58172

## DREMEL Tools

Dremel is the inventor of the famous high strokes per minute rotary tool system which you can use for a great number of projects where precision is required, both indoor and out. The possibilities with the Dremel system are almost infinite. With your Dremel you become the expert in handling projects with great detail and in hard to reach places. Whether you are an experienced craftsman working with great care on details of a car or model plane, or a beginner, taking on hobby projects, the Dremel system is perfect for anyone looking for precision and a wide variety of possibilities.

The innovative Dremel System has developed into a great range of tools and over 150 accessories and attachments.

### DREMEL 300JC Tool kit



**DREMEL**

The Dremel multitool is a high quality precision multitool that can be used to perform detailed and intricate tasks. The wide range of Dremel accessories and attachments allow you to perform a large variety of tasks such as sanding, carving and engraving and routing, cutting, cleaning and polishing.

**Contents:**

- DREMEL 300JC multitool
- 25 pcs accessories and attachments
- convenient storage case

**Supply voltage:** 230-240 VAC, 50-60 Hz

**Amperage Rating:** 0,5 A

**Rated power input:** 125W

**Total weight:** 1,74 kg

**No load Strokes per minute:** 10 000 - 33 000 rpm

**Collet Capacity:** 0,8mm, 1,6mm, 2,4mm, 3,2mm

Part No.	Ord.No.
S DREMEL 300JC	69061

### DREMEL 300JF Multitool



**DREMEL**

The Dremel multitool is a high quality precision multitool that can be used to perform detailed and intricate tasks with wide range of Dremel accessories and attachments.

All this fits in a convenient case, that has the possibility of expanding storage space by sliding the Mini Accessory Case to the side of the tool case.

**Contents:**

- DREMEL 300 multitool
- 55 pcs high quality Dremel accessories in Mini Accessory Case
- Dremel high quality Flexible Shaft
- convenient and elegant storage case

**Supply voltage:** 230-240 VAC, 50-60 Hz

**Amperage Rating:** 0,5 A

**Rated power input:** 125W

**Total weight:** 2,3kg

**No load Strokes per minute:** 10 000 - 33 000 rpm

**Collet Capacity:** 0,8mm, 1,6mm, 2,4mm, 3,2mm

Part No.	Ord.No.
S DREMEL 300JF	69062

### DREMEL 400JF Rotary Tool Kit



**DREMEL**

The Dremel 400 Series Digital comes with 2 mini accessory cases, 80 accessories and 4 unique Dremel attachments in a spacious and highly convenient storage case. All together this kit offers the user maximum precision and control for many applications.

**Contents:**

- DREMEL 400 multitool
- 80 pcs high quality Dremel accessories, in 2 mini accessory cases
- High quality flexible shaft
- Line and circle cutter
- Lawn mower sharpening attachment
- Sturdy and spacious storage case

**Supply voltage:** 230-240 VAC, 50-60 Hz

**Amperage Rating:** 0,6 A

**Rated power input:** 140W

**Total weight:** 2,98kg

**No load Strokes per minute:** 5 000 - 33 000 rpm

Part No.	Ord.No.
S DREMEL 400JF	69063

### DREMEL 1100JC driver



**DREMEL**

This kit includes the Dremel Driver, for any project where precision is required. Perfect for situations where cordless precise drill driving is needed.

**Contents:**

- DREMEL Stylus Lithium Ion
- charger
- 15 pcs accessories

**Battery voltage:** 7,2V

**Battery capacity:** 1,0Ah

**Charging time:** 5h  
**Total weight:** 1,08kg  
**No load Strokes per min:** 5 000 - 25 000 rpm  
**Battery technology:** Lithium-Ion

Part No.	Ord.No.
S DREMEL 1100JC	69064

### DREMEL 1120JA Screwdriver

**DREMEL**



This kit includes the Dremel Driver, for any project where precision is required. Perfect for situations where cordless precise drill driving is needed.

**Contents:**

- DREMEL DRIVER
- the charger
- 8 hexagonal bits and the bit holder pad

**Technical specification:**

**Battery voltage:** 7,2 V

**Battery capacity:** 1,0 Ah

**Charging time:** 5 h

**Weight:** 0,430 kg

**Length:** 12,6 cm

**Strokes per minute:** 0 - 300 1/min

**Max. torque:** 5Nm

**Battery technology:** Lithium-Ion

Part No.	Ord.No.
S DREMEL 1120JA	70989

### DREMEL 8000JH Cordless Rotary Tool Kit

**DREMEL**



The Dremel 10.8V Li-ion Cordless tool is the first power tool in the world to feature Li-ion battery technology. Li-ion batteries can be charged at any time, have no self-discharge and weigh up to 30% less than conventional NiCd cells. Most importantly, Li-ion technology allows this cordless tool to perform like a corded tool.

**Contents:**

- DREMEL 10,8 V Lithium-Ion
- 3 hours quick charger
- Soft bag
- 3,2mm collet
- Collet nut
- Collet wrench

**Battery voltage:** 10,8V

**Charging time:** 3h

**Total weight:** 1,79kg

**No load Strokes per minute:** 5 000 - 35 000 rpm

**Battery technology:** Lithium-Ion

Part No.	Ord.No.
S DREMEL 8000JH	69065

### DREMEL 290JC Engraver

**DREMEL**



Engraving tool with variable depth control, for engraving on a wide variety of materials like metal, glass, wood, plastics, ceramics, etc.

**Contents:**

- Dremel Engraver
- Replaceable carbide engraving point
- Letter & number template

**Supply voltage:** 230-240 VAC, 50-60 Hz

**Rated power input:** 35W

**Weight:** 0,465kg

**Ignition:** piezoelectric

**Strokes per minute:** 6000

Part No.	Ord.No.
S DREMEL 290JC	69069

### DREMEL 2000JA Gas Soldering Iron

**DREMEL**



One tool for 6 different applications: soldering, melting, hot cutting, welding, shrinking and woodburning (pyrography)

**Contents:**

- DREMEL Versatip gas soldering iron
- soldering Tip
- cutting knife
- hot knife
- reflector
- hot blower head
- flat wide flame head
- soldering wire
- soldering sponge + sponge box
- soldering tin with Blue Cap

**Weight:** 1,300kg

**Ignition:** piezoelectric

**Burn time:** 30-60 min

Part No.	Ord.No.
S DREMEL 2000JA	69068

## DREMEL Tools (continued)

### DREMEL 2200JA VersaFlame



The Dremel VersaFlame™ is the only stationary burner that safely combines open flame use with a catalyst and soldering head, making it the most versatile stationary burner in the market today, especially for DIY applications. The Dremel VersaFlame™ is powered by liquid butane gas for quick heat-up and fast recharge. Applications can be described as: soldering, shrinking, welding, etc.

**Contents:**

- Dremel VersaFlame™
- Catalyst
- Soldering Tip
- Flame extension piece
- Deflector
- Soldering tin with blue cap
- Soldering sponge + sponge box
- 1 Wrench

**Ignition:** piezoelectric

**Burn time:** 75 - 90 min

**Tank capacity:** 42ml / 22g

**Temperature:** 1200°C (open air), 680-1000°C (hot air), 550°C (tips)

Part No.	Ord.No.
S DREMEL 2200JA	70988

### DREMEL 1200JA Glue Gun



Its innovative design and numerous features make it very user friendly and easy to use. The features are specially designed for making the job of glueing easier. The glue gun is the ideal tool for a wide variety of projects: model building, woodworking, scrapbooking or casemodding

**Contents:**

- DREMEL glue gun
- 3 different nozzles
- 6 glue sticks (dual temperature)

**Supply voltage:** 230-240 VAC, 50 - 60 Hz

**Rated power input:** 30W

**Total weight:** 0,645kg

**Dual temperature:** 120/195°C

**Temperature indication:** LED  
DREMEL GS1 glue sticks, 15 pcs in a package (see page K24)

Part No.	Ord.No.
S DREMEL 1200JA	69066

## DREMEL Attachments

### DREMEL 220 Workstation



This is the perfect solution for stationary working with your Dremel.

- Drill vertically or in an angle, adjustable in increments of 15 degrees
- Holds tool horizontally for polishing and sanding
- Integrated, telescoping tool stand holds tool with Flex Shaft (225)
- On-board accessory storage
- Cord management keeps cord safely stowed
- Depth markings for consistent depth adjustment
- Base markings (metric and inches)

**Contents:**

- Combined Drill Press and Tool Holder

Part No.	Ord.No.
S DREMEL 220	69070

### DREMEL 225 Flexible Shaft



Ideal attachment for precise, detailed work or hard to reach places.

- Comfort grip handpiece allows fingertip control to cut, grind, sand, polish and more.
- Integrated shaft lock button for quick and easy accessory changes.
- 127 mm bend radius provides more comfort and flexibility during use.
- Quick connect attaches your Dremel tool in seconds.

**Contents:**

- Flexible Shaft - length 1070mm
- Driver Cap

Part No.	Ord.No.
S DREMEL 225	69071

## DREMEL

### DREMEL 231 Shaper/Router Table



Converts your Dremel tool into a bench mounted tool for precise routing, shaping and sanding.

- Plastic knobs for easy tool assembly and depth adjustment.
- Smooth table surface to slide your workpiece easily over the table.
- Slot, groove, sand and trim edges.
- 3-way adjustable fence for accurate working result.
- Worktable 203 x 152 mm.
- Adjustable, transparent router bit guard enables safe working.

**Contents:**

- Shaper/Router Table

Part No.	Ord.No.
S DREMEL 231	69072

### DREMEL 335 Plunge Router Attachment



Converts your Dremel tool into a plunge router to rout circles, signs and inlay work, decorative edges and to rout parallel to an edge.

- Plunge-lock in handle - simply turn handle to lock/unlock.
- Two depth stops for quick, consistent adjustment of depth.
- Edge guide and circle guide to rout straight lines and perfect circles.
- Guide bushing set for letter and pattern template routing.

**Contents:**

- Plunge router attachment
- Edge and circle guide
- Guide bushing set
- wrench

Part No.	Ord.No.
S DREMEL 335	69073

### DREMEL 565 - Multipurpose Cutting Kit



Provides controlled cutting in a variety of materials.

- Easily attaches to your Dremel tool.
- Easy depth adjustment up to 19 mm material thickness.

**Contents:**

- Cutting guide
- 2 Drywall cutting bits (560)
- 1 Multipurpose cutting bit (561)

Part No.	Ord.No.
S DREMEL 565	69074

### DREMEL 566 - Wall Tile Cutting Kit



Provides controlled cutting in ceramic wall tiles.

- Easily attaches to your Dremel tool.
- Easy depth adjustment up to 19 mm material thickness.

**Contents:**

- Cutting guide
- 1 1 Tile Cutting Bit 562

Not for use on ceramic floor tiles.

Part No.	Ord.No.
S DREMEL 566	69075

### DREMEL 568 - Wall & Floor Grout Removal Kit



• Specially developed for removing grout from between wall and floor tiles.

- The risk of chipping your tiles is greatly reduced compared with manual chiselling.
- Easy depth adjustment.
- Guide keeps bit centered between tiles.

**Contents:**

- Angled cutting guide
- 1,6mm Angled cutting guide 569

Part No.	Ord.No.
S DREMEL 568	69076

## DREMEL 575 - Right Angle Attachment

**DREMEL**



- Designed to use accessories in right angle for hard to reach places.
- Ball bearings and spiral bevel gears provide smooth and cool operation and guarantee longer lifetime.
- Coupling system allows to place the attachment in 12 different directions on your Dremel tool.
- Quick connect attaches your Dremel tool in seconds.

**Contents:**

- Right angle attachment
- Driver cap

Part No.	Ord.No.
S DREMEL 575	69077

## DREMEL 670 - Mini Saw Attachment

**DREMEL**



- Transforms your Dremel tool into a precision circular saw for fine, clear and straight cuts in all sorts of wood.
- Perfect for laminate and wood flooring or thin wood plates.
- The safety guard and lower guard make it safe to use the circular saw blade.
- The guide allows to make straight cuts.
- Quick connect attaches your Dremel tool in seconds.
- This Mini Saw Attachment is easier to use than a hand saw, more precise than a jig saw and fits in tighter spaces than a circular saw.

**Contents:**

- Mini saw attachment
- Rip/Cross-cut blade (546)
- driver cap

Part No.	Ord.No.
S DREMEL 670	69078

## DREMEL 675 - Lawn Mower Sharpening Attachment

**DREMEL**



- The fastest, easiest way to sharpen lawn-mower blades.
- Easily attaches to your Dremel tool.
- Guide provides optimum sharpening angle.
- Sharpens many lawn and garden tools.

**Contents:**

- Sharpening angle guide
- Aluminum oxide grinding stone (932)

Part No.	Ord.No.
S DREMEL 675	69079

## DREMEL 855 - 10.8V Li-Ion battery

**DREMEL**



1.3 Ah 10.8V Battery Pack. For the Dremel 10.8V Lithium-Ion cordless tool.

**Suitable for:** DREMEL 8000JH

Part No.	Ord.No.
O DREMEL 855	69081

## DREMEL 1453 - Chainsaw Sharpening Attachment

**DREMEL**



- The fastest, easiest way to sharpen dull, slow-cutting chain saws.
- Easily attaches to your Dremel tool.
- Works with a variety of different chain sizes.

**Contents:**

- Sharpening angle guide
- Adjustment gauge
- Chainsaw sharpening grinding stones

Part No.	Ord.No.
S DREMEL 1453	69082

## DREMEL 2600JA - Project Table

**DREMEL**



- This light weight, versatile and portable Project Table is ideal for outdoor and indoor projects
- Multifunctional rotating plastic top pads
- Maximum loading capacity 45Kg
- Variable clamping system
- Light weight steel frame
- Soft table feet

**Contents:**

- Project Table

Part No.	Ord.No.
S DREMEL 2600JA	70993

## DREMEL 2222 - Flex-Shaft Tool Holder

**DREMEL**



- Conveniently suspends your Dremel rotary tool above your workbench.
- Perfect for use with the Flexible Shaft attachment.
- Clamps to workbenches up to 50 mm thick, and adjusts in height from 300 to 1070 mm.
- Stores extra bits on base.

**Contents:**

- Flex-Shaft Tool Holder

Part No.	Ord.No.
S DREMEL 2222	69083

## DREMEL 2500 - Multi Vise

**DREMEL**



- The Dremel 3-in-1 Multi-Vise. Stationary vise, stand alone clamp & Toolholder.
- Clamps to any workbench, table or countertop
- Rotates 360° and tilts 50°. Allows approaching the workpiece from an comfortable angle.
- Jaws may be used with base unit or detached for use as a stand-alone bar clamp.
- Easily accommodates larger work pieces.
- Stabilize oversize objects and protect delicate pieces from damage.
- Allows round and odd-shaped objects
- Makes removal of objects from jaws fast.
- Resists twisting and bowing for solid stability.
- Possibility to attach DREMELite.

**Contents:**

- Dremel Multi-Vise
- Removable soft-pads
- Tool holder adapter

Part No.	Ord.No.
S DREMEL 2500	69084

## DREMELite DL4

**DREMEL**



- DREMELite with unique, highly flexible shaft.
- Quick and easy way to light up your work surface.
- Ideal for hard-to-reach, dim places and/or precise detailed work.
- High-intensity LED light with lifetime warranty.
- Easy-to-use twist On/Off switch.
- Works with standard Lithium batteries.
- For use on Dremel Plunge Router Attachment (335), Dremel Workstation (220) and the exclusive Dremel Bench-Clip.

**Contents:**

- DREMELite
- 2 Lithium batteries (CR2025)
- Bench-Clip

Part No.	Ord.No.
O DREMEL DL4	69085

## DREMEL Miscellaneous

**DREMEL**



- goggles DREMEL SG4 - use the goggles to provide protection for your eyes when working on your projects
  - glue sticks DREMEL - can be used with any Glue Gun even for dual temperatures.
- Each package consists of 15 pieces, with a length of 150 mm and 11 mm diameter.

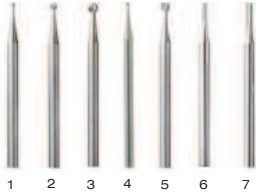
Part No.	Ord.No.	Pcs in package
O DREMEL SG4	69219	1
O DREMEL GS1	69218	15

## DREMEL Accessories

**DREMEL**

To optimize your project result, you need the right accessories with a high quality standard. Dremel has created a range of accessories to suit all your needs: carving, engraving, routing, grinding, sharpening, cleaning, polishing, cutting, sanding, collets, mandrels, miscellaneous and accessory kits.

### Engraving Cutters

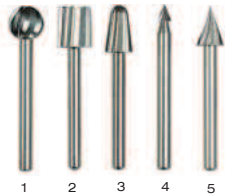


Quality cutters for detail engraving, carving, routing in wood, fiberglass, plastic and soft metals.  
Shank diameter: 2,4 mm

Part No.	Ord.No.	Picture	O [mm]
o DREMEL 105	69086	1	0,8
o DREMEL 106	69087	2	1,6
o DREMEL 107	69088	3	2,4
o DREMEL 108	69089	4	0,8
o DREMEL 110	69090	5	1,9
o DREMEL 111	69091	6	0,8
o DREMEL 113	69092	7	1,6

### High Speed Cutters

**DREMEL**



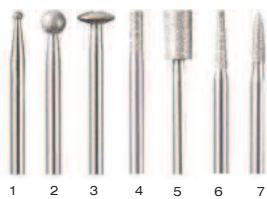
High speed cutters can be used for shaping, hollowing, grooving, slotting, making tapered holes in soft metals, plastics and woods.  
Shank diameter: 3,2mm.



Part No.	Ord.No.	Picture	O [mm]
o DREMEL 114	69093	1	7,8
o DREMEL 115	69094	2	7,8
o DREMEL 117	69095	3	6,4
o DREMEL 118	69096	4	3,2
o DREMEL 125	69097	5	6,4
o DREMEL 134	69098	6	6,4
o DREMEL 144	69099	7	7,8
o DREMEL 192	69100	8	4,8
o DREMEL 193	69101	9	2,0
o DREMEL 194	69102	10	3,2
o DREMEL 196	69103	11	5,6
o DREMEL 199	69104	12	9,5

### Diamond Wheel Points

**DREMEL**

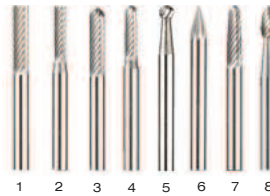


For fine detail work, cutting, engraving, carving, touch-up and finishing. Use on wood, jade, ceramic, glass, hardened steel, semi-precious stones and other hard materials. Bits are covered with diamond particles.  
Shank diameter: 2,4 mm.

Part No.	Ord.No.	Picture	Ø [mm]	No.of pcs.
o DREMEL 7103	69190	1	2,0	1
o DREMEL 7105	69191	2	4,4	1
o DREMEL 7120	69192	3	6,7	1
o DREMEL 7122	69193	4	2,4	1
o DREMEL 7123	69194	5	4,8	1
o DREMEL 7134	69195	6	2,0	1
o DREMEL 7144	69196	7	2,4	1

### Tungsten Carbide Cutters

**DREMEL**



Use for shaping, smoothing and material removal. Use on hardened steel, stainless steel, cast iron, nonferrous metals, fired ceramics, plastics, hardwoods and other hard materials.  
Shank diameter: 3,2 mm.

Part No.	Ord.No.	Picture	O [mm]	No.of pcs.
o DREMEL 9901	69205	1	3,2	1
o DREMEL 9902	69206	2	2,4	1
o DREMEL 9903	69207	3	3,2	1
o DREMEL 9904	69208	4	2,4	1
o DREMEL 9905	69209	5	3,2	1
o DREMEL 9909	69210	6	3,2	1
o DREMEL 9910	69211	7	3,2	1
o DREMEL 9911	69212	8	3,2	1

### Structured Tooth Tungsten Carbide Cutters

**DREMEL**

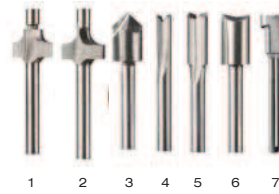


Fast cutting sharp teeth for greater material removal. Use on fiberglass, wood, plastic, epoxy, rubber, laminates, particle board, soft metals, ceramic tile.  
Shank diameter: 3,2 mm.

Part No.	Ord.No.	Picture	O [mm]	No.of pcs.
o DREMEL 9931	69213	1	6,4	1
o DREMEL 9934	69214	2	7,8	1
o DREMEL 9936	69215	3	19,0	1

### Router Bits

**DREMEL**



For routing, inlaying and mortising in wood and other soft materials. Use with Dremel Router Attachment 335 or Shaper/Router Table 231.  
Shank diameter: 3,2 mm.

Part No.	Ord.No.	Picture	O [mm]	No.of pcs.
o DREMEL 612	69168	1	9,5	1
o DREMEL 615	69169	2	9,5	1
o DREMEL 640	69171	3	6,4	1
o DREMEL 650	69172	4	3,2	1
o DREMEL 652	69173	5	4,8	1
o DREMEL 654	69174	6	6,4	1
o DREMEL 655	69175	7	8,0	1

DREMEL tools and accessories are available at [www.soselectronic.com](http://www.soselectronic.com).



## Aluminum Oxide Grinding / Sharpening Accessories

**DREMEL**



Use for deburring, rust removal and general purpose grinding. Shank diameter: 3,2mm.

Part No.	Ord.No.	Picture	O [mm]	No.of pcs.
o DREMEL 541	69159	1	22,4	2
o DREMEL 911	69183	2	11,1	1
o DREMEL 932	69184	3	9,5	1
o DREMEL 952	69185	4	9,5	1
o DREMEL 953	69186	5	6,4	1
o DREMEL 997	69187	6	3,4	1
o DREMEL 8153	69201	7	4,8	1
o DREMEL 8175	69202	8	9,5	1
o DREMEL 8193	69203	9	15,9	1
o DREMEL 8215	69204	10	25,4	1

## Abrasive Points

**DREMEL**



Use for finishing work and light deburring. For paint and rust removal without removing any of the base material. Shank diameter: 3,2mm.

Part No.	Ord.No.	Picture	O [mm]	No.of pcs.
o DREMEL 516	69148	1	13,0	1
o DREMEL 518	69149	2	13,0	1

## Chainsaw Sharpening Grinding Stones

**DREMEL**



Precision ground for quick, easy sharpening of chain saw blades. Use with Dremel Chainsaw sharpening attachment No. 1453. Shank diameter: 3,2mm.

Part No.	Ord.No.	Picture	O [mm]	No.of pcs.
o DREMEL 453	69134	1	4,0	2
o DREMEL 454	69135	2	4,8	2
o DREMEL 455	69136	3	5,6	2

## Rubber Polishing Points

**DREMEL**



Blue points for finishing and polishing all ferrous metals. Removes small burrs and scratch marks left by grinding and sanding, and cleans and defines grooves. Also effective on many stones and ceramics. Shank diameter: 2,4mm.

Part No.	Ord.No.	Picture	O [mm]	No.of pcs.
o DREMEL 461	69138	1	6,4	1
o DREMEL 462	69139	2	6,4	1
o DREMEL 463	69140	3	6,4	1

## Polishing Wheels

**DREMEL**



Ideal for polishing metals and plastics. Using polishing compound no. 421 with wheels produces a high luster. Use 414, 422 and 429 with mandrel 401. Use 423 and 425 with mandrel 402. Shank diameter: 3,2mm.

Use Dremel polishing compound (421) with felt or cloth accessories to polish metals and plastics. Compound will remove a dull oxidized film and/or light surface imperfections.

Part No.	Ord.No.	Picture	O [mm]	No.of pcs.
o DREMEL 414	69116	1	13,0	6
o DREMEL 421	69118	2	13,0	1
o DREMEL 422	69119	3	10,0	1
o DREMEL 423	69120	4	26,0	1
o DREMEL 425	69121	5	22,5	1
o DREMEL 429	69124	6	26,0	1
o DREMEL 520	69150	7	13,2	1

## Bristle Brushes

**DREMEL**



Use for light deburring, cleaning, polishing of silverware, jewelry and other precious metals. Can be used with polishing compound (421). Shank diameter: 3,2mm.

Part No.	Ord.No.	Picture	O [mm]
o DREMEL 403	69107	1	19,0
o DREMEL 404	69108	2	13,0
o DREMEL 405	69109	3	3,2

## Carbon / Stainless Steel Brushes

**DREMEL**



Versatile brush for removing rust and corrosion, polish metal surfaces, deburr and blend surface junctures or clean electrical components. Stainless steel brushes do not cause "after rust" when used on corrosion-resistant materials like pewter, aluminum and stainless steel. Shank diameter: 3,2mm.

Part No.	Ord.No.	Picture	O [mm]
o DREMEL 428	69123	1	19,0
o DREMEL 442	69131	2	13,0
o DREMEL 443	69132	3	3,2
o DREMEL 530	69151	4	19,0
o DREMEL 531	69152	5	13,0
o DREMEL 532	69153	6	3,2
o DREMEL 535	69154	7	19,0
o DREMEL 536	69155	8	13,0
o DREMEL 537	69156	9	3,2
o DREMEL 538	69157	10	26,0



## DREMEL Accessories

(continued)

### DREMEL SpeedClic - Starter Set



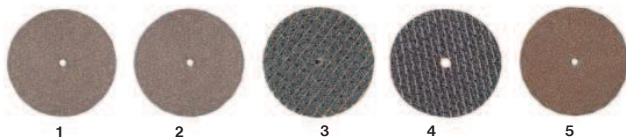
1

#### SpeedClic metal cutting accessories.

The Starter Set SC406 includes the unique SpeedClic mandrel and two fiberglass reinforced metal cutting wheels. Quick, easy, keyless. Shank diameter: 3,2mm. Working diameter: 38,0 mm

Part No.	Ord.No.	O [mm]
S DREMEL SC406	69216	32,0

### Cut-Off Wheels



1

2

3

4

5

For slicing and cutting in metal, wood and plastic. Cut-off wheels make it easy to cut or slot bolts, screws, sheet metal, thin wood and plastic. Fiberglass reinforced cut-off wheels (456, 426, 426) are for tough applications. The cut-off wheel cuts only along its edge. Do not attempt to sand or cut curved holes with them. Use Dremel cut-off wheels with mandrel 402.

Shank diameter: 3,2mm.

Part No.	Ord.No.	Picture	O [mm]	No. of pcs.
O DREMEL 409	69112	1	24,0	36
O DREMEL 420	69117	2	24,0	20
O DREMEL 426	69122	3	32,0	5
O DREMEL 456	69137	4	38,0	10
O DREMEL 540	69158	5	32,0	5

### Cutting Accessories / Grout Removal Bits



1

2

3

4

5

6

7

8

Dremel provides two types of cutting accessories for any cutting job: Cut-off wheels and cutting bits. Cut-off wheels cut metal, wood and plastic along their edge. Cutting bits are used with the Dremel cutting guide and cut in any direction.

DREMEL 542 - The ultimate solution for wood - both hard and soft types of wood, cut grooves and shape wood.

DREMEL 545 - suited for cutting hard materials: concrete, stone, porcelain, ceramic and hard epoxies

DREMEL 546 - Precision saw blade for fine, clean and straight cuts in all sorts of wood. Use only with Dremel Mini Saw attachment 670

#### Cutting bits:

DREMEL 560 - cuts drywall

DREMEL 561 - cuts wood, plastic, fiberglass, drywall, laminate & vinyl siding

DREMEL 562 - ceramic wall tile, cement board and blaster. Not for use on floor tile.

DREMEL 569, 570 - Ideal for cleaning wall and floor grout or removing grout to replace broken tiles. Use with the Dremel Grout Removal attachment 568.

Shank diameter: 3,2mm.

Part No.	Ord.No.	Picture	O [mm]	No. of pcs.
O DREMEL 542	69160	1	25,4	1
O DREMEL 545	69161	2	22,2	1
O DREMEL 546	69162	3	31,8	1
O DREMEL 560	69163	4	3,2	1
O DREMEL 561	69164	5	3,2	1
O DREMEL 562	69165	6	3,2	1
O DREMEL 569	69166	7	1,6	1
O DREMEL 570	69167	8	3,2	1

## DREMEL

### Sanding Bands



1

2

3

For rough shaping and smoothing wood and fiberglass, removing rust from metal surfaces and shaping rubber surfaces. Sanding bands are easily replaceable. Shank diameter: 3,2mm.



4

5

6

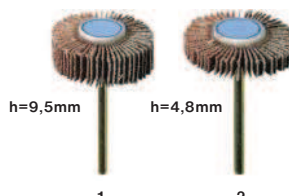
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8

9

Part No.	Ord.No.	Picture	Ø [mm]	Grit Size	No. of pcs.
O DREMEL 407	69110	1	13,0	60	1
O DREMEL 408	69111	2	13,0	60	6
O DREMEL 430	69125	3	6,4	60	1
O DREMEL 431	69126	4	6,4	60	6
O DREMEL 432	69127	5	13,0	120	6
O DREMEL 438	69128	6	6,4	120	6
O DREMEL 439	69129	7	9,5	60	1
O DREMEL 440	69130	8	9,5	61	6
O DREMEL 444	69133	9	9,5	120	6

### Flapwheels



h=9,5mm

h=4,8mm

1

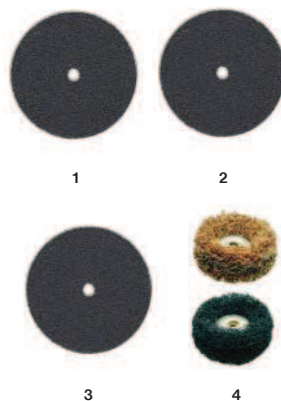
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Perfect for sanding flat or contoured surfaces on metal, wood, rubber or plastic.

Shank diameter: 3,2mm.

Part No.	Ord.No.	Picture	O [mm]	Grit Size	No. of pcs.
O DREMEL 502	69145	1	28,6	80	1
O DREMEL 504	69146	2	28,6	80	1

### Sanding Discs



1

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3

4

Sanding discs are designed for precise sanding on wood. Use with mandrel 402.

DREMEL 511 - inishing abrasive buffs medium + course and finishing abrasive buffs fine. For precise and delicate material removal on metal, glass, wood and plastic. The flexible material enables to work on tight and irregularly shaped areas.

Shank diameter: 3,2mm.

Part No.	Ord.No.	Picture	O [mm]	Grit Size	No. of pcs.
O DREMEL 411	69113	1	19,0	180	36
O DREMEL 412	69114	2	19,0	220	36
O DREMEL 413	69115	3	19,0	240	36
O DREMEL 511	69147	4	25,5	-	2

# DREMEL®

## BIG ON DETAIL

## Collets / Mandrels / Miscellaneous

**DREMEL**



This category features the miscellaneous extras, like drill bits, collets, mandrels and a multi-chuck.  
4 different collets available:  
• collet 3,2 mm (480)  
• collet 2,4 mm (481)  
• collet 1,6 mm (482)  
• collet 0,8 mm (483)  
The collet kit 4485 is an assortment of the different available collets (0,8/1,6/2,4/3,2 mm) including a collet nut.  
The Dremel multi chuck (4486) allows you to quickly and easily change accessories on your Dremel multitool without using collets. It accepts accessories from 0,4mm to 3,4mm shank.

Part No.	Ord.No.	Picture	O [mm]	No.of pcs.
o DREMEL 480	69141	1	3,2	1
o DREMEL 481	69142	2	2,4	1
o DREMEL 482	69143	3	1,6	1
o DREMEL 483	69144	4	0,8	1
o DREMEL 4485	69188	5	0,8/1,6/2,4/3,2	1+4
o DREMEL 4486	69189	6	0,4 - 3,4	1

## Mandrels

**DREMEL**



Mandrels are used to mount different accessories, like felt polishing wheels or cut-off wheels.

Part No.	Ord.No.	Picture	O [mm]
o DREMEL 401	69105	1	3,2
o DREMEL 402	69106	2	3,2

## DREMEL Precision Drill Bit Set

**DREMEL**



The Dremel precision drill bit set (628) contains 7 drill bits for drilling into wood or soft metal.  
The different diameters included are 0,8 / 1,2 / 1,6 / 2,0 / 2,4 / 2,8 and 3,2 mm.

Part No.	Ord.No.	No.of pcs
o DREMEL 628	69170	

## Dremel Versa Flame 2200/ Dremel Engraver Accessories

**DREMEL**



•No1: Soldering tips for the Dremel VersaTip 2000 and the VersaFlame 2200.  
•No2: Carbide engraving tips to be used with Dremel Engraver 290.

Part No.	Ord.No.	Picture	No.of pcs
o DREMEL 201	69220	1	2
o DREMEL 9924	69221	2	3

## DREMEL 684 Cleaning / Polishing Set

**DREMEL**



All you need for cleaning and polishing in a convenient box. Removable accessory tray and 3 dividers provide perfect storage solution.  
Set of 20 pcs tools:  
•cleaning and polishing: 403, 404, 405, 428, 520, 414(6), 422, 425(2), 429(3), 421  
•Collets / Mandrels / Miscellaneous: 401, 402

Part No.	Ord.No.	No.of pcs
o DREMEL 684	69176	20

## DREMEL 687 Multipurpose Set

**DREMEL**



Assortment of best selling accessories in a convenient box. Removable accessory tray and 3 dividers provide perfect storage solution.  
Set of 52 pcs:  
•shaping, hollowing, grooving: 194  
•grinding, sharpening: 952, 85422  
•cleaning and polishing: 403, 414(2), 429(2), 421  
•cutting: 409(36), 426  
•sanding: 407, 408, 432(2)  
•Collets / Mandrels / Miscellaneous: 401, 402

Part No.	Ord.No.	No.of pcs
o DREMEL 687	69177	52

## DREMEL 688 Cutting Set

**DREMEL**



Removable accessory tray and 3 dividers provide perfect storage solution. Assortment of 68 cut-off wheels in a convenient box:  
•cutting: 409(36), 420(24), 426(3), 540(5)  
•Collets / Mandrels / Miscellaneous: 402

Part No.	Ord.No.	No.of pcs
o DREMEL 688	69178	68

## DREMEL 701 100-pcs Accessory Set

**DREMEL**



This accessory set includes the 100 best sold accessories in a high value tin can box. The accessories can be easily stored in the insert or the included small plastic case:  
•shaping, hollowing, grooving: 191  
•grinding, sharpening: 541(6), 932, 952, 8193, 84922, 85422  
•cleaning and polishing: 414(12), 429(6), 403(2)  
•cutting: 409(36), 426  
•sanding: 407(2), 408, 432(6), 430(6) 431, 438(6)  
•Collets / Mandrels / Miscellaneous: 402(6), 150

Part No.	Ord.No.	No.of pcs
o DREMEL 701	69181	100

## DREMEL 704 200-pcs Accessory Set

**DREMEL**



200 high quality Dremel accessories in a unique storage box. The extensive selection of this set offers numerous possibilities. Neatly arranged and therefore very user-friendly.  
Contents:  
•shaping, hollowing, grooving: 191  
•grinding, sharpening: 541(3), 911, 932, 953, 8193, 83142, 84922, 85422  
•cleaning and polishing: 403, 428, 535, 414(16), 425(2), 429(4), 421  
•cutting: 409(10), 420(40), SC426(2)  
•sanding: 407, 408(9), 432(9), 430, 431(4), 438(4), 411(26), 412(26), 413(26)  
•Collets / Mandrels / Miscellaneous: 401(2), 402, 90962

Part No.	Ord.No.	No.of pcs
o DREMEL 704	69182	200

## Drills and Accessories

### VRT AD-628 D - Hobby Mini Drill



CE approval, adjustable speed control (5,000 -14,000 r.p.m.), torque 110 g-cm (At max. efficiency), keyless 3-Jaw chuck, keyless spindle lock button, built-in ball bearing for reduce vibration, built-in cooling fan system, precise CNC metal shaft for reduce vibration, 3 pcs attachment, 3 pcs accessories

Part No.	Ord.No.
s AD-628 D	70938

### VRT 1 - Akku Drill Set



Handy plastic briefcase containing accu mini drill (10000 r.p.m.), charger (6VDC/300mA) and different attachments and accessories for wide range of projects such as: drilling, engraving, cutting, polishing, cleaning etc.

Mini drill dimensions: 205x35mm  
Case dimensions: 230x205x60mm

Part No.	Ord.No.
s AKKU-VRT 1	52370

### VRT Type 0500



PROFI

Enhanced by miniature ball races to accommodate side loading and quick-change chuck with 4 collets for tools with arbor dia. from 0.3 to 3.2 mm. Voltage 12 to 18 Vd.c., power rating 45 W, average power consumption approx. 1 A, 12.000 - 20.000 rev./min. (no-load operation), weight 160 g, length 160 mm, dia. 34 mm.

Part No.	Ord.No.
s Type 0500	1556

### VRT Type 0600



PROFI

Ergonomic shape with extended front section. Miniature ball races to accommodate side loading and precision quick-change chuck for bits with shanks from dia. 0.4 to 3.5mm. Voltage 12-18Vd.c., power rating 45W, average power consumption approx. 1A, 12.000-20.000rev./min. (no-load operation), weight 180g, length 190 mm, dia. 34 mm.

Part No.	Ord.No.
s Type 0600	1557

### VRT Type 0800

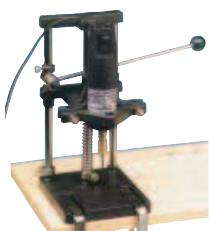


PROFI

The heavy-duty drill, shaft runs in precision ball race. Fan cooling for extended operation. With quick-change precision chuck for bits with shaft dia. from 0.4 to 3.5 mm. Voltage 12-18Vd.c., power rating 120W, average power consumption approx. 2.5 A, 10.000-20.000 rev./min. (no-load operation), weight 310g, length 190mm, dia. 43 mm.

Part No.	Ord.No.
s Type 0800	1558

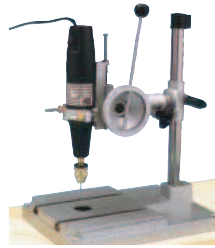
### VRT Type 0510



Ensures precision work with all types of drills of any brand. Triple metal guide for high accuracy. Can be used horizontally and vertically. 2 G-clamps fixings. Essential for precision drilling, ideal when drilling with flexible shaft. Variable height and drilling depth with stop. Overall height 210 mm, base 100x120 mm, drilling depth 30 mm max., range of shifting in height 0-100 mm, supplied with 2 G-clamps

Part No.	Ord.No.
s Type 0510	1559

### VRT Type 0512



Stand in solid metal for all small drills. High stability, accurate operation. Lever for perfect continuity in drilling, with depth stop. Adjustable spring return on lever. Rotating spindle on supporting axle. Facilitates either horizontal or vertical or honing use. Base with grooves for clamping to table with machine vice (no. 0519). Overall height 260 mm, base 135x195 mm, Drilling depth 30 mm max., range of height adjustment 0-160 mm accdg. to drill, weight 1500 g.

Part No.	Ord.No.
s Type 0512	57

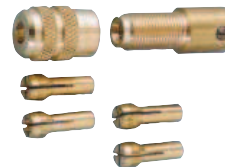
### Type 0519



Machine Vice - can be used with drill stand no. 0512 and all drill stands having clamping grooves. To match jaw width 44 mm, gripping capacity up to 49 mm.

Part No.	Ord.No.
s Type 0519	56073

### Type 1504



Collet chuck with collets - complete chuck with 4 collets ranging from 0.3 to 3.2 mm. Fits type no. 0400, type no. 0500, type no. 0600 and type no. 0800.

Part No.	Ord.No.
s Part No. 1504	274

### Type 1508



Set of 4 Collets - range 0.3 to 3.2 mm, fitting to TYP1504 collet chuck.

Part No.	Ord.No.
s Type 1508	275

### Type 1532



Quick-change chuck - precision chuck with lapped jaws, range from 0.4 to 3.5 mm, fits type no. 0500, type no. 0600, type no. 0800.

Part No.	Ord.No.
s Type 1532	293

### Set 1797



Polish and Care Set 12 pcs - 4 assorted burs, 4 different grinding bits, 2 silicone tips, 1 silicone wheel dia. 17 mm with arbor, 1 brass brush wheel.

Part No.	Ord.No.
s Set 1797	417

### Drills Bits



Part No.	Description	Ord.No.
s DRILL 0,5	Drill bit D=0,5mm	3931
s DRILL 0,6	Drill bit D=0,6mm	3932
s DRILL 0,8	Drill bit D=0,8mm	3933
s DRILL 1,0	Drill bit D=1,0mm	3934
s DRILL 1,2	Drill bit D=1,2mm	3935
s DRILL 1,5	Drill bit D=1,5mm	3936
s DRILL 2,0	Drill bit D=2,0mm	3937
s DRILL 2,5	Drill bit D=2,5mm	3938
s DRILL 3,0	Drill bit D=3,0mm	3939

## Soldering Equipment

WELLER Soldering Stations



L 1

ERSA Soldering Stations



L 6

STARTEC Soldering Stations



L 9

DIAMETRAL Soldering Stations



L 11

CT Soldering Stations



L 12

Soldering Tools



L 14

Solders



L 17

## Soldering Stations

Weller®



- WMD 3 K2**  
**Desoldering station multi digital 310W, 230V with internal pump**
- 3 channel
  - including soldering, desoldering iron and dry cleaner
  - digital controlled electronic for soldering, desoldering and hot air tools up to 150W
  - temperature, vacuum and Air Volume control via buttons
  - 3-position digital display
  - protection class 1
  - antistatic housing
  - equipotential bonding
  - automatic tool recognition

- Consist of:**
- |               |   |
|---------------|---|
| WMD 3         | Soldering station                           |
| WP 80         | Solder Iron 80W/24V with Soldering Tip LT B |
| WDH 10        | Safety Rest                                 |
| DSX 80        | Desoldering Iron 80 W, 24 V                 |
| AK 20         | Safety Rest for DSX80                       |
| DX 112        | Desoldering Nozzle for DSX80                |
| DX 113        | Desoldering Nozzle for DSX80                |
| 005 13 500 99 | Cleaning Tool                               |
| 005 15 124 99 | WDC Dry cleaner                             |

Technical Parameters	WMD 3
Max. Power	310W
Temperature Range	50°C - 450°C (with HAP1: to 550°C)
Power Supply	230VAC
Dimensions	240x270x105mm
<b>Vacuum Pump</b>	
Max. Vacuum	0,7bar
Air Volume	10l/min.

Part No.	Ord.No.	Description
o WMD 3 K2	70471	station + accessories
o WMD 3	39428	only station



- WMD 1 D**  
**WMD 1D Multi Digital Desoldering Station 175 W**
- A microprocessor controlled single output rework station with digital display of temperature for the repair/rework of printed circuit boards with through hole components.
- can drive all Temtronic tools
  - automatic tool recognition
  - ESD safe
  - digital display of set, read and actual temperatures
  - built-in-pump to provide vacuum, also for hot air pencil

- Consist of:**
- |           |   |
|-----------|---|
| WMD 1S    | Soldering station   |
| DSX80     | Desoldering Iron 80 W, 24 V with threadless nozzle fixture system |
| AK20      | Safety Rest for DSX80   |
| DX112     | Desoldering Nozzle for DSX80                                      |
| DX113     | Desoldering Nozzle for DSX80                                      |
| WE1350099 | Cleaning Tool   |

Technical Parameters	WMD 1 D
Max. Power	175W
Temperature Range	50°C - 450°C (with HAP14: to 550°C)
Power Supply	230VAC
Dimensions	240x270x105mm
<b>Vacuum Pump:</b>	
Max. Vacuum	0,7bar
Air Volume	10l/min.

Part No.	Ord.No.	Description
o WMD 1 D	48153	station + accessories
o WMD 1 S	50762	only station



- WR 3000M**  
**The versatile repair station**, specifically tailored to the needs and requirements of professional repairs of state-of-the-art electronic sub-assemblies in industrial production, engineering and in the repair and laboratory fields.
- 3 tool channels with automatic tool detection
  - large LCD display
  - own vacuum channel for pick-up
  - USB port
  - comprehensive PC software
  - all high-speed micro tools can be connected- new powerful hot air pencil

- Consist of:**
- |                        |  |
|------------------------|--|
| WR 3M                  | Power Unit 230 V   |
| HAP 200                | Hot Air Pencil Set 200 W, 24 V                                 |
| WDH 30                 | 2x Safety Rest for DSX 80 and HAP 200                          |
| DSX 80                 | Desoldering Iron 80 W, 24 V with DX 113HM                      |
| WP 80                  | Solder Iron 80W/24V with Soldering Tip LT B                    |
| WDH 10T                | WDH 10T Safety Rest with Stop+Go Function for WP 80 and WSP 80 |
| WVP                    | Vacuum Pick Up   |
| USB cable, PC software |  |

Technical Parameters	WR 3000M
Max. Power	420W
Temperature Range	50°C - 550°C
Power Supply	230VAC
Output Voltage	24VDC
<b>Vacuum Pump A</b>	
Max. Vacuum	0,7bar
Air Volume	15l/min.
<b>Vacuum Pump B</b>	
Max. Vacuum	0,5bar
Air Volume	1,7l/min.

Part No.	Ord.No.	Description
o WR 3000M	63984	soldering station + accessories
o WR 3M	63983	only soldering station



- WHA 900**  
**700W Hot Air Station** - easy to use and extremely robust this is a highly versatile rework tool.
- closed-loop temperature feedback control
  - maintenance-free brush-less motor
  - integrated and individually programmable standby-modes for both air volume and temperature
  - fully ESD compliant

Technical Parameters	WHA 900
Max. Power	700W
Temperature Range	50°C-550°C
Power Supply	230VAC
Air Volume	5 - 50 l/min

Part No.	Ord.No.
o WHA 900	63982



- WAD 101**  
**Multi purpose single channel hot air station for operation from compressed air or inert gas**
- microprocessor controlled hot air station with HAP1 hot air pencil
  - manual control of air volume
  - digital display shows set and actual temperatures
  - temperature setting by Up-Down push buttons
  - ESD safe

- Consist of:**
- |         |   |
|---------|---|
| WAD 101 | Control Unit 230 V  |
| HAP 1   | Hot Air Pencil 100 W, 24 V with Hot Air Nozzle Round R 06 R 3,0mm |
| KH 27   | Safety Rest   |

Technical Parameters	WAD 101
Max. Power	105W
Temperature Range	50°C-550°C
Power Supply	230VA
Inlet Pressure	400 KPa (58 psi) oil-free

Part No.	Ord.No.
o WAD 101	74273



## WD 1000M

- Micro Digital Rework Soldering Station**
- designed for fine pitch, high density SMT soldering and rework
  - 3 "radio buttons" allows pre-set of frequently used temp settings
  - setback, lockout, temp. window, F/C switching, standby, auto-off time
  - large high contrast LCD display
  - the heating element is contained in the tip for fast heat-up
  - ESD safe

Technical Parameters	WD 1000M
Max. Power	80W
Temperature Range	50°C - 450°C
Power Supply	230VAC
Output Voltage	24V
Dimensions	134x108x147mm

Part No.	Ord.No.
o WD 1000M	57902



## WD 1000

- Digital Soldering Station with 80W Soldering Pencil**
- an extra small footprint to free valuable bench space
  - WDH10 Programmable Iron Stand that has three freely programmable and independent temperature buttons that you can pre-set to your most frequently used settings.
  - 3-digit programmable lockout code
  - programmable temperature offset, settable auto-off time
  - ESD safe

Technical Parameters	WD 1000
Max. Power	95 W
Temperature Range	50-450°C
Power Supply	230V AC
Voltage	24VDC

Part No.	Ord.No.
s WD 1000	56172



## WD 2M

- Multifunction soldering station with High Speed Regulation for Micro soldering tools**
- big LCD display
  - dual outputs
  - three fixed temperatures can be assigned with the temperature buttons
  - USB interface allows various ISO applications and the control via external PC
  - antistatic design

Technical Parameters	WD 2M
Max. Power	2x 80W
Temperature Range	50°C- 450°C (550 C° with WSP 150)
Power Supply	230V
Dimensions	134 x 108 x 147 mm

Part No.	Ord.No.
s WD 2M	63981



## WS 81

- Electronically controlled soldering station with analogue display**
- temperature accuracy  $\pm 2\%$  of maximum temperature
  - temperature set by rotary potentiometer
  - temperature condition indicator by LED
  - potential balance socket

Technical Parameters	WS 81
Max. Power	80W
Temperature Range	150 - 450°C
Power Supply	230VAC
Output Voltage	24VDC

**Set contains** Power station, antistatic soldering pencil WSP80 with soldering tip LT B (Chisel 2,4x0,8mm), Safety Rest KH20.

Part No.	Ord.No.
s WS 81	42634



## WSD 81

- Electronically controlled soldering stations with digital display**
- temperature set by up-down push buttons
  - digital display shows set, read and actual temperature
  - ESD safe
  - automatic tool recognition and self-calibrating
  - uses LT series tips

Technical Parameters	WSD 81
Max. Power	80W
Temperature Range	50°C - 450°C
Power Supply	230VAC
Output Voltage	24VDC
Set Contains	Power station, soldering pencil WSP 80 with soldering tip LT B (Chisel 2,4x0,8mm), safety rest WPH80.

Part No.	Ord.No.
o WSD 81	41178



## WSD 151

- High power electronically controlled soldering station with digital display**
- temperature set by Up-Down push buttons
  - digital display shows set, read and actual temperature
  - potential balance socket
  - automatic tool recognition
  - ESD safe

Technical Parameters	WSD 151
Max. Power	150W
Temperature Range	150 - 550°C
Power Supply	230VAC
Output Voltage	24VDC
Set Contains	Power station, soldering pencil WSP 150 with soldering tip LHT F (9,3x1,8mm), safety rest KH27.

Part No.	Ord.No.
o WSD 151	56621

## Soldering Pencils

**Weller®**



## LR 21 AS

- Antistatic soldering pencil**  
50W/24V soldering pencil with ET B soldering tip (Chisel 2,4x0,8mm). Suitable for WS51, WMD1S, WMD3.

Part No.	Ord.No.
s LR 21 AS	23197



## WE 2411099

- Heater Element for LR21

Type	Ord.No.
s WE 2411099	16650



## MLR 21

- Micro soldering pencil**  
A micro soldering pencil, 25W/24V with antistatic cord, suitable for miniature soldering work. Suitable for WS51, WMD1, WMD3.

Part No.	Ord.No.
o MLR 21	38586



## WSP 80

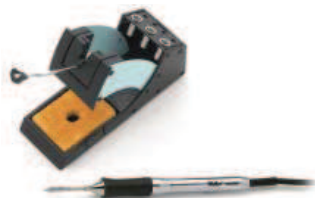
- Micro soldering pencil**  
A micro soldering pencil, 80W/24V. This soldering pencil can be universally used in all situations from extremely delicate soldering to those where there is a greater temperature requirement. With LT B soldering tip(2,4x0,8mm). Suitable for WD 1000, WMD 3, WMD 1 S, WS 81, WSD 81.

Part No.	Ord.No.
o WSP 80	1121

## Soldering Pencils

(continued)

Weller®



### WMRP Set

**WMRP Soldering Pencil With WDH 50 Stand**

Consist of:  
WMRP soldering pencil 24V/40W,  
RT3 soldering tip,  
WDH 50 stand.  
Suitable for WMRS, WD 1M, WD 2M and WR 3M.

Part No.	Ord.No.
S WMRP Set	63998



### WMRT Set

**WMRT Desoldering Tweezers With WMRTH Stand**

Consist of:  
WMRT Micro Desoldering Tweezers 24V/80W,  
RTW 2 2x tip 0,7 x 0,4mm  
WMRTH stand  
Suitable for WD 1M, WD 2M, WR 3M

Part No.	Ord.No.
O WMRT Set	64000



### WTA 50

SMD Desoldering Tweezers 50 W  
Temperature Range: 150°C-450°C  
Power: 2x25W  
With safety rest.  
Suitable for WS 51, WMD.

Part No.	Ord.No.
O WTA 50	1144



### HAP-1

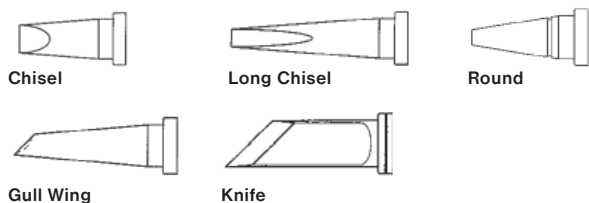
HAP 1 Hot Air Pencil 100 W, 24 V with Hot Air Nozzle  $\phi$  1,2mm. Suitable for WMD 3 and WMD 1 S.

Part No.	Ord.No.
O HAP-1	1115

## Soldering Tips for WSP 80

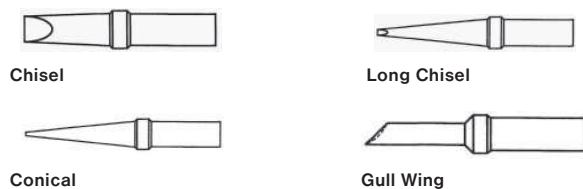
Weller®

LT Series Tips for WSP80



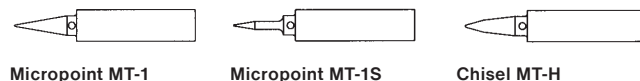
Part No.	Ord.No.	Description
S LT AL	52840	1,6x0,7mm Chisel
S LT BL	52837	2,4x0,8mm Chisel
O LT CL	52838	3,2x0,8mm Chisel
O LT DL	48352	4,6x0,8mm Chisel
S LT LL	52842	2,0x1,0mm Long Chisel
O LT ML	52843	3,2x1,2mm Long Chise
O LT GWL	52844	2,3mm Gull Wing
O LT KNL	52845	6,3mm Knife
O LT H	40941	0,8x0,4mm Chisel
S LT 1	40938	0,25mm Round

ET Series Tips for LR 21



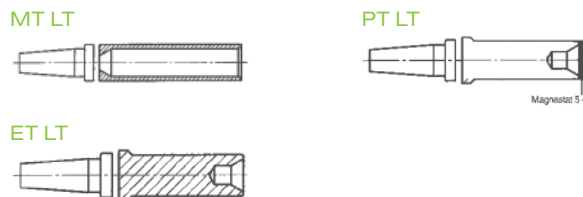
Part No.	Ord.No.	Description
S ET A	16613	1,6x0,7mm Chisel
S ET B	16614	2,4x0,8mm Chisel
S ET C	16615	3,2x0,8mm Chisel
S ET K	16619	1,2x0,4mm Long Chisel
S ET L	16620	2,0x1,0mm Long Chisel
S ET M	16621	3,2x0,94mm Long Chisel
S ET S	16645	0,4mm Long Conical
S ET GW	1162	for QFP packages Gull Wing

MT Series Tips for MLR 21



Part No.	Ord.No.	Description
S MT-1	21937	0,25x1,6mm Micropoint
S MT-1S	26832	0,25mm Micropoint
S MT-H	19955	0,8x0,4mm Chisel

Soldering Tip Adaptors



Part No.	Ord.No.	Description
O ET LT	52846	for LR21
O MT LT	56612	for MLR21
O PT7 LT	56613	for TCP-S, 370°C
O PT8 LT	56614	for TCP-S, 425°C

You can use LT-series tips almost for all soldering pencils

## MAGNASTAT Soldering Stations

Weller®

The Weller Magnastat system operates through a ferro-magnetic device which changes its characteristics when specific temperatures are reached. This causes it to either attract or repel a permanent magnet which operates a Power Supply switch. In this way power to the heating element can be quickly switched on or off to either provide extra power for soldering operations or reduced power when idling. Various preselected tip temperatures (260°C, 310°C, 370°C, 425°C, 480°C) are available for different soldering tasks.



### WTCP 51

- On/Off controller
- magnastat System
- protection class 1
- antistatic housing
- temperature control variable by tip exchange
- hard-earthed
- includes safety rest for the soldering tool - supply 230VAC 50Hz

Technical Parameters	WTCP 51
Max. Power	50W
Temperature Range	260 - 480°C
Power Supply	230VAC
Output voltage	24VDC
Set contains	Soldering station, soldering pencil TCP-S with tip PT-B7 (Chisel 2,4x0,8mm, 370°C) and safety rest KH20.

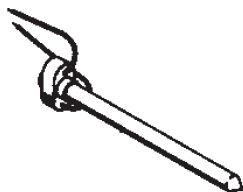
Part No.	Ord.No.
O WTCP 51	43069



### TCP - S

Soldering pencil 24V/50W for WTCP 51 station

Part No.	Ord.No.
S TCP - S	18283



### WE 1020199

Bimetal Switch/Thermostat for TCP-S 24V/50W.

Part No.	Ord.No.
S WE 1020199	16429

### PT Series Tips for TCP Irons



Chisel



PT-F Sloped Round (conical spade tip)

Part No.	Ord.No.	Description
S PT A7	15153	1,6x0,7mm 370°C Chisel
S PT B7	15157	2,4x0,8mm 370°C Chisel
S PT B8	15158	2,4x0,5mm 425°C Chisel
S PT C7	15162	3,2x0,7mm 370°C Chisel
S PT C8	15163	3,2x0,7mm 425°C Chisel
S PT H7	15149	0,8x0,4mm 370°C Chisel
S PT H8	15150	0,8x0,4mm 425°C Chisel
PT K7	15175	1,2x0,4mm 370°C Long Chisel
S PT F7	15194	1,2mm 370°C Sloped Round
S PT F8	15195	1,2mm 425°C Sloped Round

## HOBBY Soldering Stations

Weller®

### WHS 40 Temperature Controlled Soldering Station

- The temperature range can be controlled between 200°C and 450°C. The WHS40 soldering station rules out the risk of temperature shocks which can occur with conventional soldering bits.
- Desired temperatures can be set precisely in such a way that you no longer have to worry about overheating sensitive areas.



Technical Parameters	WHS 40
Max. Power	40W
Temperature Range	200 - 450°C
Power Supply	230VAC
Output Voltage	18VDC
Set contains	Station, Soldering pencil, 3,5mm straight nickel tip, stand and sponge

Part No.	Ord.No.
S WHS 40	41341

### WHS 40 D Temperature Controlled Digital Soldering Station

- The electronically controlled soldering station WHS40D operates with a temperature range of 150°C-450°C.
- The precise soldering tip temperature shows on the digital read-out (pre-set and real value).
- This soldering station is suitable for delicate soldering tasks on temperature sensitive components.
- LED to monitor the heater is integrated in the display.
- The temperature adjusts via buttons.



Technical Parameters	WHS 40 D
Max. Power	40W
Temperature Range	150 - 450°C
Power Supply	230VAC
Output voltage	18VDC
Set contains	Station, Soldering pencil, 3,5mm straight "Longlife" nickel tip, stand and sponge

Part No.	Ord.No.
S WHS 40 D	50347

### S3 Series Tips for WHS40 and WHS40D



Conical



Chisel

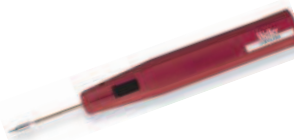
Part No.	Ord.No.	Description
S S 31	1166	0,4mm Conical
S S 32	1167	2,0mm Chisel

## Other Soldering Tools

Weller®

### WC 110 C Cordless Soldering Iron, 15 W

- Heats up to approx. 370°C in 6 seconds.
- Fingertip control with safety-lock switch.
- "Longlife" nickel cadmium batteries fully charged overnight.
- Interchangeable tips
- Built-in work light
- Slim, lightweight balanced design
- Packed in coloured carton consisting of soldering iron complete with tip WC 112 and battery charger.



NiCd accumulator

Technical Parameters	WC 110 C
Max. Power	15W
Temperature	max. 370°C
Power Supply	2,4 VDC

Part No.	Ord.No.
S WC 110 C	19956



## Other Soldering Tools (continued) **Weller®**



battery powered

- BP645EU**  
**Battery Powered Soldering Iron**
- Fast Heat-Up Battery Powered Soldering Iron.
  - The heating element is in the tip for super-fast heat-up.
  - Heats up to working temperature in under 15 seconds.
  - Red LED light indicates when power is on.
  - Protective safety cap turns off power when placed on tool.
  - Over 120 intermittent solder joints with fresh batteries.
  - Perfect for field service repair on small parts and components.
  - Includes iron, conical tip 0,4 mm, 3 DuraCell AA batteries, lead-free solder and tip wrench.

### Technical Parameters

Max. Power	6W
Temperature	max. 480°C
Power Supply	4,5 VDC

Type	Ord.No.
S BP645EU	61347



- BP1EU**  
 Spare Tip for Battery Powered Soldering Iron  
 „Longlife“ soldering tip, conical, 0,4 mm

Type	Ord.No.
S BP1EU	63936



gas

- PYROPEN WP60 K**  
**An ergonomic Butane gas operated soldering iron with solder, hot blow and blow torch functions.**  
 Offers maximum flexibility for use in many applications.  
 It is temperature variable within the range of 500°C to 1300°C dependant upon the function used.  
 Refilling takes only a few seconds and it operates approx. 1 hour with one filling.  
 The hot blow nozzle supplies inert hot gas to prevent oxidation of non contact solder joints and is therefore suitable for use in solder paste applications, heat shrink and on vinyl chloride boards.

### Technical Parameters

	<b>PYROPEN WP60 K</b>
Power	20-60W
Temperature Range	200 - 450°C
Working time	60min continuously
Set contains	Soldering Tip 1mm, hot air nozzle .

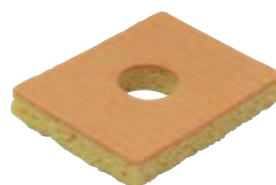
Type	Ord.No.
O PYROPEN WP 60 K	48839



- PYROPEN REFILL**  
 Butane gas refill recommended for use with all Weller Pyropens, cordless soldering irons.  
 Capacity:75ml

Type	Ord.No.
S PYROPEN REFILL	20009

## Accessories



- WE 2241999**  
 Sponge suitable for e.g. Weller soldering iron stands. Provided with a hole for more effective cleaning of soldering tips.  
 Dimensions:70x55x16 mm.

Type	Ord.No.
S WE 2241999	16453



- WDC Dry Cleaner**
- Gentle tip cleaning when using lead free solder to extend tip life
  - Will not thermally shock tip because tip temperature remains constant
  - Prolongs the wettability of the tip when using water soluble flux
  - Collector box with soft edge for tapping off excess solder
  - A special metal wool is used for removing oxidation layers on the tip
  - ESD Safe

Type	Ord.No.
S WDC Dry Cleaner	56301



- WDC SPARE**  
 Professional solder tip cleaner  
 Metal wool replacement for WDC, 2 pcs.  
 φ: 90mm  
 spare golden curls

Type	Ord.
S WDC SPARE	56302



- TIP ACTIVATOR**  
 The Weller Tip Activator for regeneration of oxidized tips  
 Works fast and easy with low temperature.  
 It is compatible with leadfree and non-leadfree solders  
 Weight: 22,5g.

Type	Ord.No.
S TIP ACTIVATOR	49470

## ERSA Soldering Stations

**ERSA®**



i-Con

### i-CON

ERSA Icon Soldering System:

- 150W Micro Heating Element
- Ultra fast heat-up: 30° C to 350°C in approx. 9 sec. , Stand-by to 350°C in approx. 3 sec.
- Ultra fast heat recovery time
- Process Window Alarm Function alerts operator if tip temp is out of window.
- Three power level settings to control overshoot
- ASM- Automatic Standby Motion Sensor
- Ultra short tip-to-grip: 45mm
- Thinnest & lightest cable for maximum comfort
- Dual material grip with "Soft Pad" stays cool during use
- "One Touch" easy-to-use operation with new i-Op control
- Ultra large, multi-functional display
- Small footprint  
W: 150mm x L: 175mm x H: 100mm
- Automatic tool detection of 6 different soldering & desoldering tools

Lowest Running Costs



i-Con 2

- Long-life, quick
- Lowest maintenance, station programming and calibration cost
- Highest productivity in hand soldering

Technical Parameters		i-CON	i-CON 2
Max. Power		80W	150W
Temperature Range		150 - 450°C	
Power Supply		230VAC	
Output voltage		24VAC	2x240VAC
Set contains	i-CON:	Power station, Soldering Pencil, Safety rest.	
	i-CON2:	Power station, 2xSoldering Pencil, 2xSafety rest.	

Type	Ord.No.	Description
S	i-CON	57081 station + 1x i-Tool
O	i-CON2 AIT	61922 station + 2x i-Tool



### i-CON2 AC

with i-Tool soldering iron with patent pending heating technology and Chip tool

i-CON2 offers all the valueadded features of the revolutionary i-CON in a double iron digital station with multiple soldering and / or desoldering tools for maximum flexibility. The Chip Tool offers a wide range of SMT desoldering tips for safe and fast removal of the smallest chips (0201,0402, etc.) up to medium size PLCCs

Type	Ord.No.	Description
O	i-CON2 AC	70804 station + i-Tool + Chip Tool



### i-CON2 AXT

with i-Tool soldering iron with patent pending heating technology and X-Tool

i-CON2 offers all the valueadded features of the revolutionary i-CON in a double iron digital station with multiple soldering and / or desoldering tools for maximum flexibility. The X-Tool is a high powered desoldering iron designed for the toughest through hole desoldering applications which must be used in combination with the CU compressor unit.

Type	Ord.No.	Description
O	i-CON2 AXT	70805 station + i-Tool + X-Tool



### DIG 20 A 84

with Power tool soldering iron and ERSA SENSOTRONIC control system

Top-class microprocessor-controlled soldering station distinguished by its flexibility and multifunctionality. Designed for industrial use where high quality is demanded and for repairs and laboratory applications. The device can alternatively be operated with various soldering and desoldering tools.

The tools are automatically detected when inserted and the control characteristics accordingly adapted.

Technical Parameters		DIG 20 A 84
Max. Power		80W
Temperature Range		50 - 450°C
Power Supply		230VAC
Output voltage		24VDC
Set contains		Soldering station DIG203A, Soldering Pencil 840CDJ, Safety Rest A29 antistatic.

Type	Ord.No.
O	DIG 20 A 84



### DIG 20 A XT

with ERSA SENSOTRONIC control and X-Tool desoldering iron

The ERSA DIGITAL 20 is an intelligent, microprocessor controlled soldering station. Outstanding flexibility and multi-functionality sets this system apart from others. Included compressor unit.

Technical Parameters		DIG 20 A XT
Max. Power		80W
Temperature Range		50 - 450°C
Power Supply		230VAC
Output voltage		24VDC
Compressor		
Max. Vacuum		0,8bar
Power		45W

Set contains	Soldering Station DIG203A, Compressor CU100A with X-Tool 720ENJ desoldering iron, Safety Rest A36 antistatic.	
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Type	Ord.No.
O	DIG 20 A XT



### RDS 80

Microprocessor-controlled Digital 80 Watt Soldering Station

- Unique temperature control technology, the ceramic PTC heating element replaces the function of the thermocouple.
- Very fast preheating due to high initial power and fast heat recovery for a stable soldering process.
- Great flexibility in handling all applications.

- The newly constructed ergonomic handle

Technical Parameters		RDS 80
Max. Power		80W
Temperature Range		150 - 450°C
Power Supply		230VAC
Output voltage		24VDC
Set contains		Power Station, soldering iron RT80, long-life tip 842CD (2,2mm), safety rest A39

Type	Ord.No.
S	RDS 80



### ANA 60

The electronically temperature controlled soldering station.

- Temperature adjustable between 150°C and 450°C
- LED indicator
- Heat up time 60s
- Multifunctional iron stand

Technical Parameters		ANA 60
Max. Power		60W
Temperature Range		150 - 450°C
Power Supply		230VAC
Output voltage		24VDC
Set contains :		Soldering station, soldering iron Basic Tool, long-life tip 842CD (2,2mm), Safety Rest.

Type	Ord.No.
O	ANA 60

## Accessories

### i-Con Soldering Irons

ERSA®

ERSA®



#### 0100CDJ

- ERSA i-Tool soldering iron**
- 150 W Micro Heating Element
  - Ultra fastest heat up and recovery
  - "One Touch" Easy to Use operation
  - Automatic Standby Motion Sensor
  - 24V, weight 30g



#### 0450MDJ

- ERSA Chip-Tool SMT desoldering pincette for low-temperature, safe SMD soldering**
- ergonomic and precision repair
  - weight 70g



#### 0720ENJ

- ERSA X-Tool desoldering iron**
- High-power, low-temperature, safe through-hole desoldering
- 120 W
  - Vacuum 800mBar
  - max. temperature 350°C
  - 24V, weight 240g

Part No.	Ord.No.
0 0100CDJ	64112
0 0450MDJ	64124
0 0720ENJ	64121

### ERSA Miscellaneous Soldering Irons.



#### 270 BDJ

- 20W ERSA Micro Tool Soldering Iron**
- for DIG20A, SMT60A, TW80A with 212BD Tip (0,4mm Conical)
- Supply 24V



#### 21100J

- Spare Heating Element for ERSA Micro tool 270BDJ**
- 24 V, 20 W



#### 670 CDJ

- 60W ERSA Basic Tool Soldering Iron with 832CD Tip (2,2mm Chisel),**
- Suitable for ANA 60
- Power Supply: 24V
- Heating time 60s
- Max. Temperature 350°C
- Suitable Tips: 832, 842 series



#### 890CDJ

- 80W Soldering iron RT 80 with soldering tip 842 CD (2,2mm Chisel)**
- Suitable for RDS-80.
- Power Supply: 24V
- Heating time: 40s
- Max. Temperature: 450°C
- Suitable Tips: 832, 842 series

Part No.	Ord.No.
0 270 BDJ	40189
0 21100J	7113
0 670 CDJ	40164
0 890 CDJ	64125

### ERSA Holders



#### A39

- RH-80 Iron Holder for RT-80 irons**



#### A48

- Iron Holder for i-Tool irons**

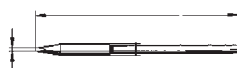
Part No.	Ord.No.
0 A 39	64127
0 A 48	64128

## Soldering Tips

### ERSADUR Soldering Tips Serie 212

Pb free

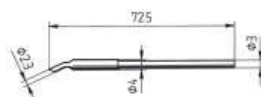
Suitable for: ANALOG 20A, SMT 60A/AS, DIG20A, REWORK 80 and Micro Tool soldering iron



Chisel



Conical



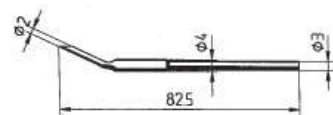
MicroWell

**MICROWELL** - Specially designed SMD Soldering Tip. It is possible to solder one side, sometimes even whole component, without interruption. You don't have to pre-tin the pads or have to take soldering paste, because the solder will be delivered from the solder deposit on the tip.

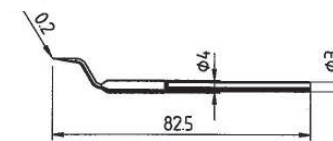
Part No.	Ord.No.	Description
S 212 BD LF	39013	0,4mm Conical
S 212 CD LF	39014	1,0mm Chisel
S 212 ED LF	39015	1,8mm Chisel
S 212 MS LF	4347	2,3mm Micro Well

### ERSADUR Desoldering Tips Serie 422

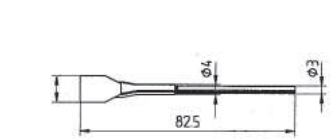
Suitable for ERSA i-CON, SMT 60 A / AS, DIG 20 A... for desoldering tweezers 40. Price is for one pair.



elliptical-shaped

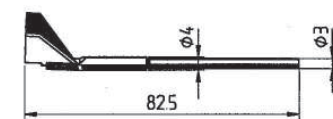


conical



chisel

17,5 x 17,5

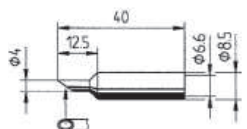
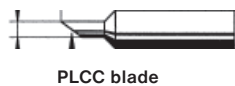
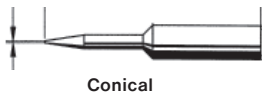


angular

Part No.	Ord.No.	Description	for desoldering
0 422 MD	39029	2mm, elliptical	MELF, MiniMELF
0 422 SD	46934	0,2mm, conical	MICROMELF
0 422 ED	39017	6mm, chisel	SOIC 8
0 422 FD 2	39021	15mm, chisel	SOIC 24
0 422 FD 3	39018	7,5mm, chisel	SOIC 12/SOT23
0 422 FD 4	39020	12,5mm, chisel	SOIC 20
0 422 FD 5	39022	17,5mm, chisel	SOIC 28
0 422 FD 6	39023	20mm, chisel	SOIC 32
0 422 FD 7	3280	25mm, chisel	25mm long comp
0 422 FD 8	42912	27,5mm, chisel	27,5mm long comp
0 422 QD 1	39025	12,5mm, 90° angle	PLCC 28
0 422 QD 2	39028	25mm, 90° angle	PLCC 68
0 422 QD 3	39026	17,5mm, 90° angle	PLCC 44
0 422 QD 4	39027	20mm, 90° angle	PLCC 52
0 422 QD 5	39024	10mm, 90° angle	PLCC 20
0 422 QD 6	40868	15mm, 90° angle	QFP, TQFP
0 422 QD 7	40869	30mm, 90° angle	PLCC 84
0 422 RD 1	40870	22,5x16,5mm	QFP100
0 422 RD 2	6611	15x12,5mm	PLCC32

## ERSADUR Soldering and Desoldering Tips 832 Series

Pb free



Suitable for:

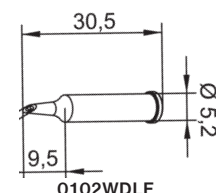
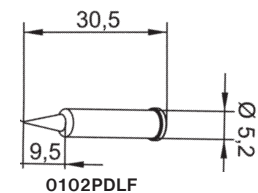
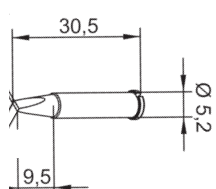
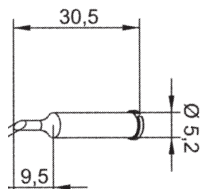
- ANALOG 60/60A
- ANALOG 80/80A
- DIGITAL 2000A
- DIGITAL 80A
- MICRO-CON
- MS 6000
- MS 8000
- RDS 80

Part No.	Ord.No.	Description
S 832 UD LF	40170	Conical 0,4x55mm
S 832 SD LF	40172	Conical 0,8x55mm
S 832 BD LF	40174	Conical 1,0x46mm
S 832 YD LF	47675	Chisel 1,6x46mm
S 832 CD LF	40176	Chisel 2,2x46mm
S 832 KD LF	2695	Chisel 2,2x55mm
S 832 ED LF	40177	Chisel 3,2x46mm
S 832 AD	7309	PLCC blade 1,5mm
S 832 PW LF	40866	PowerWell with concave portion 4x40mm

## ERSA i-Tip Soldering Tips

Pb free

Specially plated with the new ERSADUR-LF galvanic process lasting 2 to 3 times longer than standard tips. Suitable for the i-Tool



Part No.	Ord.No.	Description
O 0102ADLF20	69322	Angled face, L= 2,0mm
O 0102CDLF12	66241	Chisel 0,6x1,2mm
O 0102CDLF16	60883	Chisel 0,6x1,6mm
O 0102CDLF20	60884	Chisel 0,8x2,0mm
O 0102CDLF32	66242	Chisel 1,0x3,2mm
O 0102PDLF02	63911	Pencil 0,2mm
O 0102PDLF04	60880	Pencil 0,4mm
O 0102PDLF04L	69323	Pencil 0,4mm
O 0102PDLF07	60881	Pencil 0,7mm
O 0102PDLF10	60882	Pencil 1,0mm
O 0102WDLF16	67398	Solder well, L= 1,6mm
O 0102WDLF23	67399	Solder well, L= 2,3mm

## Gas Soldering Irons

ERSA



### Independent 75 Basic

The ergonomic, antistatic gas soldering iron with piezo ignition is ideal for service and maintenance work, especially if there is no power supply available! The continuously adjustable output of 15 - 75 W (compared with electrical soldering irons) allows maximum soldering tip temperatures of up to 580 °C. The Independent is powered by ordinary butane as used in gas lighters. Operating time per gas filling is about 60 min.

Technical Parameters	Independent 75 Basic
Power	15-75W
Temperature	500°C
Heating Time	approx. 30s to 185°C
Set contains	2x soldering tips, sponge, holder

Part No.	Ord.No.
O INDEPENDENT 75 BASIC	39329

### Soldering Tips for INDEPENDENT

#### G 052 BN



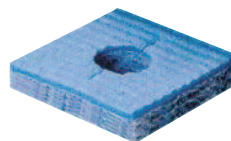
#### G 072 CN



Part No.	Ord.No.	Description
S G 052 BN	44556	0,5mm Conical for INDEPENDENT 50
S G 072 CN	47982	1,0mm Chisel for INDEPENDENT 75

## Accessories

ERSA



### 003B

Replacement Solder Tip Cleaning Sponge for ERSA Stations  
Dimensions: 55x55x13mm.

Part No.	Ord.No.
S 003B Sponge	5942



### VAC X

Antistatic standard solder sucker. The feature of the solder sucker ERSA VAC X is the high pumping performance and the ergonomic shape. The antistatic construction allows carefree desoldering of electrostatically irritable assemblies. The long, slim desoldering tip also allows work on closely assembled boards. The special construction allows easy cleaning of the pump and exchange of the desoldering tip.



### VAC X2/SB

Spare desoldering teflon nozzle for VAC X.

Part No.	Ord.No.
S VAC X	48333
S VAC X2/SB	48334

## STAR-TEC Soldering Stations



**ST 804**  
**80W Soldering/De-soldering Vacuum Station**  
 Soldering Iron 24 V / 80 W  
 Iron stand  
 Soldering tip, internal heated, 6.5 mm drill  
 Desoldering head with desoldering nozzle and connection wear out  
 Wear out holder  
 Electronic, adjustable temperature selection  
 Stepless adjustable from 150 - 450°C  
 Heater indication trough LED  
 Electronic selection of the air capacity  
 Adjustable till 2,5 l/min  
 Vacuum till .750 mbar

Technical Parameters		ST 804
Max. Power		80W
Temperature Range		150°C- 450°C
Power Supply		230VAC
Output voltage		24V
Vacuum		0,35bar/350l/hour
Dimensions (station)		125x185x80mm

Part No.	Ord.No.
S ST 804	41412



**ST 902 ECO**  
**Desoldering Vacuum Station ST 902**  
 Contents:  
 Desoldering head, internal heated 5 mm drill, Desoldering nozzle and wear out  
 Wear out stand  
 Fingercalipers  
 Stand  
 On-control trough illuminated power switch  
 Production control trough LED  
 Electronic election of the air capacity  
 Stepless adjustable till 0,5 l/min  
 Vacuum till -400 mbar

Technical Parameters		ST 902 ECO
Max. Power		5W
Power Supply		230V
Max. Vacuum		0,2 bar (250l/hour.)
Dimensions (station)		95x155x60mm

Part No.	Ord.No.
S ST 902 ECO	41428



**ST 601 ECO**  
**Desoldering Vacuum Station ST 601**  
 Contents:  
 Desoldering head, internal heated 5 mm drill, desoldering nozzle with wear out  
 Wear out holder  
 Stand

Technical Parameters		ST 601 ECO
Max. Power		5W
Power Supply		230VAC
Max. Vacuum		0,2 bar (250l/hour.)
Dimensions (station)		95x155x60mm

Part No.	Ord.No.
O ST 601 ECO	41391



**ST 802**  
 80W soldering station  
 Soldering Iron 24 V / 80 W  
 Soldering tip, internal heated, 6.5 mm drill  
 Electronic, adjustable temperature selection  
 Temperature adjustable from 150-450 °C  
 On-control trough illuminated power switch  
 Heater control trough LED

Technical Parameters		ST 802
Max. Power		80W
Temperature Range		150°C- 450°C
Power Supply		230VAC
Output voltage		24V
Dimensions (station)		95x155x60mm
Soldering Iron		ST80130, 80W

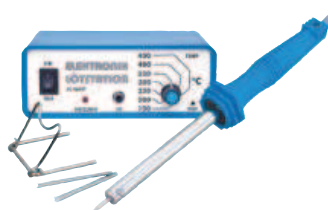
Part No.	Ord.No.
S ST 802	41410



**ST 501 ECO**  
**50W soldering station**  
 Soldering Iron 24 V / 50 W  
 Soldering tip, internal heated, 5 mm drill  
 Electronic, adjustable temperature selection  
 Temperature adjustable from 150-450 °C  
 Heater control trough LED

Technical Parameters		ST 501 ECO
Max. Power		50W
Temperature Range		150°C- 450°C
Power Supply		230VAC
Output voltage		24V
Dimensions (station)		95x155x60mm
Soldering Iron		ST50132, 50W

Part No.	Ord.No.
S ST 501 ECO	41385



**ST 301**  
**30W soldering station**  
 Soldering tip, external heated, 3 mm diameter  
 Electronic, adjustable temperature selection  
 Temperature adjustable from 150 - 450°C  
 Heater control trough LED

Technical Parameters		ST 301
Max. Power		30W
Temperature Range		150°C- 450°C
Power Supply		230VAC
Output voltage		12V
Dimensions (station)		95x155x60mm
Soldering Iron		ST30130, 30W

Part No.	Ord.No.
S ST 301	41381



**ST 081**  
**10W soldering station**  
 Internal heated soldering tip, 2 mm drill  
 Electronic, adjustable temperature selection  
 Temperature adjustable from 100 - 400°C  
 Heater control trough LED

Technical Parameters		ST 081
Max. Power		10W
Temperature Range		100°C- 400°C
Power Supply		230V/50Hz
Output voltage		12V
Soldering Tip		2mm, inside heating
Soldering Iron		ST08131, 7,5W
Dimensions (station)		100x65x55mm

Part No.	Ord.No.
O ST 081	48486

## Soldering Irons



**ST 80130**  
Soldering Iron for 80W Startec Soldering Stations (ST804, ST802), 6,5mm soldering tip

Technical Parameters		ST 80130
Max. Power		80W
Power Supply		24V

Part No.	Ord.No.
S ST 80130	41400



**ST 30130**  
Soldering Iron for 30W Startec Soldering Stations (ST301), 3mm soldering tip.

Technical Parameters		ST 30130
Max. Power		30W
Power Supply		12VDC
Soldering Tip		3mm

Part No.	Ord.No.
S ST 30130	41382



**ST 30W**  
Universal Soldering Iron for 30W Startec Soldering stations 4mm Conical soldering tip Fastening with screw

Technical Parameters		ST 30W
Max. Power		30W
Power Supply		230VAC
Soldering Tip		4mm

Part No.	Ord.No.
S ST 30W	41377



**ST 08131**  
Soldering iron for the ST-08105 soldering station, specially recommended if you have to solder SMD components. It is possible to connect it to the mini soldering iron, through the adapter ref. ST-50133 adapting the voltage from 24V to 12V

Technical Parameters		ST 08131
Max. Power		7,5W
Temperature Range		max. 425°C
Cable length		1,2m
Power Supply		12VDC

Part No.	Ord.No.
S ST 08131	1533

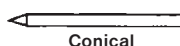
## STARTEC Soldering Tips



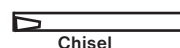
**Soldering Tips 6,5mm Conical**  
Soldering Tips for ST 802, ST 804 stations. Inside heating tips with long lifetime, diameter 6,5mm.

Part No.	Ord.No.	Description
S SOLD TIP 6,5mm/NEEDLE/0,3mm	41407	Conical
S SOLD TIP 6,5mm/NEEDLE/0,8mm	41403	Conical
S SOLD TIP 6,5mm/PENCIL/1mm	41402	Conical

**Soldering Tip 3mm**  
Soldering Tip for ST301 and ST501



**Soldering Tip 5mm**  
Soldering Tips for ST 501, 5mm,



Part No.	Ord.No.	Description
S SOLD TIP 3mm/PENCIL	41383	ST301 Conical
S SOLD TIP 5mm/CHISEL	41371	ST501 Chisel
S SOLD TIP 5mm/PENCIL	41367	ST501 Conical
S SOLD TIP 5mm/WEDGE	41370	ST501 Round Sloped

**Soldering Tips Conical 2mm**  
Soldering Tip for Soldering Pencil ST08131, 2mm.



**Soldering Tips Conical 4mm**  
Soldering Tip for Soldering Pencil ST30W.



Part No.	Ord.No.	Description
S SOLD TIP 2mm/PENCIL	1534	Conical 2,0mm
S SOLD TIP 4mm/PENCIL	41379	Conical 4mm/70mm
S SOLD TIP 4,5mm/PENCIL	41366	Conical 4,5mm

## Accessories



**Desoldering Top**  
Complete desoldering device composed by a body with M5 tips, silicon tank, tube, filter and ST-90151 tips Nozzle diameter 6,5mm.

Part No.	Ord.No.
O DESOLDERING TOP 6.5mm	41392



**Desold.Nozzle Prem**  
Desoldering nozzle for ST601, ST804 and ST902. Screw M5

Part No.	Ord.No.
O DESOLDER.NOZZLE ECO 1mm	41415



**Kit ST601,902,804**  
Desoldering refill kit composed by 10 air filters, 3 filters, 1 silicon tank for stations ST-601, ST-804 and ST-902.

Part No.	Ord.No.
S KIT ST601,902,804	41397

## DIAMETRAL Soldering Tools



**SBL530.1A**  
Micro soldering Station for Professional Soldering  
It is equipped with fluent temperature regulation by a potentiometer in the temperature range from 80 to 450°C. Displaying of the real and set-up temperature is performed by the clear seven-segments LED display with automatic switching.  
Soldering Iron: 30W PP530R Stand

Technical Parameters	SBL530.1A
Max. Power	35W
Temperature Range	80°C- 450°C
Power Supply	230V/50Hz
Output voltage	24V

Part No.	Ord.No.
S SBL530.1A	7829



**PP530R**  
Soldering Iron for SBL530.1A  
24V/30W

Part No.	Ord.No.
O PP530R	7933



**SBL530.1B**  
Cut-out automatics SBL530.1B for the micro soldering stand SBL530.1A

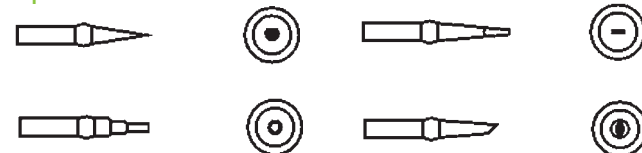
Part No.	Ord.No.
O SBL530.1B	47964



**HP 530**  
Replacement sponge for SBL530.1A.

Part No.	Ord.No.
S HP 530	9558

## SBL62x Series Soldering Tips



Type	Ord.No.	Description
O SBL621-R	63223	Round sloped 0,8mm
O SBL622-R	63228	Round 0,8mm
O SBL623-R	63229	Round 0,4mm SMD
O SBL624-R	63230	Chisel 1,6mm
O SBL625-R	63231	Chisel 3,2mm
O SBL626-R	63232	Chisel 1,2mm
O SBL627-R	63233	Stern 1,6mm
O SBL628-R	63234	Round Sloped 3,0mm
O SBL629-R	63235	Round Sloped 4,0mm

## Soldering Guns

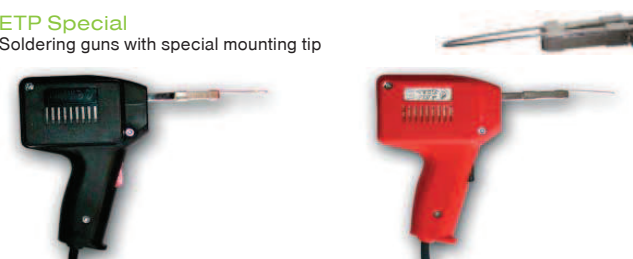
**ETP**  
Soldering guns, fastening with 2 screws



Technical Parameters	ETP 3	ETP 4	ETP 5
Max. Power	100W	75W	125W
Power Supply	230VAC	230VAC	230VAC

Part No.	Ord.No.
S ETP 4 75W	47407
S ETP 3 100W	47410
S ETP 5 125W	47408

**ETP Special**  
Soldering guns with special mounting tip



Technical Parameters	ETP 3 SPECIAL	ETP 4 SPECIAL
Max. Power	100W	75W
Power Supply	230VAC	230VAC

Part No.	Ord.No.
S ETP 4 75W SPECIAL	47422
S ETP 3 100W SPECIAL	47424



**ETP 5 125W NUBA**  
125W Soldering gun in case with solder wire, soldering flux and soldering tips.

Technical Parameters	ETP 5 125W NUBA
Max. Power	125W
Power Supply	230V/50Hz

Part No.	Ord.No.
S ETP5 Kit 125W NUBA	47411

## Soldering Tips for Soldering Guns

**Tip**  
Tips for Soldering Guns, 5pcs in package.

**E-Tip**  
Long life soldering tips for precision soldering.



Part No.	Ord.No.	Description
S TIP-4CU/Ni+1CU	4231	4x nickel plated +1x copper wire
S TIP-5CU/SN	4253	5x copper wire tin plated
S E-TIP 0,8mm	5968	0,8mm, long life
S E-TIP 1,2mm	5969	1,2mm, long life

## CT Soldering Equipment



**CT-858**  
Multifunctional rework station can cooperate with all the requirements of soldering. Each part can be operated individually and independently. ESD design.

Technical Parameters		CT-858
<b>Soldering tool 60W</b>		Soldering Iron CT - 985
<b>Temperature Range</b>		200°C- 480°C
<b>Power Supply</b>		230VAC
<b>Output Voltage</b>		24VDC
<b>Desoldering tool 190W</b>		Desoldering gun CT-859
<b>Temperature Range</b>		280°C- 450°C
<b>Output Voltage</b>		27VAC
<b>Max. Vacuum</b>		680mm/Hg
<b>Max. Air Volume</b>		15l/min.
<b>Hot air tool 280W</b>		Hot Air Iron
<b>Temperature Range</b>		100°C- 480°C
<b>Output Voltage</b>		230VAC
<b>Max. Air Volume</b>		24l/min.
Part No.	Ord.No.	
S CT-858	57649	



**CT-850K**  
Hot-air rework station  
Air volume and temperature are adjustable. ESD design, avoid static electricity damage the components. various nozzles are available which is convenient to desoldering various IC. Cooling system lasts one more minute to work when power shut off, prolong the life of heater and handle.

Part No.	Ord.No.
S CT-850K	57654



**CT-939D**  
CT-939D is especially designed for high temperature soldering and non-lead soldering, it is with the techniques of raise temperature rapidly and resumption of temperature, which is complete fulfill during various performances of soldering.

- Quickly heat up.
- Heating from normal temperature to 350°C takes only 25 seconds.
- Patented design of heating element, heater links up with sensor, easy to be replaced.
- CPU Controlled
- Standby function
- Locking temperature adjustment function

Technical Parameters		CT-939D
<b>Max. Power</b>		85W
<b>Temperature Range</b>		200°C- 450°C
<b>Power Supply</b>		230VAC
<b>Output voltage</b>		32VAC
Part No.	Ord.No.	
S CT-939D	57641	



**CT-938ESD**  
Intelligent temperature controlled soldering station.

- Controlled by CPU
- High efficiency and long-life ceramic heater
- Big LCD display - temperature, time, date
- Buzzer reminder
- Auto malfunction judgment of heating system
- With CT-985 ESD soldering iron

Technical Parameters		CT-938ESD
<b>Max. Power</b>		60W
<b>Temperature Range</b>		150°C- 480°C
<b>Power Supply</b>		230VAC
<b>Output Voltage</b>		24VAC
Part No.	Ord.No.	
S CT-938ESD	57642	



**CT-936ESD**  
Temperature Controlled Soldering Station

- temperature-controlled circuit, temperature easily adjustment
- Japanese heater, heating rapidly with long life span
- Slim handle design
- Easy to replace tips.
- Anti-static safe style
- With CT-985 ESD soldering iron

Technical Parameters		CT-936ESD
<b>Max. Power</b>		60W
<b>Temperature Range</b>		200°C- 480°C
<b>Power Supply</b>		230VAC
<b>Output Voltage</b>		24VAC
Part No.	Ord.No.	
S CT-936ESD	57647	



**CT-856ND**  
Hot air soldering station.

- Controlled by CPU
- LCD display - temperature, air volume

Technical Parameters		CT-856ND
<b>Soldering Tool</b>		
<b>Max. Power</b>		160W
<b>Temperature Range</b>		200°C- 450°C
<b>Power Supply</b>		230VAC
<b>Output Voltage</b>		24VDC
<b>Hot Air Tool</b>		
<b>Temperature Range</b>		100°C- 450°C
<b>Air Volume</b>		0,4 - 24l/min.
Part No.	Ord.No.	
S CT-856ND	62174	

**CT-859 DESOLDERING GUN**  
Desoldering Gun 27V 55W, for CT-858.



**CT-859 HEATER**  
Heating element for CT-859.

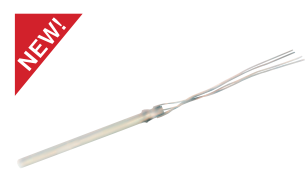


Part No.	Ord.No.
S CT-859 DESOLDERING GUN	58448
S CT-859 HEATER	58449

**CT-985 ESD IRON**  
Soldering iron 24V 50W, for CT-936, 938 and 858 soldering stations



**CT-985 HEATER**  
Heating element for CT-985.



Part No.	Ord.No.
S CT-985 ESD IRON	58444
S CT-985 HEATER	58445



## CT Soldering Equipment (continued)

**CT-939 NP IRON**  
Soldering iron 28V 80W, for CT-939.

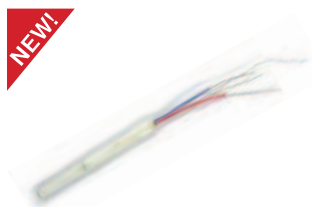


**CT-939 HEATER**  
Heating element for CT-939NP

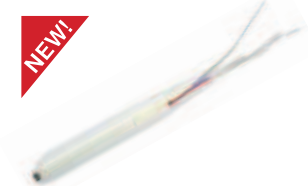


Part No.	Ord.No.
S CT-939 NP IRON	58446
S CT-939 HEATER	58447

**CT-856 HEATER IRON**  
Heater element for CT-856ND



**CT-856 HEATER HOT BLOWER**  
Heater element for CT-856ND Hot Air Blower



Part No.	Ord.No.
S CT-856 HEATER IRON	74204
S CT-856 HEATER HOT BLOWER	74205

**CT-850K HEATER**  
Heating element for hot air pencil (CT-850).



Part No.	Ord.No.
S CT-850K HEATER	58451

## Standard CT Soldering Tips

Tips are suitable for CT-985 soldering iron

**CT-936M-T-SB**



**CT-936M-T-xD**



Part No.	Ord.No.	Description
S CT-936M-T-SB	58471	0,2 x 14,0mm
S CT-936M-T-0,8D	58472	0,8 x 17,0mm
S CT-936M-T-1,2D	58473	1,2 x 17,0mm
S CT-936M-T-1,6D	58476	1,6 x 17,0mm
S CT-936M-T-2,4D	58477	2,4 x 17,0mm

## Lead Free CT Soldering Tips

Suitable for CT-939. soldering iron

Pb free

**CT-939M-T-SB**



Part No.	Ord.No.	Description
S CT-939M-T-SB	58470	0,2x14mm

**CT-939M-T-0,8D**



**CT-939M-T-1,2D**



Part No.	Ord.No.	Description
S CT-939M-T-0,8D	58466	0,8x17mm
S CT-939M-T-1,2D	58467	1,2x17mm

**CT-939M-T-1,6D**



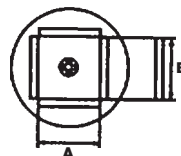
**CT-939M-T-2,4D**



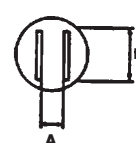
Part No.	Ord.No.	Description
S CT-939M-T-1,6D	58468	1,6x17mm
S CT-939M-T-2,4D	58469	2,4x17mm

## Nozzles for CT-858, CT-850

PLCC, QFP



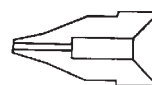
SOP



Part No.	Ord.No.	Description
S CT-1135B	58465	PLCC 17,5x17,5mm
S CT-1125B	58460	QFP 10x10mm
S CT-1126B	68688	QFP 14x14mm
S CT-1131	58461	SOP 4,4x10mm
S CT-1133	58462	SOP 7,5x15mm

## Desoldering Nozzles for CT-859 Desoldering Gun

CT-A100x



Part No.	Ord.No.	Description
S CT-A1002	58456	0,8mm
S CT-A1003	58457	1,0mm
S CT-A1006	58458	1,2mm
S CT-A1007	58459	1,5mm

**CT B 1439 IC Extractor**  
SMD parts extractor for CT-850K.

**CT B 1440**  
Replacement wire for IC extractor.



Part No.	Ord.No.
S CT B 1439 IC Extractor	58463
S CT B 1440	58464

## DEN-ON Soldering Tools



### SC 7000 Z

The hand held SC-7000Z by Den-on Instruments is internationally recognized as the best de-soldering hand-tool!

DEN-ON SC-7000Z is of the pump built in structure with a temperature control circuit.

- Suction capacity and hot blow system are further powered up.
- Removal of chip and SMD components is done with more easily and efficiency.

### FEATURES

- Direct connection between the diaphragm pump and the tip can provide high vacuum efficiency which can accommodate for the 8-12 layered PCB.
- The combination of a 100W ceramic heater with sensor feedback temperature control circuit and high vacuum capacity can provide best work efficiency with no failure.
- Protection against ESD is secured.
- Quite compact, light-weight unit is portable and ready to use at any location.
- Low noise and low vibration.
- The removal of SMD components can be easily done by a flick of the selector lever and by replacing the tip with the hot blow nozzle.

Technical Parameters	SC 7000 Z
Max. Power	100 W (ceramic)
Power of Motor	12 W
Temperature Range	350-500 °C
Power Supply	230V, 50Hz

Part No.	Ord.No.
S SC 7000 Z	4116



### SC 7000 08-00-00

Safety Rest with sponge for SC 7000 Z.

Part No.	Ord.No.
O SC 7000 08-00-00	7954



### SC 7000 50 Tips

Soldering Tips for SC 7000 Z.

Type	Description
SC 7000 50-01-13D	Tip 0,8mm very slim SC7000
SC 7000 50-01-14S	Tip 1,0mm standard (STD) for SC7000
SC 7000 50-01-16E	Tip 1,0mm slim for SC7000
SC 7000 50-01-17F	Tip 1,5mm slim for SC7000

Part No.	Ord.No.
O SC 7000 50-01-13D	7616
O SC 7000 50-01-14S	7956
O SC 7000 50-01-16E	7960
O SC 7000 50-01-17F	7617

### SC 7000 70-06-50

Heating element SC 7000 Z.



Part No.	Ord.No.
O SC 7000 70-06-50	7963
O SC 7000 70-08-00	6341

### SC 7000 70-08-00

Filter cartridge for SC 7000 Z (5pcs).



### SC 7000 72-78-00

#### SMD Removing Kit

With the use of the wire and shimbla de holder, most SD's can be easily reworked. Kit contains Hot Air Tip for SC7000Z, clean filter for hot air only, wire and shim-blade holder and supplies, and case for containing pieces.



Part No.	Ord.No.
O SC 7000 72-78-00	7210

## DREMEL Soldering Tools



### Dremel 2000JA

Multi Functional Soldering Iron Uses standard butane gas.

Kit Contains - Tool Cap, Soldering Tips, Pyrography / Wood Burning Tip, Hot Blower Head, Hot Knife, Cutting Knife, Flat Wide Flame Head, Reflector, Soldering Tin, Soldering Sponge & Sponge Box, Wrenches 7mm & 8mm  
Max Temp 550 deg. C  
Run Time 90 minutes app

### Dremel 201

Spare soldering tips for 2000JA

Part No.	Ord.No.
S Dremel 2000JA	69068
S Dremel 201	69220



### Dremel 2200JA

Butane gas powered burner. Uses standard butane gas.

Kit Contains - VersaFlame Burner, Catalyst, Soldering Tip, Flame Extension Piece, Deflector, Solder, Soldering Sponge & Sponge Box, 7mm Spanner  
Specifications:  
Piezo Ignition  
Temperature - 1200 °C (open air), 680-1000 °C (hot air), 550°C (tips)  
Burn Time 75 - 90 minutes approx.  
Tank capacity 42ml / 22g

Part No.	Ord.No.
S Dremel 2200JA	70988

## Miscellaneous Soldering Tools



### EP 5

Digital soldering station with LCD display (60x30mm)  
Short heating time  
Easy temperature setting by UP and DOWN buttons  
With iron, holder and sponge

Technical Parameters	EP 5
Max. Power	48W
Temperature Range	150°C- 450°C
Temperature Accuracy	±5%
Power Supply	230V/50Hz

Part No.	Ord.No.
S EP 5	56549



### ZD-937

ESD Soldering Station with a Dual LCD Digital Display. Is the perfect station in assembly, prototype and service environments where close temperature control is important. Two-line LCD readout simultaneously displays tip temperature and setpoint in degrees Celsius or Fahrenheit. LCD icons illustrate "Heat On" when iron is active, and "Wait" status. With iron, holder and sponge

Technical Parameters	ZD-937
Max. Power	48W
Temperature Range	150°C- 450°C
Power Supply	230V/50Hz

Part No.	Ord.No.
S ZD-937	56118



### ZD-207N

Soldering Iron for ZD-937 and EP5  
Power: 48W  
Power Supply: 24 VAC

Part No.	Ord.No.
S ZD-207	56616

## Soldering Tips for EP5 and ZD-937

TIP/ZD-93708



TIP/ZD-93716



Part No.	Ord.No.	Description
S TIP/ZD-93708	60472	Conical 0,8mm
S TIP/ZD-93716	60473	Conical 1,6mm

HROT/ZD-93732



Part No.	Ord.No.	Description
S TIP/ZD-93732	60474	Conical 3,2mm



**ZD Sponge**  
57x37x1,4mm  
suitable for ZD-937 soldering station

Part No.	Ord.No.
S ZD SPONGE	54836



**ZD 99**  
Temperature controlled soldering station (from 100°C to 450°C).  
Suitable soldering Tip: TIPS C1-1 AL.



**ZD 99 Soldering Iron**  
Soldering Iron for ZD-99 station



**TIPS C1-1 AL**  
Soldering tip for ZD-99 station

Technical Parameters	ZD 99
Max. Power	48W
Temperature Range	100 - 450°C
Power Supply	230V/50Hz

Part No.	Ord.No.
S ZD 99	62303
S ZD 99 Soldering Iron	74110
S TIPS C1-1 AL	63357



**ZD 9830 B**  
Temperature controlled soldering station (from 200°C to 450°C).  
Accessories: safety rest, soldering pencil, sponge.  
Suitable soldering tip Startec 5mm: ST02451, ST02457, ST02458

Technical Parameters	ZD 9830 B
Max. Power	20-48W
Temperature Range	max 450°C
Power Supply	230V/50Hz

Part No.	Ord.No.
S ZD 9830 B	44541

**JFS 12V/30W**

Soldering Pencil with cigarette lighter connector. Suitable tip: Startec 3mm.  
**Dimensions:** diameter 19mm  
length 220mm  
**Power:** 30 W  
**Power Supply:** 12 VDC



Part No.	Ord.No.
S JFS 12V/30W	46412

**ZD-200N**

Simple soldering pencil with angular connector DIN 5 male. Suitable Soldering Tips SR-62x.  
**Dimensions:** diameter 30mm  
length 200mm  
**Power:** 48W  
**Power Supply:** 24 VAC



Part No.	Ord.No.
S ZD-200N (PENSIL IRON)	51956

**SDA 30W**

Simple soldering iron. Power Supply 230V, Power 30W. Suitable tips Startec 5mm - ST02451, ST02457, ST02458  
**Dimensions:** diameter 30mm  
length 270mm



Part No.	Ord.No.
S SDA 30W	47515

**ZD 211**

Solder Sucker (desoldering tool) with heating tip.  
**Dimensions:** diameter 30mm  
length 270mm  
**Power:** 30W  
**Power Supply:** 230V/50Hz



Part No.	Ord.No.
S ZD 211	54185



**TIP/ZD211**  
Desoldering nozzle ZD 211.  
Diameter 1,8mm.

Part No.	Ord.No.
S TIP/ZD211	54186

## Soldering Tips for Lead Free Solders

ECONOMIC

Pb free

**SR621-3 Conical**

Soldering Tip for SBL530.1A, 0,8mm, Conical.



**SR624-6 Chisel**

Soldering Tips for SBL530.1A, Chisel.



Part No.	Ord.No.	Description
S SR621	61299	Round sloped 0,8mm
S SR622	61300	Round 0,8mm
S SR623	61302	Round 0,4mm SMD
S SR624	61303	Chisel 1,6mm
S SR625	61304	Chisel 3,2mm
S SR626	61305	Chisel 1,2mm

**SR627 Stern**

Soldering Tip for SBL530.1A, 1,2mm, Stern



**SR62x Sloped**

Soldering Tip for SBL530.1A, 0,8mm, Round Sloped



Part No.	Ord.No.	Description
S SR627	61306	Stern 1,6mm
S SR628	61307	Round Sloped 3,0mm
S SR629	61308	Round Sloped 4,0mm

## Accessories

### SPS-1

Universal safety rest with sponge.



Part No.	Ord.No.
S SPS-1	1768
S ST-51	45903

### ST-51

Solder Reel Holder. Maximum 500g., width 70mm. Guide spring to avoid solder tangle.



### NRU-0083 (0100)

Vacuum SMD tool kit for ESD-protected work

#### Consist of:

- vacuum tweezer,
- 4pcs replaceable tips
- Length 70mm
- Diameter 13mm

Part No.	Ord.No.
S NRU-0083	52272

### VAC X

Antistatic, Standard Solder Sucker (desoldering tool) with teflon nozzle, 11.3cm suction capacity.



### VAC X2/SB

Replacement desoldering teflon nozzle for VAC X



Part No.	Ord.No.
S VAC X	48333
S VAC X2/SB	48334

### NS 098

Standard Solder Sucker (desoldering tool) with teflon nozzle.



### SH813

Standard Solder Sucker (desoldering tool) with teflon nozzle.



Part No.	Ord.No.
S NS 098	26385
S SH813	48384



### TIP NS 098 SPITZE

Replacement teflon nozzle for NS 098.

Part No.	Ord.No.
S Tip- NS 098	26386



### AMASAN

#### Solder Sucking Wick

Flexible cooper braid designed for desoldering  
Impregnated with synthetic flux

Part No.	Ord.No.	Width / Length
S AMASAN 2	30078	1,5mm / 1,6m
S AMASAN 3	30079	2,0mm / 1,6m
S AMASAN 4	30080	2,5mm / 1,6m
S AMASAN 5	62259	2,5mm / 1,5m

## Fume Extractors

Weller®

The WFE is a fume extraction unit suitable for applications with a high demand for gas and particle filtration, e.g. soldering, adhesives, clean room work and laser. It can be placed on a trolley and be moved easily between different work places. Variable speed and the alarm function for filter exchange can be set also via the remote control. For applications which produce a large quantity of particles, e.g. lead-free soldering, an external pre-filter can be fitted to increase the lifetime of the main filter. To make cleaning easier, the WFE can be suspended under the work table with special fittings.

### WFE 2S



### WFE 4S



Technical Parameters	WFE 2S	WFE 4S
Electrical Power	275VA	450VA
Power Supply	230V / 50Hz	230V / 50Hz
Max. pressure	2700 Pa	2800 Pa
Max. airflow	230 m3/h	615 m3/h
Max. capacity	3 work places	8 work places
Weight	19 kg	21 kg
Dimensions L x W x H	320mm x 320mm x 395mm	450mm x 450mm x 650mm

Part No.	Ord.No.
o WFE 2S	70568
o WFE 4S	63669

### WFAF 50

Fume Extraction Arm With Nozzle End, l=1000mm d=100mm.



### WFAN 50

Fume Extraction Arm With Round Funnel End, l=800mm.



### WFAS 50

Fume Extraction Arm With Flat Nozzle End, l=1000mm 210x20mm.



Part No.	Ord.No.
o WFAF 50	67580
o WFAN 50	63672
o WFAS 50	66281

### 005 36 321 99

Branch, 2 x 45°, 1 m, with 2 seals, d=50mm plastic, black.



### WE 87 353 27

Extraction hose d=50mm, plastic



### WE 87 358 47

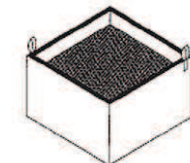
Hose connection for Extraction hose d=50mm plastic.



Part No.	Ord.No.
o WE 536 321 99	64352
o WE 587 353 27	63670
o WE 587 358 47	63671

### WFE 4S FILTER

HEPA filter, 50% active carbon, 50% Puratex)



### WFFMP 50

Seal d=50mm.



### WFTB 50

Bench mounting bracket for WFFMP 50.



Part No.	Ord.No.
o WFE 4S FILTER	66260
o WFFMP 50	63673
o WFTB 50	63674

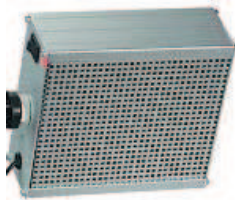
## Fume Extractors (continued)

ECONOMIC



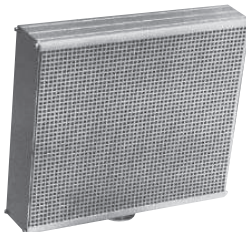
**LDA 11**  
Useful appliance with adjustable inclination, that fully suffices average requirements with smaller soldering jobs. Based on the attractive price and the practical construction, this absorber is suitable for schools, home industry and training. The appliance comes with its own mount or stand.  
Power requirements: 220/240V/18W, air throughput: 160l/h, noise level: 40dBA, housing: anodized aluminum, dimensions: 150x140x55mm

Part No.	Ord.No.
S LDA 11	8829



**LDA 1**  
A well proven unit, with robust aluminum-casing, that cannot be inadvertently damaged by hot solder tips. The absorber can be used either as a table appliance or higher up with a tripod, to be ordered separately (with round base), with variable inclination angle. Power requirement: 220/240V/18W, air throughput: 170l/h, noise level: 40dBA, housing: anodized aluminum, dimensions: 150x140x55mm

Part No.	Ord.No.
S LDA 1	9526



**LDA 4**  
The life expectancy of the filter is about 4-6 weeks with a run time of approximately 8 hours per day. Due to the high air throughput with minimal noise development (through the use of 4 low noise fans), this unit is suitable for virtually any job.  
Power requirements: 220/240V 16W, air throughput: 320l/h, noise level: 36dBA, housing: anodized aluminum, dimensions: 260x230x55mm.

Part No.	Ord.No.
S LDA 4	9528



**LDF**  
Replacement filters for fume extractors. Life time min. 240 working hours

Part No.	Ord.No.	Description
S LDF 1	9525	Sada filtruv to LDA1 a LDA11 6ks
S LDF 4	9530	Filter to LDA 4

**LDS1**  
Desktop stand for fume extractor LDA1, Round.



Part No.	Ord.No.
S LDS 1	9527
O LDS 6	9529

**LDS 6**  
Desktop stand for fume extractor LDA4



**ZD-153**  
Fume extractor 60m<sup>3</sup>/h.  
**Power Supply:** 230VAC/50Hz  
**Power:** 23W  
**Noisiness:** 43dB  
**Filter dimensions:** 130x130x10mm, 3 filters in package  
**Dimensions:** 220x270x168mm  
**Weight:** 1,4Kg

Part No.	Ord.No.
S ZD-153	63002

## Lead Free Solder Wires

Pb free

alphametals



**1532 Series**  
Universal lead-free solder  
Activated rosin flux  
Good thermal stability in poor soldering conditions  
Clear, hard residues can be left on the board  
**Flux Type:** F-SW26  
**Alloy:** Sn96,5Ag3Cu0,5  
**Flux Content:** 3,3%  
**Melting Temperature:** +217°C to +227°C

Part No.	Ord.No.	Description
S 1532 Sn96,5Ag3Cu0,5	56180	0,5mm 250g



**AS Series**  
Fluitin AS is an activated rosin cored solder wire developed for general hand soldering applications where halide free flux has been specified.  
**Flux Type:** F-SW32  
**Alloy:** Sn99Ag0,3Cu0,7  
**Flux Content:** 3,3%  
**Melting Temperature:** +217°C to +228°C

Part No.	Ord.No.	Description
S AS Sn99Ag0,3Cu0,7	56984	1mm 500g



**2630 Series**  
This solder wire is used for applications requiring a higher activity, for components with poor solderability, especially for soldering operations on transformers, soldering on cooper cables with large diameters, where a stronger flux is needed to cope with a high thermal capacity of the components to be soldered. It is also used for soldering of nickel surfaces, critical components and robotic soldering with short cycle times.  
**Flux Type:** TYP 1.1.2  
**Alloy:** Sn95,Ag4Cu1  
**Flux Content:** 2%  
**Melting Temperature:** +217°C

Part No.	Ord.No.	Description
S 2630 Sn95,Ag4Cu1	54322	0,5mm 100g
S 2630 Sn95,Ag4Cu1	56983	0,7mm 250g



**HS10 Series**  
is very efficient by its high activity, which results in quick spread of solder and electrical safe residues.  
Halide activated rosin flux with following properties:  
• save soldering even at low soldering temperatures  
• solid and dry residues, pin testable  
• fast soldering, high spread speed  
Can be used for hand and robot soldering  
• high reliability  
**Flux Type:** TYP 1.1.2  
**Alloy:** Sn95,5Ag3,8Cu0,7/ Sn99Cu1  
**Flux Content:** 2,5%  
**Melting Temperature:** +217°C

Part No.	Ord.No.	Description
O HS10 Sn95,5Ag3,8Cu0,7	55949	0,8mm 250g
O HS10 Sn95,5Ag3,8Cu0,7	55950	0,8mm 500g
O HS10 Sn95,5Ag3,8Cu0,7	55951	0,8mm 1kg
S HS10 Sn95,5Ag3,8Cu0,7	53947	0,8mm 100g
S HS10 Sn95,5Ag3,8Cu0,7	41359	1mm 10g
S HS10 Sn95,5Ag3,8Cu0,7	52412	1mm 250g
S HS10 Sn99Cu1	69529	1mm 100g



**Solder Wire SAC serie**  
S-Sn95,5Ag3Cu0,5 solder manufactured in the first melt of tin and silver according to PN EN 29453:2000 standard in continuous casting process in air-free environment; afterwards extruded, in order to eliminate oxide occurrence  
**Flux Type:** TYP 1.1.3  
**Alloy:** Sn96,5Ag3Cu0,5  
**Flux Content:** 2%  
**Melting Temperature:** +217°C to +219°C

Part No.	Ord.No.	Description
S SAC305 Sn96,5Ag3Cu0,5	57184	0,7mm 1kg



## Solder Bar LZ 1000

For solder bath  
Suitable for dip, selective and wave soldering  
4 x cca 250g

**Flux Type:** F-SW32  
**Alloy:** Sn99Cu1  
**Flux Content:** 0%  
**Melting Temperature:** 227°C



Part No.	Ord.No.	Description
S LZ1000TC Sn99Cu1	53078	1kg



## Solder Paste SP15TSC

Lead free soldering pastes designed for soldering SMD electronic components. The soldered connections are characterised by good electrical and mechanical parameters. The paste composition eliminates the effect of lifting SMD components during soldering. The paste is available in 10ml/25g syringe.



**Flux Type:** TYP 1.1.2.C  
**Alloy:** Sn95,5Ag3,8Cu0,7

Part No.	Ord.No.	Description
S SP15TSC-10 Sn95,5Ag3,8Cu0,7	56741	10ml

## Lead solders



### 1532 Series

alphametals

Activated rosin cored solder wire developed for general hand soldering applications. The unique activator system offers good thermal stability at pre-soldering temperatures ensuring that Fluitin 1532 performs extremely well on parts and surfaces which present poor or difficult soldering conditions. Fluitin 1532 leaves post-soldering residues that are hard and which can be safely left without the need to remove them.

**Flux Type:** F-SW26  
**Alloying:** Sn60Pb38Cu2  
**Flux Content:** 2,2%  
**Melting Temperature:** +183°C to +190°C

Part No.	Ord.No.	Description
S 1532 Sn60Pb38Cu2	12701	0,75mm 1kg 2,2%
S 1532 Sn60Pb38Cu2	53080	0,75mm 250g 2,2%
S 1532 Sn60Pb38Cu2	12702	1mm 250g 2,2%
S 1532 Sn60Pb38Cu2	12704	1mm 1kg 2,2%
S 1532 Sn60Pb38Cu2	12708	1,5mm 1kg 2,2%
S 1532 Sn60Pb38Cu2	41360	1,5mm 10g 2,2%



### AS Series

alphametals

Fluitin AS is an activated rosin cored solder wire developed for general hand soldering applications where halide free flux has been specified.

**Flux Type:** F-SW32  
**Alloying:** Sn60Pb38Cu2  
**Flux Content:** 1,5% (0,5mm) / 3,5% (1mm)  
**Melting Temperature:** +183°C to +190°C

Part No.	Ord.No.	Description
S AS Sn60Pb38Cu2	53521	0,5mm 250g 1,5%
S AS Sn60Pb38Cu2	6581	1mm 1kg 3,3%



### 2630 Series

This solder wire is used for applications requiring a higher activity, for components with poor solderability, especially for soldering operations on transformers, soldering on cooper cables with large diameters, where a stronger flux is needed to cope with a high thermal capacity of the components to be soldered. It is also used for soldering of nickel surfaces, critical components and robotic soldering with short cycle times.



**Flux Type:** TYP 1.1.2  
**Alloy:** Sn60Pb38Cu2  
**Flux Content:** 2,2%  
**Melting Temperature:** +183°C to +190°C

Part No.	Ord.No.	Description
S 2630 Sn60Pb38Cu2	56978	0,7mm 250g
S 2630 Sn60Pb38Cu2	53075	1mm 1kg



### HS10 Series

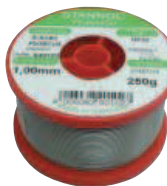
is very efficient by its high activity, which results in quick spread of solder and electrical safe residues.

Halide activated rosin flux Can be used for hand and robot soldering

**Flux Type:** TYP 1.1.2  
**Alloy:** Sn60Pb40  
**Flux Content:** 2,5%  
**Melting Temperature:** +183°C to +190°C



Part No.	Ord.No.	Description
S HS10 Sn60Pb40	41122	0,7mm 250g
S HS10 Sn60Pb40	24165	0,7mm 1kg
S HS10 Sn60Pb40	24756	1mm 250g
S HS10 Sn60Pb40	75093	1mm 500g
S HS10 Sn60Pb40	53074	1mm 1kg



### HF32 Series

HF-32 is a no-clean flux cored solder wire. The activated, halide-free flux meets DIN EN 29454 Typ 1.1.3 standard. HF-32 can be used for hand-soldering and automatic wire feed operations. For manual soldering, the soldering iron tips should be temperature-controlled, to prevent excessive heat from being applied to the wire. Flux spatter from the formulation is minimal.



**Flux Type:** TYP 1.1.3  
**Alloy:** Sn60Pb38Cu2  
**Flux Content:** 3,5%  
**Melting Temperature:** +183°C to +190°C

Part No.	Ord.No.	Description
S HF32 Sn60Pb38Cu2	53076	1mm 250g



### HF32SMD Series

No-clean flux, can be used for hand-soldering and automatic wire feed operations.

- low flux content
- reduced rosin content
- high organic acid content - appropriate to SMT applications
- halide free

**Flux Type:** TYP 1.1.3B  
**Alloy:** Sn60Pb40  
**Flux Content:** 1%  
**Melting Temperature:** +183°C to +190°C

Part No.	Ord.No.	Description
S HF32SMD Sn60Pb40	53077	0,5mm 100g



### LC60M2 Series

Sn60Pb38 solder manufactured in the first melt of tin and lead according to PN EN 29453:2000 standard in continuous casting process in air-free environment; afterwards extruded, in order to eliminate oxide occurrence.



**Flux Type:** TYP 1.1.3  
**Alloying:** Sn60Pb38Cu2  
**Flux Content:** 2,2%  
**Melting Temperature:** +183°C to +190°C

Part No.	Ord.No.	Description
S LC60M2 Sn60Pb38Cu2	57183	1mm 1kg



### Triangular Stick Solder

alphametals

Alpha Cleanwave 63/37 is manufactured using only high purity metals in its formula together with proprietary dross reducing technology.

Creating low oxide formation and excellent wetting.  
4x cca 250g

**Flux Type:** F-SW32  
**Alloying:** Sn63Pb37P  
**Flux Content:** 0%  
**Melting Temperature:** +183°C

Part No.	Ord.No.	Description
S CLEANWAVE 51700 Sn63Pb37P	1757	1 kg



### Triangular Stick Solder

For solder bath  
Suitable for dip, wave and selecting soldering

**Flux Type:** F-SW32  
**Alloying:** Sn63Pb37  
**Flux Content:** 0%  
**Melting Temperature:** +183°C

Part No.	Ord.No.	Description
S EL250E37 Sn63Pb37	70111	1 pc (cca 250g)



- **on-line shop**

[www.soselectronic.com](http://www.soselectronic.com)



- **fast delivery**

2-days within  
the most EU destinations



- **large stock**

with wide range of components



- **international team**



- **minimum ordering value is € 50**

selling in small quantities



- **ISO 9001:2001 certified**

## Chemicals, PCBs

Chemicals



M 1

Sprays



M 2

Printed Circuit Boards



M 8



## Chemical Products for Electronics



### FMKANC 32-005

- No-Clean flux core cream F-SW 32,
- DIN 8511, 5 ml cartridge on
- colophony basis, low activated,
- incl. tappet and 1 needle (plastic)
- diameter 0.4 mm

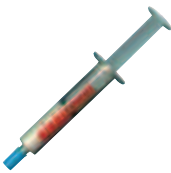
Part No.	Ord. No.
S FMKANC 32-005	39389



### SMA 10 SL

- A heat curable, one-part thixotropic adhesive surface mount adhesive
- Suitable for surface mount devices
- Resistant to PCB cleaning solvents
- Available in an easy-to-use lock syringe
- Long term stability after cure cycle

Part No.	Ord. No.
S SMA 10 SL	4416



### Elektropol

ELEKTROPOL is an electrically conductive adhesive designed for electroconducting joints. It replaces soldering and is suitable for any repair of electric and electronic equipment. ELEKTROPOL forms an electroconducting link between different materials especially in the cases when the soldering is impossible to use. ELEKTROPOL can be used within the temperature range -30°C up to +80°C.

Part No.	Ord. No.
S ELEKTROPOL	6352



### Soldering colophony

Adipic acid (2,5%) activated colophony. No cleaning is needed after soldering because the acid is "bounded" in set colophony. The colophony exhales nice pine fragrance. Packaging - metal container. Weight: 30g.

Part No.	Ord. No.
S COLOPHONY	58563



### FEW 10

Developer positive 10g, - caustic soda developer (NaOH), sufficient quantity for 1 litre, about 10 g., for dissolving in water at 20°C.

Part No.	Ord. No.
S FEW 10	3845



### FK100

Caustic ammonium persulphate - white crystalline caustic, about 220 g per litre water. For dissolving in water at about 60 up to 70°C (glass or plastic vessel). Etching solution. Packaging: 220g (per 1l water)

Part No.	Ord. No.
S FK100	54485



### Trichloride ferric (granular, 56%)

FeCl<sub>3</sub>·6H<sub>2</sub>O - a chemical for PCB, copper and alloy steel etching. Recommended operating temperature 20-40°C, in higher temperature the etching process progresses faster but with higher tracks erosion. Stays chemically active in state of partial consumption. Minimum concentration: 250g per 1l water. Optimal concentration: 1kg per 1,25l water (1,7l 32% solution). Copper etching: 40 - 50g/l on average. Packaging: 250g - (250g/0,5-max.1l water) Packaging: 1000g - (1kg/1,25-max.4l water)

Part No.	Ord. No.
S CHLORID 250	1117
S CHLORID 1000	56686



### PCM 250ml

Peelable coating mask is a flexible solvent resistant latex. Used for masking components, connectors and other items during a conformal coating process.

#### Features:

- Completely hand-peelable, leaves no residue
- High film strength does not break
- Suitable for use with dip, spray or brush applied conformal coatings
- Suitable for use in wave soldering applications

**Drying Time:** 2hours (at 25°C) or 30min.(at 60°C, 2mm Thickness)

**Quantity:** 250ml.

Part No.	Ord. No.
S PCM 250ml	6623



### AG lak

Conductive varnish for PCB repair - easy application. Suitable for: restoring broken tracks on printed circuit boards. Capacity of the pot is enough for 130-160cm<sup>2</sup>.

Part No.	Ord. No.
S AG LAK = LEITSILBER	1127



### B-foil (blue foil)

Press-n-peel blue PCB transfer paper produces high quality prototype PCB resist layouts making your design ready to etch. PnP Blue is a Mylar (Polyester) backed material in which several layers of release agents and resist coatings are applied. An image is printed or photocopied onto this film, using a laser printer or photocopier (dry toner based), and subsequently ironed or pressed onto a cleaned copper clad board. The image area applied to the film is subsequently transferred to the copper board, along with the high quality resist (blue). The film is removed and resulting board is ready to etch in ferric chloride.

Part No.	Ord. No.
S B-FOIL	5971



### FSE140S, FSE141F, FSE8300

Permanent Marker 0,3/0,6/1,5mm

#### Features:

- Especially made for use on transparent acetate film, plastics, glass, overhead projectors etc.
- High transparency
- Water-resistant ink
- Black
- Metal based plastic tip

Part No.	Stroke width	Ord. No.
S FSE140S	0,3 mm	7881
S FSE141F	0,6 mm	50416
S FSE8300	1,5 mm	50415



### FSE400

Permanent Marker with following features:

- For writing, colouring, labelling on virtually all materials, even metal, glass and plastic
- Quick drying ink, smudge-proof, low odour, no addition of toluol/xylol
- Black
- Refillable with ink refills (T25)
- Stroke width: approx. 1,0mm.

Part No.	Ord. No.
S FSE400	7882



### MARKERPEN CRC

Marker Pens for multi surface use. Excellent coverage thanks to the use of correction fluid technology. Can be used on: wood, metal, rubber, glass, textile, paper, enamel, plastic, cardboard, tiles, ... Easy and clean application. Applications : For all markings in the industry.

Part No.	Color	Ord. No.
S MARKERPEN CRC WH	white	73952
S MARKERPEN CRC RD	red	73950
S MARKERPEN CRC BK	black	73956

Part No.	Color	Ord. No.
S MARKERPEN CRC BU	blue	73951
S MARKERPEN CRC OG	orange	73957
S MARKERPEN CRC SILVER	silver	73954
S MARKERPEN CRC GN	green	73948
S MARKERPEN CRC GOLD	gold	73955
S MARKERPEN CRC YE	yellow	73953



### T25

Refill Ink, 25ml, black.

#### Features:

- Permanent, low odour ink without the addition of toluol/xytol
- For refilling edding permanent markers when refill is indicated (e.g. FSE400)
- Bottle with pouring device
- For direct application with paintbrushes, quills, stencils and stamps

Part No.	Ord. No.
S T25	9406



### CHLORID 1L

Trichloride ferric 40%, 1liter

Appearance: yellow-brown, clear or mildly turbid solution

Part No.	Ord. No.
S CHLORID 1L	72956



### PERSIRAN

Diammonium-peroxodisulphate

Copper etchant, 220g  
Appearance: white powder

Part No.	Ord. No.
S PERSIRAN	72957



### ISOPROPYL ALCOHOL

A common name for isopropanol, a colorless, flammable chemical compound with a strong odor.

Appearance: colourless liquid  
Density (at 20 C): 0,786 g/cm<sup>3</sup>

Part No.	Ord. No.
S ISOPROPYL ALCOHOL	72958



### Silicone oil 200ml

Appearance: clear, colourless liquid

Part No.	Ord. No.
S SILICONE OIL 200ml	72959



### Sodium hydroxide 10g

Appearance: white solid  
Density: 2,13 g/cm<sup>3</sup>

Part No.	Ord. No.
S SODIUM-HYDROXIDE 10g	72960

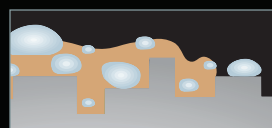
## High-end anticorrosive agent & protection for electric devices

**WET.PROTECT e-basic** protects electrical equipment and metallic materials against moisture and humidity-related malfunction, short circuits and corrosion.

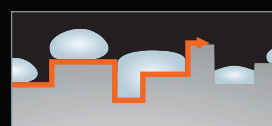
WET.PROTECT impresses by a hermetic and long-lasting protective film, which isolates all metals completely against moisture and therefore guarantees the operational safety and a high lifespan of the injected prefabricated parts and engine plants. WET.PROTECT assures corrosion protection and the operation of electrical installations even in case of strong humidity effects or flooding. On top of that the chemical composition results in excellent lubricating properties.

Further the product series **WET.PROTECT 142** was especially developed for sensitive electronic components.

#### The difference:



Conventional sprays *emulsify* i.e. bond to water and consequently do not provide complete protection against moisture and humidity.



WET.PROTECT e-basic *completely counteracts* any moisture and humidity and thus offers permanent protection.



For more information please contact:  
[info@soselectronic.com](mailto:info@soselectronic.com) or [sales@soselectronic.com](mailto:sales@soselectronic.com)

Part No.	Ord. No.
S WET-PROTECT e-basic 200ml	80372

## Protective Coatings for PCBs



(GB) Flux SK 10 200ml

(D) Lotlack SK 10 200ml

Lacquer-like flux solution on a base of natural resins with no additives. KONTAKT CHEMIE Flux SK 10 forms an evenly spreading, transparent protective film. Soft-solderable metals (e.g. copper, tin, lead, brass, steel) are protected against corrosion. Solderability is maintained, the protective film does not need to be removed prior to soldering, since it also acts as a highly effective flux. Flux SK 10 is used e.g. in the interim storage of bare PCBs and for parts intended for soldering up, such as solder terminals or cable shoes. It is used to maintain the solderability of lead cast parts (accumulator manufacture) and semi-finished products made from non-ferrous heavy metals.

**Technical parameters:**

**Coverage at 15µm film thckn.:** 0,7m<sup>2</sup>/200ml  
**Colour:** transparent, colourless-yellowish  
**Drying time:** 30min  
**Usable temperature range:** 0°C up to 60°C  
**Packaging:** 12pcs

Part No.	Ord. No.
S FLUX SK 10 200ml	33238

(GB) Kontakt PCC 200ml

(D) Kontakt LR 200ml

The solvent mixture in KONTAKT CHEMIE Kontakt PCC is especially designed for the fluxes such as are used in electronics manufacture. For the dissolving of heavily burnt-on residues such as occur in brazing, the aerosol is fitted with a special brush type spray head. Kontakt PCC also has a strong cleaning power for other resin-like contaminations and greasy residues. It is also suitable therefore for the cleaning of small precision-engineered components and for the preparation of joints. For this, it dries very cleanly, leaving virtually no residue.

To remove residues of flux, first wet the brush and then spray the product on while brushing with a gentle pressure over the printed circuit board. In doing so, hold the board as vertically as possible and work from top to bottom. For optimum results, carry out the procedure twice. In the case of single soldered joints, particularly those which are very strongly bonded, press briefly on the spray head until the brush is well soaked with the solvent. Rub gently with crosswise motion across the soldered joint until the flux dissolves. Then wash the joint and the area around it with copious amounts of KONTAKT CHEMIE Kontakt PCC.

Important : Always wet the brush with Kontakt PCC before brushing otherwise static charges may be generated. The perfect appearance of the circuit board can be achieved by coating it with KONTAKT CHEMIE Plastik 70.

**Packaging:** 12pcs

Part No.	Ord. No.
S KONTAKT PCC 200ml	40154



Plastik 70

Anti corrosion product - universal conformal coating for printed circuit boards. A quick drying, transparent acrylic resin based, transparent insulating coating. Protects against normal atmospheric influences. Fixes vibrating components.

**Technical parameters:**

**Coverage at 15µm film thckn.:** 1m<sup>2</sup>/200ml  
**Drying time:** 15-20min  
**Colour:** colourless  
**Packaging:** 12pcs

Part No.	Ord. No.
S PLASTIK 70 200ml	33228
O PLASTIK 70 400ml	33229

Please find easy instructions  
for the production of printed circuit boards  
in the Download section at [www.soselectronic.sk](http://www.soselectronic.sk)



Positiv 20

KONTAKT CHEMIE Positiv 20 is a classic liquid photo-resist for a wide variety of applications. The product can be applied anywhere where patterns must be transferred directly onto working materials for processing by etching, electroplating, etc. Typical applications are the production of printed circuit boards, a range of photo-lithographical processes on metals, glass and suitable synthetic materials.

The lacquer is at its most photo-sensitive at close ultra-violet range (UVA). The lacquer should therefore be applied in yellow light. Positiv 20 is resistant to oxidizing agents, ammoniacal to strongly acidic solutions. Coats of Positiv 20 which are no longer required can be easily removed (stripped) by solvents (Ester, Ketone) or 10 to 30 % sodium or potassium hydroxide aqueous solution.

**Technical parameters:**

**Colour:** blue, transparent  
**Coverage at 8µm film thickness:** 1m<sup>2</sup>/200ml  
**Max. spectral photo-sensitivity:** UVA, 340nm - 420nm  
**Typical thickness recommended:** 6-8µm  
**Drying time:** 24hrs at 20°C  
 15mins at 70°C  
 NaOH 7g/l

**Developer:**

(Developing time approx. 1min. at room temperature.)

**Recommended etching agents:**

**Copper, brass:** FeCl<sub>3</sub> 400g/l (35-40%) 40°C  
**Aluminium:** FeCl<sub>3</sub> 400g/l (35-40%) room temp.  
**Steel, zinc:** HCl (10%)  
**Silver:** HNO<sub>3</sub> (65%)  
**Glass:** Hydrofluoric acid 40% room temp.  
**Solvent:** acetone, methyl-ethyl-ketone  
**Packaging:** 12pcs

Part No.	Ord. No.
S POSITIV 20 100ml	33240
S POSITIV 20 200ml	33241

(GB) Transparent 21 200ml

(D) Pausklar 21 200ml

KONTAKT CHEMIE Transparent 21 makes papers with circuit diagrams, tables, etc. transparent and therefore permeable to visible light and UV light. Transparent 21 makes paper documents translucent, allowing them to be used directly for the production of printed circuits with the positive photo resist Positiv 20. The transparent spray therefore replaces time-consuming repro work.

To produce transparent paper documents, spray these generously with Transparent 21. Transparency is retained at room temperature for 20 - 30 minutes and must then be refreshed. When producing printed circuits Transparent 21 can be sprayed directly onto the plate coated with the photocopy lacquer Positiv 20. Then place the circuit document with the printed side and press down gently. Remove air bubbles by smoothing down. Then process (weighting down with a glass plate can be omitted). To develop the processed exposed board Transparent 21 should be removed under running water.

**Technical parameters:**

**Appearance:** colourless liquid  
**Odour:** solvent smell  
**Drying time:** cca 20min.  
**Packaging:** 12pcs

Part No.	Ord. No.
S TRANSPARENT 21 200ml	33242



Urethan 71 200ml

KONTAKT CHEMIE Urethan 71 has been specially developed for the anti-corrosion protection of printed circuit boards. The product has excellent electrical properties. Urethan 71 provides protection particularly in a hot and humid environment. For optimum protective action the coating must have undergone almost complete curing (90%) before the equipment is started up. Because of its aesthetic properties and good adhesion to many materials, the coating can also be used to provide decorative and transparent protection for everyday metal articles such as jewellery, signs, items of furniture. The slightly yellow coloration enhances the aesthetics of surfaces of non-ferrous metals.

**Solvent:** acetone, alcohol

**Technical parameters:**

**Coverage at 20µm film thckn.:** 1m<sup>2</sup>/200ml  
**Temperature resistance:** -40 °C to +120 °C  
**Packaging:** 12pcs

Part No.	Ord. No.
S URETHAN 71 200ml	33232

## Cleaning and Maintenance Sprays



### Kontakt WL

The solvent mixture in KONTAKT CHEMIE Kontakt WL is especially designed for cleaning dirt from electrical contacts. It dissolves greases, oils and resinified coatings (polymers) which are formed from solid or gaseous substances in the environment. It is also optimally suited for the removal of residues after KONTAKT CHEMIE Kontakt 60 has been used.

Spray Kontakt WL generously on to the contacts to be cleaned. If possible, use a cloth or similar material to absorb any liquid which runs off. The usual type of materials in the neighbourhood of electrical contacts are not in fact endangered by liquid runoff, but washed-off dirt and the liquid itself could cause malfunctions elsewhere in a piece of electrical equipment. If the cleaned contacts are readily accessible, the cleaning can be optimised by wiping, for example, with a fluff-free, clean paper tissue.

#### Technical parameters:

**Colour:** colourless  
**Packaging:** 12 pcs

Part No.	Ord. No.
S KONTAKT WL 200ml	33193
S KONTAKT WL 400ml	33194



### Kontakt 60 200ml

Contact de-oxidiser. Dissolves corrosion layers, restoring the metal contact. Optimum contact conditions are reached when residues dissolved using Kontakt 60, are rinsed off with Kontakt WL prior to protection with Kontakt 61.

#### Technical parameters:

**Colour:** red, transparent  
**Thermostability:** over 80°C  
**Packaging:** 12 pcs

Part No.	Ord. No.
S KONTAKT 60 200ml	33190



### Kontakt IPA 200ml

Universal alcohol cleaner. KONTAKT CHEMIE Kontakt IPA contains pure isopropanol. Approx. 6% of the environmentally friendly carbon dioxide is used as the propellant in the aerosol.

Kontakt IPA is suitable for the cleaning of video and audio heads. It cleans drive parts and rubber rollers, removes resinified lubricants from small gear systems and cleans optical glasses, mirrors etc. It is also suitable for the dissolving of waterproof ink from felt pens on smooth surfaces. Kontakt IPA vaporises quickly and completely, it does not leave spots or corrosion traces on shiny metal surfaces.

#### Technical parameters:

**Isopropanol content:** 99,7%  
**Water content:** 0,2%  
**Packaging:** 12 pcs

Part No.	Ord. No.
S KONTAKT IPA 200ml	40916



We supply also 100ml and 400ml package on order. Minimum quantity is 12 pcs.



### Degreaser 65 200ml

Cleaner for electrical motors and equipment. Degreaser 65 is excellent for cleaning of metal surfaces, where rapid turnaround is necessary and low flash point solvents can be used. It dissolves and removes greases, oils, lubricants, adhesives and other contaminants from motors, machinery and metal parts. It has been formulated for degreasing electric motors. The common coating types used on electric coils are not attacked.

For heavily soiled components, allow the cleaner to act for a few minutes. Air dry or dry with a cloth.

After cleaning, use a corrosion protector to protect metal surfaces. Kontakt 40 can be used for protection and lubrication.

#### Technical parameters:

**Colour:** colourless  
**Boiling range:** from 100°C to 170°C  
**Viscosity brookfield:** 0,76 mPa.s  
**Surface tension:** 23mN/m  
**Packaging:** 12 pcs

Part No.	Ord. No.
S DEGREASER 65 200ml	33203



### Spotclean 12ml

Precise cleaner. SPOTCLEAN contains a high purity Isopropyl Alcohol with a good cleaning power. The alcohol quickly dissolves the dirt without leaving a residue. The cleaning stick SPOTCLEAN makes precise cleaning easy on: laser units, sensors, matrixes, printer heads, optics and precise mechanics. The product can be used on measuring instruments, DVD, readers for magnetic cards, printers, cameras and a variety of electronic devices. SPOTCLEAN has a high compatibility with various materials. It saves place and is handy to keep in each tool box.

#### Technical parameters:

**Operating life:** 2000 spots  
**Quantity:** 12ml  
**Packaging:** 25 pcs

Part No.	Ord. No.
S SPOTCLEAN 12ml	53861



### (GB) Cleaner 601 200ml (D) Reiniger 601 200ml

Mild multi-purpose cleaner. Cleaning of electronic components, PC-boards and precision mechanics, especially when sensitive plastics such as polystyrene and polycarbonate are involved. Quick drying spray.

#### Technical parameters:

**Boiling range:** from 40°C to 65°C  
**Surface tension:** 17mN/m  
**Colour:** colourless  
**Packaging:** 12 pcs

Part No.	Ord. No.
S CLEANER 601 200ml	33200



### (GB) Dust Off 67 200ml (GB) Dust Off 360 200ml (D) Druckluft 67 200ml (D) Druckluft 360 200ml

The products provide a jet of dry inert gas that acts like compressed air for a quick removal of dust particles and other dry contaminants from delicate or inaccessible areas of electrical and electronic equipment. They help to eliminate failures caused by fluids (water, oil,...) trapped in dust or dirt. The air dusters are essential for cleaning operations where liquid solvents are inappropriate. The cleaning is quick and safe, harmless to plastics and other sensitive components. They leave no residue or condensations. The dusters can be used where it is difficult to remove dust using the conventional methods: electronic equipment, PCB's, cable connections, data processing & communication equipment, miniature assemblies, watch mechanisms, precision instruments, video&cinema equipment, optics and lenses, ...

#### Technical parameters:

**Vapour press.(20°C):** 420kPa  
**Flow rate:** 17,1g/10s  
**Colour:** colourless  
**Packaging:** 12 pcs

Part No.	Ord. No.
S DUST OFF 67 200ml	33205
S DUST OFF 360 200ml	41068

## Cleaning and Maintenance Sprays

(continued)



(GB) Label Off 50 200ml  
(D) Solvent 50 200ml

Label remover. KONTAKT CHEMIE Label Off 50 is a solvent specially designed for the removal of selfadhesive paper labels. Label Off 50 penetrates the label paper and dissolves the underlying adhesive. Most paper labels can easily be removed in one go after only 2 minutes. Label Off 50 can be used on many substances; metals, many plastic materials, glass, you can even remove labels from delicate cardboard packaging or paper without leaving any traces (please follow the instructions for use). Label Off 50 is very good at dissolving many sticky substances. It is, therefore, ideal for removing tree resin, chewing gum and tar.

**Technical parameters:**

**Colour:** colourless  
**Packaging:** 12 pcs

Part No.	Ord. No.
S LABEL OFF 50 200ml	33211



Printer 66 200ml

Printer-head cleaner. Dissolves ink residues, grease soiling and paper-dust. Cleans rubber rollers. Antistatic additives help to prevent damage due to electrical discharge.

Printer 66 cleans all materials in printers and typewriters safely and leaves no residue. The aerosol also sprays upside down and comes with an extension tube, allowing easy cleaning of small parts. Brushing or wiping improves the cleaning effect. Large soiled surfaces should be sprayed generously. Remove any liquid which runs off with a cloth.

**Technical parameters:**

**Colour:** colourless liquid  
**Packaging:** 12 pcs

Part No.	Ord. No.
S PRINTER 66 200ml	33201



Surface 95 200ml

Surface cleaner for housings and keyboards. Water-free solvent mix with high cleaning power and care additives for a refreshing shine. SURFACE 95 removes dirt residues containing grease, nicotine, ink, etc. from all synthetic and metallic surfaces. Special silicone-based care additives hide small scratches and traces of use and refresh the surface. A special antistatic additive delays the build-up of dust and therefore the accumulation of dirt. SURFACE 95 is the ideal surface cleaner for appliances and equipment in offices, EDP and communication rooms. It is particularly effective e.g. in cleaning PC housings, keyboards, telephones, windows, furniture etc. Spray SURFACE 95 from 20-30 cm onto the surface, allow to work for a short time and wipe with a clean cloth.

**Technical parameters:**

**Drying time:** 20-30min  
**Colour:** colourless  
**Packaging:** 12 pcs

Part No.	Ord. No.
S SURFACE 95 200ml	7889



Screen 99 200ml

Foaming cleaner containing solvent active agents (alcohols, hydrocarbons) to clean glass and synthetic surfaces without leaving a residue. SCREEN 99 removes quickly without streaks dust and dirt, nicotine, fingerprints, grease or insect remains. The foaming cleaner helps prevent dust from settling due to its antistatic properties. The foam does not run off vertical surfaces and therefore no dirt is displaced. Due to its high foam stability of over 2 minutes, it is possible when cleaning heavy filthiness to leave the product in place for a longer period of time. Screen 99 cleans all glass & synthetic surfaces without leaving a residue. It is especially effective on computer or TV screens as the foam does not run off vertical surfaces. Used regularly, SCREEN 99 produces good visibility when working with screens, and is thus kind to the eyes. Screen TFT is a special foam cleaner for TFT-screens and LCD displays.

**Technical parameters:**

**Appearance:** white foam  
**Packaging:** 12 pcs

Part No.	Ord. No.
S SCREEN 99 200ml	33209
S SCREEN TFT 200ml	48413



(GB) Video 90 200ml  
(D) V 90 200ml

Quick-drying solvent cleaner, leaves no residue and neutral on materials. Does not contain aromatic and chlorinated hydrocarbons. KONTAKT CHEMIE Video 90 is an outstanding special cleaner for all magnetic recording equipment. Its gentle cleaning power makes it particularly suited to sensitive components or materials. It is used in video recorders, tape recorders, cassette recorders, projectors or disk drives, where it removes dirt from tape wear, dust, oil or grease without leaving a residue. Video 90 cleans magnetic heads and ensures clear images and a pure sound.

**Technical parameters:**

**Boiling range:** from 40°C to 65°C  
**Surface tension:** 17mN/m  
**Colour:** colourless  
**Packaging:** 12 pcs

Part No.	Ord. No.
S VIDEO 90 200ml	33198



Tuner 600 200ml

Quick-drying precision cleaner for all sorts of contacts. TUNER 600 was specially developed to clean sensitive contacts. Its gentle cleaning power makes it particularly well-suited for use on rubber, graphite conductors and high frequency components. It dries in seconds, leaving no residue. This product is used in consumer electronics as well as in computer or TV and telecommunication technology. It cleans dust, oily and greasy residues from potentiometers and linear regulators, sensors or graphite conductor layers of IR remote controls. Use extension tube for cleaning smaller parts. Spray liberally. Brushing or wiping improves the cleaning effect, turn or move switches during cleaning. Catch removed dirt with a cloth.

**Technical parameters:**

**Boiling range:** from 40°C to 65°C  
**Surface tension:** 17mN/m  
**Colour:** colourless  
**Packaging:** 12 pcs

Part No.	Ord. No.
S TUNER 600 200ml	33196



Airco Cleaner 400ml

The Airco Cleaner eliminates the disturbing smell generated by contamination of the evaporator air conditioning system. Airco Cleaner cleans the air conditioning system in an optimal way by mean of its unique foam formula. The product leaves a fresh smell. Uses an ozone safe propellant. Applications: All air conditioning systems (cars, house and office), especially after a period of inactivity (winter).

**Technical parameters:**

**Appearance:** milky foam  
**Application temperature:** between 15°C-35°C  
**Packaging:** 12 pcs

Part No.	Ord. No.
S AIRCO CLEANER 400ml	67715

## Lubrication and Protection



Fluid 101 200ml

Hydrocarbon based water-displacement fluid with anti-corrosion additives KONTAKT CHEMIE Fluid 101 is a liquid with an excellent capillary activity and extraordinarily good water displacement properties. It is used for the fast drying of moisture-sensitive components. In a production process, for example, it is used for removing corrosive residues caused by aqueous processing liquids. In the service and maintenance industry it is used when water damage has occurred to mechanical and electrical installations. It helps to restore the equipment. The film of Fluid 101 is extremely thin and non-greasy. And it is also suitable therefore as a means of almost imperceptible short-term anti-corrosion protection in the production process.

**Technical parameters:**

**Film thickness:** cca0,3µm  
**Drying time:** 20-30min  
**Colour:** yellowish  
**Coverage:** 150m²/l  
**Packaging:** 12 pcs

Part No.	Ord. No.
S FLUID 101 200ml	33221



### Kontaflon 85 200ml

PTFE-based dry lubricant. A grease- and silicone-free PTFE-based dry lubricant and release agent. Lubrication of rotating, sliding and turning surfaces exposed to low friction and heavy load. Kontaflon 85 can be used in the vicinity of or on sensitive materials: textiles, paper, cardboard, wood. It can be used at extremely low temperatures (e.g. liquid nitrogen). It can also be used on sensitive plastics and in presence of aggressive chemicals. Kontaflon 85 is used as a temperature-resistant mould release agent in plastics and elastomer processing.

**Technical parameters:**

**Operating temperature range:** -195°C to +260°C  
**Drying time:** 15min  
**Colour:** white  
**Packaging:** 12 pcs

Part No.	Ord. No.
S KONTAFLO 85 200ml	33216



Replacement for KONTOX 5 and KONTOX 10

### Kontakt 40 200ml

Service spray: Multi-purpose lubricant preventing electrical and electronic malfunctioning caused by humidity, condensation and corrosion. Kontakt 40 is a very reliable penetrating oil, lubricant, water displacer and corrosion inhibitor. Restores low contact resistance and stops leakage currents. Equipped with 360° spray-valve facilitating up-side-down usage.

The easiest way to apply Kontakt 40 is by spraying (e.g. from the aerosol can). Parts which are wet from preceding processes can be dried and corrosion-protected in a single operation using the spray method. Before spraying on electrical or electronic equipment, switch off the devices.

**Technical parameters:**

**Colour:** yellowish, after 2-4hod. transp.  
**Viscosity at 20°C:** 3mPa.s after 2-4hod. 64mPa.s  
**Coverage:** cca 15m<sup>2</sup> (200ml)  
**Packaging:** 12 pcs

Part No.	Ord. No.
S KONTAKT 40 200ml	33218



Replacement for KONTOX 10

### Kontakt 61 200ml

Contact lubricant & corrosion inhibitor. Builds a thin protective film, preventing corrosion and wear. Provides a low, stable contact resistance, without leakage currents or short circuits between the contact surfaces.

Spray liberally to clean contact surfaces. However to form a lubricating and protective film, a few droplets on each pair of contacts are sufficient. The cleaning action from KONTAKT 61 can be improved by mechanical means as there are e.g. actuate the switch a few times, push the plug in and out. For extremely dirty or corroded contacts we do recommend our special contact cleaner KONTAKT 60.

**Technical parameters:**

**Colour:** blue, transparent  
**Max. temperature:** 80°C  
**Packaging:** 12 pcs

Part No.	Ord. No.
S KONTAKT 61 200ml	33214



### Kontakt Gold 2000 200ml

Kontakt Gold 2000 is a long-lasting and temperature-resistant lubricant. The synthetic oil forms extremely thin layers with minimum influence on the contact resistance of electrical contacts. The lubricant has proved to be particularly effective for contacts with surface coatings of soft metals, e.g. gold, silver, tin. The corrosion-inhibiting effect of noble-metal coatings is improved considerably because they are no longer scratched by mechanical loads and vibrations.

Kontakt Gold 2000 is sprayed thinly on to the contact surface. Dirty or corroded contacts must be cleaned before being treated. The products Kontakt 60 and Kontakt WL from KONTAKT CHEMIE are suitable for this purpose.

**Technical parameters:**

**Viscosity at 20°C:** 2000mm<sup>2</sup>/s  
**38°C:** 363mm<sup>2</sup>/s  
**99°C:** 13,1mm<sup>2</sup>/s  
**Packaging:** 12 pcs

Part No.	Ord. No.
S KONTAKT GOLD 2000 200ml	33212



### (GB) Lub Oil 88 200ml (D) Spruhol 88 200ml

Lub Oil 88 is a heavy-duty low-viscosity multi-purpose lubricating oil. Special active ingredients give it excellent resistance to ageing (no resinification). Because of its good cleaning action and dirt-removing power, lubricating points remain free from harmful contaminants. High-pressure additives ensure low wear and friction in the mixed friction range. Lub Oil 88 has advantageous anti-corrosion properties when applied to steel and also copper and other non-ferrous metals. Lub Oil 88 is also used for the lubrication of precision-engineered metal bearings and gears in machine manufacture and the electronics industries.

**Technical parameters:**

**Viscosity at -20°C:** 180mm<sup>2</sup>/s  
**0°C:** 50mm<sup>2</sup>/s  
**40°C:** 10mm<sup>2</sup>/s  
**100°C:** 2,7mm<sup>2</sup>/s  
**Packaging:** 12 pcs

Part No.	Ord. No.
S LUB OIL 88 200ml	33220



Replacement for SIOIL

### (GB) Silicone 72 200ml (D) Isolier 72 200ml

Silicone 72 is a medium-viscosity silicone oil with optimum electrical properties and excellent temperature resistance.

Silicone 72 is used in the electronics industry for the elimination of insulation defects in small high-voltage transformers and coils (e.g. line transformers in TV sets). The silicone oil penetrates very quickly into the coils. Compared with other fluids, it has an extraordinarily high dielectric strength. Silicone 72 is also suitable as a lubricant for many plastics. In this capacity it does not attack sensitive materials and has a negligible contaminating effect.

**Technical parameters:**

**Colour:** transparent  
**Silicone oil content:** 45%  
**Temperature range** -50°C to +250°C  
**Packaging:** 12 pcs

Part No.	Ord. No.
S SILICONE 72 200ml	33231



### (GB) Vaseline 701 200ml (D) Kontakt 701 200ml

Vaseline 701 contains pure white Vaseline (paraffin oil which hardens to a pasty consistency at room temperature). Pure Vaseline is compatible with most materials. The high level of purity proves beneficial if it is used as a lubricant or to protect against corrosion in electrotechnology. Vaseline is a good insulator and has a high electrical resistance. It retains its pasty consistency, so even thick coatings can easily be removed from metallic surfaces during maintenance work (e.g. screw and clamp connectors). Vaseline is an effective simple lubricant, especially for materials such as wood, leather and synthetics and elastomers that are resistant to paraffin oil (not polycarbonates, polystyrene, EPDM).

**Technical parameters:**

**Colour:** milky white  
**Packaging:** 12 pcs

Part No.	Ord. No.
S VASELINE 701 200ml	33217



### Antistatik 100 200ml

ANTISTATIK 100 is a solution of a conductive organic liquid in isopropanol. The organic liquid forms a thin, almost invisible film which has sufficient electrical conductivity to reliably prevent the electrostatic charging of the plastic surfaces. The alcoholic solution also has an excellent cleaning action. Transparent surfaces are cleaned in one action and the antistatic effect prevents them from being quickly contaminated again.

**Technical parameters:**

**Coverage:** 3m<sup>2</sup>/200ml  
**Colour:** colourless  
**Packaging:** 12 pcs

Part No.	Ord. No.
S ANTISTATIK 100 200ml	33223

## Lubrication and Protection

(continued)



(GB) EMV 35 200ml  
(D) EMI 35 200ml

Electrically conductive coating for plastic surfaces. Thermoplastic resin with electrical conductive copper pigments. EMI 35 contains a special copper pigment, which builds an electrical conductive network within a thermoplastic resin. In this way it is easy to build up a conductive screen on plastic surfaces. This conductive screen prevents that electrical devices will emit electromagnetic noise or that the device is affected by electromagnetic noise from its environment. A reduction of 60dB can be reached. EMI 35 is applied as a screen on plastic surfaces, to avoid electromagnetic noise. Typical applications are: electronic prototypes or limited series, after service of office equipment, measuring instruments and maintenance equipment.

**Technical parameters:**  
**Coverage at 50µm film thckn.:** 0,32m<sup>2</sup>/200ml  
**Colour:** copper-brown  
**Temperature range:** -40°C to +95°C  
**Packaging:** 12 pcs

Part No.	Ord. No.
S EMV 35 200ml	33236



Graphit 33 200ml

Conductive coating. A graphite-based coating, providing a conductive layer to non-conductive media. Used to avoid electrostatic build-up in packaging materials and housings of electronic equipment, to repair damaged shields and as pre-coat for galvano-plating of non-conductive materials.

**Technical parameters:**  
**Surface resistivity:** 1000-2000 Ohm  
**Coverage:** 1,5m<sup>2</sup>/200ml  
**Drying time:** 20min  
**Colour:** black  
**Temperature resistance:** 100°C  
**Carbon particles size:** 3µm

Part No.	Ord. No.
S GRAPHIT 33 200ml	33234



(GB) Freeze 75 200ml  
(D) Kalte 75 200ml

Instant cooling of parts. Cooling agent for thermal fault location. Provides an instant solution by cooling down circuitry to -50°C. Intermittent short circuits or interruptions in condensers, resistors, integrated circuits are quickly discovered.

A typical application of the product is for the location of thermal faults in electrical equipment. But it is also suitable for the freeze shrinking of small components, for the removal of sticky contaminations from textiles, for the stiffening of "rubbery" materials and for the handling of histological specimens. Freeze 75 does not contain CFC's.

**Technical parameters:**  
**Vapour pressure:** 460kPa  
**Packaging:** 12 pcs

Part No.	Ord. No.
S FREEZE 75 200ml	33224



(GB) Zink 62 200ml  
(D) Zink 62 200ml

Anti-corrosive coating for steel surfaces. Zink 62 forms an active galvanic anti-corrosion film. The metal powdered coating acts as a "sacrificial coating". The Zinc is slowly converted by corrosive media into a water-insoluble zinc oxide coating; this process and the coating which is formed protect the base material from further attack. Zink 62 is still active even when there are cracks in the lacquer coating. Zink 62 is used as a protective paint for steel constructions, particularly for the improvement of galvanised surfaces. Surfaces treated with Zink 62 can be electrically welded without difficulty. The product is suitable therefore as corrosion protection for parts which become inaccessible after they have been fitted.

**Technical parameters:**  
**Coverage at 30µm film thckn.:** 0,5m<sup>2</sup>/200ml  
**Colour:** silver-grey  
**Packaging:** 12 pcs

Part No.	Ord. No.
S ZINK 62 200ml	33237



KF 1280 ND 500ml

Insulating varnish for printed circuit boards. Acrylic based. Effective protection for electronic circuits and assemblies, used in aggressive environments. Ideal to varnish electronic cards. Contains a pigment that gives a fluorescent blue glow when exposed to UV light.

**Technical parameters:**  
**Aspect:** liquid  
**Density:** 0.90 - 0.96 g/cm<sup>3</sup>  
**Coat thickness:** 20 to 40 micron  
**Temperature resistance:** - 40 °C to + 85 °C  
**Packaging:** 12 pcs

Part No.	Ord. No.
S KF 1280 ND 500ml	71510



KONTAKT CLEANER 390 200ml

Effective precision cleaner for electrical/electronic equipment. Quickly cleans contacts and components. Removes flux traces, light oils, finger prints and other contaminants. Test on plastics prior to use.

**Technical parameters:**  
**Density at 20 °C:** 0,75 g/cm<sup>3</sup>  
**Colour:** amber  
**Packaging:** 12 pcs

Part No.	Ord. No.
S KONTAKT CLEANER 390 200ml	72366

## WET.PROTECT e·basic

For engine buildings, transport and automotive, industrial facilities and a lot more – WET.PROTECT e·basic protects in all places where electrical installations and appliances come into contact with moisture:

### Electrical components and installations such as

- electrical machinery & appliances
- fuse boxes, drives & distribution boxes
- lighting installations
- cable drums & extension cables
- sockets & contacts
- pumps

### Metal components such as

- hand tools & building equipment
- geared drives
- ball- & roller-bearings
- metal joints & rails
- threaded unions
- machinable metalls
- switches and a lot more.



For more information please contact [info@soselectronic.com](mailto:info@soselectronic.com) or [sales@soselectronic.com](mailto:sales@soselectronic.com)

Part No.	Ord. No.
S WET-PROTECT e·basic 200ml	80372

## PCBs

### Single Sided Copper PCBs



#### HPCU Series

Copper board, high-value base material, brush-finished, high dimensional accuracy.  
Cu plating: 35 µm  
Material thickness: 1,5 mm

Part No.	Ord. No.
S HPCU 100x75	50380
S HPCU 160x100	7953

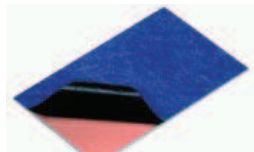


#### EPCU Series

Single-sided coated, glass-filled reinforced epoxy insulation board, 1,5mm thick, 35µm Cu layer, to manufacture PCBs.  
Material: FR4

Part No.	Ord. No.
S EPCU 160x100	8247
S EPCU 200x160	8248
S EPCU 300x200	8249

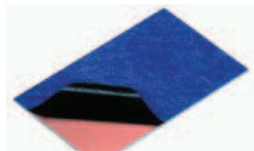
### Single-Sided Photoresist PCBs



#### HP1P Series

Made of FR2 base material (laminated paper), single-sided photoresist, 1x35µm Cu layer, used to manufacture PCBs.  
Material: FR2

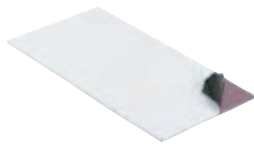
Part No.	Ord. No.
S HP1P 160x100	5047
S HP1P 200x150	5048



#### EP1P Series

High quality base material, 1,5mm strength, 35µm Cu layer, absolute photoresist, colour photo enamel, very fine resolution, with light transmitting protective foil, fixed adhesion of the copper foil right up to the edges, exact fixed measurements.  
Material: FR4

Part No.	Ord. No.
S EP1P 75x100	8252
S EP1P 160x100	8253
S EP1P 200x150	46435



#### Aluminium PCB 100x150

Prototype board, 1,5mm thick, 35µm Cu layer  
Material:Aluminium  
Designed for heat-stressed joints.

Part No.	Ord. No.
O ALUMINIUM PCB 100x150	56125

### Double - Sided Copper PCBs



#### EP2CU Series

Double-sided coated, glass-filled reinforced epoxy insulation board, 1,5mm thick, 2x35µm Cu layer, to manufacture PCBs  
Material: FR4

Part No.	Ord. No.
S EP2CU 160x100	8250
S EP2CU 300x200	8251

### Double -Sided Photoresist PCBs

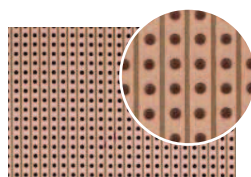


#### EP2P Series

High quality base material, 1,5mm strength, 2x35µm Cu layer, absolute photoresist, colour photo enamel, very fine resolution, with light transmitting protective foil, fixed adhesion of the copper foil right up to the edges, exact fixed measurements.  
Material: FR4

Part No.	Ord. No.
S EP2P 160x100	9043
O EP2P 200x150	47179
S EP2P 300x200	8604

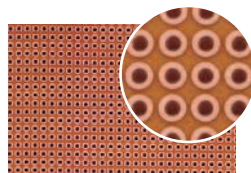
### Single-Sided Strips PCBs



#### H25 SR160

Experimental board 160x100x1,5mm, standardized width 100mm, made of laminated paper, single-sided Cu layer, 39 strips in 2,54mm pitch, holes Ø 1,0mm.  
Material: FR2

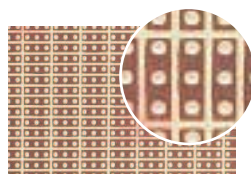
Part No.	Ord. No.
S H25 SR160 160x100	5053



#### H25 PR160

Single-sided PCB with 39 rows of soldering points in 2,54mm pitch, holes Ø 1,0mm, Dimensions: 160x100x1,5mm.  
Material: FR2

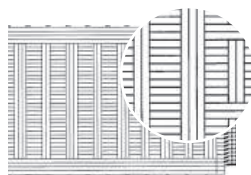
Part No.	Ord. No.
S H25 PR160 160x100	5054



#### H25 PS160

Experimental board, standardized width 100mm, made of laminated paper, single-sided Cu layer, solder points in 2,54mm pitch to form a triple chain, suitable for IC circuits.  
Dimensions: 160x100x1,5mm  
Material: FR2

Part No.	Ord. No.
S H25 PS160 160x100	5055



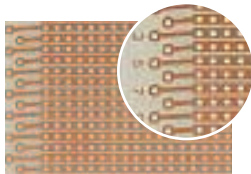
#### UP 941 EP

Microprocessor-universal drilled board with Cu single-sided layer, made of epoxy resin glass fabric, for building and testing circuit solutions, ideal for small series, with earthing strips for sockets. For 14 to 40 pin, IC-socket in suitable in dual inline pitch, PCB track on the component side.  
Socket: 32-/64-/96-pin, DIN 41612, pitch: 2,54mm  
37-pin, direct, pitch: 2,54mm  
Dimensions: 160x100x1,5mm  
Material: FR4

Part No.	Ord. No.
S UP 941 EP 160x100	5049

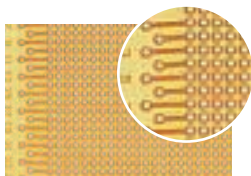


## Single-Sided Strips PCBs (continued)



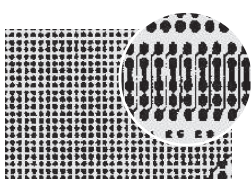
**UP 914 HP**  
Prototyping and test board for electronic professions. Dot matrix, Cu single-sided, Conductor line: 37  
Socket: 32 pin, DIN 41612, housing D,  
Pitch: 2,54mm, without position print  
Dimensions: 160x100x1,5mm  
Material: FR2

Part No.	Ord. No.
S UP 914 HP 160x100	50391



**UP 912 HP**  
Dot Matrix, Cu single-sided, HP = Laminated Paper.  
Hole sequence: 37  
Socket: 31-pin, DIN 41617, pitch: 2,54mm  
Dimensions: 160x100x1,5mm  
Material: FR2

Part No.	Ord. No.
S UP 912 HP 160x100	5697

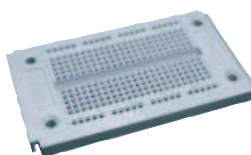
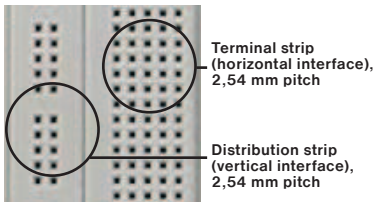


**UP 931 HP**  
Test board for electronic communications, information technology. Dot Matrix, Cu single-sided, laminated paper material.  
Hole sequence: 37  
Socket: 32-/64-/96-pin, DIN 41612,  
pitch: 2,54mm  
Dimensions: 160x100x1,5mm  
Material: FR2

Part No.	Ord. No.
S UP 931 EP 160x100	5050

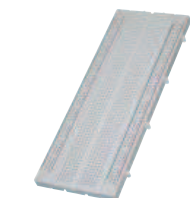
## Solderless Breadboards

They are ideal for high frequency and low-noise connections. They are suitable for the interconnection of components through 20-29 AWG (0.3 - 0.8 mm) changers. They are fitted with special spring contacts, which last more than 5000 plug-ins.



**BB-005**  
Breadboard with 270 tie-points in total:  
1x terminal strip with 230 tie-points  
2x distribution strips with 40 tie-points  
Dimensions: 57x91x9mm

Part No.	Ord. No.
S BB-005	53508



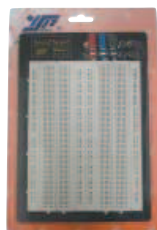
**BB-01**  
Breadboard with 840 tie-points:  
1x terminal strip with 640 tie-points  
2x distribution strips with 200 tie-points  
Dimensions: 66x174x8,5mm

Part No.	Ord. No.
S BB-01	45832



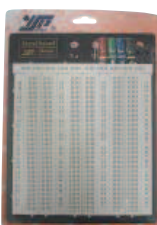
**BB-2T1D-01**  
Breadboard with 1380 tie-points:  
2x terminal strips with 1280 tie-points  
1x distribution strip with 100 tie-points  
2x biding posts.  
Dimensions: 220x120mm

Part No.	Ord. No.
S BB-2T1D-01	45833



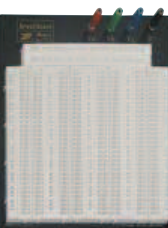
**BB-2T4D-01**  
Breadboard with 1680 tie-points:  
2x terminal strips with 1280 tie-points  
4x distribution strips with 400 tie-points  
4x biding posts.  
Dimensions: 220x150mm

Part No.	Ord. No.
S BB-2T4D-01	45834



**BB-3T5D-01**  
Breadboard with 2420 tie-points:  
3x terminal strips with 1920 tie-points  
5x distribution strips with 500 tie-points  
4x biding posts  
Dimensions: 235x185mm

Part No.	Ord. No.
S BB-3T5D-01	45835



**BB-4T7D-01**  
Breadboard with 3260 tie-points:  
4x terminal strips with 2560 tie-points  
7x distribution strips with 700 tie-points  
4x biding posts  
Dimensions: 250x240mm

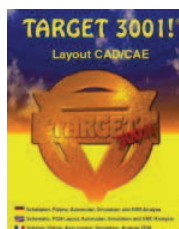
Part No.	Ord. No.
S BB-4T7D-01	45836



**SJ-140**  
Jumper wire kit  
140 pcs terminal contact set for BB-xx series of breadboards.

Part No.	Ord. No.
S SJ-140	63115

## CAD Software for PCB design



**Target 300! V14**  
Software for PCB design. The Light version allows PCB desing with two layers and max. 400 pins. Higher versions are available as well, feel free to contact us.

Check free of charge DEMO version in DOWNLOAD section at [www.soselectronic.sk](http://www.soselectronic.sk)

Part No.	Description
TARGET 300! Design Station for School	CAD software for PCB design
TARGET 300! Economy V14	CAD, ECONOMY
TARGET 300! Light V14	CAD software for PCB design
TARGET 300! Professional for School	CAD, PROFESSIONAL for school
TARGET 300! Professional V14	CAD, PROFESSIONAL version
TARGET 300! Smart V14	CAD, SMART version
TARGET 300! Medium V14	CAD software for PCB design

Part No.	Ord. No.
S TARGET 300! Design Station for School	49239
S TARGET 300! Economy V14	49181
S TARGET 300! Light V14	48280
S TARGET 300! Professional for school	51251
S TARGET 300! Professional V14	49182
S TARGET 300! Smart V14	48651
S TARGET 300! Medium V14	71001

## Measuring Equipment

Oscilloscopes



N 1

Digital Multimeters



N 4

Clamp Multimeters



N 14

Voltage Testers



N 17

Miscellaneous Measuring Equipment



N 20

Thermometers



N 22

Panel Meters



N 23

## Oscilloscopes

### TDS 1000 B Series TDS 2000 B Series



With up to 200 MHz bandwidth and 2 GS/s maximum sample rate, no other color digital storage oscilloscope offers as much bandwidth and sample rate for the price. The TDS1000B and TDS2000B Series oscilloscopes provide accurate real-time acquisition up to their full bandwidth, the same record length at all time base settings, advanced triggers to isolate signals of interest, and 11 standard automatic measurements on all models. Their Fast Fourier Transform (FFT) and waveform add, subtract, and multiply math functions allows you to analyze, characterize, and troubleshoot circuits.



TEKTRONIX TEK - USB - 488



The TEK-USB-488 Adapter enables communication between a GPIB bus controller, and the USB port of a USBTMC-USB488 compliant Tektronix instrument.)

Technical Parameters	TDS 1002 B	TDS 1012 B
Bandwidth	60 MHz	100 MHz
Channels	2	2
Sample Rate	1 GS/s	1 GS/s
Time Base Range	5ns-50s/d	5ns-50s/d
Vertical Sensitivity	2mV-5V /div	2mV-5V /div
DC Vertical Accuracy	3 %	3 %
Input Impedance	1 M $\Omega$ /20 pF	1 M $\Omega$ /20 pF
Display	monochromatic	monochromatic

Part No.	Ord.No.
S TEKTRONIX TDS 1002 B	58007
O TEKTRONIX TDS 1012 B	58205
O TEKTRONIX TEK-USB-488	59468

Technical Parameters	TDS 2012 B	TDS 2014 B	TDS 2022 B
Bandwidth	100 MHz	100 MHz	200 MHz
Channels	2	4	2
Sample Rate	1 GS/s	1 GS/s	2 GS/s
Time Base Range	5ns-50s	5ns-50s	2,5ns-50s
Vertical Sensitivity	2mV-5V /div	2mV-5V /div	2mV-5V /div
DC Vertical Accuracy	3 %	3 %	3 %
Input Impedance	1 M $\Omega$ /20 pF	1 M $\Omega$ /20 pF	1 M $\Omega$ /20 pF
Display	color	color	color

Part No.	Ord.No.
O TEKTRONIX TDS 2012 B	58206
O TEKTRONIX TDS 2014 B	58207
O TEKTRONIX TDS 2022 B	58208

## TPS 2000 Series



With up to 200 MHz bandwidth and 2 GS/s sample rate, the TPS2000 Oscilloscope Series allows you to safely make floating or differential measurements in a variety of challenging environments. With up to 4-isolated channels and a portable, battery-powered design, the TPS2000 Series allows you to quickly and accurately tackle the tough challenges you face in the field of electronics and power systems - all designed with your safety in mind.



- two or four isolated channels
- Frequency Ranges 100/200 MHz
- sample rate 100/200 MS/s
- AUTASET
- help menu
- integrated Compact Flash
- Fast Fourier Transform
- battery power supply, 8h lifetime

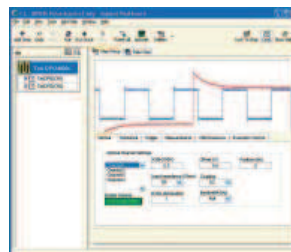
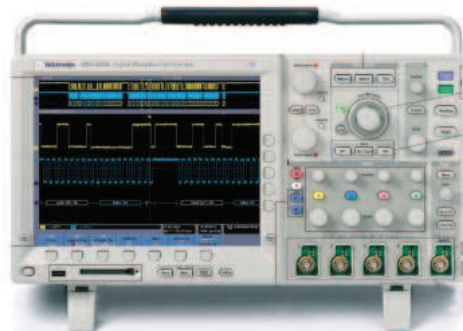
Technical Parameters	TPS 2024	TPS 2012
Bandwidth	200 MHz	100 MHz
Channels	4	2
Sample Rate	2 GS/s	1 GS/s
Time Base Range	2,5ns-50s/d	5ns-50s/d
Vertical Sensitivity	2mV-5V /div	2mV-5V /div
DC Vertical Accuracy	3 %	3 %
Input Impedance	1 M $\Omega$ /20 pF	1 M $\Omega$ /20 pF
Display	1/4 VGA, color LCD	1/4 VGA, color LCD

Part No.	Ord.No.
O TEKTRONIX TPS 2012	57234
O TEKTRONIX TPS 2024	52098

## DPO4000 Series



Offering up to 1 GHz bandwidth and 5 GS/s sample rate, the MSO/DPO4000 Mixed Signal Oscilloscope Series delivers the performance you need to see fast-changing signal details. With as many as 20 channels, you can analyze analog and digital signals with a single instrument. Combine that with automated serial and parallel bus analysis, innovative Wave Inspector® controls, and automated power measurements, and the MSO/DPO4000 Series provides the feature-rich tools you need to simplify and speed debug of your complex design.



- 10" color XGA display
- bandwidth 1 GHz
- sample rate to 5 GS/s
- memory for 10M points/channel
- two or four channels
- PC connection + software
- weight only 5kg

## PC Oscilloscopes

### M 520 Series



The M520 Oscilloscope Series belongs to the ETC Measuring Lab 3 (EML3) line and offers a wide range of devices. It provides a customer with a possibility to select a device perfectly fitting his or her needs offering the best performance/cost ratio.

Specifically speaking, the M520 Oscilloscope Series comprises of six USB oscilloscopes. They all have identical housing with dimensions of 106 x 163 x 35 mm (excl. connectors and feet); however, each of them has different characteristics and price. All of the M520 Oscilloscope Series devices have two vertical channels with 8-bit resolution and offer deflection factor from 10mV/div to 5V/div in 1-2-5 steps. They are fully compatible with both USB 2.0 and USB 1.1. The devices are extremely portable, because they are powered directly from the USB interface, thus do not need any kind of external power supply.

The vertical deflection system is, of course, equipped with all standard features, such as AC/DC switch, GND switch or probe input ratio selector (1:1, 1:10, 1:100). The measuring channel inputs withstand the voltage of +200 V with no respect to the selected deflection factor.

Using the random sampling method is the horizontal deflection system capable of reaching the equivalent sampling frequency of up to 20GS/s. It also provides zoom functionality with factors from 10:1 to 1:16. The fastest timebase setting is 200ps/div with zoom factor set to 10:1 or 2ns/div with zoom ratio 1:1.



#### Dual level triggering system

with digital pulse length filter and event counter on each level. This allows displaying of very complicated events (i.e. displaying of the selected row of a video signal).

#### Virtual storage

with size of 63000 samples. This feature allows to delay data acquisition from trigger event by maximum of 63000 samples.

#### Simple and complex triggering modes

Simple triggering mode is very easy to use; while using the complex mode, the customer can utilize the triggering possibilities to the fullest extent.



Technical Parameters	M 521	M 522	M523	M524
Memory Size	4K points per channel			
Vertical Sensitivity	10mV/div to 5V/div in 1-2-5 sequence			
Vertical Accuracy	± 2% of actual value + 1 pixel			
Resolution	8 bits (0,39%)			
Frequency Range (-3dB)	DC: 0-60 MHz AC: 1,2 Hz-60 MHz	DC: 0-120 MHz AC: 1,2Hz-120 MHz		
Step Response Rise Time	max. 5,8 ns		max. 2,9 ns	
Channel Isolation	min. -60 dB in full frequency range			
Input Resistance	1 MΩ +5 %, -2 %			
Input Resistance inaccuracy adjustment	Digital for absolute accuracy ± 2% of currentvoltage + 1 pixel			
Input Capacitance	30 pF ± 2pF			
Zero Setting Accuracy	± 2% of range			
Real Time Sample Rate	1 kHz to 50 MHz		1 kHz to 100 MHz	
Maximum Input Voltage	± 200V at 100 kHz or less			

Part No.	Ord.No.
O M 521	53802
S M 522	50916
O M 523	53803
S M 524	50917

Technical Parameters	M 525	M 526	M 526/RM	M 526/RM/PRO
Memory Size per Channel	4K	8K	8K	8K
Vertical Sensitivity	10mV/div to 5V/div in 1-2-5 sequence			
Vertical Accuracy	± 2% of actual value + 1 pixel			
Resolution	8 bits (0,39%)			
Frequency Range (-3dB)	DC: 0-150 MHz AC: 1,2Hz-150 MHz			
Step Response Rise Time	max. 2,4 ns			
Channel Isolation	min. -60 dB in full frequency range			
Input Resistance	1 MΩ +5 %, -2 %			
Input Resistance Inaccuracy Adjustment	Digital for absolute accuracy ± 2% of currentvoltage + 1 pixel			
Input Capacitance	30 pF ± 2pF			
Zero Setting Accuracy	± 2% of range			
Real Time Sample Rate	1 kHz to 200 MHz			
Maximum Input Voltage	± 200V at 100 kHz or less			

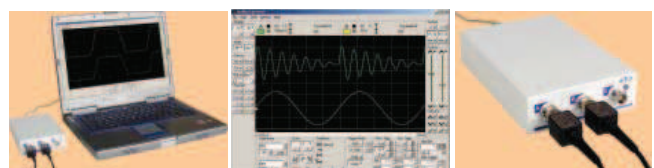
Part No.	Ord.No.
O M 525	69293
O M 526	66276
O M 526/RM	54992
O M 526/RM/PRO	59724

### M 574 Series



Technical Parameters	M 574
Memory Size per Channel	8K
Vertical Sensitivity	10mV/div to 5V/div in 1-2-5 sequence
Vertical Accuracy	± 2% of actual value + 1 pixel
Resolution	8 bits (0,39%)
Frequency Range (-3dB)	DC: 0-150 MHz AC: 1,2Hz-150 MHz
Step Response Rise Time	max. 2,4 ns
Channel Isolation	min. -60 dB in full frequency range
Input Resistance	1 MΩ +5 %, -2 %
Input Resistance Inaccuracy Adjustment	Digital for absolute accuracy ± 2% of currentvoltage + 1 pixel
Input Capacitance	30 pF ± 2pF
Zero Setting Accuracy	± 2% of range
Real Time Sample Rate	1 kHz to 200 MHz
Maximum Input Voltage	± 200V at 100 kHz or less

Part No.	Ord.No.
S M 574	66280



## PC Oscilloscopes (continued)

### M 595 Series



The M595 DSO is a member of Etc Measuring Lab 3 (EML3) family. M595 is a dual channel USB oscilloscope compatible with USB 2.0 and USB 1.1 interface. The ease of installation and connection to computer makes M595 extremely portable.

The device inputs are accessible via BNC connectors and are compatible with standard probes (with minimum of 30 pF compensation range). Internal storage (32k per channel) is used as a fast data buffer to store a measured waveform.

The software is the part of the M595 package. In order to keep the device functions up to date, there is a latest version of software available on our website free of charge. The software provides you with possibility to fully operate the device. All standard features of modern DSOs (hold acquisition process, hold-off, zoom etc.) and many more (saving/loading the waveforms for future use, export to clipboard, printing the results together with scope settings) are available.

Technical Parameters		M 595
Memory Size per Channel		8K
Vertical Sensitivity		10mV/div to 5V/div in 1-2-5 sequence
Vertical Accuracy		± 2% of actual value + 1 pixel
Resolution		8 bits (0,39%)
Frequency Range (-3dB)		DC: 0-300 MHz AC: 1,6Hz-150 MHz
Step Response Rise Time		max. 2,4 ns
Channel Isolation		min. -60 dB in full frequency range
Input Resistance		1 MΩ +3 %, -1 %
Input Resistance Inaccuracy Adjustment		Digital for absolute accuracy ± 2% of currentvoltage + 1 pixel
Input Capacitance		28 pF ± 2pF
Zero Setting Accuracy		± 2% of range
Real Time Sample Rate		1 kHz to 1GHz
Maximum Input Voltage		± 200V at 100 kHz or less
Part No.	Ord.No.	
o M 595	71037	

### M 774 Series



Technical Parameters		M 774
Memory Size per Channel		8K
Vertical Sensitivity		10mV/div to 5V/div in 1-2-5 sequence
Vertical Accuracy		± 2% of actual value + 1 pixel
Resolution		8 bits (0,39%)
Frequency Range (-3dB)		DC: 0-150 MHz AC: 1,2Hz-150 MHz
Step Response Rise Time		max. 2,4 ns
Channel Isolation		min. -60 dB in full frequency range
Input Resistance		1 MΩ +5 %, -2 %
Input Resistance Inaccuracy Adjustment		Digital for absolute accuracy ± 2% of currentvoltage + 1 pixel
Input Capacitance		30 pF ± 2pF
Zero Setting Accuracy		± 2% of range
Real Time Sample Rate		1 kHz to 100 MHz
Maximum Input Voltage		± 200V at 100 kHz or less
Part No.	Ord.No.	
s M 774	69295	

## Analog Oscilloscopes

### HM 400 Series



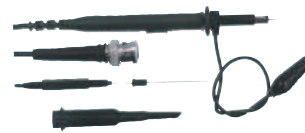
#### Technical Parameters:

- 40 MHz Analog Oscilloscope
- Reference-Class in sensitivity and input voltage range
- 2 Channels with deflection coefficients 1 mV/div...20 V/div, variable up to 50 V/div
- Time Base 0.2 s/div...100 ns/div., with X magnification to 10 ns/div.
- Low noise measuring amplifiers with high pulse fidelity and minimum overshoot
- Peak to peak trigger for stable triggering 0...50 MHz at 0.5 div. signal level (up to 80 MHz at 1 div.)
- Autoset, Save/Recall Memories for 6 instrument settings
- Yt- and XY-Mode with Z-Input for intensity modulation
- Component characterisation with component tester (two terminal network measurement) for use within service etc.
- Low power consumption, no fan

Type	Ord.No.
s HM 400	70856

## Oscilloscope Probes

### TTLF 312



### TTMF 312



	TTLF 312	TTMF 312
Ranges	1:1 / 10:1	1:1 / 10:1
Max. frequency	15 / 150 MHz	20 / 250 MHz
Impedance	1 / 10 MΩ	1 / 10 MΩ
Max. voltage	600 V	600 V
Cable length	1,2 m	1,2 m

Type	Ord.No.
s TTLF 312	6296
o TTMF 312	4586

### TTHV 150



### TTHV 250



	TTHV 150	TTHV 250
Ranges	100:1	100:1
Max. frequency	300 MHz	300 MHz
Impedance	100 MΩ	100 MΩ
Max. voltage	1500 V	2500 V
Cable length	1,2 m	1,2 m

Part No.	Ord.No.
o TTHV 150	52469
s TTHV 250	3756

## 800 Series

WENS

With 20/40/60MHz bandwidth, long 125k memory and 200MHz Real sampling rate, WENS800 series is designed to meet today's most demanding engineering requirements. Furthermore you can catch any part of waveform using WENS800's versatile trigger capability..



Technical Parameters	WENS 820	WENS 840
<b>Oscilloscope</b>		
Bandwidth	20 MHz	40 MHz
Channels	2	2
Sample Rate	real 100 MS/s	real 100 MS/s
Time Base Range	50ns-50s/d	10ns-50s/d
Vertical Sensitivity	5mV-200V /div	5mV-200V /div
DC Vertical Accuracy	3 %	3 %
Input Impedance	1 M $\Omega$ /20 pF	1 M $\Omega$ /20 pF
<b>Multimeter</b>		
LCD Display Resolution	3 5/6 chars + analog bargraph	
Measuring	True RMS AC values. AC, DC Voltage, Resistance, Capacity to 300uF, Diode Test, Buzzer. max/min vaule, average, dBm.	

Part No.	Ord.No.
S WENS 820	52638
S WENS 840 + 8F	68841



Technical Parameters	WENS 860	WENS 860 + 8F
<b>Oscilloscope</b>		
Bandwidth	60 MHz	60 MHz
Channels	2	2
Sample Rate	real 100 MS/s	real 100 MS/s
Time Base Range	50ns-50s/d	10ns-50s/d
Vertical Sensitivity	5mV-200V /div	5mV-200V /div
DC Vertical Accuracy	3 %	3 %
Input Impedance	1 M $\Omega$ /20 pF	1 M $\Omega$ /20 pF
<b>Multimeter</b>		
LCD Display Resolution	3 5/6 chars + analog bargraph	
Measuring	True RMS AC values. AC, DC Voltage, Resistance, Capacity to 300uF, Diode Test, Buzzer. max/min vaule, average, dBm	

Part No.	Ord.No.
S WENS 860	62637
S WENS 860 + 8F	63433

## Scopemeters

### UT 81 B

UNI-T



2 in 1

Type	Range	Accuracy
DC Voltage	400mV / 4V / 40V / 400V / 1000V	(0.8%+8)
AC Voltage	4V / 40V / 400V / 750V	(1%+15)
DC Current	400 $\mu$ A / 4000 $\mu$ A / 40mA / 400mA / 4A/ 10A	(1%+8)
AC Current	400 $\mu$ A / 4000 $\mu$ A / 40mA / 400mA / 4A / 10A	(1.5%+8)
Resistance	400 $\Omega$ / 4k $\Omega$ / 40k $\Omega$ / 400k $\Omega$ / 4M $\Omega$ / 40M $\Omega$	(1%+5)
Capacitance	40nF / 400nF / 4 $\mu$ F / 40 $\mu$ F / 100 $\mu$ F	(3%+8)
Frequency	10Hz - 10MHz	(0.1%+3)
Measuring	transistors, periode, diode test, Continuity Test	

Part No.	Ord.No.
S UT 81 B	59919

## UNI-T Desktop Digital Multimeter

### UT 803

UNI-T

The UT803 is a high performance and low cost desktop multimeter. It comes with LCD display (5999, 28x128mm), shows the information. It is designed by a high-tech team. This instrument combines the bench-top and system features which provides a versatile solution for your testing requirements now and in the future. The device has an USB interface for easy data analysing using a PC. Dimensions: 105x240x310 mm, Weight: 2,4kg



USB

True RMS

Type	Range	Accuracy
DC Voltage	600 mV-1000 V	$\pm$ (0,3%+2)
AC Voltage	600 mV-1000 V	$\pm$ (0,6%+5)
DC Current	600 $\mu$ A-10 A	$\pm$ (0,5%+3)
AC Current	600 $\mu$ A-10 A	$\pm$ (1%+5)
Resistance	600 $\Omega$ -60 M $\Omega$	$\pm$ (0,5%+2)
Capacitance	6 nF-6 mF	$\pm$ (2%+5)
Frequency	6 kHz-60 MHz	$\pm$ (0,1%+3)
Temperature	-40°C to +1000°C	$\pm$ (1%+3)
Measuring	diode test, Continuity Test with buzzer, hFE	

Part No.	Ord.No.
S UT 803	52427

## FLUKE Multimeters

### FLUKE 110 Series

**FLUKE®**

The 110 Series comprises of four true-rms DMMs each designed for specific users, so one is sure to match your needs. The compact instruments offer convenient one-handed operation and feature a backlit display with large, easy-to-read digits.

**117 Electrician's Multimeter with Non-Contact Voltage** for electricians working in commercial and noncommercial premises (like hospitals and schools), the 117 is recommended. It includes extras like non-contact voltage detection to help get the job done faster and safer.

**116 Multimeter with temperature and microamps** is for heating, ventilation and air conditioning (HVAC) engineers. It includes temperature measurement and microamp current ranges to quickly troubleshoot HVAC problems.

**115 Multimeter for field service testing** is optimized for electrical and electronic testing in field service, industrial, and applications where more than basic functionality (such as measurement of ac/DC Current) simplifies working.

**114 Electrical Multimeter** is ideal for electrical troubleshooting and straightforward 'go/no-go' testing in residential/commercial electrical testing. It has all the basic functions plus a special feature to prevent false readings caused by ghost voltage.



#### FLUKE 114, 115, 116, 117 - Common Features

	Maximum	Max. Resolution	Accuracy
DC Voltage	600 V	0,1 mV	± 0,5 % ± 2 dig.
AC Voltage	600 V	0,1 mV	± 1 % ± 2 dig.
DC Current (except 114,116)	10 A	1 mA	± 1 % ± 3 dig.
AC Current (except 114,116)	10 A	1 mA	± 1,5 % ± 3 dig.
Resistance	40 MΩ	0,1 Ω	± 0,9 % ± 1 dig.
Capacitance (except 114)	10 000 μF	1 nF	± 1,9 % ± 2 dig.
Frequency (except 114)	50 kHz	0,01 Hz	± 0,1 % ± 2 dig.

#### Technical Parameters

	FLUKE 114	FLUKE 115	FLUKE 116	FLUKE 117
Voltage measurement (DC/AC True-Rms)	yes	yes	yes	yes
Current measurement (DC/AC True-Rms)	no	yes	no	yes
Indicating Range	6000	6000	6000	6000
Backlight	yes	yes	yes	yes
Analog Bargraph	yes	yes	yes	yes
Automatic AC/DC voltage selection	yes	no	yes	yes
Non-Contact Voltage Detection	no	no	no	yes
Built-in Thermometer	no	no	yes	no
Min/Max/Average Value	yes	yes	yes	yes
Resistance, Continuity	yes	yes	yes	yes
Frequency, Capacity Diode Test	no	yes	yes	yes
Function HOLD	yes	yes	yes	yes
Power Supply	9V alkaline battery			
Dimensions	167 mm x 84 mm x 46 mm			
Weight	0,55 kg			
Measurement Cat.	CAT III, 600 V			

Part No.	Ord.No.	Description
S FLUKE 114	59532	Digital multimeter U,R,TRMS
O FLUKE 115	59536	Digital multimeter U,I,R,C,f, TRMS
O FLUKE 116	59537	Digital multimeter U,R,C,f,T, TRMS
S FLUKE 117	59538	Digital multimeter U,I,R,C,f,T,TRMS

### FLUKE 179 EGFID

**FLUKE®**

The new 170 Series is the most powerful and accurate handheld digital multimeter family in its category. Backed with a Fluke lifetime warranty, the meters feature an exclusive Fluke-designed True-rms engine, boast 0.09% accuracy and deliver 6,000 counts of resolution on a bright, backlit display.



	Maximum	Max. Resolution	Accuracy
DC Voltage	1000 V	0,1 mV	±(0,09%+2)
AC Voltage	1000 V	0,1 mV	±(1,0%+3)
DC Current	10 A	0,01 mA	±(1,0%+3)
AC current	10 A	0,01 mA	±(1,5%+3)
Resistance	50 MΩ	0,1 Ω	±(0,9%+1)
Capacitance	10000 μF	1 nF	±(1,2%+2)
Frequency	100 kHz	0,01 Hz	±(0,1%+1)

#### Technical Parameters

	FLUKE 179 EGFID
Measuring TRUE-RMS	yes AC
Indicating Range	6000
Backlight	yes
Analog Bargraph	yes
Automatic Range Selection	yes
Temperature Measurement	yes
Min/Max/Average Value	yes
Resistance, Continuity	yes
Frequency, Capacity, Diode Test	yes
Function HOLD	yes
Power Supply	9V alkaline battery
Dimensions	185 mm x 90 mm x 43 mm
Weight	0,420 kg
Measurement Category	CAT III, 1000 V

Part No.	Ord.No.	Description
S FLUKE 179 EGFID	9371	Multimeter dig.U,I,R,C,f,T, D,TRMS

We also provide a wide range of FLUKE accessories



## FLUKE 289

FLUKE®

The new Fluke 289 True-rms Industrial Logging Multimeter with TrendCapture maximizes plant productivity in the most demanding industrial settings. Solve problems on motor drives, in-plant automation, power distribution and electro-mechanical equipment. The Fluke 289 puts powerful diagnostic capabilities in your hands, and helps you take troubleshooting and predictive maintenance to the next level. It is the ultimate handheld tool for any difficult application that requires precision and true-rms accuracy combined with a large graphic display.

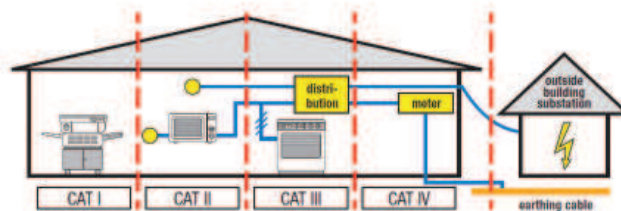


	Maximum	Max. Resolution	Accuracy
DC Voltage	1000 V	0,001 mV	±(0,025%)
AC Voltage	1000 V	0,001 mV	±(0,025%)
DC Current	10 A	0,01 µA	±(0,15%)
AC Current	10 A	0,01 µA	±(0,15%)
Resistance	500 MΩ	0,01 Ω	±(0,05%)
Capacitance	100 mF	0,001 nF	±(1,0%)
Frequency	999,99 kHz	0,01 Hz	±(0,005%)
Temperature	-200°C to +1350°C		±(1%)

Technical Parameters	FLUKE 289
Voltage Measurement (DC/AC True-Rms)	yes
Current Measurement (DC/AC True-Rms)	yes
Display	1/4 VGA 320x240
Indicating Range	50 000
Analog Bargraph	yes
Automatic AC/DC Voltage Selection	yes
Temperature Measurement	yes
Min/Max/Average Value	yes
Resistance, Continuity	yes
Frequency, Capacity, Diode Test	yes
Function HOLD	yes
Power Supply	6xAA alkaline battery
Dimensions	222 mm x 102 mm x 60 mm
Weight	0,871 kg
Measurement Category	CAT III 100V

Part No.	Ord.No.	Description
S FLUKE 289	63804	Digital multimeter 320x240

## The measuring categories CAT I to CAT IV



- CAT I** valid for measuring on current circuits that are not directly connected with the mains (e.g. specially protected devices)
- CAT II** valid for measuring on current circuits that are electrically connected to the low-voltage mains (e.g. household appliances)
- CAT III** valid for measuring within domestic installation (e.g. distribution, cabling, sockets, switches)
- CAT IV** valid for measuring at the source of low-voltage installations (e.g. meter, main connection, primary overcurrent protection devices)





## UNI-T Multimeters



- power
- USB
- True RMS
- current loop

**UT 71 E**  
Digital Multimeter UT71E is a 40000 counts and 4 3/4 digits with steady operations, fashionable structure and auto ranging instrument. It can measure not only AC voltage and current, DC voltage and current, Resistance, Capacitance, Temperature, Frequency, Diodes, Continuity, 4~20mA Loop, Max/Min, Relative Mode but also has Data Store, Data Recall, AC True RMS, AC+DC, Low Battery Display, Double Display Backlight, Data Hold, Automatic Power Off and full overload protection.

UT 71 E		
	Range	Accuracy
DC Voltage	400 mV-1000 V	±(0,025%+5)
AC Voltage	4 V-1000 V	±(0,4%+30)
DC Current	400 µA-10 A	±(0,08%+8)
AC Current	400 µA-10 A	±(0,5%+15)
Resistance	400 Ω-40 M Ω	±(0,3%+8)
Capacitance	40 nF-40 mF	±(1%+20)
Frequency	40 Hz-400 MHz	±(0,01%+8)
Temperature	-40°C to +1000°C	±(1%+30)
Measuring	power, current loop, diode test, Continuity Test with buzzer	
Part No.	Ord.No.	
S UT 71 E	55778	



- inductance

**UT 70 A**  
The UT-70A Multimeter is a hand-held digital multimeter with advanced design, multiple functions, large display screen and reliable performance. This meter is able to measure voltage & current (AC & DC), resistance, capacitance, inductance, frequency, temperature, forward voltage drop of diodes, transistor hFE, Continuity Test & TTL LOGIC level measurement. Dimensions: 195x90x40 mm, weight: 600 g.

UT 70 A		
	Range	Accuracy
DC Voltage	200 mV-1000 V	±(0,5%+1)
AC Voltage	200 mV-750 V	±(0,8%+3)
DC Current	20 µA-10 A	±(0,8%+1)
AC current	20 µA-10 A	±(1%+3)
Resistance	200 Ω-2000 M Ω	±(0,8%+1)
Capacitance	20 nF-100 µF	±(2,5%+5)
Inductance	2 mH-20 H	±(2%+10)
Frequency	2 kHz-10 MHz	±(0,1%+3)
Temperature	-40°C to +1000°C	±(1%+3)
Measuring	diode test, Continuity Test with buzzer, hFE, logic probe TTL	
Part No.	Ord.No.	
S UT 70 A	7106	



- RPM
- RS 232
- True RMS

**UT 70 B**  
The UT-70B Multimeter is equipped with a comprehensive range of features to satisfy all your needs. It sets a new standard of competitive pricing & high performance, no other DMM in it's price range has so much to offer. The RS232C interface is optically isolated, so your P.C. is safe from accidental damage as there is no physical connection between your computer & the meter when they are interfaced. Dimensions: 195x90x39 mm, weight: 530 g.

UT 70 B		
	Range	Accuracy
DC Voltage	400 mV-1000 V	±(0,8%+1)
AC Voltage	4 V-750 V	±(1%+5)
DC Current	400 µA-10 A	±(1%+2)
AC Current	400 µA-10 A	±(1,5%+5)
Resistance	400 Ω-40 M Ω	±(1%+2)
Capacitance	4 nF-40 mF	±(4%+3)
Frequency	4 kHz-400 MHz	±(0,1%+3)
Temperature	-40°C to +1000°C	±(1%+3)
RPM	40 kRPM	±(0,1%+3)
Measuring	diode test, Continuity Test with buzzer	
Part No.	Ord.No.	
S UT 70 B	7107	



- EF
- True RMS
- current loop

**UT 60 H**  
Digital Multimeter UT60H is a 39999 counts and 4 3/4 digits with steady operations, fashionable structure and auto ranging instrument. The Meter has analogue bar graph, True RMS and full range overload protection. The Multimeter not only can measure AC voltage and current, DC voltage and current, Resistance, Capacitance, Temperature, Frequency, Diodes, Continuity, 4~20mA Loop EF Function, Max/Min, Relative Mode but also has Low Battery Display, Data Hold and Sleep Mode features. Dimensions: 177x85x40 mm Weight: 340 g.

UT 60 H		
	Range	Accuracy
DC Voltage	4 V-1000 V	±(0,1%+5)
AC Voltage	4 V-750 V	±(1%+4)
DC Current	400 µA-10 A	±(0,5%+10)
AC Current	400 µA-10 A	±(1,2%+4)
Resistance	400 Ω-40 M Ω	±(0,5%+10)
Capacitance	40 nF-40 mF	±(1,5%+20)
Temperature	-40°C to +400°C	±(1%+5)
Frequency	4 kHz-400 MHz	±(0,01%+3)
Measuring	electric field, current loop, diode test, Continuity Test with buzzer	
Part No.	Ord.No.	
S UT 60 H	52438	





inductance

**UNI-T**  
**UT 58 D**  
 Hand-held digital multi-meter with input indication icon, 3 1/2 digits large and clear LCD display  
 Input socket indication to avoid wrong connection of test leads  
 Data Hold for easy reading  
 Sleep mode to save battery power  
 Resistance, capacitance, diode and transistor measurement  
 Modern housing design  
 Safety as per IEC 1010-1, CAT 1000V  
 Dimensions: 179x88x39mm  
 Weight: approx. 351g

UT 58 D		
	Range	Accuracy
DC Voltage	200 mV-1000 V	±(0,5%+1)
AC Voltage	2 V-1000 V	±(0,8%+3)
DC Current	2 mA-20 A	±(0,8%+1)
AC Current	2 mA-20 A	±(1%+3)
Resistance	200 Ω-20 MΩ	±(0,8%+1)
Capacitance	20 nF-100 μF	±(2,5%+5)
Inductance	2 mH-20 H	±(2%+10)
Measuring	diode test, Continuity Test with buzzer, hFE	
<b>Part No.</b>	<b>Ord.No.</b>	
S UT 58 D	52439	



inductance

**UNI-T**  
**UT 50 D**  
 Model UT50D is 3 1/2 digits with steady operations, fashionable structure and highly reliable hand-held measuring instrument. The Meter uses large scale of integrated circuit with double integrated A/D converter as its core and has full range overload protection. The Meter not only can measure AC/DC Voltage, AC/DC Current, Resistance, Capacitance, Temperature, Inductance, Diodes and Continuity, but also has Data Hold, Full Icon Display and Sleep Mode features. The Meter adopted advanced "co-injection" technique in order to provide sufficient insulation and anti-shaking. In addition, the Automatic Display Backlight feature enables user to work in a dim condition.

UT 50 D		
	Range	Accuracy
DC Voltage	200 mV-1000 V	±(0,5%+1)
AC Voltage	2 V-750 V	±(0,8%+3)
DC Current	20 mA-20 A	±(0,8%+1)
AC current	20 mA-20 A	±(1%+3)
Resistance	200 Ω-20 MΩ	±(0,8%+1)
Capacitance	20 n-100 μF	±(2,5%+5)
Inductance	2 mH-20 H	±(2%+10)
Temperature	-40°C to 1000°C	±(1%+3)
Measuring	diode test, Continuity Test with buzzer	
<b>Part No.</b>	<b>Ord.No.</b>	
S UT 50 D	52425	



**UNI-T**  
**UT 50 C**  
 DC & AC Voltage/current, resistance, capacitance, diode, continuity  
 Data hold  
 Auto sensing display with backlight  
 Low battery display and sleep mode  
 Dimensions: 165x80x33 mm,  
 Weight: 275 g.

UT 50 C		
	Range	Accuracy
DC Voltage	200 mV-1000 V	±(0,5%+1)
AC Voltage	2 V-750 V	±(0,8%+3)

DC Current	20 mA-20 A	±(0,8%+1)
AC Current	20 mA-20 A	±(1%+3)
Resistance	200 Ω-200 MΩ	±(0,8%+1)
Capacitance	20 n-100 μF	±(4%+3)
Frequency	2 kHz/20 kHz	±(1,5%+5)
Temperature	-40°C to 1000°C	±(1%+3)
Measuring	diode test, Continuity Test with buzzer	

Part No.	Ord.No.
S UT 50 C	44884



**UNI-T**  
**UT 39 E**  
 Digital Multimeter Model UT39E is a 4 1/2 digits with steady operations, fashionable structure and highly reliable hand-held measuring instrument. The Meter uses large scale of integrated circuit with double integrated A/D converter as its core and has full range overload protection. The Meter not only can measure AC/DC Voltage, AC/DC Current, Resistance, Capacitance, Transistor, Frequency, Diodes and Continuity, but also has Data Hold and Sleep Mode features. The Meter comes with a holster which can provide sufficient protection and anti-shaking function.  
 Dimensions: 172x83x38 mm  
 Weight: 310 g

UT 39 E		
	Range	Accuracy
DC Voltage	200 mV-1000 V	±(0,15%+5)
AC Voltage	2 V-750 V	±(0,8%+15)
DC Current	2 mA-20 A	±(2%+10)
AC Current	2 mA-20 A	±(2,5%+10)
Resistance	200 Ω-200 MΩ	±(5%+10)
Capacitance	2 n-20 μF	±(4%+10)
Frequency	2 kHz/20 kHz	±(1,5%+5)
Measuring	diode test, Continuity Test, hFE	
<b>Part No.</b>	<b>Ord.No.</b>	
O UT 39 E	59921	



**UNI-T**  
**UT 33 A**  
 The Model UT33A Multimeter is a 3 3/4 digits with steady operations, fashionable design and highly reliable hand-held measuring instrument. The Meter can measure AC/DC voltage, AC/DC Current, Resistance, Transistor hFE, Diode and Continuity. It is an ideal tool for maintenance.  
 Dimensions: 130x73x35 mm,  
 weight: 156 g.

UT 33 A		
Function	Range	Accuracy
DC Voltage	400 mV-500 V	±(0,8%+1)
AC Voltage	4 mV-500 V	±(1,2%+3)
AC Current	400 μA-10 A	±(1,5%+5)
DC Current	400 μA-10 A	±(1%+2)
Resistance	400 Ω-40 MΩ	±(0,8%+2)
Measuring	diode test, Continuity Test with buzzer, hFE	

Part No.	Ord.No.
S UT 33 A	48194

## UNI-T Multimeters (continued)



**UNI-T**

### UT 33 C

The Model UT33C Multimeter is 3 1/2 digits with steady operations, fashionable design and highly reliable hand-held measuring instrument. The Meter can measure AC/DC voltage, AC/DC Current, Resistance, Temperature, Diode and Continuity. It is an ideal tool for maintenance. Dimensions: 130x73x35 mm, weight: 156 g.

#### UT 33 C

	Range	Accuracy
DC Voltage	200 mV-500 V	±(0,5%+2)
AC Voltage	200 mV-500 V	±(1,2%+10)
DC Current	2000 µA-10 A	±(1%+2)
Resistance	200 Ω-20 MΩ	±(0,8%+2)
Temperature	-40°C to +1000°C	±(1%+3)
Measuring	diode test, Continuity Test with buzzer	

Part No.	Ord.No.
S UT 33 C	44883

**UNI-T**

### UT 20 B

Digital Multimeter Model UT20B is a pocket-size hand-held digital multimeter with advanced design, multiple functions, and reliable performance. Because of its small size, it is very convenient for user to work with it. It is very easy to operate, so it is suitable to the beginner of multimeter. Besides the basic functions, the Meter also has some extraordinary functions such as battery test and square wave output. Dimensions: 95x52x26 mm, weight: 100 g.



cheap

#### UT 20 B

	Range	Accuracy
DC Voltage	200 mV-300 V	±(1,5%+2)
AC Voltage	200 V-300 V	±(2,5%+15)
DC Current	2000 µA-200 mA	±(2,5%+10)
Resistance	200 Ω-2000 kΩ	±(2,5%+5)
Measuring	diode and battery test (1,5V a 9V)	

Part No.	Ord.No.
S UT 20 B	44881

**UNI-T**

### UT 10 T

Pocket-Sized Digital Multimeter Model UT10A is a 3 3/4 digits with steady operations, low power consumption and highly reliable hand-held measuring instrument. The UT10A can measure AC/DC Voltage, AC/DC Current, resistance, capacitance, frequency, diodes and continuity, but also has relative mode, data hold, full icon display, duty cycle and sleep mode features. Dimensions: 58x108x12 mm, weight: 62 g.



#### UT 10 A

	Range	Accuracy
DC Voltage	400 mV-300 V	±(0,8%+1)
AC Voltage	4 V-300 V	±(1,2%+3)
Resistance	400 Ω-40 MΩ	±(1%+2)
Capacitance	4 nF-200 µF	±(4%+3)
Frequency	10 Hz-100 kHz	±(0,5%+3)
Measuring	diode test, Continuity Test with buzzer	

Part No.	Ord.No.
S UT 10 A	52424

# Ordering online



**SOS**  
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europe

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www.soselectronic.com



	UT 71 E	UT 70 B	UT 70 A	UT 60 H	UT 60 D	UT 58 D	UT 50 D	UT 50 C	UT 39 E	UT 33 C	UT 33 A	UT 20 B	UT 10 T
Display	40000	3999	1999	39999	3400	1999	1999	1999	19999	1999	3999	1999	3999
Accuracy	0,025%	0,8%	0,5%	0,1%	0,8%	0,5%	0,5%	0,5%	1000 V	0,5%	0,8%	1,5%	0,8%
Voltage DC	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V	500 V	500 V	300 V	300 V
Voltage AC	1000 V	750 V	750 V	750 V	750 V	1000 V	750 V	750 V	750 V	500 V	500 V	300 V	300 V
Current DC	10 A	10 A	10 A	10 A	10 A	20 A	20 A	20 A	20 A	10 A	10 A	200 mA	-
Current AC	10 A	10 A	10 A	10 A	10 A	20 A	20 A	20 A	20 A	-	10 A	-	-
Resistance	40 MΩ	40 MΩ	2000 MΩ	40 MΩ	34 MΩ	20 MΩ	20 MΩ	200 MΩ	200 MΩ	20 MΩ	40 MΩ	2 MΩ	40 MΩ
Capacity	40 mF	40 mF	100 uF	40 mF	-	100 uF	100 uF	100 uF	20 uF	-	-	-	200 uF
Temperature	-40°C +1000°C	-40°C +1000°C	-40°C +1000°C	-40°C +400°C	-	-	-40°C +1000°C	-40°C +1000°C	-	-40°C +1000°C	-	-	-
Frequency	400 MHz	400 MHz	10 MHz	400 MHz	34 MHz	-	20 kHz	20 kHz	20 kHz	-	-	-	100 kHz
RPM	-	40 KRPM	-	-	340 MRPM	-	-	-	-	-	-	-	-
Inductance	-	-	20 H	-	-	20 H	20 H	-	-	-	-	-	-
Logic probe	-	-	yes	-	-	-	-	-	-	-	-	-	-
Current loop	yes	-	-	yes	-	-	-	-	-	-	-	-	-
Power measurement	yes	-	-	-	-	-	-	-	-	-	-	-	-
Auto range selection	yes	yes	-	yes	yes	-	-	-	-	-	yes	-	yes
EF function	-	-	-	yes	-	-	-	-	-	-	-	-	-
Battery test	-	-	-	-	-	-	-	-	-	-	-	yes	-
Diode test	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Buzzer, continuity est	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	-	yes
hFE	-	-	yes	-	-	yes	-	-	yes	-	yes	-	-
True RMS	yes	-	-	yes	-	-	-	-	-	-	-	-	-
Max/Min	yes	yes	-	yes	-	-	-	-	-	-	-	-	-
Data Hold	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	-	-	yes
PC connection	USB	RS232C	-	-	RS232C	-	-	-	-	-	-	-	-
Backlight LCD	double	yes	yes	-	yes	-	yes	yes	-	yes	-	-	-
Analogue	yes	yes	-	yes	-	-	-	-	-	-	-	-	-
Dimensions [mm]	200x93x40	195x90x40	195x90x40	177x85x40	177x85x40	179x88x39	165x80x38,3	165x80x38,3	172x83x38	130x73,5x35	130x73,5x35	95x52x26	58x108x12
Weight	384g	560g	620g	312g	320g	350g	275g	275g	310g	156g	156g	125g	62g

## BENNING Multimeters **BENNING**

### BENNING MM1, MM2, MM3, MM4

Million fold proven as well as tested and approved by the independent VDE Test and Certification Institute according to current international standards.

- Basic measuring for current, voltage, resistance, continuity, diode, capacity and frequency
- Automatic and/or manual measuring range selection
- Safe current measuring up to 300 A AC via attachable current clamp adapter (MM 4)

#### BENNING MM1



CAT III 600V

#### BENNING MM2



	BENNING MM1	BENNING MM2
Indicating Range	3.200	2.000
Accuracy	0,5 %	0,5 %
AC Voltage	1 mV - 600 V	1 mV - 750 V
DC Voltage	0,1 mV - 600 V	0,1 mV - 1000 V
AC Current	-	0,1 uA - 20 A
DC Current	0,1 uA - 3,2 mA	0,1 uA - 20 A
Resistance	0,1 Ω - 32 M Ω	0,1 Ω - 20 M Ω
Continuity	yes	yes
HOLD	yes	no

Part No.	Ord.No.	Description
o BENNING MM1	62870	Multimeter dig. 3,3/4 U,I,(DC),R,buzzer
o BENNING MM2	62871	Multimeter dig. 3,5 U,I,R,buzzer CATIII

#### BENNING MM3



CAT III 300V

#### BENNING MM4



	BENNING MM3	BENNING MM4
Indicating Range	2.000	4.200
Accuracy	0,5 %	0,5 %
AC Voltage	1 mV - 600 V	1 mV - 600 V
DC Voltage	1 mV - 600 V	1 mV - 600 V
AC Current	0,1 uA - 20 A	0,1 A - 300 A
DC Current	0,1 uA - 20 A	-
Resistance	0,1 Ω - 20 M Ω	0,1 Ω - 42 M Ω
Continuity	yes	yes
Frequency	1 Hz - 200 kHz	-
Capacitance	1 pF - 200 uF	-
HOLD	no	yes

Part No.	Ord.No.	Description
o BENNING MM3	58189	Multimeter dig.3,5 U,I,R,C,f,buzzer
o BENNING MM4	62872	Multim. penPartNo. 3,3/4 U,I,(AC),R,buzzer

#### BENNING MM7



CAT III 600V



	BENNING MM7
Indicating range	4.000
Accuracy	0,25 %
AC Voltage	1 mV - 750 V
DC Voltage	0,1 mV - 1000 V
AC Current	10μ A - 10 A
DC Current	10μ A - 10 A
Resistance	0,1 Ω - 40 M Ω
Continuity	yes
Frequency	1 Hz - 40 MHz
Capacitance	1 pF - 40 mF
Temperature	-20°C to +800°C
HOLD	yes/MAX/MIN
TRUE RMS	yes

Part No.	Ord.No.	Description
o BENNING MM7	58190	Multim. dig. 3,3/4 U,I,R,C,f,T,bz.,TRMS

#### BENNING MM8, MM9, MM10

- Highest measuring category CAT IV 600 V allows measurements direct at the source of the low-voltage installation
- Precise due to TRUE RMS measuring method
- Transmitting measuring results via optical USB interface

#### BENNING MM8



CAT III 600V

#### BENNING MM9



Function	BENNING MM8	BENNING MM9
Indicating Range	6.000	6.000
Accuracy	0,5 %	0,5 %
AC Voltage	0,1 mV - 750 V	0,1 mV - 750 V
DC Voltage	0,1 mV - 1.000 V	0,1 mV - 1.000 V
AC Current	-	0,1 uA - 10 A
DC Current	0,1 uA - 6 mA	0,1 uA - 10 A
Resistance	0,1 Ω - 60 MΩ	0,1 Ω - 60 MΩ
Continuity	yes	yes
Frequency	1 Hz - 60 MHz	1 Hz - 60 MHz
Capacitance	1 pF - 6 mF	1 pF - 6 mF
Temperature	-	-
HOLD	yes/MAX/MIN	yes/MAX/MIN
TRUE RMS	no	yes

Part No.	Ord.No.	Description
o BENNING MM8	62886	Multim. dig.3,3/4 U,I,(DC),R,C,f,bz.
o BENNING MM9	62888	Multim. dig.3,3/4 U,I,R,C,f,bz.TRMS

## BENNING MM10



CAT III 600V

BENNING MM10	
Indicating Range	6.000
Accuracy	0,5 %
AC Voltage	0,1 mV - 750 V
DC Voltage	0,1 mV - 1.000 V
AC Current	0,1 $\mu$ A - 10 A
DC Current	0,1 $\mu$ A - 10 A
Resistance	0,1 $\Omega$ - 60 M $\Omega$
Continuity	yes
Frequency	1 Hz - 60 MHz
Capacitance	1 pF - 6 mF
PC connection	USB
Software	PC-Win MM10
HOLD	yes/MAX/MIN
TRUE RMS	yes

Part No.	Ord.No.	Description
o BENNING MM10	62889	Multim. dig.3,3/4 U,I,R,C,f,bz.,TRMS

## BENNING MM11

- Highest measuring category CAT IV 600 V allows measurements direct at the source of the low-voltage installation
- Precise due to TRUE RMS measuring method
- Transmitting measuring results via optical USB interface

## BENNING MM11



CAT IV 600V

BENNING MM11	
Indicating Range	20.000
Accuracy	0,06 %
AC Voltage	1 $\mu$ V - 750 V
DC Voltage	1 $\mu$ V - 1.000 V
AC Current	1 $\mu$ A - 10 A
DC Current	1 $\mu$ A - 10 A
Resistance	10 m $\Omega$ - 2 G $\Omega$
Continuity	yes
Frequency	0,01 Hz - 1 MHz
Capacitance	1 pF - 40 mF
Temperature	- 200°C to + 1.200°C
PC Connection	USB
Software	PC-Win MM11
HOLD	yes
TRUE RMS	yes

Part No.	Ord.No.	Description
o BENNING MM11	62890	Multim. dig.4,3/4 U,I,R,C,f,T,bz.,TRMS

## BENNING MM1-1, MM1-2, MM1-3

Innovative Digital Multimeter series with volt sensor for noncontact localization of the phase voltage. The integrated Volt sensor signals phase voltages by means of an acoustic signal and a red LED signal. It localizes cable breaks and defective lamps in exposed cables (cable reel, light chains) via the feeding side of the phase. It combines all basic measurement types and temperature measurement in an extremely compact housing

## BENNING MM1-1

## BENNING MM1-2



CAT IV 600V

	BENNING MM1-1	BENNING MM1-2
Indicating Range	2.000	2.000
Accuracy	0,5 %	0,5 %
AC Voltage	0,1 mV - 750 V	0,1 mV - 750 V
DC Voltage	0,1 mV - 1.000 V	0,1 mV - 1.000 V
AC Current	-	1 mA - 10 A
DC Current	-	1 mA - 10 A
Resistance	0,1 $\Omega$ - 20 M $\Omega$	0,1 $\Omega$ - 20 M $\Omega$
Continuity	yes	yes
Frequency	-	1 Hz - 20 MHz
Capacitance	-	1 pF - 2 mF
Integrated Volt Sensor	yes	yes
HOLD	yes	yes/MAX/MIN

Part No.	Ord.No
o BENNING MM1-1	62891
o BENNING MM1-2	62892

## BENNING MM1-3



CAT IV 600V

BENNING MM1-3	
Indicating Range	2.000
Accuracy	0,5 %
AC Voltage	0,1 mV - 750 V
DC Voltage	0,1 mV - 1.000 V
AC Current	1 mA - 10 A
DC Current	1 mA - 10 A
Resistance	0,1 $\Omega$ - 20 M $\Omega$
Continuity	yes
Frequency	1 Hz - 20 MHz
Capacitance	1 pF - 2 mF
Temperature	-20°C to +800°C
Integrated Volt sensor	yes
HOLD	yes/MAX/MIN

Part No.	Ord.No.	Description
o BENNING MM1-3	62893	Multim. 3,5 U,I,R,C,f,T,ACV sensor,bz.

## Other Multimeters



### VA 16



#### 3 IN 1 NETWORK MULTIMETER

##### Network Cable test (RJ45):

- tests for open circuits, shorts, miswires, reversals, and split pairs
- SHIELD detection tests a cable's shield integrity
- main unit and one remote allow one person testing of T568A, T568B, 10Base-T, and Token Ring
- easy to read fault display and high speed testing

##### Telephone Line test (RJ11):

- debug mode for detailed fault

VA 16		
	Range	Accuracy
DC Voltage	200 mV - 1000 V	±(1,2%±3)
AC Voltage	200 mV-700 V	±(1,2%±5)
DC Current	200 µA-10 A	±(2,0%±5)
AC Current	200 µA-10 A	±(3,0%±5)
Resistance	200 Ω-20 M Ω	±(5%)

Part No.	Ord.No.
S VA 16	59375



### VA 21



Digital multimeter with non-contact AC voltage detector and misplug alarm  
 Continuity Check, Diode Test, Auto-Range  
 Relative Measurement, MAX/MIN Value Measurement  
 Data Hold, Auto Power Off, Low Power Indication  
 3999 display with backlight

VA 21		
	Range	Accuracy
DC Voltage	400 mV-1000 V	±(1,0%+3)
AC Voltage	4 V-750 V	±(1,2%+3)
DC Current	400 µA-10 A	±(2,0%+8)
AC Current	4000 µA-10 A	±(3,0%+8)
Resistance	400 Ω-40 M Ω	±(2,0%+5)
Frequency	9,999 Hz - 200 kHz	±(0,1%+1)
Capacitance	4 nF-200 µF	±(5,0%+5)
Temperature	- 20°C to + 1000°C	±(5,0%+4)

Part No.	Ord.No.
S VA 21	59372



### VA 38



#### 50000 Counts High Accuracy Multimeter

This multimeters are rugged and reliable, hand-held or system instruments for maintenance, initial start-up, training and R&D in industry, for government authorities, in the test lab, in manufacturing and quality assurance, as well as at universities.

VA 38		
	Range	Accuracy
DC Voltage	50 mV-1000 V	±(0,5%+40)
AC Voltage	50 mV-1000 V	±(0,03%+10)
DC Current	500 µA-10 A	±(0,75%+20)
AC Current	500 µA-10 A	±(0,15%+15)
Resistance	500 Ω-50 M Ω	±(2,0%+5)
Frequency	5Hz ~ 200 kHz	±(0,006%+4)
Capacitance	50 nF-5000 µF	±(2,0%+8)

Part No.	Ord.No.
S VA 38	61351



THE CHEAPEST MULTIMETER

### DMM 91010

Digital multimeter with 3 1/2 LCD display  
 Voltage, current, resistance measurement, diode test, hFE and battery test.

DMM 91010		
	Range	Accuracy
DC Voltage	2 V - 750 V	±0,8% ±1 digit
AC Voltage	200 mV - 500 V	±0,5% ±1 digit
DC Current	2 mA - 20 A	±3% ±7 digit
AC Current	0,2 mA - 20 A	±2% ±5 digit
Resistance	200 Ω - 20 M Ω	±1% ±2 digits
Battery test	1,5 V - 9 V	±0,8% ±1 digit

Part No.	Ord.No.
S DMM 91010	67874



### AX-7003

Working temperature and humidity :5-40°C max 75% RH  
 Battery: IEC LR3 1,5V AAA Fuse: 5 x 20mm /250V500mA  
 Dimension: 85x120x30 mm

AX-7003		
	Range	Accuracy
DC Voltage	10 V - 500 V	±(5% of range)
AC Voltage	50 V - 500 V	±(5% of range)
DC Current	25 - 250 mA	±(5% of range)
Resistance	10 Ω - 1 M Ω	±(5% of range)
dB	4 - 56 (0dB 1mW 600 Ω)	±(10% of range)

Part No.	Ord.No.
S AX-7003	68623



### MY 68

#### AUTO RANGING Digital Multimeter

Digital multimeter MY68 allows to measure continuous and alternating current strength, continuous and alternating voltage, resistance, transistors current gain rate, capacitance and frequency. Multimeter MY68 one can test diodes and identify electrical wires. Multimeter is powered from 9 V battery of "KRONA" type. Automatic power off system will switch off the device after 40 minutes of its inactivity.

MY-68		Range
Counts		3260
DC Voltage		0,1mV/1000V
AC Voltage		1mV/750V
DC Current		0,1µA/10A
AC Current		0,1µA/10A
Frequency		10Hz - 150kHz
Resistance		0,1Ω-32,6MΩ
Input Resistance		10MΩ
Transistors Current Gain Rate		up to 1000
Capacitance		100pF/32,6 µF
Conductivity Wire Identification		≤ 25Ω
Diode, Transistor Test		yes
Data Hold, Charge battery indication		yes
Power source		9V
Dimensions		91 × 189 × 31,5 mm

Part No.	Ord.No.
S MY-68	11162

## Measuring Tweezers

### SMART TWEEZER



Smart Tweezers features a unique patented mechanical and electronic design that integrates a highly accurate digital multimeter with a built-in high precision SMD probes and a display. This light weight device can be easily held by one hand. It is designed for component evaluation on a PCB or a production line, component impedance testing and sorting of SMD components. Smart Tweezers dramatically reduces time necessary to troubleshoot or debug a complex PCB significantly simplifying process of locating a faulty component.

- automatic LCR and voltage measurements
  - automatic selection of the best range
  - display of active and passive components
  - ideal for SMT components as small as 0.3 mm
- Power supply: battery 1,5V LR44

Function	SMART TWEEZER
DC Voltage	-8 V to + 8 V
Resistance	0 Ω - 9,9 MΩ
Capacitance	0 pF - 4999 uF
Inductance	0,5 mH - 999 mH
Measurement update rate	up to 4 measurements per second
Dimensions	140x25x30 mm

Part No.	Ord.No.
S SMART TWEEZERS	68970

### VA 503



The V&A VA503 gives users an easy way to sort and evaluate loose components and to perform on-board measurements and debugging. Precise tips made of non-magnetic steel are able to pick and reliably contact even smallest SMD components, or take measurements from the devices already mounted on a board. The probe can also be used to test conventional components with wire leads too short to insert into the test terminals.



Function	VA 503		VA 505 B	
	Range	Accuracy	Range	Accuracy
Resistance	400 Ω - 40 MΩ	±(2% + 5)	300 Ω - 60 MΩ	±(1% + 5)
Capacitance	4nF - 200 uF	±(5% + 5)	3nF - 60 mF	±(3% + 5)
Auto Scan	no		yes	
Diode test	yes		yes	
Dimensions	181x35x20 mm		181x35x20 mm	

Part No.	Ord.No.
S VA 503	59378
S VA 505 B	72150

### MS-8211



PEN TYPE meter with non-contact AC voltage detector

- Conform to the IEC1010-1 Standard CAT III 600V
- The overmolding rubber case protects the meter to be stronger
- Display: 1999 counts
- Auto/Manual range
- Detecting AC voltage of special frequency, the sensitivity of AC voltage adjustable
- Sound and flash alarm

Function	SMART TWEEZER
Indicating range	LCD 3 1/2 digits
Accuracy	0,8%
Voltage DC	200mV-600V
Voltage AC	200mV-600V
Resistance	200-20MΩ
Continuity Test	yes, buzzer
Other functions	Data Hold, Max Hold, diode test
Dimensions	208 x 38 x 29 mm

Part No.	Ord.No.
S MS-8211	57106

## Clamp Multimeters

### BENNING CM1-1



### BENNING

Digital Current Clamp Multimeter, Excellent Cost-Performance Ratio - safe current measuring up to 400A AC

- measuring inputs for voltage, resistance, continuity and diode test
- integrated Volt sensor signalises phase voltages by means of an acoustic signal and a red LED signal (CM 1-3)
- it localizes cable breaks and defective lamps in exposed cables (cable reel, light chains) via the feeding side of the phase (CM 1-3)



Function	BENNING CM1-1
Indicating Range	2000
Accuracy	2%
Voltage AC	-
Voltage DC	-
Current AC	10 mA - 400 A
Current DC	-
Resistance	-
Continuity Test	-
Frequency	-
Memory	HOLD, MAX
Max. Clamp Opening	30 mm
Measurement Category	CAT III 600 V

Part No.	Ord.No.
o BENNING CM1-1	60871

### BENNING CM1-2



### BENNING CM1-3



Function	BENNING CM1-2	BENNING CM1-3
Indicating Range	2000	2000
Accuracy	1%	1%
Voltage AC	0,1 V - 600 V	0,1 V - 750 V
Voltage DC	0,1 V - 600 V	0,1 V - 1000 V
Current AC	0,1 A - 400 A	0,1 A - 200 A
Current DC	-	-
Resistance	0,1 Ω - 20 MΩ	0,1 Ω - 20 MΩ
HOLD	yes	yes
Measuring method	RMS	RMS
Max. Clamp Opening	30 mm	16 mm
Measurement Category	CAT III 600 V	CAT IV 600 V

Part No.	Ord.No.
o BENNING CM1-2	62859
o BENNING CM1-3	62860



## Clamp Multimeters (continued)

### BENNING CM2

Innovative Technology, Practical Design

- safe and non-contact measuring of high currents
- DC and AC current measuring up to 600 A
- measuring voltages up to 600 V (AC/DC)
- resistance measuring up to 40 MΩ
- measuring inputs for voltage, resistance and an acoustic Continuity Test
- compact protective bag enclosed in delivery



### BENNING CM3

Function	BENNING CM2	BENNING CM3
Indicating Range	4000	2000
Accuracy	0,5%	1,9%
Voltage AC	0,1 mV - 600 V	-
Voltage DC	0,1 mV - 600 V	-
Current AC	10 mA - 300 A	0,1 A - 600 A
Current DC	10 mA - 300 A	0,1 A - 600 A
Resistance	100 mΩ - 40 MΩ	-
Continuity Test	yes	-
HOLD	yes/MAX	yes
Max. Clamp Opening	25 mm	38 mm
Measurement Category	CAT III 600 V	CAT III 600 V

Part No.	Ord.No.
S BENNING CM2	56768
O BENNING CM3	56769

### Current Clamp Adapter for Multimeter

- safe AC current measuring up to 400 A
- connection via 4 mm safety measuring leads
- output: 1mV AC/1A AC (CC 1), 1mA AC/1A AC (CC 2)

### BENNING CC1



### BENNING CC2



Function	BENNING CC1	BENNING CC2
Accuracy	1,9%	1% - 3%
Current AC	1 A - 400 A	0,5 A - 200 A
Max. clamp opening	30 mm	21 mm
Measurement category	CAT III 300 V	CAT III 600 V

Part No.	Ord.No.
O BENNING CC1	56781
O BENNING CC2	63068

### BENNING CM4



### BENNING CM5



Function	BENNING CM4	BENNING CM5
Indicating Range	4000	4000
Accuracy	0,7%	0,7%
Voltage AC	0,1 V - 600 V	0,1 V - 600 V
Voltage DC	0,1 V - 600 V	0,1 V - 600 V
Current AC	0,1 A - 600 A	0,1 A - 600 A
Current DC	-	0,1 A - 600 A
Resistance	0,1 Ω - 400 Ω	0,1 Ω - 400 Ω
Continuity Test	yes	yes
Frequency	1 Hz - 400 Hz	1 Hz - 400 Hz
Memory	HOLD/ MIN/MAX	HOLD MIN/MAX/
	PEAK	PEAK
TRUE RMS	no	yes
Max. Clamp Opening	37 mm	45 mm
Measurement Category	CAT III 600 V	CAT III 600 V

Part No.	Ord.No.
S BENNING CM4	56773
O BENNING CM5	56778

### BENNING CM6 BENNING CM7 BENNING CM8



Function	BENNING CM6	BENNING CM7	BENNING CM8
Indicating Range	4000	4000	6000
Accuracy	0,7%	0,7%	0,7%
Voltage AC	0,1 V - 750 V	0,1 V - 750 V	10 mV - 1000 V
Voltage DC	0,1 V - 1000 V	0,1 V - 1000 V	10 mV - 1000 V
Current AC	0,1 A - 1000 A	0,1 A - 1000 A	0,1 A - 600 A
Current DC	-	0,1 A - 1000 A	0,1 A - 600 A
Resistance	0,1 Ω - 400 Ω	0,1 Ω - 400 Ω	0,1 Ω - 20 kΩ
Continuity Test	yes	yes	yes
Frequency	1 Hz - 400 Hz	1 Hz - 400 Hz	0,1 Hz - 400 Hz
Effective Power	-	-	1W-600kW
Temperature	-	-	- 50°C + 1000°C
HOLD	yes/MIN/MAX	yes/MIN/MAX	yes/MIN/MAX
	PEAK	PEAK	PEAK, INRUSH
TRUE RMS	no	yes	yes
Max. Clamp Opening	53 mm	53 mm	40 mm
Measurement Category	CAT IV 600 V	CAT IV 600 V	CAT III 600 V

Part No.	Ord.No.
O BENNING CM6	56779
S BENNING CM7	56780
O BENNING CM8	60938

UT 201



UT 206



Function	UT 201	UT 206
Indicating Range	1 999	3 999
Accuracy	0,8% - 1,5%	0,8% - 1,5%
Voltage AC	2 V - 600 V	4 V - 600 V
Voltage DC	0,2 V - 600 V	0,4 V - 600 V
Current AC	2 A - 400 A	to 1000 A
Current DC	-	-
Resistance	200 Ω - 20 MΩ	400 Ω - 40 MΩ
Continuity Test	yes	yes
	<50 Ω buzzer	
Frequency	-	10 Hz - 10 MHz
Capacitance	-	4 nF - 200 uF
Temperature	-	- 40°C to + 1000°C
Data Hold	yes	yes
Max. Clamp Opening	40 mm	40 mm
Notes	diode test Battery power supply 2xAAA	diode test Battery power supply 9V + 2xAAA Display Backlight

Part No.	Ord.No.
S UT 201	48193
S UT 206	42543

MS 2102



DT 266



Function	MS 2102	DT 266
Indicating Range	3 999	LCD 3 1/2
Accuracy	1% - 2,5%	2%
Voltage AC	do 600 V	1V - 750V
Voltage DC	do 600 V	1V - 1000V
Current AC	do 400 A	0,1A - 1000A
Current DC	do 400 A	
Resistance	do 400 Ω	100mΩ - 20kΩ
Continuity Test	yes	yes
Frequency	-	
HOLD	yes	yes
Max. Clamp Opening	28 mm	50 mm
Notes	analog bargraph case bag	-

Part No.	Ord.No.
S MS 2102	47507
S DT 266	57525

UT 232



CAT III 600V

UT232 can measure power from one to three phases like an active energy counter up to 9999kWh. To minimize the amount of interference created by engineers in the operation of machines, a test device is required that can measure voltage, current and power (Active, Apparent, Reactive power), power factor USB Interface

Function	UT 232
Indicating Range	9999
Accuracy	0,5% - 3%
Voltage AC	20 V - 600 V
Voltage DC	-
Current AC	40 A - 1000 A
Current DC	-
Reactive Power	0,60 kVAr - 600,0 kVAr
Apparent Power	0,60 kVA - 600,0 kVA
Active Power	0,60 kW - 600,0 kW
Power Factor (cos φ)	0,3-1
Phase Angle	0-360°
Frequency	20Hz - 500 Hz
Active Energy (KWh counter)	0 - 9999kWh

Part No.	Ord.No.
S UT 232	59923

VA 315



VA 316



Function	VA 315	VA 316
Indicating Range	5999	
Accuracy	0,1% - 5%	0,1% - 8%
Voltage AC	6 V - 700 V	4 V - 700 V
Voltage DC	6 V - 1000 V	0,4 V - 700 V
Current AC	to 1000 A	to 1000 A
Current DC	-	to 1000 A
Resistance	600 Ω - 60 MΩ	400 Ω - 40 MΩ
Continuity Test	yes, buzzer	yes, buzzer
Frequency	40 Hz - 100 kHz	10 Hz - 200 kHz 40 Hz - 400 Hz clamp
Capacitance	600 nF - 1000 uF	4 nF - 40 uF
ADP Measurement	600 mV	-
Temperature		- 40°C to + 750°C

Notes: diode test, auto/manual range, MAX/MIN, data hold, Back Light

Part No.	Ord.No.
S VA315	59457
S VA316	67608

## Voltage Testers

- tested and approved according to the international standard IEC/EN 61243-3 (DIN VDE 0682-401), voltage class B
- vibrating alarm for safe voltage detection
- no measuring errors due to irritating capacitive and inductive voltages by means of intended load connection via push buttons
- acoustic continuity check via buzzer and LED/LCD
- precise illumination of the measuring point

### Duspol Digital Plus



### Duspol Analog Plus



Function	DUSPOL DIGITAL PLUS	DUSPOL ANALOG PLUS
Indication	LCD digital	plunger system/LED
Range	1,5 - 750 V	12 - 690 V
Continuity Test	-	-
Phase-Sequence Test	yes / LCD	yes
Single-Pole Phase Test	yes / LCD	yes
Polarity Test	yes / LCD	yes
Load connection via push buttons	yes Is = 200 mA	yes Is = 250 mA
Vibrating Alarm	yes	yes
Measuring Point Illumination	yes / LED	-
Protection Class	IP 64	IP 64

Part No.	Ord.No.
S DUSPOL DIGITAL PLUS	56760
S DUSPOL ANALOG PLUS	56762

### Duspol Expert



### Duspol Master



Function	DUSPOL EXPERT	DUSPOL MASTER
Indication	LED	LED
Range	12 - 690 V	12 - 690V
Continuity Test	buzzer + LED	-
Phase-Sequence Test	yes	yes / LCD
Single-Pole Phase Test	yes	yes / LCD
Polarity Test	yes	yes / LED
Load connection via push buttons	yes Is = 200 mA	yes Is = 200 mA
Vibrating Alarm	yes	yes
Measuring Point Illumination	yes / LED	-
Protection Class	IP 64	IP 64

Part No.	Ord.No.
S DUSPOL EXPERT	56763
S DUSPOL MASTER	56764

### Duspol Combi



Function	DUSPOL COMBI
Indication	LED
Range	12 - 690 V
Continuity Test	LCD 600 kΩ
Phase-Sequence Test	-
Single-Pole Phase Test	yes / LCD
Polarity Test	yes / LED
Load connection via push buttons	yes Is = 200 mA
Vibrating Alarm	yes
Measuring Point Illumination	-
Protection Class	IP 64

Part No.	Ord.No.
S DUSPOL COMBI	56765

### DUTEST

#### Continuity and line tester

- reliable detection of faulty wiring, contacting errors and cable interruptions
- high- and low-impedance continuity tests
- acoustic indication by means of loud testing buzzer
- visual indication by means of high-contrast light-emitting diodes (LED)
- powerful torch function
- protected against external voltages of up to 400 V



### TRITEST control

#### Phase-sequence indicator for testing the phase sequence in three-phase mains

- indication of clockwise and anti-clockwise phase sequence
- indication of the phase voltages L1, L2 and L3
- voltage range: 400 - 690 V (50 - 60 Hz)
- bright LED pocket lamp function
- including safety probe tips and alligator clip



Function	DUTEST	TRITEST control
Indication	LED	LED
Range	-	400-690V AC
Continuity Test	buzzer + LED 900Ω / 90 kΩ	-
Phase-sequence test	-	yes/LED
Phase voltage indication	-	yes/LED
Measuring point illumination	yes/lightbulb	yes/white LED
Protection class	IP 30	IP 30

Part No.	Ord.No.
S DUTEST	62896
O TRITEST control	62900

## Profipol



- Universal Voltage Tester**
- indicating DC and AC voltage within the range of 6 - 400 V
  - indicating steps 6, 12, 50, 230, 400 V
  - polarity test for DC voltage
  - shock-resistant, dust-proof and splashproof housing (protection class IP 65)



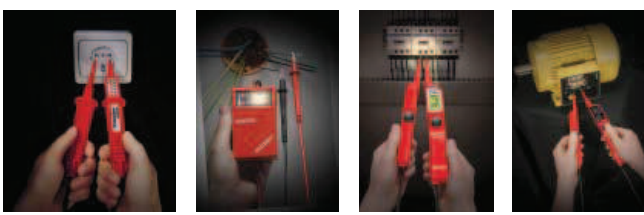
IP 65

Function	PROFIPOL
Indication	LED
Range	6 - 400V AC/DC
Polarity Test	yes/LED (DC Voltage)
Protection Class	IP 65

Part No.	Ord.No.
0 PROFIPOL	62894



Find more information on [www.soselectronic.com](http://www.soselectronic.com)



## UNITEST

- Voltage- and Continuity Tester with Rotary Field Indicator • Optical and acoustical continuity test • Single pole test for phase detection • Indication of polarity



### Beha Unitest 2000 Alpha

### Beha Unitest 2000 Beta



CAT III 500V

Function	BEHA UNITEST 2000 ALPHA	BEHA UNITEST 2000 BETA
Indication	LED	LED + LCD, 3 1/2
Voltage Measurement	12-690 V DC/AC	12-690 V DC/AC
Resistance Measurement	0 - 1999 Ω	0 - 1999 Ω
Phase-Sequence Test	yes	yes
Current Measurement	no	no
Polarity Test	yes	yes
Continuity Test	yes	yes
Protection Class	IP65 / CAT III 690V	IP65 / CAT III 690V

Part No.	Ord.No.
S BEHA UNITEST 2000 ALPHA	1362
S BEHA UNITEST 2000 BETA	1363

## FLUKE T140 FLUKE T5-1000



Voltage and Continuity Testers is the fast and easy solution to voltage, continuity and resistance measurements. It is ideal for site conditions with its rugged construction and ergonomically formed housing for perfect handling.



CAT IV 600V

Function	FLUKE T140	FLUKE T5-1000
Indication	LCD 3 1/2	LCD
Voltage measurement	12 - 690V AC/DC	do 1000V AC/DC
Resistance/continuity	to 1999Ω / yes	yes
Phase-sequence test	yes	no
Current measurement	no	do 100A
Polarity test	yes	no
Vibrating alarm	no	no
Measuring point illumination	yes	no
Protection class	IP65/CAT IV 600V	IP65/CAT III 1000V

Part No.	Ord.No.
S FLUKE T140	55599
S FLUKE T5-1000	8468

## UNITEST VOLTfix plus

### Contact-free Voltage Tester

- Contact-free, optic and acoustic detection of AC voltages
- Swift and exact detection of line interruptions in accessible cables, e.g. cable reels.
- Reliable, automatic self-test indicated by optical stand-by display when switching on the instrument
- Compact, handy construction, fits in any pocket



IP 40

Function	UNITEST VOLTfix plus
Voltage test	50V - 600V
Indication	LED + buzzer
Power supply	2xAAA 1,5V

Part No.	Ord.No.
S UNITEST VOLTfix plus	583

## Voltage Testers (continued)

UT 12 B

UT 15 B

UT 15 C



Function	UT 12 B	UT 15 B	UT 15 C
Indication	LED + buzzer	LED	LED + LCD
Voltage Measuring	90-1000VAC	12-690V AC/DC	12-690V AC/DC
Continuity Test	-	yes	yes
Phase-Sequence Test	-	yes	yes
Polarity Test	-	yes	yes
Vibrating Alarm	-	no	no

Part No.	Ord.No.
s UT 12 B	67518
s UT 15 B	67519
s UT 15 C	67525

SN 4



The SN-4 tester is designed for both AC and DC voltage measuring from 110 V to 400 V with frequency up to 60 Hz, detecting of a phase conductor, phase sequence of three phase system with a neutral wire and detecting polarity of DC voltage.

Part No.	Ord.No.
s SN 4	68662

SZP-1

**DIAMETRAL**



Short circuit tester - acoustic and light indication  
Power Supply: 1,5V (Battery)

Part No.	Ord.No.
s SZP-1	7725

FK 01



Simple voltage tester, 110-250V AC.  
length 140mm.

Part No.	Ord.No.
s FK 01	7770

VOLTCHECK



Can be used for checking voltages from 12-250V  
With display, length 130mm

Part No.	Ord.No.
s VOLTCHECK	2303

## Special Measuring Equipments

UT 352



**Sound Level Meter**

Model UT352 is a stable, safe and reliable sound level meter. The Meter is suitable to use in noise control, quality control, health care and all different kind of environmental noise testing. For example: factory, road, family, musical instrument and all kind of places which need noise testing.

Function	UT 352
Indication	3 1/2 digit LCD (53x41mm)
Indicating range	1999
Microphone	1/2" electret microphone
Range	30 - 130 dB (A/C characteristic)
Accuracy	±1,5dB
Frequency Range	31,5 - 8000 Hz
Power supply	2x1,5V battery AA (LR06)
Dimensions	273x69x39 mm
Weight	385 g (included battery)

Part No.	Ord.No.
s UT 352	67511

LUXMETER MS-6610



MS6610 Digital Luxmeter - compact and reliable device. Separate design of photo detector and the luxmeter itself makes the measurements more convenient. Data Hold Display: LCD, 1999 counts  
**Ranges:** 0-2000 Lux ±5%, 2000-19990 Lux ±5%, 20000-50000 Lux ±5%  
**Power supply:** 9V battery  
**Measuring rate:** 2/sec.  
**Accessories:** battery, protective case

**Dimensions:**  
 luxmeter 126x72x27mm  
 sensor 83x52x21mm

Part No.	Ord.No.
s LUXMETER MS-6610	52889

VA 6450



**Ultrasonic Distance Meter**

- Measure distance, height, area, volume fast and easily
- Measurement range: 0.6 ~ 15m
- Accuracy: ±0.5% ±2digit
- Resolution: 0.01m
- Aperture angle: Approx. ±5°
- Laser type: 630 ~ 650nm
- Laser power: =1mW
- Laser class: class II(US version)

Function	VA 6450
Indicating range	0,6 - 15m
Accuracy	±0,5 % ±1 digit
Resolution	0,01m
Aperture angle	approx ±5°
Laser type	630 - 650 nm
Laser power	≤1mW
Battery	9V 6F22
Dimensions	130x50x30mm
Weight	cca 150g

Part No.	Ord.No.
s VA 6450	59379

VA 8030



**Rotation speed meter**  
The meter is a rotation speed measuring instrument. It is normally used to measure rotational speed, e.g. of propellers, drums and spindles.  
Measure: rpm, rps  
Range: 100~3000rpm, 1.7~500rps  
Accuracy: ±0.1%  
Special function: Auto power off; Data hold; MAX MIN; Back light; Battery: DC1.5V (AAA) x 3pcs  
Complete with pouch case and cover

Part No.	Ord.No.
S VA 8030	72146

ESD 9265.023



**WRISTLAB ESD test station**  
The station includes a WRISTLAB tester, a foot plate and a striking yellow PVC panel. On the panel there is a mounting for the tester and also clearly written operating instructions.  
TEST STATION including:  
WRISTLAB, Stainless steel footplate and yellow panel

Part No.	Ord.No.
O ESD 9265.023	58173

SATFINDER SAT 01



Measure satellite signal strength for easy adjustment  
• Frequency 950- 2.400 MHz  
• Illuminated scale  
Dimensions: 100x63x41mm  
Weight: 98g

Part No.	Ord.No.
S SATFINDER SAT 01	2927

MS 6812



The cable tracker is designed to identify and trace wires or cables within a group without damaging the insulation. For telephone line, it can identify some state in the line, and provides more convenience to install. Debug, maintain telephone line. There is a Sender (MS6812-T) and a Receiver (MS6812-R) included in the cable tracker.

Part No.	Ord.No.
S MS 6812	59380

Unitest SF100



**Fuse Finder-Set for Application with Live Cables**  
• Quick and easy locating of fuses and assignment to circuits.  
• Locating and tracing of cables in walls  
• Set comprising of a transmitter and receiver in a shockproof carrying case  
• Optic and acoustic indication of the transmitter signal

Part No.	Ord.No.
S SF100 Unitest	72354

## Insulation Meters

UT 511



**Insulation Resistance Meter**  
The range of the test is wide, and with the high precision.  
Auto measure range  
Short circuit current: < 2 mA  
Data storage: 18  
Data read again  
Auto power off , alarm note  
The test time choice: during 30 min  
Comparing function  
Power display with white backlight  
Alarm and note  
Bar picture show

Function	UT 511
Insulation Resistance	500kΩ - 10GΩ
Testing Voltage	100V/250V/500V/1000V
DC Voltage	1000V
AC Voltage	750V
Low Resistance	1000Ω
Power Supply	1,5V battery (R14) x 8
Illuminated LCD Display	9999 / 123mm x 58mm
Part No.	Ord.No.
S UT 511	59920



**UT 531 Insulation Resistance Tester**  
A combined multimeter / insulation tester for electrical applications and ideal for the troubleshooting and maintenance of motors and switchgear.  
- Large LCD with full icon display and backlight  
- Auto / manual range selection  
- TRMS measurements  
- Insulation resistance measurement  
- AC/DC current measurement  
- Voltage, resistance, capacitance and frequency measurement  
- Min/Max modes and data hold  
- Continuity buzzer and diode test  
- 99 record datalogging  
- Sleep mode and low battery warning  
- Supplied with test leads, test clips, - 9V battery and user manual

Function	Range	Accuracy
DC Voltage	60 mV-1000 V	±(0,9%+2)
AC Voltage	6 V-750 V	±(1%+3)
DC Current	60 mA-400 mA	±(0,2%+2)
AC current	60 mA-400 mA	±(1,5%+2)
Resistance	600 Ω-40 MΩ	±(0,9%+2)
Insulation Resistance	500V: 0.1 MΩ-500 MΩ 1000V: 0.1 MΩ-600 MΩ	±(0,9%+2)
Capacitance	10 nF-100 uF	±(4%+3)
Frequency	60 Hz-1 MHz	±(0,2%+2)
Data Logging	99 measurement results	
Note	diode test, continuity test with buzzer, Max / Min, Data Hold, True RMS	
Part No.	Ord.No.	
S UT531	67499	



**VA 588**  
VA588 Insulation Multimeters combine a digital insulation tester with a full-featured digital multimeter in a single, compact, handheld unit, which provides convenience for both troubleshooting and preventative maintenance. This meters are ideally suited to help you with your tasks and at a cost that is far less than buying the two products separately  
APPLICATION: Motors, Generators  
Cables, switch gear

Function	Range	Accuracy
DC Voltage	0.001V - 1000V	± (0.2%+5digits)
AC Voltage	0.1mV - 1000V	± (2%+5digits)
DC Current	0.01mA - 400mA	± (1%+5digits)
AC current	0.01mA - 400mA	± (2%+5digits)
Resistance	0.1 Ω - 60 MΩ	± (1.2%+5digits)
Insulation resistance	0.01MΩ - 2GΩ	± (1.5%+5digits)
Test voltage	50,100,250,500,1000V	-
Capacitance	1nF - 5000µF	± (2%+4digits)
Frequency	0.01Hz - 100KHz	± (0.1%+3digits)
Diode test	yes	
Part No.	Ord.No.	
S VA 588	72148	

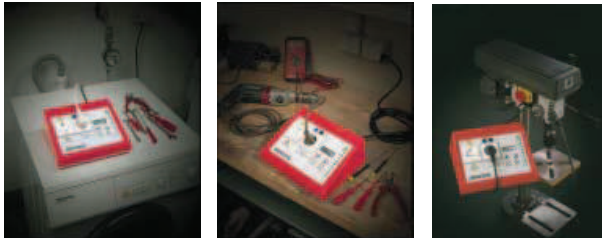
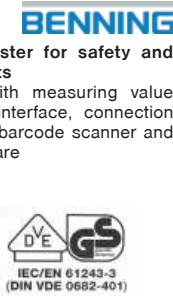
## Special Measuring Equipment

(continued)

### BENNING 700



**Appliance Tester for safety and repetitive tests**  
- standard with measuring value memory, PC interface, connection possibility for barcode scanner and optional software

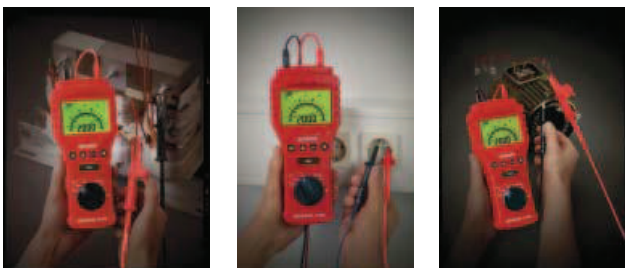


Function	BENNING 700
Indicating range	99 999
Protective conductor resistance	0,01 Ω - 65,53 Ω
Insulation resistance	1 kΩ - 65,53 MΩ
Measurement of protective conductor current and substitute leakage current	0,01 mA - 65,00 mA
Zero potential test	0,01 mA - 65,00 mA
Functional test after test sample passed the safety test by means of separately placed test socket and mains socket	230 V, 16 A
Measured value memory	199 test samples
Interfaces	RS 232
<b>Part No.</b>	<b>Ord.No.</b>
o BENNING 700	62902

### BENNING IT100



**Insulation and Resistance Measuring Device**  
- safety tests on electric systems and equipment  
- measuring of the insulating resistance with testing voltages of 250 V, 500 V and 1000 V  
- low-impedance measurements with testing current of 200 mA for continuity tests of protective conductors and equipotential bonding conductors  
large LC display with analogous bar graph indication



Function	BENNING IT100
Indicating range	2 000 LCD illuminated
Low-impedance resistance	0,01 Ω - 20 Ω
Insulation resistance	10 kΩ - 2 000 MΩ
Voltage AC/DC	1 V - 1000 V
Resistance	1 Ω - 2 000 Ω
Continuity Test	buzzer/30 Ω
Internal battery capacity	0 - 100 %
Measuring category	CAT III 600 V
<b>Part No.</b>	<b>Ord.No.</b>
o BENNING IT100	56782

### BENNING IT110



Installation Testers For safety tests on electrical systems according to DIN VDE 0100 and IEC 60364



Function	BENNING IT110
Indication	graphic display (illuminated)
Low-impedance resistance	0,01 Ω - 2000 Ω
Insulation resistance	1 kΩ - 1 000 MΩ
Line impedance (L-N/L)	0,01 Ω - 2 000 Ω
Loop impedance (L-PE)	0,01 Ω - 2 000 Ω
Short-circuit current	0,01 A - 24,4 kA
RCD testing	tripping time, tripping current, contact voltage
Phase sequence	yes
Voltage, Frequency	1 V - 500 V, 45 Hz - 65 Hz
<b>Part No.</b>	<b>Ord.No.</b>
o BENNING IT110	63070

### BENNING IT120



Installation Testers For safety tests on electrical systems according to DIN VDE 0100 and IEC 60364



Function	BENNING IT120
Indication	graphic display (illuminated)
Low-impedance resistance	0,01 Ω - 2000 Ω
Insulation resistance	1 kΩ - 1 000 MΩ
Line impedance (L-N/L)	0,01 Ω - 2 000 Ω
Loop impedance (L-PE)	0,01 Ω - 2 000 Ω
Short-circuit current	0,01 A - 24,4 kA
RCD testing	tripping time, tripping current, contact voltage
Phase sequence	yes
Voltage, Frequency	1 V - 500 V, 45 Hz - 65 Hz
Earth resistance	0,01 Ω - 2 000 Ω
current (TRUE RMS)	0,1 mA - 20 A
Luminous intensity	0,01 lux - 20 lux
Measured value memory	500 measuring results
Interfaces	USB, RS 232
Incl. software	BENNING PC-Win IT 120
<b>Part No.</b>	<b>Ord.No.</b>
o BENNING IT120	63071

### DEVICE BAG



High-quality cases for testers and measuring instruments for professional storage of all testers and measuring instruments, made of polyester fabric with carrying handle and detachable shoulder strap.

Part No.	Ord.No.
o DEVICE BAG	63076

## Testing and Measuring Sets

### ELECTRICIAN SET



- 1 x DUSPOL® expert
- 1 x BENNING MM 1-3
- 1 x BENNING CC 2
- 1 x protective bag



Part No.	Ord.No.
o ELECTRICIAN SET	63073

### INDUSTRY SET



- 1 x DUSPOL® digital plus,
- 1 x Tritest Control
- 1 x BENNING MM 11,
- 1 x BENNING CM 8,
- 1 x BENNING IT 100,
- 1 x protective bag



Part No.	Ord.No.	1+
o INDUSTRY SET	63075	1085,-

### MASTER SET



- 1 x DUSPOL® digital plus
- 1 x BENNING MM 10
- 1 x BENNING CM 5
- 1 x protective bag



Part No.	Ord.No.
o MASTER SET	63074

### STARTER SET



- 1 x DUSPOL® expert
- 1 x DUTEST®
- 1 x BENNING MM 1-2
- 1 x protective bag



Part No.	Ord.No.
o STARTER SET	63072

## Thermometers

### FLUKE 61



### FLUKE®

The Fluke 61 infrared thermometer is the ideal tool for measuring surface temperatures of rotating, hard-to-reach, electrically live, or dangerously hot targets. For preventative maintenance tasks, the Fluke 61 will cut measurement time to almost zero with the ability to take a temperature reading in less than one second. Just press the green button and it comes alive. Targeting objects is easy with the bright laser beam. Even in the dark, the display is easy to read with its backlit screen.

Technical Parameters	FLUKE 61
Range	-18°C to +275°C
Resolution	0,2°C
Optical Resolution	8:1 (Distance to Spot Size Ratio)
Accuracy	±3°C (to -1°C), ±2% or ±2°C (-1°C to 270°C)
Measuring Distance	to 1m
Result °C/°F	yes
Memory	no
MIN/MAX/Avg	no
Battery Lifetime	12 hours
Dimensions	184x45x38mm
Weight	227 g
Accessories	9V alkaline battery

Part No.	Ord.No.
s FLUKE 61	55456

### VA 6510



Infrared Temperature Meter with laser and display backlight for non-contact measurement up to 150cm distance. The built-in laser can be switched on for easy focus on the target. If necessary, the data hold function can be activated, as well as the display background light.

**TAMB measurement:** 0°C to +50°C

**Measurement range:** -20°C to +270°C

**Emissivity:** 0,95

**Field of view:** 6:1

Part No.	Ord.No.
s VA 6510	59376

### VA 6520



Infrared Temperature Meter with laser and display backlight for non-contact measurement. Included 9V battery and case.

**TAMB measurement:** 0°C to +50°C

**Measurement range:** -50°C to +500°C

**Emissivity:** 0,95

**Field of view:** 8:1

Part No.	Ord.No.
s VA 6520	59377



## Thermometers

(continued)

### FLASH III

NEW!



Infrared thermometer for contact-free measuring of surface temperature, ideal for DIY, very robust housing, with laser sighting, easy to use, measuring time: 1 second, display of current, highest and lowest temperature during the measurement hold and lock function, measuring range -33...+250°C (-27...+482°F), reversible °C/°F, accuracy ±2% or ±2°C, adjustable emission ratio, relation measuring distance/spot size 6:1, 2 x CR 2032 ibutton cell batteries included  
21,5 x 60 x 104 mm, 110 g

Part No.	Ord.No.
S FLASH III	56708

### MINI FLASH

NEW!



Infrared thermometer for contact-free measuring of surface temperature, small, easy to use, response time 0.5 sec., display of current, highest or lowest temperature during the measurement, hold and lock function, measuring range: -33...+220°C (-27...+428°F), reversible °C/°F, accuracy 0...50°C ±1.5°C, otherwise ±2°C or 2%, battery CR 2032 button cell included  
68 x 37 x 18 mm, 75 g

Part No.	Ord.No.
O MINI FLASH	55847

## Panel Meters

### BP-670 Series



Analog panel meters  
Accuracy class: 2,5 %  
Dimensions: 70x60x35mm  
Scale dimensions: 70x32mm

Part No.	Ord.No.	Measuring range
S BP-670/100uA	51862	0-100uA DC
S BP-670/100mA	51865	0-100mA DC
S BP-670/15A	51859	0-15A DC
S BP-670/15V	51861	0-15V DC
S BP-670/1A	51867	0-1A DC
S BP-670/1mA	51864	0-1mA DC
S BP-670/300V AC	49555	0-300V AC
S BP-670/30A	51863	0-30A DC
S BP-670/30V	45953	0-30V DC
S BP-670/3A	51868	0-3A DC
S BP-670/500mA	51866	0-500mA DC
S BP-670/5A	45954	0-5A AC
S BP-670/5A AC	55783	0-5A DC

## K 60 C Series



Analog panel meters  
Accuracy class: 2,5 %  
Dimensions: 60x45x40mm

Part No.	Ord. No.	Description
S K 60 C 10A	4128	10A DC
S K 60 C 15A	4500	15A DC
S K 60 C 15V	4130	15V DC
S K 60 C 30V	4129	30V DC
S K 60 C 30V/3A	3786	30V/3A DC

## LCD-VOLTMETERMODUL 3,5 Series



3,5 Digit Display  
9V DC  
Dimensions: 68x44 mm



Technical Parameters	LCD-VOLTMETERMODUL 3,5
Current Consumption	1mA DC
Supply Voltage	8 to 12 V DC
Accuracy	± 0,5 %
Measurement update rate	2-3 measurements per second
Indication	LCD 3 1/2
Mounting Hole	42 x 20 mm
Digit Height	13mm
Dimensions	68 x 40 mm
Mounting Depth	20 mm
Max. Input Voltage	199,9 mV

Part No.	Ord.No.
S LCD-VOLTMETERMODUL 3,5 GR	4754
O LCD-VOLTMETERMODUL 3,5 BL	68714

## LED-VOLTMETERMODUL 3,5 Series



3 1/2 digits digital panel meter  
Applications: voltmeter, temperature meter, pH-meter, dB-meter, wattmeter, current meter, capacity meter, luxmeter, LCR meter, and any other applications.

Technical Parameters	LED-VOLTMETERMODUL 3,5
Order current	1mA DC
Supply voltage	8 to 12 V DC
Accuracy merania	± 0,5 % (23 °C ± 5°, <80% relative humidity)
Measurement update rate	2-3 measurements per second
Measurement Methode	A/D converter with double integration
Indication	LCD display
Max. indicating range	1999 (3 1/2 digits) automatic polarity indicator
Adjustable decimal point	yes
Dimensions	68 x 44 mm
Input Impedance	>100 MOhm
Max. input voltage	199,9 mV

Part No.	Ord.No.
S LED-VOLTMETERMODUL 3,5 green	51857

## Power Supplies

Rechargeable Batteries



02

Batteries



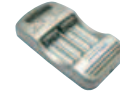
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Battery Holders



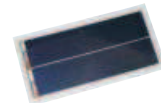
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Chargers and Testers



07

Alternative Sources of Energy



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Adaptors and Voltage Converters



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Power Supplies



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# Application chart - batteries & rechargeables

## Anwendungstabelle - Batterien und Akkus



Technology <i>Technologie</i>	Batteries non rechargeable <i>Batterien nicht aufladbar</i>		Rechargeable Batteries <i>Akkus wiederaufladbar</i>		
	 Alkaline	 Lithium	 NiMH	 Ready to use	 Quick-flash
Toys <i>Spielzeuge</i> 	++	+	o	++	
Remote Controls <i>Fernbedienungen</i> 	+++	+	-	+	
MP3/MP4 Players <i>MP3/MP4 Player</i> 	++	++	o	+++	
Cameras <i>Kameras</i> 	+	++		++	+++
Camera Flashes <i>Kamera- blitze</i> 	+	++		++	+++
Cordless Phones <i>Funk- telefone</i> 	-	-	++	++	
Torches <i>Taschen- lampen</i> 	++	++	o	+	
Fire Detectors <i>Feuer- melder</i> 	++	+++	-	o	
Microphones <i>Mikrofone</i> 	++	++	+	++	
Wall Clocks <i>Wanduhren</i> 	++	+++	-	+	
Multimeter <i>Mess- geräte</i> 	+	++	o	++	
computer peripherals <i>Computer Peripherie</i> 	++	++	+	+++	

+++ Best performance  
++ Recommended  
+ Compatible  
o Possible  
- Not recommended

+++ Besonders geeignet  
++ Empfohlene Anwendung  
+ Anwendung uneingeschränkt möglich  
o Anwendung möglich  
- Anwendung nicht empfohlen

## NiCd Rechargeable Batteries

### Rechargeable Batteries with Soldering Lugs

40% higher capacitance as compared to standard batteries for the same dimensions

Good voltage consistency at high discharge currents

Quick charging in app. 1 h possible

Reversible safety valve

Can be installed in any position

The batteries are delivered with an undefined charging status. Minimum first charging period: 20...24 h

N1700SCR-1Z



N-3000CR



N-3000CR-1Z



KR-5000DEL



NICD1800SC-1U



NICD1900SC-1Z



NICD 2400SC-1Z



Part No.	Voltage	Capacity	Manufact.	Dim.	Terminals
N 1700 SCR-1Z	1,2V	1700mAh	SANYO	SUB-C	Z
NICD1800SC-1U	1,2V	1800mAh	ECONOMIC	SUB-C	U
NICD1900SC-1Z	1,2V	1900mAh	ECONOMIC	SUB-C	Z
NICD 2400SC-1Z	1,2V	2400mAh	ECONOMIC	SUB-C	Z
N-3000CR	1,2V	3000mAh	SANYO	C	-
N-3000CR-1Z	1,2V	3000mAh	SANYO	C	Z
KR-5000DEL	1,2V	5000mAh	SANYO	D	-

Part No.	Ord.No.
S N 1700 SCR-1Z	53154
S NICD1800SC-1U	33485
S NICD1900SC-1Z	50746
S NICD 2400SC-1Z	70477
S N-3000CR	60089
S N-3000CR-1Z	60090
S KR-5000DEL	60088

## NiCd Backup Batteries

AKKU 60-2,4



AKKU 60-3,6



AKKU 60-3,6S



Part No.	U[V]	C[mAh]	Outlets	RM[mm]	Diameter x heigth
AKKU 60-2,4	2,4	65	3 pins	10x13	16x12 mm
AKKU 60-3,6	3,6	65	3 pins	10x17,9	16x18 mm
AKKU 60-3,6S	3,6	65	2 pins	17,9	16x18 mm

Part No.	Ord.No.
S AKKU 60-2,4	52378
S AKKU 60-3,6	50986
S AKKU 60-3,6 S	47229

## NiMH Rechargeable Batteries

- rechargeable with no cadmium and memory effect
- best performance based on the latest technology and quick-charging ability
- especially recommended for high-drain applications or frequently-used devices such as digital cameras, portable audio players, handheld games and toys
- last up 4 x longer in digital cameras than standard batteries
- excellent price-performance ratio and long life-span

NEW!



Part No.	Voltage	Capacity	Part No.	Package
NIMH 600 AAA TECXUS BP2	1,2V	600mAh	AAA	Blister / 2pcs
NIMH 1100 AAA TECXUS BP2	1,2V	1900mAh	AAA	Blister / 2pcs
NIMH 1500 AA TECXUS BP2	1,2V	1500mAh	AA	Blister / 2pcs
NIMH 2700 AA TECXUS BP2	1,2V	2700mAh	AA	Blister / 2pcs
NIMH 4500 C TECXUS BP	1,2V	4500mAh	C	Blister / 1pc
NIMH 10000 D TECXUS BP	1,2V	10 000mAh	D	Blister / 1pc
NIMH 160-9V TECXUS BP	8,4V	160mAh	9V	Blister / 1pc
NIMH 280-9V TECXUS BP	8,4V	280mAh	9V	Blister / 1pc

Part No.	Ord.No.
O NIMH 600 AAA TECXUS BP2	47279
S NIMH 1100 AAA TECXUS BP2	72800
O NIMH 1500 AA TECXUS BP2	46375
S NIMH 2700 AA TECXUS BP2	72805
S NIMH 4500 C TECXUS BP	72792
S NIMH 10000 D TECXUS BP	72795
O NIMH 160-9V TECXUS BP	47278
S NIMH 280-9V TECXUS BP	72791



Part No.	Voltage	Capacity	Manufact.	Part No.	Package
HR-4U 1000 BP2	1,2V	1000mAh	SANYO	AAA	Blister/2pcs
HR-3U 2700 BP4	1,2V	2700mAh	SANYO	AA	Blister/4pcs
NIMH 170-8,4V	8,4V	170mAh	PANASONIC	9V	1pc

Part No.	Ord.No.
S HR-4U 1000 BP2	56598
S HR-3U 2700 BP4	56597
S NIMH 170-8,4V Panasonic	59660

## NiMH Rechargeable "READY TO USE" / ENELOOP Batteries

The new NiMH technology - the rechargeable battery is precharged and can be put to use immediately like a standard alkaline battery.

- self discharge is much lower than with standard NiMH batteries - after 6 months, the battery still retains 90% and after 12 months it still retains 80% of its charged capacity. That means more than 365 days of operational readiness!
- rechargeable up to 1000 times
- lasts up to 4 x longer in digital cameras than standard batteries
- quick-charge capable



Part No.	Voltage	Capacity	Part No.	Package
NIMH RTU 800 AAA TECXUS BP2	1,2V	800mAh	AAA	Blister / 2pcs
NIMH RTU 2100 AA TECXUS BP2	1,2V	2100mAh	AA	Blister / 2pcs
NIMH RTU 200-9VTECXUS BP	8,4V	200mAh	GLR61	Blister / 1pcs

Part No.	Ord.No.
S NIMH RTU 800 AAA TECXUS BP2	72807
S NIMH RTU 2100 AA TECXUS BP2	72808
S NIMH RTU 200-9VTECXUS BP	79906



**SANYO**

Part No.	Voltage	Capacity	Part No.	Package
HR-4UTG 800	1,2V	800mAh	AAA	1pc
HR-4UTG 800 BP4	1,2V	800mAh	AAA	Blister / 4pcs
HR-3UTG 2000	1,2V	2000mAh	AA	1pc
HR-3UTG 2000 BP4	1,2V	2000mAh	AA	Blister / 4pcs

Part No.	Ord.No.
S HR-4UTG 800	74075
S HR-4UTG 800 BP4	60290
S HR-3UTG 2000	70887
S HR-3UTG 2000 BP4	60288

## NiMH Battery Packs

**tecxus™**



Part No.	Voltage	Capacity	Part No.	Package
NIMH 950 AAA-1Z TECXUS SP4	1,2V	950mAh	AAA	1 unit/4pcs
NIMH 2500 AA-1Z TECXUS SP4	1,2V	2500mAh	AA	1 unit/4pcs
NIMH 4300 C-1Z TECXUS SP2	1,2V	4300mAh	C	1 unit/2pcs
NIMH 9000 D-1Z TECXUS SP2	1,2V	9000mAh	D	1 unit/2pcs

Part No.	Ord.No.
O NIMH 950 AAA-1Z TECXUS SP4	72799
S NIMH 2500 AA-1Z TECXUS SP4	72806
S NIMH 4300 C-1Z TECXUS SP2	47297
S NIMH 9000 D-1Z TECXUS SP2	47298

NiMH blocks for power supply of wireless phones, they are finished with soldering eyelets or MITSUMI connector.

AKKU 1100-3



AKKU 1100-4



AKKU PP 1



Part No.	Voltage	Capacity	Dimensions	Package
AKKU 1100-3	3,6V	1100mAh	42,4x50x14,4mm	1 unit/3pcs
AKKU 1100-4	4,8V	1100mAh	53x51x14,4mm	1 unit/4pcs
AKKU PP 1	7,2V	1100mAh	98x42x12mm TAMIYA connector	1 unit/3pcs

Part No.	Ord.No.
S AKKU 1100-3	70392
S AKKU 1100-4	70465
O AKKU PP 1	5015

## NiMH Backup Batteries

NMH 60-2,4



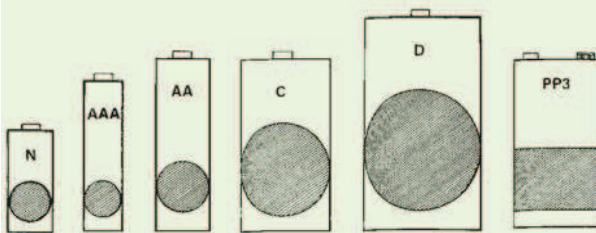
NMH 60-3,6



Part No.	Voltage	Capacity	Outlets	Diameter x height
NMH 60-2,4	2,4V	80mAh	3 pins	15,5x12 mm
NMH 60-3,6	3,6V	80mAh	3 pins	15,5x18 mm

Part No.	Ord.No.
S NMH 60-2,4	70474
S NMH 60-3,6	54631

## Summary of Battery Sizes



### Standard types

Type	ANSI	IEC	Diameter x height [mm]	
Lady	N	UM5	R1	12,0 x 30,2
Micro	AAA	UM4	R03	10,5 x 44,5
Mignon	AA	UM3	R6	14,5 x 50,5
Baby	C	UM2	R14	26,2 x 50,0
Mono	D	UM1	R20	34,2 x 61,5
9V Block	PP3	-	6F22	(26,0x17,5) x 49,0

### Industrial Types

Type	ANSI	Diameter x height [mm]	
	AAAA	8,3x6,7	
Micro	2/3AAA, 5/4AAA, 5/3AAA	10,5x28,5	10,5x50, 10,5x67
Mignon	1/3AA, 1/2AA, 2/3AA	14,5x17,5	14,5x23,7, 14,5x28,2
	4/5AA, 4/3AA	14,5x43	14,5x65
	A (AF), 2/3A (AF)	17x50	17x28,5
	4/5A (AF), 7/5A (AF)	17x43	17x66
Baby	SC, 1/2SC, 2/3SC	23x43	23x25,5, 23x26,8
	4/5SC, 4/3SC	23x34	23x50
Mono	1/2D, 3/2D(F), DD	33x36,5	33x90,5, 33x111

## Rechargeable Alkaline Batteries

Rechargeable Alkaline is the only rechargeable battery that can be used in any application that uses disposable alkaline batteries. It also offers several performance and cost saving advantages over other Rechargeable batteries. Features and benefits include:

- Rechargeable up to 500 times depending on the frequency of recharging
- They are purchased fully charged and have an industry best shelf-life of 7 years
- Like single-use alkaline batteries Rechargeable Alkaline is a much more powerful 1.5 volt battery compared to 1.2 volts for most other rechargeables
- Rechargeable Alkaline is the lowest cost Rechargeable by far
- Unlike several other Rechargeable batteries, Rechargeable Alkaline is free of toxic materials



Part No.	Voltage	Capacity	Part No.	Package	Manufact.
AccuCell AAA	1,5V	750mAh	AAA	Blister / 4pcs	AccuCell
PURE R03	1,5V	800mAh	AAA	Blister / 2pcs	PureEnergy
PURE R03XL (long life)	1,5V	800mAh	AAA	Blister / 4pcs	PureEnergy
PURE R6	1,5V	1600mAh	AA	Blister / 2pcs	PureEnergy
AccuCell AAA	1,5V	1800mAh	AA	Blister / 4pcs	AccuCell
PURE R6XL (long life)	1,5V	2000mAh	AA	Blister / 4pcs	PureEnergy
AccuCell C	1,5V	3000mAh	C	Blister / 2pcs	AccuCell
AccuCell D	1,5V	6000mAh	D	Blister / 2pcs	AccuCell

Part No.	Ord.No.
S PURE R03	5041
S PURE R03XL	50978
S PURE R6	5042
S PURE R6XL	50979
S AccuCell AAA	57501
S AccuCell AA	57502
S AccuCell C	57503
O AccuCell D	57504

## Replacement Lead Acid Batteries

### LCX Series



Part No.	Voltage	Capacity	Dimensions	Weight.
LCX 28-12	12V	28000mAh	165x125x175 mm	
LCX 42-12	12V	42000mAh	197x165x175 mm	
LCX 65-12	12V	65000mAh	350x166x175mm	

Part No.	Ord.No.
O LCX 28-12	43891
O LCX 42-12	47520
O LCX 65-12	59812

## LCR Series



Part No.	Voltage	Capacity	Dimensions	Weight
LCR 1,3-6	6V	1300mAh	97x24x50 mm	0,3kg
LCR 3,4-6	6V	3400mAh	134x34x60 mm	0,62kg
LCR 7,2-6	6V	7200mAh	150x34x100mm	1,26kg
LCR 12-6	6V	12000mAh	151x50x94 mm	1,95kg
LCR 1,3-12	12V	1300mAh	97x48 x50 mm	0,59kg
LCR 2,2-12	12V	2200mAh	177x 34x60mm	0,8kg
LCR 3,4-12	12V	3400mAh	134x 67x60mm	1,2kg
LCR 7,2-12	12V	7200mAh	151x 65x94 mm	2,5kg
LCR 12-12	12V	12000mAh	151x 102x94mm	3,9kg

Part No.	Ord.No.
O LCR 1,3-6	4362
S LCR 3,4-6	6518
S LCR 7,2-6	5119
S LCR 12-6	2586
S LCR 1,3-12	2882
S LCR 2,2-12	4149
S LCR 3,4-12	6532
S LCR 7,2-12	2612
S LCR 12-12	3806

## FM Series

ECONOMIC



Part No.	Voltage	Capacity	Dimensions
FM 613	6V	1300mAh	98x25x55mm
FM 640	6V	4000mAh	70x48x105mm
FM 672	6V	7200mAh	150x34x100mm
FM 1213	12V	1300mAh	97x43x57mm
FM 1230	12V	3000mAh	135x35x92mm
FM 1234	12V	3400mAh	135x35x92mm
FM 1245	12V	4500mAh	105x70x91mm
FM 1270	12V	7000mAh	151x95x65mm

Part No.	Ord.No.
O FM 613	45985
S FM 640	45984
S FM 672	45983
S FM 1213	45982
S FM 1230	69570
S FM 1234	45981
S FM 1245	45980
S FM 1270	47993

## NP Series



Part No.	Voltage	Capacity	Dimensions
NP 08-12	12V	0.8Ah	96x25x61,5mm

Part No.	Ord.No.
S NP 0.8-12	5220

## Alkaline Batteries



Part No.	Voltage	Part No.	Package
Alkaline LR03 TECXUS BP4	1,5V	AAA	Blister / 4pcs
Alkaline LR03 TECXUS BP8+2	1,5V	AAA	Blister / 8+2pcs
Alkaline LR6 TECXUS BP4	1,5V	AA	Blister / 4pcs
Alkaline LR6 TECXUS BP8+2	1,5V	AA	Blister / 8+2pcs
Alkaline LR14 TECXUS BP2	1,5V	C	Blister / 2pcs
Alkaline LR20 TECXUS BP2	1,5V	D	Blister / 2pcs
Alkaline 6LR61 TECXUS BP	9V	9V Block	Blister / 1pc

Part No.	Ord.No.
S Alkaline LR03 TECXUS BP4	72809
S Alkaline LR6 TECXUS BP4	72811
O Alkaline LR03 TECXUS BP8+2	72810
O Alkaline LR6 TECXUS BP8+2	72812
S Alkaline LR14 TECXUS BP2	72813
O Alkaline LR20 TECXUS BP2	72814
O Alkaline 6LR61 TECXUS BP	72815



DEPENDABLE

Part No.	Voltage	Capacity	Dimensions	Package
LR 43 TECXUS BP	1,5V	100mAh	11,5x4,1mm	Blister / 1pc
LR 44 TECXUS BP	1,5V	145mAh	11,5x5,4mm	Blister / 1pc
LR 54 TECXUS BP	1,5V	75mAh	11,5x3,07mm	Blister / 1pc

Part No.	Ord.No.
S LR 43 TECXUS BP	72883
S LR 44 TECXUS BP	72884
S LR 54 TECXUS BP	72885

WE 11 A = L 1016

WE 23 A = L 1028



Part No.	Voltage	Capacity	Dimensions	Package
WE 11 A	6V	43mAh	10,3x16 mm	Blister / 1pc
WE 23 A	12V	45mAh	10,3x28,8mm	Blister / 1pc

Part No.	Ord.No.
O WE 11 A	8861
S WE 23 A	9194

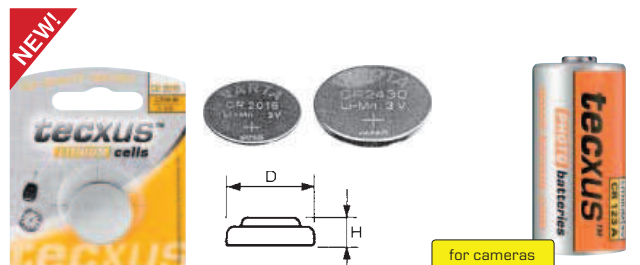
## Lithium Batteries



Part No.	Voltage	Part No.	Description	Package
Lithium FR03 TECXUS BP2	1,5V	AAA	1100mAh/Li-FES2	Blister/2pcs
Lithium FR6 TECXUS BP2	1,5V	AAA	2900mAh/Li-FES2	Blister/2pcs
Lithium ER9V TECXUS BP	9V	AA	1200mAh/Li-SOCL2	Blister/1pc

Part No.	Ord.No.
O Lithium FR03 TECXUS BP2	72954
O Lithium FR6 TECXUS BP2	72955
O Lithium ER9V TECXUS BP	72953

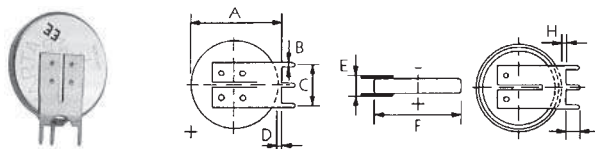
## CR Series (3V)



Part No.	Voltage	Capacity	Dimensions	Manufacturer
CR 1220 TECXUS BP	3V	35mAh	2,5x2mm	TECXUS
CR 1225 TECXUS BP	3V	50mAh	12,5x2,5mm	TECXUS
CR 1616 TECXUS BP	3V	55mAh	16x1,6mm	TECXUS
CR 1620 TECXUS BP	3V	70mAh	16x2mm	TECXUS
CR 1632	3V	120mAh	16x3,2mm	NEW SUN
CR 2016 TECXUS BP	3V	75mAh	20x1,6mm	TECXUS
CR 2025 TECXUS BP	3V	150mAh	20x2,5mm	TECXUS
CR 2032 TECXUS BP	3V	210mAh	20x3,2mm	TECXUS
CR 2032 B	3V	220mAh	20x3,2mm	VARTA
CR 2330 New Sun	3V	250mAh	23x3mm	NEW SUN
CR 2330	3V	265mAh	23x3mm	PANASONIC
CR 2354 1-BL New Sun	3V	530mAh	23x5,4mm	NEW SUN
CR 2430 TECXUS BP	3V	270mAh	24x3mm	TECXUS
CR 2430 V	3V	280mAh	24,5x3mm	VARTA
CR 2450 TECXUS BP	3V	500mAh	24x5mm	TECXUS
CR 2450 B	3V	560mAh	24,7x5mm	VARTA
CR 123 A TECXUS	3V	1300mAh	34,5x17,1mm	TECXUS

Part No.	Ord.No.
S CR 1220 TECXUS BP	72941
S CR 1225 TECXUS BP	72942
S CR 1616 TECXUS BP	72943
S CR 1620 TECXUS BP	72944
S CR 1632	52179
S CR 2016 TECXUS BP	72945
S CR 2025 TECXUS BP	72946
S CR 2032 TECXUS BP	72949
S CR 2032 B	3358
S CR 2330 New Sun	71689
S CR 2330	3627
S CR 2354 1-BL New Sun	54640
S CR 2430 TECXUS BP	72950
S CR 2430 V	36048
S CR 2450 TECXUS BP	72951
S CR 2450 B	2100
S CR 123 A TECXUS	47593

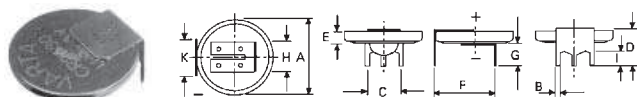
## PCB mounted - vertical



Part No.	Voltage	Capacity	Dimensions
CR 2032 SLF	3V	230mAh	20x3,2 mm
CR 2430 SLF	3V	280mAh	26x4 mm

Part No.	Ord.No.
S CR 2032 SLF	3827
S CR 2430 SLF	5380

## PCB mounted - horizontally



Part No.	Voltage	Capacity	Description	Dimensions
CR 2032 PCB	3V	230mAh	3-pin	20x3,2 mm
CR 2450 PCB	3V	560mAh	2-pin	25x5 mm

Part No.	Ord.No.
S CR 2032 PCB	29757
S CR 2450 PCB	6597

## LS Series



Part No.	Voltage	Capacity	Part No.	Description
LS 14500 CNA	3,6V	2250mAh	AA	axial outlets
CR 2450 PCB	3V	560mAh	2-pin	25x5 mm

Part No.	Ord.No.
S LS 14500 CNA	33494
S CR 2450 PCB	6597

## Cross Reference Table XENO

Size	Terminal	Dimensions	XENO	SAFT	SONNENSCHN			
1/2AA		14,5x25,2mm	XENO XL-050F	1,2Ah	LS 14250	1,1Ah	SL-350/S	1,2Ah
1/2AA	axial	14,5x25,2mm	XENO XL-050F AX	1,2Ah	LS 14250 CNA	1,1Ah	SL-350/P	1,2Ah
1/2AA	terminal leads	14,5x25,2mm	XENO XL-050F T1	1,2Ah	LS 14250 CNR	1,1Ah	SL-350/T	1,2Ah
1/2AA	3 pins into PCB	14,5x25,2mm	XENO XL-050F T3	1,2Ah	LS 14250 3PF	1,1Ah	SL-350/PT	1,2Ah
2/3AA		14,5x33,5mm	XENO XL-055F	1,65Ah			SL-361/S	1,6Ah
2/3AA	axial	14,5x33,5mm	XENO XL-055F AX	1,65Ah			SL-361/P	1,6Ah
2/3AA	terminal leads	14,5x33,5mm	XENO XL-055F T1	1,65Ah			SL-361/T	1,6Ah
2/3AA	3 pins into PCB	14,5x33,5mm	XENO XL-055F T3	1,65Ah			SL-361/PT	1,6Ah
AA		14,5x55,5mm	XENO XL-060F	2,4Ah	LS 14500	2,45Ah	SL-360/S	2,4Ah
AA	axial	14,5x55,5mm	XENO XL-060F AX	2,4Ah	LS 14500 CNA	2,45Ah	SL-360/P	2,4Ah
AA	terminal leads	14,5x55,5mm	XENO XL-060F T1	2,4Ah	LS 14500 CNR	2,45Ah	SL-360/T	2,4Ah
AA	3 pins into PCB	14,5x55,5mm	XENO XL-060F T3	2,4Ah	LS 14500 3PF	2,45Ah	SL-360/PT	2,4Ah
C		26,2x50mm	XENO XL-140F	7,2Ah	LSH 14	5,5Ah	SL-770/S	7,2Ah
C	terminal leads	26,2x50mm	XENO XL-140F T1	7,2Ah	LSH 14 CNR	5,5Ah	SL-770/T	7,2Ah
C		26,2x50mm	XENO XL-145F	8,5Ah	LS 26500	7,7Ah	SL-2770/S	8,5Ah
C	terminal leads	26,2x50mm	XENO XL-145F T1	8,5Ah	LS 26500 CNR	7,7Ah	SL-2770/T	8,5Ah
D		33,6x60mm	XENO XL-200F	16,5Ah	LSH 20	13Ah	SL-780/S	16,5Ah
					LS 33600	17Ah		
D	terminal leads	33,6x60mm	XENO XL-200F T1	16,5Ah	LSH 20 CNR	13Ah	SL-780/T	16,5Ah
					LS 33600 CNR	17Ah		
D		33,6x60mm	XENO XL-205F	19Ah	LS 33600 C	18,5Ah	SL-2780/S	19Ah
D	terminal leads	33,6x60mm	XENO XL-205F T1	19Ah	LS 33600 C CNR	18,5Ah	SL-2780/T	19Ah

## XENO Series- 3,6V



**General characteristics of XENO batteries:**  
 High Steady Operating Voltage:  
 Nominal Voltage: 3.6V  
 Operating Voltage: 3.4V  
 Improved Transient Minimum Voltage Effect  
 Very Low Self-Discharge Rate (Self-discharge 1 up to 2% per year at room temperature)  
 Superior Storage Capability (10 Years)  
 Pulse Current up to Medium Current  
 Highest Reliability and Safety  
 Operating temperature range: -55°C up to +85°C

### WITH PINS INTO PCB

Part No.	Ord.No.	Description
S XL-050F T3	49193	1/2AA, 3,6V/1200 mAh
O XL-055F T3	49196	2/3AA, 3,6V/1650 mAh
O XL-060F T3	49200	AA, 3,6V/2400 mAh

### WITH AXIAL TERMINALS

Part No.	Ord.No.	Description
S XL-050F AX	49191	1/2AA, 3,6V/1200 mAh
S XL-055F AX	49195	2/3AA, 3,6V/1650 mAh
S XL-060F AX	49198	AA, 3,6V/2400 mAh

### WITH TERMINAL LEADS

Part No.	Ord.No.	Description
S XL-050F T1	49192	1/2AA, 3,6V/1200 mAh
O XL-055F T1	48811	2/3AA, 3,6V/1650 mAh
S XL-060F T1	49199	AA, 3,6V/2400 mAh
S XL-140F T1	49202	C, 3,6V/7200 mAh
O XL-145F T1	49204	C, 3,6V/8500 mAh
O XL-200F T1	49206	D, 3,6V/16500 mAh
O XL-205F T1	49209	D, 3,6V/19000 mAh

### STANDARD

Part No.	Ord.No.	Description
S XL-050F	48983	1/2AA, 3,6V/1200 mAh
O XL-055F	49194	2/3AA, 3,6V/1650 mAh
S XL-060F	49197	AA, 3,6V/2400 mAh
S XL-140F	49201	C, 3,6V/7200 mAh
S XL-145F	49203	C, 3,6V/8500 mAh
S XL-200F	49205	D, 3,6V/16500 mAh
S XL-205F	49208	D, 3,6V/19000 mAh



## Battery Holders

### Battery Holders for AAA Batteries



Part No.	Ord.No.	No. of Cells	Terminal Part No.
S 1 X UM 4 L	8149	1xAAA	Soldering Lugs
S 2 X UM 4 L	8150	2xAAA	Soldering Lugs
S 4 X UM 4 R	56859	3xAAA	Wire 152mm

### Battery Holders for Mignon (AA) Batteries



Part No.	Ord.No.	No. of Cells	Terminal Part No.
S BCL 108	55757	1/2xAA	Soldering Lugs
S 1 X UM 3	16732	1xAA	9V clip
S 1 X UM 3 L	28196	1xAA	Soldering Lugs
S 1 X UM 3 K	7942	1xAA	Wire 152mm



Part No.	Ord.No.	No. of Cells	Terminal Part No.
S 2 X UM 3	16734	2xAA	9V Clip
S 2 X UM 3 R	28197	2xAA	9V Clip
S 2 X UM 3 P	55006	2xAA	PCB pins
S 3 X UM 3 B	52102	3xAA	9V Clip



Part No.	Ord.No.	No. of Cells	Terminal Part No.
S 4 X UM 3 Q	16736	4xAA	9V Clip
S 4 X UM 3 F	28198	4xAA	9V Clip
S 4 X UM 3 L	16735	4xAA (2+2)	9V Clip



Part No.	Ord.No.	No. of Cells	Terminal Part No.
S 6 X UM 3 Q	16737	6xAA (3+3)	9V Clip
S 8 X UM 3 Q	16738	8xAA (4+4)	9V Clip
S 10 X UM 3 Q	16739	10xAA(5+5)	9V Clip

### Battery Holders for Baby (C) Batteries



Part No.	Ord.No.	No. of Cells	Terminal Part No.
S 1 X UM 2	16728	1xC	9V Clip
S 2 X UM 2	16729	2xC	9V Clip
S 4 X UM 2 Q	16731	4xC	9V Clip

### Battery Holders for Mono (D) Batteries



Part No.	Ord.No.	No. of Cells	Terminal Part No.
S 1 X UM 1	16726	1xD	9V Clip
S 2 X UM 1	28195	2xD	9V Clip
S 4 X UM 1	16727	4xD	9V Clip

### 9V Block Battery Holders



Part No.	Ord.No.	Terminal Part No.
S SN9V1	7945	Soldering Lugs
S 9 V I	16724	9V Clip with Wire 150cm
S 9 V T	16725	9V Clip with Wire 150cm

## Button Cells Battery Holders

BH500

KEYSTONE



SN 2032



SN 2430



Part No.	Ord.No.	Description
S BH 500	2283	CR 1216, 1220, 1225(12mm)
S SN 2032	2643	CR 2032 (20mm) RM20
S SN 2430	3639	CR 2430 (24,5mm) RM20

## Battery Clips

BCL82PC



BCL92PC



BCL595PC



BCL628PC



Part No.	Ord.No.	Description	1+	10+	25+
S BCL 82 PC	5687	AAA/N			
S BCL 92 PC	10747	AAA/AA			
S BCL 595 PC	7943	AAA/AA +pole			
S BCL 628 PC	7944	AAA/AA - pole			

BCL204

BCL209



BCL228



Part No.	Ord.No.	Description
O BCL 204	55732	AAAA/AAA/N/12V - pole
S BCL 209	49106	AAA/AA - pole
S BCL 228	55734	AAAA/AAA/N/12V + pole

BCL210

BCL238

BCL290



Part No.	Ord.No.	Description
O BCL 210	49107	2xAAA/AA - pole
O BCL 238	55737	2xAAA/AA + pole
O BCL 290	55738	2xAAA/AA +/- pole



## Chargers

### Battery Chargers with DV Detection



Chargers with  $\Delta V$  detection could effectively prevent overcharge of batteries by switching the charge cycle from fast mode to trickle mode when the charger detected the abrupt change of voltage and other parameters. Since the chargers with  $\Delta V$  detection usually have a well-designed protection circuit, the Charging Current of this kind of chargers is around 0,25C-1C (C=battery's capacity). REFRESH feature allows to regenerate battery's capacity, which is reduced due to memory effect. Plug-in versions have European fork directly on the charger, desktop versions are equipped with a solid flex.



MW 8168 GS

Intercept 5 Hours Battery Charger w/ DV Control, Discharge Function & 1500mAh batteries  
2/4 switch  
For AA & AAA Ni-Cd/Ni-MH batteries  
Plug-in

$\Delta V$

Technical Parameters	MW 8168 GS
Input Voltage	230 VAC
Battery Type	NiCd/NiMH
Battery Size	AAA, AA
Charging Current - fast charge	500mA (AA), 300mA (AAA)
Charging Current - trickle charge	50mA (AA), 30mA (AAA)
Discharge function	yes
Input Method	plug-in
Dimension	119x71x83mm

Part No.	Ord.No.
S MW 8168 GS	52015



MW 1268

Intercept-Rapid Battery Charger w/ DV control, USB input, discharge & memory refresh function  
2/4 switch  
For AA & AAA Ni-Cd/Ni-MH batteries

Accessories:

car adaptor MWCP1  
AC/DC adaptor MW1205GS

$\Delta V$

USB

Technical Parameters	MW 1268
Input Voltage	AC 100-230V, DC 12-13.8V, 5V(USB)
Battery Type	NiCd/NiMH
Battery Size	AAA, AA
Charging Current - fast charge	800mA (AA), 300mA (AAA)
Charging Current - trickle charge	80mA (AA), 30mA (AAA)
Discharge function	yes
Input Method	AC & DC Input
Dimension	119x71x83mm

Part No.	Ord.No.
S MW 1268	49291



MW L 2111(1)

Aluminum battery charger  
LCD with backlight  
4 channels

Accessories:

car adaptor MWCP1  
AC/DC adaptor MW1205GS

$\Delta V$

LCD


Technical Parameters	MW L2111(1)
Input Voltage	AC 230V
Battery Type	Ni-Cd/Ni-MH
Battery Size	AAA, AA
Charging Current - fast charge	800mA (AA), 300mA (AAA)
Charging Current - trickle charge	80mA (AA), 30mA (AAA)
Discharge function	no
Input Method	Desktop
Dimension	124.5 x 72 x 30mm

Part No.	Ord.No.
S MW L 2111(1)	70393



ΔV



**MW 3279**  
CamPlus-Intercept 30mins   
Super fast battery charger with 4 Channels DV control DV detection 4 channels  
For AA, AAA Ni-Cd/Ni-MH batteries  
**Accessories:**  
car adaptor MWCP1  
switching adaptor MW 7M25GS


Technical Parameters		MW 3279
Input Voltage	AC 100-230V , DC 12-13.8V	
Battery Type	Ni-Cd/Ni-MH	
Battery Size	AAA, AA	
Charging Current - fast charge	3000mA (AA), 1200mA (AAA)	
Charging Current - trickle charge	300mA (AA), 120mA (AAA)	
Discharge function	no	
Input Method	Cigarette Lighter Plug for car	
Dimension	128x82x50mm	

Part No.	Ord.No.
S MW 3279	70395



ΔV

LCD


**MW 6278**   
Universal Ni-Cd/Ni-MH Battery Charger with LCD Display, 4 Channels DV Control and Discharge 4 channels Desktop  
For 1-4 pcs AA, AAA, C, D or 1-2 pcs 9V Ni-Cd/Ni-MH batteries  
**Accessories:**  
car adaptor MWCP1  
switching adaptor MW 7E12

Technical Parameters		MW 6278
Input Voltage	AC 100-240V	
Battery Type	Ni-Cd/Ni-MH	
Battery Size	AAA, AA, C, D, 9V	
Charging Current - fast charge	1000mA (AA,C,D), 500mA(AAA),13mA PP3 (9V)	
Charging Current - trickle charge	100mA (AA,C,D), 50mA (AAA)	
Discharge function	yes	
Input Method	Desktop, Others	
Dimension	190x128.5x61mm	

Part No.	Ord.No.
S MW 6278	70397



ΔV

**MW 6288 GS**   
Plug-in 9V Battery Charger w/ DV and Discharge Function DV detection Discharge function 2 channels  
For 9V Ni-Cd/Ni-MH batteries  
Plug-in


Technical Parameters		MW 6288 GS
Input Voltage	AC 230V	
Battery Type	Ni-Cd/Ni-MH	
Battery Size	Block 9V	
Charging Current - fast charge	70mA	
Charging Current - trickle charge	7mA	
Discharge function	no	
Input Method	Plug-In	
Dimension	98x64x91.75mm	

Part No.	Ord.No.
S MW 6278	70396

## USB Battery Chargers



USB

**MW U112**   
USB Charger  
Portable  
Extendable  
For 1 or 2pcs Ni-Cd/Ni-MH batteries  
**Accessories:**  
car adaptor MWCP1  
switching adaptor MW 7M25GS

Technical Parameters		MW U112
Input Voltage	5V	
Battery Type	Ni-Cd/Ni-MH	
Battery Size	AA/AAA	
Charging Current	200 mA	
Discharge function	no	
Input Method	Plug-In	
Dimension	20 x 17 x 87.6mm	


Part No.	Ord.No.
S MW U112	70398

## Alkaline Battery Chargers

Special chargers for Rechargeable Alkaline Manganese batteries (RAM). Warranty for RAM batteries is relevant to the use with these chargers.



μController


**ACL62**   
Rapid charger for 1-4 alkaline AA/AAA RAM (rechargeable alkaline-manganese) batteries. A microcontroller monitors each bay separately to ensure that each cell is charged effectively, and protected against overcharging and reverse polarity. After charging it changes over automatically to trickle charge.

Technical Parameters		ACL62
Input Voltage	230V	
Battery Type	RAM	
Battery Size	AAA/AA	
No. of Batteries	1-4	
Max. charging current per bay:	400mA	
Typ. charging time for 2000 mAh AA bat.	320min.	
Processor	yes	
Dimension (WxHxD)	83 x 125 x 75 mm	

Part No.	Ord.No.
S ACL62	57505



μController

**ACL64**   
Universal rapid charger for 1-4 RAM (Rechargeable Alkaline Manganese) batteries: AA, AAA, C or D. A microcontroller monitors each bay separately to ensure that each cell is charged effectively, and protected against overcharging and reverse polarity. After charging it changes over automatically to trickle charge.

Technical Parameters		ACL64
Input Voltage	230V	
Battery Type	RAM	
Battery Size	AAA/AA/C/D	
No. of Batteries	1-4	
Max. charging current per bay:	500mA	
Typ. charging time for 2000 mAh AA bat.	250min.	
Processor	yes	
Dimension (WxHxD)	105 x 205 x 60 mm	

Part No.	Ord.No.
O ACL64	57506



RAM, NiCd, NiMH

**ACCUMANAGER10** **AccuCell**  
AC/DC battery charger will charge 1-4 AA or AAA rechargeable batteries, NiMH, NiCd or rechargeable alkaline batteries. Any combination of battery sizes and types can be charged simultaneously. Microcontrolled charger recognizes the battery type and charges accordingly. LED lights indicate "charging" and "ready". Charges using 120V AC household power or 12V DC, vehicle or solar panel.

Technical Parameters	ACL64
Input Voltage	230VAC/12VDC
Battery Type	NiCd, NiMH, RAM
Battery Size	AAA/AA
No. of Batteries	1-4
Max. charging current per bay:	600mA
Typ. charging time for 2000 mAh AA bat.	from 20min to 12h
Dimension (WxHxD)	145 x 90 x 50 mm

Part No.	Ord.No.
S AccuManager10	62341



RAM, NiCd, NiMH

**ACCUMANAGER20** **AccuCell**  
AccuManager 20 charger will recharge your NiMH or NiCad batteries faster, and better, than any other charger we've ever seen. You can mix different battery types, sizes and charging times. After charging, each cell is stored at the peak of readiness with a gentle trickle charge until you're ready for it. There are four bays that accept AAA, AA, C or D cells, plus two bays that accept 9-volt cells. Charge times will run from 20 minutes to 12 hours depending on type and size. Supplied with both AC and DC charging cords and will run off standard 120V AC, automotive 12 volts, or a 10- to 15-watt solar panel with appropriate plug.

Technical Parameters	ACL64
Input Voltage	230VAC/12VDC
Battery Type	NiCd, NiMH, RAM
Battery Size	AAA/AA/C/D/9V Block
No. of Batteries	1-6
Max. charging current per bay:	600mA, 30mA(9V)
Typ. charging time	from 20min to 12h
Dimension (WxHxD)	165x190x63,5mm

Part No.	Ord.No.
S AccuManager20	57507



RAM

**ACP68, ACP69** **AccuCell**

Technical Parameters	ACP68, ACP69
Input Voltage	110 - 240 V/
Battery Type	RAM
Battery Size	AAA/AA
No. of Batteries	2
Max. charging current per bay:	190 mA (AAA), 120mA (AA)
Typ. charging time for 2000 mAh AA bat.	840 min
Processor	yes
Dimension (WxHxD)	45 x 110 x 68 mm

Part No.	Ord.No.	Description
S ACP68	62477	incl. 2xAAA batteries
S ACP69	62478	incl. 2xAA batteries



RAM, NiCd, NiMH

**XL SMART CHARGER** **PURE ENERGY**  
Automatic identification of the battery type by the microprocessor. Able to charge all types of rechargeable batteries. Capable of charging different battery types and sizes at the same time. Comes with 8 Rechargeable Alkaline batteries.

Technical Parameters	ENVIRO
Input Voltage	230VAC
Battery Type	NiCd, NiMH, RAM
Battery Size	AAA/AA
No. of Batteries	1-4
Max. charging current	350mA
Typ. charging time	from 2h to 6h

Part No.	Ord.No.
S XL SMART CHARGER	57453



**ENVIRO** **PURE ENERGY**  
4 Cell Envirocharger  
Charges both AA and AAA batteries

Technical Parameters	ENVIRO
Input Voltage	230VAC
Battery Type	RAM
Battery Size	AAA/AA
No. of Batteries	1-4
Max. charging current	500mA

Part No.	Ord.No.
S ENVIRO	5043

## Li-Ion Battery Chargers



**PIXO C1**  
This clever designed charger allows to charge Li-ion batteries from almost any photo camera or camcorder. Just adjust two pins and insert the battery. The polarity is automatically detected and the battery is charged with all necessary safety protections. This seems to be a great alternative to the Canon charger, especially if you also have to charge Li-ion batteries from other devices.

Technical Parameters	ENVIRO
Input Voltage	12-13,8 VDC, 110-230VAC
Battery Type	Li-Ion 3,7-7,2
Dimensions	110x65x25mm

Part No.	Ord.No.
S PIXO C1	64009

## Lead Acid Battery Chargers



### ALCS2-24

This is an Automatic Charger for lead acid batteries of between 2 and 24 v and between 2 and 24Ah (Automatically adjustable). It offers protection from overcharging and reverse-connection. It is also short-circuit proof.

Automatic switchover to the respective battery voltage.

Red LED indicates charging ,turns off when fully charged.

Green LED indicates the voltage.

This is a simple taper charger suitable for float application where the load can be left connected during charge.

Technical Parameters	ALCS2-24
Input Voltage	230VAC
Battery Type	Lead Acid
Nom. Voltage/Charging Current	2V/900mA
	6V/700mA
	12V/600mA
	24V/300mA
Dimension	68x106x51 mm

Part No.	Ord.No.
S ALCS2-24	6731



### MW 126C08 GS

6/12V 800mA Plug-In Lead Acid Battery Charger  
800mA

Reverse polarity protection  
For 6V or 12V lead acid battery  
Desktop



Technical Parameters	MW 126C08 GS
Input Voltage	230V AC
Output Voltage	DC 6V/12V
Battery Type	6/12V Lead Acid Battery
Charging Current	800 mA
Input method	Plug-In
Dimension	98x68x93mm

Part No.	Ord.No.
S MW 126C08 GS	49295



### MW 126C18 GS

6/12V 1800mA Desktop Lead Acid Battery Charger  
1800mA

Reverse polarity protection  
For 6V or 12V lead acid battery  
Desktop



Technical Parameters	MW 126C18 GS
Input Voltage	230V AC
Output Voltage	DC 6V/12V
Battery Type	6/12V Lead Acid Battery
Charging Current	1800 mA
Input method	Plug-In
Dimension	135x86x75mm

Part No.	Ord.No.
S MW 126C18 GS	49296

## Accumulator and Battery Testers



### BT 108

Checks AA, AAA, C, D, 9V types of regular or rechargeable batteries and button cells  
Internal battery not required  
Compact size and light weight

Part No.	Ord.No.
S BT 108 (BT 1)	3787



### BT ENERGY CHECK LCD

The Ansmann Energy Check LCD is ideal for the professional user needing to know the levels of their batteries. It is easy to use, very easy to read with the large LCD display and covers a huge range of batteries, from little button cells, through Alkaline, rechargeable batteries, specialist Photo Lithium batteries like the CR-V3 and CR123A.

Reliable professional battery tester for all common types of batteries including:

Alkaline - Lithium Photo - Lithium Button - Zinc-Air - NiCD & NiMH batteries.

Ultra Fast Testing - Easy to Handle - Battery Voltage Displayed - Capacity measurement in 10% steps

Test Time: Approximately 2 Seconds

Voltage Display: 2 Decimal Places

Part No.	Ord.No.
O BT ENERGY CHECK LCD 70684	



### MW 322

Small battery tester  
For AA or AAA Batteries

Put Batteries into the slots, then the LED will indicate the battery conditions.  
Dimension 80x38x15mm



Part No.	Ord.No.
S MW 322	64309



### MW 333

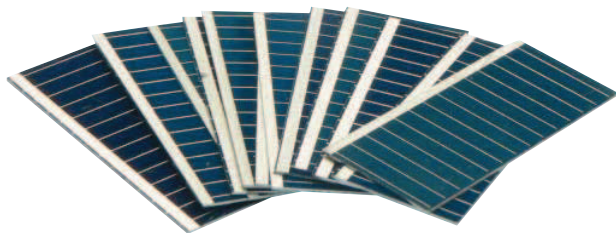
Multifunction tester with LCD display to control more than 12 different types of batteries and accumulators, such as: AAA, AA, C, D, 9V, CR123A, CR2, CR-V3, 2CR5, CR-P2, button batteries and the other types with the same voltage. When testing the LCD display shows the remaining battery capacity.  
Dimension: 118x88x23 mm



Part No.	Ord.No.
S MW 333	55545

## Solar Cells

### KIT - 12pcs of Miniature Solar Cells



High Efficiency Miniature Solar Cell, for use with 3V motors and other small load applications. Can be combined in series or parallel arrangements for increased voltage or current.

**Suitable for:**

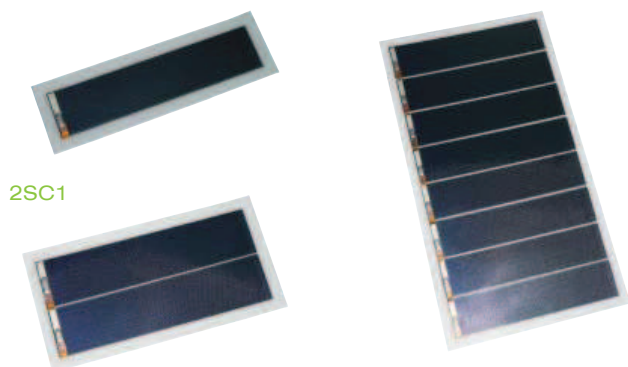
- solar lamps
- solar panels
- toys, robotics
- chargers
- light detectors

Technical Parameters	SSC2140-Z8-24/280
<b>Dimensions</b>	29,4x12,3mm
<b>Square</b>	3,6 cm <sup>2</sup>
<b>Uoc</b>	0,57V
<b>Isc</b>	90mA
<b>Pm</b>	40mW
<b>U load</b>	280mV
<b>Part No.</b>	<b>Ord.No.</b>
s SSC2140-Z8-24/280	55894

## Flexible Solar Panels

1SC1

8SC1

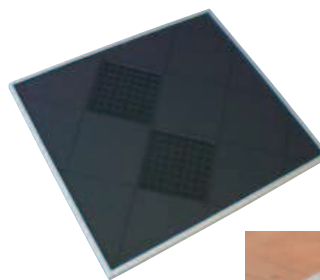


Technical Parameters (at 25°C)	Voltage Umpp/Umax [V]	Current Impp/Imax [mA]	Power Pmpp [W]	Dimensions [mm]	Weight [g]
1SC1	1,50 / 2,5	300 / 430	0,45	60 x 198 x 1,1	20
2SC1	3,0 / 4,97	300 / 430	0,9	102 x 198 x 1,1	38
3SC1	4,5 / 7,91	300 / 430	1,35	144 x 198 x 1,1	57
4SC1	6,0 / 9,94	300 / 430	1,8	186 x 198 x 1,1	74
6SC1	9,0 / 14,91	300 / 430	2,7	270 x 198 x 1,1	108
8SC1	12,0 / 19,88	300 / 430	3,6	354 x 198 x 1,1	140
9SC1	13,5 / 22,36	300 / 430	4,05	396 x 198 x 1,1	155
10SC1	15,0 / 24,85	300 / 430	4,5	438 x 198 x 1,1	170

Part No.	Ord.No.
s 1SC1	56566
s 2SC1	56567
s 8SC1	56704

## Solar Panels from 2W to 10W

### ASI®-F framed Solar module for 12-V Applications



- More energy
- Excellent value for money
- Robust encapsulation
- Easy mounting
- 10 years power guarantee
- IEC 61646 certified



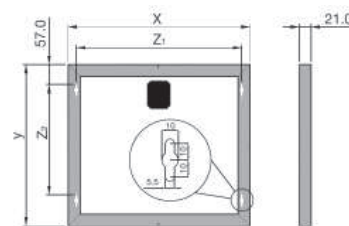
Robust encapsulation



Easy mounting

ASI®-F solar modules are available as power class 2 - 10, 16 and 32 Wp. The patented ASI®-Technology with its special stacked-cell design on the basis of silicon thin film guarantees years of unfaltering high performance. Each type of module is ready for mounting, and all parts, from the frame to the junction box, are designed for easy and inexpensive system integration. Typical applications of a 12 V system are lighting, traffic systems, telecommunication, safety technology, mini solar home systems, consumer and leisure products. ASI®-F modules combine state-of-the-art solar module technology with proven encapsulation, offering decisive advantages:

Technical Parameters	Power [Wp]	Current [mA]	Voltage [VDC]	Dimensions
ASI-F 2/12	2,1	125	16,8	144 x 293 mm
ASI-F 5/12	5,2	309	16,8	330 x 293 mm
ASI-F 10/12	10,3	613	16,8	330 x 581 mm



Part No.	Ord.No.
s ASI-F 2/12	56864
s ASI-F 5/12	56866
s ASI-F 10/12	57049

## Solar Panels from 50W to 90W

### KD Series



High-performance solar cells with a standard size of 156 x 156 mm to achieve over 16 % efficiency, guaranteeing an extremely high annual yield of energy from the photovoltaic system.

To protect against the harshest weather conditions, the cells are embedded between a reinforced glass covering and EVA foil, and are sealed with a PET foil backing. The laminate is set in a sturdy aluminium frame which is easy to assemble.

Technical parameters	Max.Power [Wp]	Current [A]	Voltage [VDC]	Dimensions
KD50SE-1P	50	2,8	17,9	706x744x45 mm
KD70SX-1P	70	3,92	17,9	778x660x36 mm
KD95SX-1P	95	5,31	17,9	1043x660x36 mm
KD180GH-2P	180	7,63	23,6	1341x990x39mm

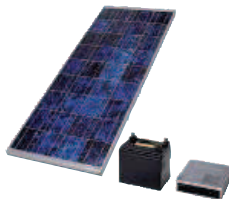
Part No.	Ord.No.
s KD50SE-1P	74768
s KD70SX-1P	74263
s KD95SX-1P	74757
o KD180GH-2P	74702

## Solar Sets

Solar set 12V/32W  
Solar set 12V/65W



Solar set with Kyocera solar panel, regulator and battery



Part No.	Ord.No.		
S SOLAR SET 12V/32W	63260	12V, 32Wp, 0,27m <sup>2</sup> , 42Ah	
S SOLAR SET 12V/65W	71545	12V, 65Wp, 0,49m <sup>2</sup> , 38Ah	

## S4.500 set

NEW!

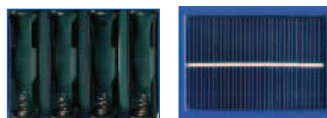


The S4 is a completely sealed and maintenance free 12VDC electricity storage system that can be charged directly from any size solar panel ranging from 10 up to 120 Wp or from other powersource like the Sunday DC10. The unit is equipped with a unique electronic battery state of charge display (LCD) and a buzzer to warn user when battery is running low. It is completely Plug and Play and comes with a standard cable set that can be plugged into the S4.

Part No.	Ord.No.		
O S4.500 set	71591	12V, 500Wh, 10A	

## Solar Chargers

BACHA-4S



Solar Battery Charger  
For 1-4 pcs AA Ni-Cd/Ni-MH batteries  
Voltage: 1,5 V  
No-load voltage: 2,6 V  
Working voltage: 1,7 V  
Current: 150 mA  
Dimensions: 82x60x18 mm

Part No.	Ord.No.		
S BACHA4-S	46583		

## Wind Turbines

Air Breeze

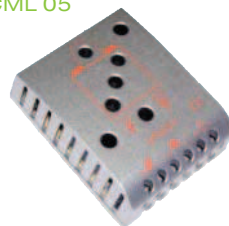


The new microprocessor based speed control results in increased performance, improved battery charging capability and the reduction of "flutter" noise from the machine. The controller allows for peak-power tracking of the wind by optimizing the alternator's output on all points of the cubic curve and then efficiently delivers the energy to the battery. The turbine's smart controller allows it to actually control blade rotation speed thus eliminating the buzzing noise. Furthermore, a new series of carbon-reinforced blades with a modified pitch angle further increases power production.

Technical Parameters		AIR BREEZE
Rotor Diameter		46 in (1.17 m)
Weight		13 lb (5.9 kg)
Mount		1.5 in schedule 40 1.9 in (48 mm) OD pipe
Start-up wind speed		6 mph (2.68 m/s)
Voltage		12/24VDC
Rated power		200 watts at 28 mph (12.5 m/s)
Monthly Energy Production		38 kWh/mo at 12 mph (5.4 m/s)
Part No.	Ord.No.	
S Air Breeze Land Wind Generator 12V	73941	
O Air Breeze Land Wind Generator 24V	73995	

## Solar Charge Regulators

CML 05



Charge Regulator with Nightlight Function  
Two nightlight modes with one programmable timer

- Battery State-of-Charge and charge status display
- Load disconnect indication
- Load short circuit and overload indication
- Acoustic load disconnect pre-warning
- PWM regulation (series type)
- Integrated temperature compensation
- Three-state charging method
- SOC and voltage controlled LVD
- Automation 12 / 24 Volt detection
- Solid-state circuit and load protection
- Reverse polarity protection
- Fully electronically protected
- Large terminals (up to 16 mm<sup>2</sup>)
- Holder for DIN rail mounting available

Nominal voltage: 12/24V  
Output Voltage with load: 12,8/25,6V  
Max. charging voltage: 14,5/29V  
Max. input current: 5A  
Max. Output Current: 5A  
Dimensions:80x100x32mm

Part No.	Ord.No.		
S CML 05	61317		

CX 10



Solar Charge Regulator with LC Display

- Battery State-of-Charge display LCD
- Charge and discharge status display
- Acoustic load disconnect pre-warning
- Load status indication
- Choose between 3 load disconnect algorithms boost/absorption/float PWM-regulation (series type)
- Prepared for DIN rail mounting
- Automatic 12 / 24 Volt detection
- Integrated temperature compensation
- Covered terminals (up to 16mm<sup>2</sup> wire size)
- Full solid-state protection

Nominal voltage: 12/24V  
Output Voltage with load: 12,8/25,6V  
Max. charging voltage: 14,5/29V  
Max. input current: 10A, 20A, 40A  
Max. Output Current: 10A, 20A, 40A  
Dimensions: 80x100x32mm

Part No.	Ord.No.	Description
S CX 10	61318	Output Current 10A
O CX 20	72352	Output Current 20A
O CX 40	72353	Output Current 40A
O CX USB	71834	Software + cable

APPLE 20



The unique small PV charger/discharger, specially designed for very low cost applications based on SMD technology. The Apple is extremely power efficient due to its very low voltage drop over both input and output switching Mosfets, and a buzzer to indicate that user is close to LVD (Low Voltage Disconnect). The Apple also has an electronic master-switch or On/Off-switch, and a clear state of charge indicator that also gives you a good indication during charging.

Frequent cycling of the battery at a very low state of charge causes fast deterioration of the battery due to sulfation and stratification. The Apple does not allow the user to frequently operate the battery at low state of charge.

Nominal Voltage: 12/24V  
Output Voltage with Load: 12,8/25,6V  
Max. Charging Voltage: 14,5/29V  
Max. Input Current: 10A, 20A, 40A  
Max. Output Current: 10A, 20A, 40A  
Dimensions: 80x100x32mm

Part No.	Ord.No.		
S APPLE 20	74112		

DC 10



The DC10 can be used in combination with S3/S4 and almost any 220 VAC power source to form a powerful continuous power supply (CPS) system. It provides a stable 12VDC output, straight to the application, or to the S3/S4. The unit is capable of handling a maximum load of 10A. In areas with bad electricity grid a CPS provides the comfort and security of never failing lamps and applications.

Part No.	Ord.No.		
S DC10	71609		

## 12 VDC Energy Saving Lamps

### Ulite 360 Cool Daylight

**NEW!**



The Ulite is a 12VDC instant start Off-Grid Compact Fluorescent Lamp with E17 Fitting. The Lamp has a lifetime of over 5.000 On/Off cycles and over 8.000 burning hours. The Ulite is available in 3 capacities from 3 up to 9 Watts.  
E17 to E27 Adaptor - Ord.No 71605

Part No.	Ord.No.	Description
S Ulite 360 Cool Daylight	71594	12V DC 9W 360lm 30kJ/h

### Qlite 1000 Cool Daylight

**NEW!**



The Qlite (former Ulux) is a 12VDC pre-heat start Off-Grid Compact Fluorescent Lamp with E17 Fitting and replaceable tube. The Lamp has an extremely long lifetime of over 100.000 On/Off cycles and over 10.000 burning hours. The Qlite is available in 5 capacities from 3 up to 18 Watts.  
E17 to E27 Adaptor - Ord.No 71605

### Qlite 1000 Spare Tube.

**NEW!**



Part No.	Ord.No.	Description
S Qlite 1000 Cool Daylight	71595	12VDC, 18W, 1000lm 60kJ/h
O Qlite 1000 Spare Tube	72416	

### A-light 360 RS

**NEW!**



The A-Light is the best price performance ratio lamp in the industry. The A-light uses a Philips 10W fluorescent tube and is equipped with the highest grade electronic components to ensure a long lifetime. The uniquely shaped UV-stabilized reflector takes care of a good diffusion of the light. The A-light displayed here produces 360 Lumens at 10W power consumption.

Part No.	Ord.No.	Description
O A-light 360 RS	71593	12V DC 10W 360lm 36kJ/h

### Multilight2 450

**NEW!**



The Multilight 2 is a sturdy lamparmature with an extremely durable melamine lamp shade. The Multilight 2 has a preheat start inverter and is equipped with a replaceable Ulux tube. The lamp has a lifetime of over 100.000 On/Off cycles and over 10.000 burning hours.

Part No.	Ord.No.	Description
S Multilight2 450	71596	12V DC 9W 450lm 30kJ/h

### Luna 60 White

**NEW!**



The Luna is a White LED lamp with a power consumption of only 0,25 to 1 Watt; The Luna is very suitable as a reading lamp when combined with the Table and Pointer. Including the Sunday E17 fitting.

Part No.	Ord.No.	Description
O Luna 60 White	71598	LED 1W 12V/E17 biela 60lm 4kJ/h

## Accessories

### DCS Cable

**NEW!**



DCS cables have a unique shape to differentiate the Positive and Negative wire. The DCS cable in combination with all Sundaya electrical accessories will ensure a highly reliable installation in shortest possible time.

Rule : Current(A) x Lenght(m) should not exceed 50(Am). Sundaya supplies the cable in standard lengths of 10, 15, 30, 50 or 100m.

Part No.	Ord.No.	Description
O DCS Cable 15Amx10m with D&C Plugs	71601	15A, 10m
O DCS Cable 50Amx10m with D&C Plugs	71848	50A, 10m

### DCS cable 50Am

**NEW!**



DCS Cable with Plugs

Unique shape to differentiate the Positive and Negative wire. The DCS cable in combination with all Sundaya electrical accessories will ensure a highly reliable installation in shortest possible time.

Rule : Current(A) x Lenght(m) should not exceed 50(Am). Standard lengths of 10, 15, 30, 50 or 100 m. The following cables include also a connected D- and C-Plug and are used as extension cables.

Part No.	Ord.No.	Description
O DCS cable 50Am	71604	50Am x 5 m, F2 and M2 Plug

### D-Plug

**NEW!**



The D-Plug is the male part of the 12 V DC shock-proof plug system. It's design is comparable to a 230 VAC shock-proof plug, but in difference to the 230 V version it has got plugging poles with a square profile instead of round. And the poles are arranged in different directions ? because of that a wrong polarisation is impossible. Designed for currents up to 10 Ampere.

Part No.	Ord.No.	Description
O D-Plug	71606	

### T-Con

**NEW!**



The T-Con is connecting device that can be used to make a T or a cross connection to create either 1 or 2 branches from the main distribution cable. It also prevents the possibility of a reverse polarity connection and the installation is very simple.

Part No.	Ord.No.	Description
O T-Con	71603	

### Apollo

**NEW!**



The Apollo is the E17 fitting Lamp base with extremely rigid terminals to ensure good electrical conductivity which is very important in low voltage DC installations.

Part No.	Ord.No.	Description
O Apollo	71600	

### E27 to E17 adapter

**NEW!**



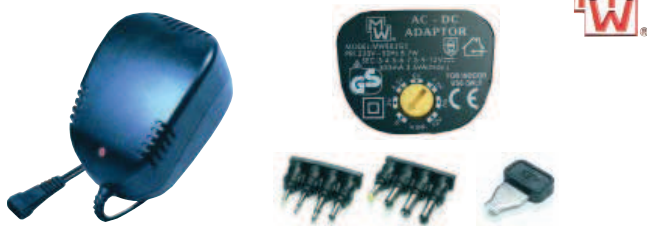
Allows to put the Sundaya ESL Lighting Units into an european standard socket. E27 Medium can be "made" to an E17 Intermediate adapter.

Part No.	Ord.No.	Description
S E27 to E17 adapter	71605	



## Linear Non-Regulated Adaptors

MW 883 GS , MW 895 GS, MW 9210 GS



Technical Parameters	MW 883 GS	MW 895 GS	MW 9210 GS
Input Voltage	230 VAC		
Output Voltage	3/4,5/6/7,5/9/12 VDC		
Output Current	300mA	500mA	1000mA 900mA (12V)
Output Power	3,6 VA	6,0 VA	10,8 VA
Short-Circuit Protection	no		
Output	non-regulated		
Dimensions	82x56x84mm	92x56x84mm	98x64x91mm

Part No.	Ord.No.
S MW 883 GS	44792
S MW 895 GS	44793
S MW 9210 GS	44795

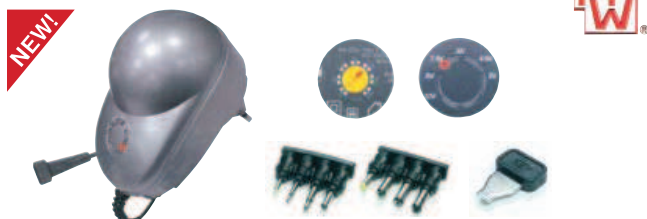
MW 1205 GS



Technical Parameters	MW 1205 GS
Input Voltage	230 VAC
Output Voltage	12 VDC
Output Current	500mA
Output Power	6,0 VA
Short-Circuit Protection	yes
Output	non-regulated
Dimensions	67x50x80mm

Part No.	Ord.No.
S MW 1205 GS	7192

MW 1895 UGS/8XC2, MW 1928 UGS/8XC2



Technical Parameters	MW 1895 UGS/8XC2	MW 1928 UGS/8XC2
Input Voltage	230 VAC	
Output Voltage	3/4,5/6/7,5/9/12 VDC	
Output Current	500mA	800mA
Output Power	6,0 VA	9,6 VA
Short-Circuit Protection	no	
Output	non-regulated	
Dimensions	94,5x61,5x91,5 mm	98,8x69x102 mm

Part No.	Ord.No.
S MW 1895 UGS	54437
S MW 1928 UGS	55516

MB120D030UGS/E+



230/12V Adaptor with CL Socket (car socket)

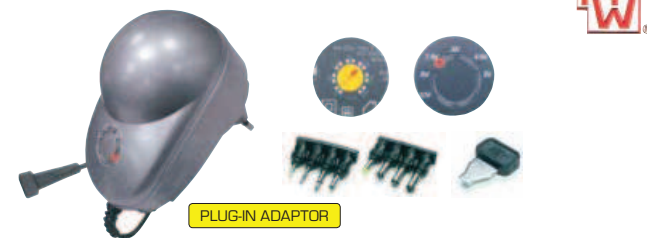


Technical Parameters	MB120D030UGS/E+	230/12V adaptor with CL
Input Voltage	230 VAC	230 VAC
Output Voltage	12 VDC	12 VDC
Output Current	300mA	1A
Output	non-regulated	non-regulated

Part No.	Ord.No.
S MB120D030UGS/E+	52387
S Adaptor 230/12V CL socket	62813

## Linear - Regulated Adaptors

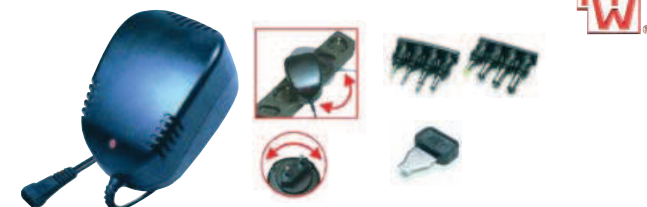
MWS 1883 GS, MWS 1895 GS



Technical Parameters	MWS 1883 GS	MWS 1895 GS
Input Voltage	230 VAC	
Output Voltage	1,5/3/4,5/6/7,5/9/12 VDC	
Output Current	300mA	1000mA 900mA (12V)
Output Power	3,6 VA	6,0 VA
Short-Circuit Protection	no	
Output	regulated	
Dimensions	95x61x94mm	92x56x84mm
Note	LED indication of selected voltage	

Part No.	Ord.No.
S MWS 1883 GS	56902
S MWS 1895 GS	54438

MW S9211 GS, MW RS 895 GS



Technical Parameters	MWS 9211 GS	MWRS 895 GS
Input Voltage	230V	
Output Voltage	1,5/3/4,5/6/7,5/9/12 VDC	
Output Current	1,4A -1A	1A - 0,5A
Output Power	12,0 VA	6,0 VA
Short-Circuit Protection	yes	
Output	regulated	
Dimensions	98x64x91mm	92x56x94mm
Note	rotary input plug	

Part No.	Ord.No.
S MWS 9211 GS	44798
S MWRS 895 GS	47101

## MW S1204 GS



Technical Parameters	MWS 1204 GS
Input Voltage	230 VAC
Output Voltage	12 VDC
Output Current	400mA
Output Power	4,8 VA
Short-Circuit Protection	yes
Output	regulated
Dimensions	92x56x84mm

Part No.	Ord.No.
S MWS 1204 GS	6327

## Accessories

### MW 38-130WFP



The spare cord with 6 connectors

Part No.	Ord.No.
S MW 38-130	38828

## Switching Adaptors

### MV xxxMGS Series



Technical Parameters	MV ... MGS
Input Voltage	100-240 VAC
Output Power	4.03-6.2VA
Dimensions	96x62x30mm

Part No.	Ord.No.	Description
S MV 050P130MGS	63813	5V/1300mA
S MV 090P080MGS	63814	9V/800mA
S MV 120P067MGS	63815	12V/670mA
S MV 240P030MGS	63817	24V/300mA

### MW 7NU10GS



With USB outlet.  
Suitable for worldwide use.  
1000mA.

Technical Parameters	MW 7NU10GS
Input Voltage	100-240 VAC
Output Power	5VDC
Output Current	1000mA
Dimensions	88x64x30mm

Part No.	Ord.No.
S MW 7NU10GS	63069

### MW 7E08 GS MW 7E12 GS



### MW 7C20T GS



Technical Parameters	MW 7E08 GS	MW 7E12 GS	MW 7C20T UGS
Input Voltage	100-240 VAC		
Output Voltage	1,5/3/4,5/6//7,5/9/12 VDC		
Output Current	1600mA 800mA (12V)	1200mA	2000mA
Output Power	9,6 VA	14,4 VA	24 VA
Dimensions	82x36x88mm	82x36x88mm	118x62x84mm

Part No.	Ord.No.
S MW 7E08 GS	47001
S MW 7E12 GS	49217
S MW 7C20T UGS	47002

### MW 7H50 GS



### MO 050P240PGS



Technical Parameters	MW 7H50 GS	MO 050P240PGS
Input Voltage	100-240 VAC	
Output Voltage	6/7,5/9/12/13,5/15 VDC	5 VDC
Output Current	5000mA / 3800mA	2400mA
Output Power	75 VA	12 VA
Dimensions	136x70x37mm	88x61x38mm

Part No.	Ord.No.
S MO 050P240PGS	55611
S MW 7H50 GS	46712

### MM120P500H5GS MM240P240H5GS



Technical Parameters	MM 120P500H5GS	MM 240P240H5GS
Input Voltage	100-240 VAC	
Output Voltage	12 VDC	24 VDC
Output Current	5000mA	2400mA
Output Power	60 VA	58 VA
Dimensions	136x70x37mm	136x70x37mm
Note	Desktop , output conn. 5,5/2,1mm	

Part No.	Ord.No.
S MM 120P500H5GS	54069
S MM 240P240H5GS	48048

## Switching Adaptors (continued)

MW 2102 GS, MW 2103 GS



FOR NOTEBOOKS

Technical Parameters	MW 2102 GS	MW 2103 GS
Input Voltage	100-240 VAC	
Output Voltage	15/16/18/19/20/22/24 VDC	
Output Current	3500mA (15-22VDC) 3000mA (24VDC)	6000mA (15-20VDC) 5000mA (22-24VDC)
Output Power	77 VA	
Dimensions	136x70x37mm	175,5x70,5x38mm

Part No.	Ord.No.
S MW 2102 GS	49283
S MW 2103 GS	56950

MW 2172



FOR NOTEBOOKS

Technical Parameters	MW 2172
Input Voltage	12-13,8 VDC
Output Voltage	15/16/18/19/20/22/24 VDC
Output Current	3500mA
Output Power	84 VA
Dimensions	130x65x25mm

Part No.	Ord.No.
S MW 2172	50771

PWS 120

NTS 150 W



FOR NOTEBOOKS

Technical Parameters	PWS 120	NTS 150 W
Input Voltage	100-240 VAC	100-240 VAC
Output Voltage	15-24 VDC	15-24 VDC
Output Current	6000mA	8500mA
Output Power	120W	150W
Dimensions	160x70x30mm	180x70x30mm

Part No.	Ord.No.
S PWS 120	49920
S NTS 150 W	59570

## DC/DC Converters

MW 238/8XC2

MW 292



Technical Parameters	MW 238/8XC2	MW 292
Input Voltage	12 VDC	12-24VDC
Output Voltage	1,5/3/4,5/6/7,5/9/12 VDC	1,5-12VDC
Output Current	1200mA	2000mA
Output Power	14,4 VA	
Short-Circuit Protection	-	
Output	regulated	regulated
Dimensions	103x46x59mm	100x70x32mm
Note	CL plug	CL plug

Part No.	Ord.No.
S MW 238	55547
S MW 292	60940

MW 210



with USB outlet

Technical Parameters	MW 210
Input Voltage	12 - 13,8V
Output Voltage	5VDC
Output Current	1000mA
Output	regulated
Note	CL plug

Part No.	Ord.No.
S MW 210	57526

## 230VAC/115VAC Voltage Converters

KXT100

KXT200



Technical Parameters	KXT100	KXT200
Input Voltage	220-240 VAC	
Output Voltage	110-120 VAC	
Rated load	100 W	100/200 W
Dimensions	90x65x90mm	120x70x65mm
Note	Desktop	Desktop

Part No.	Ord.No.
O KXT100	44576
S KXT200	44575

MW 2P045, MW 2P100



Technical Parameters	MW 2P045	MW2P100
Input Voltage	230 VAC	200-240 VAC
Output Voltage	100-120 VAC	100-120 VAC
Rated Power	45 W	100 W
Dimensions	88x62x88mm	115x84x69mm
Note	Plug-in	Desktop

Part No.	Ord.No.
S MW 2P045	49284
S MW 2P100	49285

## MW 2P200, MW 2P300



Technical Parameters	MW 2P200	MW 2P300
Input Voltage	200-240 VAC	
Output Voltage	100-120 VAC	
Rated Power	200 W	300 W
Dimensions [mm]	198x136x101	
Note	Desktop	

Part No.	Ord.No.
S MW 2P200	49286
S MW 2P300	49287

## MW200, MW500, MW1000



Technical Parameters	MW200	MW500	MW1000
Input Voltage	220-240 VAC		
Output Voltage	110-120 VAC		
Rated Power	200W	500W	1000W
Dimensions [mm]	130x90x80	163x105x95	215x118x155
Note	Desktop 1xUS-socket	Desktop 2xUS-socket	Desktop

Part No.	Ord.No.
O MW200	44962
S MW500	48070
S MW1000	47258

## 12(24) VDC/115VAC Voltage Converters

### GP-12-xx, GP-24-1xx Series



Technical Parameters	GP-12-150	GP-12-300
Input Voltage	10-14 VDC	10-14 VDC
Output Voltage	230 VAC	230 VAC
Rated load	150/450W	300/1000 W
Dimensions [mm]	165x86x49	165x86x49
Note	softstart	softstart

Technical Parameters	GP-24-150	GP-24-300	GP-24-1000
Input Voltage	24 VDC	24 VDC	24 VDC
Output Voltage	230 VAC	230 VAC	230 VAC
Rated load	150/450W	300/1000 W	1000/2500
Dimensions [mm]	165x86x49	165x86x49	344x122x79
Note	softstart	softstart	softstart

Part No.	Ord.No.
S GP-12-150	59957
S GP-12-300	58134
S GP-24-150	60531
S GP-24-300	58135

### G-12-300SINUS



### SP 600-012



Technical Parameters	G-12-300SINUS	SP 600-012
Input Voltage	10-14 VDC	10 - 15 VDC
Output Voltage	230 VAC	230 VAC
Rated Power	300/500 W	600/1500W
Dimensions	205x242x82mm	200x173x65mm
Note	Output Voltage has pure sine wave form	modified sine wave

Part No.	Ord.No.
O G-12-300SINUS	58129
S SP 600-012	72916

### SW-x-12, SW-x-24 series



Technical Parameters	SW-150-12	SW-300-12	SW-300-24
Input Voltage	11-15 VDC	11-15 VDC	22-30 VDC
Output Voltage	230 VAC	230 VAC	230 VAC
Rated Power	150W	300 W	300 W
Dimension	120x245x70mm	240x245x70mm	240x245x70mm
Note	sinusoidal output	sinusoidal output	sinusoidal output

Technical Parameters	SW-600-12	SW-1200-12	SW-1200-24
Input Voltage	11-15 VDC	11-15 VDC	22-30 VDC
Output Voltage	230 VAC	230 VAC	230 VAC
Rated Power	600W	1200 W	1200 W
Dimension	340x245x70mm	390x245x70mm	390x245x70mm
Note	sinusoidal output	sinusoidal output	sinusoidal output

Technical Parameters	SW-2000-12	SW-2000-24
Input Voltage	11-15 VDC	22-30 VDC
Output Voltage	230 VAC	230 VAC
Rated Power	2000 W	2000 W
Dimension	455x245x70mm	455x245x70mm
Note	sinusoidal output	sinusoidal output

Part No.	Ord.No.
O SW-150-12	65066
O SW-300-12	65067
O SW-300-24	69279
S SW-600-12	65069
S SW-1200-12	65070
O SW-1200-24	68575
O SW-2000-12	65071
S SW-2000-24	68634

## Adjustable DC Power Supplies



**R124R50E** **DIAMETRAL**  
This adjustable stabilised power supply is determined for simple devices and to all places, where is required to adjust the voltage continuously in the range from 0.9V to 24V with possibility to set-up the current limit from 0 ÷ 2A. The power supply is equipped with digital LED display, which shows the voltage or the current

Part No.	Ord.No.
S R124R50E	7724

## DC Laboratory Power Supplies



**P130R51D** **DIAMETRAL**  
Double laboratory power supply with one adjustable power supply with flowing voltage regulation from 0-30V at 0,1 - 4A output current and one constant voltage source 5V/3A.

Part No.	Ord.No.
S P130R51D	7722



**P230R51D** **DIAMETRAL**  
Triple laboratory power supply with two adjustable power supplies with flowing voltage regulation from 0 to 30V and with possibility of output current limitation from 0,1 ÷ 4A, and one fixed voltage supply 5V/3A. Adjustable power supplies can be connected easily only by pressing a switch into one symmetrical power supply.

Part No.	Ord.No.
S P230R51D	7723



**L140R51D** **DIAMETRAL**  
one power supply with flowing voltage regulation from 0 ÷ 40V and with possibility of setting the current limit from 0.1 ÷ 3A, and with a fixed voltage source 5V/3A. Individual outputs are galvanically separated.

Part No.	Ord.No.
S L140R51D	55621



**L240R51D** **DIAMETRAL**  
Triple laboratory power supply is equipped with two power supplies with flowing voltage regulation from 0 ÷ 40V at 0.1 ÷ 3A, and one fixed voltage source 5V/3A. It is supplied with a switch for connection regulated sources into one symmetrical source and fan.

Part No.	Ord.No.
S L240R51D	55622



**V130R50D** **DIAMETRAL**  
**V140R50D**  
is equipped with an adjustable power supply with flowing voltage regulation from 0 ÷ 30V and with possibility of the output current limitation from 0.1 ÷ 10A. It is suitable for power-demanding applications. Its low ripple and high output current is appreciated mainly by the manufacturers of LF devices.

Type	Ord.No.	Description
S V130R50D	9355	0-30V / 0-10A
O V140R50D	55623	0-40V / 0-10A



**Q130R50D** **DIAMETRAL**  
is equipped with one adjustable power supply with flowing voltage regulation from 0-30V with possibility of the output current limitation from 0,1-20A. It is suitable for power demanding applications. Its low ripple and high output current is appreciated mainly by the manufacturers of LF devices.

Part No.	Ord.No.
O Q130R50D	48328



**M130R50D** **DIAMETRAL**  
is equipped with one power supply with flowing voltage regulation from 0-30V/ 0,1-40A, and voltage/current measuring devices. The temperature sensor and fan prevent the power supply from temperature overload.

Part No.	Ord.No.
O M130R50D	48330

## DC Adjustable and Laboratory Power Supplies Comparison Table

Technical Parameters	R124R50E	P130R51D	P230R51D	L140R51D	L240R51D	V130R50D	V140R50D	Q130R50D	M130R50D
Supply Voltage	230V/50Hz	230V/50Hz	230V/50Hz	230 V/50Hz	230V/50Hz	230V/50Hz	230V/50Hz	230V/50Hz	230V/50Hz
Output Voltage	1x 0,9 ÷ 24V	1x 0 ÷ 30V	2x 0 ÷ 30V	1x 0 ÷ 40V	2x 0 ÷ 40V	1x 0 ÷ 30V	1x 0 ÷ 40V	1x 0 ÷ 30V	1x 0 ÷ 30V
Output Current	1x 0 ÷ 2A	1x 0 ÷ 4A	2x 0 ÷ 4A	1x 0 ÷ 3A	2x 0 ÷ 3A	1x 0 ÷ 10A	1x 0 ÷ 10A	1x 0 ÷ 20A	1x 0,2 ÷ 40A
Typical Ripple (regul. part)	5mV	2mV	2mV	2mV	2mV	2mV	2mV	2mV	< 2mV
Maximal Ripple (regul. part)	18mV	10mV	10mV	10mV	10mV	10mV	10mV	10mV	10mV
Constant Voltage	-	1x 5V	1x 5V	1x 5V	1x 5V	-	-	-	-
Constant Current	-	1x 3A	1x 3A	1x 3A	1x 3A	-	-	-	-
Typical Ripple (constant part)	5mV	2mV	2mV	2mV	2mV	-	-	-	-
Maximal Ripple (constant part)	18mV	15mV	15mV	15mV	15mV	-	-	-	-
Category of Measuring Devices	digital	digital	digital	digital	digital	digital	digital	digital	digital
Number of dig. Measuring Devices	1	2	4	2	4	2	2	2	2
Accuracy Category of Meas. Devices	2	2	2	2	2	2	2	2	2
Current Limit Indication	optical	Acust./Opt.	Acust./Opt	Acust./Opt	Acust./Opt	Acust./Opt	Acust./Opt	Acust./Opt	Acust./Opt
Switch-off Sound Indication		yes	yes	yes	yes	yes	yes	yes	yes
Blockage Against Peaks During Start		yes	yes	yes	yes	yes	yes	yes	yes
Separate Outputs Switch-off		yes	yes	yes	yes	yes	yes	yes	yes
Thermostat of Coolers with Ventilator		yes	yes	yes	yes	yes	yes	yes	yes
Thermal Safety Fuse for Cooler	yes	no	no	no	no	no	yes	yes	yes
Max. Power Consumption	50 W	160 W	320 W	160 W	320 W	320 W	660 W	620W	2150W
Dimensions in mm (h/w/d):	90x170x153	172x164x282	172x244x282	172x164x282	172x244x282	172x244x282	172x244x282	172x360x282	322x442x282
Weight:	2,9kg	6,1kg	10kg	6,1kg	10kg	9,8kg	11,5kg	19kg	26kg

## AC Power Supplies



### AC250KxD Series

AC laboratory power supply with voltage range from 0 to 255V and maximum output current 1A (2A). Display for the real and pre-set voltage value. Controlled by the inbuilt software. Output Voltage has the sine form continuance. Regulated version has the output voltage stability of 1-9V according to the actual configuration.

Part No.	Ord.No.	Description
S AC250K1D	7999	0-255V/1A black
S AC250K1D-S	48331	0-255V/1A black, stabilized
O AC250K2D	62426	0-255V/2A black
O AC250K2D-S	54422	0-255V/2A black, stabilized

Technical Parameters	OT230.012	OT230.021	OT230.030	OT230.050	OT230.100
Supply Voltage	230V/50Hz	230V/5 Hz	230V/50 Hz	230V/50 Hz	230V/50 Hz
Output Voltage	230V	230V	230V	230V	230V
Max. Output Current	1,2A	2,1A	3,0A	5,0A	10,0A
Output Safety Fuse	T 250V/1,25A	T250V/2,5A	T250V/3,15A	T250V/6,3A	B10A circuit-breaker
Operating Temperature	10 ÷ 30°C	10 ÷ 30°C	10 ÷ 30°C	10 ÷ 30°C	10 ÷ 30°C
Cable Length	2m	2m	2m	2m	2m

## Disjunctive Transformers



### OT230 Series

Disjunctive transformer for separating the mains voltage from connected appliance with maximum current consumption according to type of disjunctive transformer.

Part No.	Ord.No.	Description
S OT230.012	48303	230V/230V/1,2A
O OT230.021	59840	230V/230V/2,1A
O OT230.030	54856	230V/230V/3A
O OT230.050	72072	230V/230V/5A
O OT230.100	71521	230V/230V/10A

## Autotransformers



### RA1F250.031

Autotransformer RA1F250.031 is equipped with one regulated AC voltage power supply, galvanically separated from supply network.

**Input Voltage:** 230V/50Hz  
**Output Voltage:** <5 - 230 V  
**Output Current:** max. 3,1A  
**Output Fuse:** yes  
**Weight:** 8,4kg

Part No.	Ord.No.
S RA1F250.031	70519



### RA1F250.200

Autotransformer RA1F250.200 is equipped with one regulated AC voltage power supply, galvanically separated from supply network.

**Input Voltage:** 230V/50Hz  
**Output Voltage:** <5 - 230 V  
**Output Current:** max. 20A  
**Output Fuse:** yes  
**Weight:** 22,2kg

Part No.	Ord.No.
O RA1F250.200	70522



### RA1F250.100

Autotransformer RA1F250.100 is equipped with one regulated AC voltage power supply, galvanically separated from supply network.

**Input Voltage:** 230V/50Hz  
**Output Voltage:** <5 - 230 V  
**Output Current:** max. 10A  
**Output Fuse:** yes  
**Weight:** 14,8kg

Part No.	Ord.No.
O RA1F250.100	70520



### RZ3F400.060

3-phase separated autotransformer RZ3F400.060 is equipped with one regulated AC voltage power supply, galvanically separated from supply network.

**Input Voltage:** 3x 400V / 50Hz  
**Output Voltage:** <5 - 400 V  
**Output Current:** max. 6A  
**Output Fuse:** circuit-breaker B3x 6A  
**Weight:** 88kg

Part No.	Ord.No.
O RZ3F400.060	71523

Technical Parameters	RA1F250.031	RA1F250.100	RA1F250.200
Supply Voltage	230V / 50Hz	230V / 50Hz	230V / 50Hz
Output Voltage	< 5 ÷ 230V	< 5 ÷ 230V	< 5 ÷ 230V
Output Current	3,1A	10A	20A
Supply Network Fuse/circuit breaker	fuse T 250V/4A	fuse T250V/12,5A	circuit breaker B25A
Output Fuse/circuit breaker	fuse T250V/3,15A	circuit breaker B10A	circuit breaker B20A
Category of Measuring Devices	analog	analog	analog
Number of Measuring Devices	2	2	2
Category of Measuring Devices Accuracy	1,5	1,5	1,5
Operating Temperature	10 ÷ 30°C	10 ÷ 30°C	10 ÷ 30°C
Cable Length	2m separable	2m separable	2m fixed
Weight	cca 8,4kg	cca 14,8kg	cca 22,2kg

## Laboratory Power Supplies

ECONOMIC

ECONOMIC series of laboratory power supplies are not suitable for professional and continuous operation. If they supply more than 75% of the total power supply to the load, they may work max. 1 hour.



### HY1503D

Precise laboratory DC power supply which can operate in two modes: as voltage supply or as current supply. Two LCD displays indicate voltage and current outputs.

**Input Voltage:** 230 V/50 Hz  
**Output Voltage:** 0-15 V continuously adjustable  
**Output Current:** 0-3 A continuously adjustable  
**Dimension:** 206x153x110 mm

Part No.	Ord.No.	Description
S HY 1503 D	57240	0-15V/3A



### HY 3003 D

Precise laboratory DC power supply which can operate in two modes: as voltage supply or as current supply. Two LCD displays indicate voltage and current outputs.

**Input Voltage:** 230 V / 50 Hz  
**Output Voltage:** 0-30V, continuously adjustable  
**Output Current:** 0-3A, continuously adjustable  
**Dimension:** 291x158x136mm

Part No.	Ord.No.	Description
S HY 3003 D	11160	0-30V/3A



### HY 3005

Precise laboratory DC power supply for power demanding applications. HY 3005 can operate in two modes: as voltage supply or as current supply. 2 LED displays indicate voltage and current outputs, characters are readable in darkness.

**Input Voltage:** 230 V / 50 Hz  
**Output Voltage:** 0-30V, continuously adjustable  
**Output Current:** 0-5A, continuously adjustable  
**Dimension:** 291x158x136mm

Part No.	Ord.No.	Description
S HY 3005	59454	0-30V/5A



### HY 3003 D-3

Precise double laboratory DC power supply which can operate in two modes: as a power supply or a current supply. 4 LCD displays indicate voltage and current outputs.

**Input Voltage:** 230 V / 50 Hz  
**Output Voltage:** 2x 0-30V, continuously adjustable  
**Output Current:** 2x 0-3A, continuously adjustable  
**Fixed output:** +5V / 3A (± 3%)  
**Dimension:** 310x165x265mm

Part No.	Ord.No.	Description
S HY 3003 D-3	1786	2x0-30V/3A+5V/3A



### HY 3005-3

Precise double laboratory DC power supply which can operate in two modes: as a power supply or as a current supply. 2 LED displays indicate voltage and current outputs, readable in darkness.

**Input Voltage:** 230 V / 50 Hz  
**Output Voltage:** 2x 0-30V, continuously adjustable  
**Output Current:** 2x 0-3A (5A), continuously adjustable  
**Fixed output:** +5V / 3A (± 3%)  
**Dimension:** 310x165x265mm

Part No.	Ord.No.	Description
S HY 3003-3	59449	2x0-30V/3A + 5V/3A
S HY 3005-3	59452	2x0-30V/5A + 5V/3A

### HY 3010

### HY 3020

Precise laboratory DC power supplies for power demanding applications. They can operate in two modes: as voltage supplies or as current supplies. 2 LED displays indicate voltage and current outputs.

**Input Voltage:** 230 V / 50 Hz  
**Output Voltage:** 0-30V, continuously adjustable  
**Output Current:** 0-10A (20A), continuously adjustable  
**Dimension:** 365x265x164mm



Part No.	Ord.No.	Description
O HY 3010	59455	0-30V/10A
O HY 3020	61372	0-30V/20A

### SP 150

SP150 series power supply is a stabilized switch mode power supply of DC voltage from 0 V to 30 V (0 V to 50 V).

Maximum value of Output Current is 5 A (3 A) with the ability to continuously adjust the current limitation. Three-digit LCD display indicates voltage or current outputs.

This product is intended for general use to feed electric and electronic devices inside buildings and in environments without risk of explosion.

Weight: 1,5kg , dimension 240x123x64mm.

**Max. Output Power:** 150W  
**Input Voltage:** 230V/50Hz  
**Output Voltage:** 0 - 30V (50V)  
**Output Current setting:** continuous  
**Current limitation setting:** 0,2 - 5A (3A)



Part No.	Ord.No.
S SP 150 30V/5A	4161
S SP 150 50V/3A	4162

## Laboratory Furniture



Measuring, laboratory and working table **VarioLab+** is intended for school classrooms, electro-technical workshops and research, production and repair workplaces. The modular design of tables allows equipping according to the user's specific requirements. Thanks to special interlocking structure of the supporting part, the individual tables can be combined into self-contained groups and each table can be completed with further shelves, holders, etc. Therefore it is possible to place the individual parts, including the working desk, at valuable height level according to the specific needs of each user by 1 mm and individual tables can be simply concatenated in continuous straight or corner working centres.

**The supporting part of table** is made from massive metal parts. The surface of this metal frame is made from baked-on coating Comaxit (available in different colours) and galvanic zinc.

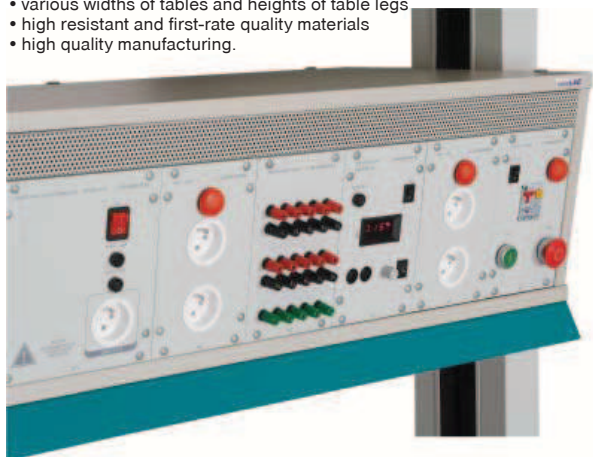
**The working desk of table** is made from first-grade high-pressure laminate of 28mm thickness with increased resistance against an abrasion and a single of the top layers. Desk's edges are made from plastic 4xABS of 2mm thickness. Laboratory table working desk's dimensions are specified according to each particular set. Upon request, the working desk can be supplied with antistatic surface modification.

**The superstructure with instruments** is made from laminate of 18mm thickness with the same features as the main working desk of the table. Devices placed in the superstructure are inclined by an angle of 10% for easier legibility.

**Instrumental equipment of the superstructure** is implemented according to specific requirements of each customer. Models of inbuilt instruments are in most cases modified from serial instruments manufactured by the company Diametral Ltd. Most of modules are supplied with their own switch and control light. Each superstructure is supplied with main circuit breaker, protector and TOTAL STOP.

### Main Features:

- fix and firm construction
- modularity, expandability
- modern ergonomic design
- optional antistatic performance
- smart way to set the working desk, shelf and superstructure high level
- smart way of cable duct inside the table legs
- wide selection of in-built devices and accessories
- custom-designed devices and accessories
- various widths of tables and heights of table legs
- high resistant and first-rate quality materials
- high quality manufacturing.



Superstructures with devices are made in various widths and single or double performance



Legible display of all values and devices control under 10° angle

# VARIOLAB+



[www.diametral.cz](http://www.diametral.cz)











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## DIY Kits

Audio Kits



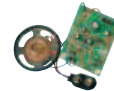
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Light Effect Kits



P 5

Sound Effect Kits



P 6

Car Kits



P 7

Measurement and Test Kits



P 8

Kits for Home Application

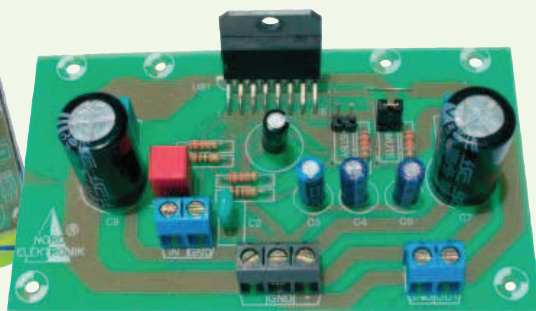


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Miscellaneous



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## Audio Kits - Overview

### Audio Amplifiers

Part No.	Max. Power	Impedance [Ω]	Power Supply	Suitable Transformer	Transformer Ord.No	Load	IC	Transistor	Note	Page
NE529	1x 0,66W	8	4 ÷ 12V	1x 9V 3,2VA	12879	8 Ω and more	LM386			P3
NE021	1x 4W	4	3 ÷ 16V	1x 12V 5VA	12891	8 Ω and more	TBA820			P2
NE530	2x 4W	4	4 ÷ 11V	1x 9V 10VA	12902	4 Ω and more	KA2206			P4
NE011	1x 7W	4	4 ÷ 20V	1x 15V 16VA	12915	4 Ω and more	TBA810			P2
NS561	4x 12W	2	8 ÷ 18V	2x 12V 50VA	8264	4 Ω and more	TDA8561			P5
NE018	1x 15W	4	12 ÷ 24V	1x 15V 22VA	12934	4 Ω and more	TDA2030			P2
NE019	2x 15W	4	12 ÷ 24V	1x 15V 30VA	12925	4 Ω and more	TDA2030		bridge	P2
NE060	2x 15W	4	12 ÷ 24V	2x 12V 50VA	8264	4 Ω and more	TDA2030		bridge	P3
NE020	1x 20W	4	8 ÷ 18V	2x 12V 50VA	8264	4 Ω and more	TDA2003		only bridge	P2
NS066	2x 20/30W	4	±10 ÷ ±20V	2x 12V 50VA	8264	4 Ω and more	TDA2040			P4
NS067b	2x 30/40W	4	±10 ÷ ±20V	2x 12V 100VA	59955	4 Ω and more	TDA2050			P4
NS074	1x 40W	4	±10 ÷ ±30V	2x 24V 50VA	8265	4 Ω and more	LM3876			P4
NS563	2x 40W	2	6 ÷ 18V	2x 12V 100VA	59955	2 Ω and more	TDA8563Q		for car appl.	P5
NE078	2x 30W		±12 ÷ ±17V	2x 12V 100VA	59955	2 Ω and more	TDA2030	2+2pcs BDX53,54	bridge	P3
NS071	2x 50W	4	±10 ÷ ±25V	2x 12V 100VA	59955	4 Ω and more	TDA7250	2+2pcs BDX33,34		P4
NS562	1x 70W	4	8V ÷ 18V	2x 12V 80VA	8266	4 Ω and more	TDA1562Q		for car appl.	P5
NS072	2x 80W	4	±10 ÷ ±35V	2x 24V 160VA	64732	4 Ω and more	TDA7250	2+2pcs TIP142,147		P4
NE013	1x 70/100W	4	±10 ÷ ±40V	2x 24V 160VA	64732	4 Ω and more	TDA7294			P2
NE013NZR	1x 70/100W	4	±10 ÷ ±40V	2x 24V 160VA	64732	4 Ω and more	TDA7294		rectifier + heatsink	P2
NE022	2x 70/100W	4	±10 ÷ ±40V	2x 24V 200VA	64734	4 Ω and more	2xTDA7294		bridge	P2
NE116a	2x 50/100W		±10 ÷ ±35V	2x 24V 300VA	60313	4 Ω and more	TDA7250	2+2pcs TIP142,147	bridge	P3
NS073	2x 130W	4	±10 ÷ ±45V	2x 24V 250VA	64739	4 Ω and more	TDA7250	2+2pcs MJ11015,16		P4
NS075	2x 60/150W	4	±10 ÷ ±30V	2x 24V 300VA	60313	4 Ω and more	LM3886			P4
NS077	1x 200W	8	±10 ÷ ±45V	2x 24V 250VA	64739	8 Ω and more	TDA7294		bridge	P4

### Pre-Amplifiers

NS201	stereo HIFI with corrections (LM1036)	P4
NE025	stereo with corrections	P2
NS200	stereo with RIAA characteristic for gramophones (NE5532)	P4
NE098	stereo with RIAA characteristic for gramophones (TL062)	P3
NE099	mono for mikrophone/guitar	P3
NE092	active stereo sound controller (TL084)	P3
NE073	mono graphic equalizer with 5+1 potentiometer	P3
NE097	mono 8-channel audio mixer (TLOx1, NA741)	P3
NE125	active subwoofer filter (TL072)	P3

### Page

### Amplifier Accessories

NS005	10 LED VU meter (LM3915)	P4
NS053	stereo 2x5 LED VU meter with AN6884	P4
NE012	stereo 2x10 LED VU meter	P2
NE016	mono 10 LED VU meter	P2
NE085	deleyed switch-on-speaker system	P3
NE069	power supply ±35V without transformer	P3
NE069A	power supply ±45V with transformer	P3

### Page

Suitable heatsinks - chapter I

## AUDIO Kits

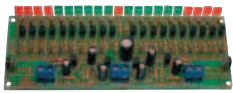


### NE 011 7W Mono Audio Amplifier with UL1481 (TBA810)

This small amplifier is constructed around the UL148 IC. (TBA810) The IC is fully protected against overheating and short circuits.  
Music power output: 7W / 4Ohm  
Frequency response: 40Hz to 20kHz  
Supply voltage: 4-20V

7W 4Ω

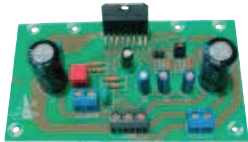
Part No.	Ord.No
S NE 011	45263



### NE 012 Stereo VU Meter

It is suitable for all stereo devices as recorders, mixing consoles, stereo amplifiers...  
21 LED - one for ON/OFF indication, 2x10 LED for signal - level indication  
Supply voltage: 10-14V  
Dimensions: 80x38x15mm

Part No.	Ord.No
S NE 012	9613



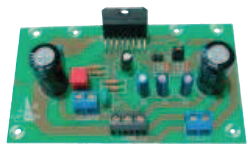
### NE 013 100W Mono Audio Amplifier with TDA 7294

It is suitable for driving subwoofers. The IC is fully protected against overheating and short circuits.

Music power output: 70-100W / 4Ohm  
Supply voltage: from + and -10V to + and - 40V  
Recommended pre-amplifier: NE025

70/100W 4Ω

Part No.	Ord.No
S NE 013	48823



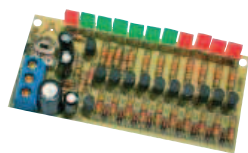
### NE 013 NZR 100W Mono Audio Amplifier with TDA 7294, rectifier and heatsink

This kit is suitable for driving subwoofers. The IC is fully protected against overheating and short circuits.

Music power output: 70-100W / 4Ohm  
Supply voltage: from + and -10V to + and - 40V  
Recommended pre-amplifier: NE025

70/100W 4Ω

Part No.	Ord.No
S NE 013 NZR	62261



### NE 016 Mono VU Meter

VU meter with a scale consisting of 10 LEDs.

Part No.	Ord.No
S NE 016	9615



### NE 018 15W Mono Audio Amplifier with TDA2030

This small AF amplifier is constructed with the TDA2030 IC, with a maximum supply capability of 15Wrms/4 ohm. The IC is protected against overheating and short circuits.

Suitable for tuners, CDs, MP3, radios...

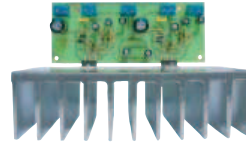
Music power output: 15W / 4Ohm

Supply voltage: max.30V

Dimensions: 55x45mm

15W 4Ω

Part No.	Ord.No
S NE 018	9617



### NE 019 15W Stereo Audio Amplifier with TDA2030

This small AF amplifier is constructed with the TDA2030 IC, with a maximum supply capability of 2x15Wrms/4 ohm. The IC is protected against overheating and short circuits.

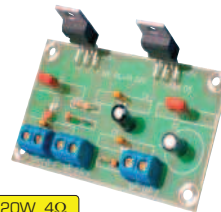
Suitable for tuners, CDs, MP3, radios...

Music power output: 2x15W / 4Ohm

Supply voltage: max.30V

2x15W 4Ω

Part No.	Ord.No
S NE 019	9618



### NE 020 20W Mono Audio Amplifier with TDA2003

Simple amplifier constructed with two TDA2003 in bridge connection. The IC is fully protected against overheating and short circuits.

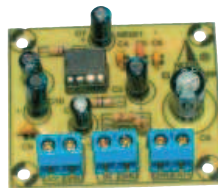
Music power output: 20W / 4Ohm

Supply Voltage: 8-18V

Easy to install

20W 4Ω

Part No.	Ord.No
S NE 020	9619



### NE 021 4W Amplifier with UL1482/ TBA820M

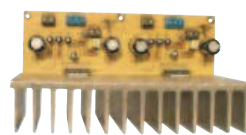
Suitable for portable equipment

Music power output: 4W / 4Ohm

Supply Voltage: 3-16V

4W 4Ω

Part No.	Ord.No
S NE 021	45264



### NE 022 100W Stereo Audio Amplifier with TDA7294

Suitable for driving subwoofers.

Max. music power output: 2x100W / 4Ohm

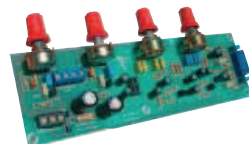
Supply Voltage: from + and -10V to + and - 40V

Impedance: 4 Ohm

Recommended pre-amplifier: NE025

2x70/100W 4Ω

Part No.	Ord.No
S NE 022	48824



### NE 025 Universal Low-Noise Stereo Pre-Amplifier

Suitable for NE012 (mono), NE022 (stereo) or 2xNE022

Frequency range: 20Hz - 100kHz

Max. input voltage: 775mV

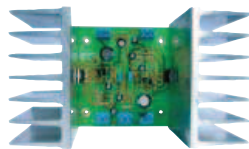
Adjustable gain: ±12dB.

Input impedance: 220Kohm

Part No.	Ord.No
S NE 025	48825

## AUDIO Kits

(continued)

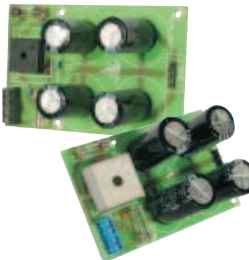


2x15W 4Ω

### NE 060 15W Stereo Audio Amplifier with TDA2030

This small AF amplifier is constructed with the TDA2030 IC, with a maximum output power of 2x15Wrms/4 ohm. The IC is protected against overheating and short circuits. Suitable for tape records, tuners, radios... Music power output: 2x15W / 4Ohm

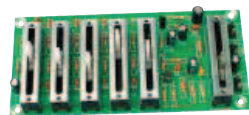
Part No.	Ord.No
S NE 060	45270



### NE 069 Power Supply for ± 35V Amplifiers

NE 069A  
Power Supply for ±45V Amplifiers  
Univesal power supply for AF amplifiers  
NE069 for output current 5A/10A and output voltage +/- 35V  
NE069A for output current 10A/50A and output voltage +/- 45V  
Suitable for NE078, NE013, NE022, NE116A

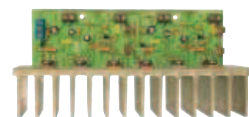
Part No.	Ord.No
S NE 069	45275
S NE 069A	45276



### NE 073 Graphic Equalizer with Volume Control

Mono  
5 potentiometers  
1 volume regulator  
Dimensions: 122x58x25mm

Part No.	Ord.No
S NE 073	9640

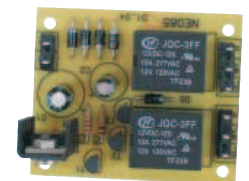


### NE 078 2x50W/1x100W Audio Amplifier

This amplifier is constructed with the TDA2030 IC  
Max. music power output: 2x30/50W 4Ohm or 1x60/100W 4Ohm  
Supply Voltage: ±12V and ±17V  
Easy to install

2x30/50W 4Ω 1x60/100W 4Ω

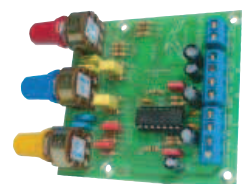
Part No.	Ord.No
S NE 078	9641



### NE 085 Delayed Switch-On-Speaker System

Supply Voltage: 12-24V  
Current Consumption: 70mA  
Dimensions: 55x45x22mm

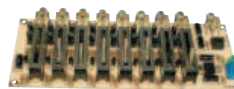
Part No.	Ord.No
S NE 085	45281



### NE 092 Active Stereo Sound Controller with TL 084

This stereo sound controller must be superposed to the stereo final amplifier. Trebles, basses and volume are adjustable separately  
Dimensions: 75x70x30mm

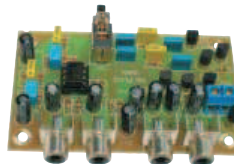
Part No.	Ord.No
S NE 092	9644



### NE 097 8-channel Audio Mixer with TL061

The Kit has 8 independet inputs and 1 output. It works with any kind of source of audio signal. The circuits are supplied from integrated regulated power supply 12V or 15V. Because of very low power consumption (30mA) it is possible to use a non-regulated plug-in power supply (adapter).

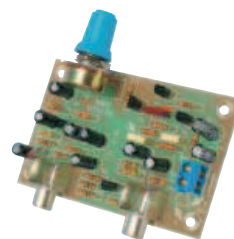
Part No.	Ord.No
S NE 097	45297



### NE 098 RIAA Stereo Pre-Amplifier with TL062

RIAA stereo pre-amplifier for MD pick-ups. Low noise.  
Supply voltage: 12V / regulated  
Active filter: 100Hz

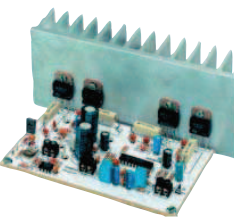
Part No.	Ord.No
S NE 098	45298



### NE 099 Guitar and Microphone Pre-Amplifier

An electric guitar or microphone cannot be connected to just any amplifier or audio installation. This pre-amplifier has been designed exactly for this purpose  
Input sensitivity: 4mV  
Output: 775mV  
Impedance: 5kOhm standard/max.50 kOhm  
Power supply: 12V  
Dimensions: 80x50mm

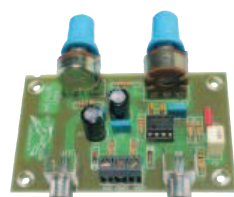
Part No.	Ord.No
S NE 099	9645



### NE 116A 2x100W Audio Amplifier with TDA 7250

This small AF amplifier is constructed with the TDA 7250 IC, with a maximum output power of 2x100Wrms/4 Ohm. The IC is protected against overheating and short circuits.

Part No.	Ord.No
S NE 116A	9648



### NE 125 Active Subwoofer Filter

Universal active subwoofer filter  
Adjustable frequency: 80-250Hz  
Dimensions: 80x50mm

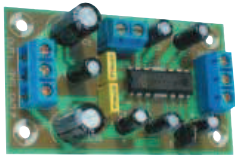
Part No.	Ord.No
S NE 125	45314



### NE 529 Mini Audio Amplifier with LM386

Mini audio amplifier suitable for portable equipments, toys, loudspeakers or headsets  
Output power: 0,66W/8 Ohm  
Power supply: 4-12V  
Low current consumption  
Dimensions: 38x38mm

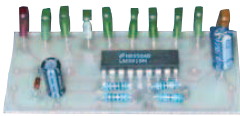
Part No.	Ord.No
S NE 529	45339



**NE 530**  
**2x4W Mini Audio Amplifier**  
 (KA2206, TEA2025B)  
 Mini audio amplifier suitable for portable equipments as well as at reparation of old car radios and tape players  
 Power supply: 4-12V

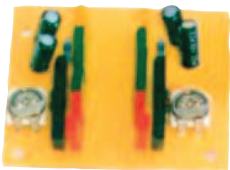
2x4W 4Ω

Part No.	Ord.No
S NE 530	45340



**NS 005**  
**LED VU Meter with LM3915-mono**  
 This LED VU Meter is capable of monitoring and displaying power levels present at the speaker outputs of an audio power amplifier. The level is displayed in ten discrete steps using 10 LEDs for each channel. This projection is designed to give an approximate visual indication of the audio power output of each channel.  
 Supply voltage: +12V

Part No.	Ord.No
S NS 005	11626



**NS 053**  
**LED VU Meter-stereo with AN6884**  
 This LED VU Meter is capable of monitoring and displaying power levels present at the speaker outputs of a stereo audio power amplifier. The level is displayed in ten discrete steps using 2x5 LEDs for each channel. (-10dB...+6dB)  
 2x1 LED On/Off indication  
 Supply voltage: 3,5-18V

Part No.	Ord.No
S NS 053	11645

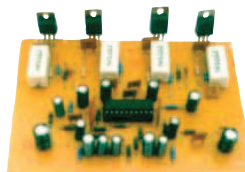


**NS 066**  
**2x30W Audio Amplifier (TDA 2040)**  
**NS 067b**  
**2x40W Audio Amplifier (TDA2050)**  
 Simple amplifier using TDA2040 or TDA2030 IC  
 Power output: 2x30W/4Ohm or 2x40W/4Ohm  
 Supply Voltage: ±20V  
 Gain: 30dB  
 Quiescent Current: 30-100mA

2x20/30W 4Ω

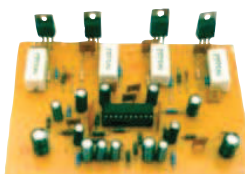
2x30/40W 4Ω

Part No.	Ord.No
S NS 066 (TDA2040)	11649
S NS 067b (TDA2050)	11650



**NS 071**  
**2x50W Audio Amplifier with TDA 7250**  
 Mute and Stand-By mode  
 Power output: 2x50W/4Ohm  
 Supply Voltage: ±10V... ±25V  
 Quiescent Current: 20mA  
 Constant or adjustable gain  
 Max. distortion: 0,06%

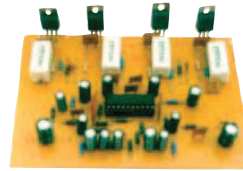
2x50W 4Ω



**NS 072**  
**2x80W Audio Amplifier with TDA 7250**  
 Mute and Stand-By mode  
 Power output: 2x80W/4Ohm  
 Supply Voltage: ±10V... ±35V  
 Quiescent Current: 20mA  
 Constant or adjustable gain  
 Max. distortion: 0,06%

2x80W 4Ω

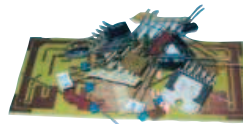
Part No.	Ord.No
S NS 071 2x50W	11653
S NS 072 2x80W	11654



**NS 073**  
**2x130W Audio Amplifier with TDA 7250**  
 Mute and Stand-By mode  
 Power output: 2x130W/4Ohm  
 Supply Voltage: ±10V... ±45V  
 Quiescent Current: 20mA  
 Constant or adjustable gain  
 Max. distortion: 0,06%

2x130W 4Ω

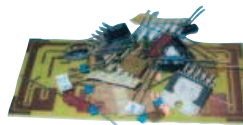
Part No.	Ord.No.
S NS 073	11655



**NS 074**  
**40W High-End Amplifier with LM3876**  
 Max. distortion: 0,006%  
 Signal-to-noise ratio: 110dB  
 SPIKE-Protection - overload and short-circuit protection, protection against incorrect power supply polarity and thermal protection  
 Quiescent Current: 60-100mA  
 Power Supply: ±30V

1x40W 4Ω

Part No.	Ord.No
S NS 074	11656



**NS 075**  
**2x60/2x150W High-End Amplifier with LM3886**  
 Distortion at 60W: 0,006%  
 Signal-to-noise ratio: 110dB  
 SPIKE-Protection - overload and short-circuit protection, protection against incorrect power supply polarity and thermal protection  
 Quiescent Current: 60-100mA  
 Power supply: ±30V

2x60/150W 4Ω

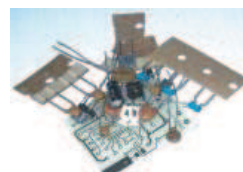
Part No.	Ord.No
S NS 075	11657



**NS 077**  
**2000W DMOS Audio Amplifier with TDA7294**  
 Amplifier constructed with two TDA7294 in bridge connection  
 Short-circuit and thermal protection  
 Mute and Stand-By mode  
 Impedance: 8-16 Ohm  
 Power supply: ±10VDC ... ± 45VDC max.

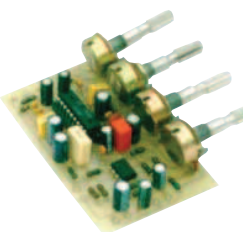
1x200W 8Ω

Part No.	Ord.No
S NS 077	11658



**NS 200**  
**RIAA Pre-Amplifier for Gramophone with NE5532**  
 Phono preamplifier with the RIAA characteristic. Output is suitable for any kind of audio power amplifiers. As a power supply is used simple 12 or 36V.

Part No.	Ord.No
S NS 200	11666



**NS 201**  
**Hi-Fi Pre-Amplifier with LM1036**  
 Adjustable gain: +/-15dB  
 Input gain: 20dB  
 Power supply: +9...+12V  
 Consumption: 40-50mA

Part No.	Ord.No
S NS 201	11667

## AUDIO Kits

(continued)



4x12W 2Ω

### NS 561 4x12W Quadro Amplifier (TDA 8561)

Overload and short-circuit protection, protection against incorrect power supply polarity and thermal protection  
Stand-By mode  
4 AF inputs and outputs  
Power supply: +8...+18V  
Max. distortion: 0,3%  
Gain: 20dB



1x70W 4Ω

### NS 562 70W Audio Amplifier (TDA 1562Q)

Overload and short-circuit protection, thermal protection  
Stand-By mode  
Stand-By Current: 20uA



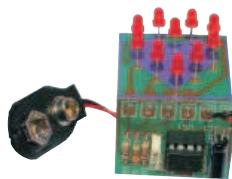
2x40W 2Ω

### NS 563 2x40W Amplifier (TDA 8563Q)

Clean tonality and powerful sound  
Output Impedance 2-4 Ohm  
Max. Output power 2x40W/2R and 2x25W/4R  
Stand-By Current < 100uA  
Operating voltage: 6-18V  
Gain > 26dB  
Overload, overheating and short-circuit protection

Part No.	Ord.No
S NS 561	11678
S NS 562	11677
S NS 563	11679

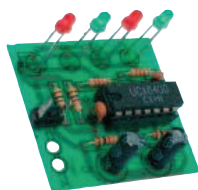
## Light Effect Kits



### NE 002 Flashing Heart

With NE555  
10 LEDs  
Adjustable flashing speed with potentiometer.  
Power supply: 9V battery (not incl.)  
Dimensions: 30x25mm

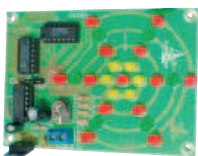
Part No.	Ord.No
S NE 002	9606



### NE 007 Light Effect Module

With 7400 IC  
Suited for different applications, f.e. as eye catcher in stores, at exhibitions, in toys, etc...  
Power supply: +5V or 4,5V battery

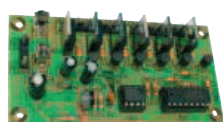
Part No.	Ord.No
S NE 007	9609



### NE 010 Flashing Star

Fading animation  
Adjustable fading speed with potentiometer  
Power supply: 15V  
Dimensions: 125x75x30mm

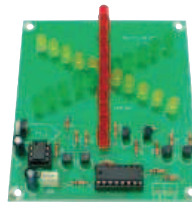
Part No.	Ord.No
S NE 010	9612



### NE 017 6-Channel Running Light

This impressive bulb running light can be used for many applications, such as: modelling, advertising and decoration.  
Power supply: 24 VAC  
Consumption: 3A per channel  
Dimensions: 90x47x25mm

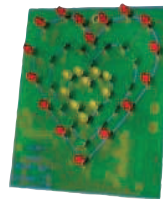
Part No.	Ord.No
S NE 017	9616



### NE 053 Flashing LED Star

Based on NE555 IC  
31 LEDs  
Adjustable flashing speed with potentiometer  
Dimensions: 100x85x20mm

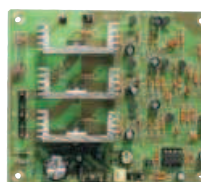
Part No.	Ord.No
S NE 053	9635



### NE 108 Pulsating Heart

Show your sweetheart in an original way that your heart still beats for him or her. 40 LEDs form 3 blinking hearts.  
Adjustable light-up speed  
Power supply: 12V  
Consumption: 50mA  
Dimensions: 80x80mm

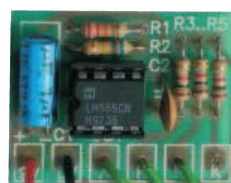
Part No.	Ord.No
S NE 108	45304



### NE 111 Color Organ

3-channel color organ, each channel can drive up to 360W bulb. It's input is equipped with an automatic gain amplifier.

Part No.	Ord.No
S NE 111	9646



### NE 204 Christmas Bulb Driver with NE555

Power supply: 8-18V  
Consumption: 4mA at 9V  
Dimensions: 25x35x10mm

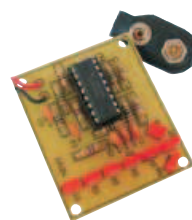
Part No.	Ord.No
S NE 204	45320



### NE 209 Animated Bell

Animated Bell with 68 LEDs. Based on popular NE555 IC  
Power supply: 12V (possible for use in cars, lorries, trucks)

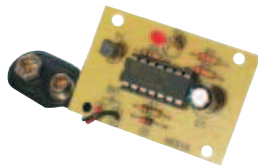
Part No.	Ord.No
S NE 209	46744



### NE 503 Blinking Arrow (4049)

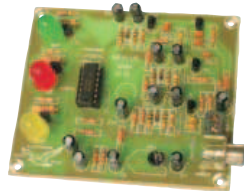
This blinking arrow can be used for many applications, such as advertising, decoration, in games or as indicator of direction in dark places  
8 LEDs  
Power supply: 6-12V  
Dimensions: 55x42x15mm

Part No.	Ord.No
S NE 503	9649



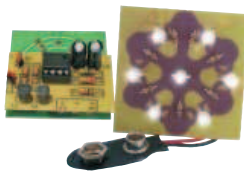
**NE 515**  
**Economic Flashing LED Light (4011)**  
 Very low current consumption  
 Very powerful flash effect (short, bright pulses)  
 For emergencies, warning signs, as eye-catcher, 'alarm-active' - simulation, etc ...  
 Power supply: 3,3-10V  
 Dimensions: 40x30x15mm

Part No.	Ord.No
S NE 515	9656



**NE 528**  
**Mini-Color Organ (LM324)**  
 The circuit is based on an Integrated Circuit LM324, which provides three sharp active filters for each channel. Three independent controls vary the brightness for low, midrange and high frequencies. Three high-intensity LEDs light up and react simultaneously to every sound. For different funny and practical applications e.g. sound indicator, simple sound-to-light unit for music, tuners or CD-player  
 Power supply: 15-24 V  
 Dimensions: 95x80mm

Part No.	Ord.No
S NE 528	45338



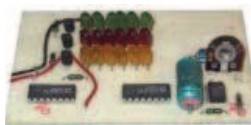
**NE 533**  
**Two-Colour Blinking Flower (555)**  
 Based on NE555  
 7 two-colour LEDs  
 Adjustable speed of blinking  
 Power supply: 9-12V  
 Dimensions: 39x39mm

Part No.	Ord.No
S NE 533	45343



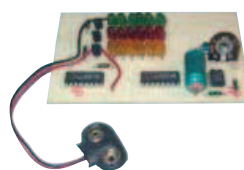
**NE 534**  
**Two-colour LED Bar (4017)**  
 This 5-channel LED chaser can be used anywhere requiring LED light effects. The circuit is based on Integrated Circuit which drives all 5 two-colour LEDs.  
 LEDs light up and fade  
 Supply voltage: 9-12V  
 Dimensions: 43x34mm

Part No.	Ord.No
S NE 534	45345



**NS 018**  
**Light Snake (4001,4017,4011)**  
 This kit can be operated in a wide range of supply voltage 3-30V and can drive up to 48 LEDs.

Part No.	Ord.No
S NS 018	11633



**NS 059**  
**Light Snake with 18 LEDs (NE555)**  
 Based on NE555 which drives 3x6LEDs  
 LEDs light up and fade  
 Possibility of connection 10x10LEDs  
 Supply voltage: 9V

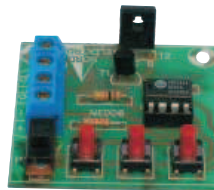
Part No.	Ord.No
S NS 059	11648

## Sound Effect Kits



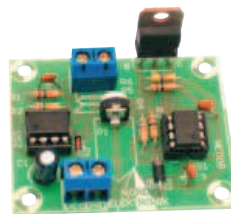
**NE 004**  
**Sound Effect Generator (Acoustic Signalization) (NE555)**  
 Great for model railroads, radio controlled toys, stage or as a gadget.  
 Based on NE555  
 Low power consumption  
 Dimensions: 25x25x10

Part No.	Ord.No
S NE 004	9607



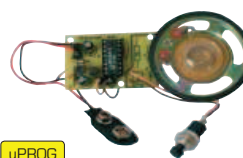
**NE 006**  
**4-Sound Effect Generator (UM3561)**  
 Ambulance, Fire, Police, and Machine Gun Sounds Kit  
 Based on UM 3561 (DIL8)  
 Supply voltage: 1,5-3V  
 Dimensions: 51x20x46mm  
 Suitable speaker: ARO 3618

Part No.	Ord.No
S NE 006	9608



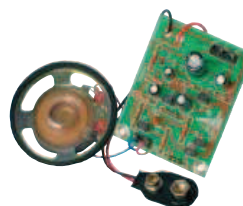
**NE 008**  
**9V Electronic Siren (555)**  
 A simple siren circuit and a surprisingly loud output. Good as a sound module to attach to an alarm system, etc. 9 volt DC operation.  
 Output Power: 5W/40hm  
 Frequency: 300-1000Hz  
 Dimensions: 46x50x30mm

Part No.	Ord.No
S NE 008	9610



**NE 009G**  
**Music Box - 3 Melodies (M948)**  
 Based on M948  
 Supply voltage: 4-9V  
 Dimensions: 30x45x20mm

Part No.	Ord.No
S NE 009G	9611



**NE 024**  
**3-Tone Siren**  
 Ambulance, Fire and Police Sounds  
 Supply voltage: 9V  
 Dimensions: 45x55x25mm

Part No.	Ord.No
S NE 024	9621



**NS 006**  
**Bird Song Sound Generator**  
 This unit create a realistic "Bird Song" sound. It is a useful unit having many applications such as door bells, alarms, telephone ring, clocks, timers, shop entrance bell, etc.  
 Min. Impedance: 500hm  
 Supply voltage: +5...+12V/12mA

Part No.	Ord.No
S NS 006	11627



## Sound Effect Kits

(continued)

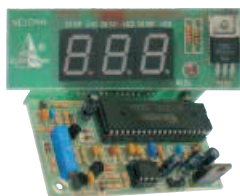


**NS 017**  
**SMD Police Siren**  
 Based on 555 IC  
 A realistic "American style" police siren imitating device.  
 Supply voltage: 9V

SMD

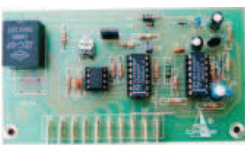
Part No.	Ord.No
S NS 017	11670

## Car Kits



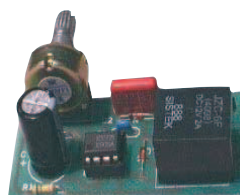
**NE 104**  
**Digital Tachometer**  
 For cars or motorcycles with a petrol engine. May be used as a general purpose rounds counter.  
 Range: 100 - 7000 rounds/minute  
 3 digit LED display  
 Power supply: +11... +16V  
 Dimensions: 83x55x30mm

Part No.	Ord.No
S NE 104	45301



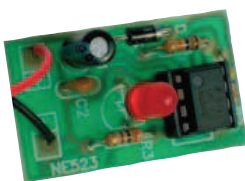
**NE 120**  
**Electronic burglar alarm for Cars**  
 This electronic circuit can be used in cars as a simple engine blocking device. The car can be started only by using a unique electronic key.

Part No.	Ord.No
S NE 120	45310



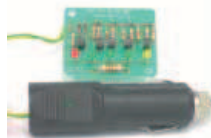
**NE 521**  
**Windshield Wiper Interval Timer**  
 Different time intervals can be selected for the windshield wipers of your car. It can also be used for driving a slide projector.  
 power supply: 12 V  
 PCB dimensions : 30x60x25mm

Part No.	Ord.No
S NE 521	45334



**NE 523**  
**Car Alarm Simulator Kit**  
 Want to deter your local thief without spending hundreds on a car security alarm? LED with 'realistic-appearing' flash sequence simulates active car alarm system.  
 Activates automatically when the engine is turned off.  
 Easy to install  
 Power supply: + 12V  
 Dimensions: 35x20x15mm

Part No.	Ord.No
S NE 523	9659



**NE 524N, NE524N SMD**  
**Car-Battery Indicator**  
 The alarm detects sudden voltage drops of the battery  
 5xLED  
 Dimensions: 57x28x10mm



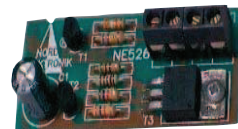
SMD

Part No.	Ord.No
S NE 524N	61429
O NE 524N SMD	61430



**NE 525**  
**Acoustic Signalization of Reverse Driving (555)**  
 This electronic circuit generates an acoustic warning signal for pedestrians when gearbox is switched to reverse.  
 Power supply: 12V or 24V  
 Dimensions: 70x30x25

Part No.	Ord.No
S NE 525	9661



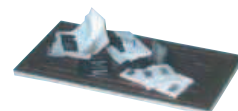
**NE 526**  
**Interior Light Driver**  
 The interior light driver delays bulbs switch OFF, for comfortable leaving of the car  
 Power supply: 12V  
 Dimensions: 58x26mm

Part No.	Ord.No
S NE 526	45336



**NS 027**  
**Converter 12V/22V/2A**  
 Converter from 12VDC to 22VDC at maximum rated output power 2A  
 Efficiency: 90%  
 Transformerless

Part No.	Ord.No
S NS 027	11637



**NS 100**  
**SMD Car-Battery Indicator**  
 The alarm detects sudden voltage drops of the battery  
 Three LEDs indication (over 13,6V; from 13,6V to 10,6V; under 10,6V)

Part No.	Ord.No
S NS 100	11674

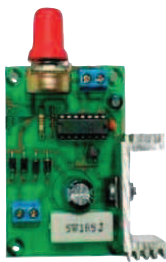


**HWK1**  
**Headlight Warning Kit**  
 The alarm detects sudden voltage drops of the battery when the car lights are switched on. Continuously repeated alarm tone indicate that the lights are activated, so that you will not forget to switch them off.  
 Only 3 wires are required for hook-up  
 Supply voltage: 12V DC

SMD

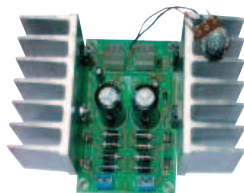
Part No.	Ord.No
S HWK1	41362

## Measurement and Test Kits



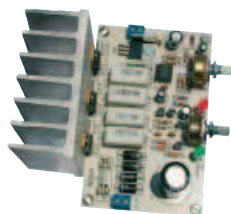
**NE005**  
**Power Supply 2-12V/0,5A**  
 Based on UA723 IC  
 Suitable for motors, bulbs...not suitable for audio equipment.  
 Continuously adjustable voltage  
 Input Voltage: 15-17V  
 Dimensions: 30x55x85mm

Part No.	Ord.No.
S NE 005	43138



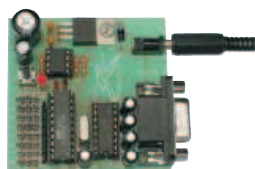
**NE 023**  
**Power Supply 5/12V 1A;  
 1,2-24V/3A**  
 Universal power supply for regulated voltage 5V and 12V/1A  
 Adjustable power supply with voltage regulation 1,2-24V/3A  
 Input voltage: 12V/1A and 24V/3A  
 Output voltage: +/-5V, +/-12V or 5V,12V  
 Dimensions: 125x90x75mm

Part No.	Ord.No.
S NE 023	9620



**NE 028**  
**Regulated Adjustable Power Supply 1,5-17V/3A**  
 Based on LM317  
 Adjustable power supply for all common kits based on a stabilized DC voltage between 1,3 and 17V at max. power 3A. Of course this power supply unit can also be used for other purposes.  
 Output voltage: adjustable from 1 to 17V, stabilized  
 Output current: max. 3A  
 Transformer not supplied  
 Dimensions: 132 x 67x 25mm

Part No.	Ord.No.
S NE 028	45265

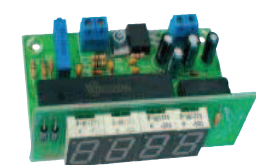


**NE 041**  
**Servo-Motor Driver RS232**  
 Kit uses pre-programmed micro-controller to drive up to 8 model/hobby servo motors simultaneously

Part No.	Ord.No.
S NE 041	54637

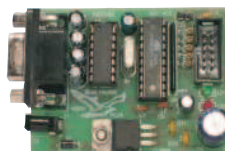


**NE 046A**  
**Digital Ammeter**  
 This high-brightness digital panel meter is based on 12-bit converter ICL 7107  
 Supply voltage: 8-15V  
 4-Digit display  
 Range: 200uA to 20A  
 Dimensions: 84x53x36mm



**NE 046V**  
**Digital Voltmeter**  
 This high-brightness digital panel meter is based on 12-bit converter ICL 7107  
 Supply voltage: 7-15V (regulated 5V± 5%)  
 4-Digit display  
 Range: 200mV to 20V  
 Dimensions: 91x65x35

Part No.	Ord.No.
S NE 046A	58622
S NE 046V	45269



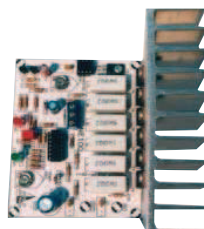
**NE 049**  
**ISP Programmer**  
 For AT89Sxx, AT AVR, EEPROM with I2C and some PIC processor programming

Part No.	Ord.No.
S NE 049	56478



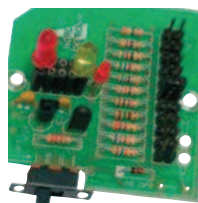
**NE 054**  
**Adjustable Power Supply 1,2-24V**  
 Based on LM317  
 Adjustable output voltage from 1,2V to 37V  
 Dimensions: 92x42mm

Part No.	Ord.No.
S NE 054	9636



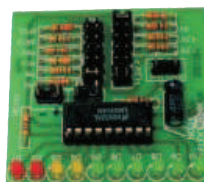
**NE 100**  
**Professional Power Supply 13,8V/10A**  
 Regulated power supply for 13,8V and 10A  
 With short-circuit and thermal protection  
 Suitable for radio transceivers and more demanding applications.

Part No.	Ord.No.
S NE 100	45299



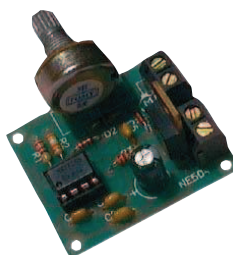
**NE 122**  
**LED Tester**  
 For standard or low current LEDs. For testing function, brightness and polarity. Ideal for goods received, goods testing, the laboratory, in production and hobby use.  
 Voltage supply: 9V  
 Dimensions: 51x49mm

Part No.	Ord.No.
S NE 122	45312



**NE 123**  
**Battery Tester (with LM3914)**  
 Suitable for 1,5V AAA (LR3), AA (LR6), C (LR14), D (LR20), and 9Vblock batteries  
 Battery status indicated on 10 LED indicator  
 Not suitable for rechargeable batteries  
 Voltage supply: 12V

Part No.	Ord.No.
S NE 123	45313

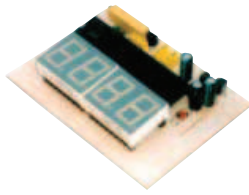


**NE 504**  
**Adjustable Mini-Drill Supply**  
 Suitable for all Types of minidrills which are supplied with DC voltage up to +17V and with maximum current consumption 5A  
 Easy mounting

Part No.	Ord.No.
S NE 504	9650

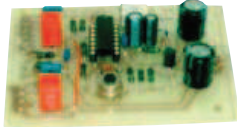
## Measurement and Test Kits

(continued)



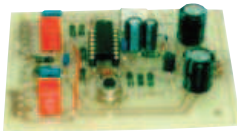
**NS 012**  
**Digital LED Voltmeter Module 0-199mV**  
 3,5 digit LED display  
 Character height: 14mm  
 Based on 7107 IC  
 Voltage range: 0-199,9mV  
 Voltage supply: +5V

Part No.	Ord.No
S NS 012	11629



**NS 013**  
**C/U Meter 1pF-10uF**  
 Digital capacitance meter, output frequency determines measured capacitance.  
 Capacitance range: 1pF-10uF

Part No.	Ord.No
S NS 013	11630



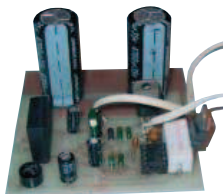
**NS 015**  
**L/U Meter 0uH-500uH**  
 This electronic kit acts like simple L to U converter. The output voltage can be measured by a standard voltmeter.  
 Based on 74HC132 IC  
 Inductance range: 0-500uH  
 Voltage supply: 5V

Part No.	Ord.No
S NS 015	11632



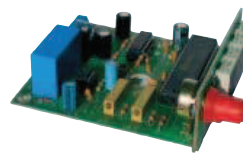
**NS 045**  
**Power Supply 2-36V/2A with possible limitation of output current**  
 Based on L200 IC  
 Max. input volatage: 40V

Part No.	Ord.No
S NS 045	11640



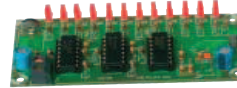
**NS 089**  
**Power Supply 0-30V with possible limitation of output current and transformer**  
 Based on LM317 IC  
 Incl. 130VA toroidal transformer

Part No.	Ord.No
S NS 089	11663



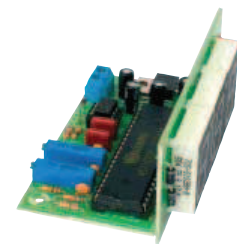
**NE 001**  
**Temperature Controlled Digital Thermometer -50°C ...+150°C**  
 This thermometer with its red LED indicator can be placed anywhere you wish to measure temperatures from -50 to +150 °C.  
 Temperature stabilization from 15°C to 30°C  
 4 Digit LED display / 1% accuracy  
 Thermostat adjustable with potentiometer

Part No.	Ord.No
S NE 001	45262



**NE 031**  
**12 LED Thermometer**  
 Temperature counting by 1°C in range from 17°C to 28°C  
 12 LEDs  
 Dimensions: 90x42x20mm

Part No.	Ord.No
S NE 031	9625



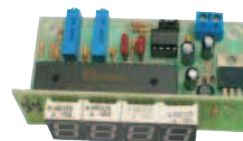
**NE 035**  
**Digital Thermometer -20°C...+99°C**  
 Electronic thermometer  
 Temperature range: from -20 to +99 °C.  
 Temperature regulation from 15°C to 30°C  
 7 Digit LED display  
 Supply Voltage: 12V  
 Dimensions: 80x40x90mm

Part No.	Ord.No
S NE 035	9628



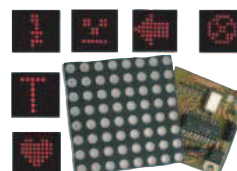
**NE 044**  
**Thermometer -50°C ...+125°C**  
 Two - output thermometer for displaying f.e indoor and outdoor temperature  
 Measuring range: from - 50 to +125°C/ 0,5% accuracy  
 With temperature sensor DS18B20  
 Two LED displays with 14mm characters  
 Power supply: 9V battery

Part No.	Ord.No
S NE 044	54638



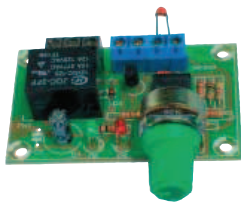
**NE 045**  
**Digital Thermometer -50°C ...+150°C**  
 Based on ICL7107 IC  
 3,5 Digit LED display  
 Temperature range: from -50 to +150°C  
 Power supply: 7,5-10V  
 Current consumption: 250mA  
 Operating temperature: 0-70°C  
 Dimensions: 91x65x35mm

Part No.	Ord.No
S NE 045	45268



**NE 047**  
**Digital Thermometer with DS18B20 and Dot Matrix**  
 8x8 LED Matrix with displaying temperature or other patterns (heart, arrow...)  
 Power supply: 9-12V  
 Dimensions: 60x60x17mm

Part No.	Ord.No
S NE 047	56477



**NE 052**  
**Thermostat (MA741)**  
 For keeping constant temperature e.g. in aquariums  
 Indication with two LEDs  
 Dimensions: 25x40x80mm

Part No.	Ord.No
S NE 052	9634



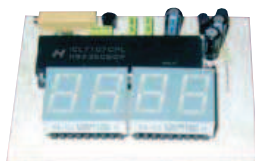
**NE 088**  
**2-channel LCD Thermometer**  
 -20°C...120°C  
 For displaying e.g. indoor and outdoor temperature  
 Measuring range: from -20 to +120°C  
 Power supply: 9V  
 Dimensions: 77x85x17mm

Part No.	Ord.No
O NE 088	45295



**NE 107**  
**Universal Start/Stop Timer**  
 Start/Stop push button switches.  
 LED indication  
 Time adjustable from 10 seconds to 500 seconds  
 With electromagnetic relay

Part No.	Ord.No
S NE 107	45303



**NS 010**  
**Digital LED Thermometer**  
 Measuring range: from -99°C to +150°C  
 With ICL7107  
 Power supply: 5-15V

Part No.	Ord.No
S NS 010	11628



**NS 085**  
**Timer 1minute- 20hours**  
 With NE555 timer  
 Basic time range: 100min. - 20 hours  
 Possible range: 1min. - 20 hours  
 Power supply: 12V

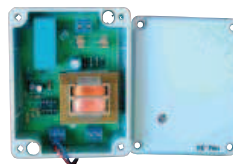
Part No.	Ord.No
S NS 085	11660



**TEMP1**  
**Thermometer**  
 Max. measuring range: up to 150°C  
 Resolution: 0,1°C  
 Suitable for all digital multimeters with input resistance 10MΩ

Part No.	Ord.No
S TEMP1	41363

## Kits for Home Application



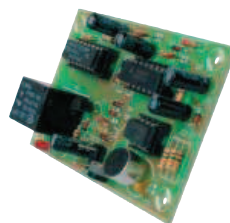
**NE 029**  
**Dimmer (MA741)**  
 By separately adjusting the threshold levels for light and dark, numerous applications are made possible. For automatic switching of alarm systems in the night, for controlling window shutters and awnings, general use as a light dependent switch, when differences in brightness should be recognised and used for control purposes  
 Output relay 24V/3A  
 Dimensions: 20x45x55mm

Part No.	Ord.No
S NE 029	9624



**NE 034N**  
**Mini Central Alarm Kit(4538, 4093)**  
 This affordable kit offers you a comprehensive security system.  
 The loops can be used independent of each other in a self-learning way as break contact, closed-circuit contact or with monitored loop resistance. A lapsed alarm continues to be displayed via an LED.  
 Current consumption: 20mA/60mA  
 Power supply: 12-15VDC  
 Dimensions: 90x60x25mm

Part No.	Ord.No
S NE 034N	9627



**NE 037**  
**Clap ON/OFF Switch**  
 Control your lamps simply by clapping your hands  
 Good immunity against surrounding noises  
 Microprocessor-controlled  
 Output relay with LED indicator  
 Current Consumption: 9,5mA/50mA  
 Dimensions: 80x50x15mm

Part No.	Ord.No.
S NE 037	9630

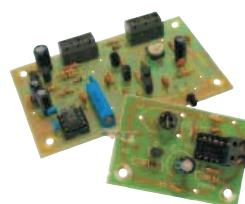


**NE 056**  
**1-channel IR Receiver**  
 LED indication  
 Range: 10m  
 Current consumption cca 50mA  
 Dimensions: 81x52x20mm



**NE 056A**  
**IR Transmitter**  
 Power supply: 12V battery (incl.)  
 Dimensions: 23x53x10mm

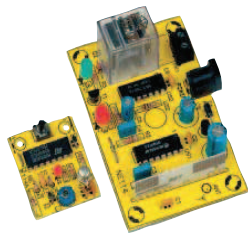
Part No.	Ord.No
S NE 056	9637
S NE 056A	9638



**NE 086**  
**IR Light Barrier**  
 Applications : announce visitors, warn against burglars, set boundaries, scientific projects, ...  
 Specifications  
 Range: 3,5m  
 Dimensions:  
 transmitter: 35x45mm  
 receiver: 50x80mm

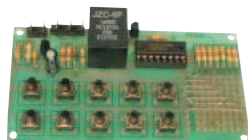
Part No.	Ord.No
S NE 086	9643

## Kits for Home Application (continued)



**NE 114**  
**1-Channel Remote Control**  
 Receiver and transmitter  
 Suitable for all kinds of applications such as light control, cars, garages....  
 Receiver  
 Ultra compact  
 Indication through LED  
 Dimensions: 30x35mm  
 Transmitter:  
 310MHz operation  
 LED indication  
 Dimensions: 82x52mm  
 Input power: 12Vac / 500mA

Part No.	Ord.No
S NE 114	45305



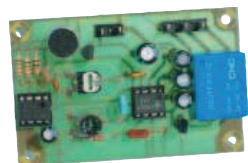
**NE 508**  
**Code Lock (4022)**  
 This code lock may be used to switch an alarm on and off, or to open a door lock. The code is easy to define.  
 7 digits  
 Relay output  
 Power supply: 9 - 14V DC  
 Dimensions: 90x50x15mm

Part No.	Ord.No
S NE 508	9652



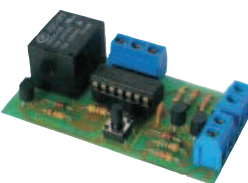
**NE 509**  
**NiCd Battery Charger**  
 Suitable for charging 1,2,3 or 4pcs same kind 1,25V NiCd Batteries  
 Charging current 90/250mA  
 LED indication  
 Power supply: 12V/1A (AC) or 13-15V/1A (DC)  
 Dimensions: 70x57x20mm

Part No.	Ord.No
S NE 509	9653



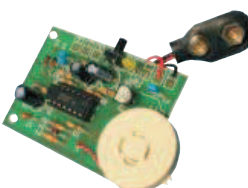
**NE 511**  
**Optical/Acoustical Switch (MA741, NE567)**  
 Relay output  
 For different funny and practical applications e.g. sound indicator, simple sound-to-light unit for music. The unit can also be used to indicate when the doorbell or the telephone is ringing, which is particularly interesting for the hearing-impaired.  
 Dimensions: 70x40x20mm

Part No.	Ord.No
S NE 511	45328



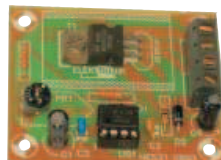
**NE 512**  
**Water Alarm (4011)**  
 Gives alarm sound when water is detected.  
 Optical or acoustical signalization is possible  
 Water sensor can be placed at a distance by cutting the board and using wires to connect the sensor.  
 Power supply: +12VDC  
 Dimensions: 60x30x20mm

Part No.	Ord.No
S NE 512	9655



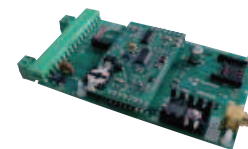
**NE 514**  
**Liquid Level Controller (4093)**  
 You forget to turn off the tap, the washing machine leaks, the water level in your aquarium drops, the water tank is empty or suddenly overflows, there's water in your cellar, etc. Prevention is still better than cure and that's where this kit comes in. This multifunctional device is easy to use in a variety of applications : 1) LED control of set fluid level : LOW, MIDDLE, HIGH ; 2) Controller : the relay automatically switches a pump and/or valve to keep the fluid level between the LOW and HIGH marks ; 3) Alarm : if the sensor detects a level which is too high or too low (selectable), the relay will operate an alarm device.  
 Dimensions: 50x45x15mm

Part No.	Ord.No
S NE 514	45330



**NE 531**  
**Stroboscope (555)**  
 Based on NE555  
 Flashing light effects  
 Power supply: 12V  
 Bulb 12V/20W

Part No.	Ord.No
S NE 531	45341



SUPERGATE "A"

### GSM Supergate "A"

**Main features:**  
 Sending up to 8 SMS/calling up to 16 numbers on the state change of the 4 contact inputs  
 Programmable through SMS  
 Control of relay with phone call  
 Remote interception of the locality from authorised number  
**Technical data:**  
 Working frequency: GSM 900/1800/1900 MHz  
 Supply voltage: 12-14 VDC  
 Current consumption:  
 Nominal: 40mA  
 Maximum: 2000mA (during registration to network and calls)  
 Operating temperature: -20°C - +70°C  
 Dimensions: 100 x 54 x 20mm  
 Weight: 60g



SUPERGATE "B"

### GSM Supergate "B"

**Main features:**  
 Sending up to 8 SMS/calling up to 16 numbers on the state change of the 4 contact inputs  
 Programmable through USB, SMS  
 Control of 2 relays with SMS  
 LCD display, aluminium enclosure  
**Technical data:**  
 Working frequency: GSM 900/1800/1900 MHz  
 Supply voltage: 12-14 VDC  
 Current consumption:  
 Nominal: 60mA  
 Maximum: 2000mA (during registration to network and calls)  
 Operating temperature: -20°C - +70°C  
 Dimensions: 100 x 54 x 20mm  
 Weight: 120g



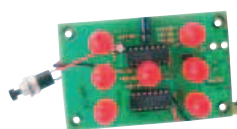
SUPERGATE "C"

### GSM Supergate "C"

**Main features:**  
 Sending up to 8 SMS/calling up to 16 numbers on the state change of the 4 contact inputs  
 Programmable through SMS  
 Control of inputs (armed/disarmed) with phone call from up to 4 authorised numbers  
 Output relay can control directly alarm siren  
 Aluminium enclosure  
**Technical data:**  
 Working frequency: GSM 900/1800/1900 MHz  
 Supply voltage: 12-14 VDC  
 Current consumption:  
 Nominal: 40mA  
 Maximum: 2000mA (during registration to network and calls)  
 Operating temperature: -20°C - +70°C  
 Dimensions: 100 x 54 x 20mm  
 Weight: 110g

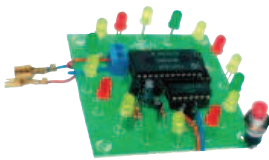
Part No.	Ord.No
S SUPERGATE "A"	64509
S SUPERGATE "B"	64506
S SUPERGATE "C"	64507

## Miscellaneous Kits



**NE 026**  
**Electronic Dice (7493, 7406)**  
 Electronic dice with LED indication. Slowly rolls to a stop when the push button is released.  
 Dimensions: 55x45x20mm

Part No.	Ord.No
S NE 026	9622



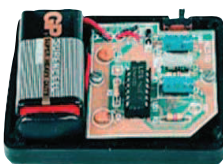
**NE027**  
**Electronic Roulette (7493, 74154)**  
 16 LEDs.  
 Push-button operation.  
 Microprocessor technology.  
 Low power consumption  
 Dimensions: 75x75x20mm

Part No.	Ord.No
S NE 027	9623



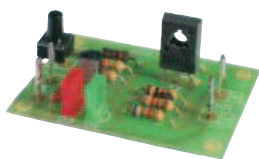
**NE081N**  
**Mini FM Transmitter**  
 This FM transmitter runs on four "AA" size batteries and has good frequency stability. The transmitting frequency is adjustable. A sensitive microphone and an LED indicator are also incorporated right on the board.  
 Supply voltage: 12V DC ("AA" size battery)  
 Frequency adjustable: 88 to 108MHz  
 Power consumption: 10mA  
 Dimensions: 60x10mm

Part No.	Ord.No
S NE 081N	61437



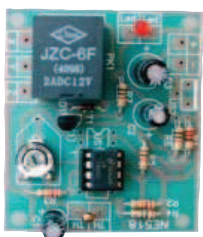
**NE510**  
**Ultrasonic Insect Repellent (4093)**  
 Working at 20kHz frequency  
 Current consumption: 4mA  
 Power supply: 9V  
 Dimensions: 55x50x25mm

Part No.	Ord.No
S NE 510	9654



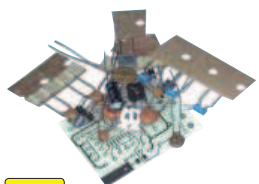
**NE517**  
**Electronic Fuse**  
 2 LED Indication  
 Working voltage up to 24V  
 Max. current: 0,3A  
 Dimensions: 40x30x15mm

Part No.	Ord.No
S NE 517	9657



**NE518**  
**Thermal Fuse (MA741)**  
 Adjustable temperature range: 80-150°C  
 Power supply: 12-24VDC  
 Dimensions: 45x55x20mm

Part No.	Ord.No
S NE 518	9658



**NS101**  
**Mini FM Transmitter with auto-tuning (TDA7088T)**  
 Based on TDA7088T SMD  
 This transmitter is an exciting product that will broadcast a quality signal in the 0,5 - 110MHz FM band.  
 Power supply: 3V (max.5V)  
 RESET button  
 RUN function

SMD

Part No.	Ord.No
S NS 101	11675

## VOLTIK I Experimental/Educational Kit

This series of Snap Circuit educational labs is perfect for learning about electronics. More than 35 different electronic experiments. All parts snap together, so there is no soldering involved. All the pieces have graphics that represent real electronic symbols and terminology. The many Snap Kit experiments include bells, alarms, flash lights and much more. Suitable for beginners and ages 7 and up.



## VOLTIK II Experimental/Educational Kit

Experimental/Educational Kit  
 This series of Snap Circuit educational labs is perfect for learning about electronics. More than 50 different electronic experiments. All parts snap together, so there is no soldering involved. All the pieces have graphics that represent real electronic symbols and terminology. The many Snap Kit experiments include radio, telephone, alarms, flash lights and much more. Ages 10 and up.



## VOLTIK III Experiment/Educational Kit

This series of Snap Circuit educational labs is perfect for learning about electronics. More than 50 different electronic experiments. All parts snap together, so there is no soldering involved. All the pieces have graphics that represent real electronic symbols and terminology. With Logic IC, SRAM and readers  
 The many Snap Kit experiments include buzzers, alarms, flash lights, roulettes, LED messages and much more. Ages 12 and up.

rolling

Part No.	Ord.No
S VOLTIIK I.	44535
S VOLTIIK II.	44536
S VOLTIIK III.	44537

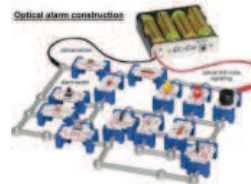


## EDU 1 Electronic Kit Based on Magnetic Forces

EDU 1 kit enables connecting electronic components based on magnetic forces Every single component is mounted on PCB in ABS plastic constructional base stands with magnets. Electronic components are then connected with galvanic coated steel spheres (27pcs) and contacting copper terminals in two lengths (15pcs of short, 5pcs of long ones).

EDU1 kit is equipped with basic components as: resistor, capacitor, diode, LED diode, transistor, photoresistor, switch and buzzer (19 components altogether) + two additional, empty segments enable the more advanced users to use any double-terminal electronic element. There is also power supply with a switch (short circuit resistant) made from four AA 1,5V batteries + supply wires.

In this way the number of possible electronic circuits is almost unlimited.



Part No.	Ord.No
S EDU 1	73889

Miscellaneous Kits (continued)



**MERKUR 2.1**  
 Experimental Electronic Kit – Electric Motors  
 Learn about motors and simple machines  
 17 parts - includes electromotor, battery-holder and set of gear-wheels



**MERKUR 2.2**  
 Experimental Electronic Kit – Electric Motors  
 Learn about motors and simple machines  
 106 parts - includes electromotor, battery-holder and set of gear-wheels



**MERKUR E1**  
 Experimental Electronic Kit – Electricity and Magnetism  
 88 various experiment  
 Ages 10 and up



**MERKUR E2**  
 Experimental Electronic Kit – Electronic  
 60 various electronic experiments  
 Ages 10 and up

Part No.	Ord.No.
S MERKUR 2.1	63786
S MERKUR 2.2	63787
S MERKUR E1	63781
S MERKUR E2	63782



**MERKUR Steam Engine Standard**  
 Create your own steam engine!  
 Alcohol-fueled engine

Part No.	Ord.No.
S Merkur Steam Engine Standard	63785

DIY Kits

P

# Ordering online

**S.O.S. electronic europe**  
**electroniconline**  
 www.soselectronic.com

## Speakers and Vacuum Tubes

Buzzers & Transducers



R 1

Speakers



R 9

Audio Amplifiers



R 21

Speaker Accessories



R 23

Car Speakers



R 26

Vacuum Tubes



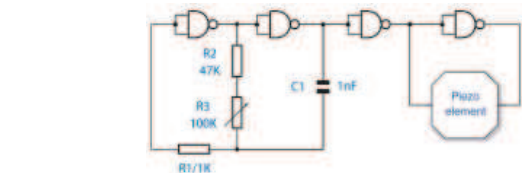
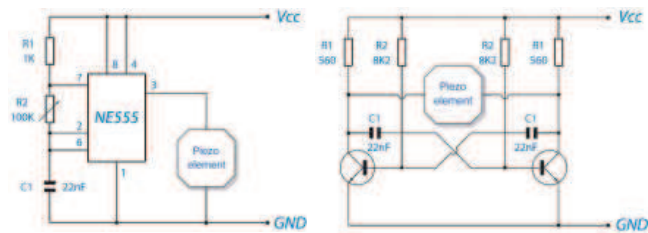
R 28



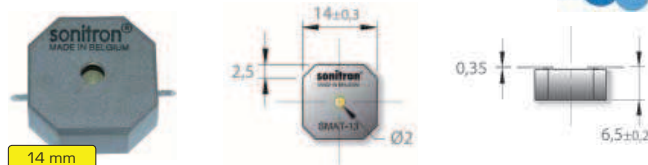
## Piezo Buzzers without Driver

### SMAT Series

The SMAT transducers are specifically developed to meet various requirements, such as loud sound pressure level, mounting methods, connection possibilities and dimensions. The transducers do not have a built-in oscillator. The drive frequency must be generated with electronics outside the transducers. Our transducers produce a highly reliable tone signal, giving either an extremely clear and penetrating tone or a soft sound for non-aggressive signals.



#### SMAT-13-S



Technical Parameters		SMAT-13-S
Frequency Range		800 - 5000 Hz
Operating Voltage		0 - 30 VACpp
Max. SPL at 10Vpp		82 dB/3 kHz/30cm
Capacitance		7,8 nF
Operating Temperature		-20°C to +70°C

Part No.	Ord.No.
S SMAT-13-S	64094

#### SMAT-17-S



Technical Parameters		SMAT-17-S
Frequency Range		800 - 5000 Hz
Operating Voltage		0 - 30 VACpp
Max. SPL at 10Vpp		84 dB/3,5 kHz/30cm
Capacitance		17,5 nF
Operating Temperature		-20°C to +70°C

Part No.	Ord.No.
S SMAT-17-S	64095

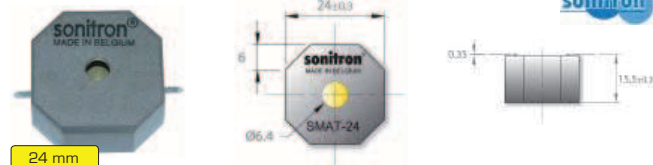
#### SMAT-21-S



Technical Parameters		SMAT-21-S
Frequency Range		600 - 5000 Hz
Operating Voltage		0 - 30 VACpp
Max. SPL at 10Vpp		90 dB/3,8 kHz/30cm
Capacitance		12,4 nF
Operating Temperature		-20°C to +70°C

Part No.	Ord.No.
S SMAT-21-S	64096

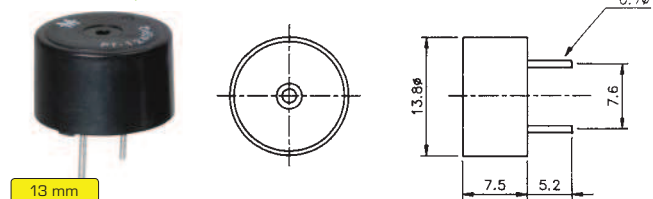
#### SMAT-24-S



Technical Parameters		SMAT-24-S
Frequency Range		400 - 5000 Hz
Operating Voltage		0 - 30 VACpp
Max. SPL at 10Vpp		86 dB/3kHz/30cm
Capacitance		18,6 nF
Operating Temperature		-20°C to +70°C

Part No.	Ord.No.
S SMAT-24-S	64097

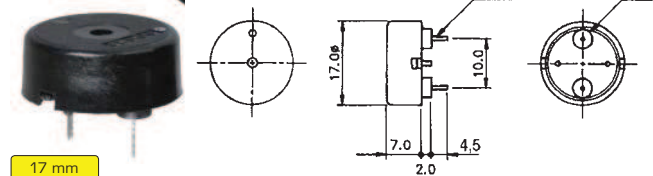
#### PT 1240 PQ



Technical Parameters		PT 1240 PQ
Resonant Frequency		4,1 kHz
Max. Operating Voltage		20 VDC
SPL at 5V		80 dB/10cm
Current Consumption		2 mA
Capacitance		17 000 pF
Operating Temperature		-20°C to +70°C

Part No.	Ord.No.
S PT 1240 PQ	7742

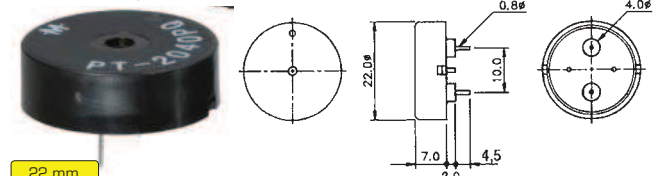
#### PT 1540 P



Technical Parameters		PT 1540 P
Resonant Frequency		4,0 kHz
Max. Operating Voltage		25 VDC
SPL at 5V		80 dB/10cm
Current Consumption		1,5 mA
Capacitance		14 000 pF
Operating Temperature		-20°C to +100°C

Part No.	Ord.No.
S PT 1540 P	4658

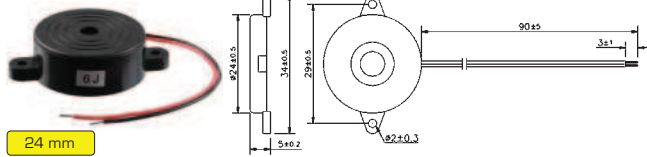
#### PT 2040 PQ



Technical Parameters		PT 2040 PQ
Resonant Frequency		4,0 kHz
Max. Operating Voltage		30 VDC
SPL at 5V		90 dB/10cm
Current Consumption		1,5 mA
Capacitance		20 000 pF
Operating Temperature		-20°C to +85°C

Part No.	Ord.No.
S PT 2040 PQ	5181

## PT 2060 WQ

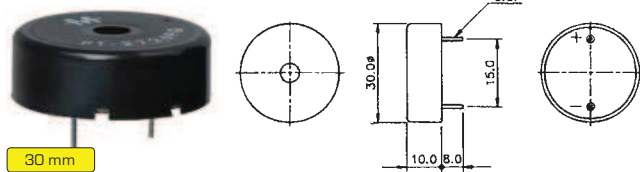


24 mm

Technical Parameters	PT 2060 WQ
Resonant Frequency	6,0 kHz
Max. Operating Voltage	30 VDC
SPL at 5V	90 dB/10cm
Current Consumption	1,5 mA
Capacitance	12 000 pF
Operating Temperature	-20°C to +70°C

Part No.	Ord.No.
S PT 2060 WQ	5088

## PT 2726 P

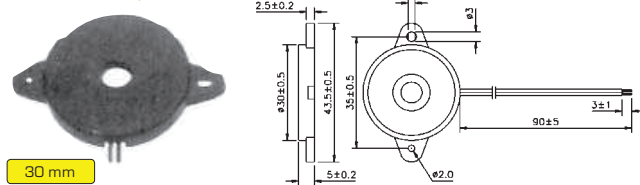


30 mm

Technical Parameters	PT 2726 P
Resonant Frequency	2,5 kHz
Max. Operating Voltage	30 VDC
SPL at 5V	90 dB/10cm
Current Consumption	1,5 mA
Capacitance	30 000 pF
Operating Temperature	-20°C to +70°C

Part No.	Ord.No.
S PT 2726 P	4924

## PT 2745 WQ

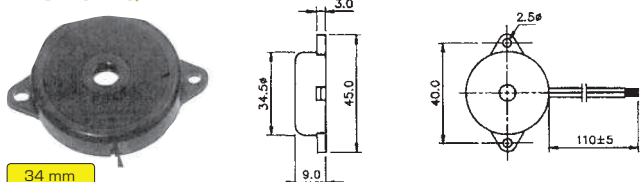


30 mm

Technical Parameters	PT 2745 WQ
Resonant Frequency	4,5 kHz
Max. Operating Voltage	30 VDC
SPL at 5V	90 dB/10cm
Current Consumption	1,5 mA
Capacitance	20 000 pF
Operating Temperature	-20°C to +90°C

Part No.	Ord.No.
S PT 2745 WQ	5087

## PT 3110 WQ

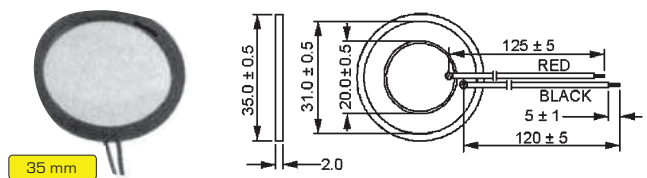


34 mm

Technical Parameters	PT 3110 WQ
Resonant Frequency	1,1 kHz
Max. Operating Voltage	30 VDC
SPL at 5V	85 dB/10cm
Current Consumption	2 mA
Capacitance	48 000 pF
Operating Temperature	-20°C to +90°C

Part No.	Ord.No.
S PT 3110 WQ	4923

## PB 3112 Q



35 mm

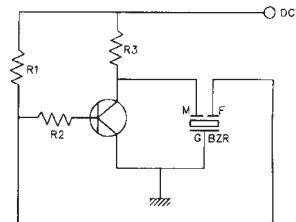
Technical Parameters	PB 3112 Q
Resonant Frequency	1,1 kHz
Max. Operating Voltage	40 VDC
SPL at 5V	75 dB/10cm
Current Consumption	1,5 mA
Capacitance	48 000 pF
Operating Temperature	-20°C to +70°C

Part No.	Ord.No.
S PB 3112 Q	4925

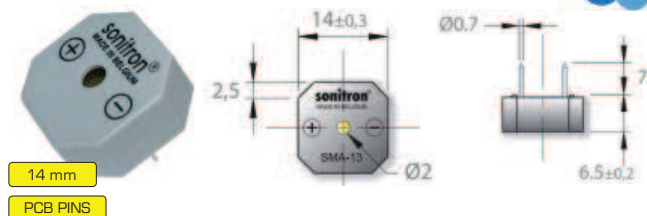
## Piezo Buzzers with Driver Sonitron SMA



The Sonitron Multi-Application buzzers are low cost commercial grade components for large volume applications. The SMA series are designed to meet various requirements such as Current Consumption, voltage, sound pressure, mounting methods, connection, dimensions and packaging. The buzzers have a built-in oscillator generating their working frequency. They produce a highly reliable tone signal giving either an extremely clear and penetrating tone or a soft sound for non-aggressive signals.



## SMA-13-P7,5 14mm



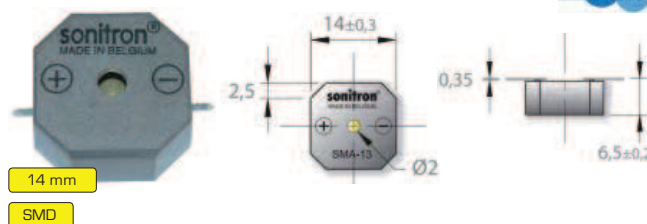
14 mm

PCB PINS

Technical Parameters	SMA-13-P7,5
Sound Frequency	3,0 kHz
Operating Voltage	1,5 - 24 VDC
SPL at 12V	75 dB/30cm
Current Consumption	1,8 mA
Operating Temperature	-20°C to +70°C

Part No.	Ord.No.
S SMA-13-P7,5	64085

## SMA-13-S



14 mm

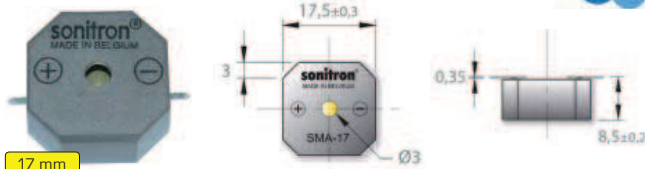
SMD

Technical Parameters	SMA-13-S
Sound Frequency	3,0 kHz
Operating Voltage	1,5 - 24 VDC
SPL at 12V	75 dB/30cm
Current Consumption	1,8 mA
Operating Temperature	-20°C to +70°C

Part No.	Ord.No.
S SMA-13-S	64064

## Piezo Buzzers with Driver (continued)

### SMA-17-S



17 mm

Technical Parameters	SMA-17-S
Sound Frequency	3,0 kHz
Operating Voltage	1,5 - 24 VDC
SPL at 12V	82 dB/30cm
Current Consumption	3,3 mA
Operating Temperature	-20°C to +70°C

Part No.	Ord.No.
s SMA-17-S	64067

### SMA-21-S

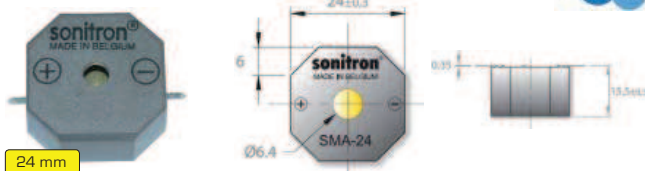


21 mm

Technical Parameters	SMA-21-S
Sound Frequency	3,3 kHz
Operating Voltage	1,5 - 24 VDC
SPL at 12V	85 dB/30cm
Current Consumption	3,8 mA
Operating Temperature	-20°C to +70°C

Part No.	Ord.No.
s SMA-21-S	64068

### SMA-24-S



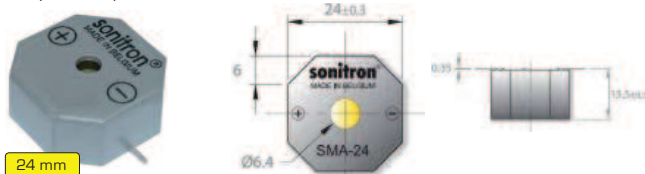
24 mm

Technical Parameters	SMA-24-S
Sound Frequency	3,0 kHz
Operating Voltage	1,5 - 24 VDC
SPL at 12V	92 dB/30cm
Current Consumption	4,2 ma
Operating Temperature	-20°C to +70°C

Part No.	Ord.No.
s SMA-24-S	64072

### SMAI-24-S

\*SMAI (Sonitron Multi-Application Intermittent) : intermittent pulse rate of 5Hz(@15VDC).



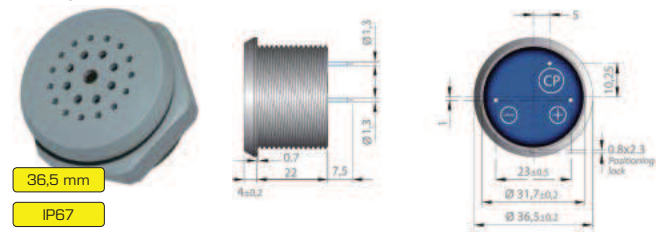
24 mm

Technical Parameters	SMAI-24-S
Sound frequency*	3,5 kHz
Operating Voltage	5 - 24 VDC
SPL at 12V	92 dB/30cm
Current Consumption	6,2 mA
Operating Temperature	-20°C to +70°C

Part No.	Ord.No.
s SMAI-24-S	64075

### SC 235 AF

The standard series are based on the highest piezo technology and are considered as most robust series for industrial applications. The standard buzzers use a special shaped membrane (curved edge), which is fixed and glued into the housing. They are shock proof, as well as dust and waterproof (IP67).



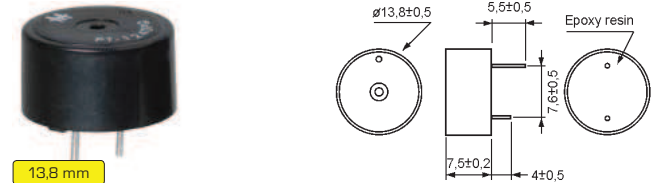
36,5 mm

IP67

Technical Parameters	SC 235 AF
Sound Frequency	2,5 kHz
Operating Voltage	2 - 35 VDC
SPL at 12V	73 dB/1m
Current Consumption	max. 8,6 mA
Operating Temperature	-35°C to +70°C

Part No.	Ord.No.
s SC 235 AF	64102

### PK 12N40 PETQ

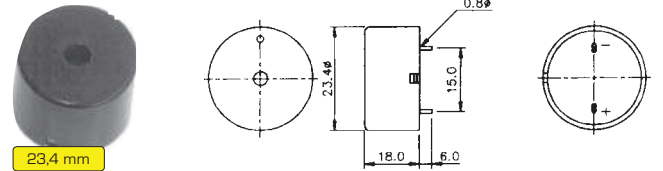


13,8 mm

Technical Parameters	PK 12N40 PETQ
Sound Frequency	4,1 kHz
Operating Voltage	3 - 15 VDC
SPL at 5V	83 dB/10cm
Current Consumption	10 mA
Operating Temperature	-20°C to +90°C

Part No.	Ord.No.
s PK 12N40 PETQ	4971

### PK 20N38 PQ

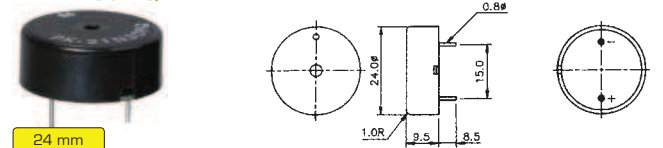


23,4 mm

Technical Parameters	PK 20N38 PQ
Sound Frequency	3,8 kHz
Operating Voltage	3 - 28 VDC
SPL at 5V	85 dB/10cm
Current Consumption	12 mA
Operating Temperature	-20°C to +70°C

Part No.	Ord.No.
s PK 20N38 PQ	7743

### PK 21N30 PQ



24 mm

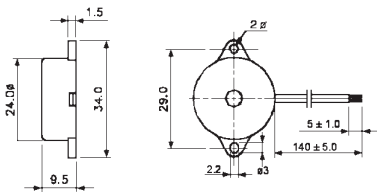
Technical Parameters	PK 21N30 PQ
Sound Frequency	3,0 kHz
Operating Voltage	1,5 - 30 VDC
SPL at 5V	80 dB/10cm
Current Consumption	12 mA
Operating Temperature	-20°C to +70°C

Part No.	Ord.No.
s PK 21N30 PQ	3351

## PK 21N30 WQ



24 mm



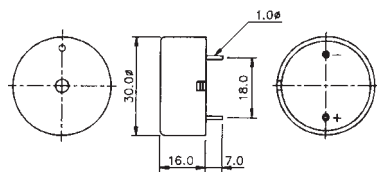
Technical Parameters	PK 21N30 WQ
Sound Frequency	3,0 kHz
Operating Voltage	1,5 - 30 VDC
SPL at 5V	80 dB/10cm
Current Consumption	12 mA
Operating Temperature	-20°C to +70°C

Part No.	Ord.No.
S PK 21N30 WQ	4926

## PK 27N35 PQ



30 mm



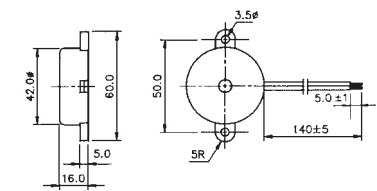
Technical Parameters	PK 27N35 PQ
Sound Frequency	3,5 kHz
Operating Voltage	3 - 28 VDC
SPL at 5V	90 dB/10cm
Current Consumption	15 mA
Operating Temperature	-20°C to +70°C

Part No.	Ord.No.
S PK 27N35 PQ	5141

## PK 35N29 WQ



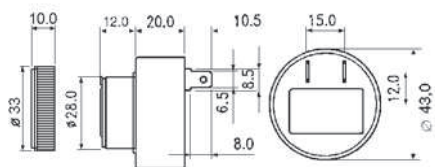
42 mm



Technical Parameters	PK 35N29 WQ
Sound Frequency	2,9 kHz
Operating Voltage	3 - 28 VDC
SPL at 5V	90 dB/10cm
Current Consumption	10 mA
Operating Temperature	-20°C to +70°C

Part No.	Ord.No.
S PK 35N29 WQ	6541

## PK 35N29 EPQ



Technical Parameters	PK 35N29 EPQ
Sound frequency	2,9 kHz
Operating Voltage	3 - 28 VDC
SPL at 5V	90 dB/10cm
Current Consumption	8 mA
Operating Temperature	-20°C to +70°C

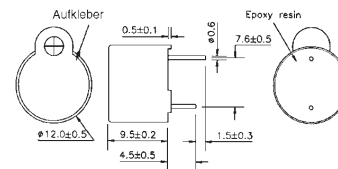
Part No.	Ord.No.
O PK 35N29 EPQ	7744

## DC Type Magnetic Buzzers

### PB 12N23P05Q



12 mm



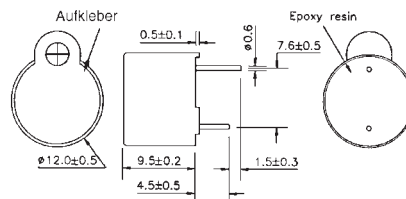
Technical Parameters	PB 12N23P05Q
Sound frequency	2,3 kHz
Operating Voltage	4,5 - 5,5 VDC
SPL	85 dB/10cm
Current Consumption	50 mA
Operating Temperature	-20°C to +70°C

Part No.	Ord.No.
S PB 12N23P05Q	8037

### PB 12N23P12Q



12 mm



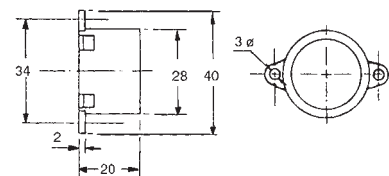
Technical Parameters	PB 12N23P12Q
Sound Frequency	2,3 kHz
Operating Voltage	9 - 15 VDC
SPL	85 dB/10cm
Current Consumption	50 mA
Operating Temperature	-20°C to +70°C

Part No.	Ord.No.
S PB 12N23P12Q	8038

### PEB 90 S



34 mm



Technical Parameters	PEB 90 S
Sound Frequency	2,8 kHz
Operating Voltage	6 - 11 VDC
SPL	90 dB/30cm
Current Consumption	40 mA
Operating Temperature	-20°C to +60°C

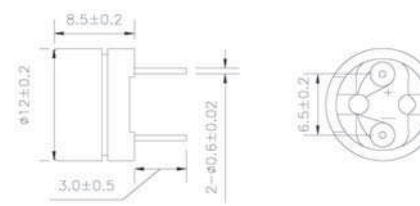
Part No.	Ord.No.
S PEB 90 S	11258

## AC Type Magnetic Buzzers

### ALP-60P



12 mm



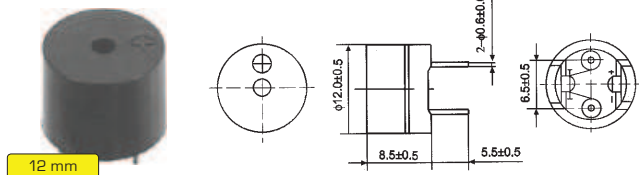
Technical Parameters	ALP-60P
Sound Frequency	2,048 kHz
Max. Operating Voltage	1,5 VAC
SPL	85 dB/10 cm
Current Consumption	32 mA
Operating Temperature	-20°C to +60°C

Part No.	Ord.No.
S ALP-60P	11262

## AC Type Magnetic Buzzers

(continued)

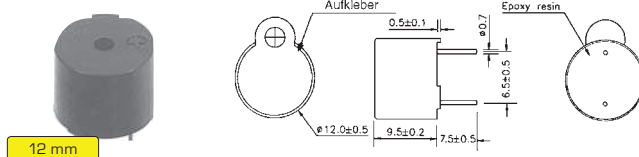
DB111FLF-PN



Technical Parameters	DB111FLF-PN
Sound Frequency	2,048 kHz
Max. Operating Voltage	1,5 VAC
Current Consumption	15 mA
SPL	80 dB/10 cm
Operating Temperature	-20°C to +60°C

Part No.	Ord.No.
S DB111FLF-PN	45182

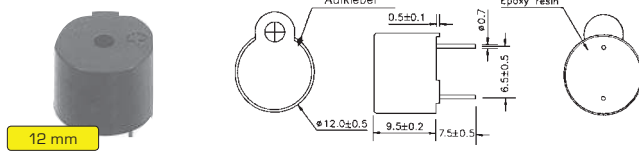
PB 1224PE05Q



Technical Parameters	PB 1224PE05Q
Sound Frequency	2,4 kHz
Max. Operating Voltage	4,5 - 5,5 VAC
SPL	85 dB/10cm
Current Consumption	60 mA
Operating Temperature	-20°C to +70°C

Part No.	Ord.No.
S PB 1224PE05Q	8040

PB 1224PE12Q



Technical Parameters	PB 1224PE12Q
Sound frequency	2,4 kHz
Max. Operating Voltage	9 - 15 VAC
SPL	85 dB/10cm
Current Consumption	40 mA
Operating Temperature	-20°C to +70°C

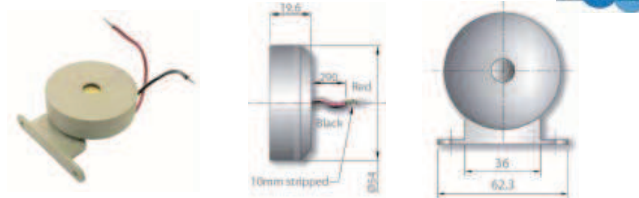
Part No.	Ord.No.
S PB 1224PE12Q	8041

## Sirens

### SAS-2154 and SAS-2835 Series

Thin piezo-electric sirens with high sound pressure, low weight and low current consumption. The sound output is a powerful, clear and aggressive warning signal. There are many applications for this siren : all fire alarms, cars and motor vehicles, automation equipment, security devices, etc. The vibrating elements are unique and developed at Sonitron (worldwide patented). This series made of high quality materials, offers extreme reliability and robustness, and features a life time over 2.000 hours in continuous use. Dust tight, waterproof (IP67).

SAS-2154-S-W-MB3

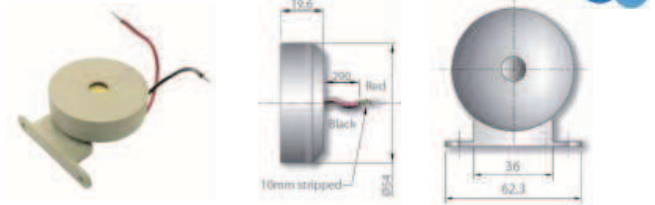


Technical Parameters	SAS-2154-S-W-MB3
Sound Frequency	2 - 3,5 kHz sweep 3 Hz

Operating Voltage	6 - 15 VDC
SPL at 15 VDC	105 dB/1m
Current Consumption at 12 VDC	100 mA
Operating Temperature	-40°C to +60°C
Ingress Protection	IP67

Part No.	Ord.No.
S SAS-2154-S-W-MB3	64101

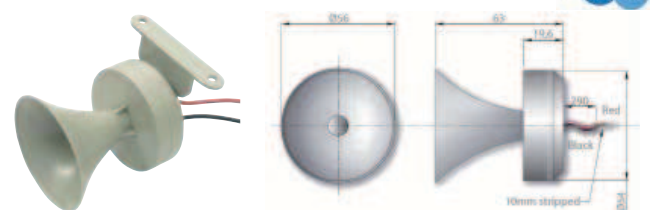
SAS-2154-W-W-MB3



Technical Parameters	SAS-2154-W-W-MB3
Sound Frequency	3 kHz a 3,5 kHz warbler
Operating Voltage	6 - 15 VDC
SPL at 15 VDC	105 dB/1m
Current Consumption at 12 VDC	110 mA
Operating Temperature	-40°C to +60°C
Ingress Protection	IP67

Part No.	Ord.No.
S SAS-2154-W-W-MB3	64100

SAS-2835-12V-W-MB3

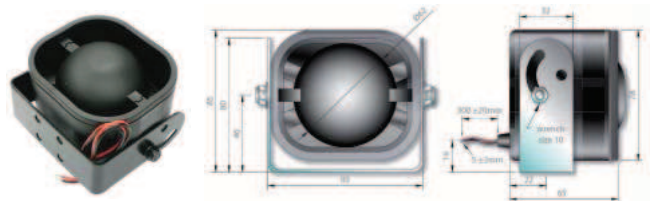


Technical Parameters	SAS-2835-12V-W-MB3
Sound Frequency	1,8 - 3,5 kHz sweep
Operating Voltage	6 - 15 VDC
SPL at 12 VDC	110 dB/1m
Current Consumption	120 mA
Operating Temperature	-40°C to +60°C
Ingress Protection	IP67

Part No.	Ord.No.
S SAS-2835-12V-W-MB3	64099

SAS-325A-6

The SAS-325A-6 is a universal electromagnetic siren with very high sound output. At 30 cm the sound pressure level is about 123 dB(A). Six different alarm tones can be programmed by jumpers selection, which enables the user to choose and pre-select an alarm function for different application fields.



Technical Parameters	SAS-325A-6
Sound Frequency	6 adjustable
Operating Voltage	12 VDC
SPL	123 dB/30 cm
Current Consumption	1 A
Ingress Protection	IP60
Note	Suitable as evacuation alarm

Part No.	Ord.No.
S SAS-325A-6	64034

## SAS-81-12V



This small sized piezoceramic siren produces a very powerful sound output at low frequencies and low Current Consumption. It can be used in an endless type of applications such as car and motorbike alarms and for many different security functions.



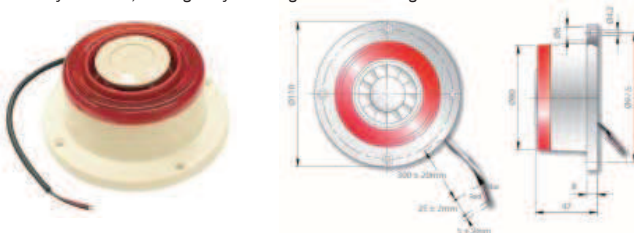
Technical Parameters	SAS-81-12V / SAS-81-24V
Sound Frequency	1,5 - 3,5 kHz sweep 1 Hz
Operating Voltage	6 - 14 VDC / 14 - 28 VDC
SPL	115 dB/30 cm
Current Consumption at 12 VDC	130 mA
Ingress Protection	IP67

Part No.	Ord.No.
S SAS-81-12V	64036
S SAS-81-24V	64038

## SAS-87-12V



This ceiling mountable piezoceramic siren is used for very loud immediate attention-getting functions. The sound output level reaches 122 dB(A). Combined with a visual eye-catching flashlight, the siren gets immediate attention. This siren is especially suited for use in applications such as fire alarms, automation equipment, security devices, emergency warnings and as safe guards.



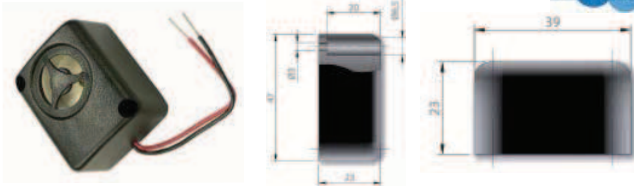
Technical Parameters	SAS-87-12V
Sound frequency	1,5 - 3,5 kHz sweep 1 Hz
Operating Voltage	6 - 14 VDC
SPL	122 dB/30 cm
Current Consumption	250 mA
Ingress Protection	IP65

Part No.	Ord.No.
S SAS-87-12V	64032

## SAS-RL72 and SAS-RH72 Series

This small sized piezo ceramic alarm creates a low and deep soft clock sound for recalling. The low decibel sound is used for cars and vehicles recalling door danger or other critical situations.

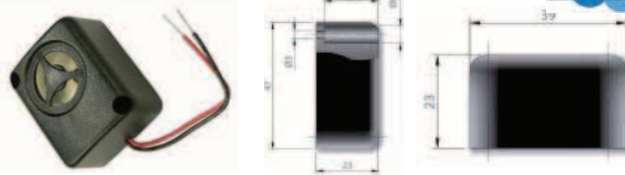
### SAS-RH72



Technical Parameters	SAS-RH72
Sound Frequency	2,7 kHz fast pulse, 3 Hz
Operating Voltage	6 - 14 VDC
SPL	100 dB/30 cm
Current Consumption	10 mA
Ingress Protection	IP60

Part No.	Ord.No.
S SAS-RH72	64040

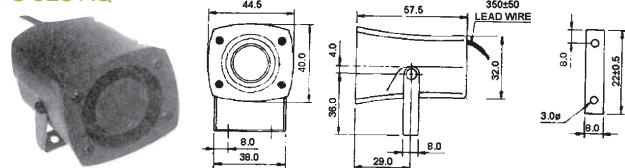
## SAS-RL72



Technical Parameters	SAS-RL72
Sound Frequency	400 Hz fast pulse, 0,5 Hz
Operating Voltage	6 - 28 VDC
SPL	90 dB/30 cm at 12 VDC 95 dB/30 cm at 24 VDC
Current Consumption	max. 45 mA
Ingress Protection	IP60

Part No.	Ord.No.
S SAS-RL72	64039

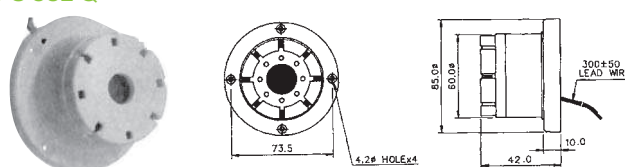
## PS 523 AQ



Technical Parameters	PS 523 AQ
Sound Frequency	1,5 - 4 kHz sweep 4,5 Hz
Operating Voltage	12 VDC
SPL	105 dB/1m
Current Consumption	200 mA
Operating Temperature	-20°C to +70°C

Part No.	Ord.No.
S PS 523 AQ	11259

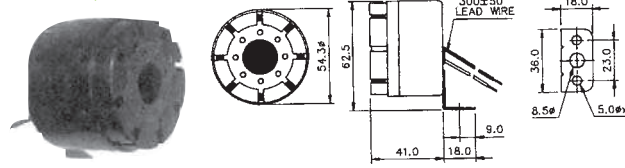
## PS 532 Q



Technical Parameters	PS 532 Q
Sound Frequency	2,3 - 3,5 kHz high/low 1,2 Hz
Operating Voltage	12 VDC
SPL	105 dB/1m
Current Consumption	200 mA
Operating Temperature	-20°C to +70°C

Part No.	Ord.No.
S PS 532 Q	4928

## PS 552 Q

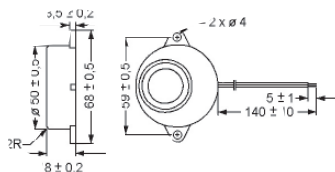
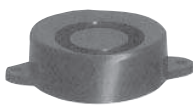


Technical Parameters	PS 552 Q
Sound frequency	2,3 - 3,5 kHz high/low 1,2 Hz
Operating Voltage	12 VDC
SPL	105 dB/1m
Current Consumption	200 mA
Operating Temperature	-20°C to +70°C

Part No.	Ord.No.
S PS 552 Q	4929

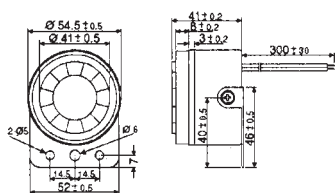
## Sirens (continued)

### PS 583 Q



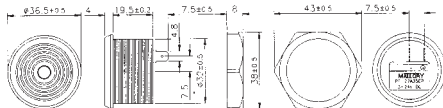
Technical Parameters		PS 583 Q
Sound Frequency		1,5 - 3,5 kHz sweep 3,3 Hz
Operating Voltage		12 VDC
SPL		100 dB/1m
Current Consumption		300 mA
Operating Temperature		-20°C to +70°C
Part No.	Ord.No.	
s PS 583 Q	45183	

### PS 693 Q



Technical Parameters		PS 693 Q
Sound Frequency		1,5 - 3,8 kHz sweep 3,3 Hz
Operating Voltage		12 VDC
SPL		110 dB/1m
Current Consumption		200 mA
Operating Temperature		-20°C to +70°C
Part No.	Ord.No.	
s PS 693 Q	8035	

### PK-27A35EP



Technical Parameters		PK-27A35EP
Sound Frequency		3,5 kHz fastpulse 3 Hz
Operating Voltage		3 - 28 V
SPL		90 dB/30 cm
Current Consumption		8 mA
Operating Temperature		-20°C to +60°C
Part No.	Ord.No.	
s PK-27A35EP	45184	

### PS 380 Q, PS 380 AQ



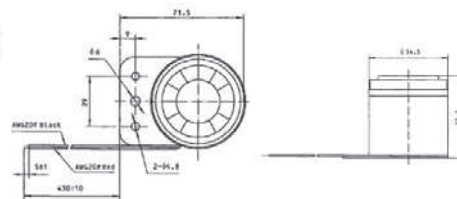
Technical Parameters		PS 380 Q	PS 380 AQ
Sound Frequency		1,5 - 3,5 kHz sweep 3,3 Hz	1,5 - 3,5 kHz sweep 3,3 Hz
Operating Voltage		12 VDC	12 VDC
SPL		110 dB/1m	115 dB/1m
Current Consumption		600 mA	1200 mA
Power		10 W	20 W
Operating Temperature		-20°C to +70°C	-20°C to +70°C
Diameter x length		90 x 100 mm	90 x 100 mm
Part No.	Ord.No.		
s PS 380 Q	7946		
s PS 380 AQ	2227		

### PS 386 Q



Technical Parameters		PS 386 Q
Sound Frequency		1,5 - 3,5 kHz 6 tones
Operating Voltage		12 VDC
SPL		115 dB/1m
Current Consumption		1200 mA
Power		20 W
Operating Temperature		-20°C to +70°C
Diameter x dĺžka		90 x 100 mm
Part No.	Ord.No.	
s PS 386 Q	4930	

### FBPS5556

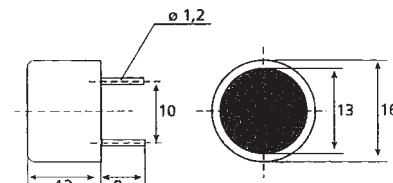


Technical Parameters		FBPS5556
Sound Frequency		1,5 - 4 kHz sweep
Operating Voltage		12 VDC
SPL		105 dB/1 m
Current Consumption		max. 300 mA
Operating Temperature		-20°C to +60°C
Part No.	Ord.No.	
s FBPS5556	63013	

## Ultrasonic Transducers

### T4016 = UST 40 T

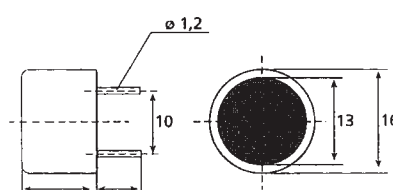
#### Ultrasonic transmitter



Technical Parameters		T4016 = UST 40 T
Working Frequency		40 kHz (±1 kHz)
SPL		119 dB at 40 kHz
Capacitance		2400 pF
Bandwidth		2 kHz
Working Voltage		max. 20 VAC
Part No.	Ord.No.	
s T4016 = UST 40 T	2178	

### R4016 = UST 40 R

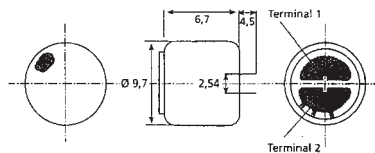
#### Ultrasonic receiver



Technical Parameters		R4016 = UST 40 R
Working Frequency		40 kHz (±1 kHz)
Sensitivity		-65 dB at 40 kHz
Capacitance		2400 pF
Bandwidth		2,5 kHz
Part No.	Ord.No.	
s R4016 = UST 40 R	2177	

## Electret Microphones

MCE 100

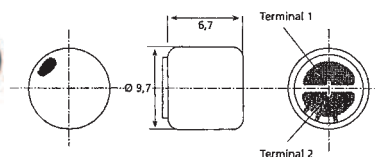


PCB

Technical Parameters	MCE 100
Frequency Range	50 - 10 000 Hz
Operating Voltage	1,5 - 10 V
Current Consumption	0,5 mA
Output Impedance	2000 Ω
Sensitivity	-5,6 mV/Pa (1 kHz)

Part No.	Ord.No.
S MCE 100	11261

MCE 101

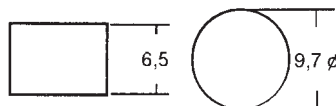


with 140mm cable

Technical Parameters	MCE 101
Frequency Range	50 - 10 000 Hz
Operating Voltage	1,5 - 10 V
Current Consumption	0,5 mA
Output Impedance	2000 Ω
Sensitivity	-5,6 mV/Pa (1 kHz)

Part No.	Ord.No.
S MCE 101	4931

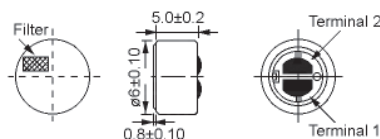
EKM62



Technical Parameters	EKM62
Frequency Range	50 - 10 000 Hz
Operating Voltage	1,5 - 10 V
Current Consumption	0,4 mA
Output Impedance	2000 Ω
Sensitivity	-62 dB

Part No.	Ord.No.
S EKM62	8042

PMOF6050NS-45U



Technical Parameters	PMOF6050NS-45U
Frequency Range	20 - 16 000 Hz
Operating Voltage	1 - 10 V
Current Consumption	0,5 mA
Output impedance	2200 Ω
Sensitivity	-65 dB

Part No.	Ord.No.
S PMOF6050NS-45U	4551

## Dynamic Microphones

CD 202



Technical Parameters	CD 202
Frequency Range	100 - 12 500 Hz
Impedance	600 Ω
Sensitivity	-77 dB
Connector	Jack 6,3 mm
Cable Length	2,5 m
Weight	110 g

Part No.	Ord.No.
S CD 202	60458

DM-222



Technical Parameters	DM-222
Frequency Range	50 - 12 500 Hz
Impedance	600 Ω
Connector	XLR / Jack 6,3 mm
Cable Length	3 m
Weight	190 g

Part No.	Ord.No.
S DM-222	46145

EH-002



Technical Parameters	EH-002
Frequency Range	50 - 15 000 Hz
Impedance	600 Ω
Sensitivity	-54 dB
Connector	XLR / Jack 6,3 mm
Cable Length	5 m
Weight	285 g

Part No.	Ord.No.
S EH-002	62242



## Speakers Overview

### Speakers for home applications

Tweeters  
Woofers  
Wideband multi-purpose loudspeakers  
Mid-range speakers



### Speakers for industrial applications

Water resistant speakers with moulded plastic cone, plastic basket and grille and silicon-coated leads. Clear-cut high-range output, 100 V line distribution network



### Car speakers

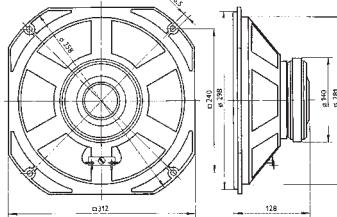
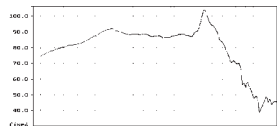
Straightforward installation in vehicles, waterproof cone



## TVM Woofers

### ARN 312-00/4

Woofer with very low resonance frequency and low distortion intended for use in high quality domestic loudspeaker system.



### Technical Parameters ARN 312-00/4 / ARN 312-00/8

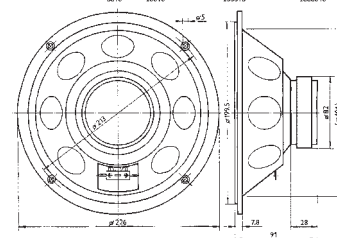
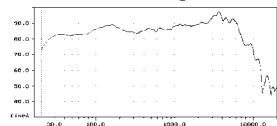
Diameter	312 mm
Depth	128 mm
Rated Noise Power	100 W
Short Term Maximum Power	300 W
Impedance	4 Ω / 8 Ω
Resonant Frequency	24 Hz / 26 Hz
Rated Frequency Range	20-1000 Hz
Sensitivity	90 dB

Part No.	Ord.No.
S ARN 312-00/4	8703
S ARN 312-00/8	8704

### ARN 226-05/4

### ARN 226-05/8

Woofer for HiFi loudspeaker systems. With coating of cone.



### Technical Parameters ARN 226-05/4 / ARN 226-05/8

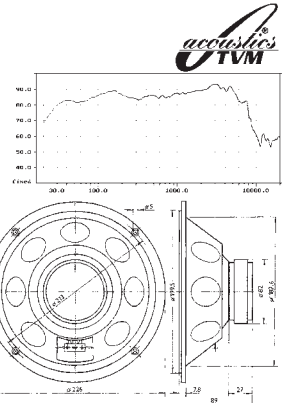
Diameter	226 mm
Depth	91 mm
Rated Noise Power	70 W
Short Term Maximum Power	140 W
Impedance	4 Ω / 8 Ω
Resonant Frequency	33 Hz / 34 Hz
Rated Frequency Range	30-3000 Hz
Sensitivity	86 dB

Part No.	Ord.No.
S ARN 226-05/4	8701
S ARN 226-05/8	8702

### ARN 226-08/4

### ARN 226-08/8

Woofer for HiFi loudspeaker systems. With coating of polypropylene cone.



### Technical Parameters ARN 226-05/4 / ARN 226-05/8

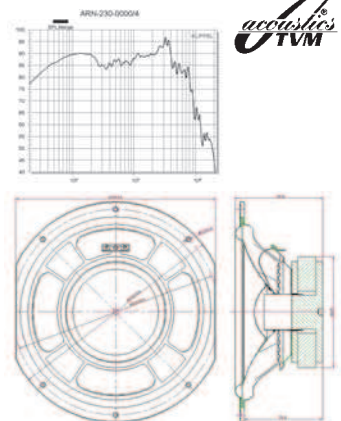
Diameter	226 mm
Depth	89 mm
Rated Noise Power	70 W
Short Term Maximum Power	210 W
Impedance	4 Ω / 8 Ω
Resonant Frequency	34 Hz
Rated Frequency Range	35-3000 Hz
Sensitivity	87 dB

Part No.	Ord.No.
S ARN 226-08/4	8793
S ARN 226-08/8	8794

### ARN 230-0000/4

### ARN 230-0000/8

Loudspeaker ARN-230-0000/4 and ARN-230-0000/8 is a direct radiator electrodynamic transducer which irradiates the lower up to medium band of the low-frequency spectrum. The loudspeaker is designed to be used in loudspeaker systems as well as in other applications.



### Technical Parameters ARN 230-0000/4 / ARN 230-0000/8

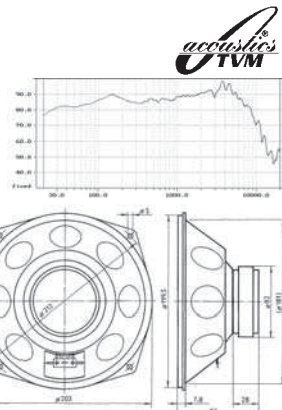
Diameter	230mm/214mm
Depth	92mm
Rated Noise Power	110 W
Short Term Maximum Power	-
Impedance	4 Ω / 8 Ω
Resonant Frequency	35 Hz
Rated Frequency Range	40-3000 Hz
Sensitivity	90 dB / 91 dB

Part No.	Ord.No.
S ARN 230-0000/4	73746
S ARN 230-0000/8	73747

### ARN 6614

### ARN 6618

Woofer for HiFi loudspeaker systems.

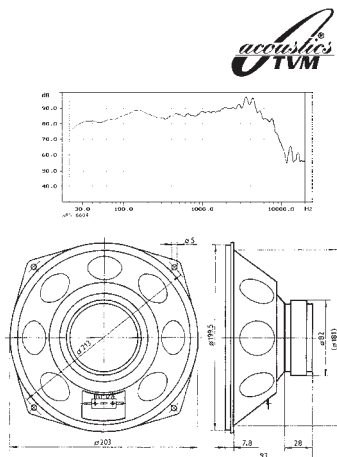


Technical Parameters		ARN 6614 / ARN 6618
Diameter		203 mm
Depth		93 mm
Rated Noise Power		70 W
Short Term Maximum Power		140 W
Impedance		4 Ω / 8 Ω
Resonant Frequency		33 Hz
Rated Frequency Range		30-3000 Hz
Sensitivity		87 dB

Part No.	Ord.No.
S ARN 6614	8693
S ARN 6618	8694

**ARN 6684**  
**ARN 6688**  
Woofer for HiFi loudspeaker systems. With coating of cone.

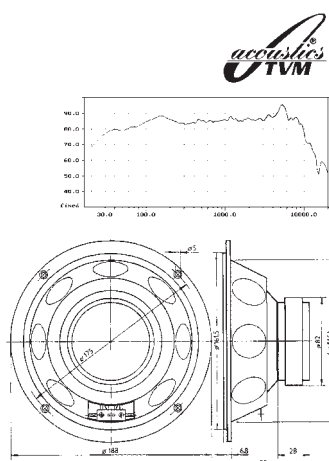


Technical Parameters		ARN 6684 / ARN 6688
Diameter		203 mm
Depth		93 mm
Rated Noise Power		70 W
Short Term Maximum Power		140 W
Impedance		4 Ω / 8 Ω
Resonant Frequency		32 Hz
Rated Frequency Range		40-4000 Hz
Sensitivity		86 dB

Part No.	Ord.No.
S ARN 6684	8695
S ARN 6688	8696

**ARN 188-05/4**  
**ARN 188-05/8**  
Woofer for HiFi loudspeaker systems. With coating of cone into the spiral.



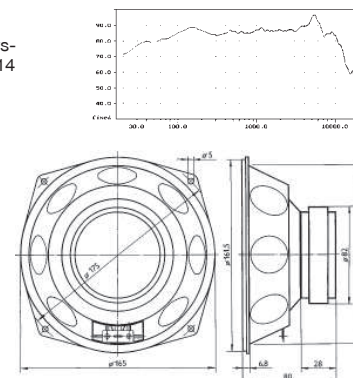
Technical Parameters		ARN 188-05/4 / ARN 188-05/8
Diameter		188 mm
Depth		80 mm
Rated Noise Power		60 W
Short Term Maximum Power		120 W
Impedance		4 Ω / 8 Ω
Resonant Frequency		42 Hz / 43 Hz
Rated Frequency Range		40-4000 Hz
Sensitivity		85 dB

Part No.	Ord.No.
S ARN 188-05/4	8699
S ARN 188-05/8	8700

**ARN 5614**  
**ARN 5618**  
Woofer for HiFi loudspeaker systems.



**ARN 5684**  
Woofer for HiFi loudspeaker systems. It differs from type ARN 5614 in coating of cone.

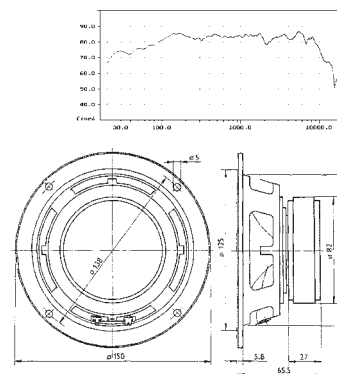


Technical Parameters		ARN 5614 / ARN 5618	ARN 5684
Diameter		165 mm	165 mm
Depth		80 mm	80 mm
Rated Noise Power		60 W	60 W
Short Term Maximum Power		120 W	120 W
Impedance		4 Ω / 8 Ω	4 Ω
Resonant Frequency		42 Hz / 44 Hz	40 Hz
Rated Frequency Range		40-4000 Hz	40-4000 Hz
Sensitivity		86 dB	85 dB

Part No.	Ord.No.
S ARN 5614	8691
S ARN 5618	8692
S ARN 5684	9106

**ARN 150-05/4**  
**ARN 150-05/8**  
Woofer for HiFi loudspeaker systems. With coating of cone.



Technical Parameters		ARN 150-05/4 / ARN 150-05/8
Diameter		150 mm
Depth		66 mm
Rated Noise Power		60 W
Short Term Maximum Power		100 W
Impedance		4 Ω / 8 Ω
Resonant Frequency		45 Hz / 50 Hz
Rated Frequency Range		45-5000 Hz
Sensitivity		84 dB

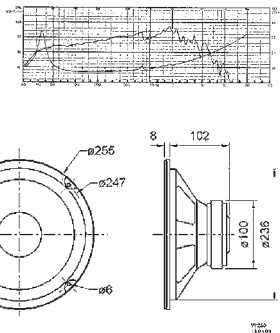
  

Part No.	Ord.No.
S ARN 150-05/4	8697
S ARN 150-05/8	8698

## VISATON Woofers

### W 250/8

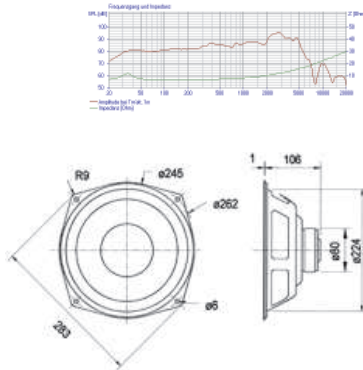
25 cm (10") woofer with air-dried cone and cone reinforcement. Front or rear mounting possible. Very good price/performance ratio and high power handling.



Technical Parameters		W 250/8
Diameter		255 mm
Depth		102 mm
Rated Noise Power		90 W
Short Term Maximum Power		130 W
Impedance		8 Ω
Resonant Frequency		37 Hz
Rated Frequency Range		37-6000 Hz
Sensitivity		90 dB
Part No.	Ord.No.	
S W 250/8	46261	

### WS 25 E/8

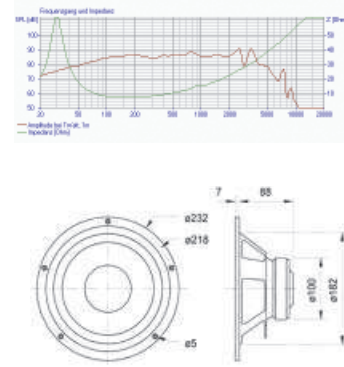
25 cm (10") woofer with coated paper cone, rubber edge and extended rear pole plate for long strokes. Due to the basket design especially suited as replacement woofer for many standard HiFi speakers.



Technical Parameters		WS 25 E/8
Diameter		262 mm
Depth		106 mm
Rated Noise Power		80 W
Short Term Maximum Power		110 W
Impedance		8 Ω
Resonant Frequency		40 Hz
Rated Frequency Range		40-6000 Hz
Sensitivity		88 dB
Part No.	Ord.No.	
S W 25 E/8	46264	

### W 200 S/8

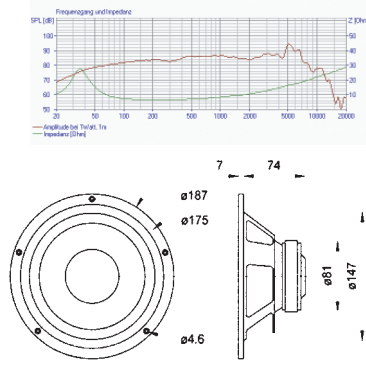
20 cm (8") HiFi woofer with strong drive, extended rear pole plate and 35 mm voice-coil for high power handling. Elastic rubber surround and coated paper cone.



Technical Parameters		WS 200 S/8
Diameter		262 mm
Depth		106 mm
Rated Noise Power		80 W
Short Term Maximum Power		110 W
Impedance		8 Ω
Resonant Frequency		40 Hz
Rated Frequency Range		40-6000 Hz
Sensitivity		88 dB
Part No.	Ord.No.	
S W 200 S/8	46270	

### W 170 S/8

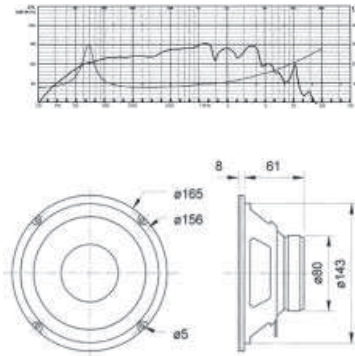
17 cm (6.5") HiFi woofer with coated paper cone, powerful drive and extended rear pole plate. Special voice-coil and elastic rubber surround for long strokes.



Technical Parameters		W 170 S/8
Diameter		187 mm
Depth		74 mm
Rated Noise Power		50 W
Short Term Maximum Power		80 W
Impedance		8 Ω
Resonant Frequency		36 Hz
Rated Frequency Range		36-8000 Hz
Sensitivity		86 dB
Part No.	Ord.No.	
S W 170 S/8	46282	

## W 170/8

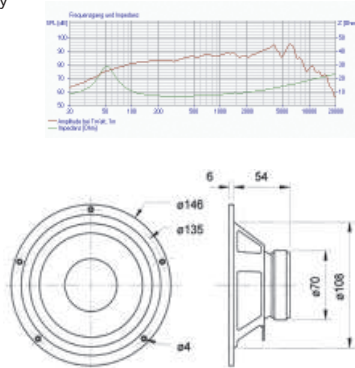
17 cm (6.5") HiFi woofer with very good price/performance ratio. Suitable for simple 2-way speakers and car rear tray systems. Especially suited als replacement driver for many HiFi speakers.



Technical Parameters		W 170/8
Diameter		165 mm
Depth		61 mm
Rated Noise Power		40 W
Short Term Maximum Power		70 W
Impedance		8 Ω
Resonant Frequency		68 Hz
Rated Frequency Range		68-6000 Hz
Sensitivity		87 dB
<b>Part No.</b>	<b>Ord.No.</b>	
S W 170/8	46288	

## W 130 S/8

13 cm (5") HiFi low-midrange driver with coated paper cone, elastic rubber surround and 25 mm voice-coil. Suitable as woofer and due to the very balanced frequency response also as low-midrange driver especially in large 3-way speaker systems.



Technical Parameters		W 130 S/8
Diameter		146 mm
Depth		54 mm
Rated Noise Power		50 W
Short Term Maximum Power		80 W
Impedance		8 Ω
Resonant Frequency		49 Hz
Rated Frequency Range		49-12000 Hz
Sensitivity		87 dB
<b>Part No.</b>	<b>Ord.No.</b>	
S W 130 S/8	46299	

## Other Woofers

### ZYD385B-8-72

15" Kenford woofer for PA systems with paper cone.



Technical Parameters		ZYD385B-8-72
Diameter		350 mm
Depth		160 mm
Rated Noise Power		300 W
Short Term Maximum Power		600 W
Impedance		8 Ω
Resonant Frequency		39 Hz
Rated Frequency Range		39-3500 Hz
Sensitivity		97 dB
<b>Part No.</b>	<b>Ord.No.</b>	
O ZYD385B-8-72	57843	

### DY H 1530

The large-diameter diaphragm and low resonant frequencies ensure powerful bass rendition. Strengthened NAWI diaphragms, warp-resistant steel baskets, flexible mounting with foam-plastic bead.



Technical Parameters		DY H 1530
Diameter		358 mm
Depth		120 mm
Rated Noise Power		150 W
Short Term Maximum Power		250 W
Impedance		4 Ω
Resonant Frequency		25 Hz
Rated Frequency Range		25-2500 Hz
Sensitivity		88,6 dB
<b>Part No.</b>	<b>Ord.No.</b>	
S DY H 1530	59964	

### ZYD300B-8-67

12" Kenford woofer for PA systems with paper cone.

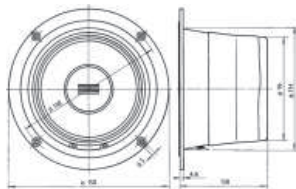
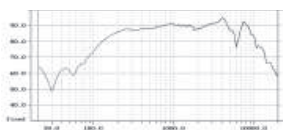


Technical Parameters		ZYD300B-8-67
Diameter		280 mm
Depth		130 mm
Rated Noise Power		250 W
Short Term Maximum Power		500 W
Impedance		8 Ω
Resonant Frequency		54 Hz
Rated Frequency Range		47-4000 Hz
Sensitivity		95 dB
<b>Part No.</b>	<b>Ord.No.</b>	
O ZYD300B-8-6	56540	

## TVM Midrange Speakers

### ARP 150-00/4 ARP 150-00/8

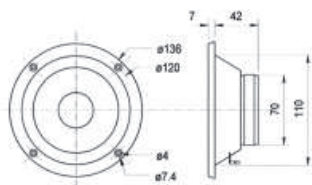
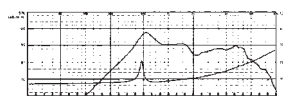
A midrange loudspeaker for demanding applications in quality loudspeaker sets for flats. The cover of inside volume reaching 0,8 m3 prevents interaction between the woofer and the tweeter in the set an is filled with attenuating material which suppresses any oscillations of the bounded space.



Technical Parameters		ARP 150-00/4 / ARP 150-00/8
Diameter		150 mm
Depth		138 mm
Rated Noise Power		50 W
Short Term Maximum Power		150 W
Impedance		4 Ω / 8 Ω
Resonant Frequency		227 Hz
Rated Frequency Range		500-5000 Hz
Sensitivity		91 dB
<b>Part No.</b>	<b>Ord.No.</b>	
S ARP 150-00/4	8705	
S ARP 150-00/8	8706	

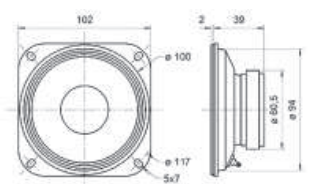
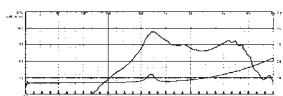
### MR 130/8

130 mm (5") cone midrange driver for the midrange band between 1000 and 5000 Hz. Due to the enclosed rear no separate midrange housing construction is necessary. Very good price/performance ratio.



### M 10/8

100 mm (4") cone midrange driver for the midrange band between 1000 and 5000 Hz. Due to the enclosed rear no separate midrange housing construction is necessary. Very good price/performance ratio.

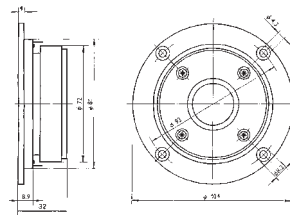
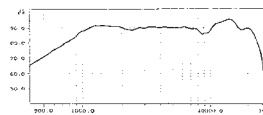


Technical Parameters		MR 130/8	M 10/8
Diameter		136 mm	102 mm
Depth		42 mm	39 mm
Rated Noise Power		80 W	80 W
Short Term Maximum Power		100 W	100 W
Impedance		8 Ω	8 Ω
Resonant Frequency		500 Hz	700 Hz
Rated Frequency Range		400-13000 Hz	450-13000 Hz
Sensitivity		89 dB	90 dB
<b>Part No.</b>	<b>Ord.No.</b>		
S MR 130/8	46368		
S M 10/8	46370		

## TVM Tweeters

### ARV 104-03/4 ARV 104-03/8

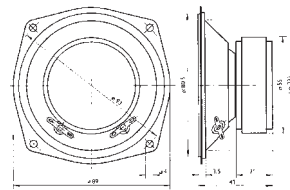
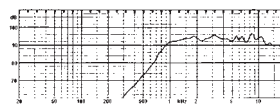
Tweeter with fabric dome and a voice coil with kapton former for use in high quality domestic loudspeaker systems.



Technical Parameters		ARV 104-03/4 / ARP 104-03/8
Diameter		104 mm
Depth		32 mm
Rated Noise Power		45 W
Short Term Maximum Power		200 W
Impedance		4 Ω / 8 Ω
Rated Frequency Range		2500-18000 Hz
Sensitivity		91 dB
<b>Part No.</b>	<b>Ord.No.</b>	
S ARV 104-03/4	4413	
S ARV 104-03/8	4414	

### ARV 089-00/4 ARV 089-00/8

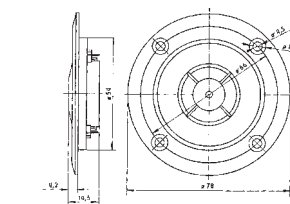
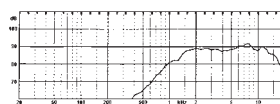
A direct-radiator electrodynamic loudspeaker designed for transmission of tones of the upper part of the audio spectrum in two-band and multiple-band flat loudspeaker systems. The loudspeaker has good directional properties.



Technical Parameters		ARV 089-00/4 / ARV 089-00/8
Diameter		89 mm
Depth		41 mm
Rated Noise Power		10 W
Short Term Maximum Power		-
Impedance		4 Ω / 8 Ω
Rated Frequency Range		1500-16000 Hz
Sensitivity		91 dB
<b>Part No.</b>	<b>Ord.No.</b>	
S ARV 089-00/4	8707	
S ARV 089-00/8	8708	

### ARV 078-00/4 ARV 078-00/8

Electrodynamic loudspeaker with fabric dome designed for transmission of tones of the upper part of the audible frequency in multiple-band loudspeaker sets of small dimensions and can be used in such cases when the outer scattered field must be limited.



Technical Parameters		ARV 078-00/4 / ARV 078-00/8
Diameter		78 mm
Depth		14,5 mm
Rated Noise Power		20 W

Short Term Maximum Power	30 W
Impedance	4 Ω / 8 Ω
Rated Frequency Range	2500-18000 Hz
Sensitivity	88 dB

Part No.	Ord.No.
S ARV 078-00/4	48395
S ARV 078-00/8	48396

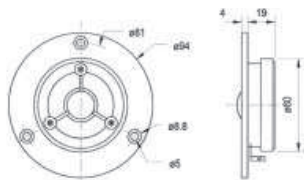
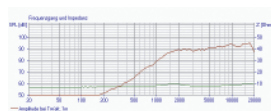
## VISATON Tweeters



### DT 94/4

### DT 94/8

20 mm (0.8") polycarbonate HiFi driver with round shaped front plate for the highrange above 3000 Hz. Balanced frequency response and good omnidirectional sound distribution. High power handling due to ferrofluid-cooled voice-coil.



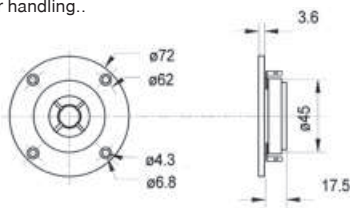
Technical Parameters	DT 94/4 / DT 94/8
Diameter	94 mm
Depth	19 mm
Rated Noise Power	70 W
Short Term Maximum Power	100 W
Impedance	4 Ω / 8 Ω
Resonant Frequency	1900 Hz
Rated Frequency Range	1200-22000 Hz
Sensitivity	90 dB

Part No.	Ord.No.
O DT 94/4	46392
S DT 94/8	46393



### DTW 72/8

14 mm (0.6") polycarbonate dome driver for the highrange above 4000 Hz. Balanced frequency response and excellent omnidirectional sound distribution. Due to the strong magnetic drive and the ultra-light dome in conjunction with the ferrofluid-cooled voice-coil good efficiency and high power handling.



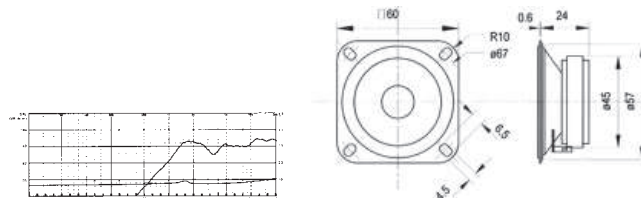
Technical Parameters	DTW 72/8
Diameter	72 mm
Depth	17,5 mm
Rated Noise Power	70 W
Short Term Maximum Power	110 W
Impedance	8 Ω
Resonant Frequency	3000 Hz
Rated Frequency Range	2200-23000 Hz
Sensitivity	91 dB

Part No.	Ord.No.
S DTW 72/8	46394



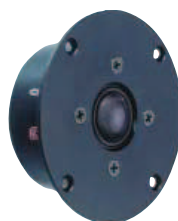
### TW 6 NG/8

Cone tweeter for the high-Frequency Range above 5000 Hz. Balanced frequency response with brilliant treble and high power handling. Due to the sealed rear no separate high-Frequency Range housing construction necessary. Especially suitable as replacement unit for many HiFi speakers.



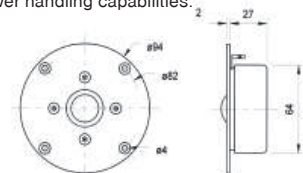
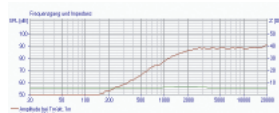
Technical Parameters	TW 6 NG/8
Diameter	60 mm
Depth	27 mm
Rated Noise Power	60 W
Short Term Maximum Power	100 W
Impedance	8 Ω
Resonant Frequency	1500 Hz
Rated Frequency Range	1000-30000 Hz
Sensitivity	91 dB

Part No.	Ord.No.
S TW 6 NG/8	46397



### G 20 SC/8

Magnetically shielded 20 mm (0.8") High-end textile dome unit for use at tweeter frequencies of 3,000 Hz and above. The optimised dome shape and damping felt on the pole piece ensures a very balanced frequency response without resonance and excellent omnidirectional sound distribution. The powerful magnet drive and ferro-fluid cooled voice coil guarantee both high efficiency and excellent power handling capabilities.



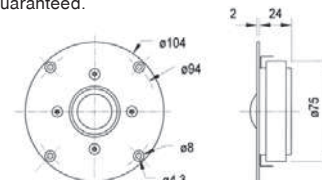
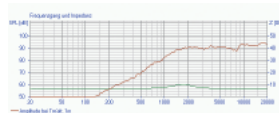
Technical Parameters	G 20 SC/8
Diameter	94 mm
Depth	27 mm
Rated Noise Power	120 W
Short Term Maximum Power	180 W
Impedance	8 Ω
Resonant Frequency	1800 Hz
Rated Frequency Range	1200-30000 Hz
Sensitivity	88 dB

Part No.	Ord.No.
S G 20 SC/8	46391



### G 25 FFL/8

25 mm (1") fabric dome driver for the high-Frequency Range above 2000 Hz. Due to the optimised dome shape with double coating in conjunction with the highly damped surround, linear frequency response has been made possible. Due to the powerful magnetic driver and the ferrofluid-cooled voice-coil high efficiency and high power handling can be guaranteed.



Technical Parameters	G 25 FFL/8
Diameter	104 mm
Depth	24 mm
Rated Noise Power	120 W
Short Term Maximum Power	180 W
Impedance	8 Ω
Resonant Frequency	1500 Hz
Rated Frequency Range	1000-30000 Hz
Sensitivity	90 dB

Part No.	Ord.No.
S G 25 FFL/8	46383

## Other Tweeters

PT1-1010

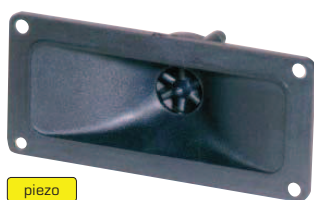


piezo

Technical Parameters	PT1-1010
Dimensions	85 x 85 mm
Depth	75 mm
Frequency Range	4-40 KHz
Sensitivity	105 dB

Part No.	Ord.No.
s PT1-1010	47893

PT1-1012



piezo

Technical Parameters	PT1-1012
Dimensions	145 x 70 mm
Depth	54 mm
Frequency Range	3,5-40 KHz
Sensitivity	96 dB

Part No.	Ord.No.
s PT1-1012	52454

PT1-1016



piezo

Technical Parameters	PT1-1016
Dimensions	186 x 80 mm
Depth	105 mm
Frequency Range	1-20 KHz
Sensitivity	110 dB

Part No.	Ord.No.
s PT1-1016	52453

COP-35A



Technical Parameters	COP-35A
Dimensions	D100x70 mm
Depth	50 mm
Power	30 W
Impedance	5,5 Ω
Frequency Range	0,8-18 KHz
Sensitivity	103 dB

Part No.	Ord.No.
s COP-35A	52262

PT25B-1



Technical Parameters	PT25B-1
Dimensions	99x99x80 mm
Depth	72 mm
Power	150 W
Impedance	4 Ω
Frequency Range	3-22 KHz
Sensitivity	96 dB

Part No.	Ord.No.
s PT25B-1	47277

MYLAR QUADRO/8



callote

Technical Parameters	Mylar Quadro/8
Dimensions	61x61 mm
Depth	22 mm
Power	80 W
Impedance	8 Ω
Frequency Range	3-20 KHz
Sensitivity	88 dB

Part No.	Ord.No.
s Mylar Quadro/8	47557

MYLAR RONDO/8



callote


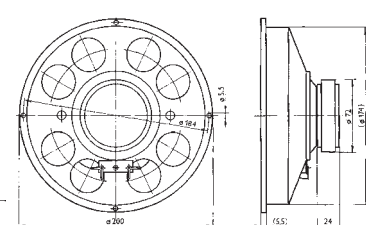
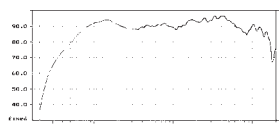
Technical Parameters	Mylar Rondo/8
Dimensions	71 mm
Depth	22 mm
Power	80 W
Impedance	8 Ω
Frequency Range	3-20 KHz
Sensitivity	88 dB

Part No.	Ord.No.
s Mylar Rondo/8	47558

## TVM Widerange Speakers

**ARZ 6604**  
**ARZ 6608**

A direct-radiator electrodynamic loudspeaker with a high-cone for use in products of consumer electronics to transmit the whole band of audible frequencies.

*acoustics TVM*

Technical Parameters		ARZ 6604 / ARZ 6608
Diameter		200 mm
Depth		85 mm
Rated Noise Power		30 W
Short Term Maximum Power		90 W
Impedance		4 Ω / 8 Ω
Resonant Frequency		75 Hz
Rated Frequency Range		60-20000 Hz
Sensitivity		91 dB

Part No.	Ord.No.
S ARZ 6604	8722
S ARZ 6608	8723

**ARO 464**

A direct-radiator electrodynamic loudspeaker with high sensitivity and a wide Frequency Range for use in products of consumer electronics.





*acoustics TVM*

**ARO 568K**

A direct-radiator electrodynamic loudspeaker with high sensitivity and a wide Frequency Range for use in products of consumer electronics.




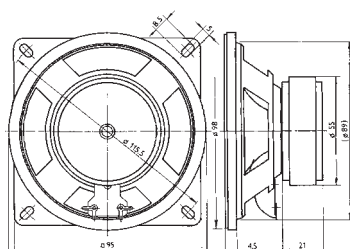
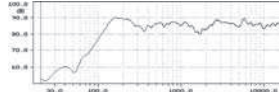


Technical Parameters		ARO 464	ARO 568K
Diameter		130 mm	165 mm
Depth		52 mm	66 mm
Rated Noise Power		10 W	15 W
Short Term Maximum Power		30 W	30 W
Impedance		4 Ω	8 Ω
Resonant Frequency		139 Hz	110 000 Hz
Rated Frequency Range		100-17000 Hz	80-12000 Hz
Sensitivity		90 dB	92 dB

Part No.	Ord.No.
S ARO 464	8718
O ARO 568K	8721

**ARO 3614**  
**ARO 3618**

A direct-radiator transducer distinguished by its high sensitivity and Frequency Range for use in small working volumes, e. g. loudspeaker sets of small dimension, loudspeaker boxes, etc.

*acoustics TVM*


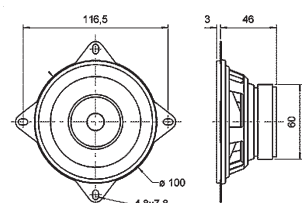
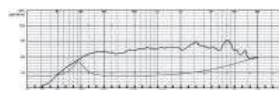
Technical Parameters		ARO 3614 / ARO 3618
Diameter		100 mm
Depth		48,6 mm
Rated Noise Power		4 W
Short Term Maximum Power		10 W
Impedance		4 Ω / 8 Ω
Resonant Frequency		180 Hz
Rated Frequency Range		150-15000 Hz
Sensitivity		87 dB

Part No.	Ord.No.
S ARO 3614	8716
S ARO 3618	8717

## VISATON Widerange Speakers

**FR 10 HM/4**  
**FR 10 HM/8**

10 cm (4") fullrange speaker with tweeter cone and European standard basket. Simple fitting in vehicles with cut-outs for 10 cm speakers.

*VISATON*

Technical Parameters		FR 10 HM/4 / FR 10 HM/8
Diameter		100 mm
Depth		46 mm
Rated Noise Power		20 W
Short Term Maximum Power		30 W
Impedance		4 Ω / 8 Ω
Resonant Frequency		120 Hz
Rated Frequency Range		95-22000 Hz
Sensitivity		86 dB

Part No.	Ord.No.
S FR 10 HM/4	46332
S FR 10 HM/8	46333



## VISATON Widerange Speakers

(continued)

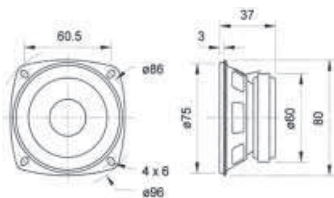
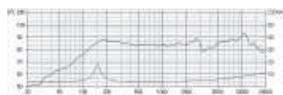


**FR 8/4**  
**FR 8/8**

8 cm (3.3") fullrange speaker with good bass reproduction, balanced frequency response and high efficiency. Especially suitable as built-in speaker for music reproduction and as driver for 100 V network column speakers.



Industry



Technical Parameters		FR 8/4 / FR 8/8
Diameter		86 mm
Depth		37 mm
Rated Noise Power		10 W
Short Term Maximum Power		15 W
Impedance		4 Ω / 8 Ω
Resonant Frequency		150 Hz
Rated Frequency Range		130-20000 Hz
Sensitivity		86 dB
Part No.	Ord.No.	
S FR 8/4	46341	
S FR 8/8	46342	

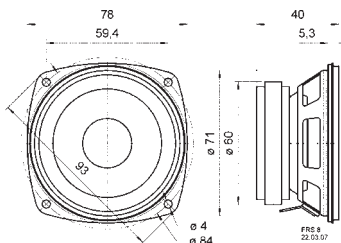
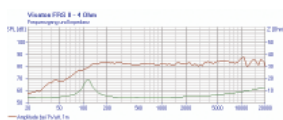


**FRS 8/4**

8 cm (3.3") HiFi fullrange driver. Linear frequency response between 200 and 20000 Hz. Suitable for surround effect speakers, mini sub/sat systems. Due to the small size very suitable for model construction and as control speaker for electronic devices.



Industry



Technical Parameters		FRS 8/4
Diameter		200 mm
Depth		40 mm
Rated Noise Power		30 W
Short Term Maximum Power		50 W
Impedance		4 Ω
Resonant Frequency		130 Hz
Rated Frequency Range		130-20000 Hz
Sensitivity		82 dB (1W/1m)
Part No.	Ord.No.	
O FRS 8/4	46339	

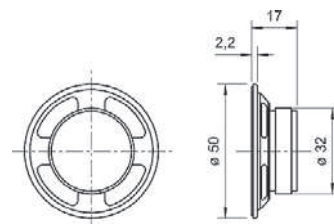
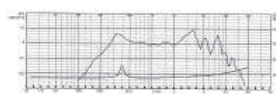


**K 50/8**

5 cm (2") miniature speaker with plastic diaphragm and metal basket. Thanks to its compact dimensions, suitable for signal output in machines and other equipment where space is at a premium.



Industry



Technical Parameters		K 50/8
Diameter		50 mm
Depth		17 mm
Rated Noise Power		2 W
Short Term Maximum Power		3 W
Impedance		8 Ω
Resonant Frequency		350 Hz
Rated Frequency Range		250-10000 Hz
Sensitivity		83 dB
Part No.	Ord.No.	
S K 50/8	46354	

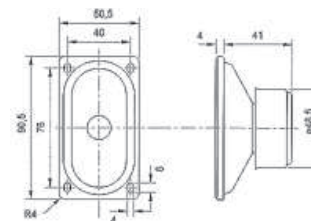
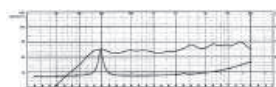


**SC 5.9/8**

Magnetically shielded oval fullrange driver with good efficiency and balanced frequency response with a clear highrange reproduction. Extremely small size due to a neodymium magnet system. Applicable as built-in speaker in TV's and PC's with very small mounting space.



Industry

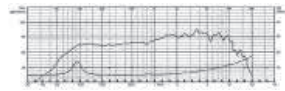


Technical Parameters		SC 5.9/8
Dimensions		90,5x50,5 mm
Depth		41 mm
Rated Noise Power		10 W
Short Term Maximum Power		15 W
Impedance		8 Ω
Resonant Frequency		170 Hz
Rated Frequency Range		130-20000 Hz
Sensitivity		83 dB
Part No.	Ord.No.	
S SC 5.9/8	46360	

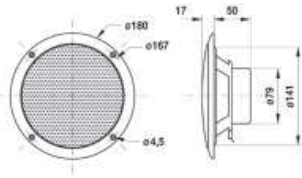
## VISATON Widerange Speakers (suitable for industry applications)



Industry



**FR16 WP/4**  
Saltwater resistant 16 cm (6.5") full-range speaker with moulded plastic cone, plastic basket and grille. Absolutely corrosion-resistant and waterproof due to encased magnet and silicon-coated leads. White or black colour

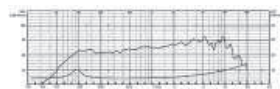


Technical Parameters	FR 16 WP/4
Diameter	180 mm
Depth	50 mm
Rated Noise Power	60 W
Short Term Maximum Power	80 W
Impedance	4 Ω
Resonant Frequency	85 Hz
Rated Frequency Range	60-15000 Hz
Sensitivity	86 dB

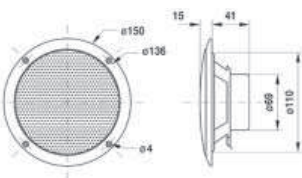
Part No.	Ord.No.
S FR 16 WP/4 WH	46289
O FR 16 WP/4 BK	61441



Industry



**FR 13 WP/4**  
Saltwater resistant 13 cm (5") full-range driver with moulded plastic cone, plastic basket and grille. Absolutely corrosion-resistant and waterproof due to encased magnet and silicon-coated leads. White or black colour

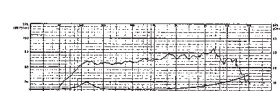


Technical Parameters	FR 13 WP/4
Diameter	150 mm
Depth	41 mm
Rated Noise Power	40 W
Short Term Maximum Power	60 W
Impedance	4 Ω
Resonant Frequency	100 Hz
Rated Frequency Range	70-16000 Hz
Sensitivity	85 dB

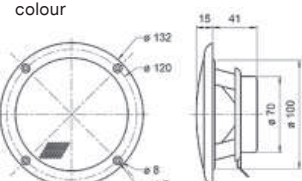
Part No.	Ord.No.
S FR 13 WP/4 WH	46307
O FR 13 WP/4 BK	61440



Industry



**FR 10 WP/4**  
Saltwater resistant 10 cm (4") full-range driver with moulded plastic cone, plastic basket and grille. Absolutely corrosion-resistant and waterproof due to encased magnet and silicon-coated leads. Clear-cut high-range output. White or black colour

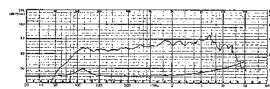


Technical Parameters	FR 10 WP/4
Diameter	132 mm
Depth	41 mm
Rated Noise Power	20 W
Short Term Maximum Power	30 W
Impedance	4 Ω
Resonant Frequency	120 Hz
Rated Frequency Range	80-16000 Hz
Sensitivity	85 dB

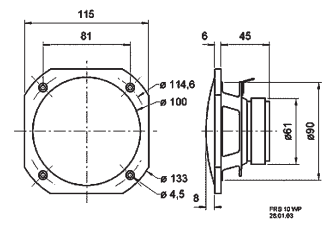
Part No.	Ord.No.
S FR 10 WP/4 WH	46323
O FR 10 WP/4 BK	61439



Industry



**FRS 10 WP/4**  
Saltwater resistant 10 cm (4") full-range driver with glas fibre cone, plastic basket and grille. Long time weather proved and therefore especially suited for out-door sound reinforcement systems, swimming pools, sauna and speaker for boats, ships and open vehicles. Also suitable for model boat applications. 120 °C temperature resistant.



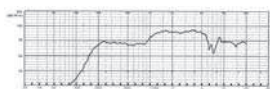
Technical Parameters	FRS 10 WP/4 WH / FRS 10 WP/4 BK
Diameter	115 mm
Depth	45 mm
Rated Noise Power	25 W
Short Term Maximum Power	50 W
Impedance	4 Ω
Resonant Frequency	190 Hz
Rated Frequency Range	190-19000 Hz
Sensitivity	90 dB

Part No.	Ord.No.
O FRS 10 WP/4WH	46318
O FRS 10 WP/4BK	46320

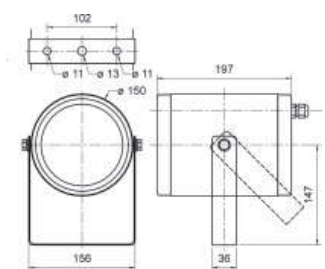
### PL13BS/100V



100 V transformer



VISATON



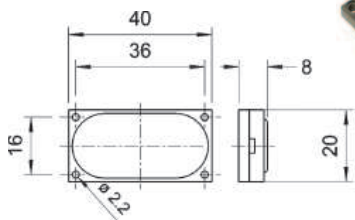
Technical Parameters	PL13BS/100V
Diameter	150 mm
Depth	197 mm
Rated Noise Power	15 W / 7,25 W / 3,75 W
Rated Frequency Range	160-15000 Hz
Sensitivity	96 dB

Part No.	Ord.No.
S PL13BS/100V	61371

## Miniature Speakers

### K 20.40 8OHM

Rectangular miniature speaker. Thanks to its compact dimensions, suitable for signal output in machines and other equipment where space is at a premium.



Technical Parameters	K 20.40 8OHM
Dimensions	40 x 20 mm
Depth	8 mm
Rated Noise Power	1 W
Short Term Maximum Power	2 W
Impedance	8 Ω
Resonant Frequency	600 Hz
Rated Frequency Range	300-20000 Hz
Sensitivity	76 dB

Part No.	Ord.No.
S K 20.40 8 OHM	61401



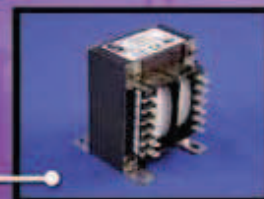
Part No.	Diameter x depth	Max. power	Frequency Range	Impedance
LS 45 = BL-45	45 x 18mm	0,2 W	450-4500 Hz	8 Ω
LS 50 F = BL-50	50 x 18mm	0,2 W	450-4500 Hz	8 Ω
LS 57 = BL-57	57 x 19mm	0,2 W	420-5000 Hz	8 Ω
LS 66 = BL-66	66 x 21mm	0,3 W	360-4000 Hz	8 Ω
LS 77 = BL-77	77 x 23mm	0,5 W	260-6000 Hz	8 Ω
LS 92 = BL-92	92 x 25mm	1,0 W	220-8000 Hz	8 Ω

Part No.	Ord.No.
S LS 45 = BL-45	55187
S LS 50 F = BL-50	16714
S LS 57 = BL-57	16715
S LS 77 = BL-77	16718
S LS 92 = BL-92	16719

## Hammond Transformers and Inductors

Power



Chokes



Line



Audio



Tube Audio



Guitar Amp



Class 2



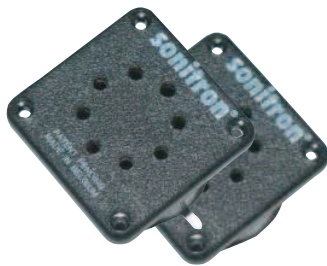
Pulse



Instrument



## Piezoceramic Speakers



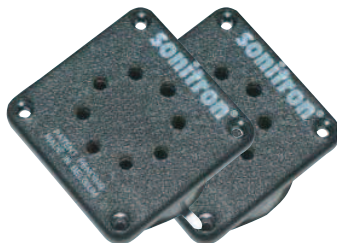
### SCS-17-P10 **sonitron**

#### SCS-17-S

Good sound quality and limited distortion guarantee a clear reproduction of multiple tones, speech and music. These loudspeakers are extremely reliable, have a robust design and can be used in difficult environmental conditions and applications because of resistance of the front to water, humidity, vibrations and dust. The SCS-speaker can be mounted by soldering the SMD pads onto the PCB.

Technical Parameters		SCS-17-P10 / SCS-17-S
Rated Frequency Range		1500-8000 Hz
Sensitivity		2200 Hz - 92 dB , 5000 Hz - 91 dB
Working Voltage		5 - 30 Vpp
Capacitance		20 nF
Impedance @ 1 KHz ±20%		7957 Ω
Pitch		10 mm / SMD
Weight		1,7 g
Dimensions		18,6 x 9,7 mm

Part No.	Ord.No.
S SCS-17-P10	64049
S SCS-17-S	64050



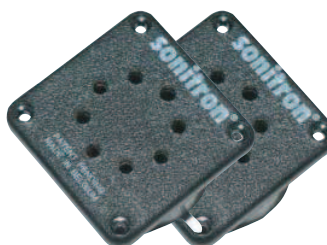
### SCS-24-P10 **sonitron**

#### SCS-24-S

Good sound quality and limited distortion guarantee a clear reproduction of multiple tones, speech and music. These loudspeakers are extremely reliable, have a robust design and can be used in difficult environmental conditions and applications because of resistance of the front to water, humidity, vibrations and dust.

Technical Parameters		SCS-24-P10 / SCS-24-S
Rated Frequency Range		1000-8000 Hz
Sensitivity		800 Hz - 68 dB, 1600 Hz - 95 dB 4000 Hz - 87 dB
Working Voltage		5 - 30 Vpp
Capacitance		37 nF
Impedance @ 1 KHz ±20%		4300 Ω
Pitch		10 mm / SMD
Weight		4 g
Dimensions		25,1 x 9,7 mm

Part No.	Ord.No.
S SCS-24-P10	64051
S SCS-24-S	64052



### SCS-32-P10 **sonitron**

#### SCS-32-S

Good sound quality and limited distortion guarantee a clear reproduction of multiple tones, speech and music. These loudspeakers are extremely reliable, have a robust design and can be used in difficult environmental conditions and applications because of resistance of the front to water, humidity, vibrations and dust.

Technical Parameters		SCS-32-P10 / SCS-32-S
Rated Frequency Range		500-8000 Hz
Sensitivity		650 Hz - 85 dB, 2700 Hz - 100 dB 3700 Hz - 88 dB, 7500 Hz - 80dB
Working Voltage		5 - 30 Vpp
Capacitance		66 nF
Impedance @ 1 KHz ±20%		2400 Ω
Pitch		10 mm / SMD
Weight		5,9 g
Dimensions		25,1 x 9,7 mm

Type	Ord.No.
S SCS-32-P10	64053
S SCS-32-S	64054

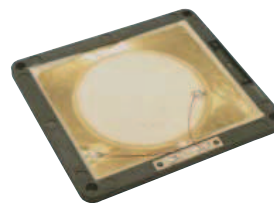


### SPS 2200-03 **sonitron**

With a thickness of only 1 mm and dimensions of 20 x 22 mm, this small multifunctional speaker/microphone is ideal for use in GPS, MP3, camera's, mobile phones, etc.

Technical Parameters		SPS 2200-03
Rated Frequency Range		700-20 000 Hz
Sensitivity		85 dB @ 10cm, 24Vpp
Capacitance		70 nF
Working Voltage		1 - 24 Vpp
Impedance @ 1 KHz ±20%		2160 Ω
Weight		0,4 g
Material		PBT

Part No.	Ord.No.
S SPS-2220-03	64043



### SPS-3530-03-C1 **sonitron**

#### SPS-4640-03-C1

#### SPS-8770-03-C1

#### SPS-3530-03-C1

SPS-4640-03-C1 are ideal for use in portable electronic devices (PDA, GPS, MP3, etc), notebooks and consumer products.

Dimensions:

39 x 43,5 mm / 43,6 x 50 mm

The SPS-8770-03 is the largest version of our piezo speakers, with a thickness of only 2 mm. This model is extremely suitable for flat devices when high sound output and broad Frequency Range are required.

Dimensions: 70 x 87 mm

Technical Parameters		SPS-3530-03-C1 / SPS-4640-03-C1 / SPS-8770-03-C1
Rated Frequency Range		700-20 000 Hz / 400-20 000 Hz 200-20 000 Hz
Sensitivity		85 dB / 83 dB / 84 dB @ 1m, 60Vpp
Capacitance		220 nF / 225 nF / 580 nF
Working Voltage		5 - 60 Vpp
Impedance @ 1 KHz ±20%		603 Ω / 680 Ω / 266 Ω
Weight		2,4 g / 2,8 g / 7,3 g
Material		PBT

Part No.	Ord.No.
S SPS-3530-03-C1	64044
S SPS-4640-03-C1	64046
S SPS-8770-03-C1	64047



### SPS-8770-UW **sonitron**

#### SPS-8770-UW10

Sonitron successfully developed the first flat piezoceramic speaker for underwater applications (max. 2m, IP68). This speaker is based on a completely new principle of piezoceramics and composite metal/polymer layer.

Dimensions: 90 x 87 x 10 mm

Technical Parameters		SPS-8770-UW / SPS-8770-UW10
Rated Frequency Range		600-20 000 Hz
Sensitivity		90 dB @ 1m
Capacitance		600 nF
Working Voltage		5 - 60 Vpp
Impedance @ 1 KHz ±20%		220 Ω
Weight		60 g
Cable length		UW - 0,45 m / UW10 - 10 m

Part No.	Ord.No.
S SPS-8770-UW	64048
SPS-8770-UW10	66202

## VISATON Accessories



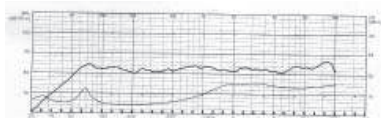
**Damping Material**  
Damping material made of polyester wool with excellent damping properties. Can be handled and fitted easily.  
Packing unit: 125 g (2 mats, enough for a volume of up to 20 l).

Part No.	Ord.No.
S DAMPING MATERIAL	46497

## Speaker Kits



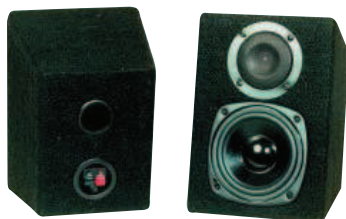
**ALTO II**  
This 2-way column speaker, ALTO II, designed as a 30 litre vented system, is another suggested application from the Alto series. The driver arrangement has been selected for the lower range octaves benefit from the enlarged cabinet volume and optimum bass frequency to produce powerful, responsive bass.  
ALTO II is also well-suited to improving the sound of low-priced compact hi-fi systems.  
The ALTO II can be positioned freely anywhere in the room, producing clearly defined spatial sound character.  
Kit consist of:  
2x W170S, 2x DT94, 2x Crossover (with terminal, cables und plugs), Bass reflex tubes, damping material, screws.



Technical Parameters	ALTO II
Rated Noise Power	60W
Short Term Maximum Power	100W
Impedance	4 Ω
Frequency Range (-10dB)	44 - 22000 Hz
Sensitivity	83 dB (1W/1m)
Crossover frequency	3500Hz

Part No.	Ord.No.
S ALTO II	46501

## Speaker Boxes



**SB-2000 Trapez-System**  
Loudspeaker system, suitable for rooms up to 25m<sup>2</sup>.

Technical Parameters	SB-2000
Power	40 W
Impedance	4 Ω
Frequency Range	50 - 20 000 Hz
Sensitivity	92 dB
Dimensions	190 x 265 x 185 mm
Weight	cca. 5kg/pair

Part No.	Ord.No.
S SB-2000 Trapez-System	56673



**SUB ROHR 10"/250mm**  
Passive subwoofer suitable for car audio.

Technical Parameters	SUB ROHR 10"/250mm
Maximum power	300 W
Sensitivity	91 dB
Impedance	4 Ω
Dimensions	345 x L495mm

Part No.	Ord.No.
S SUB ROHR 10"/250mm	46432



**WWFX-99**  
Active 200W 8" subwoofer suitable for car audio.  
Accessories:  
4x screws + connecting cables

Technical Parameters	WWFX-99
Maximum power	200W
Adjustable crossover	50-250Hz
Terminals	2xCinch / 2x connector (speaker outputs)
Dimensions	255 x 440 mm

Part No.	Ord.No.
S WWFX-99	60505

## Amplifiers



**ESA-1**  
Hi-fi amplifier 2x10W. Suitable for PC, TV, or little home audio systems.

**Technical Parameters:**

- 3x stereo inputs, 1x output for recording,
- headphones output,
- bass, treble correction,
- volume regulator,
- wide stereo effect.



Technical Parameters	ESA-1 black / ESA-1 silver
Maximum power	2 x 10 W / 4 Ω
Frequency Range	20-30 000 Hz
Distortion	< 0.1%
Signal/noise ratio	> 80dB
Input sensitivity	250 mV
Power supply	230VAC, 50/60Hz
Dimensions	180x440x65 mm

Part No.	Ord.No.
S DYNAVOX ESA-1 black	45911
S DYNAVOX ESA-1 grey	54415



**ESA-18**  
Hi-fi amplifier 2x20W. Suitable for PC, TV, or little home audio systems

**Technical Parameters:**

- 2x stereo inputs, 1x microphone input, 1x output for recording,
- bass, treble correction,
- adjustable wide stereo effect
- stepping volume regulator.



Technical Parameters	ESA-18 black / ESA-18 silver
Maximum power	2 x 20 W / 4 Ω
Frequency Range	20-20 000 Hz
Distortion	< 0.1%

Signal/noise ratio	> 88dB
Input sensitivity	1 kHz max. 750 mV
Power supply	230 VAC, 50/60 Hz
Dimensions	220x180x50mm

Part No.	Ord.No.
S DYNAVOX ESA-18 black	54167
O DYNAVOX ESA-18 silver	52409



**Dream Sound 1**  
Set consist of audio amplifier ESA-1 and pair of speakers.  
Power supply 230V/50Hz  
Versions in black or silver colour.  
Speaker dimensions:  
130 x 95 x 100mm

Part No.	Ord.No.
S DYNAVOX DREAM SOUND black	63034
O DYNAVOX DREAM SOUND silver	63035



**Dream Sound 2**  
Set consist of audio amplifier ESA-18 and pair of speakers.  
Power supply 230V/50Hz  
Versions in black or silver colour.  
Speaker dimensions:  
170 x 150 x 230 mm

Part No.	Ord.No.
S DYNAVOX DREAM SOUND 2 black	63240
O DYNAVOX DREAM SOUND 2 silver	63241



**VR-70E**  
Tube amplifier with great price-performance ratio. Comparable to more expensive amplifiers  
Power Amplifier: 4xEL34  
Pre-Amplifier: 2x 6F2

Technical Parameters	VR-70E
Power	2x40W
Distortion	< 1%
Signal/Noise	> 90 dB
Frequency Range	20 - 40 000 Hz +/- 1.5 dB
Supply Voltage	230 VAC, 50/60 Hz
Dimensions	400x190x230mm
Weight	16 kg

Part No.	Ord.No.
O VR-70E	52263

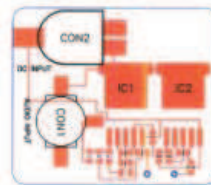
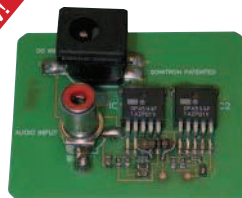


**VR-20**  
Tube amplifier with great price-performance ratio.  
Power Amplifier: 4x6P6P  
Pre-Amplifier: 2x 6F2

Technical Parameters	VR-20
Power	2x10W
Distortion	< 1%
Signal/Noise	> 90 dB
Frequency Range	20 - 60 000 Hz +/- 1.5 dB
Supply Voltage	230 VAC, 50/60 Hz
Dimensions	305x250x180mm
Weight	9.2 kg

Part No.	Ord.No.
O VR-20	75359

**NEW!**



**sonitron**

**PAA-350-70-4639**

Low voltage amplifier for all types of SONITRON piezoceramic speakers Modul is based on Burr Brown's audio amplifier OPA544. It works in a wide range of voltage and current. Bridge connection of two amplifiers allows to have output voltage up to 120Vpp. As an input signal use any audio device with output 1Vrms

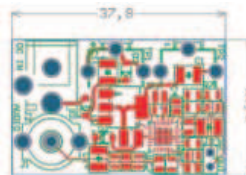
Technical Parameters	PAA-350-70-4639
Power Supply	20 - 70 VDC
Input Sensitivity	1Vrms
Average Current Consumption	12mA
Output	max. 120 VPP

Part No.	Ord.No.
S PAA-350-70-4639	65419

**sonitron**

**PAA-LM4960SQ-01**

Low voltage amplifier for all types of SONITRON piezoceramic speakers Modul consists of integrated step-up converter, amplifier and protection against short circuit and reversing of polarity  
Compact dimension: 38x24mm  
Direct supply with 9V battery or adapter.  
Input connector: RCA  
Output connector: pin header

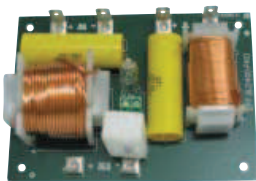


Technical Parameters	PAA-350-70-4639
Power supply	7 - 20 VDC
Distortion	< 1%
Max. load capacity	800 nF + 20Ω
Input sensitivity	600 mVPP
Average Current Consumption	45mA
Output	max. 24 VPP

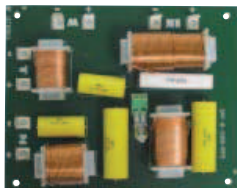
Part No.	Ord.No.
S PAA-LM4960SQ-01	65418

## Speaker Crossovers

SPF-8-2400



SPF-8-3400

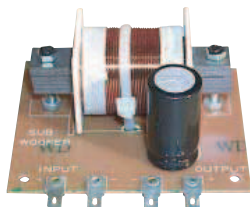


Technical Parameters		SPF-8-2400 / SPF-8-3400
Number of Bands		2 / 3
Slope Steepness		12 dB
Crossover Frequency		2000 Hz / 1200-6000 Hz
Impedance		8 Ω
Speaker Power		400 W
Dimensions		114x82 mm / 158x125mm
Height		35 mm / 30mm
Part No.	Ord.No.	
S SPF-8-2400	1804	
S SPF-8-3400	1805	

BC-3227



CR-201



for subwoofer

Technical Parameters		BC-3227 / CR-201
Number of Bands		3 / -
Slope Steepness		18 dB / 12 dB
Crossover Frequency		1000-3000 Hz / 120 Hz
Impedance		4 - 8 Ω / 4 - 8 Ω
Speaker Power		700 W / 100-200W
Dimensions		216x171 mm / 90x70mm
Height		42 mm / 40mm
Part No.	Ord.No.	
S BC-3227	52449	
S CR-201	47361	

RP-4-250



RP-4-350



RP-4-550



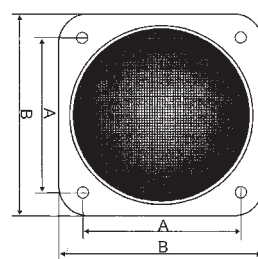
Technical Parameters		RP-4-250 / RP-4-350 / RP-4-550
Number of Bands		2-3 / 3 / 5
Slope Steepness		12 dB / 6 dB / 6 dB
Crossover Frequency		150 Hz/6000 - 9000 Hz /480-3000-4800-6500 Hz
Impedance		4 Ω / 4 Ω / 4 Ω
Speaker Power		50 W / 50 W / 50 W
Dimensions		110x38x67 mm / 110x38x67 mm /110x38x67 mm
Height		-
Part No.	Ord.No.	
S RP-4-350	56406	
S RP-4-550	56407	
S RP-4-250	56409	

## Loudspeaker Grilles

SG-xx Series



Part No.	Ord.No.	Description
S SG-5	53540	126mm metallic
S SG-6	53541	160mm metallic
O SG-06	55625	165mm metallic
S SG-8	53276	200mm metallic
S SG-10	53542	250mm metallic
S SG-12	53543	300mm metallic
S SG-15	53544	380mm metallic
S SG-18	53545	450mm metallic



RKxx

- metallic grille
- plastic frame
- black color



Part No.	Ord.No.	Dimensions A/B
S RK 10	6474	88x88mm / 112x112mm
S RK 12	6475	105x105mm / 136x136mm
S RK 16	6476	131x131mm / 168x168mm
S RK 20	6477	166x166mm / 212x212mm
S RK 25	6478	199x199mm / 243x243mm



SG-PR4

Set consist of 4 terminals and screws

Part No.	Ord.No.
S SG-PR4	53275

## Accessories

RK 40 K



Part No.	Description
RK 40 K	Guard Angle, Steel 1mm for Speaker Boxes, length 40mm
RK 82 P	Guard Angle, Plastic for Speaker Boxes, edge 45mm, length 82mm

Part No.	Ord.No.
S RK 40 K	53554
S RK 82 P	53052

RK 82 P



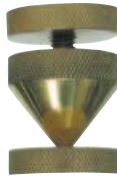
GN 4015



Part No.	Description
GN 4015	4pcs loudspeaker legs, gums, diameter 40mm, height 15mm
HD 919	4pcs loudspeaker legs, brass, max. weight capacity 60kg/set, diameter 25mm, adjustable height 40-55mm

Part No.	Ord.No.
S GN 4015	45909
S HD 919	52330

HD 919



MA-03



Part No.	Description
MA-03	Reprobox flange for stand mounting, diameter 35,5mm, length 100mm
MH-4	Loudspeaker handle, steel (2mm), Dimensions 160x107mm, Mounting hole 132x80mm

Part No.	Ord.No.
S MA-03	52097
S MH-4	52145

MH-4



### TOP HANDLE



Part No.	Description
TOP HANDLE	Loudspeaker handle, steel strap in plastic, dimensions 23x250mm

Part No.	Ord.No.
S TOP HANDLE	53053

HSB003



Part No.	Description
HSB003	Loudspeaker handle, plastic, mounting hole 100x55mm

Part No.	Ord.No.
S HSB003	54479

SKFK 043



Part No.	Description
SKFK 043	Handle for carrying speaker boxes, dimensions 220x160mm, mounting hole 170x115mm, depth 55mm

Part No.	Ord.No.
S SKFK 043	46398

## Bass Reflex Tubes

BR 13.25



Part No.	Description
BR 13.25	Bass reflex tube, adjustable between 130 and 250 mm, black plastic, mounting holes 82,5 x 82,5 mm, diameter 72 mm

Part No.	Ord.No.
S BR 13.25	46490



**AIRPORT2**  
**AIRPORT3**  
**AIRPORT3**  
Plastic, easy mounting without screws

Part No.	Description
AIRPORT2 BASSREFLEX	Basreflex D52x53mm
AIRPORT3 BASSREFLEX	Basreflex D78x120mm
AIRPORT4 BASSREFLEX	Basreflex D102x115mm

Part No.	Ord.No.
S AIRPORT2 BASSREFLEX	47571
S AIRPORT3 BASSREFLEX	45910
S AIRPORT4 BASSREFLEX	47615





## Headphones



**WH-41**  
Stereo headphones

**Technical Parameters:**  
Impedance: 32 Ohm  
Sensitivity: 99dB  
Frequency Range: 100-18.000 Hz  
Cable length: 1,2 m  
Cable terminal: Jack 3,5mm  
Weight: 50g

Part No.	Ord.No.
S ST5S = CBS278	4131



**WH-41**  
Stereo headphones with microphone and volume regulator.

**Technical Parameters:**  
Microphone: 6x5/58 ± 2dB  
Impedance: 32 Ohm  
Sensitivity: 105dB at 1 KHz  
Frequency Range: 100-18.000 Hz  
Cable length: 2-3 m  
Weight: 200g without cable

volume regulator

Part No.	Ord.No.
S WH-41	61333



**WH-880**  
Stereo headphones with microphone, volume regulator and bass vibration.

**Technical Parameters:**  
Microphone: 6x5/58 ± 2dB  
Impedance: 32 Ohm at 1KHz  
Sensitivity: 102dB/mW  
Power: 500mW  
Frequency Range: 5-28.000 Hz  
Cable length: 2,5 m  
Connection cables:  
2x Jack M 3,5mm (microphone-pink, headphones-green), USB power supply cable  
Operating voltage vibrating unit: alkaline battery 2x AAA 1,5V = 3VDC  
Battery lifetime at working vibration unit: 30 hours  
Weight: 250g with battery and cable

Part No.	Ord.No.
O WH-880	61334



**SUN-20034**  
5.1 surround headphones with microphone.

**Technical Parameters:**  
Cable length: 210cm  
Cable terminals: 4 x Jack 3,5mm  
Sensitivity:  
- microphone: -58dB  
- front and rear speakers: 97 +/-3dB  
- central speakers: 97 +/-3dB  
- woofer: 121 +/-3dB  
Power / impedance  
- front and rear speakers 150mW / 32 Ω  
- central speakers: 100mW / 160 Ω  
- woofer: 100mW / 240 Ω  
Speakers Frequency Range: 20Hz-20kHz

5.1 surround

Part No.	Ord.No.
S SUN-20034	61355

## FM Transmitters

### Wireless FM Stereo Transmitter



FM Transmitter  
Gives you the opportunity to send music from the MP3 Player, Walkman or portable CD Player, etc. to your Car-Radio.

-199 channels  
-lighted LCD-Display which shows the current channel  
-battery not included in delivery!

Technical Parameters	FM Transmitter 1
Dimensions	87x23x22mm
Weight	30g
Frequency Range	88,1 MHz - 107,9 MHz
Display	LCD, backlight
Power supply	1,5V (AAA) or 12-16 VDC V DC cable
Audio input level	100mV - 5V / 100Hz - 15kHz
Output range	max.10m

Part No.	Ord.No.
S FM Transmitter 1	59388

### FM1G-23 FM Transmitter with MP3 Player



- unique appearance with fold function, so convenient hinge feature to fit any car
- patent product, support HI-FI music
- adopted frequency phase lock loop technology and 3D sound coding technology
- supports SD/ MMC card, MP3, movable hard disk directly
- read MP3/ WMA files from the USB device and transmits music over car FM tuner
- clear LCD displays the name of songs, frequency display and work state
- audio input/output, earplug
- remember the last frequency and music, track and recall them when restarting
- 15 preset channels within 87.7~99.1 and 106.7~107.9 MHz
- car cigarette lighter power supply (12v DC)

Part No.	Ord.No.
S FM 1G-23	70678

### BTFM-01 FM Transmitter with MP3 Player and Bluetooth



- car MP3 player with FM transmitter and bluetooth handsfree,
- caller ID showing, bluetooth handsfree, bluetooth stereo talking,
- power supply DC 12V/24V;206FM channels,
- blue LCD screen display,
- support USB flash disk 2.0,SD/ MMC card,
- with auxiliary input for extra audio device,
- supports MP3/WMA music format; five EQ modes,
- 21-key remote control,
- frequency and track memory,
- song selected directly.

Part No.	Ord.No.
S BTFM -01	69473

## Car Speakers

### Car speakers coaxial

RK085-1/4



RK085-2/4



Technical Parameters	RK085-1/4	RK085-2/4
Diameter	3,5" / 85 mm	3,5" / 85 mm
Depth	35 mm	35 mm
Power	50 W	50 W
Impedance	4 Ω	4 Ω
Frequency Range	80-20000 Hz	80-20000 Hz
Sensitivity	89 dB	89 dB
Magnet	10 Oz	10 Oz
Color	blue	red

Part No.	Ord.No.
S RK085-1/4	47572
S RK085-2/4	51334

Price for 1 pair.

RK104-1/4



RK104-2/4



Technical Parameters	RK104-1/4	RK104-2/4
Diameter	4" / 100 mm	4" / 100 mm
Depth	50 mm	50 mm
Power	60 W	60 W
Impedance	4 Ω	4 Ω
Frequency Range	80-20000 Hz	80-20000 Hz
Sensitivity	90 dB	90 dB
Magnet	10 Oz	10 Oz
Color	blue	red

Part No.	Ord.No.
S RK104-1/4	47599
S RK104-2/4	47606

Price for 1 pair.

RK130-1/4



RK130-2/4



Technical Parameters	RK130-1/4	RK130-2/4
Diameter	5" / 130 mm	5" / 130 mm
Depth	50 mm	50 mm
Power	80 W	80 W
Impedance	4 Ω	4 Ω
Frequency Range	80-20000 Hz	80-20000 Hz
Sensitivity	90 dB	90 dB
Magnet	10 Oz	10 Oz
Color	blue	red

Part No.	Ord.No.
S RK130-1/4	47603
S RK130-2/4	48077

Price for 1 pair.

RK165-1/4



ROCKWOOD®  
RK165-2/4



Technical Parameters	RK165-1/4	RK165-2/4
Diameter	6,5" / 165 mm	6,5" / 165 mm
Depth	50 mm	50 mm
Power	80 W	80 W
Impedance	4 Ω	4 Ω
Frequency Range	70-20000 Hz	70-20000 Hz
Sensitivity	90 dB	90 dB
Magnet	10 Oz	10 Oz
Color	blue	red

Part No.	Ord.No.
S RK165-1/4	47602
S RK165-2/4	47605

Price for 1 pair.

RK915-1/4



ROCKWOOD®  
RK4X6-2/4



Technical Parameters	RK915-1/4	RK4X6-2/4
Diameter	4x6"/100x150 mm	4x6"/100x150 mm
Depth	45 mm	45 mm
Power	60 W	60 W
Impedance	4 Ω	4 Ω
Frequency Range	80-20000 Hz	80-20000 Hz
Sensitivity	88 dB	88 dB
Magnet	6 Oz	6 Oz
Color	blue	red

Part No.	Ord.No.
S RK915-1/4	45905
S RK4X6-2/4	47607

Price for 1 pair.

RK693-1/4



ROCKWOOD®  
RK693-2/4



Technical Parameters	RK693-1/4	RK693-2/4
Diameter	6x9"/150x230 mm	6x9"/150x230 mm
Depth	80 mm	80 mm
Power	200 W	200 W
Impedance	4 Ω	4 Ω
Frequency Range	60-22000 Hz	60-22000 Hz
Sensitivity	91 dB	91 dB
Magnet	20 Oz	20 Oz
Color	blue	red

Part No.	Ord.No.
S RK693-1/4	47604
S RK693-2/4	47608

Price for 1 pair.

## Car Speakers (continued)

RK200-1/4



RK200-2/4



ROCKWOOD®

Technical Parameters	RK200-1/4	RK200-2/4
Diameter	8" / 200mm	8" / 210mm
Depth	80 mm	94 mm
Power	150 W	200 W
Impedance	4 Ω	4 Ω
Frequency Range	60-22000 Hz	35-3000 Hz
Sensitivity	92 dB	86 dB
Magnet / Weight	20 Oz	836g
Color	blue	red

Part No.	Ord.No.
S RK200-1/4	47951
S RK200-2/4	47609

## Subwoofers

RK250-2/4



ROCKWOOD®

Technical Parameters	RK250-2/4
Diameter	10" / 260mm
Depth	112mm
Power	300 W
Impedance	4 Ω
Frequency Range	30-2000 Hz
Sensitivity	87 dB
Weight	1090g

Part No.	Ord.No.
S RK250-2/4	47855

Price for 1pcs.

RK300-2/4



ROCKWOOD®

Technical Parameters	RK300-2/4
Diameter	12" / 316mm
Depth	136 mm
Power	400 W
Impedance	4 Ω
Frequency Range	25-2000 Hz
Sensitivity	89 dB
Weight	1320 g

Part No.	Ord.No.
S RK300-2/4	47856

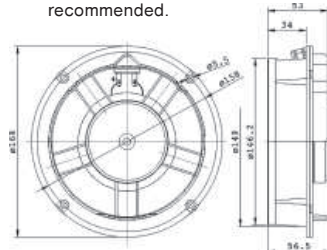
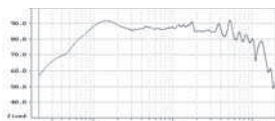
Price for 1pcs.



acoustic's TVM

ARX 168-10/4

Woofer designed for use in two-way car sound systems. The loudspeaker chassis consists of a plastic basket, the paper cone rests on a polyurethan suspension. For optimum playback quality a combination with the ARV-040-03/4 tweeter is recommended.



Technical Parameters	ARX 168-10/4
Diameter	168 mm
Depth	57 mm
Rated Noise Power	40 W
Short Term Maximum Power	80 W
Impedance	4 Ω
Resonant Frequency	88 Hz
Rated Frequency Range	60-5000 Hz
Sensitivity	87 dB

Part No.	Ord.No.
S ARX 168-10/4	44235

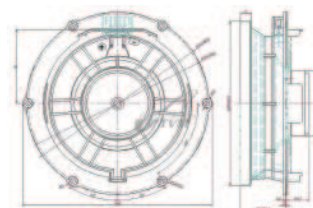
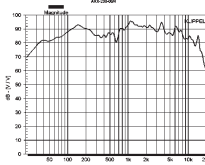
NEW!



acoustic's TVM

ARX 200-00/4

Woofer designed for use in two-way car sound systems. The loudspeaker chassis consists of a plastic basket, the paper cone rests on a polyurethan suspension. For optimum playback quality a combination with the ARV-040-03/4 tweeter is recommended.



Technical Parameters	ARX 200-00/4
Diameter	200 mm
Depth	75,1 mm
Rated Noise Power	40 W
Short Term Maximum Power	60 W
Impedance	4 Ω
Resonant Frequency	40 Hz
Rated Frequency Range	60-6000 Hz
Sensitivity	-

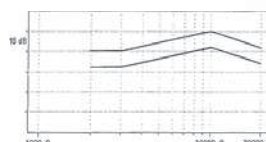
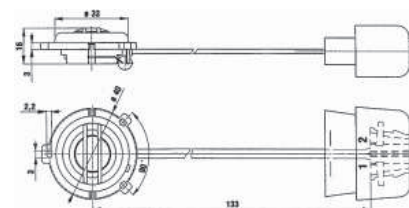
Part No.	Ord.No.
S ARX200-00/4	73744



acoustic's TVM

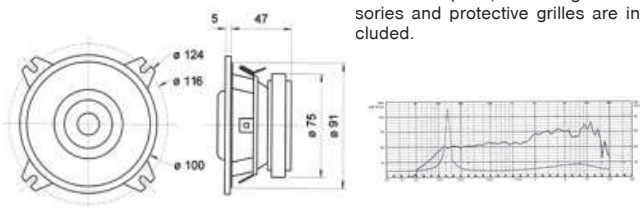
ARV 040-03/4

A indirect-radiator electrodynamic loudspeaker designed for transmission of tones of the upper part of the audible frequency for sound-tracking of interior of cars.



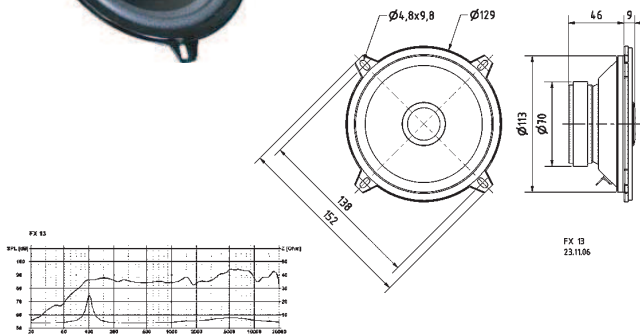
Technical Parameters	ARV 040-03/4
Diameter	40mm
Depth	16mm
Rated Noise Power	5 W
Short Term Maximum Power	12 W
Impedance	4 Ω
Resonant Frequency	-
Rated Frequency Range	2000-20000 Hz
Sensitivity	84 dB

Part No.	Ord.No.
S ARV 040-03/4	44234



Technical Parameters	DX 10/4
Diameter	100mm
Depth	47mm
Rated Noise Power	50 W
Short Term Maximum Power	70 W
Impedance	4 Ω
Resonant Frequency	110 Hz
Rated Frequency Range	80-20000 Hz
Sensitivity	88 dB

Part No.	Ord.No.
S DX 10/4	46335



Technical Parameters	FX 13 4 OHM
Diameter	129mm
Depth	55mm
Rated Noise Power	30 W
Short Term Maximum Power	50 W
Impedance	4 Ω
Resonant Frequency	100 Hz
Rated Frequency Range	60-20000 Hz
Sensitivity	85 dB

Part No.	Ord.No.
O FX 13 4 OHM	61402

**DX 10/4**  
 10 cm (4") 2-way coaxial loudspeakers with 10 cm polypropylene cone and polycarbonate dome tweeter. Integrated crossover (capacitor) for the tweeter. Very balanced sound. Straightforward installation in vehicles with 10 cm cutouts. Door and rear tray installation possible using mounting ring and grille. Packed in pairs, mounting accessories and protective grilles are included.

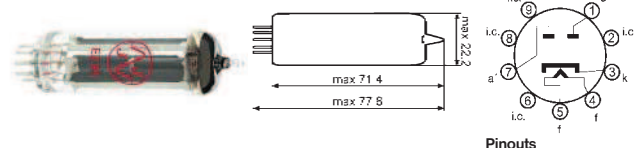


**FX 13 4 OHM**  
 13 cm (5") 2-way coaxial loudspeaker with standard basket. Integrated crossover (capacitor) for the tweeter. Straightforward installation in vehicles with cutouts for 13 cm speakers. Waterproof PP-cone.



## Rectifying Vacuum Tubes

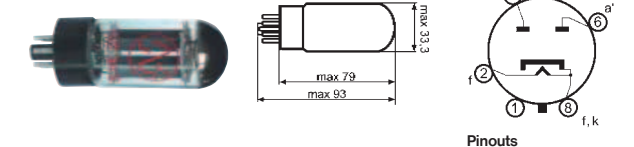
EZ81



Technical Parameters	EZ81
Type of Vacuum Tube	Double anode rectifying tube
Voltage Uf	6,3 V
Current If	1 A
Number of Pins	9
Socket	NOVAL

Part No.	Ord.No.
O EZ81	70653

GZ34

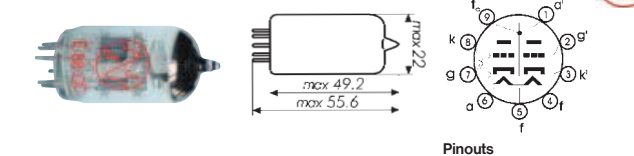


Technical Parameters	GZ34
Type of Vacuum Tube	Double anode rectifying tube
Voltage Uf	5 V
Current If	1,9 A
Number of Pins	5
Socket	OCTAL

Part No.	Ord.No.
S GZ34	70654

## Preamplifier Vacuum Tubes

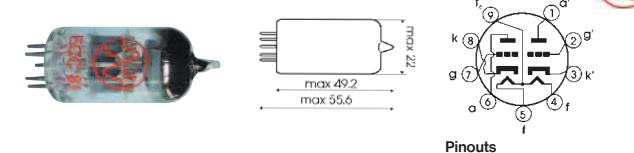
E88CC



Technical Parameters	E88CC
Type of Vacuum Tube	R. F. double triode
Voltage Ua	max. 220 V
Power PaR	1,5 W
Number of Pins	9
Socket	NOVAL

Part No.	Ord.No.
O E88CC	67002

ECC81

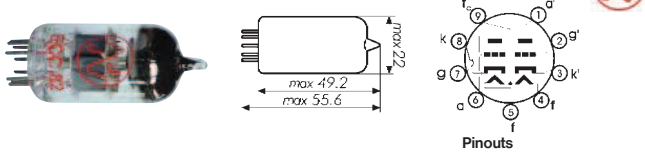


Technical Parameters	ECC81
Type of Vacuum Tube	A. F. double triode
Voltage Ua	max. 300 V
Power Wa	2,5 W
Number of Pins	9
Socket	NOVAL

Part No.	Ord.No.
S ECC81	66997

## Preamplifier Vacuum Tubes (continued)

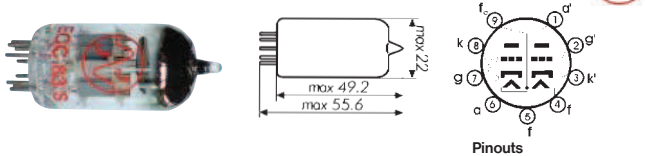
### ECC82



Technical Parameters		ECC82
Type of Vacuum Tube		R. F. double triode
Voltage $U_a$		max. 300 V
Power $W_a$		2,75 W
Number of Pins		9
Socket		NOVAL

Part No.	Ord.No.
s ECC82	66998

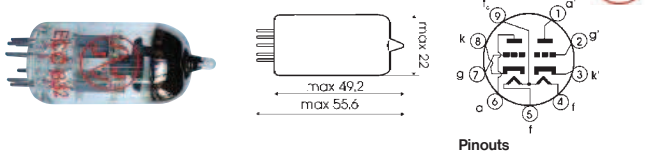
### ECC83S



Technical Parameters		ECC83S
Type of Vacuum Tube		R. F. double triode
Voltage $U_a$		max. 300 V
Power $W_a$		1 W
Number of Pins		9
Socket		NOVAL

Part No.	Ord.No.
s ECC83S	66999

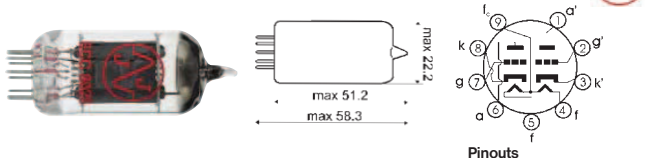
### ECC832



Technical Parameters		ECC832
Type of Vacuum Tube		Combined double triode for special purposes, 1 system of ECC82, 1 system of ECC83
Voltage $U_a$		max. 250 V
Number of Pins		9
Socket		NOVAL

Part No.	Ord.No.
o ECC832	67001

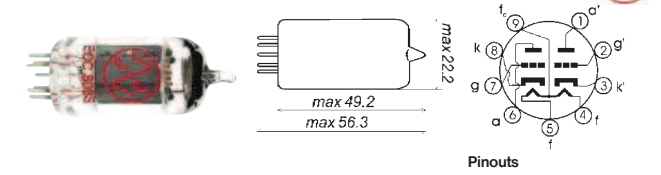
### ECC802S



Technical Parameters		ECC802S
Type of Vacuum Tube		A. F. twin triode with separate cathodes, non microphonic
Voltage $U_a$		max. 330 V
Power $W_a$		3 W
Number of Pins		9
Socket		NOVAL

Part No.	Ord.No.
o ECC802S	70651

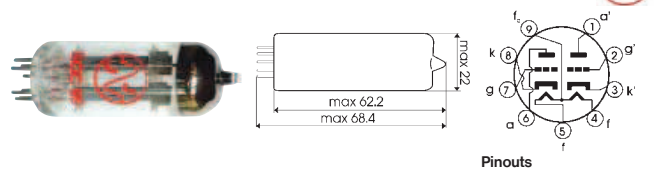
### ECC803S



Technical Parameters		ECC803S
Type of Vacuum Tube		A. F. twin triode with separate cathodes, non microphonic
Voltage $U_a$		max. 330 V
Power $W_a$		1,2 W
Number of Pins		9
Socket		NOVAL

Part No.	Ord.No.
o ECC803S	67000

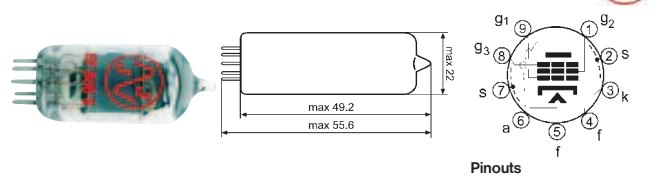
### ECC99



Technical Parameters		ECC99
Type of Vacuum Tube		R. F. double triode
Voltage $U_a$		max. 400 V
Power $W_a$		5 W
Number of Pins		9
Socket		NOVAL

Part No.	Ord.No.
o ECC99	67003

### EF806S



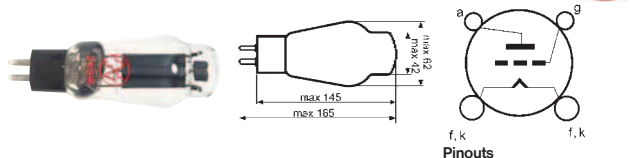
Technical Parameters		EF806S
Type of Vacuum Tube		Pentode intended for use as A. F. amplifier
Voltage $U_a$		max. 300 V
Power $W_a$		1W
Number of Pins		9
Socket		NOVAL

Part No.	Ord.No.
o EF806S	70652



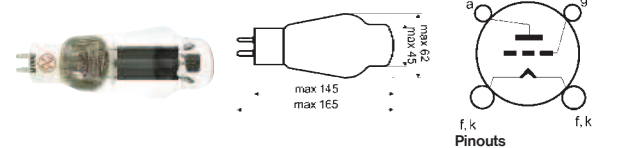
## Power Vacuum Tubes

### 2A3 - 40 W



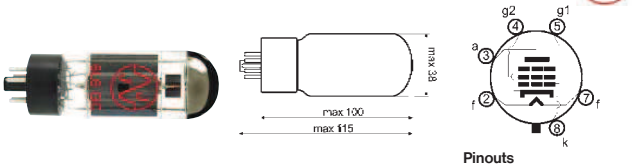
Technical Parameters		2A3 - 40 W
Type of Vacuum Tube	A. F. triode	
Voltage Ua	max. 450 V	
Power Wa	40 W	
Number of Pins	4	
Socket	4-PIN CERAMIC	
Part No.	Ord.No.	
o 2A3 - 40 W	67015	

### 300B



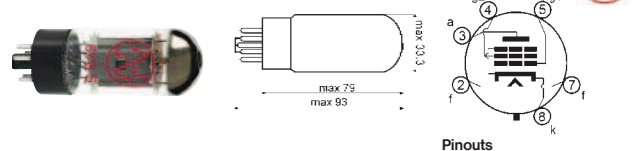
Technical Parameters		300B
Type of Vacuum Tube	R. F. triode	
Voltage Ua	max. 450 V	
Power Wa	40 W	
Number of Pins	4	
Socket	4-PIN CERAMIC	
Part No.	Ord.No.	
o 300B	67014	

### 6L6GC



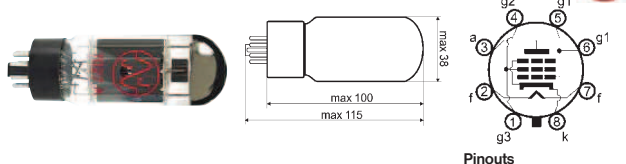
Technical Parameters		6L6GC
Type of Vacuum Tube	A. F. beam pentode	
Voltage Ua	max. 500 V	
Power Wa	30 W	
Number of Pins	6	
Socket	OCTAL	
Part No.	Ord.No.	
s 6L6GC	67010	

### 6V6S



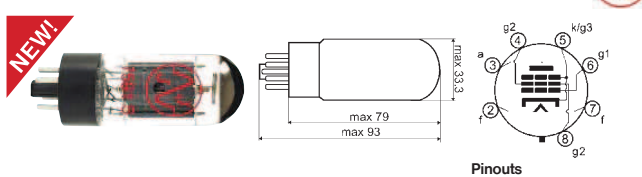
Technical Parameters		6V6S
Type of Vacuum Tube	A. F. beam pentode	
Voltage Ua	max. 500 V	
Power Wa	14 W	
Number of Pins	6	
Socket	OCTAL	
Part No.	Ord.No.	
s 6V6S	67009	

### 7027A



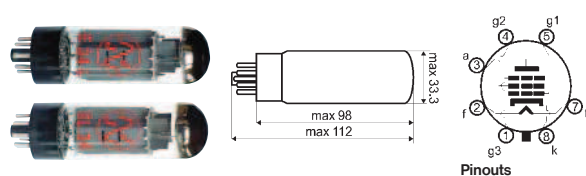
Technical Parameters		7027A
Type of Vacuum Tube	A. F. beam pentode	
Voltage Ua	max. 500 V	
Power Wa	30 W	
Number of Pins	8	
Socket	OCTAL	
Part No.	Ord.No.	
o 7027A	67011	

### 7591S



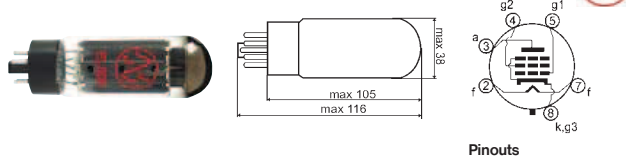
Technical Parameters		7591S
Type of Vacuum Tube	Power Pentode	
Voltage Ua	max. 550 V	
Power Wa	19 W	
Number of Pins	7	
Socket	8-PIN OCTAL	
Part No.	Ord.No.	
o 7591S	67005	

### E34L, EL34



Technical Parameters		E34L / EL34
Type of Vacuum Tube	A. F. output pentode	
Voltage Ua	max. 800 V	
Power Wa	25 W	
Voltage Ug1	-13,5 V; -16,5 V / -10 V; -13,5 V	
Number of Pins	7	
Socket	OCTAL	
Part No.	Ord.No.	
s E34L	67007	
s EL34	67006	

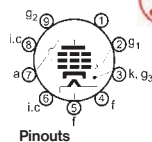
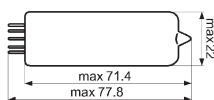
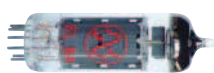
### EL509S



Technical Parameters		EL509S
Type of Vacuum Tube	Output power beam pentode	
Voltage Ua	max. 700 V	
Power Wg2/Wa+g2	9/42 W	
Number of Pins	6	
Socket	OCTAL	
Part No.	Ord.No.	
o EL509S	67012	

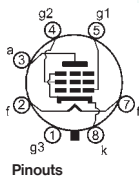
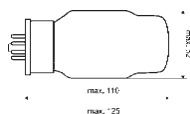
## Power Vacuum Tubes (continued)

EL84



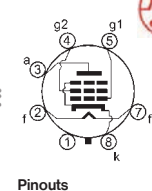
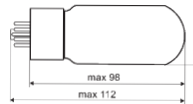
Technical Parameters		EL84
Type of Vacuum Tube		R. F. output pentode
Voltage $U_a$		max. 300 V
Power $W_a$		12 W
Number of Pins		9
Socket		NOVAL
Part No.	Ord.No.	
S EL84	67004	

KT66, KT88



Technical Parameters		KT66 / KT88
Type of Vacuum Tube		A. F. beam pentode
Voltage $U_a$		max. 550 V / max. 800 V
Power $W_a$ (KT88 $W_a+g2$ )		25 W / 42 W
Number of Pins		7
Socket		OCTAL
Part No.	Ord.No.	
O KT66	67271	
S KT88	67013	

KT77



Technical Parameters		KT77
Type of Vacuum Tube		A.F. beam pentode
Voltage $U_a$		max. 800 V
Power $W_a$		25 W
Number of Pins		7
Socket		OCTAL
Part No.	Ord.No.	
O KT77	67008	

## Sockets for Vacuum Tubes

4 pins, panel mounting



9 pins, panel mounting



8 pins, PCB mounting



9 pins, PCB mounting



Part No.	Ord.No.	Num. of pins	Mounting
O Socket 4-Pin Chasis	70657	4	panel
S Socket 8-Pin Chasis	70655	8	panel
S Socket 9-Pin Chasis	70656	9	panel
S Socket 9-Pin PCB	70658	9	PCB

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## Industrial Automation

OMRON Sensors



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S 4

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S 7

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S 9

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S 10

TRUMETER Measuring Panel Meters



S 12

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S 14





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Modular PLC Series  
Rack PLC Series



## Inductive Sensors

### E2A family



OMRON

#### Cylindrical Proximity Sensor

Ensures a sensing distance approximately 1.5 to 2 times larger than that of any conventional OMRON Sensor.

Problems such as the collision of workpieces are eliminated.

Full range of standard sizes (M8, M12, M18 and M30; both long and short barrels)

Modular construction simplifies customization.

- sensing distance 2-30mm
- setting distance 0-24mm
- extended (double) sensing distance IP67 and IP69k for highest water protection
- power supply voltage 12 to 24VDC
- DC 3-wire (NO, NC) models
- response frequency: 100Hz up to 1,5kHz
- output configuration PNP-NO, 200mA
- pre-wired versions with different cable materials and diameters, M8 and M12 connector types, pre-wired types with cable end connectors
- operating temperature: -40°C to 70°C

Part No.	Description
E2A-M12KN08-WP-B1	M12, non-shielded, 8mm s.d., length 34mm, 2m cable
E2A-M12KS04-M1-B1	M12, shielded, 4mm, thread length 34mm, M12 conn.
E2A-M12KS04-WP-B1	M12, shielded, 4mm, thread length 34mm, 2m cable
E2A-M18KN16-M1-B1	M18, non-shielded, 16mm, th.length 39mm, M12 conn.
E2A-M18KN16-WP-B1	M18, non-shielded, 16mm, th.length 39mm, 2m cable
E2A-M18KS08-M1-B1	M18, shielded, 8mm, th. length 39mm, M12 connector
E2A-M18KS08-WP-B1	M18, shielded, 8mm, thread length 39mm, 2m cable
E2A-M30LS15-WP-B1	M30, shielded, 15mm, thread length 66mm, 2m cable
E2A-S08KS02-M5-B1	M8, shielded, 2mm, th.length 27mm, M8conn., st. steel
E2A-S08KS02-WP-B1	M8, shielded, 2mm, th.length 27mm, 2m cable, st. steel

Part No.	Ord.No.
S E2A-M12KN08-WP-B1 2M	71082
S E2A-M12KS04-M1-B1	71083
S E2A-M12KS04-WP-B1 2M	71084
S E2A-M18KN16-M1-B1	71085
S E2A-M18KN16-WP-B1 2M	71086
S E2A-M18KS08-M1-B1	71087
S E2A-M18KS08-WP-B1 2M	71088
S E2A-M30LS15-WP-B1 2M	71089
S E2A-S08KS02-M5-B1	71090
S E2A-S08KS02-WP-B1 2M	71091



Please find appropriate connectors and cables with connectors on pages F34 to F37.

## Capacitive Sensors

### E2K-F family



OMRON

#### Flat Proximity Sensor

Flat, Built-in Amplifier Models offer excellent space efficiency and provide a 10-mm sensing distance. Detects both metallic and nonmetallic objects (water, oil, glass, plastic, etc.).

Direct mounting onto a metallic surface is possible.

- Sensing distance 10 mm ±10%
- dimensions: 10(h) x 20(w) x 50 (l) mm
- power supply 12 to 24 VDC
- DC 3-wire model with 2m long cable
- detection indicator (red LED)
- NPN-NO output, 100mA
- operating ambient temperature -10° to +55°C

Part No.	Description
E2K-F10MC1	Flat capacitive sensor, sensing distance 10mm, 2m cable

Part No.	Ord.No.
S E2K-F10MC1	71358

## Photoelectric Sensors

### E3Z family

OMRON



#### Compact Photoelectric Sensor with Built-in Amplifier

Long sensing distance of 15 m for Through-beam Models, 4 m for Retro-reflective Models, and 1 m for Diffusereflective Models.

Unique algorithm minimizes external interference from inverter fluorescent lighting.

- power supply voltage 12 to 24 VDC
- dimensions 10,8 x 20x 31mm
- plastic housing
- PNP output, 100mA/26,4 VDC
- response time 1ms max.
- LIGHT-ON/DARK-ON switch selectable
- adjustable sensitivity
- output short-circuit and reverse polarity protection
- light source - infrared LED, retroreflective types with polarized light (red LED)
- connection method: pre-wired 2m, 4-pin M8 connector
- LED indicators: green - power supply/stability, orange - output
- provides a high degree of protection (IP67), mutual interference prevention, and EN standard compliance.
- operating ambient temperature -25° to +55°C
- accessories for light beam width adjustment for types: receiver\_emitter

Part No.	Description
E3Z-D81	diffusive, IR, 2m cable long, 10cm sensing distance
E3Z-D82	diffusive, IR, 2m cable long, 1m sensing distance
E3Z-D86	diffusive, IR, M8 connector, 10cm sensing distance
E3Z-D87	diffusive, IR, M8 connector, dosah 1m sensing distance
E3Z-R81	retroreflective, 2m cable long, dosah 4m sensing distance
E3Z-R86	retroreflective, M8 connector, 4m sensing distance
E3Z-T81	emitter-receiver, 2m cable long, 15m sensing distance

Part No.	Ord.No.
S E3Z-D81 2M	71362
S E3Z-D82 2M	71363
S E3Z-D86	71364
S E3Z-D87	67557
S E3Z-R81 2M	71367
S E3Z-R86	71368
S E3Z-T81 2M	71369

### E3Z-B family

OMRON



#### Reliable Detection of Transparent Objects, Including Thin-walled Clear, Plastic Bottles

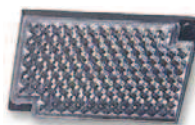
Uses OMRON's unique optical system ("Inner View") that can detect various shapes of clear, plastic bottles. Detects a wide range of bottles from 500-ml bottles to 2-l bottles, and from single bottles to sets of stocked bottles.

- sensing distance 500mm
- power supply voltage 12 to 24 VDC
- dimensions: 10,8 x 20x 31mm
- connection method: pre-wired 2m or M8 connector
- adjustable sensitivity
- PNP output 100mA/26,4VDC
- LIGHT-ON/DARK-ON switch selectable
- response time 1ms max.
- LED indicators: green - power supply/stability, orange - output
- provides a high degree of protection (IP67)
- operating ambient temperature -25° up to +55°C

Part No.	Description
E3Z-B81	retroreflective, 50cm sensing distance, 2m cable long

Part No.	Ord.No.
O E3Z-B81 2M	71361

### General Purpose Reflector



Part No.	Description
E39-R1S	General purpose reflector for photoelectric (retroreflective)sensors

Part No.	Ord.No.
S E39-R1S	71477

## Photoelectric Sensors (continued)

### E3Z-LS family



#### Distance-settable Photoelectric Sensor

Reliable Detection of Glossy, Uneven Objects Regardless of Background or Color. Unique algorithm minimizes external interference from inverter fluorescent lighting. Minimal differential travel to enable detecting small steps.

- power supply voltage 12 to 30 VDC
- 2 up to 20cm sensing distance
- dimensions 10,8 x 20x 31mm
- switching between background and foreground suppression (BGS/FGS)
- PNP output 100mA/26,4VDC
- reverse polarity/output short-circuit protection, mutual interference prevention
- connection method: pre-wired 2m or 4-pin M8 connector
- IP67 protection
- operating ambient temperature -25° to +55°C

Part No.	Description
E3Z-LS81	with 2m cable long
E3Z-LS86	with M8 connector

Part No.	Ord.No.
o E3Z-LS81 2M	71365
o E3Z-LS86	71366

### E3Z-LL family



#### The Most Compact Laser Sensor

- Excellent quality of E3Z laser used
- Safe and reliable class 1 (JIS/IEC) laser used
- Excellent detection performance supporting long distance and low hysteresis
- Spot diameters can be customized. Increasing the spot diameter makes optical axis adjustment easier.

- distance settable and high speed response (0,5ms max.) models
- power supply voltage 12 to 30 VDC
- 2,5 up to 30cm sensing distance
- dimensions 10,8 x 20x 31mm
- forefront/background effect suppression
- PNP output 100mA/26,4VDC
- reverse polarity/output short-circuit protection, mutual interference prevention, reversed power supply polarity protection
- connection method: 4-pin M8 connector
- IP67 protection
- operating ambient temperature -25° to +55°C

Part No.	Description
E3Z-LL86	standard M8 connector, 20-160mm
E3Z-LL88	standard M8 connector, 25-100mm, high speed response

Sensing distance for black paper.

Part No.	Ord.No.
s E3Z-LL86	71976
s E3Z-LL88	71977

### E3F2 family



#### Photoelectric sensor in plastic or brass M18 housing

The cylindrical M18 size family offers a large standard portfolio in plastic or brass housings for through-beam, retro-reflective, diffuse-reflective and background-suppression models. For excellent price-performance for your standard applications.

- power supply voltage 12 to 30 VDC or 24 to 240 VAC
- dimensions: M18x 65mm DC version  
M18x 90mm AC version
- plastic housing (brass or stainless steel on request)
- optics: axial or radial
- light source: infrared LED
- connection method: M12 connector or cable
- 3 or 4-wired
- adjustable sensitivity
- IP67 protection
- operating temperature -25° to +55°C

Part No.	Description
E3F2-DS30B4	DC version, axial, diffusive, 0,3m sens.distance, 2m cable
E3F2-DS30B4-P1	DC version, axial, diffusive, 0,3m sens.distance, M12 con.

Part No.	Ord.No.
s E3F2-DS30B4 2M	71359
s E3F2-DS30B4-P1	71360

## Temperature Controllers

### E5CSV family



#### Basic Temperature Controllers

- dimensions 48x48x84mm
- power supply voltage 100 to 240 VAC or 24VAC/VDC
- control method ON/OFF or PID
- sensor input: universal (Pt100, JPt100, K,J,L,T,U,N,R)
- control output: relay output (resistive load) 3A/250VAC, voltage output 12V/21mA
- modes: heating/cooling
- setting change prohibit
- control period 2sec. or 20sec
- IP66 protection (front panel)

Part No.	Description
E5CSV-Q1T-500 AC100-240	binary voltage output
E5CSV-R1T-500 AC100-240	relay output

Part No.	Ord.No.
o E5CSV-Q1T-500 AC100-240	71431
s E5CSV-R1T-500 AC100-240	71432

### E5GN family



#### Digital Temperature Controller

- dimensions 48x24x100mm
- power supply voltage 100 to 240 VAC or 24VAC/VDC
- control method: ON/OFF or PID with fuzzy self-tune or auto-tune
- sensor input: thermocouple, Pt100, non-contact thermometer ES1A or analog inputs
- control output: relay SPST-NO, 2A/250 VAC voltage 12V/21mA
- with an alarm or with RS485
- 2 displays
- indication accuracy 0,5% PV + 1 digit
- IP66 protection (front panel)
- operating temp. -10°C to +55°C

Part No.	Description
E5GN-Q1P AC/DC 24	binary voltage output, alarm, Pt100
E5GN-R1TC AC100-240	relay output, alarm

Part No.	Ord.No.
o E5GN-Q1P AC/DC24	71433
o E5GN-R1TC AC100-240	71434

### E5CN family



#### Basic-type Digital Temperature Controller with enhanced functions

and performance, improved indication accuracy and preventive maintenance function. 2 line LCD display PV/SV, 4 digit 11segment display.

- dimensions 48 x 48x 78mm
- power supply voltage 100 to 240 VAC or 24 VAC/VDC
- control method: ON/OFF or PID with Fuzzy self tuning or auto tuning function
- sensor input: thermocouple Pt100, non-contact thermometer ES1A or analog voltage/current
- control output: relay, long-life relay output (hybrid), voltage output 12V/21mA (for driving SSR) or linear current output (0 to 20mA/600Ohm max.)
- modes: heating + 2 alarm relay outputs  
heating/cooling + 1 alarm relay
- 2 line display - 11 segment, 3 colours (green, red, orange)
- setpoint ramp
- input sampling period 250ms
- indication of SSR errors
- DIN rail mounted type also available
- indication accuracy 0,5% PV + 1 digit
- IP66 protection
- operating temperature -10° to +55°C

Part No.	Description
E5CN-Q2MT-500 AC100-240	binary voltage output
E5CN-Q2MT-500 AC/DC24	binary voltage output
E5CN-R2MT-500 AC/DC24	relay output
E5CN-R2MT-500 AC100-240	relay output

Part No.	Ord.No.
s E5CN-Q2MT-500 AC100-240	64870
o E5CN-Q2MT-500 AC/DC24	71428
o E5CN-R2MT-500 AC/DC24	71429
s E5CN-R2MT-500 AC100-240	71430

## Industrial Plug-in Relays

### MY family



**Versatile Miniature Power Relay**

- dimensions 28x21,5x36mm
- 4PDT contact form
- max. switching current 5A
- max. switching voltage 250VAC, 125VDC
- mechanical flag, LED indication and push-to-test button - momentary and lockable

Part No.	Description
MY4IN 220/240VAC(S)	relay 4PDT, 220/240VAC, 18790R, socket mount.
MY4IN 24VDC(S)	relé 4PDT, 5A, 24VDC, 180R, socket mount.

Part No.	Ord.No.
S MY4IN 220/240VAC(S)	71405
S MY4IN 24VDC(S)	71406

### Sockets for MY family Relays



Part No.	Description
PYF14-ESN	DIN rail, screw terminals, max.current 12A, diel. strength >3kV
PYF14A-E	DIN rail moun.,screw terminals,max.current 5A,diel. strength >2kV
PYF14A-N	DIN rail moun.,screw terminals, max.current 12A, diel. strength >3kV, max.55°C

Part No.	Ord.No.
S PYF14-ESN	71410
O PYF14A-E	71411
O PYF14A-N	71412

### MK family



**General Purpose Relay**

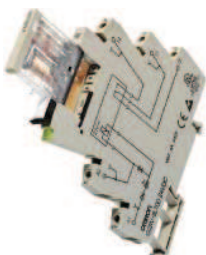
- dimensions 34,5x34,5x52,5mm (hwxwd)
- DPDT contact form
- max. switching current 10A
- max. switching voltage 250VAC, 28VDC
- push button

Part No.	Description
MK2P-S 110VAC	2-pole, 10A, 110VAC, 1240R

Part No.	Ord.No.
O MK2P-S 110VAC	71404

### Interface Relays

#### G2RV family



**Slim Relay - 6 mm relay with strong mechanical pins**

- dimensions 92,5x107x6,2mm (hwxwd)
- SPDT contact form
- LED indicator and mechanical flag to check operation
- dielectric strength 4k VAC
- max.switching current 6A
- max.switching voltage 400VAC, 125VDC
- operating temperature: -40°C to 55°C

Part No.	Description
G2RV-SL500 230VAC	Relay and Socket, SPDT, 6A, 230VAC Push-in Terminals
G2RV-SL500 24VDC	Relay and Socket, SPDT, 6A, 24VAC Push-in Terminals
G2RV-SL700 230VAC	Relay and Socket, SPDT, 6A, 230VAC Screw Terminals
G2RV-SL700 24VDC	Relay and Socket, SPDT, 6A, 24VAC Screw Terminals

Part No.	Ord.No.
O G2RV-SL500 230VAC	71400
S G2RV-SL500 24VDC	71401
O G2RV-SL700 230VAC	71402
S G2RV-SL700 24VDC	71403

### Cross-bars for G2RV Relay



Part No.	Description
P2RVM-200B	cross-bar, black, 20 poles, max. current 32A
P2RVM-200S	cross-bar, blue, 20 poles, max. current 32A

Part No.	Ord.No.
O P2RVM-200B	71413
O P2RVM-200S	71414

### G2R-S family



**Slim and Space-saving Power Plug-in Relay**

- dimensions 29x13x29mm (dxwxh)
- SPDT and DPDT contact form
- LED indication
- lockable testbutton optional
- dielectrical strength 5k VAC
- max.switching current SPDT= 10A, DPDT=5A
- max.switching voltage 380VAC, 125VDC

Part No.	Description
G2R-1-S 230VAC	1-pole 10A 230VAC 27172R, standard model
G2R-1-S 24VDC	1-pole 10A 24VDC 1113R
G2R-1-SN 24VDC	1-pole 10A 24VDC 1113R, LED indication
G2R-1-SND 24VDC	1-pole 10A 24VDC, 1113R, LED indication, diode
G2R-1-SNDI 24VDC	1-pole 10A 24VDC 1113R, LED, diode, test button
G2R-1-SNI 230VAC	1-pole 10A 230VAC 27172R LED indication, test button
G2R-1-SNI 24VDC	1-pole 10A 24VDC 1113R, LED indication, test button
G2R-2-SN 24VDC	2-pole 5A 24VDC 1113R, LED indication
G2R-2-SND 24VDC	2-pole 5A 24VDC 1113R LED indication, diode
G2R-2-SNI 230VAC	2-pole 5A 230VAC 27172R, LED indication, test button
G2R-2-SNI 24VDC	2-pole 5A 24VDC 1113R, LED indication, test button
G2R-2-SNDI-24VDC	2-pole 5A 24VDC 1113R, LED, diode, test button

Part No.	Ord.No.
S G2R-1-S 230VAC	71390
S G2R-1-S 24VDC	71391
S G2R-1-SN 24VDC	71392
S G2R-1-SND 24VDC	3569
S G2R-1-SNDI 24VDC	71393
S G2R-1-SNI 230VAC	71394
S G2R-1-SNI 24VDC	71395
S G2R-2-SN 24VDC	71396
S G2R-2-SND 24VDC	71397
S G2R-2-SNI 230VAC	71398
S G2R-2-SNI 24VDC	71399
S G2R-2-SNDI-24VDC	71071

### Sockets for G2R-S family



#### Screwless Clamp Terminal Socket

- Screwless clamping greatly contributes to reducing wiring time.
- No over or under tightening of cable connection so better contact reliability is achieved.
- Double wiring possible on all the terminals, and easy bridge and branch connections.
- Use either solid or stranded wires from 0.2 to 1.5 mm<sup>2</sup> (AWG24 to AWG16).
- Safe terminal arrangement
- Unique ejector enables easy relay replacement.
- Finger-protection

Part No.	Description
P2RF-05-E	socket for G2R-1-S
P2RF-08-E	socket for G2R-2-S

Part No.	Ord.No.
S P2RF-05-E	71409
S P2RF-08-E	71072

## Solid State Relays

### G3NA family



General-purpose Solid State Relays with Applicable Loads of 5 to 90 A

- dimensions 58x43x27mm (hwxwd)
- operation indicator (red LED)
- 5 to 24 VDC rated input voltage
- screw terminals mounting
- compact design
- equipped with zero cross function
- galvanic separated rated input voltage

Part No.	Description
G3NA-210B-UTU DC5-24	10A/24-240VAC, screw terminals
G3NA-D210B-UTU DC5-24	10A/5-200VDC, screw terminals
G3NA-220B-UTU DC5-24	20A/24-240VAC, screw terminals
G3NA-240B-UTU DC5-24	40A/24-240VAC, screw terminals

Part No.	Ord.No.
S G3NA-210B-UTU DC5-24	48923
S G3NA-220B-UTU DC5-24	71435
S G3NA-240B-UTU DC5-24	71436
S G3NA-D210B-UTU DC5-24	71437

### G3PA family



Extremely Thin Relays Integrated with Heat Sinks

- optimum design of the heat sink
- easily replaceable power element cartridges
- directly mounted on a DIN -rail
- applicable with 3-phase loads
- equipped with zero cross function
- 5 to 24 VDC rated input voltage
- galvanic separated rated input voltage

Part No.	Description
G3PA-220B-VD DC5-24	20A/24-240 VAC, mounted on DIN rail

Part No.	Ord.No.
S G3PA-220B-VD DC5-24	71438

### G3PB family



Compact, Slim-profile SSR with Heat Sink (1-phase)

- the compact design of G3PB has been achieved by optimising the shape of the heat sink
- 15A and 25A versions with mounting thickness only 22,5mm
- DIN track mounting possible in addition to screw mounting
- zero cross function
- galvanic separated rated input voltage

Part No.	Description
G3PB-215B-VD 12-24DC	15A/100-240VAC, DIN track mounting
G3PB-225B-VD 12-24DC	25A/100-240VAC, DIN track mounting
G3PB-235B-VD 12-24DC	35A/100-240VAC, DIN track mounting

Part No.	Ord.No.
S G3PB-215B-VD 12-24DC	71439
S G3PB-225B-VD 12-24DC	71440
S G3PB-235B-VD 12-24DC	71441

### G3PB-5xx family



3-phase compact Solid State Relay

- compact design achieved by optimizing heat sink shape
- applicable with 2- or 3-phase loads
- screw mounting
- zero cross function
- isolation method: phototriac coupler
- suitable in connection with OMRON temperature controllers

Part No.	Description
G3PB-515B-3N-VD DC12-24	3-phase 15A/200-480VAC

Part No.	Ord.No.
S G3PB-515B-3N-VD DC12-24	71442

## G3R family



recommended socket:  
P2RF-05-E page S4

Compact SSRs for I/O Interface with High Dielectric Strength Requirements

- LED indicator
- 3 versions:
  - immediate switching
  - cross zero switching
  - ss current switching
- galvanic separated inputs
- into sockets or I/O modules of G70A family

Part No.	Description
G3R-OA202SZN DC5-24+	output module 2A/100-240VAC
G3R-ODX02SN DC5-24+	output module 2A/5-48VDC

Part No.	Ord.No.
O G3R-OA202SZN DC5-24+	71443
O G3R-ODX02SN DC5-24+	71444

## Time Relays

### H3DE family



Solid-state Timer

DIN Track Mounted, Standard 22.5mm Width Timer Range

- A wide AC/DC power supply range (24 to 230 VAC/DC) reduces the number of timer models kept in stock
  - Nameplate provided for easy timer identification and management.
  - Terminal clamp left open when delivered.
  - Finger protection terminal block to meet VDE0106/P100.
  - Enables easy sequence checks through instantaneous outputs for a zero set value at any time range.
  - High immunity to inverter noise.
- H3DE-S:** 4 modes  
**H3DE-M:** 8 modes

Part No.	Description
H3DE-M2 24-230VAC/DC	DIN-rail moun. 5A 0.1s-120h 8fun., DPDT output
H3DE-S2 24-230VAC/DC	DIN-rail moun. 5A 0.1s-120h 4fun., DPDT output

Part No.	Ord.No.
S H3DE-M2 24-230VAC/DC	71418
S H3DE-S2 24-230VAC/DC	71419

### H3DS family



DIN-rail mounted, standard 17.5mm-width solid state timer range

- DIN rail mounting
- size: 80(45-front panel) x 73 x 17,5 mm
- 24 to 240 VAC/24 to 48 VDC
- 7 time ranges: 0,1s to 120h
- SPDT output, 5A/250VAC, 30VDC
- voltage input (0 to 253 VAC/DC)
- models with screwless clamp connection available
- unique locking function prevents unauthorised changes
- lock key is used also for setting ranges and functions

Part No.	Description
H3DS-ML	DIN rail mounted 24-240VAC/24-48VDC 0.1s-120h

Part No.	Ord.No.
S H3DS-ML	71420

## H3CR family



### DIN 48 × 48-mm State-of-the-art Multifunctional Timer

- 6 modes
- wide time ranges: 0,05s-300h
- 100 to 240VAC / 100 to 125 VDC or 24 to 48 VAC/12 to 48 VDC
- time setting ring
- models with 8 or 11 pins
- Model A output : DPDT, 5A/250VAC, 30VDC
- Model A8E output: time-limit and instantaneous SPDT, 5A/250VAC, 30VDC
- input : no-voltage (contact, NPN sensor) or voltage (for PNP sensors)

Part No.	Description
H3CR-A 100-240AC/100-125DC	5A 50ms-300h into socket, 11pins DPDT
H3CR-A 24-48AC/12-48DC	5A 50ms-300h into socket, 11pins DPDT
H3CR-A8 100-240AC/100-125DC	5A 50ms-300h into socket, 8pins DPDT
H3CR-A8E 100-240AC/100-125DC	5A 50ms-300h into socket 8pin.2x SPDT

Part No.	Ord.No.
S H3CR-A 100-240AC/100-125DC	71415
S H3CR-A24-48AC/12-48DC	63290
O H3CR-A8 100-240AC/100-125DC	71416
S H3CR-A8E 100-240AC/100-125DC	71417

## H5CX family



### DIN 48 × 48-mm Multifunction Digital Timer

- 6 modes
- Display: 7 segment, negative transmissive LCD
- red/green (programmable) 11,5mm high characters - present value
- green 6mm - set value
- 2 modes: standard time relays or double time relays (with adjustable period ON and OFF or period and ON)
- 100 to 240VAC or 12-24VDC/24VAC
- configurable total time range 0,001s to 9999h (10 ranges)
- timer mode: elapsed time-up, remaining time-down (selectable)
- SPDT output, 5A/250VAC
- input signals: START, RESET, gate (PNP/NPN selectable)
- IP66 protection (front panel)

Part No.	Description
H5CX-A	5A 100-240VAC 1ms-9999h terminals
H5CX-AD	5A 12-24VDC/24VAC 1ms-9999h terminals

Part No.	Ord.No.
O H5CX-A	71421
O H5CX-AD	71422

## Flush-Mounting Adapter



### Flush-mounting adapter

Suitable for counters and temperature controllers with 48x48mm front panel size.  
Dimensions: 48x48mm

Part No.	Description
Y92F-30	Flush-mounting adapter, 48x48mm

Part No.	Ord.No.
S Y92F-30	71446

## Safety Relays

### G7SA family



### Relays with forcibly guided contacts

Ideal for use in safety circuits in production machinery.

- dimensions (dxwxh): 40x13x24mm
- forcibly guided contacts
- rated voltage: 24 VDC
- cos φ=1: 6A/24 VDC
- 4-pole relay: 2NO/2NC
- 6-pole relay: 4NO/2NC
- sockets with LED indication
- electric isolation strength 4kV
- operating temperature range: -40 to 85°C

Part No.	Description
G7SA-2A2B 24DC	6A, 24 VDC, 2NO/2NC, 1600R
G7SA-4A2B 24DC	6A, 24 VDC, 4NO/2NC, 1152R
P7SA-10F-ND 24DC	socket for G7SA relay, 4-poles, DIN, LED indicator
P7SA-14F-ND 24DC	socket for G7SA relay, 6-poles, DIN, LED indicator

Part No.	Ord.No.
S G7SA-2A2B 24DC	71388
S G7SA-4A2B 24DC	71389
S P7SA-10F-ND 24DC	71407
S P7SA-14F-ND 24DC	71408

## Programmable Relays

### ZEN family



### Programmable relay

- front panel with 8 operation keys and LCD display, RTC circuit
- simplified model without operation keys, LCD and RTC
- models with power supply 24VDC, input signals 24VDC
- models with power supply 240 VAC, input voltage 240 VAC
- basic instructions for bits operations, program capacity: 96 lines
- 16 standard timers + 16 counters
- 16 bits for RTC time comparison - day time, 8 bits for year's comparison
- 2-analog input for comparison (24VDC model)
- expandable up to 44 binar inputs/outputs, max. 3 units

Part No.	Description
ZEN-10C1AR-A-V2	6 inp. AC, 4-relay outp., 240VAC, LCD, op.keys, RTC circ.
ZEN-10C1DR-D-V2	6 inp. DC, 4-relay outp., 24VDC, LCD, op.keys, RTC circ.
ZEN-10C3AR-A-V2	6 inp.AC, 4-relay outp., 240VAC, LCD, not expandable
ZEN-10C3DR-D-V2	6 inp.AC, 4-relay outp., 24VDC, LCD, not expandable

Part No.	Ord.No.
S ZEN-10C1AR-A-V2	71584
S ZEN-10C1DR-D-V2	71585
O ZEN-10C3AR-A-V2	71458
O ZEN-10C3DR-D-V2	71459

## Counters

### H7CX Series



#### Multifunction Preset Counter

- front panel size 48x48mm
- panel mounting
- negative transmissive LCD, two-colour display value, 6-digit model
  - red/green (programmable)
  - 11,5mm - present value
  - green 6mm - set value
- range: 0 to 999999
- counting up, down or up/down (optional in 12 modes)
- multiply counting (adjustable from 0,001 to 99,999)

- max. counting speed: 30 Hz or 5 kHz
- input: counting (CP1 and CP2), reset a total reset - no-voltage or voltage input
- sensor power supply 12 VDC / 100mA
- IP66 protection (front panel)
- configurable as 1-stage counter, 2-stage counter, total and preset counter, batch counter, dual counter, or tachometer.
- power supply voltage 12 to 24 VDC/24VAC
- accessories: flush-mounting adapter

Part No.	Description
H7CX-AUD1	12-24VDC/24VAC 48x48mm 6-digit display

Part No.	Ord.No.
o H7CX-AUD 1	71423

### H8GN Series



#### World's smallest compact preset counter/timer

- front panel size 48 x 24 mm
- panel mounting (flush-mounting bracket is supplied with the product)
- 8-digit, two-colours, negative transmissive LCD display
  - red/green (programmable) 7 mm present value
  - green 3,4 mm - set value
- power supply voltage: 24 VDC
- range: - counter: -999 to 9999
- timer: 0,000 to 9999 hours in 9 time ranges

- function: counter: up, down, up/down - 4 modes; 30 Hz or 5 kHz
- timer: elapsed time(up), remaining time (down) - 6 modes
- input: counter: counting, reset
- timer: start, gate and reset (no-voltage input)
- output: SPDT, 3A / 250 VAC, 30 VDC
- IP66 protection (front panel)

Part No.	Description
H8GN-AD	Counter/timer 3A 24 VDC 48x24mm range -999-9999/0-9999h

Part No.	Ord.No.
o H8GN-AD	71426

### H7E-N Series



#### Self-powered Total Counter

- front panel size 48x24mm
- available in black colour
- panel mounting (flush-mounting bracket is supplied with the product)
- manual reset on the front panel (blockable) and also on terminal
- 8-digit LCD display, 8,6 mm characters, counting range 0 to 99999999.
- available models with backlight (-H, 24 VDC power supply needed)

- power supply by exchangeable battery 3 VDC
- counting speed: 30 Hz or 5 kHz (switchable)
- input: voltage PNP/NPN, "0" - 0 to 2 VDC
- "1" - 4,5 to 30 VDC
- no-voltage (contact)
- AC/DC universal, "0" - 0 to 2,4 VAC/VDC
- "1" - 24 to 204 VAC/VDC
- IP66 protection (front panel)
- no-backlight model

Part No.	Description
H7EC-N	Counter powered by battery, 48x24 mm, no-voltage input
H7EC-NV	Counter powered by battery, 48x24 mm, PNP/NPN input

Part No.	Ord.No.
s H7EC-N	71424
s H7EC-NV	71425

## Microswitches

### Z Series



Z-15GD-B

Z-15GQ

Z-15GQ22-B

Z-15GW22-B



#### General-purpose Basic Switches

Dimensions (d x w x h): 49,2x24,2x17,5mm  
 Max. switching current: 15A/250 VAC, 6A/30VDC  
 Min. switching current: 160mA/5VDC  
 Contacts: SPDT, silver  
 Operating temperature: -25 to 80°C  
 Protection class: IP00

Part No.	Description
Z-15GD-B	15A, SPDT, 10mm long plunger, screw terminals
Z-15GQ	15A, SPDT, long plunger, solder terminals
Z-15GQ22-B	15A, SPDT, hinge roller lever, screw terminals
Z-15GW22	15A, SPDT, short hinge roller lever - 26,2mm, solder terminals
Z-15GW22S	15A, SPDT, short hinge roller lever 26,2mm(st. steel), sold. term.
Z-15GW22-B	15A, SPDT, short hinge roller lever - 26,2mm, screw terminals
Z-15GW2-B	15A, SPDT, short hinge roller lever - 48,5mm, screw terminals

Part No.	Ord.No.
s Z-15GD-B	71383
s Z-15GQ	71384
s Z-15GQ22-B	54426
s Z-15GW22	71385
o Z-15GW22S	71386
s Z-15GW22-B	65173
s Z-15GW2-B	71387

## Enclosed Switches

### D4MC series



D4MC-2020

D4MC-5000

D4MC-5020



#### Economical, High Utility Enclosed Switches

Metal housing  
 Housing dimensions (d x w x h): 55x21,7x45mm  
 Max. switching current: 10A/240 VAC, 6A/30VDC  
 Output contacts: SPDT  
 Panel-mount versions have the same operating position as the Z basic switch  
 Operating temperature: -10 to 80°C  
 Protection class: IP67

Part No.	Description
D4MC-2020	10A, SPDT, short hinge roller lever - 41 mm
D4MC-5000	10A, SPDT, panel mount plunger
D4MC-5020	10A, SPDT, panel mount roller plunger

Part No.	Ord.No.
s D4MC-2020	71370
s D4MC-5000	71371
s D4MC-5020	71372

## Safety Limit Switches

### D4N Series



#### D4N-1120



- Safety Limit Switch**
- housing dimensions: (d x w x h): 30x31x82,5 mm
  - plastic housing
  - the built-in switch has a direct opening mechanism that forcibly separates the NC contact even when there is contact deposit.
  - 4 head directions
  - max. switching current: 2,5A/250 VAC 10A/240 VAC
  - min. switch. current: 160mA/5VDC
  - contacts: 1NC/1NO
  - operating temperature: -30 to 70°C
  - protection class: IP67

#### D4N-112G



Part No.	Description
D4N-1120	10A, 1NC/1NO (Snap action), Roller Lever
D4N-112G	10A, 1NC/1NO (Snap action), Adjustable Roller Lever
D4N-1131	10A, 1NC/1NO (Snap action), Plunger
D4N-1132	10A, 1NC/1NO (Snap action), Roller Plunger

Part No.	Ord.No.
S D4N-1120	71375
S D4N-112G	71376
S D4N-1131	71377
S D4N-1132	71378

### D4B-N Series



#### D4B-1111N



- Safety-limit switch**
- housing dimensions (d x w x h): 40x43x99,5 mm
  - robust metal housing
  - forcibly separating NC contact
  - safety mechanism
  - 4 head directions
  - max. switch. current: 10A/480 VAC
  - min. switch. current: 160mA/5VDC
  - contacts: DPST-1NC/1NO
  - operating temperature: -40 až 80°C
  - protection class: IP67

#### D4B-1171N



Part No.	Description
D4B-1111N	10A, DPST-1NC/1NO (Snap action), roller lever 31,5mm
D4B-1171N	10A, DPST-1NC/1NO (Snap action), top roller plunger

Part No.	Ord.No.
S D4B-1111N	71373
S D4B-1171N	71374

### D4NS Series



- Safety-door Switch**  
(4th safety class)
- housing dimensions: 30x31x96 mm
  - plastic housing
  - D4DS-xxxx substitute
  - 5 switching head directions
  - forcibly separating NC contact
  - contact configuration: 1NC/1NO, 2NC, 2NC/1NO, 3NC
  - max. switch. current: 10A/240 VAC
  - 1-conduit - Pg13,5, M20, M12 connectors (2-conduits on request)
  - operating temperature: -30 to 70°C
  - protection class: IP67

Part No.	Description
D4NS-1AF+	10A, DPST-1NO/1NC (Slow action), 1-conduit
D4NS-1BF+	10A, DPST-2NC (Slow action), 1-conduit
D4DS-K1	Operation key, horizontal mounting
D4DS-K2	Operation key, vertical mounting

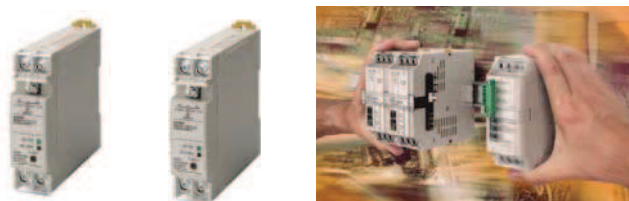
Part No.	Ord.No.
S D4NS-1AF+	71379
S D4NS-1BF+	71380
S D4DS-K1	71381
S D4DS-K2	71382

## Switch Mode Power Supplies

### S8VS Series



#### S8VS 01524 S8VS 0324



#### S8VS 0624 S8VS 0624B S8VS 12024



#### Compact Power Supply with Diagnostics and Output Monitor Function

- S8VS contributes to higher productivity and preventative maintenance of your equipment or machine due to its unique diagnostics feature. Where production stop is critical, such as in the automotive and semiconductor industry, the S8VS with display is ideal (60 to 240 W at 24 VDC).
- output power: 15, 30, 60, 90, 120, 180 and 240W
- rated input voltage: 100 to 240VAC
- output voltage: 5 or 12 or 24VDC
- efficiency 80% min.
- LED display models (3-digits/7 segments) show output values (voltage, current or peak current)
- output indicator (red/green LED)
- overload protection 105% to 160% of rated load current, voltage drop, automatic reset
- harmonic current emissions conforms to EN61000-3-2 A-14
- output contact for undervoltage alarm indication NPN (50mA/30VDC)
- naturally ventilating plastic housing
- DIN-rail mounting
- operating temperature -10°C to +60°C

Part No.	Description
S8VS-01524	15W, 24VDC/0,65A
S8VS-03024	30W, 24VDC/1,3A
S8VS-06024	60W, 24VDC/2,5A
S8VS-06024B	60W, 24VDC/2,5A with display
S8VS-12024	120W, 24VDC/5A

Part No.	Ord.No.
S S8VS-01524	71445
S S8VS-03024	71473
S S8VS-06024	71474
S S8VS-06024B	71476
S S8VS-12024	71475



Digital Panel Indicators  
K3MA-J Series



Highly Visible LCD Display with 2-color (Red and Green) LEDs

- Multi-range DC voltage/current input.
- Front-panel key operation for easy setting.
- Average processing function suppresses flicker.
- Scaling, front-panel forced-zero, zero-limit functions.
- Easy confirmation of max/min display.
- Short 80-mm depth (measured from edge of face plate).
- Finger protective cover (standard equipment) guards against electric shock.
- Water- and dust-proof NEMA4X (IP66 equivalent) front panel.
- Supply voltage: 100 to 240 VAC or 24 VAC/DC
- Power consumption: 6 VA max.
- Output: 2 relay contact outputs (SPST-NO)
- Ambient temperature: -10°C to 55°C
- Front-panel switches for user-friendly programming

Additional features:

- programmable colour display, average processing, switching of comparative outputs, hysteresis (programmable from 0001 to 9999), key protect, parameter initialisation, scaling, teaching, forced-zero, zero-limit functions, hold functions.
- measuring accuracy 0,1 % FS ±1 digit max. (at 23±3°C)
- inputs (switchable): 1 to 5, 0 to 5, ±10, ±5 VDC, 0 to 20 mA, 4 to 20 mA DC
- front panel protection class: IP66

Application areas:

tank pressure monitoring, level display, flow rate sensor display, humidity display

Part No.	Description
K3MA-J-A2 24AC/DC	24 DC/AC, DPST-NO, 48x96 mm

Part No.	Ord.No.
○ K3MA-J-A2 24AC/DC	71427

# Ordering online

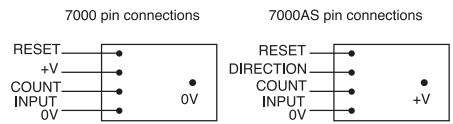
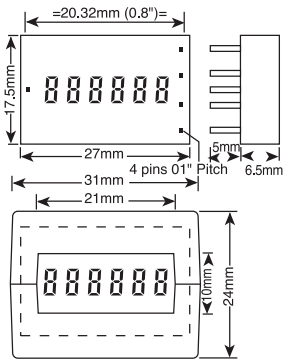


electroniconline

www.soselectronic.com

## Electronic Counters

### Type 7000



**Miniature, 6 digit LCD PCB mount totalising counter designed for minimal power requirement**

These miniature 6 digit totalising counters are suitable for either direct PCB mounting, or panel mounting with bezel supplied.

- Uses the latest CMOS circuitry to achieve quiescent current consumption of less than 5µA
- 6mm black character high contrast LCD display
- Counts pulses up to 10kHz frequency
- External reset input

**Typical application:**

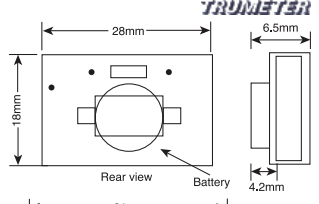
- Event counting
- Position, length and distance measuring applications
- Direct PCB mounting where limited space is available
- Low power battery applications
- Portable equipment

Specifications	7000
Display	6 digit black LCD, 6mm characters
Count Range	999999 display rollover to 0
Count Input	10kHz max., negative edge triggered, 0.7V threshold
Reset	external
Supply Voltage	2.6 - 3.4VDC @ 10µAmax
Current Consumption	5µA quiescent, 10µA at 10kHz
Front Panel Size	31mm x 24mm
Panel Cut-out	29,4mm x 22mm

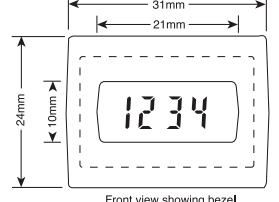
Part No.	Ord. No.
S 7000	67351

### Type 7010 and 7016

#### 7010



#### 7016



self powered

**Miniature, low cost 4 digit and 6 digit LCD self-powered totalising counters**

The 7010 and 7016 are two counters based on the same miniature self powered totaliser. Both counters come ready for fitting and feature flying leads for connection to remote contact closure input devices.

- Self powered for 4 - 5 years using a single standard 1.5V button cell
- 4/6 digit 6mm character high contrast LCD display
- Simple to install
- Integral de-bounce circuitry

**Typical Application:**

- Applications where no power is available
- Event counting
- Portable equipment
- Suitable for either direct PCB mounting, or panel mounting with bezel supplied
- Drums optics, Luggage lockers



Specifications	7010/7016
Display	4/6 digit LCD, 6mm characters
Count Range	9999 display rollover to 0000
Count Input	12Hz, positive edge triggered 0,7V treshold Max
Reset	external
Power Supply	1,5V - button cell -type 386/SR43
Front Panel Size	31mm x 24mm
Panel Cut-out	29,4mm x 22mm

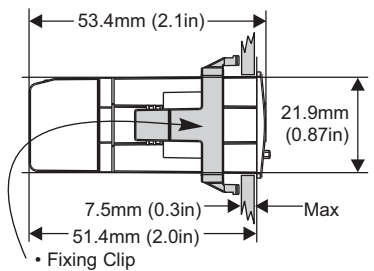
Part No.	Ord.No.
S 7010 (4-digit)	67352
S 7016 (6-digit)	67353

### Type 7111 and 7111HV

#### 7111



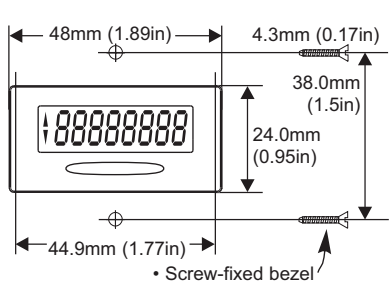
10 years battery life



#### 7111 HV



count input up to 240V



**8 digit self powered electronic LCD counter**

The new 7111 series counter is feature packed and with a price performance ratio unrivalled, suitable for thousands of applications.

- Use of the latest CMOS circuitry achieves an expected battery life of 10 years
- Connection using built in screw terminals
- 9mm black high contrast LCD display
- Counting up to 10kHz (7111)
- Contact closure/open collector low speed count input with integral de-bounce circuitry
- 7111HV permits triggering from any voltage between 10-240VAC or 5-110VDC ±10%
- Choice of mounting available, front panel with supplied bezel or rear mounting clip
- Front panel can be sealed to IP65

**Typical Applications:**

- Replacement for electro-mechanical counters
- Applications where external power is not readily available.
- Position, length, rotation and distance measuring applications
- Event counting
- Installation is simplified - all models have screw connections on rear for quick and simple connection

Specifications	7111	7111HV
Display	8 digit LCD, 9mm characters	
Count Range	999999 display rollover to 0	
Count Input	10kHz, NPN 18VDC, max. negative edge triggered. 0,7V	10kHz, 10 to 240VAC or 10 to 110VDC, positive edge triggered
Reset	front panel or external	
Reset Input	TTL/CMOS compatible	
Backlight	5 VDC is required	
Front panel size	48mm x 25mm	
Panel Cut-out	45mm x 22,5mm	

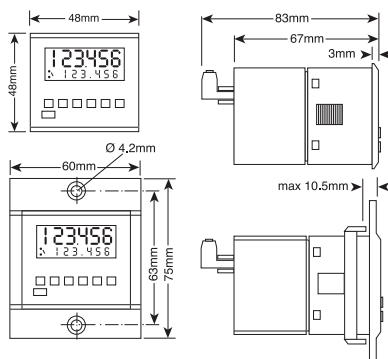
Part No.	Ord.No.
S 7111	67354
S 7111HV	67355

## Electronic Counters / Timers

### Type 7911



self powered



#### 6digit LCD predetermining counter

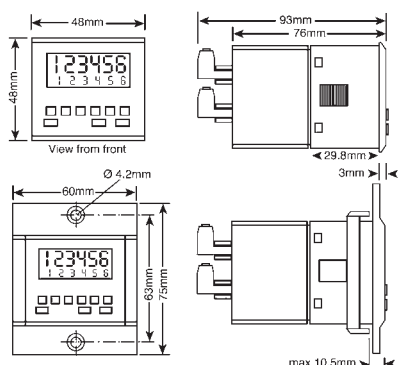
A self-powered 6 digit LCD predetermining counter with typical 10 year operating life suitable for replacing electro-mechanical predetermining counters in a DIN case with protection to IP65.

The LCD panel of this counter has two rows of 6 digits each. The upper characters are 7mm high and indicate the count value. The lower characters are 4mm high and indicate the preset point. It will count up to, or down from, the preset value and operate the output relay when the count reaches up to the preset or down to zero.

- Locatable decimal point (up to 3 places).
- Front panel programming via 6 keys (one for each digit) and a manual reset key
- Reset is user configurable to reset to zero (adding) or reset to preset (subtracting)
- Manual and electrical reset
- Front panel keys can be remotely enabled and disabled
- Operates for up to 10 years @ 20°C or 106 relay operations, with internal user replaceable lithium batteries
- Relay contacts are rated at 8A programmable to NO or NC
- Environ protection IP65 when properly installed using the sealing gasket supplied

Specifications	7911
Display	2 rows of 6 digits, black on silver LCD. Upper row 7mm high characters indicate count, lower row 4mm high characters indicate the preset value
Max. input frequency	25Hz
Reset	front panel, external
Count input	12-250 VAC or DC
Outputs	1programmable relay, 8A/230VAC, 5A/30VDC
Front panel size	60mm x 75mm
Panel cut-out	48mm x 48mm
Part No.	Ord.No.
S 7911	67356

### Type 7932



#### 6 digit predetermining counter/timer with prescaler and EEPROM data storage in an IP65 DIN case

This versatile count up or count down predetermining counter/timer with prescaler has a wide range of innovative and attractive features. Designed with imagination and built to the highest standards it offers both counting and timing functions in one unit.

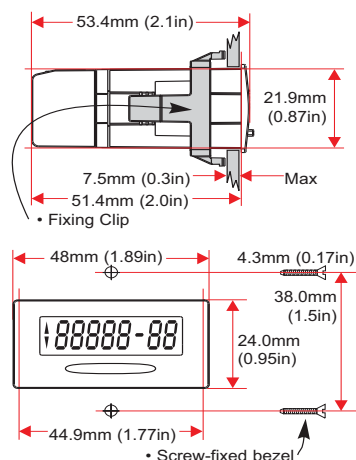
- Simple programming via menu driven display
- High visibility supertwist LCD display can be viewed from any angle
- Backlight programmable ON, OFF or AUTO
- 40 years data retention with no power
- Programmable decimal point up to 3 places
- Operates from 85-265VAC or 10-26VDC
- 12VDC output to drive a sensor (when AC powered)
- Opto-isolated inputs
- Wide range of prescaling
- Output relay contacts rated at 5A
- Output can be set to latch or pulse with programmable pulse duration
- Environmental protection to IP65
- Standard DIN housing

Specifications	7932
Display	2 rows of 6 digits, supertwist black on silver LCD with yellow/green LED backlight. Upper row 7mm (0.28in) high indicates count, lower row 4mm (0.16in) high indicates P1 preset point
Max. input frequency	high speed: 10kHz low speed: 30Hz
Reset	programmable: automatic reset or manual / remote reset
Count inputs	high speed: NPN/PNP 10-30VDC low speed: 12-260VAC
Outputs	1 SPDT 5A relay
Supply voltage	85 - 265VAC or 10 - 26VDC at 100mA
Front panel size	60mm x 75mm
Panel cut-out	48mm x 48mm

Part No.	Ord.No.
S 7932	67357

## Electronic Timers

### Type 7511 and 7511HV



#### 8 digit self powered LCD electronic timer

A compact LCD timer designed for many applications, screw terminals ensure fast wiring.

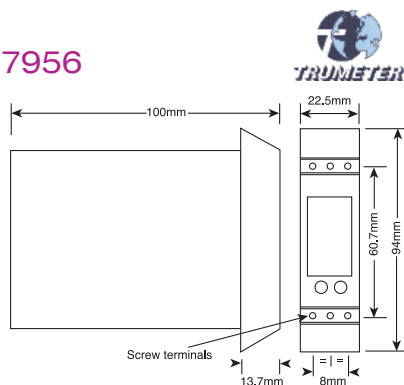
Features include backlighting (external 5VDC supply required), 4 timing modes, timing direction indication and 9mm high digits.

- Use of the latest CMOS circuitry achieves an expected battery life of 10 years
- 9mm high contrast LCD display
- Minimum contact closure time 1 second
- 4 timing modes
- Times up or down
- External reset input
- CE, UL and cUL/CSA approved
- IP65 front panel protection
- Standard DIN bezel 48mmx24mm

Specifications	7511	7511HV
Display	8 digit LCD, 9mm characters	
Timing modes	secs, mins./secs, hrs/1/100ths, hrs/mins	
Input signal	max.18VDC	10-240 VAC or 10-110VDC
Reset	front panel, external	
Power supply	self powered	
Front panel size	48mm x 24mm	
Panel cut-out	45mm x 22,5mm	

Part No.	Ord.No.
S 7511	67358
S 7511 HV	67359

## Time Relays Type 7955 and 7956



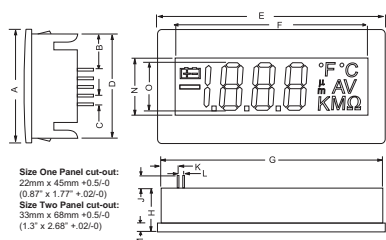
**Digital LCD DIN-rail mountable multi-function time relay**  
This versatile time relay has a three digit black on silver LCD readout and two pushbuttons, Program (P) and Reset (R). The display carries a wide range of internationally understood annunciators to indicate all the modes, direction of timing and the status of the output at all times.

- Simple programming via menu driven display.
- 8 timing ranges from 0.2 second to 999 hours.
- 8 timing modes: ON DELay, OFF DELay, One Shot, Single Shot, Repeat Cycle DELay, Repeat Cycle, and Symmetrical repeats.
- 3 digit black on silver LCD display with Internationally understood annunciators for operating modes, time units, low battery, relay output state.
- Self powered with 10 year battery life or 106 operations.
- Opto-isolated inputs 12-260VAC or DC.
- Relay contacts rated at 8A, programmable to NO or NC.

Specifications	7955	7956
<b>Display</b>	3 digits, black on silver LCD height 6.5mm (0.26in).	
<b>Time ranges</b>	1 - 999, 0.2 - 99.9 secs. or 1 - 999, 0.1 - 99.9, 0.01 - 9.99 mins or 1 - 999, 0.1 - 99.9, 0.01 - 9.99 hrs	
<b>Input signal</b>	12-260 VAC/DC, min. pulse width 20ms	
<b>Output</b>	1SPDT, 8A relay, 220VAC or 30VDC 2000VA/150W	
<b>Reset</b>	front panel	
<b>Power supply</b>	2x3V lithium battery (battery life 10 years)	external + 3V lithium battery for backup
<b>Front panel size</b>	94x22,5mm	

Part No.	Ord.No.
S 7955	67360
S 7956	67361

## Digital Panel Meters Type DPM 951-TG and DPM952-TG



	DPM951	DPM952
A	24mm (0.94")	36mm (1.42")
B	N/A	N/A
C	2.54mm (0.1")	2.54mm (0.1")
D	22mm (0.87")	33mm (1.3")
E	48mm (1.89")	72mm (2.83")
F	37mm (1.46")	61mm (2.4")
G	45mm (1.77")	68mm (2.68")
H	14mm (0.55")	14mm (0.55")
J	8mm (0.24")	8mm (0.24")
K	5mm (0.2")	6mm (0.24")
L	2.54mm (0.1")	2.54mm (0.1")
M	3mm (0.12")	3mm (0.12")
N	13mm (0.51")	18mm (0.7")

**3 1/2 digit LCD digital panel meter**  
Panel mount digital meter with a 200mV full scale input. Annunciators for common engineering units and suitable for operation with either 5VDC or 9VDC power. LCD modules with a full scale reading at 200mV. Operated from either 5VDC or 9VDC with a range of annunciators for common engineering units.

- Low power consumption
- 10mm black character high contrast LCD display.
- Backlit version DPM951-T
- 24mm X 48mm bezel
- 5 or 9VDC operation
- 200mV full scale
- Scaleable

In 5V mode each module generates its own -5V supply which enables it to measure signals with the same common zero as the supply. Connections are brought out to enable the module to operate in various modes including single ended, ratio measurement and differential. Different modes are selected by linking PCB solder pads which are provided for the purpose.

### Typical application:

- indication of DC voltage or current in vehicles, boats etc.
- indication of industrial process parameters such as temperature, humidity, speed etc.

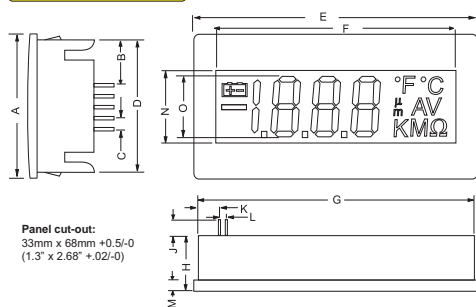
Specifications	DPM951-TG	DPM952-TG
<b>Display</b>	3 1/2 digit LCD backlight	
<b>Characters size</b>	10mm	14mm
<b>Supply voltage</b>	5V (Min 3V max 7V) 9V (min 7V max 12V)	
<b>Supply current</b>	2mA	
<b>Sample rate</b>	3/s	
<b>Backlight</b>	80mA	160mA
<b>Accuracy</b>	0,1%±1	
<b>Operating temperature</b>	-10°C to + 50°C	

Part No.	Ord.No.
S DPM951-TG	67362
S DPM952-TG	67363

## Type DPM 812-TG and DPM822-TG



RS232 communication



Dimensions	
A	36mm (1.42")
B	N/A
C	2.54mm (0.1")
D	33mm (1.3")
E	72mm (2.83")
F	61mm (2.4")
G	68mm (2.68")
H	14mm (0.55")
J	6mm (0.24")
K	6mm (0.24")
L	2.54mm (0.1")
M	3mm (0.12")
N	18mm (0.7")

**3 3/4 digit panel meter with a 40 segment bargraph indication**  
The unit has a fully auto ranging DCV input to 300VDC and a selectable 4 scale DC ammeter upto 10ADC. Sirius range digital panel meter with DCV and DCA input ranges and a wide range of backlight options. Powered by 5VDC to 18VDC and annunciators for units of display which include min max and hold functions. RS232 communications is standard allowing data from the units to be downloaded onto a computer.

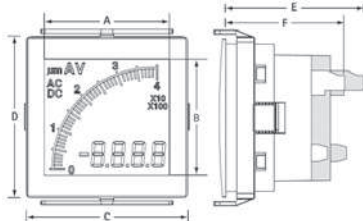
- DC Powered 5V-18VDC.
- Green (-TG) LCD Backlight.
- Reverse Polarised versions -RPG (Green) and -RPR (Red)
- 4 digit display and bargraph display.
- Full auto ranging AC voltmeter and semi auto ranging AC ammeter.
- Min and Max values can be displayed.
- Reading DCV, DCI, ACV & ACI, accuracy +/- 2%. 3 decimal places.
- The module will satisfy two requirements
  - DPM812 DC Volts and Current
  - DPM822 AC Volts and Current
 (all units with RS232 output).
- Measurement by 3 way 5mm pitch screw terminal. Max voltage input 300V AC or DC.
- Designed for 9V battery powered operation.

Specifications	DPM812-TG	DPM822-TG
<b>Display</b>	3 3/4 digit LCD backlight	
<b>Characters size</b>	11mm	
<b>Supply voltage</b>	9V (min. 5V, max. 18VDC)	
<b>Input voltage</b>	1mV up to 300V DC	1mV up to 300V AC
<b>Supply current</b>	2mA	
<b>Auto range scales</b>	400.0mV, 4.000V, 40.00V, 300.0V.	
<b>Current selectable ranges</b>	1uA-4000uA, 0.1mA-400.0mA & 0.1A-10.00A.	
<b>Sample rate</b>	3/s	
<b>Backlight</b>	40mA	
<b>Accuracy</b>	2%±3	
<b>Operating temperature</b>	0°C to + 50°C	

Part No.	Ord.No.
S DPM812-TG	67364
S DPM822-TG	67365

## Digital Panel Meters (continued)

### Type APMDCUA72 - TW



micro ammeter

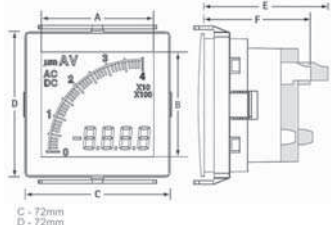
40 segment analogue DC micro ammeter with 3 3/4 digit display and units of measurement annunciators.

- Powered from measured current with voltage of 6-300VDC.
- White (-TW) LCD backlight.
- 4 digit display and curved bargraph display.
- Reading, DCUA accuracy  $\pm 2\%$ . Measures to 1 decimal place.
- AC Microamps: APMDCUA72
- Measured CURRENT input from 1uA-4000uA. A minimum voltage of 6VDC is required.
- Externally powered optional backlight in White, Green and Red. Separate 12 or 24VDC power required.
- Measurement connection using a 4 way 7.5mm pitch screw terminal block
- Designed for 9V battery powered operation.

Specifications	APMDCUA72-TW
Display	3 3/4 digit LCD, 12mm characters 40 segment curved display
Display response time	15mSec
Supply voltage	6-300VDC
Supply current	3mA typical
Measuring range	1uA-4000uA
Sample rate	3 per second
Backlight	white
Accuracy	Typical $\pm 2\%$
Operating temperature	-10°C to +50°C

Part No.	Ord.No.
o APMDCUA72-TW	72162

### Type APMDCMA72 - NTR



mili ammeter

40 segment analogue DC milli ammeter with 3 3/4 digit display and units of measurement annunciators.

- Powered from measured current with voltage of 6-300VDC.
- Green (-TG) or White (-TW) LCD backlight.
- Reverse Polarised versions in Green, White and Red.
- 4 digit display and curved bargraph display.
- Reading, DCMA accuracy  $\pm 2\%$ . Measures to 2 decimal places.
- DC Milliamps: APMDCMA72, APMDCMA48
- Measured CURRENT input from 0.1mA-400.0mA. A minimum voltage of 6VDC is required.
- Externally powered optional backlight in White, Green and Red. Separate 12 or 24VDC power required.
- Measurement connection using a 4 way 7.5mm pitch screw terminal block.

Specifications	APMDCMA72-NTR
Display	3 3/4 digit LCD, 12mm characters 40 segment curved display
Display response time	15mSec
Supply voltage	6-300VDC
Supply current	3mA typical
Measuring range	0.1mA-400.0mA
Sample rate	3 per second
Backlight	negative red
Accuracy	Typical $\pm 2\%$
Operating temperature	-10°C to +50°C

Part No.	Ord.No.
o APMDCMA72-NTR	72162

# Ordering online



electroniconline

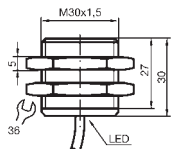
www.soselectronic.com

## Inductive Sensors

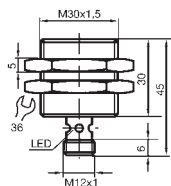
Inductive proximity sensors are the preferred choice for the majority of applications requiring accurate, non-contact detection of metallic objects up to 100 m distance in machinery or automation equipment. Standard features are: smooth or threaded stainless housings, polarity reversal and short-circuit protected, LED status indication, connection styles include M8, M12 or terminal connection models, models with PVC, PUR or silicon cable, outputs in 2-, 3-, 4-wire DC, AC, NAMUR, and AS-Interface versions

Application features: analog output models with 4-20 mA output signal, integrated speed monitor with up to 100 Hz operation, pressure resistant cylinder sensors for up to 500 bar, sensors approved for gas and dust Ex zones, models with stainless steel sensing face, protective class up to IP68/ IP69k (submersible/ high pressure water jet resistant), weld resistant designs with PTFE-coated surface, reduction factor of 1, all metals sensed at same distance, exclusive ferrous and non-ferrous detection models, safety function sensors, extended temperature range: -40 °C up to +250 °C

### NBB15-30GM30-E2



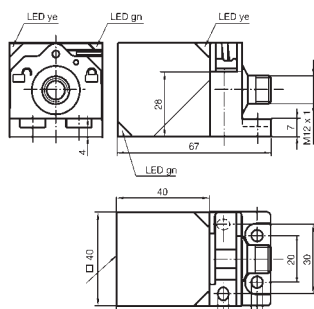
### NBB15-30GM30-E2-V1



Technical parameters	NBB15-30GM30-E2	NBB15-30GM30-E2-V1
Switch. element function	PNP	PNP
Rated operating distance	15 mm	15 mm
Installation	embeddable	embeddable
Operating voltage $U_b$	10 - 30 V	10 - 30 V
Switching frequency	0 - 200 Hz	0 - 200 Hz
Operating current $I_L$	0 - 100 mA	0 - 100 mA
Indication of the sw. state	all direction LED, yellow	Multihole-LED, yellow
Connection type	2 m, PVC cable	V1 connector
Housing material/ Sensing face	brass, nickel-plated / PBT	brass, nickel-plated /PBT
Protection degree	IP67	IP67
Ambient temperature	-25°C up to +70°C	-25°C up to +70°C

Part No.	Ord.No.
o NBB15-30GM30-E2	70759
o NBB15-30GM30-E2-V1	70760

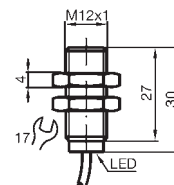
### NBB20-L2-A2-V1-3G-3D



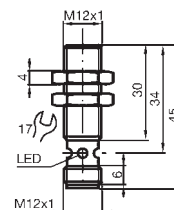
Technical parameters	NBB20-L2-A2-V1-3G-3D
Switching element function	PNP
Switching element distance	20 mm
Installation	embeddable
Operating voltage $U_b$	10 - 30 V
Switching frequency	0 - 150 Hz
Operating current $I_L$	0 - 200 mA
Indication of the operating voltage/ switching state	LED, green/LED, yellow
Connection type	V1 connector
Housing material/Sensing face	PA-GF35/PA-GF35
Protection degree	IP69K
Ambient temperature	-25°C up to +85°C

Part No.	Ord.No.
o NBB20-L2-A2-V1-3G-3D	70761

### NBB4-12GM30-E2



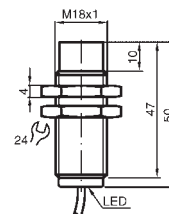
### NBB4-12GM30-E2-V1



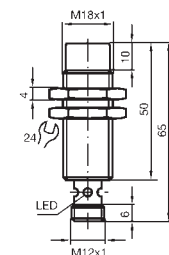
Technical parameters	NBB4-12GM30-E2	NBB4-12GM30-E2-V1
Switch. element function	PNP	PNP
Switch. element distance	4 mm	4 mm
Installation	embeddable	embeddable
Operating voltage $U_b$	10 - 30 V	10 - 30 V
Switching frequency	0 - 1000 Hz	0 - 1000 Hz
Operating current $I_L$	0 - 150 mA	0 - 150 mA
Indication of the sw. state	Multihole-LED, yellow	Multihole-LED, yellow
Connection type	2 m, PVC cable	V1 connector
Housing material/ Sensing face	brass, nickel-plated / PBT	brass, nickel-plated / PBTt
Protection degree	IP67	IP67
Ambient temperature	-25°C up to +70°C	-25°C up to +70°C

Part No.	Ord.No.
o NBB4-12GM30-E2	70762
o NBB4-12GM30-E2-V1	70763

### NBN12-18GM50-E2



### NBN12-18GM50-E2-V1

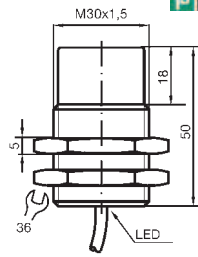


Technical parameters	NBN12-18GM50-E2	NBN12-18GM50-E2-V1
Switch. element function	PNP	PNP
Switch. element distance	12 mm	12 mm
Installation	not embeddable	not embeddable
Operating voltage $U_b$	10 - 30 V	10 - 30 V
Switching frequency	0 - 200 Hz	0 - 200 Hz
Operating current $I_L$	0 - 200 mA	0 - 200 mA
Indication of the sw. state	all direction LED, yellow	Multihole-LED, yellow
Connection type	2 m, PVC cable	V1 connector
Housing material /Sensing face	brass, nickel-plated / PBT	brass, nickel-plated / PBTt
Protection degree	IP67	IP67
Ambient temperature	-25°C up to +70°C	-25°C up to +70°C

Part No.	Ord.No.
o NBN12-18GM50-E2	70764
o NBN12-18GM50-E2-V1	70765

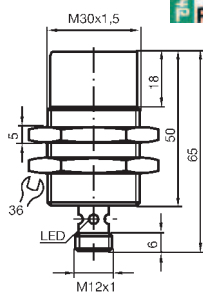
## Inductive Sensors (continued)

NBN15-30GM50-E2



PEPPERL+FUCHS

NBN15-30GM50-E2-V1

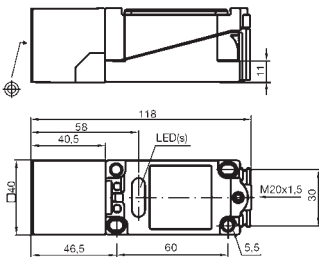


PEPPERL+FUCHS

Technical parameters	NBN15-30GM50-E2	NBN15-30GM50-E2-V1
Switch. element function	PNP	PNP
Switch. element distance	15 mm	15 mm
Installation	not embeddable	not embeddable
Operating voltage $U_b$	10 - 30 V	10 - 30 V
Switching frequency	0 - 200 Hz	0 - 200 Hz
Operating current $I_L$	0 - 200 mA	0 - 200 mA
Indication of the sw. state	all direction LED, yellow	Multihole-LED, yellow
Connection type	2 m, PVC cable	V1-connector
Housing material/ Sensing face	brass, nickel-plated/PBT brass, nickel-plated/PBT	
Protection degree	IP67	IP67
Ambient temperature	-25°C up to +70°C	-25°C up to +70°C

Part No.	Ord.No.
o NBN15-30GM50-E2	70383
o NBN15-30GM50-E2-V1	70766

NJ20+U1+E2



PEPPERL+FUCHS

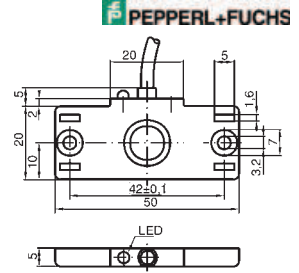
Technical parameters	NJ20+U1+E2
Switch. element function	PNP
Switch. element distance	20 mm
Installation	embeddable
Operating voltage $U_b$	10 - 60 V
Switching frequency	0 - 150 Hz
Operating current $I_L$	0 - 200 mA
Indication of the operating voltage/ switching state	LED, green/LED, yellow
Connection type	terminal compartment
Housing material/Sensing face	PBT/ PBT
Protection degree	IP68
Ambient temperature	-25°C up to +70°C

Part No.	Ord.No.
o NJ20+U1+E2	70767

## Capacitive Sensors

Like inductive sensors, capacitive sensors function without physical contact with the target material. Capacitive sensors allow for the detection of both, conductive and non-conductive materials, but are most commonly used for sensing materials such as plastics, liquids, powders and granular materials. Typical features of the following products are: sensing distances max. 10 mm, very compact plastic or high grade steel construction, 3-wire or NAMUR connection.

CBN2-F46-E2  
CBN5-F46-E2

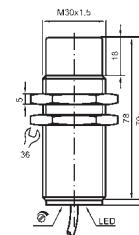


PEPPERL+FUCHS

Technical parameters	CBN2-F46-E2	CBN5-F46-E2
Switch. element function	PNP	PNP
Switch. element distance	2 mm	5 mm
Installation	not embeddable	not embeddable
Operating voltage $U_b$	10 - 30 V	10 - 30 V
Switching frequency	0 - 10 Hz	0 - 10 Hz
Operating current $I_L$	0 - 100 mA	0 - 100 mA
Indication of the sw. state	LED, yellow	LED, yellow
Connection type	2 m, PVC cable	2 m, PVC cable
Housing material/ Sensing face	PBT/ PBT	PBT/ PBT
Protection degree	IP67	IP67
Ambient temperature	-25°C up to +70°C	-25°C up to +70°C

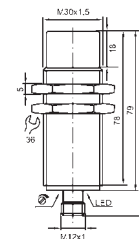
Part No.	Ord.No.
o CBN2-F46-E2	70755
o CBN5-F46-E2	70756

CJ10-30GM-E2



PEPPERL+FUCHS

CJ10-30GM-E2-V1



PEPPERL+FUCHS

Technical parameters	CJ10-30GM-E2	CJ10-30GM-E2-V1
Switch. element function	PNP	PNP
Switch. element distance	10 mm	10 mm
Installation	embeddable	embeddable
Operating voltage $U_b$	10 - 60 V	10 - 60 V
Switching frequency	0 - 10 Hz	0 - 10 Hz
Operating current $I_L$	0 - 200 mA	0 - 200 mA
Indication of the sw. state	LED, yellow	LED, yellow
Connection type	2 m, PVC cable	V1-connector
Housing material/ Sensing face	high grade steel/PBC	high grade steel/PBC
Protection degree	IP67	IP67
Ambient temperature	-25°C up to +70°C	-25°C up to +70°C

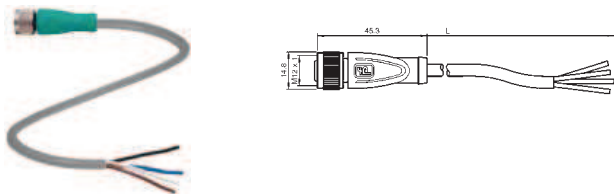
Part No.	Ord.No.
o CJ10-30GM-E2	70757
o CJ10-30GM-E2-V1	70758

## Cable Connectors

Connectors and cables are mechano-electrical part of sensors. Some important cordset product features are: gold plated pin contacts, quality circuit boards for the LED versions, vibration immunity, IP68 environmental protection, 100% function tested before distribution.

Following products offer: 2 types of threading - M12(4wires), M8(3wires), 2 construction types - straight/angled, housing material - PVC/PUR, 10m cable length.

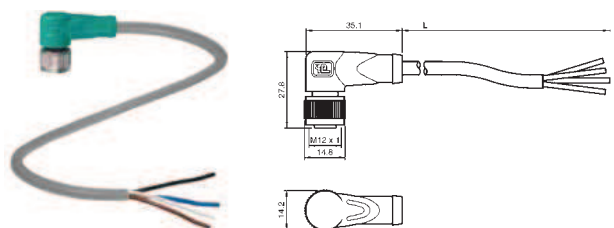
### V1-G-10M-PVC



Technical parameters	V1-G-10M-PVC
Number of poles	4
Connection 1	Connector, female
Construction type 1	straight
Threading 1	M12
Max. operating voltage	300 VDC
Max. operating current	4 A
Protection degree	IP67/IP68/IP69K
Material-contacts/ Core isolation/cable	CuSnAu/PVC/PVC
Cable sheath diameter	4,8mm
Cable colour	grey
Cable cores	4/0,34 mm2
Cable length	10m

Part No.	Ord.No.
o V1-G-10M-PVC	70769

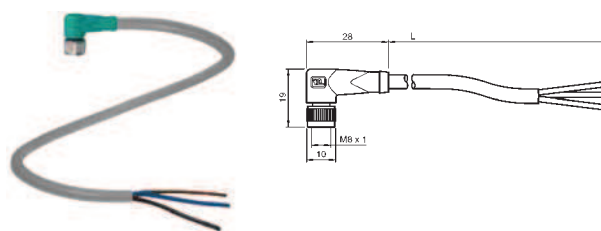
### V1-W-10M-PUR



Technical parameters	V1-W-10M-PUR
Number of poles	4
Connection 1	Connector, female
Construction type 1	angled
Threading 1	M12
Max. operating voltage	300 VDC
Max. operating current	4 A
Protection degree	IP67/IP68/IP69K
Material-contacts/ Core isolation/cable	CuSnAu/PP/PUR
Cable sheath diameter	4,8mm
Cable colour	grey
Cable cores	4/0,34 mm2
Cable length	10m

Part No.	Ord.No.
o V1-W-10M-PUR	70770

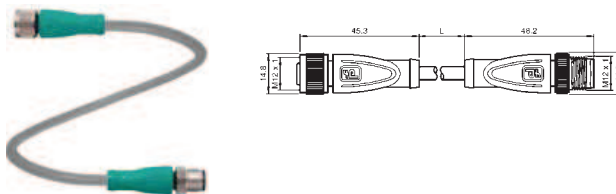
### V3-WM-10M-PVC V3-WM-E2-10M-PUR



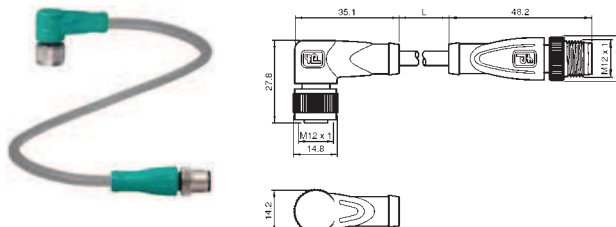
Technical parameters	V3-WM-10M-PVC	V3-WM-E2-10M-PUR
Number of poles	3	3
Connection 1	Connector, female	Connector, female
Construction type 1	angled	angled
Threading 1	M8	M8
Max. operating voltage	60 VDC	24 VDC
Max. operating current	4 A	4 A
Protection degree	IP67	IP67
Material-contacts/ Core isolation/cable	CuSnAu / PVC / PVC	CuSnAu / PP / PUR
Cable sheath diameter	4,8mm	4,8mm
Cable colour	grey	grey
Cable cores	3/0,34 mm2	3/0,34 mm2
Cable length	10m	10m

Part No.	Ord.No.
o V3-WM-10M-PVC	70772
o V3-WM-E2-10M-PUR	70773

### V1-G-10M-PUR-V1-G



### V1-W-10M-PUR-V1-G



Technical parameters	V1-G-10M-PUR-V1-G	V1-W-10M-PUR-V1-G
Number of poles	4	4
Connection 1	Connector female/male	Connector female/male
Construction type 1	straight/straight	angled/straight
Threading 1	M12	M12
Max. operating voltage	300 VDC	300 VDC
Max. operating current	4 A	4 A
Protection degree	IP67/IP68/IP69K	IP67/IP68/IP69K
Material-contacts/ Core isolation/cable	CuSnAu / PP / PUR	CuSnAu / PP / PUR
Cable sheath diameter	4,8mm	4,8mm
Cable colour	grey	grey
Cable cores	4/0,34 mm2	4/0,34 mm2
Cable length	10m	10m

Part No.	Ord.No.
o V1-G-10M-PUR-V1-G	70768
o V1-W-10M-PUR-V1-G	70771



## Inductive sensors



Type	Rated operating distance	Switching element function	Dimensions (mm)	Connection type
NBN4-12GM50-E0	4 mm	NPN	M12	2 m, PVC cable
NBN8-18GM50-E2	8 mm	PNP	M18	2 m, PVC cable
NJ10-30GM-N	10mm	NAMUR	M30	2 m, PVC cable
NJ1,5-6,5-N	1,5mm	NAMUR	f6,5	2 m, PVC cable
NJ1,5-8GM-N-V1	1,5mm	NAMUR	M8	V1 connector
NJ1,5-8-N-Y18812	1,5mm	NAMUR	f11	6 m, PUR cable
NJ6-F-N	6 mm	NAMUR	30x12x45	2 m, PUR cable
RJ15-14-N	15 mm	NAMUR	25x12,5x32,5	2 m, PVC cable

Part No.	Ord.No.
o NBN4-12GM50-E0	49236
o NBN8-18GM50-E2	50563
o NJ10-30GM-N	62670
o NJ1,5-6,5-N	60817
o NJ1,5-8GM-N-V1	8330
o NJ1,5-8-N-Y18812	60816
o NJ6-F-N	70136
o RJ15-14-N	4332

## Other sensors



Part No.	Sensor Part No.	Effective detection range	Dimensions (mm)	Connection Part No.
RL28-8-H-2000-IR	optical	20 - 2000mm	54x26x88	M12 connector
UB800-18GM40-I-V1	ultrasound	50 - 800mm	M18	V1 connector
VL18-54-MS/32/40a/82b/118	optical	0 - 3,5 m	M18	M12 connector

Part No.	Ord.No.
o RL28-8-H-2000-IR	51815
o UB800-18GM40-I-V1	65510
o VL18-54-MS/32/40a/82b/118	49894

## Other products



Part No.	Description
KFA6-SR2-EX1	single channel isolated switch amplifier, output: relay
KFD2-CD-EX1.32	single channel current/voltage repeater, 24 VDC
KFD2-GS-1.2W	single channel current/voltage limit alarm , 24 VDC
KFD2-RR-EX1	splitter, 1 channel, 24 VDC
KFD2-STC4-EX1	SMART Transmitter Power Supply,output 4-20mA, 24VDC
KFD2-VR4-EX1.26	voltage Repeater , 1 channel, 24 VDC
OFR-DG95X95	reflective foil for optical sensor
V1-G-N-5M-PUR	2 cores cable connector, PUR, 5m

Part No.	Ord.No.
o KFA6-SR2-EX1	8326
o KFD2-CD-EX1.32	60487
o KFD2-GS-1.2W	67477
o KFD2-RR-EX1	60484
o KFD2-STC4-EX1	60486
o KFD2-VR4-EX1.26	60483
o OFR-DG95X95	49895
o V1-G-N-5M-PUR	63990

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Pepperl+Fuchs is one of the world's largest manufacturers of electronic sensors and interface devices. Their products—inductive, capacitive, photoelectric and ultrasonic sensors; ID systems; AS-Interface; rotary encoders; and zone scanners—are used in a wide variety of markets and applications in industrial automation for the material handling, packaging, automotive, metal forming, printing, and mobile equipment industries.

The target industries for our Process Automation equipment are involved in chemicals, pharmaceuticals, petrochemicals, oil & gas, as well as wastewater treatment and power technology.

### Inductive sensors



### Capacitive sensors



### Photoelectric sensors



### Ultrasonic sensors



### Cable connectors / Cordsets



## Home Automation

Security Protection Devices



T 1

Regulation and Measuring



T 4

RC Power Sockets and Protection



T 5

Powerline Network Components



T 13

Home PC Accessories



T 16

Weather Stations



T 17

Label Makers



T 22

Lamps and Lights



T 23

"EURO" Products



T 24

Thermo Printers



T 24

## Home Automation

Home automation refers to anything that gives you control over the various technologies or 'sub-systems' found in your home; from the simple - security, lighting, heating, ventilation and air conditioning - to the slightly more advanced home theatre, motorised curtains and blinds, reticulation systems and wireless PC networks.

### Our home automation products:

- detectors (PIR, smoke, gas), alarms, sirens, lighthouses
- wireless bells
- weather stations, clock
- thermostats
- remote control sockets
- overvoltage protections
- timers
- power meters

## PIR Detectors

### PIR 34302



180° detecting angle

Part No.	Ord.No.
S PIR 34302	67881

### PIR 34304



240° angled

Part No.	Ord.No.
S PIR 34304	67883

### PIR 34308



360° detecting angle

Part No.	Ord.No.
S PIR 34308	67884

PIR detector with night-fall sensor and timer.

Switches on/off lights and lamps up to 1000W (neon light max. 300W). Ideal as a lighting switch in corridors, stairways, cellars etc.

Mounting on a side wall

**Detecting Distance:** up to 12m

**Detecting Angle:** 180°

**On-state:** selectable 10s - 5min.

**Power Supply:** 230Vac/50Hz

**Protection:** IP44

PIR detector with night-fall sensor and timer

Switches on/off lights and lamps up to 1000W (neon light max. 300W). Ideal as a lighting switch in corridors, stairways, cellars etc.

Mounting on a side wall

**Detecting Distance:** up to 12m

**Detecting Angle:** 240°

**On-state:** adjustable 10s - 5min

**Power Supply:** 230Vac/50Hz

**Protection:** IP44

**Dimensions:** 150x80x60mm

PIR detector with night-fall sensor and timer

Switches on/off lights and lamps up to 1000W (neon light max. 300W). Ideal as a lighting switch in corridors, stairways, cellars etc.

Mounting on a ceiling

**Detecting Distance:** up to 5m

**Detection Angle:** 360°

**On-state:** adjustable 10s - 5min.

**Power Supply:** 230Vac/50Hz

**Protection Class:** IP44

**Dimensions:** 110x20mm

## PIR detector IS-215T CE

**Honeywell**



90° wide angle

### Passive Infrared Motion Sensor

The IS215T Motion Sensor offers quality detection in an attractive white housing. The IS215T is fully featured, flexible and simple to install for basic security applications.

### Features

Ultra Low current design - 50% reduction in max current consumption.

Silent Relay

Tamper Proof Design, alarm relay cannot be compromised with a magnet.

Installer Friendly Settings

Improved EMI Immunity (Surface Mount Design reduces false activations due to RF interference)

Look-down Zones (Honeywell patented look-down mirror provides for optimum detection pattern directly beneath the sensor)

Mounting Flexibility

Sabotage-resistant Lens Design

Selectable Sensitivity - sensitivity can be adjusted to match installation requirements.

### Applications

Designed for residential and light commercial applications.

**Detection Distance:** 12m x 12m

**Power Supply:** 10V-14Vss/max.16mA (LED on)

**Protection Class:** IP44

**Dimensions/Weight:** 86x60x38mm/67g

Part No.	Ord.No.
S IS-215T CE	69502

## Smoke Detectors

A smoke detector is a device that detects smoke. Commercial, industrial, and mass residential devices issue a signal to a fire alarm system, while household detectors, known as smoke alarms, generally issue a local audible and/or visual alarm from the detector itself. Smoke detectors are typically housed in a disk-shaped plastic enclosure about 100 millimetres in diameter and 30 millimetres thick, but the shape can vary by manufacturer or product line. Most smoke detectors work either by optical detection (photoelectric) or by physical process (ionization), while others use both detection methods to increase sensitivity to smoke.

### Smoke detector 34260



smoke

- photoelectric sensor
- sound alarm
- ideal for places up to 50m<sup>3</sup>
- low power consumption
- test function
- 9V battery

**Coverage:** up to 50m<sup>3</sup>

**Power Supply:** 9V / 6F22 battery (alkaline or lithium battery recommended) not included in delivery

**Average Battery Life:** 12 months (with alkaline battery)

**Alarm Sound Level:** 85dB

**Suitable for:** general indoor use

**Operating Temperature / Humidity Range:** 0-40°C / max. 85%

**Dimensions:** 100x30mm

Part No.	Ord.No.
S CH 34260	67886

### Fire detector 34250



heat

• Fire detector monitors the ambient thermal condition in the place where it is placed

• triggers an alarm signal when either the actual temperature in the area being monitored exceeds over 60°C

- ideal for kitchens, attics, garages etc.
- 9V battery
- built in low battery detection
- test function

**Coverage:** up to 50m<sup>3</sup>

**Power supply:** 9V / 6F22 battery included in delivery

**Average battery life:** 12 months with alkaline battery

**Alarm Sound Level:** 85dB

**Suitable for:** general indoor use

**Operating temp. and humidity range:** 0-50°C / max. 85%

**Dimensions:** 115x40mm

Part No.	Ord.No.
S CH 34250	67889

## Gas Detectors

A gas detector is a device which detects the presence of various gases within an area, usually as part of a system to warn about gases which might be harmful to humans or animals. Gas detectors can be used to detect combustible, toxic, and oxygen and CO2 gases. This device may be used in firefighting.

### Gas Detector 34142



CO

- detects concentration of CO in the area being monitored
  - optical and acoustic indication of 3 levels of CO concentration
  - is designed for detection CO particles from fossil fuel burning
  - not designed for smoke, fire or other gases detection
  - mounting on a side wall up to 50cm high
- Coverage:** up to 50m<sup>3</sup>  
**Power Supply:** 9V battery (included in delivery)  
**Alarm Sound Level:** 85dB  
**Suitable for:** general indoor use  
**Op.Temp. Range:** 0-50°C  
**Dimensions:** 100x30mm

Part No.	Ord.No.
S CH 34142	67891

### Gas Detector 34145



methane

- natural gas (methane) detector
  - optical and acoustic indication of gas concentration over determined value
  - ideal for gas detection for boilers, heating devices, stoves and other gas devices
  - mounting on a side wall - 30cm under the ceiling
- Coverage:** up to 50m<sup>3</sup>  
**Power Supply:** by adapter 230VAC/50Hz  
**Alarm Sound Level:** 85dB  
**Suitable for:** general indoor use  
**Op.Temp. Range:** 0-50°C  
**Dimensions:** 100x30mm

Part No.	Ord.No.
S CH 34145	67892

### Gas Detector 34155



LPG

- LPG (bottled-gas) detector
  - optical and acoustic indication of LPG concentration over determined value
  - ideal for gas detection for boilers, controllers, stoves and other gas devices
  - mounting on a side wall - very close to the floor (LPG is heavier than air)
- Coverage:** up to 50m<sup>3</sup>  
**Power Supply:** by adapter 230VAC/50Hz  
**Alarm Sound Level:** 85dB  
**Suitable for:** general indoor use  
**Op. Temperature range:** 0-50°C  
**Dimensions:** 100x30mm

Part No.	Ord.No.
S CH 34155	67890

### Glass Break Detector 34061



- designed for acoustic alarming glass break attempt
  - ideal for all windows, French-door, glass-rooms, etc
  - both-side adhesive tape mounting
- Power supply:** 2x alkaline battery LR44 (included in delivery)  
**Alarm Sound Level:** 90dB  
**Suitable for:** general indoor use  
**Op. Temperature Range:** 0-50°C  
**Dimensions:** 57x57x20mm

Part No.	Ord.No.
S CH 34061	67897

## Alarms

At the moment electronic alarm systems are available at good prices for almost everyone. There are many possibilities and solutions. We offer alarm systems designed for anpretentious applications of protecting different areas, homes, garages, boutiques etc. Easy to use, simple mounting and affordable price are the advantages of these alarms.

Following wireless devices can be connected to all central alarm systems: solar siren CH34640, PIR CH34630, magnetic sensor CH34620, window detector CH34625, additional remote control CH34610, Tx modul CH34645, wireless keyboard CH34605 wire devices as well, e.g. wire siren CH34670 and other.

### Alarm Compact RF 34550



- 1x central unit (3 zones) with in-built numeric keyboard, alarm (60 or 110dB option, acoustic signal length - adjustable up to 20 mins) and PIR detector (90° up to 8m)
  - 2x external wire-less magnetic sensors powered by A23 12V batteries (included in delivery), range up to 25m / 434MHz
  - 1x remote control with A23 12V battery (included in delivery), range up to 25m / 434MHz
- The central unit is powered by external 9V/300mA adapter and backed up by 6 x 1,2V AA rechargeable batteries (not included in delivery). The central unit and the sensors as well, do have a tamper function and a low battery indication. Arrival/ departure time is settable within 10-99 sec.

Part No.	Ord.No.
S CH 34550	67894

### Alarm Apartment RF 34750



- only one wire-less magnetic sensor in a base package
- external wireless PIR detector (180° up to 12m)
- 4 working zones (when running only selected detectors is needed)
- back up by 8 x 1,2V AA rechargeable batteries (not included in delivery)

Part No.	Ord.No.
O CH 34750	67896

### Alarm Home RF 34760



- 2 external wireless detectors (180° up to 12m)
- 6 working zones (when running only selected detectors is needed)
- rechargeable batteries back-up (included in delivery)
- built-in telephone caller (6 different calls)
- possibility of starting/switching-off the system via telephone

Part No.	Ord.No.
O CH 34760	67895

### Alarm GSM RF 34770



- 2 external wireless detectors (180° up to 12m)
- 6 working zones (when running only selected detectors is needed)
- accumulator back-up (included in delivery)
- built-in GSM pager

Part No.	Ord.No.
O CH 34770	67893

## Alarm Sirens and Beacons

### Alarm Siren 34670



- audio-visual wire siren
- Suitable for outdoor use
- UV resistant
- low current consumption
- easy installation to central unit
- no adapter needed

Part No.	Ord.No.
S CH 34670	67899

### RUL12V Beacon Serie

#### RUL 12V RD



#### RUL 12V BU



#### RUL 12V OG



Serie of beacons with magnet and car CL plug  
Red, blue or orange rotating flashing lights are available.

#### Features:

Power Supply: 12VDC  
Cable Length: 2,5m  
Bulb: 21W  
Dimensions: Diameter 125mm/height 130mm

Part No.	Description
RUL 12V RD	Beacon 12V D125xV130mm plug into car lighter, red
RUL 12V BU	Beacon 12V D125xV130mm plug into car lighter, blue
RUL 12V OG	Beacon 12V D125xV130mm plug into car lighter, orange

Part No.	Ord.No.
S RUL 12V RD	47955
S RUL 12V BU	47512
S RUL 12V OG	53007

## Doorbells

Bells are usually used to call people in different situations: stuff in shops, at receptions, in households, call help for sick and elderly people etc.  
Connection between button and receiver is realized via 433,92 MHz radio code signal. Signal coverage is measured in a free space.

### GONG 6898-83 Q



**Signal Range:** 30m  
**Power Supply:** 3x AA battery (not included in delivery)  
**Receiver Dimensions:** 110x110x30mm  
**Transmitter Dimensions:** 85x42x14mm

Part No.	Ord.No.
S GONG 6898-83 Q	47514

### GONG 6898-84 R



**Signal Range:** 30m  
**Power Supply:** 2x AA battery (not included in delivery)  
**Suitable for:** general indoor use  
**Receiver Dimensions:** 120x30mm  
**Transmitter Dimensions:** 70x40x15mm

Part No.	Ord.No.
S GONG 6898-84 R	47513

### GONG 6898-80A



**Signal Range:** up to 30m  
**Receiver Power Supply:** 230V/50Hz  
**Transmitter Power Supply:** 1x 12V A23 battery (not included in delivery)  
**Suitable for:** general indoor use  
**Receiver Dimensions:** 120x65x35mm  
**Transmitter Dimensions:** 85x40x18mm

Part No.	Ord.No.
S GONG 6898-80A	48780

### GONG 6898-80B



**Signal Range:** up to 30m  
**Ringings:** 2 sound levels: loud, silent  
-LED indication (10sec. flashes)  
**Receiver Power Supply:** 230V/50Hz  
**Transmitter Power Supply:** 1x 12V A23 battery (included in delivery)  
**Suitable for:** general indoor use  
**Receiver Dimensions:** 120x65x35mm  
**Transmitter Dimensions:** 85x40x18mm

Part No.	Ord.No.
S GONG 6898-80B	48255

### CH 84156 Design



**Signal Range:** up to 30m  
**Number of Tunes:** 12  
**Receiver Power Supply:** 3x 1,5V C battery (not in delivery), external adapter available 12V 300mA  
**Transmitter Power Supply:** 1x 12V A23 battery (included)  
**Suitable for:** general indoor use, (IP44)  
**Receiver Dimensions:** 165x120x50mm  
**Transmitter Dimensions:** 83x37x20mm

30m range

12 tunes

Part No.	Ord.No.
S CH 84156	67901

### DOOR BELL CH 84162 230Vac



**Signal Range:** up to 80m  
**Number of Tunes:** 32  
**Sound Levels:** 3  
**Receiver Power Supply:** 230Vac  
**Transmitter Power Supply:** 1x 12V A23 battery (in delivery)  
**Suitable for:** general indoor use, (IP44)  
**Receiver Dimensions:** 115x58x30mm  
**Transmitter Dimensions:** 87x34x15mm

up to 80m range

Part No.	Ord.No.
S CH 84162	67902

## DOOR BELL 84155



NEW!

**Signal Range:** up to ≈80m  
**Number of Tunes:** 2  
**Receiver Power Supply:**  
 3x 1,5V AA  
**Transmitter Power Supply:**  
 1x 12V A23  
**Suitable for:** general indoor use  
**Receiver Dimensions:**  
 120x85x35mm  
**Transmitter Dimensions:**  
 87x34x15mm

Part No.	Ord.No.
S DOOR BELL 84155	67903

## DOOR BELL CH 84175



Wireless door-bell with recording option  
**Signal Range:** up to 80m  
**Number of Melodies:** 32/10s record  
**Receiver Power Supply:**  
 3x 1,5V AA battery (not in delivery)  
**Transmitter Power Supply:**  
 1x 12V A23 (in delivery)  
**Suitable for:** general indoor use, (IP44)  
**Receiver Dimensions:**  
 120x110x35mm  
**Transmitter Dimensions:**  
 87x34x15mm

up to 80m range

32 Melodies

Part No.	Ord.No.
S Door-bell 84175	67904

## DOOR BELL CH 84176 with MP3/20s



Wireless door-bell with MP3 playback  
**Signal Range:** up to 100m  
**Number of Melodies:**  
 7 / 20s MP3 melody - USB 4MB  
**Sound Levels:** 4  
**Receiver Power Supply:**  
 4x1,5V C battery (not in delivery)  
**Transmitter Power Supply:**  
 2x 1,5V AAA battery (not in delivery)  
**Suitable for:** general indoor use, (IP44)  
**Receiver Dimensions:**  
 130x95x35mm  
**Transmitter Dimensions:**  
 95x33x20mm

MP3

up to 100m range

software

Part No.	Ord.No.
S CH 84176	67906

## DOOR BELL CH 84169



**Signal Range:** up to 200m  
**Number of Melodies:** 27  
**Sound Levels:** 4  
**Receiver Power Supply:**  
 4x1,5V C battery (not in delivery)  
**Transmitter Power Supply:**  
 2x1,5V AAA battery (not in delivery)  
**Suitable for:** general indoor use, (IP44)  
**Receiver Dimensions:**  
 128x95x35mm  
**Transmitter Dimensions:**  
 85x30x20mm

up to 200m

Part No.	Ord.No.
S CH 84169	67905

## Thermostats

### Analog Thermostat 54302



- Easy to install
- Adjustable temperature: 5 to 30°C
- Setback function for energy saving during nights (temperature reduction of set value: 5°C/for 6hours)
- Power supply: 230VAC
- Switch relay max. 230VAC 7A(inductive load 3A)
- Operating temperature: 0-40°C
- Dimensions: 90x60x30mm
- Weight: 0,111kg

Part No.	Ord.No.
S CH 54302	67878

### Digital Thermostat 54311



- LCD display - real time and days of the week
- Easy temp. setup 7-30°C/0,5°C
- Simplified programming
- 6 control profiles, 3 programming
- Frost protection
- Manual temperature setup
- Heating/cooling function available
- Low battery indication
- 2 alkaline batteries AA (not included in delivery)
- Switching relay: 230VAC 5A, inductive load 3A
- Operating temperature: 0-40°C
- Dimensions: 100x116x25,5
- Weight: 220g

Part No.	Ord.No.
S CH 54311	67877

### RONDOSTAT HR20



The Rondostat is an electronic radiator controller. The radiator valve is actuated via a battery powered motor. In operating mode, the Rondostat alternates between a comfort temperature and an economy temperature according to an adjustable timer program with 28 set points per week (4 individual set points per day). The factory preset of the timer program is:  
 6:00 - 22:00 h = 21°C and 22:00 to 6:00 h = 16°C.

The set points for comfort and economy temperature as well as the time periods are freely adjustable. A hand wheel allows a manual temperature adjustment. Turning the hand wheel clockwise the temperature range is:  
 Off, 8 °C...28 °C, On.

The open window function closes the valve if the temperature drops by 1.5 °C within 3 min. Normal operation is resumed after  
 a) turning the hand wheel,  
 b) rise of the room temperature or  
 c) after 45 minutes.

Self monitoring functions: Protection against lime scale and frost. A warning is issued if the batteries get flat. Automatic switch to and from daylight saving time.

#### Features:

- timer function allows different heating periods
- easy handling via 3 buttons and rotary socket
- manual and automatic mode
- dimensions: 160x95mm
- connecting adapter: M30x1,5mm
- regulation range: 8 to 28°C (adjustable in 0,5°C steps)
- battery types: 2x1,5V LR6 AA AM3 with 2 heating seasons battery lifetime

Part No.	Ord.No.
S Rondostat HR20	71881

## Power Measuring

### Power Meter PM 54355



- Measures power consumption
- Total power consumption calculation (in kWh) / total costs calculation in EUR
- Device Data: power (W)/voltage (V)/current (A)
- Overload indication (buzzer)
- Displays operating duration of the device
- Back-up 2xLR44 (30days)
- Max. 3500W
- Dimensions: 123x63x35mm

Part No.	Ord.No.
S PM 54355	67876

### Power Meter PM 54352 "S"



- Measures power consumption
- Total power consumption calculation (in kWh)
- Total costs calculation in EUR
- Device data: power (W)/voltage (V)/current (A)
- Overload indication (buzzer)
- Displays operating duration of the device
- back-up
- 2x LR44 batteries (30days)
- Max. 3500W
- Dimensions: 123x63x35mm

DE socket.

Part No.	Ord.No.
S PM 54352 Schuko	69710

### Electric Power Meter PM 230



- Controls and measures power consumption
- Displays time & day of the week
- Actual current consumption shown in (A)
- Power consumption display in (W) (cos Ø) index
- Total energy consumption recorded during measuring time displayed in kWh
- Power Factor PF
- True power in (cos Ø)
- Displays metered periods in hours & minutes
- Voltage and frequency display in volts and hertz
- Total cost of energy function
- Cost of electricity in KWh (kilowatt hours)
- 2x LR44 batteries
- Max. 3680W
- Dimensions: 125x65x35mm

Part No.	Ord.No.
S PM 230	63657

## RC Power Sockets

Wireless (433MHz) devices for simplified handling and different light sources energy savings: lamps, halogen bulbs or switch on/off various devices.

### How does it work?

Key fob, remote control, wall switch or PIR sensor as a transmitter controls receiver e.g. socket, switch modul, or E27 socket. The operating range between receiver and transmitter is up to 25m.



## Transmitters

### Power Switch RF 54501



- Wireless switch mounted on walls
- 25m operating distance
- On/off and additional dimmer function
- 12V battery is included in delivery
- Dimensions: 77x77x15mm

Part No.	Ord.No.
S RF 54501	70703

### Power Switch RF 54502



- Double wireless power switch
- Mounting on walls
- 25m operating distance
- On/off and additional dimmer function
- 12V battery included in delivery
- Dimensions: 77x77x15mm

Part No.	Ord.No.
S RF 54502	70716

### Power Switch RF 54503 plus PIR Detector



- PIR detector up to 10m/90° angle
- 25m operating distance
- Indoor/outdoor
- 12V battery included in delivery
- Dimensions: 77x77x15mm

Part No.	Ord.No.
O RF 54503	70732

### PIR Detector RF 54541



- PIR detector up to 10m distance /110° angle
- 25m operating distance
- Indoor/outdoor usage
- Time and sensitivity setup available

Part No.	Ord.No.
O PIR Detector RF 54541	70738

## Magnetic Switch RF 54581



- Wireless magnetic switch
- 25m operating range
- Easy installation
- Frequency: 433,92MHz
- Power: 240V, 50Hz/120V, 60Hz

Part No.	Ord.No.
O RF 54581	70737

## Remote Control RF 54591



- Wireless remote control/key fob with On/Off function and additional dimmer function
- 25m operating distance
- 256 channels
- Can to control up to 16 switches
- Dimensions: 55x30x12mm
- Frequency: 433,92MHz
- Battery : CR2032 (included)

Part No.	Ord.No.
S RF 54591	70736

## Remote Control RF 54561 for Modules/sockets



- Wireless remote control/key fob with On/Off function and additional dimmer function
- 25m operating distance
- 256 channels
- Can to control up to 16 switches
- Power supply: 12V battery, included in delivery
- Dimensions: 110x35x12mm

Part No.	Ord.No.
S RF 54561	70733

## Digital Remote Control RF 54571



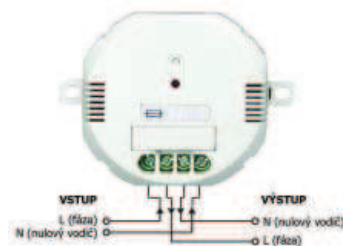
- Wireless remote control
- Programming and additional dimmer function available
- Can up to 16 devices
- Only one device/all connected devices controlling
- LCD display
- Power supply: 12V battery, included in delivery
- Dimensions DO: 120x48x18mm
- Battery (LCD and memory): 3V CR 2032
- Battery (Transmission): 12V A23
- Frequency: 433.92MHz
- Max 3500W - 220V, 16A (50Hz)

Part No.	Ord.No.
S RF 54571	70695

## II. Receivers (Switchers and Dimmers)

Receivers were designed to switch various devices and light sources. According to their function they are divided into two groups: switching and switching with dimmer function. According to their mounting into socket and module types.

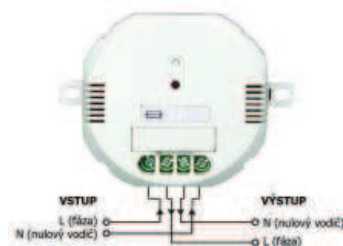
### ON/OFF Modul RF 54555



- Switching module up to 1000W
- Flush box mounting
- Power supply 230 VAC 50Hz
- Dimensions: 52x52x25mm

Part No.	Ord.No.
S ON/OFF Modul RF 54555	70700

### Dimmer Module RF 545



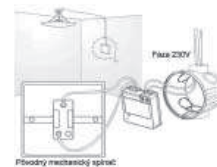
- Wireless dimmer module up to 300W
- Flush box mounting
- Power supply 230 VAC 50Hz
- Dimensions: 52x52x25mm

Part No.	Ord.No.
S RF 54556	70702

### ON/OFF Modul X RF 54557



- Switching and dimmer module up to 200W
- Flush box mounting
- Dimensions: 43x40x13mm



Part No.	Ord.No.
S ON/OFF Modul X RF 54557	70750

### Power Socket ON/OFF RF 54585



- Switching socket up to 3500W
- Power supply: 230VAC 50Hz
- Dimensions: 95x50x30mm

Part No.	Ord.No.
S RF 54585	70714

### Dimmer RF 54586



- Dimmer and switching socket up to 300W
- Power supply 230VAC 50Hz
- Dimensions: 95x50x30mm

Part No.	Ord.No.	1+	2+	5+
S RF 54586	70715	18,49	17,73	16,70



## RC Power Sockets (continued)

### Receiver (Switchers and Dimmers)

(continued)

#### Socket ON/OFF RF 54578



- wireless switching modul/socket up to 100W
- E27 socket, suitable for light bulbs and economy energy saving light bulbs
- dimensions: 60x50mm

Part No.	Ord.No.
S RF 54578	70713

### Analog Dimmers

#### Analog Dimmer 54042 up to 300W



- is used to adjust the brightness of standard light bulbs/ 230Vac lamps
- direct manual control in a range of min. and max. light bulb brightness
- max. 300W
- power supply 230Vac, 50Hz
- dimensions: 100x57x35mm

Part No.	Ord.No.
S CH 54042	67918

#### Dimmer CH 57205

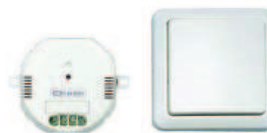


- is used to adjust the brightness of standard light bulbs and halogen lamps, 230Vac
- mounting directly flush box
- power 50-300W
- dimensions: 77x77x35mm

Part No.	Ord.No.
S CH 57205	69709

## Sets of RC Power Sockets

### Power Switch Set RF 54505



- 1x wall wireless switch and 1x switching module up to 1000W flush box mounting
- switch dimensions: 77x77x15mm
- switching module dimensions: 52x58x25mm

Part No.	Ord.No.
S SADA RF 54505	70696

### Dimmer Set RF 54506



- wireless switch and switching module up to 300W power, flush box mounting
- power supply 230Vac 50Hz
- switch: 2x CR2032 batteries (included in delivery)
- switching module dimensions: 52x58x25mm

Part No.	Ord.No.
S RF 54506	70698

### Power Socket RF 54565



- 1x wireless remote control and 1x switching socket up to 3500W
- possibility to control up to 16 switches via remote control
- RC dimensions: 110x35x12mm
- socket dimensions: 95x50x30mm

Part No.	Ord.No.
S SADA RF 54565	70734

### Dimmer set RF 54566



- set of wireless remote control and dimming socket up to 3500W
- possibility to control up to 16 switches via remote control
- switch power supply 230Vac 50Hz
- RC dimensions: 110x35x12mm
- socket dimensions: 95x50x30mm

Part No.	Ord.No.
S RF 54566	70735

Please find the whole product range of the RC power sockets on our web site [www.soselectronic.com](http://www.soselectronic.com)

## Power Socket RF 54575



- set of programming remote control and on/off switch 3500W
- possibility to control up to 16 switches via remote control
- RC dimensions: 120x48x18mm
- switch dimensions: 95x50x30mm

Part No.	Ord.No.
S RF 54575	69321

## Dimmer Set RF 54508



- wall wireless switch and switching module/socket up to 100W
- module power supply 230Vac 50Hz
- switch: 2x CR2032 battery (included in delivery)
- socket dimensions: 60x50mm
- switch dimensions: 77x77x15mm

dimming

Part No.	Ord.No.
O RF 54508	70699

## ECO RC Power Sockets Serie

In comparison with standard RC power sockets is ECO Serie budget-priced. The only disadvantage is that they use redefined signal codes between transmitter and receiver. And that is why it is not possible to combine them with standard transmitters/receivers. ECO Serie offers several elementary products only.

### Power Socket ECO RF 54645



- compact design
- switching socket
- power supply 230Vac 50Hz
- up to 3500W
- dimensions: 110x60x30mm

Part No.	Ord.No.
S RF 54645	70689

### Power Socket ECO RF 54653 with Dimmer



- compact design
- dimming and switching power socket up to max. 300W
- power supply 230Vac 50Hz
- up to 3500W
- dimensions: 110x60x30mm

Part No.	Ord.No.
S RF 54653	70692

### RC Power Socket ECO RF 54647



- set of switching power socket and remote control up to max. 350W
- socket power supply 230Vac 50Hz
- RC power supply: 12V A23 battery- (is included in delivery)
- socket dimensions: 110x60x30mm
- RC dimensions: 95x45x15mm

Part No.	Ord.No.
S RF 54647	69858

## Dimmer Set ECO RF 54657



- set of dimming socket up to 300W and remote control
- socket power supply 230Vac 50Hz
- RC power supply: 12V A23 battery- (is included in delivery)
- socket dimensions: 110x60x30mm
- RC dimensions: 95x45x15mm

dimming

Part No.	Ord.No.
S RF 54657	70690

## Power Socket ECO RF 54655



- set of 3 switching sockets up to 3500W and a remote control
- sockets power supply 230Vac 50Hz
- RC power supply: 12V A23 battery (is included in delivery)
- socket dimensions: 110x60x30mm
- RC dimensions: 95x45x15mm

Part No.	Ord.No.
S RF 54655	70691

## ECONOMIC Serie

### RC Set of 3 Power Sockets RC 54118

ECONOMIC



- the most budget-priced remote controlled set of 3 switching power sockets up to 1500W
- remote control with fixed code (without a possibility to buy more sockets or RC)
- RC power supply: 3V CC2032 bat.
- socket dimensions: 110x30x12mm
- RC dimensions: 90x55x30mm

Part No.	Ord.No.
S RC 54118	67919

## Overvoltage Protection

### Overvoltage Protection Socket Strips

#### ACAR AXON 504 WF Rack



- Filter and protection supply sockets:
- two-pin plug plus protective with finger holder
  - 5-way socket with protective pin
  - power cable and switch are on the opposite sides which ensures ergonomic use.
  - available version with filter and telephone line protection
  - mounting bracket for universal mounting in 19" rack
  - varistor suppressor
  - bipolar switch with indicator
  - cable length: 3m

19" rack

Technical Parameters	AXON 504 WF Rack
Operating Voltage	230V
Frequency	50Hz
Rated Load Current	10A
Max. Earth-Leakage Current I <sub>max</sub>	6,5kA
Fuses	2x10A/250V
Leakage Current	<0,5mA
Protection	2P+Z
Socket Material	self-extinguishing plastic
Response Time of Surge Arrester	<25ns
UP Protection Level of Suppression Circuit	max.1,3kV
Energy absorption	150J

Part No.	Ord.No.
S 504 WF Rack	68919

#### AXON Protector 370



- 7-way sockets: 5 sockets with protective pin, 2 flat sockets
- automatic fuse
- bipolar switch with indicator
- installation clips for better cable organising
- cable length: 1,9m
- connecting TV cable included in delivery

+TV cable

Technical parameters	AXON Protector 370
Operating Voltage	230V
Frequency	50Hz
Rated Load Current	10A
Max. Earth-Leakage Current I <sub>max</sub>	6,5kA
Fuses	aut.10A/250V
Leakage Current	<0,5mA
Protection	2P+Z
Socket Material	self-extinguishing plastic
Response Time of Surge Arrester	<25ns
UP Protection Level of Suppression Circuit	<=1.3kV
Energy Absorption	150J

Part No.	Ord.No.
O Axon 370 TV TNT	68939

#### ACAR X Protector Plus



- 5-way sockets with protective pin /45°angle
- fast fuses
- built in filter
- varistor suppressor
- large power switch with indicator
- voltage "in operation" indicator
- indication of overvoltage protection state
- possibility of base mounting
- cable length: 3m

+filter

Technical Parameters	ACAR X Protector Plus
Operating Voltage	230V
Frequency	50Hz
Rated Load Current	10A
Max. Earth-Leakage Current I <sub>max</sub>	9kA
Fuses	2x10A/250V
Leakage Current	<0,5mA
Protection	2P+Z
Socket Material	self-extinguishing plastic
Response Time of Surge Arrester	<25ns
UP Protection Level of Suppression Circuit	<=1kV
Energy Absorption	150J

Part No.	Ord.No.
S Acar X Protector Plus	68927

#### ACAR X Protector Plus RJ



- 5-way sockets with protective pin /45°angle
- fast fuses
- built in filter
- varistor suppressor
- large power switch with indicator
- voltage "in operation" indicator
- indication of overvoltage protection state
- possibility of base mounting
- cable length: 3m
- telephone line protection: 2xRJ11

+RJ11

Technical Parameters	AXON X Protector Plus RJ
Rated Voltage	230V
Frequency	50Hz
Rated Load Current	10A
Max. Earth-Leakage Current I <sub>max</sub>	6,5kA
Fuses	2x10A/250V
Leakage Current	<0,5mA
Protection	2P+Z
Socket Material	self-extinguishing plastic
Response Time of Surge Arrester	<25ns
UP Protection Level of Suppression Circuit	<=1kV
Energy Absorption	150J

Part No.	Ord.No.
O X Protector Plus RJ	68930

Please find more information  
about overvoltage protection products on  
[www.soselectronic.com](http://www.soselectronic.com)

## ACAR P7 RJ



- 7-way socket: 5 sockets with protective pin, 2 flat socket
- automatic fuse
- installation clips for better cable organising
- cable length: 3m
- 2xRJ11 sockets

+RJ11

Technical Parameters	ACAR P7 RJ
Operating Voltage	230V
Frequency	50Hz
Rated Load Current	10A
Max. Earth-Leakage Current I <sub>max</sub>	6,5kA
Fuses	aut.10A/250V
Leakage Current	<0,5mA
Protection	2P+Z
Socket Material	self-extinguishing plastic
Response Time of Surge Arrester	<25ns
UP Protection Level of Suppression Circuit	<=1.3kV
Energy Absorption	150J

Part No.	Ord.No.
0 Acar P7 RJ	68935

## ACAR P7



- 7-way socket: 5 sockets with protective pin, 2 flat socket
- automatic fuse
- installation clips for better cable organising
- cable length: 3m

Technical Parameters	ACAR P7
Operating Voltage	230V
Frequency	50Hz
Rated Load Current	10A
Max. Earth-Leakage Current I <sub>max</sub>	6,5kA
Fuses	aut.10A/250V
Leakage Current	<0,5mA
Protection	2P+Z
Socket Material	self-extinguishing plastic
Response Time of Surge Arrester	<25ns
UP Protection Level of Suppression Circuit	<=1.3kV
Energy Absorption	150J

Part No.	Ord.No.
S Acar P7	68933

## Socket Strip ACAR F5 with Overvoltage Protection



- 5-way socket with protective pin /45°angle
- extension cord with automatic fuse
- power switch with indicator and voltage "in operation" indicator
- 4 different ways of cable placing
- cable length: 3m

Technical Parameters	ACAR F5
Operating Voltage	230V
Frequency	50Hz
Rated Load Current	10A
Max. Earth-Leakage Current I <sub>max</sub>	6,5kA
Fuses	aut.10A/250V
Leakage Current	<0,5mA
Protection	2P+Z
Socket Material	self-extinguishing plastic
Response Time of Surge Arrester	<25ns
UP Protection Level of Suppression Circuit	<=1.3kV
Energy Absorption	150J

Part No.	Ord.No.
S Acar F5	68937

## Surge Suppressor Adaptors

### AXON Protector 180 Satellite



- surge suppressor adaptor
- 3 flat sockets
- protection of TV sockets (SAT receivers)
- child protection
- orange indicator of proper functionality
- SAT cable included in delivery

+SAT cable

Technical Parameters	AXON 180
Operating Voltage	230V
Frequency	50Hz
Rated Load Current	10A
Max. Earth-Leakage Current I <sub>max</sub>	6,5kA
Fuses	-
Leakage Current	<0,5mA
Response Time of Surge Arrester	<0,25ns
UP Protection Level of Suppression Circuit	<=1,3kV
Energy Absorption	150J

Part No.	Ord.No.
0 Acar 180 Satellite	68943

### AXON Protector 170 TV/TNT

NEW!



- surge suppressor adaptor
- 3 flat sockets
- protection of TV sockets (TV, audio-video, ...)
- child protection
- orange indicator of proper functionality
- SAT cab
- TV cable included in delivery

+TV cable

Technical Parameters	AXON 170
Operating Voltage	230V
Frequency	50Hz
Rated Load Current	10A
Max. Earth-Leakage Current I <sub>max</sub>	6,5kA
Fuses	-
Leakage Current	<0,5mA
Response Time of Surge Arrester	25ns
UP Protection Level of Suppression Circuit	<=1,3kV

Part No.	Ord.No.
0 Acar 170 TV/TNT	68942

## Overvoltage Protection (continued)

### Surge Suppressor Adaptors (continued)

#### ACAR 107 ADSL



- surge suppressor adaptor
- 3 flat sockets
- protection of RJ telephone sockets (phone, ADSL modem, fax ...)
- child protection
- orange indicator of proper functionality
- connecting cable included in delivery

RJ11

Technical Parameters	ACAR 107 ADSL
Operating Voltage	230V
Frequency	50Hz
Rated Load Current	10A
Max. Earth-Leakage Current I <sub>max</sub>	6,5kA
Fuses	-
Leakage Current	<0,5mA
Response Time of Surge Arrester	25ns
UP Protection Level of Suppression Circuit	<=1,3kV

Part No.	Ord.No.
o Acar 107 ADSL	68941

#### ACAR 105



- surge suppressor adaptor
- 3 flat sockets
- child protection
- orange indicator of proper functionality

Technical Parameters	ACAR 105
Operating Voltage	230V
Frequency	50Hz
Rated Load Current	10A
Max. Earth-Leakage Current I <sub>max</sub>	6,5kA
Fuses	-
Leakage Current	<0,5mA
Response Time of Surge Arrester	25ns
UP Protection Level of Suppression Circuit	<=1,3kV

Part No.	Ord.No.
o Acar 105	68940

## Overvoltage Protections for PC Networks

### AXON MultiNET Protector



- protects up to 8 devices connected to Ethernet 10/100 Mb/s
- protects all 4 pairs of wires in UTP cable
- eliminates interfaces in telecommunication network
- 8 single protections with RJ-45 connectors
- grounding recommended

Technical Parameters	AXON MultiNET
Operating Voltage	0-20V
Max. Continues Operating Voltage U <sub>c</sub>	25V
Max. Earth-Leakage Current I <sub>max</sub>	135A wire - ground/ wire-wire 8/20µs
Sockets	RJ-45
Protected Lines	1-2, 3-6, 4-5, 7-8

Part No.	Ord.No.
o AXON MultiNET Protector	68948

### AXON NET Protector Air



- protects devices connected to Ethernet network 10/100 Mb/s
- the first level of protection for wireless connection
- protects all 4 pairs of wires in UTP cable
- eliminates interfaces in network
- grounding recommended

Technical Parameters	AXON NET AIR
Operating Voltage	5V
Max. Continues Operating Voltage U <sub>c</sub>	60V
Max. Earth-Leakage Current I <sub>max</sub>	5kA 8/20µs
Sockets	RJ-45 (8P8C)
Protected Lines	1-2, 3-6, 4-5, 7-8

Part No.	Ord.No.
o AXON NET Protector Air	68945

### AXON NET Protector



- protects devices connected to Ethernet network 10/100 Mb/s
- protects all 4 pairs of wires in UTP cable
- eliminates interfaces in network
- grounding recommended

Technical Parameters	AXON NET Protector
Rated Voltage	5V
Max. Continues Operating Voltage U <sub>c</sub>	6V
Max. Earth-Leakage Current I <sub>max</sub>	135A 8/20µs wire-wire/ wire-grounding
Sockets	RJ-45
Protected Lines	1-2, 3-6, 4-5, 7-8

Part No.	Ord.No.
o AXON NET Protector	68944

Please find more information  
about overvoltage protection products on  
[www.soselectronic.com](http://www.soselectronic.com)

## AXON ISDN Protector



ISDN

- protects devices connected to ISDN network
  - eliminates interfaces in network
  - grounding recommended
- Typical applications:  
ISDN phones, NT terminals, PC with ISDN modem

Technical Parameters	AXON ISDN Protector
Rated Voltage	120V
Max. Continuous Operating Voltage U <sub>c</sub>	150V
Max. Earth-Leakage Current I <sub>max</sub>	10kA 8/20μs
Sockets	RJ-45
Protected Lines	4-5, 3-6

Part No.	Ord.No.
o AXON ISDN Protector	68946

## AXON ADSL Protector



ADSL

- protects devices connected to ADSL network
- eliminates interfaces in telecommunication network
- grounding recommended

Technical Parameters	AXON ADSL Protector
Rated Voltage	120V
Max. Continuous Operating Voltage U <sub>c</sub>	150V
Max. Earth-Leakage Current I <sub>max</sub>	10kA wire - grounding 8/20μs
Sockets	RJ-11
Protected Lines	3-4 (middle)

Part No.	Ord.No.
o AXON ADSL Protector	68947

## Timers

### LCD Digital Timer CH 54021



- ON-OFF programming of home appliances
- up to 140 ON-OFFs weekly
- random on/off time option
- LCD displays set-ups and actual time
- dimensions: 100x55x35mm

Technical Parameters	LCD Digital Timer CH 54021
Power Supply	230VAC, 50Hz
Max. Power Output	2000W resistive load
Timing Interval	1 minute
Protection Class	IP20

Part No.	Ord.No.
s CH 54021	67917

### LCD Digital Timer CH 54027 Schuko



DE socket

- ON-OFF programming of home appliances
- up to 140 ON-OFFs weekly
- random on/off time option
- LCD displays set-ups and actual time
- operating temperature: 0 - 55°C

Technical Parameters	LCD Digital Timer 54027 Schuko
Power Supply	230VAC, 50Hz
Max. Power Output	2000W resistive load
Timing Interval	1 minute
Protection Class	IP20

Part No.	Ord.No.
s CH 54027 Schuko	69712

### Analog Timer CH 54010



- daily ON-OFF programming of home appliances
- 15-minutes programming interval period
- dimensions: 100x55x25mm

Technical Parameters	Analog Timer CH 54010
Power Supply	230VAC, 50Hz
Max. Power Output	3500W resistive load
Timing Interval Period	15 minutes
Protection Class	IP20

Part No.	Ord.No.
s CH 54010	67916

Please find more information  
about overvoltage protection products on  
[www.soselectronic.com](http://www.soselectronic.com)

## dLAN Mains Supply Network

Fastes - 200Mbit/s



### dLAN 200 AV Wireless G



Starter Kit

- HomePlug AV adapter which combines the advantages of dLAN and WLAN in one device
- Use as WLAN access point – every electrical outlet in the house becomes a WLAN connection (802.11b and g) – optimum WLAN coverage throughout the entire house
- Wireless network and internet access throughout the entire house – simply using internet and computer network via the electrical wiring – no new cables, no drilling, no mess
- 4-Port Ethernet Switch for the direct connection of further PCs and network devices
- Transfer rates of up to 200 Mbps via electrical wiring and up to 54 Mbps via WLAN – wireless surfing throughout the entire house
- QoS features: guarantees transmission quality by automatically prioritising data (WMM/ 802.11e)
- Full IPTV support
- Send videos in HDTV quality through the electrical wiring in your home
- Range: 300m via WLAN, 200m via electrical wiring
- Dynamic WLAN channel selection depending on the current WLAN environment
- WLAN can be enabled/disabled

#### Technical Parameters

<b>Standards</b>	Wireless specification IEEE 802.11b,g HomePlug standard AV Ethernet standard IEEE 802.3/x/u, Auto MDI /MDI-X
<b>Protocols</b>	DHCP (Client), APIPA, devolo Auto IP, ARP, ICMP, TCP/IP, UDP (IP), WMM, 802.11e, Ethernet Bridge 802.1D
<b>Transmission speed</b>	200 Mbps over power supply grid 54 Mbps over Wireless
<b>Modulation</b>	Power supply grid: OFDM - 1155 carriers, 24/256/64-QAM, QPSK, BPSK Wireless: 802.11b: DSSS (Direct Sequence Spread Spectrum), 802.11g: OFDM (Orthogonal Frequency Division Multiplexing)
<b>Range</b>	200 m over power supply grid, up to 300 m over Wireless
<b>Security</b>	128-bit AES encryption over power supply grid
<b>LEDs</b>	Power/ dLAN / WLAN / ETH
<b>LAN connections</b>	dLAN: EURO mains plug WLAN: two rotating 2.4 GHz antennas Ethernet: 4 x RJ45 with 2 LEDs each (4-port switch)
<b>Power consumption</b>	8 W
<b>Power supply</b>	Integrated supply via power socket Rated voltage: 100 to 240V AC Nominal current: 0.16 A
<b>Dimensions/Weight</b>	37 x 198 x 168 mm/ 532 g

Part No.	Description	Ord.No.
o dLAN 200 AV Wireless G	HomePlug AV adapter with integrated Wireless LAN access point	73373
o dLAN 200 AV Wireless G KIT FR socket	HomePlug adapter with integrated WLAN access point +dLAN® 200 AVeasy	73376

### dLAN 200 AV plus



NEW!



Starter Kit

- dLAN 200 AVplus quickly and easily establishes a network connection over the household electrical wiring
- Simple plug-and-play connection between the routers, computers and other network-compatible devices
- The integrated electrical socket enables additional terminal devices or multiple sockets to be connected to the adapter just like to a normal wall socket – no power supply is lost
- The integrated mains filter improves data transmission in the home network
- The "Quality of Service" function and transfer rates of up to 200 Mbps are enough for bandwidth-hungry applications
- Automatic data prioritisation ensures interference-free reproduction of voice and video data
- Easy data encryption at the touch of a button
- The patented power saving mode automatically uses up to 30% less power
- Compatible with all devolo dLAN 200 AV adapters
- Long data range of 200 m between the adapters and reliable network speed for setting up a home network
- LED Quality Indicator for displaying bandwidth status

#### Technical Parameters

<b>Standards</b>	Ethernet specifications IEEE 802.3, IEEE 802.3x, IEEE 802.3u, Auto MDI / X HomePlug AV
<b>Protocols</b>	CSMA/CA over power supply grid
<b>Transmission speed</b>	200 Mbps/ asynchronous
<b>Modulation</b>	OFDM - 1155 carriers, 1024/256/64-QAM, QPSK, BPSK
<b>Data path</b>	Ethernet <-> power supply grid
<b>Range</b>	200 m
<b>Security</b>	128-bit AES encryption over power supply grid
<b>LEDs</b>	Power/ Ethernet/dLAN
<b>Power output at integrated socket</b>	230 V / 16 A maximum
<b>Device port</b>	Ethernet RJ45
<b>Power consumption</b>	5 W (max.), 3,3 W in standby
<b>Power supply</b>	AC 100-240V 50/60Hz
<b>Damping filter</b>	2 - 30 MHz/ -22 dB to -45 dB
<b>Dimensions/Weight</b>	130 x 66 x 42 mm/240g

Part No.	Description	Ord.No.
o dLAN 200 AV plus FR socket	1xadapter, 1xcable	73387
o dLAN 200 AV plus DE socket	1xadapter, 1xcable	73384
o dLAN 200 AV plus KIT FR socket	2xadapter, 2xcable	73391
o dLAN 200 AV plus KIT DE socket	2xadapter, 2xcable	73388

### dLAN 200 AV easy



NEW!



Starter Kit

- Out of the box. Into the wall outlet. Network. Simple plug-and-play networking of a range of devices via the household power grid
- Encryption at the touch of a button
- Up to 200 Mbps – ideal for Triple Play applications such as IPTV, video-on-demand, VoIP telephony and high-speed Internet access
- 200-meter range. In the office or at home – in any room of the house.
- Quality of Service (QoS) – guarantees transmission quality by automatically prioritizing data
- Patented power-saving mode automatically reduces standby power consumption by up to 30%

#### Technical Parameters

<b>Standards</b>	Ethernet specifications IEEE 802.3, IEEE 802.3x, IEEE 802.3u, Auto MDI / X HomePlug AV
<b>Protocols</b>	CSMA/CA over power supply grid
<b>Transmission speed</b>	200 Mbps/ asynchronous

<b>Modulation</b>	OFDM - 1155 carriers, 1024/256/64-QAM, QPSK, BPSK
<b>Data path</b>	Ethernet <-> power supply grid
<b>Range</b>	200m
<b>Security</b>	128-bit AES encryption over power supply grid
<b>LEDs</b>	Power/Ethernet/dLAN
<b>dLAN port/device port</b>	EURO mains plug/ Ethernet RJ45
<b>Power consumption</b>	5 W (max.), 3.3 W in standby
<b>Power supply</b>	AC 100-240V 50/60Hz
<b>Dimensions/Weight</b>	80 x 65 x 40 mm/ 148 g (per adapter)

Part No.	Description	Ord.No.
O dLAN 200 AV easy FR socket	1xadapter, 1xcable	73379
O dLAN 200 AV easy KIT FR socket	2xadapter, 2xcable	73382

## Faster - 85Mbit/s

**The faster dLAN®** Up to **85 Mbit/s**

Internet, PC or game console: linked together quickly and easily over the existing electrical wiring

### dLAN 85 HS plus



Starter Kit

- The dLAN 85 HSplus quickly and easily establishes a network connection over the household electrical wiring.
- Simple plug-and-play connection between the routers, computers and other network-compatible devices.
- The integrated electrical socket enables additional terminal devices or multiple sockets to be connected to the adapter just as a normal wall socket—no power supply is lost.
- The integrated mains filter significantly improves data transmission in the home network.
- The "Quality of Service" function and transfer rates of up to 85 Mbps are enough for bandwidth-hungry applications, e. g. online gaming, VoIP telephony and Internet media. Automatic data prioritisation ensures interference-free reproduction of voice and video data.
- Reduced energy consumption with patented power save mode
- No configuration is necessary—plug the dLAN 85 HSplus into the power outlet, connect it to your computer via the network cable and you are ready to go.
- User-friendly software for PC (Windows XP/Windows Vista), Mac and Linux allows individual network encryption for even more security

#### Technical Parameters

<b>Standards</b>	Ethernet specifications IEEE 802.3, IEEE 802.3x, IEEE 802.3u, Auto MDI / X backward-compatible to HomePlug standard 1.0
<b>Protocols</b>	CSMA/CA
<b>Transmission speed</b>	85 Mbps/ asynchronous
<b>Modulation</b>	OFDM - 84 carriers
<b>Data path</b>	Ethernet <-> power supply grid
<b>Range</b>	200 m
<b>Security</b>	DESpro encryption over household power supply grid
<b>LEDs</b>	Power/Ethernet /dLAN
<b>Power output at integrated socket</b>	230 V / 16 A maximum
<b>Device port</b>	Ethernet RJ45
<b>Power consumption</b>	5 W (max.), 3,3 W in standby
<b>Power supply</b>	AC 100-240V 50/60Hz
<b>Damping filter</b>	2 - 30 MHz/ -22 dB to -45 dB
<b>Dimensions/Weight</b>	130 x 66 x 42 mm/240g

Part No.	Description	Ord.No.
O dLAN HS plus DE socket	1xadapter, 1xcable	73418
S dLAN HS plus FR socket	1xadapter, 1xcable	73421
O dLAN HS plus KIT DE socket	2xadapter, 2xcable	73423
S dLAN HS plus KIT FR socket	2xadapter, 2xcable	73426

### dLAN Highspeed Ethernet II



Starter Kit



Network Kit

- Perfectly informed with the new, clearly arranged 3-LED status display.
- Reduced energy consumption thanks to the patented power save mode: energy consumption is reduced by 30% in standby mode.
- Long range of 200 m (656') in buildings - dLAN works in every room, anywhere in the building.
- High transfer rates of up to 85 Mbps thanks to the HomePlug technology.
- Setting up your home network is easy with additional network-compatible devices such as network printers or NAS hard drives and the dLAN adapters by devolo.
- No configuration is necessary - plug the adapter into the power outlet, connect it to your computer via the network cable and you are ready to go.
- High interception protection thanks to DESpro encryption.
- For pros: Configuration software for PC (Windows XP /Windows Vista), Mac and Linux is included.
- Full compatibility with devolo adapters of the first HomePlug generation (14 or 85 Mbps).

#### Technical Parameters

<b>Standards</b>	Ethernet specifications IEEE 802.3, IEEE 802.3x, IEEE 802.3u, Auto MDI / X backward-compatible to HomePlug standard 1.0
<b>Protocols</b>	CSMA/CD
<b>Transmission speed</b>	85 Mbps/ asynchronous
<b>Modulation</b>	OFDM - 84 carriers
<b>Range</b>	200 m
<b>Security</b>	DESpro encryption over household power supply grid
<b>LEDs</b>	Power/Ethernet /dLAN
<b>Device port</b>	Connector type: RJ 45
<b>Power consumption</b>	4,5 W (max.)
<b>Power supply</b>	100 - 240 V AC/0,06 A
<b>System requirements</b>	Ethernet port
<b>Dimensions/Weight</b>	82 x 66 x 41 mm/125g

Part No.	Description	Ord.No.
S dLAN HSE II FR socket	1xadapter, 1xcable	73405
S dLAN HSE II Starter Kit FR socket	2xadapter, 2xcable	73410
O dLAN HSE II Network Kit FR socket	3xadapter, 3xcable	73423

### dLAN Wireless extender



Starter Kit

- Use as access point: Every socket becomes a WLAN access point - optimum WLAN coverage throughout the house
- Up to 85 Mbit/s transfer rate via the power circuit, up to 54 Mbit/s via wireless LAN
- 200 metre range via the power circuit, 300 metre range via wireless LAN - wireless network and Internet access in every room of the house
- Ethernet interface for direct connection of a PC
- Use as client: Data transmission from an access point to the internal power circuit and thus connection of remote PCs to the WLAN network

#### Technical Parameters

<b>Standards</b>	Wireless specification IEEE 802.11b,g HomePlug standard 1.0 Turbo Ethernet standard IEEE 802.3/x/u, Auto MDI /MDI-X
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## dLAN Wireless extender (continued)

Protocols	CSMA/CD
Data transfer rate	85 Mbps over powerline, 54 Mbps via wireless
Modulation	OFDM - 84 carriers via powerline, DSSS - via wireless
Range	200 m via powerline, up to 300 m via wireless
Security	DESpro encryption via powerline WEP, WPA, WPA2 via wireless
LEDs	Power/Ethernet /dLAN/wLAN
LAN connections	dLAN: EURO power plug WLAN: Coaxial connector with removable, rotatable 2.4 GHz antenna Ethernet: RJ45
Power consumption	6,5 W
Power supply	Integrated supply from plug socket Rated voltage: 100 – 240 V AC Rated current: 0,11 A
Dimensions/Weight	95 x 70 x 47mm/432g

Part No.	Description	Ord.No.
S	dLAN Wireless extender FR socket	Wireless extender 73413
S	dLAN Wireless extender Kit FR socket	Wireless extender + dLAN HS Ethernet II 73410

## Fast - 14Mbit/s

The fast dLAN® Up to 14 Mbit/s  
Easier data transfer via existing electrical wiring

## dLAN duo

- Option of Ethernet or USB port
- Power-save mode
- Installation and configuration software for Windows, Mac and Linux
- 6 signal LEDs display operating status
- 200 m range, depending on design and architecture
- Transfer rates of up to 14 Mbps
- Interception protection with DESpro encryption



Starter Kit

Technical Parameters	
Standards	Ethernet specifications IEEE 802.3, IEEE 802.3x, IEEE 802.3u, Auto MDI / X compatible with USB specification, Rev. 1.1, HomePlug standard 1.0
Protocols	CSMA/CD
Transmission speed	14 Mbps/ asynchronous
Modulation	OFDM - 84 carriers
Range	200 m
Security	DESpro encryption over household power supply grid
LEDs	3 port / 3 dLAN status
Device port	Connector type: RJ 45 or USB 1.1
Power consumption	4,5 W (max.), 3 W on stand-by
Power supply	AC 100-240 V 50/60 Hz
Damping filter	2 – 30 MHz/ -22 dB to -45 dB
Dimensions/Weight	80 x 63 x 37 mm/130MM

Part No.	Description	Ord.No.
O	dLAN duo FR socket	1x duo adapter 73399
S	dLAN duo Kit FR socket	2x duo adapter 73402

## dLAN TV World

The dLAN® TV world In HD quality  
Satellite TV everywhere - Without antenna cable over the electrical wiring

## dLAN TV SAT



Starter Kit

- The first satellite receiver with HomePlug technology. The satellite signal is distributed to every socket in the house by the satellite antenna – easily, over the electrical wiring.
- Watch digital satellite TV on your PC – in HD quality
- Latest-generation DVB-S2 tuner
- Comprehensive application software
- Record and save MPEG-2 video sequences on your computer
- Quality of Service (QoS): constantly high reception quality with signal distribution over the electrical wiring
- The remote control turns your PC into a media centre
- High transmission rates up to 200 Mbps for smooth-flowing television pictures
- Dolby Surround Sound support (AC3)
- Electronic Programme Guide (EPG)
- Time-shifted television

Technical Parameters	
Standards	Ethernet specifications IEEE 802.3, IEEE 802.3x, IEEE 802.3u, Auto MDI / X, HomePlug AV DVB-S, DVB-S2
Protocols	CSMA/CA over power supply grid
Transmission speed	200 Mbps/ asynchronous
Modulation	OFDM - 1155 carriers, 1024/256/64-QAM, QPSK, BPSK
Range	200 m
Security	128-bit AES encryption over power supply grid
LEDs	On/Connect/Ethernet/Power supply
Device port	F-jack (coax), Ethernet RJ45, Hollow plug (OD: 5.5mm/0.217", ID: 2.1mm/0.083")
Power consumption	30 W
Power supply	12V, 1.5A
Electric power supply	200 – 240 V
Dimensions/Weight	30 x 117 x 191 mm/762g

Part No.	Description	Ord.N.
O	dLAN TV SAT TV Sat receiver with mains adapte +RC	73428
O	dLAN TV SAT TV Sat receiver with mains adapte +RC + dLAN® 200 AVeasy with Ethernet cable	73429

dLAN Audio World



dLAN Audio Extender



- Connect your PC to your HiFi entertainment system or active speakers over the household power circuit.
- Listen to music on your hard drive anywhere in the house
- Playback via HiFi system or active speakers
- Connect your HiFi system or active speakers to the dLAN Audio extender using an RCA or mini-jack cable
- Share the sound of any audio media throughout the house: songs, voice, audiobooks etc.
- Transmission of most audio file formats, e.g. MP3, WMA, WAV and AAC
- Audio transmission range: 200m over the power circuit
- Supports a wide range of music servers such as Windows Media Player, Apple iTunes (on Windows XP) or Winamp



Starter Kit

Technical Parameters		
Standards	HomePlug Standard 1.0	
Protocols	CSMA/CD via mains network	
Audio data rate	16 bit, 44.1 KHz stereo CD quality	
Transmission procedure	Asynchronous via mains network	
Network buffer	1 sec	
Modulation	OFDM - 84 carrier (Orthogonal Frequency Division Multiplexing) via mains network	
Range	200 m	
Security	DESpro encryption via mains network	
LEDs	Power/dLAN/Sound Link	
dLAN connection	EURO network plug	
Audio interface	Connection type: - Line-out: 2 x cinch, 1 x pin - Signal/interference distance analogue out: 87db - Output distortion factor (THD): 0.01% @ 1KHz - RL > 3k Ohm	
Power consumption	4 W (max.)	
Voltage supply	Integrated supply via plug: Nominal voltage: 110 - 240V AC Nominal power: 50 mA / 230V + 80 mA / 110	
Dimensions/Weight	80 x 65 x 40 mm/158g	
Part No.	Description	Ord.
S dLAN Audio extender	dLAN Audio extender	73393
S dLAN Audio extender Kit	dLAN Audio extender + dLAN duo HomePlug adapter	73396

PC Accesories

Bluetooth USB Dongle-04C



Dongle-04C is designed for PCs without integrated bluetooth interface. Communicates with different bluetooth devices as mobil phones, PDA or PC data transmission, networking, dial-up and fax.

Technical Parameters	Dongle-04C
Supporting Profiles	Bluetooth V2.0, V1.1 a V1.2, networking, Dial-up, Fax, LAN access, Headset
For operating system	Windows 2000, XP
Interface	USB 2.0, 1.1
Baud Rate	3Mbps
Receiving/Sending Range	20m
Part No.	Ord.No
S DONGLE-04C	62802

Bluetooth USB Dongle-06H



The Smallest USB Bluetooth Dongle Only 1.5cm length  
 Standard: Bluetooth specification V1.2&2.0 compliant  
 Quick and inexpensive solution for data transfer  
 Tested compatibility with Bluetooth enabled mobile phones, PDAs, headsets and other Bluetooth devices  
 Create a wireless internet connection between your device and laptop/PC  
 Plug and play installation  
 This product is compatible with: All Bluetooth Phones including:  
 Nokia, Motorola, Sony Ericsson, LG, Samsung, Blackberry, Qtek, BenQ  
 This product is certified with CE.

Technical Parameters	Dongle-06H
Supporting Profiles	Networking, Dial-up, Fax, LAN access, and headset
For operating system	Windows 98, 98se, Me 2000, XP, Vista
Interface	USB compliance
Baud Rate	3Mbps
Receiving/Sending Range	0-100m
Part No.	Ord.No
S DONGLE-06H	72240

SD/MMC Card Reader SR-04



External Card Reader USB 2.0  
 -according to USB 2.0 specification  
 -supports USB high speed 480Mbps  
 -Plug & Play and hot-swapping capability  
 -the following media types are supported: SD Card Series (incl. SD HC), MMC Card Series  
 -mini cards (with adaptor)  
 -USB powered  
 -OS: WIN 98SE/ ME/ 2000/ XP / Vista and Mac OS 9.2 or higher

Part No.	Ord.No
S SR-04	64903

SD/MMC Card Reader SR-06



-compact, ideal for Notebooks  
 -full USB 2.0 and USB 1.1 support  
 -LED signal for power, reading and writing  
 -Plug & Play  
 -for following memory cards:  
 SD / SDHC / MMC / RSMC / DV-RSMC with adapter (optional)  
 also Mini SD / T Flash / Micro SD / MMC compatible  
 -system requirement: Windows 98SE / ME / 2000 / XP / VIST, Linux Core 2.4 and MAC OS 8.6 or higher

Part No.	Ord.No
S SR-04	64903



## Weather Stations

Nexus



433MHz/100m



- wireless weather station
- transmission of outdoor values wireless (max. 100 m),
- display of outdoor temperature and humidity, rainfall quantity, wind velocity and direction, indoor temperature and humidity with comfort level indicator,
- absolute and relative atmospheric pressure with 24 hours history,
- weather forecast and tendency of atmospheric pressure,
- bar graph indication of atmospheric pressure, temperature or humidity for the last 24 hours,
- calculation of Windchill factor and dew point, max.-min.-function,
- programmable alarm functions for certain weather conditions like temperature alarm, storm warning,
- radio controlled clock with different alarms and snooze function,
- display of date and weekday (6 languages), time of sun rising and setting, indication of moon phase,
- data memory for 3000 weather records,
- PC- Interface with analysis software package,
- LED backlight with light sensor
- measuring range temperature outdoor -40...+80°C (-40...+176°F), indoor -10...+60°C (14...+140°F), reversible °C/°F, humidity 1...99%,
- for hanging or standing,
- equipment: thermo-hygro-sensor, wind sensor, rain sensor, CD-ROM (English/German), USB cable, power adapter 7.5 V AC/DC,
- expandable up to 5 thermo-hygro-sensors 30.3150
- 220 x 165 x 32 mm, 2670 g

Part No.	Ord.No.
s NEXUS	63067

### Oregon Crystal



3D

The worlds first weather station with laser engraved 3D icons in crystal. View the weather forecast at a glance with 3D icons illuminated by colour light.

- Radio Controlled time
- Change the display mode between time and indoor temperature with just a wave of your hand
- IR sensor sensitivity: 1,3 to 8 cm
- Easy to read animated display of indoor temperature & time (measuring temperature range: -5 to 50°C)
- Sleek & modern design
- AC Adapter included
- Dimensions: 177 x 112 x 40mm
- Colour: Black/Clear
- crystal part weight: 860g
- basic part weight: 260g

Part No.	Ord.No.
s OREGON CRYSTAL	61251

### Image



868MHz/30m



Digital Weather Station/Photo Frame. Introducing the first-ever photo frame that gives you a local weather forecast! This 7" TFT screen is switchable between a slide show of your digital photos and an innovative full-colour display of current weather and 24-hour forecast, all operated by a sleek compact remote control. It can be wall mounted or free standing.

- 128MB Internal memory, supports memory cards SD/MMC/XD/Memory Stick/Pro Duo/Compact Flash/CF I/II/Smart Media for additional memory
- Slide show intervals 1-60 seconds
- Resolution 480 x 234
- Supports JPEG
- Full colour weather icons
- Indoor/outdoor temperature and humidity, outdoor sensor for temp/humidity, range 90° (30m), atmospheric pressure trend with 24-hour memory
- Moon phase, sunrise and sunset, calendar, day/date and alarm
- Mains powered, or uses 3 AAA batteries; remote uses 2AAA batteries
- Dimensions: 220 x 165 x 32 mm, 2670 g
- 30.3162 sensor

Part No.	Ord.No.
o IMAGE	70683

### Vega



868MHz/100m



- wireless weather station
  - transmission of outdoor values wireless (max. 100 m) with new IT technology,
  - display of outdoor temperature and humidity,
  - weather forecast,
  - tendency of atmospheric pressure, relative atmospheric pressure,
  - bar graph indication of the last 12 hours,
  - rainfall quantity, wind velocity and direction,
  - Windchill factor,
  - max.-min.-function with time and date,
  - programmable alarm functions for certain weather conditions like temperature alarm, storm warning,
  - clock with alarm and date,
  - data memory for 200 measurements for all parameters,
- Measuring range:**  
 temperature -40...+60°C  
 humidity 1...99%,  
 • for hanging or standing,  
 • 30.3141 sensor
- Equipment:** thermo-hygro-sensor, wind sensor and rain sensor with connecting cables, batteries 3 x 1,5 V AA display station, 2 x 1,5 V AA transmitter  
 • dimensions: 165 x 142 x 32, 1950 g

Part No.	Ord.No.
s VEGA	57911

### Sinus



100m



The TFA Sinus Weather Station is an excellent low priced professional weather station that combines the latest environmental measuring and computer technology, enabling you to record, review and store an array of weather information.

- Wireless transmission of outdoor values (max. 100 m)
  - Display of outdoor temperature and humidity, indoor temperature and humidity with comfort level indicator
  - Absolute and relative atmospheric pressure with 24 hours history
  - Weather forecast and tendency of atmospheric pressure
  - Bar graph indication of atmospheric pressure
  - Temperature in °C/°F
  - Temperature or humidity for the last 24 hours
  - Rainfall quantity
  - Wind velocity and direction
  - Windchill factor and dew point, max.-min.-function
  - Programmable alarm functions for certain weather conditions like temperature alarm, storm warning
  - Radio controlled clock with different alarms and snooze function
  - Display of date and weekday (6 languages)
  - Time of rising and setting of sun and moon
  - Indication of moon phase
  - Data memory for 200 weather records
  - PC- Interface with analysis software package
  - LED backlight
  - Expandable up to 5 thermo-hygro-sensors 30.3150
- Measuring ranges:**  
 • Outdoor temperature -40...+80°C  
 • Indoor temperature -10...+60°C  
 • Humidity 1...99%,  
 Wall or desk mountable
- Included equipment:** thermo-hygro-sensor  
 wind sensor, rain sensor, USB cable  
 batteries 4 x 1.5 V AA display station  
 2 x 1,5 V AA thermo-hygro-sensor  
 2 x 1,5 V AA wind sensor  
 2 x 1,5 V AA rain sensor  
 Dimensions: 136 x 185 x 62 mm  
 Weight: 2500 g

Part No.	Ord.No.
s SINUS	73786

## Red Lava



433MHz/75m



- wireless weather station
  - animated display,
  - display colour changes according to the weather forecast from red (sunny) to pink (cloudy) and white (rainy) or permanent display colour,
  - backlight in continuous operation (with power adapter), by IR motion sensor or remote control (standard model, not included),
  - transmission of outdoor temperature via up to 5 transmitters (max. 75 m),
  - indication of indoor temperature and humidity,
  - max.-min.-function,
  - weather forecast by symbols,
  - tendency of atmospheric pressure,
  - relative atmospheric pressure with 24 hours history,
  - bar graph indication of the last 24 hours,
  - radio controlled clock with alarm and date,
  - indication of moon phase,
  - reversible °C/°F,
  - for hanging or standing,
  - with metal base,
  - 30.3145 sensor
- Measuring range:**
- indoor temperature: -10°C to +60°C
  - outdoor temperature: -50°C to +70°C
  - recommended op.temp.: -20°C to +60°C
  - humidity: 25 to 95% RH
  - batteries: 4x 1,5V AA for the station  
2x 1,5V AAA for sensor (supplied)

Part No.	Ord.No.
S RED LAVA	57909

## Sculpture



433MHz/75m



"SCULPTURE" wireless weather station

- animated display
  - display colour changes according to the weather forecast from display colour orange (sunny), violet (cloudy) and blue (rainy)
  - backlight in continuous operation (with power adapter)
  - by IR motion sensor or remote control (standard model, not included)
  - time of sun rising and setting (for more than 150 European cities)
  - sun and moon position
  - transmission of outdoor temperature via up to 5 transmitters (max. 75 m)
  - indication of indoor temperature and humidity
  - max.-min.-function
  - weather forecast by symbols
  - tendency of atmospheric pressure
  - relative atmospheric pressure with 24 hours history
  - bar graph indication of the last 24 hours
  - radio controlled clock with alarm and date
  - indication of moon phase
- Measuring range:**
- temperature: outdoor -50...+70°  
indoor -10...+60°C
- humidity 25..95 %
- for hanging or standing
  - with metal base
- Included in delivery:**  
Outdoor temperature transmitter 30.3145  
Batteries 4 x 1,5 V AA display station,  
2 x 1,5 V AAA transmitter  
Power adapter

Part No.	Ord.No.
S SCULPTURE	64245

Please find current list of weather-stations on  
[www.soselectronic.com](http://www.soselectronic.com)



## Diva Plus



868MHz/100m



- DIVA PLUS Wireless weather station
- humidity via up to 3 transmitters (max. 100 m)
  - indication of indoor temperature and humidity
  - max.-min.-function
  - weather forecast
  - tendency of atmospheric pressure
  - bar graph indication of atmospheric pressure of the last 24 hours
  - radio controlled clock with date, time zone ±12 hrs.
- Measuring range:**  
temperature outdoor : -40...+60°C  
indoor -10...+60°C
- reversible °C/°F  
humidity 1..99 %,  
• for hanging or standing
- Included in delivery:**  
Temperature and humidity transmitter 30.3144.IT

Part No.	Ord.No.
S DIVA PLUS	62660

## Linear



NEW!



- transmission of outdoor temperature via up to 3 transmitters (max.100 m),
  - indication of indoor temperature and humidity, comfort level, max.-min.-function,
  - weather forecast, tendency of atmospheric pressure, bar graph indication of the last 12 hrs, radio controlled clock, date,
- Measuring range:**  
temperature: outdoor -40...+60°C  
indoor -10...+60°C
- reversible °C/°F  
humidity 1...99 %,  
time zone ±12 hrs, DCF-off-function,  
• for hanging or standing,  
• fine aluminium facing
- Dimensions: 235 x 99 x 68 mm,  
Weight: 540g
- Included in delivery:**  
Outdoor temperature transmitter 30.3147IT,  
batteries:  
3 x 1.5 V AA display station  
2 x 1.5 V AA transmitter

Part No.	Ord.No.
S LINEAR	49902

## Laluna



NEW!



- "laluna" wireless weather station
- outdoor temperature and humidity wireless via up to 3 transmitters (max. 100 m),
  - indoor temperature and humidity,
  - comfort level,
  - max.-min.-function,
  - weather forecast,
  - tendency of atmospheric pressure, relative atmospheric pressure,
  - history for the past 24 hours,
  - radio controlled clock with alarm and snooze function,
  - date, moon phase,
  - LED backlight,
- Measuring range:**  
temperature: outdoor -40...+60°C  
indoor -10...+60°C
- reversible °C/°F  
humidity 1...99 %,  
time zone ±12 hrs, DCF-off-function,  
• for hanging or standing,  
• fine aluminium facing,

**Included in delivery:**  
outdoor temperature and humidity transmitter 30.3144.IT,  
batteries:  
3 x 1.5 V AA display station,  
3 x 1.5 V AA transmitter  
2  
Dimensions: 30 x 118 x 30 mm, 160 x 43 x 28 mm,  
Weight: 545 g

Part No.	Ord.No.
S LALUNA	58541

## Weather Stations (continued)

### Meteotronic Pro

**NEW!**



90 regions forecast

The Meteotronic Weather Forecast Centre provides a professional weather forecast for the current and next 3 days. The weather forecasts are made by professional meteorologists and are sent out with the radio time signal DCF77. This signal can be received in almost all of Europe which is divided into 90 meteorological regions. The desired region for your local or holiday location can be simply selected and the current weather forecast will be displayed. On each of the days it will show a weather forecast icon for what the weather should be that day and for the next 3 days. Also shown is a weather icon for what the weather will be that night.

Maximum and minimum temperature readings will be displayed for all 4 days, as well as the probability percentage for rain that day and also the wind direction and strength.

Displayed at the top of the Meteotronic Weather Forecast Centre will be your indoor temperature with time and date and it can also be used as an alarm clock. The Meteotronic Weather Forecast Centre can be used free standing or it can be wall hung. It runs on 3 AA batteries which are supplied.

- indoor temperature: range: 0 to 50°C, accuracy: ±1°C, resolution: 0,1°C
- power supply: 3x batteries LR6 AA
- dimensions (DxWxH): 142mm x 26mm x 136mm

Part No.	Ord.No.
S METEOTRONIC PRO	64247

### Focus (Mini) 868



868MHz/100m

- wireless weather station
- transmission of outdoor temperature via up to 3 transmitters (max. 100 m),
- indication of indoor temperature and humidity with comfort level,
- max.-min.-function,
- weather forecast,
- tendency of atmospheric pressure,
- radio controlled clock with date,
- measuring range temperature outdoor -40...+60°C (-40...+140°F), indoor 0...+60°C (+32...+140°F), reversible °C/°F, humidity 0...99 %,
- time zone ±12 hrs,
- DCF-off-function,
- for hanging or standing,
- silver/grey,
- equipment: outdoor temperature transmitter 30.3147.IT, batteries 2 x 1.5 V AA display station, 2 x 1.5 V AA transmitter
- dimensions: 140 x 97 x 27 mm, 127 x 38 x 18 mm, 368 g

Part No.	Ord.No.
S FOCUS (MINI) 868	63269

### Weather Pam



868MHz/100m

The TFA Weather Pam Wireless Weather Station is a very neat weather forecasting system that can measure, process and display an assortment of weather information. This compact, sophisticated weather station is perfect for viewing weather conditions at a glance and features the weather Pam character that assists in day to day forecasting by constantly changing her clothes to indicate what is happening outside (she has 15 outfits in total Bikini, scarf, coat or umbrella).

- barometric pressure tendency arrow
- forecasting icons (clouds, rain, sun, etc), based on changing barometric pressure
- indoor and outdoor temperature
- indoor humidity with minimum and maximum memory
- easy to read LCD display
- radio controlled clock and calendar (controlled by the Frankfurt antenna (DCF-77))
- an Alarm setting with snooze function
- moon phase data and sunrise and sunset times.
- display 12hr or 24hr
- calendar display
- 868 MHz transmission frequency
- transmission distance : 100 metres (in open field)

**TFA**

**TFA**

**TFA**

- times of sunset and sunrise for 39 European towns available
  - 3 forecast icons including sunny, cloudy and rain
  - weather tendency indicator
- Dimensions:  
Weather Station: 125 x 90 x 30 mm  
Colour: Silver

Part No.	Ord.No.
S WEATHER PAM	64252

### Oracle Base 868



868MHz/100m

- wireless weather station
  - transmission of outdoor temperature via up to 3 transmitters (max. 100 m),
  - indication of indoor temperature and humidity,
  - comfort level,
  - max.-min.-function,
  - weather forecast,
  - tendency of atmospheric pressure,
  - radio controlled clock, date,
  - measuring range temperature outdoor -40...+60°C (-40...+140°F), indoor -10...+60°C (-14...+140°F), reversible °C/°F, humidity 1...99 %,
  - time zone ±12 hrs,
  - DCF-off-function,
  - for hanging or standing,
  - equipment: outdoor temperature transmitter 30.3147.IT, batteries 2 x 1.5 V AA display station, 2 x 1.5 V AA transmitter
- Dimensions: 165 x 72 x 33 mm, 127 x 38 x 18 mm, 190 g

Part No.	Ord.No.
S ORACLE BASE 868	70444

### Ambiente



433MHz/30m

- wireless weather station
- transmission of outdoor temperature via up to 3 transmitters (max. 30 m), with optional sensor cable
- temperature tendency,
- adjustable temperature alarm,
- indication of indoor temperature and humidity,
- max.-min.-function,
- weather forecast,
- tendency of atmospheric pressure,
- radio controlled clock with date, alarm and snooze function,
- indication of moon phase and tidal range,
- measuring range temperature outdoor -20...+50° (-4...+122°F), indoor 0...+50°C (+32...+122°F), reversible °C/°F, humidity 20...99 %,
- time zone ±12 hrs,
- with backlight,
- for hanging or standing,
- equipment: outdoor temperature transmitter 30.3133, batteries 2 x 1,5 V AA display station, 2 x 1,5 V AA transmitter
- dimensions: 149 x 132 x 28 mm, 115 x 75 x 20 mm, 390 g

Part No.	Ord.No.
S AMBIENTE	55842

### Weather Kitty



433MHz/30m

- Features:**
- wireless weather station with high gloss white/ black piano-finish/orange colour
  - transmission of outdoor temperature via up to 3 transmitters (max. 30 m),
  - temperature tendency, adjustable temperature alarm,
  - indication of indoor temperature,
  - max.-min.-function,
  - weather forecast by symbols and "Weather Kitty" (22 variations of clothes),
  - tendency of atmospheric pressure,
  - radio controlled clock with date, alarm and snooze function,
  - indication of moon phase,
  - backlight,
  - measuring range temperature outdoor -20...+60° (-4...+140°F), indoor 0...+50°C (+32...+122°F), reversible °C/°F,
  - time zone ±12 hrs,
  - for hanging or standing,
  - equipment: outdoor temperature transmitter 30.3139, batteries 2 x 1,5 V AA display station, 2 x 1,5 V AAA transmitter



**TFA**

**TFA**

**TFA**

Part No.	Ord.No.	Description
S WEATHER KITTY BK	63354	high gloss black piano-finish
S WEATHER KITTY OG	63046	high gloss orange
S WEATHER KITTY WH	63355	high gloss white

## Diva Go 868MHz



868MHz/100m

This weather station, with its digital LCD and advanced measurement information, will look great on anyone's desk as it looks modern and stylish. It comes with a clock and date function which can be set manually or can be controlled via an atomic clock. The barometer uses the current air pressure to forecast the weather, which is indicated with a graphic icon display. Furthermore, the arrow tendency display shows whether the pressure is increasing or decreasing - further help for forecasting the weather.

- indoor and outdoor temperatures in °C or °F
  - shows the maximum and minimum temperatures of all recordings
  - shows the highest and lowest humidities
  - radio-controlled date and time
- The transmitter operates on a frequency of 868MHz over a distance of 100m. Requires 2 x AA and 2 x AAA batteries (included)

Part No.	Ord.No.
S DIVA GO 868MHz	62765

## Easy Go



868MHz/100m

- wireless thermometer
- with dual channel transmitter for wireless transmission (max. 100 m) of outdoor temperature and sensor cable (inclusive),
- one additional channel available, indication of indoor temperature,
- permanent indication of daily highest and lowest values with auto reset,
- additional max.- min. memory with manual reset and time and date of recording,
- radio controlled clock with date,
- measuring range temperature outdoor -40...+70 °C (-40...+158°F), indoor 0...+60°C (+32...+140°F), reversible °C/°F,
- for hanging or standing,
- metallic grey,
- equipment: outdoor temperature transmitter 30.3143, IT, batteries 2 x 1,5 V AAA display station, 2 x 1,5 V AAA transmitter
- dimensions: 136 x 95 x 19 mm, 128 x 41 x 19 mm, 345 g,

Part No.	Ord.No.
O EASY GO	57912

## Ratio



100 m

- wireless thermometer
- wireless transmission of outdoor temperature via up to 3 transmitters ( max. 100 m ),
- indication of indoor temperature,
- max.-min.-function,
- clock,
- measuring range outdoor -40...+65°C (-40...149°F), indoor 0...+60°C (32...140°F),
- reversible °C/°F
- for hanging or standing,
- equipment: outdoor temperature transmitter 30.3163, batteries 2 x 1.5 V AA display station, 2 x 1.5 V AAA
- dimensions: 113 x 67 x 28 mm, 86 x 32 x 15,
- weight: 500 g

Part No.	Ord.No.
S RATIO	72581

## Transmitters

TFA includes one wireless transmitter with every weather station. Many of the weather stations are able to communicate with more than one sensor at the same time. Please check following sensors:

### 30.3110 Sensor

Suitable for:  
Thermomax (Ord.No.767)



433MHz

### 30.3120.90 Sensor

Suitable for:  
Basic (Ord.No. 55841)  
Diva Go (Ord.No. 62765)  
Projection Clock (Ord.No. 55848)



433MHz

Type	Description
SENSOR 30.3110	Additional display transmitter for 30.3000
SENSOR 30.3120.90	Additional display thermo-transmitter

Part No.	Ord.No.
S SENSOR 30.3110	43319
S SENSOR 30.3139.90	43321

### 30.3133 Sensor

Suitable for:  
Ambiente (Ord.No. 55842)



433MHz

### 30.3139 Sensor

Suitable for:  
Weather Kitty (Ord.No. 63354, 63046, 63355)



433MHz

Part No.	Description
SENSOR 30.3133	Additional display transmitter for 35.1057 with cable
SENSOR 30.3139	Additional display transmitter for 35.1057, 58, 66, 71

Part No.	Ord.No.
O SENSOR 30.3133	56085
O SENSOR 30.3139	65190

### 30.3143 IT Sensor

Additional display thermo-transmitter  
868MHz suitable for:  
Easy Go (Ord.No.57912)  
Diva Go (Ord.No.62765)



868MHz

### 30.3144.IT Sensor

Suitable for:  
Diva Plus (Ord.No.62660)



868MHz

Part No.	Description
SENSOR 30.3143.IT	Additional display transmitter 868MHz
SENSOR 30.3144.IT	Additional display transmitter 868MHz

Part No.	Ord.No.
O SENSOR 30.3143.IT	62778
O SENSOR 30.3144.IT	71805

## Transmitters (continued)

### 30.3145 Sensor

Additional transmitter with display suitable for:  
Red Lava (Ord.No.57909)  
Sculpture (Ord.No.64245)



433MHz

### 30.3147.IT Sensor

Additional transmitter suitable for:  
Focus (Ord.No.63269)  
Weather Pam (Ord.No.64252)  
Oracle Base (Ord.No. 70444)



868MHz

Part No.	Ord.No.	Description
S 30.3145 SENSOR	64557	433MHz
O 30.3147.IT SENSOR	71806	868MHz

### 30.3150 Sensor

Additional transmitter with display suitable for:  
Nexus (Ord.No.63067)



433MHz

### 30.3162 Sensor

Additional transmitter with display suitable for:  
Image (Ord.No.70683)



433MHz

Part No.	Ord.No.	Description
O 30.3150 SENSOR	64719	433MHz
O 30.3162 SENSOR	71808	433MHz

## Thermo/Hygrometers

### Vision



transparent

This digital window thermometer is both practical and stylish

- large LCD
- outdoor temperature in degrees Celsius,
- temperature range -25°C and +70°C. You can also see the
- full range of temperature readings - which auto-reset every day - with the minimum and maximum read outs.

This unit simply sticks to the outside of a window with a special adhesive section, and is completely weather resistant.

- dimensions: 105 x 97 x 23 mm,
- weight: 110 g
- battery 1,5V AAA included

Part No.	Ord.No.
S VISION	55846

### Big Digit TV



- digital thermo-hygrometer,
- with max-min-function,
- large display,
- measuring range temperature: -10...+60°C (-14...+140°F),
- humidity 10...99%,
- reversible °C/°F,
- for hanging or standing,
- battery 1,5 V AA enclosed
- dimensions: 110 x 95 x 20 mm, 171 g

Part No.	Ord.No.
S BIG DIGIT TV	779

### Big Digit TT



- digital maxima-minima-thermometer with large display,
- for indoor temperature: (-10...+60°C,+14...+140°F) and outdoor temperature: (-50...+70°C, -58...+158°F),
- reversible °C/°F,
- cable of about 3 m,
- for hanging or standing,
- battery 1,5 V AA enclosed
- 110 x 95 x 20 mm, 180 g

Part No.	Ord.No.
S BIG DIGIT TT	757

### Tiny T



- digital thermometer
- -10...+60 °C,
- with support,
- white,
- battery 1,5V LR44 button cell enclosed
- 52 x 39 x 15 mm, 50 g

Part No.	Ord.No.
S TINY T	763

### Tiny TV



- digital thermo-hygrometer
- with max.-min.-function,
- measuring range temperature: -10...+60°C, humidity 10...99%,
- with table stand,
- battery LR 44 button cell enclosed
- 52 x 39 x 15 mm, 30 g

Part No.	Ord.No.
S TINY TV	780

### Tiny TT



- digital thermometer
- for indoor (-10...+60°C) and outdoor temperature (-50...+70°C),
- cable of about 2,5 m,
- with support,
- battery 1,5 V LR44 button cell enclosed,
- 52 x 39 x 15 mm, 50 g

Part No.	Ord.No.
S TINY TT	764
S TINY TT Black	75094

### Mini Digit TT



- digital maxima-minima-thermometer
- for indoor temperature (-10...+60°C) and outdoor temperature (-50...+70°C),
- reversible °C/°F,
- cable of about 3 m,
- for hanging or standing,
- battery 1,5 V AAA enclosed
- 85 x 60 x 15 mm, 105 g

Part No.	Ord.No.
S MINI DIGIT TT	758

## Label Makers

### Dymo Letra Tag



#### Features & Benefits

- wide range of symbols
- 2-line printing
- 6 character LCD display for easy editing and preview
- ABC keyboard
- direct-thermal print technology saves you money - no ribbons, ink or toner cartridges needed
- uses 6 AA batteries (not included)
- dimensions: 210x97x65mm

Part No.	Ord.No.
S DYMO LETRA TAG	8290

### Letra 59xxx



Spare tapes for DYMO LETRA TAG. Paper or plastic material, variety of colors, 12mm x 4m.

Part No.	Ord.No.
S LETRA 59421 PAP white	8289
S LETRA 59422 PVC white	8288
S LETRA 59423 PVC yellow	8287
S LETRA 59425 PVC green	8123

### Dymo Junior Labelmaker



- modernized labeller design.
- "Turn and click" is ergonomically designed for comfortable use by adults and children.
- text can be centred on the label by the use of the start/stop marks
- "Two thumb" cutting operation makes cutting easy for children and seniors.
- front exit tape "shows as it goes."
- ABS construction is ultra-durable for extra long life.
- easy to load tape cassette.
- incorporated tab-cutting for easy removal of the protective tape-backing
- includes easy to follow instructions.
- no batteries required.
- dimensions: 80x80x150mm

Part No.	Ord.No.
S DYMO Junior	71491

### Dymo Junior/Omega tape



DYMO Junior and DYMO Omega embossing tapes. Variety of colors, 9mm x 3m.

Part No.	Ord.No.	Description
S Embossing Tape Red	71493	9mm x 3m, red
O Embossing Tape Orange	71494	9mm x 3m, orange
S Embossing Tape Green	71495	9mm x 3m, green
S Embossing Tape Blue	71496	9mm x 3m, blue
O Embossing Tape Yellow	71497	9mm x 3m, yellow
S Embossing Tape Black	71498	9mm x 3m, black
S Embossing Tape Black	72684	9mm x 2m, black

### Dymo Omega Labelmaker



- intuitive "turn and click" labeling system
- ergonomic "soft touch" handle with rubber grip
- set of 49 different characters
- 9mm wide tape, available in 6 colours
- sharp, white tab-cut characters printed 3,7 mm high
- € and @ signs on the selector wheel
- no batteries required
- pre-loaded with 9mm wide DYMO embossing tape
- text can be centred on the label by the use of the start/stop marks
- easy cassette-loading
- dimensions: 120x140x85mm

Part No.	Ord.No.
S DYMO Omega	71492

### Dymo Label Writer 400



- 300 dpi for super quality labels
- makes labels up to 60 mm wide
- 40 labels per minute print speed
- Label Release feature for simplified loading and unloading of labels
- USB connection
- PC and Mac compatible
- Prints Code 39, Code 128, Codabar, UPC A/E, EAN 8/13, EAN 128, ITF-14 and Interleaved 2 of 5 bar codes.

Part No.	Ord.No.
O DYMO Label Writer 400	71499

### Dymo Label Writer 400 Address Labels



Labels size: 89x28mm  
Quantity: 2x130pcs

Part No.	Ord.No.
O DYMO Address Labels 1	71500

### MARKERPEN CRC



Marker Pens for multi surface use. Excellent coverage thanks to the use of correction fluid technology. Can be used on: wood, metal, rubber, glass, textile, paper, enamel, plastic, cardboard, tiles, ... Easy and clean application. Applications : For all markings in the industry.

Part No.	Colour	Ord.No.
S MARKERPEN CRC WH	white	73952
S MARKERPEN CRC RD	red	73950
S MARKERPEN CRC BK	black	73956
S MARKERPEN CRC BU	blue	73951
S MARKERPEN CRC OG	orange	73957
S MARKERPEN CRC SILVER	silver	73954
S MARKERPEN CRC GN	green	73948
S MARKERPEN CRC GOLD	gold	73955
S MARKERPEN CRC YE	yellow	73953

## Audio-video devices

### Wireless TV sender WS66034



- transmit TV, VCR, DVD etc, to any room in your house
- receiver can be viewed on a TV (AV), DVR (AV) or PC (USB)
- ideal for use with Freeview, Satellite boxes, DVD players and CCTV
- stable 2.4GHz signal operates through walls, floors and ceilings
- 4-channel to reduce interference
- the paired kit includes a transmitter that can plug into any AV source (DVD, Freeview, Satellite, CCTV etc) and relay the signal wirelessly to the receiver

Technical parameters	Transmitter	Receiver
Transmission frequency	2.4GHz - 2.4835GHz	2.4GHz - 2.4835GHz
Number of channels	4	4
Channel size	20MHz	
Transmission output	10mW	
Modulation	FM	
Current consumption	150mA	200 mA
Video IP / (O/P)	1Vp-p @75 ohm	1Vp-p @75 ohm
Audio IP / (O/P)	1Vp-p @600 ohm	1Vp-p @600 ohm

Part No.	Ord.No.
S Wireless TV Sender WS66034	67938



## Lamps and Lights

HL02-1



- LED Headlamp (HL02-1)
- ABS housing and Nylon elastic strap
- 7pcs 5mm ultra bright white LED
- Four phase pushing IC switch: 1LED ON--3 LED ON--7 LED ON--OFF
- 3xAAA batteries required (included in delivery)
- burning time: 100hours(1LED)/40 hours(3LED)/20 hours(7LED)
- weather proof
- dimensions: 4,5 x 7cm

Part No.	Ord.No.
S HL02-1	53889

FL400



- Flashlight akku (NiMH) with power adapter.
- power supply: 6x Ni-Mh rechargeable battery AAA 600mAh
  - 26 LED
  - LED burning time: 80 000 hrs
  - charger: input 240VAC 50Hz / output 12VDC 300mA
  - charging time: 3-4 hrs

Part No.	Ord.No.
S FL400	63117

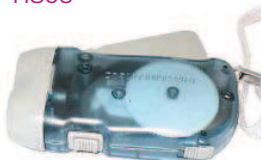
FL501



- 1 watt LED hand lamp
- 1 SMD LED LUXEON 1W
- new LED technology, 10x more clearly than standard LED
- LED burning time: 100 000 hrs
- water proof
- 3x1,5V AAA batteries DURACELL (included in delivery)
- attractive colour
- robust metallic housing

Part No.	Ord.No.
S FL501	56424

HS03



- dynamo flashlight
- 2 x white LED
- no battery or bulb needed

dynamo

Part No.	Ord.No.
S HS03	59619

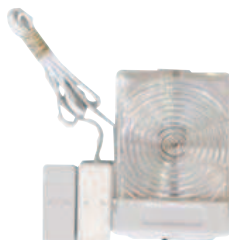
Lumatic Shake 170



- hand lamp without batteries
- ideal for emergency situations, in car, for camping and outdoor activities
- only 30sec of shaking will ensure 5mins of lighting
- On/Off button, handle for hanging
- capacitor with high capacity value
- super bright white LED
- maintenance-free service
- water proof housing, swims on top of water table,
- diameter: 22mm, length: 170mm.

Part No.	Ord.No.
S LUMATIC SHAKE 170	53865

CH 42044 LED Lamp with Magnetic Contacts



- ideal for wardrobe lighting
- 2 x 1,5V AAA (not included in delivery)
- self sealing tape mounting
- lamp flashes up (1xLED) by separating contacts - switch is in "ON" position
- white colour
- dimensions: 55x40x15mm

Part No.	Ord.No.
S LED LAMP 42044	67910

CH42046 LED Lamp with Magnetic Contact



- ideal for wardrobe lightning
- 3 x 1,5V AAA (not included in a delivery)
- self sealing tape mounting
- lamp flashes up (3xLED) by separating contacts - switch is in "ON" position
- silver colour
- dimensions: 70x20mm

Part No.	Ord.No.
S LED LAMP 42046	67912

CH42025 LED Lamp with Acoustic and PIR Activation



- 3 functions:
  - SOUND - at dusk (nightfall sensor) LED lamp responds to a sound and flashes up for 30s to 2mins.
  - ON - LED lamp is on.
  - PHOTO - LED lamp flashes up at dusk (nightfall sensor) and go out at sunrise.
- Power supply: 230Vac 50Hz  
Dimensions: 110x65x30mm

Part No.	Ord.No.
S LED LAMP 42025	67914

CH42022 LED Lamp with motion sensor



- 3 functions:
  - MOTION - at dusk (nightfall sensor) LED lamp responds to a movement (PIR sensor 110° 6m) and flashes up for cca.2mins.
  - ON - LED lamp is on.
  - PHOTO - LED LED lamp flashes up at dusk (nightfall sensor) and go out at sunrise.
- Power supply: 230Vac 50Hz  
Dimensions: 120x70x30mm

Part No.	Ord.No.
S LED LAMP 42022	67915

## Euro Products

DL-06



- scan coin lamp
  - checks authenticity of paper currency, cheques and credit cards
  - ON/OFF button
  - UV radiation
  - no transformer or starter needed
  - electronic start
- Power supply:** 230Vac 50Hz  
**Output power:** 4W

Part No.	Ord.No.
S DL-06	53114

## EURO Cash 1



- euro coin holder for all euro change
  - high-quality product
- Technical parameters:**  
**Coins:** 80x 1 ct, 80x 2 ct, 80x 5 ct, 70x 10 ct, 65x 20 ct, 30x 50 ct, 60x 1 EUR, 65x 2 EUR  
**Dimensions:** 235x176x30mm  
**Weight:** 300g

Part No.	Ord.No.
S Euro Cash 1	67276

## EURO Cash 2



- EURO cash made from high-quality steel sheet
  - euro coin holder on the top
  - paper currency holder at the bottom
  - cylindrical lock, 2 keys
  - high-quality product
- Technical parameters:**  
**Dimensions:** 300x90x235 mm  
**Weight:** 2,1 kg

Part No.	Ord.No.
S Euro Cash 2	67277

## Eurocoin Sorter



- sorts 8 types of eurocoins from 1 Cent to 2 Euros
- Power supply:** 2 batteries "C" type (not included in delivery)  
**Dimensions:** 265x140x245mm  
**Weight:** 1,75kg

Part No.	Ord.No.
S Eurocoin sorter	67250

## HS-7000 T



- Ultrasonic cleaner
  - provides precise cleaning of glasses, jewellery, watch and their parts, coins, dental plates etc.
  - contains timer - 4/8/12 and 16 min. timing
- Power supply:** 230 VAC  
**Frequency:** 42 kHz  
**Input power:** 50W  
**Capacity:** 0,5l  
**Operating frequency:** 42 kHz  
**Steel tank dimensions:** 170x90x50 mm  
**External dimensions:** 198x160x115 mm

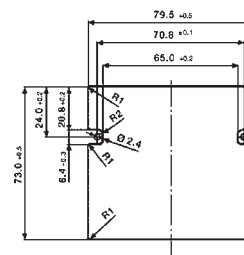
Part No.	Ord.No.
S HS-7000T	56281

## Thermal Printers

ITP-70021-628-GCT-232.S

FUJITSU

General features: handshake function, power self test, paper detection, auto load function, form feed, line feed function, RS232 interface.  
Applications: text, graphic or bar code printing.  
Extremely easy panel mounting, after cutting out the hole printer needs to be catch up with two screw.



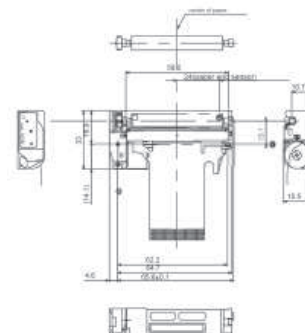
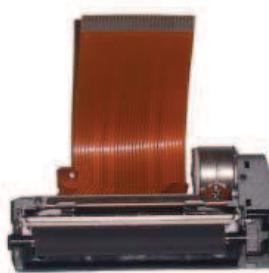
Technical parameters	ITP-70021-628-GCT-232.S
Print head power supply	4,2 - 8,5 VDC
Recommended voltage	7,2 VDC
Current consumption at 12,5% black	2A
Head drive control	5 VDC, consumption 100mA
Motor	4,2 - 8,5 VDC max. 1A current consumption
Power supply	5-8,5 VDC
Current consumption	120 mA
Operating temperature range	0°C to +50°C
Paper width	58 mm (paper roll diameter 30mm)
Effective print width	48mm
Dot density	8 dots/mm
Number of dots	384
Printing speed	60 mm/s
Dimensions	82,3x77,4x38,5mm

Part No.	Ord.No.
S ITP-70021-628-GCT-232.S	62218

## FTP-628 MCL 101

FUJITSU

The easy loading FTP-628 MCL 101 Series is compact high speed, thermal printer, printing on 2-inch wide paper (58mm) where platens are removable. Original platen removal mechanism improved paper loading and maintenance. The FTP-628 MCL series can be used for a variety of applications, such as portable terminals, POS, ticket issuing terminals, label printers, banking terminals, etc.



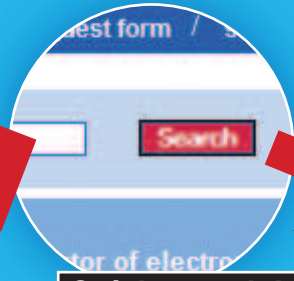
Technical parameters	ITP-70021-628-GCT-232.S
Print head power supply	4,2 - 8,5 VDC
Recommended voltage	7,2 VDC
Current consumption at 25% black	2A (maximum 6A at 100% black)
Head drive control	5 VDC, 100mA consumption
Motor	4,2 - 8,5 VDC max. 1A current consumption
Operating temperature range	0°C to +50°C
Paper width	58 mm
Effective print width	48mm
Dot density	8 dots/mm
Number of dots	384
Printing speed	60 mm/s
Dimensions	70,3x33,0x15,5mm

Part No.	Ord.No.
S FTP-628 MCL 101	61348

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