AUTOMATION

AUTOMATION
INTERFACE ELECTRONIC

Supplementary Catalog to
Full Line Catalogs, Volumes 3/4
Edition 2013/1

3/4

WAGO®
INNOVATIVE CONNECTIONS

The new items in this catalog supplement products found in the following main catalogs

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Volume 4
INTERFACE ELECTRONIC

Volume 3
AUTOMATION

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Modular I/O-SYSTEM IP20, 750, 753 Series

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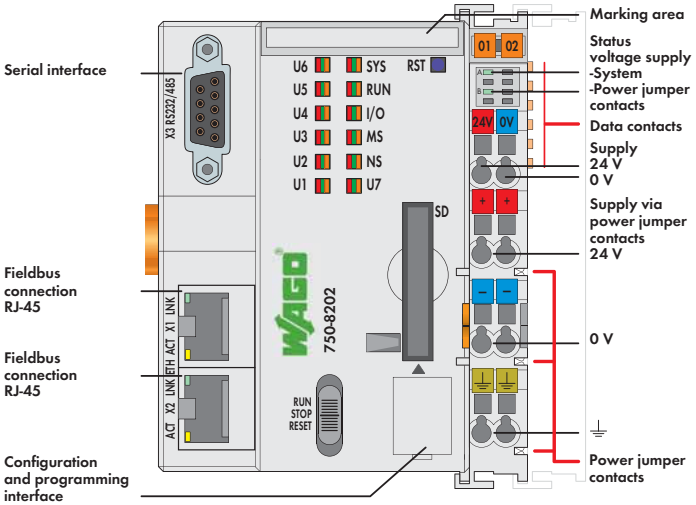
INTERFACE ELECTRONIC

Products highlighted in RED are new items for Spring 2013

PLC – PFC200 Controller

PFC200 CS 2ETH RS



The PFC200 Controller is a compact PLC for the modular WAGO-I/O-SYSTEM. Besides network and fieldbus interfaces, the controller supports all digital, analog and specialty modules found within the 750/753 Series.
Two ETHERNET interfaces and integrated switch enable line topology wiring. An integrated Web server provides the user with configuration options and status information from the PFC200.
Besides the processing industry and building automation, typical markets for the PFC200 include the standard machine and plant industries (e.g., packaging, bottling, textiles, production and metal & wood processing).

Programmable to IEC 61131-3
- Programmable via WAGO-I/O-PRO V2.3
- Direct connection of WAGO I/O modules
- 2 x ETHERNET (switched), RS-232/-485
- Linux 3.6 operating system with RT-Preemption patch
- Configuration via CODESYS or Web-based management interface
- Maintenance-free

Description	Item No.	Pack. Unit
PFC200 CS 2ETH RS	**750-8202**	1

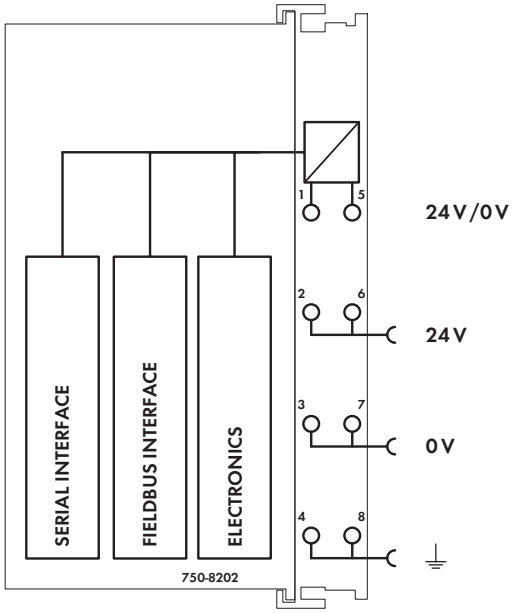
Accessories		Item No.	Pack. Unit
WAGO-I/O-PRO V2.3, RS-232 kit		**759-333**	1
SD memory card, 1 GB		**758-879/000-001**	1
Miniature WSB Quick marking system			
	plain	**248-501**	5
	with marking	see Full Line Catalog AUTOMATION 2012/2013	

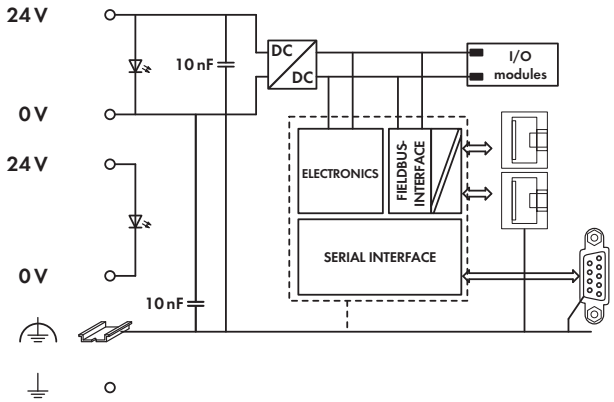
Approvals

Conformity marking	CE
Shipbuilding	GL, pending
UL 508	pending

System Data

CPU	Cortex A8, 600 MHz
Operating system	Real-time Linux 3.6 (with RT-Preemption patch)
Main memory (RAM)	256 Mbytes
Internal memory (flash)	256 Mbytes
Retain memory	128 Kbytes
ETHERNET	2 x RJ-45 (switched)
Transmission medium	Twisted Pair S-UTP 100 Ω, Cat 5; Max. line length: 100 m
Baud rate	10/100 Mbit/s; 10Base-T/100Base-TX
Interface (serial)	RS-232/-485 (switchable)
Protocols	DHCP, DNS, NTP, FTP, FTPS, SNMP, HTTP, HTTPS, SSH, MODBUS (TCP, UDP, RTU)
Programming	WAGO-I/O-PRO V2.3
IEC 61131-3	IL, LD, FBD, ST, FC
SD card slot	Push-push mechanism, sealable cover lid
Type of memory card	SD and SDHC up to 32 GB (All guaranteed properties are only valid in connection with the WAGO 758-879/000-001 memory card.)





Technical Data

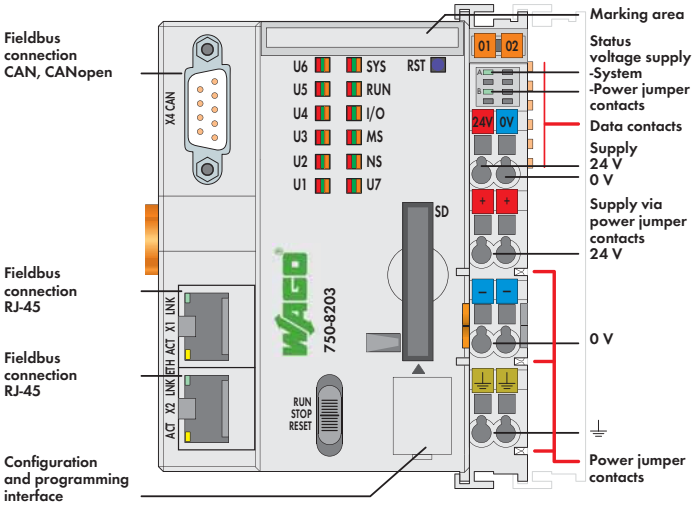
Number of I/O modules (per node)	64
with bus extension	250
Input and output process image (max.)	
Internal data bus	1000 words
MODBUS	1000 words
PROFIBUS	244 bytes in 80 slots
CAN	2000 words
I/O interfaces (serial)	1 x serial interface per TIA/EIA 232 and
	TIA/EIA 485 (switchable), 9-pole D-sub
	female connector
Diagnostic LEDs	Power supply;
	SYS; RUN; FIELDBUS (MS, NS);
	USER (U1 ... U7);
	Internal data bus
User LEDs	via CODESYS library
Program memory	16 MB
Data memory	64 MB
Non-volatile memory (retain)	96 Kbytes
Power supply	24 V DC (-25 % ... +30 %)
Max. input current (24 V)	550 mA
Total current for I/O modules (5 V)	1700 mA
Isolation	500 V system/supply

General Specifications

Dimensions (mm) W x H x L	79 x 65 x 100
	Height from upper-edge of DIN 35 rail
Weight	190 g
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
EMC: CE - emission of interference	acc. to EN 61000-6-2 (2005)
EMC: marine applications	
- immunity to interference	pending
EMC: marine applications	
- emission of interference	pending
Degree of protection	IP20 acc. to DIN 60529
Type of mounting	DIN 35 rail
Housing material	PC
Ambient conditions	
Operating temperature	0 °C ... +55 °C
Storage temperature	-10 °C ... +85 °C
Relative air humidity (no condensation)	95 %
Altitude	
Operation	0 m ... 2000 m
Storage/transit	0 m ... 3000 m
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Strip lengths	8 ... 9 mm / 0.33 in

PLC – PFC200 Controller

PFC200 CS 2ETH CAN



The PFC200 Controller is a compact PLC for the modular WAGO-I/O-SYSTEM. Besides network and fieldbus interfaces, the controller supports all digital, analog and specialty modules found within the 750/753 Series.
Two ETHERNET interfaces and integrated switch enable line topology wiring. An integrated Web server provides the user with configuration options and status information from the PFC200.
Besides the processing industry and building automation, typical markets for the PFC200 include the standard machine and plant industries (e.g., packaging, bottling, textiles, production and metal & wood processing).

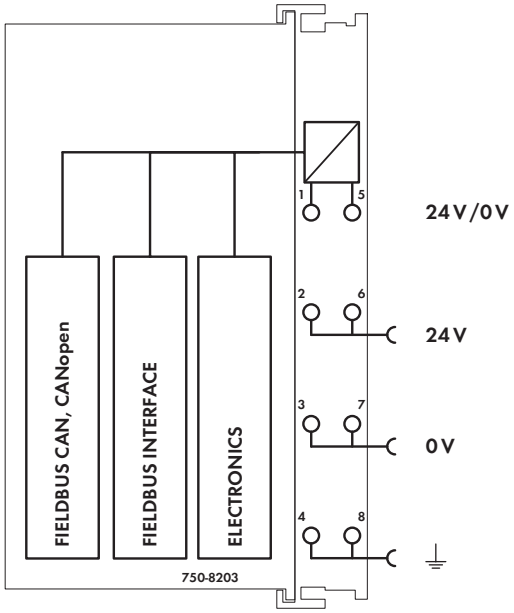
Programmable to IEC 61131-3
- Programmable via WAGO-I/O-PRO V2.3
- Direct connection of WAGO I/O modules
- 2 x ETHERNET (switched), CAN, CANopen
- Linux 3.6 operating system with RT-Preemption patch
- Configuration via CODESYS or Web-based management interface
- Maintenance-free

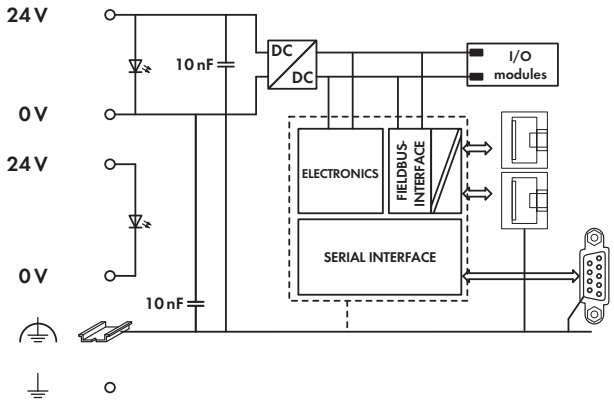
Description	Item No.	Pack. Unit
PFC200 CS 2ETH CAN	**750-8203**	1

Accessories		Item No.	Pack. Unit
WAGO-I/O-PRO V2.3, RS-232 kit		**759-333**	1
SD memory card, 1 GB		**758-879/000-001**	1
Miniature WSB Quick marking system			
	plain	**248-501**	5
	with marking	see Full Line Catalog AUTOMATION 2012/2013	

Approvals	
Conformity marking	CE
Shipbuilding	GL, pending
UL 508	pending

System Data	
CPU	Cortex A8, 600 MHz
Operating system	Real-time Linux 3.6 (with RT-Preemption patch)
Main memory (RAM)	256 Mbytes
Internal memory (flash)	256 Mbytes
Retain memory	128 Kbytes
ETHERNET	2 x RJ-45 (switched)
Transmission medium	Twisted Pair S-UTP 100 Ω, Cat 5; Max. line length: 100 m
Baud rate	10/100 Mbit/s; 10Base-T/100Base-TX
Fieldbus	CAN, CANopen
Protocols	DHCP, DNS, NTP, FTP, FTPS, SNMP, HTTP, HTTPS, SSH, MODBUS (TCP, UDP)
Programming	WAGO-I/O-PRO V2.3
IEC 61131-3	IL, LD, FBD, ST, FC
SD card slot	Push-push mechanism, sealable cover lid
Type of memory card	SD and SDHC up to 32 GB (All guaranteed properties are only valid in connection with the WAGO 758-879/000-001 memory card.)





Technical Data

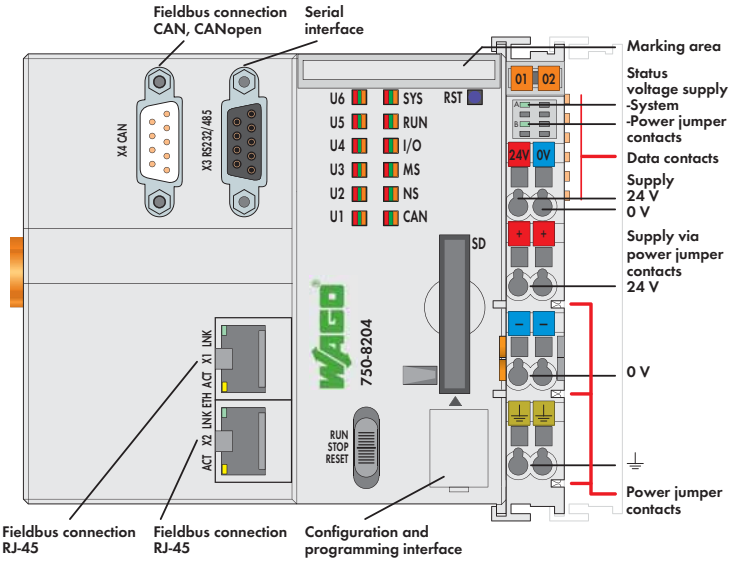
Number of I/O modules (per node)	64
with bus extension	250
Input and output process image (max.)	
Internal data bus	1000 words
MODBUS	1000 words
PROFIBUS	244 bytes in 80 slots
CAN	2000 words
Diagnostic LEDs	Power supply;
	SYS; RUN; FIELDBUS (MS, NS);
	USER (U1 ... U6);
	Internal data bus
User LEDs	via CODESYS library
Program memory	16 MB
Data memory	64 MB
Non-volatile memory (retain)	96 Kbytes
Power supply	24 V DC (-25 % ... +30 %)
Max. input current (24 V)	550 mA
Total current for I/O modules (5 V)	1700 mA
Isolation	500 V system/supply

General Specifications

Dimensions (mm) W x H x L	79 x 65 x 100
	Height from upper-edge of DIN 35 rail
Weight	250 g
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
EMC: CE - emission of interference	acc. to EN 61000-6-2 (2005)
EMC: marine applications	
- immunity to interference	pending
EMC: marine applications	
- emission of interference	pending
Degree of protection	IP20 acc. to DIN 60529
Type of mounting	DIN 35 rail
Housing material	PC
Ambient conditions	
Operating temperature	0 °C ... +55 °C
Storage temperature	-10 °C ... +85 °C
Relative air humidity (no condensation)	95 %
Altitude	
Operation	0 m ... 2000 m
Storage/transit	0 m ... 3000 m
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Strip lengths	8 ... 9 mm / 0.33 in

PLC – PFC200 Controller

PFC200 CS 2ETH RS CAN



The PFC200 Controller is a compact PLC for the modular WAGO-I/O-SYSTEM. Besides network and fieldbus interfaces, the controller supports all digital, analog and specialty modules found within the 750/753 Series.
Two ETHERNET interfaces and integrated switch enable line topology wiring. An integrated Web server provides the user with configuration options and status information from the PFC200.
Besides the processing industry and building automation, typical markets for the PFC200 include the standard machine and plant industries (e.g., packaging, bottling, textiles, production and metal & wood processing).

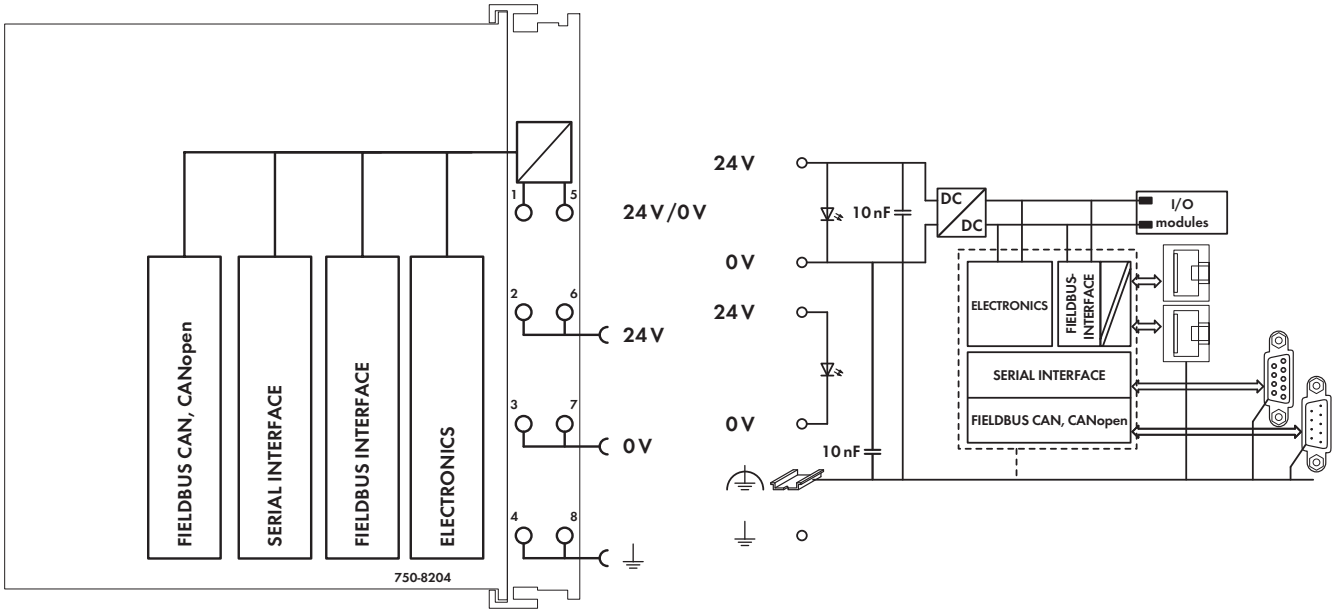
Programmable to IEC 61131-3
- Programmable via WAGO-I/O-PRO V2.3
- Direct connection of WAGO I/O modules
- 2 x ETHERNET (switched), RS-232/-485, CAN, CANopen
- Linux 3.6 operating system with RT-Preemption patch
- Configuration via CODESYS or Web-based management interface
- Maintenance-free

Description	Item No.	Pack. Unit
PFC200 CS 2ETH RS CAN	**750-8204**	1

Accessories		Item No.	Pack. Unit
WAGO-I/O-PRO V2.3, RS-232 kit		**759-333**	1
SD memory card, 1 GB		**758-879/000-001**	1
Miniature WSB Quick marking system			
	plain	**248-501**	5
	with marking	see Full Line Catalog AUTOMATION 2012/2013	

Approvals	
Conformity marking	CE
Shipbuilding	GL, pending
UL 508	pending

System Data	
CPU	Cortex A8, 600 MHz
Operating system	Real-time Linux 3.6 (with RT-Preemption patch)
Main memory (RAM)	256 Mbytes
Internal memory (flash)	256 Mbytes
Retain memory	128 Kbytes
ETHERNET	2 x RJ-45 (switched)
Transmission medium	Twisted Pair S-UTP 100 Ω, Cat 5; Max. line length: 100 m
Baud rate	10/100 Mbit/s; 10Base-T/100Base-TX
Interface (serial)	RS-232/-485 (switchable)
Fieldbus	CAN, CANopen
Protocols	DHCP, DNS, NTP, FTP, FTPS, SNMP, HTTP, HTTPS, SSH, MODBUS (TCP, UDP, RTU)
Programming	WAGO-I/O-PRO V2.3
IEC 61131-3	IL, LD, FBD, ST, FC
SD card slot	Push-push mechanism, sealable cover lid
Type of memory card	SD and SDHC up to 32 GB (All guaranteed properties are only valid in connection with the WAGO 758-879/000-001 memory card.)



Technical Data

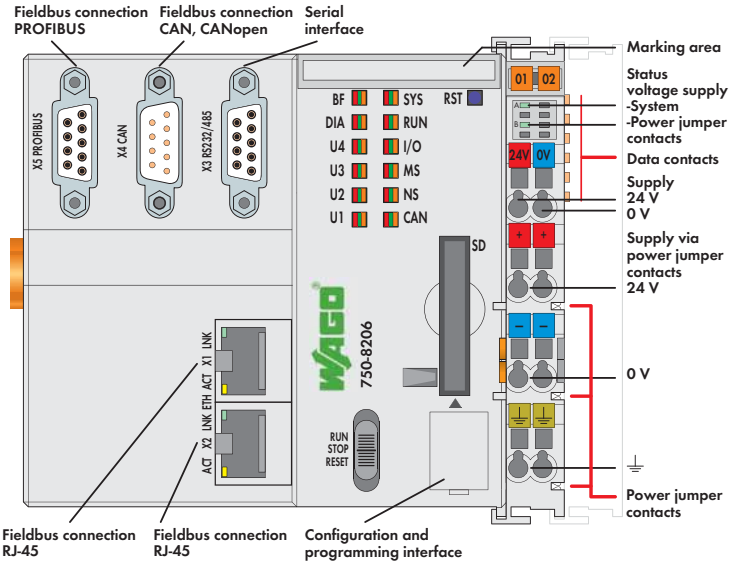
Number of I/O modules (per node)	64
with bus extension	250
Input and output process image (max.)	
Internal data bus	1000 words
MODBUS	1000 words
PROFIBUS	244 bytes in 80 slots
CAN	2000 words
I/O interfaces (serial)	1 x serial interface per TIA/EIA 232 and TIA/EIA 485 (switchable), 9-pole D-sub female connector
Diagnostic LEDs	Power supply; SYS; RUN; FIELDBUS (MS, NS, CAN); USER (U1 ... U6); Internal data bus
User LEDs	via CODESYS library
Program memory	16 MB
Data memory	64 MB
Non-volatile memory (retain)	96 Kbytes
Power supply	24 V DC (-25 % ... +30 %)
Max. input current (24 V)	550 mA
Total current for I/O modules (5 V)	1700 mA
Isolation	500 V system/supply

General Specifications

Dimensions (mm) W x H x L	112 x 65 x 100
	Height from upper-edge of DIN 35 rail
Weight	250 g
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
EMC: CE - emission of interference	acc. to EN 61000-6-2 (2005)
EMC: marine applications	
- immunity to interference	pending
EMC: marine applications	
- emission of interference	pending
Degree of protection	IP20 acc. to DIN 60529
Type of mounting	DIN 35 rail
Housing material	PC
Ambient conditions	
Operating temperature	0 °C ... +55 °C
Storage temperature	-10 °C ... +85 °C
Relative air humidity (no condensation)	95 %
Altitude	
Operation	0 m ... 2000 m
Storage/transit	0 m ... 3000 m
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Strip lengths	8 ... 9 mm / 0.33 in

PLC – PFC200 Controller

PFC200 CS 2ETH RS CAN DPS



The PFC200 Controller is a compact PLC for the modular WAGO-I/O-SYSTEM. Besides network and fieldbus interfaces, the controller supports all digital, analog and specialty modules found within the 750/753 Series.
Two ETHERNET interfaces and integrated switch enable line topology wiring. An integrated Web server provides the user with configuration options and status information from the PFC200.
Besides the processing industry and building automation, typical markets for the PFC200 include the standard machine and plant industries (e.g., packaging, bottling, textiles, production and metal & wood processing).

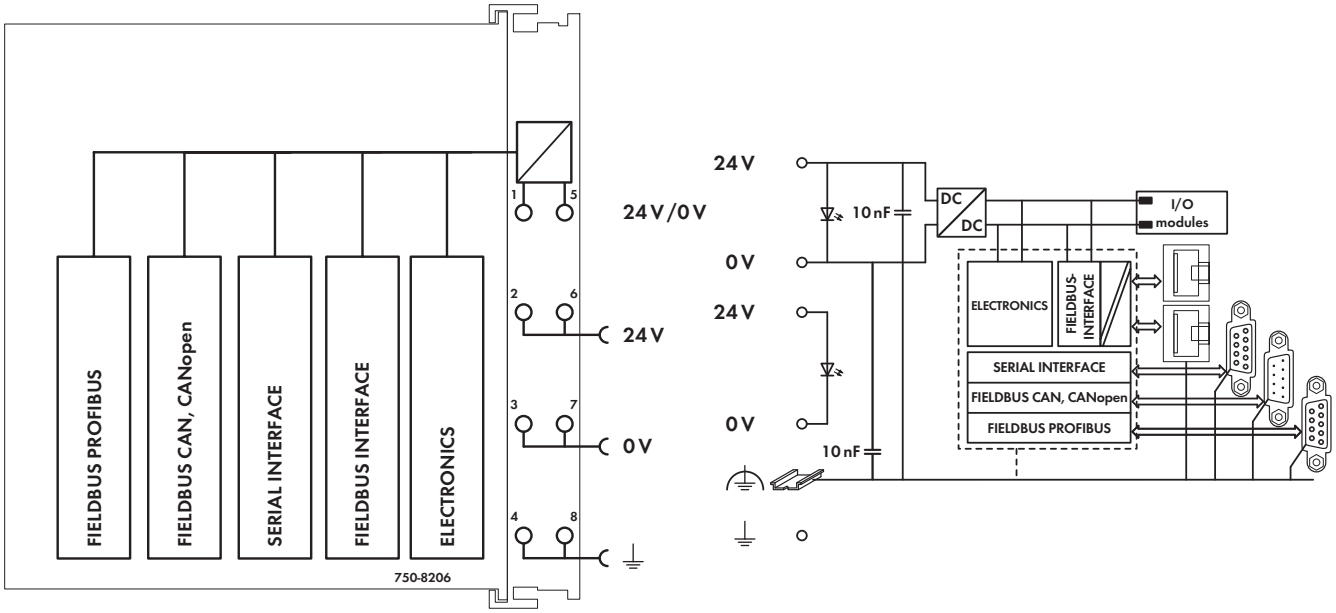
Programmable to IEC 61131-3
- Programmable via WAGO-I/O-PRO V2.3
- Direct connection of WAGO I/O modules
- 2 x ETHERNET (switched), RS-232/-485, CAN, CANopen, PROFIBUS DP Slave
- Linux 3.6 operating system with RT-Preemption patch
- Configuration via CODESYS or Web-based management interface
- Maintenance-free

Description	Item No.	Pack. Unit
PFC200 CS 2ETH RS CAN DPS	**750-8206**	1

Accessories		Item No.	Pack. Unit
WAGO-I/O-PRO V2.3, RS-232 kit		**759-333**	1
SD memory card, 1 GB		**758-879/000-001**	1
Miniature WSB Quick marking system			
	plain	**248-501**	5
	with marking	see Full Line Catalog AUTOMATION 2012/2013	

Approvals	
Conformity marking	CE
Shipbuilding	GL, pending
UL 508	pending

System Data	
CPU	Cortex A8, 600 MHz
Operating system	Real-time Linux 3.6 (with RT-Preemption patch)
Main memory (RAM)	256 Mbytes
Internal memory (flash)	256 Mbytes
Retain memory	128 Kbytes
ETHERNET	2 x RJ-45 (switched)
Transmission medium	Twisted Pair S-UTP
	100 Ω, Cat 5;
	Max. line length: 100 m
Baud rate	10/100 Mbit/s; 10Base-T/100Base-TX
Interface (serial)	RS-232/-485 (switchable)
Fieldbus	PROFIBUS DP Slave, CAN, CANopen
Protocols	DHCP, DNS, NTP, FTP, FTPS, SNMP, HTTP,
	HTTPS, SSH, MODBUS (TCP, UDP, RTU)
Programming	WAGO-I/O-PRO V2.3
IEC 61131-3	IL, LD, FBD, ST, FC
SD card slot	Push-push mechanism, sealable cover lid
Type of memory card	SD and SDHC up to 32 GB (All guaranteed properties are only valid in connection with the WAGO 758-879/000-001 memory card.)



Technical Data

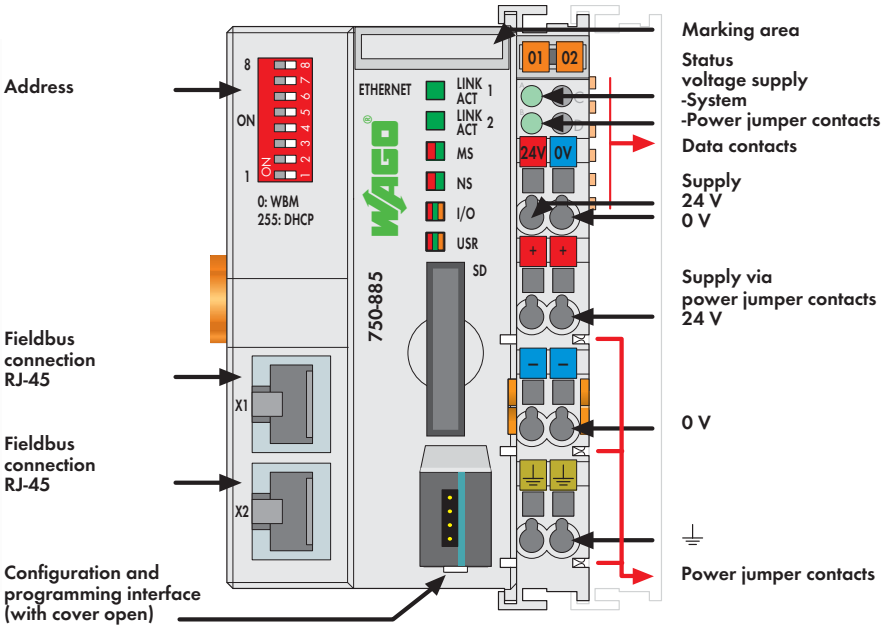
Number of I/O modules (per node)	64
with bus extension	250
Input and output process image (max.)	
Internal data bus	1000 words
MODBUS	1000 words
PROFIBUS	244 bytes in 80 slots
CAN	2000 words
I/O interfaces (serial)	1 x serial interface per TIA/EIA 232 and
	TIA/EIA 485 (switchable), 9-pole D-sub
	female connector
Diagnostic LEDs	Power supply;
	SYS; RUN;
	FIELDBUS (MS, NS, CAN, DIA, BF);
	USER (U1 ... U4);
	Internal data bus
User LEDs	via CODESYS library
Program memory	16 MB
Data memory	64 MB
Non-volatile memory (retain)	96 Kbytes
Power supply	24 V DC (-25 % ... +30 %)
Max. input current (24 V)	550 mA
Total current for I/O modules (5 V)	1700 mA
Isolation	500 V system/supply

General Specifications

Dimensions (mm) W x H x L	112 x 65 x 100
	Height from upper-edge of DIN 35 rail
Weight	250 g
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
EMC: CE - emission of interference	acc. to EN 61000-6-2 (2005)
EMC: marine applications	
- immunity to interference	pending
EMC: marine applications	
- emission of interference	pending
Degree of protection	IP20 acc. to DIN 60529
Type of mounting	DIN 35 rail
Housing material	PC
Ambient conditions	
Operating temperature	0 °C ... +55 °C
Storage temperature	-10 °C ... +85 °C
Relative air humidity (no condensation)	95 %
Altitude	
Operation	0 m ... 2000 m
Storage/transit	0 m ... 3000 m
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Strip lengths	8 ... 9 mm / 0.33 in

PLC - ETHERNET Programmable Media Redundancy Fieldbus Controller

32-bit CPU, multitasking, with memory card slot



In conjunction with the WAGO-I/O-SYSTEM, the 750-885 ETHERNET PLC serves ETHERNET networks requiring fast and safe media redundancy.
The PLC supports all digital, analog and specialty modules found within the 750/753 Series, and is suitable for data rates of 10/100 Mbit/s.
Media redundancy is achieved by operating the controller in two separate networks – which is accessible via two different IP addresses (including two MAC IDs). Cross communication between separate channels is not possible.
The two separate ETHERNET interfaces allow redundant connection of two transmission paths (no hub or switch required). Both interfaces support Auto-Negotiation and Auto-MDI(X). The DIP switch configures the last byte of both default IP addresses and may be used for IP address assignment (DHCP, BootP).

The media redundancy PLC is designed for fieldbus communication via MODBUS/TCP in ETHERNET networks. It also supports a wide variety of standard ETHERNET protocols (e.g., HTTP, BootP, DHCP, DNS, FTP).
An integrated Web server provides configuration options to the user, while displaying PLC status information.
The IEC 61131-3 programmable controller is multitasking-capable and features a battery-backed RTC.
A data memory of 1 Mbyte is available.
For memory expansion, the 750-885 PLC is equipped with a removable memory card slot.

Description	Item No.	Pack. Unit
ETHERNET MR/SD Fieldbus Controller	**750-885**	1
ETHERNET MR/SD Fieldbus Controller/T	**750-885/025-000**	1
Extended temperature range: -20 °C ... +60 °C		

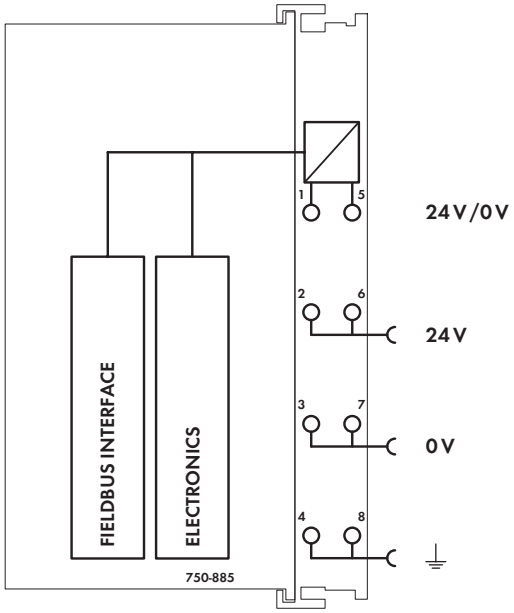
Accessories	Item No.	Pack. Unit
SD memory card, 1 GB	**758-879/000-001**	1
WAGO-I/O-PRO V2.3, RS-232 kit	**759-333**	1
Miniature WSB Quick marking system		
plain	**248-501**	5
with marking	see Full Line Catalog AUTOMATION 2012/2013	

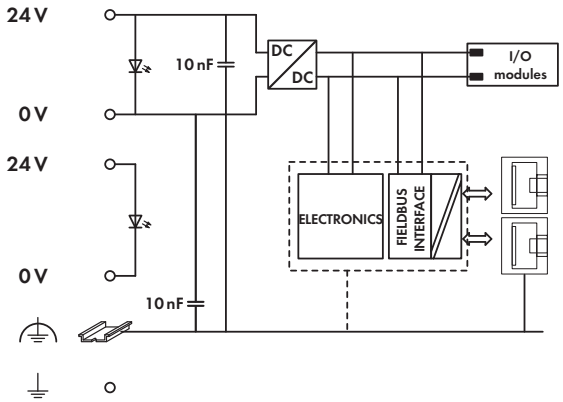
Approvals

Conformity marking	CE
Shipbuilding	GL, pending
UL 508	pending

System Data

No. of controllers connected to Master	limited by ETHERNET specification
Transmission medium	Twisted Pair S-UTP
	100 Ω, Cat 5;
	Max. line length: 100 m
Baud rate	10/100 Mbit/s
Transmission performance	Class D acc. to EN 50173
Buscoupler connection	2 x RJ-45
Protocols	MODBUS/TCP (UDP), HTTP, BootP, DHCP,
	DNS, FTP
Programming	WAGO-I/O-PRO V2.3
IEC 61131-3	IL, LD, FBD, ST, FC
Redundancy function	via two logically separated ETHERNET
	interfaces
SD card slot	Push-push mechanism, sealable cover lid
Type of memory card	SD and SDHC up to 32 Gbytes (All
	guaranteed properties are only valid in
	combination with the WAGO 758-879/
	000-001 memory card.)





Technical Data

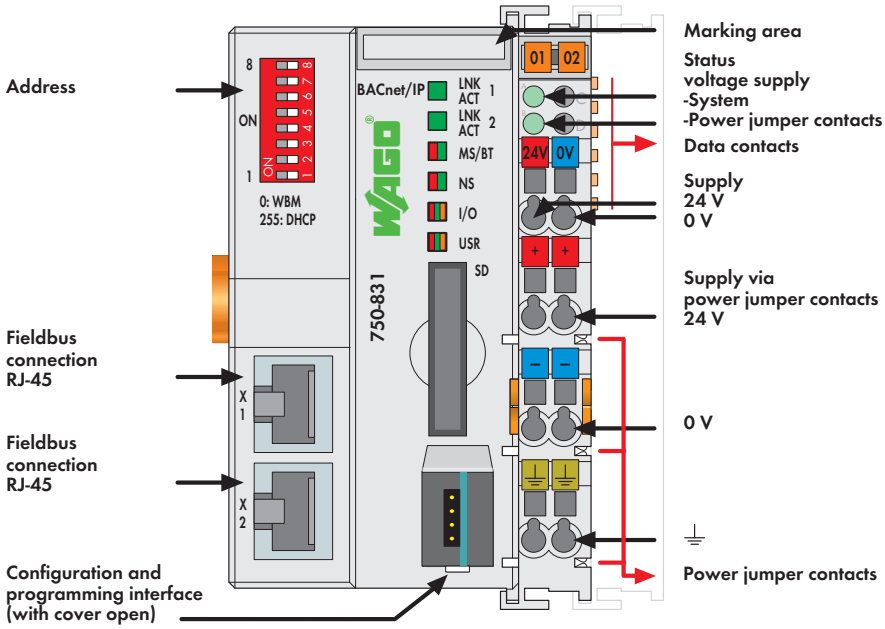
Number of I/O modules	64
with bus extension	250
Fieldbus	
Max. input process image	1020 words
Max. output process image	1020 words
Configuration	via PC
Program memory	1024 Kbytes
Data memory	1024 Kbytes
Non-volatile memory (retain)	32 Kbytes
Power supply	24 V DC (-25 % ... +30 %)
Input current typ. at rated load (24 V)	500 mA
Efficiency of the power supply (typ.) at	
nominal load (24 V)	90 %
Internal current consumption (5 V)	450 mA
Total current for I/O modules (5 V)	1700 mA
Isolation	500 V system/supply

General Specifications

Operating temperature	0 °C ... +55 °C
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Strip lengths	8 ... 9 mm / 0.33 in
Dimensions (mm) W x H x L	62 x 65 x 100
	Height from upper-edge of DIN 35 rail
Weight	164 g
Storage temperature	-25 °C ... +85 °C
Relative air humidity (no condensation)	95 %
Vibration resistance	acc. to IEC 60068-2-6
Shock resistance	acc. to IEC 60068-2-27
Degree of protection	IP20
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
EMC: CE - emission of interference	acc. to EN 61000-6-3 (2007)
EMC: marine applications	
- immunity to interference	acc. to Germanischer Lloyd (2003)
EMC: marine applications	
- emission of interference	acc. to Germanischer Lloyd (2003)

BACnet/IP Programmable Fieldbus Controller

32-bit CPU, multitasking



The 750-831 BACnet/IP Controller connects the WAGO-I/O-SYSTEM to the BACnet protocol. The 750-830 Controller supports the B-BC BACnet device profile according to DIN EN ISO 16484-5. It communicates with other BACnet devices via BACnet/IP.
The controller provides the three following functionalities:

- 1. Native server: For each channel, appropriate BACnet objects are generated automatically for the digital/analog input and output modules that are connected to the controller.
- 2. Application server: Other supported BACnet objects can be created via IEC -61131-3 programming environment and made available to a BACnet network.
- 3. Application client: Using the client functionality, objects and their properties can be accessed by other BACnet devices.

Two ETHERNET interfaces and an integrated switch allow the fieldbus to be wired in a line topology. This eliminates additional network devices, such as switches or hubs. Both interfaces support Auto-Negotiation and Auto-MDI(X).
The DIP switch configures the last byte of the IP address and may be used for IP address assignment.
An integrated Web server provides configuration options to the user, while displaying controller's status information.
The IEC 61131-3 programmable controller is multitasking-capable and features a battery-backed RTC. A data memory of 1 MB is available.
The 750-831 Controller has a slot for a removable memory card, allowing device parameters or files (e.g., boot files) to be transferred from one controller to another. The memory card can be accessed via FTP and be used as an additional drive.
Start-up and configuration of the BACnet networks is performed using the Windows-compliant WAGO BACnet Configurator.

Description	Item No.	Pack. Unit
BACnet/IP Controller	**750-831**	1

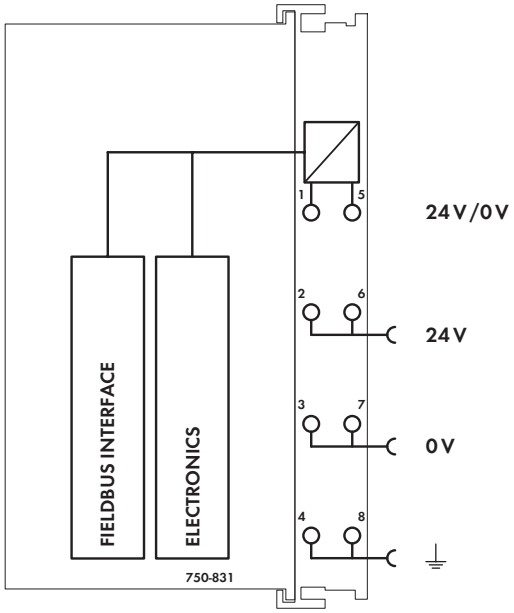
Accessories		Item No.	Pack. Unit
PC software		WAGO BACnet configurator	
WAGO-I/O-PRO V2.3, RS-232 kit		**759-333**	1
Miniature WSB Quick marking system			
	plain	**248-501**	5
	with marking	see Full Line Catalog AUTOMATION 2012/2013	
SD memory card, 1 GB		**758-879/000-001**	1

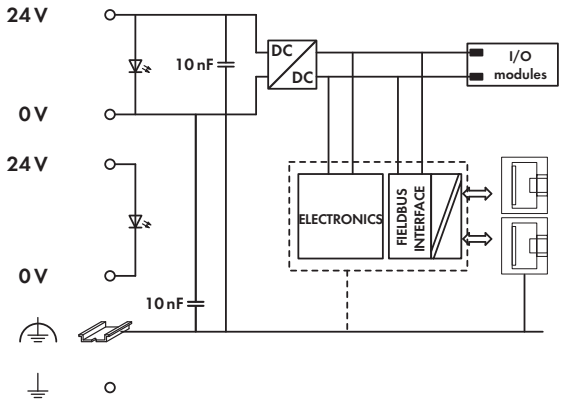
Approvals

BACnet approvals	
WSPCert certification	pending
BTL listing	pending
Conformity marking	CE

System Data

No. of controllers connected to Master	limited by ETHERNET specification
Transmission medium	Twisted Pair S-UTP
	100 Ω, Cat 5;
	Max. line length: 100 m
Baud rate	10/100 Mbit/s
Transmission performance	Class D acc. to EN 50173
Buscoupler connection	2 x RJ-45
Protocols	BACnet/IP, MODBUS/TCP (UDP), HTTP,
	BootP, DHCP, DNS, SNTP, FTP, SNMP
Programming	WAGO-I/O-PRO V2.3
IEC 61131-3	IL, LD, FBD, ST, FC
SD card slot	Push-push mechanism, sealable cover lid
Type of memory card	SD and SDHC up to 32 GB (All
	guaranteed properties are only valid in
	connection with the WAGO 758-879/
	000-001 memory card.)
BACnet device profile	B-BC (BACnet Building Controller)
BACnet version	1.7





Technical Data

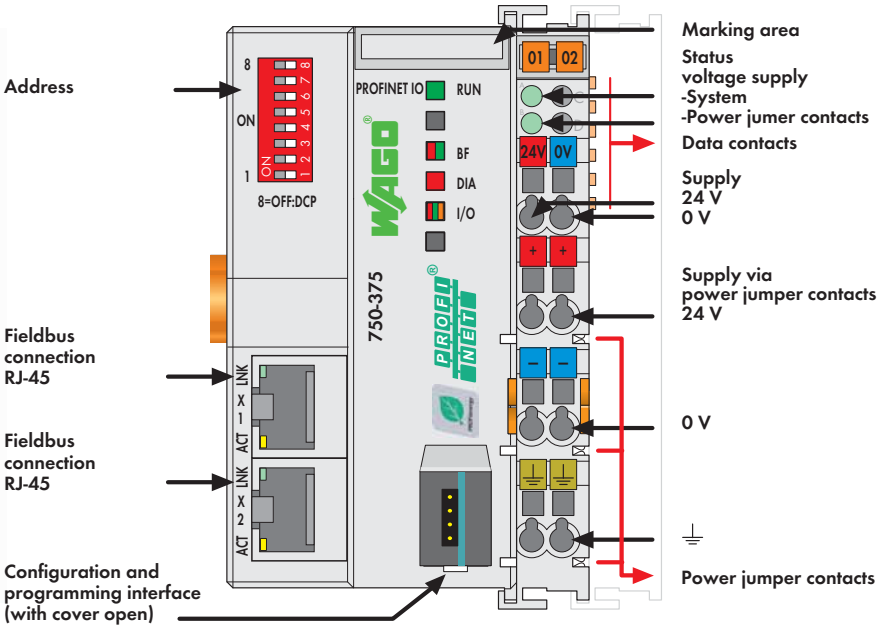
Number of I/O modules	64
with bus extension	250
Fieldbus	
Max. input process image	1020 words
Max. output process image	1020 words
Configuration	via PC
Program memory	1024 Kbytes
Data memory	1024 Kbytes
Non-volatile memory (retain)	28 Kbytes
Flash	4.5 Mbytes
Power supply	24 V DC (-25 % ... +30 %)
Input current typ. at rated load (24 V)	500 mA
Efficiency of the power supply (typ.) at	
nominal load (24 V)	90 %
Internal current consumption (5 V)	450 mA
Total current for I/O modules (5 V)	1700 mA
Isolation	500 V system/supply

General Specifications

Operating temperature	0 °C ... +55 °C
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Strip lengths	8 ... 9 mm / 0.33 in
Dimensions (mm) W x H x L	62 x 65 x 100
	Height from upper-edge of DIN 35 rail
Weight	164 g
Storage temperature	-25 °C ... +85 °C
Relative air humidity (no condensation)	95 %
Vibration resistance	acc. to IEC 60068-2-6
Shock resistance	acc. to IEC 60068-2-27
Degree of protection	IP20
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
EMC: CE - emission of interference	acc. to EN 61000-6-3 (2007)

PROFINET IO advanced Fielbus Coupler

2-port switch; 100 Mbit/s; digital, analog and complex signals



The 750-375 Fieldbus Coupler connects the WAGO-I/O-SYSTEM 750 to PROFINET IO (open, real-time industrial ETHERNET automation standard). The coupler identifies the connected I/O modules and creates local process images for maximum two IO controllers and one IO supervisor according to preset configurations. The process images may include a mixed arrangement of analog, digital or specialty modules. Analog and specialty module data is sent via words and/or bytes; digital data is sent bit by bit.
The fieldbus coupler operates as an IO device in the network. It features an integrated 2-port switch, simplifying the creation of a line structure without additional network components.
The device name can be assigned via DCP protocol or set via DIP switch.

Description	Item No.	Pack. Unit
PROFINET IO adv. 2-Port	**750-375**	1

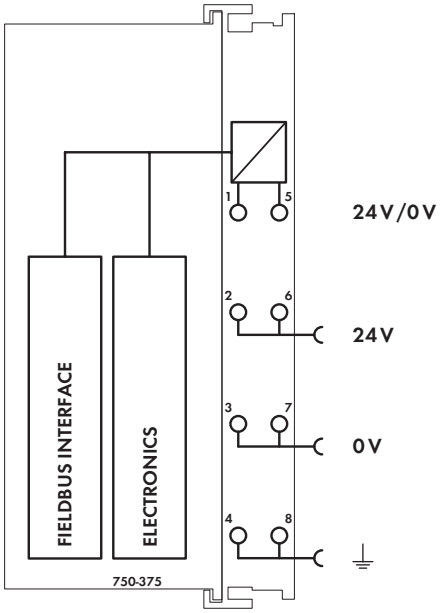
Accessories		Item No.	Pack. Unit
Miniature WSB Quick marking system			
	plain	**248-501**	5
	with marking	see Full Line Catalog AUTOMATION 2012/2013	

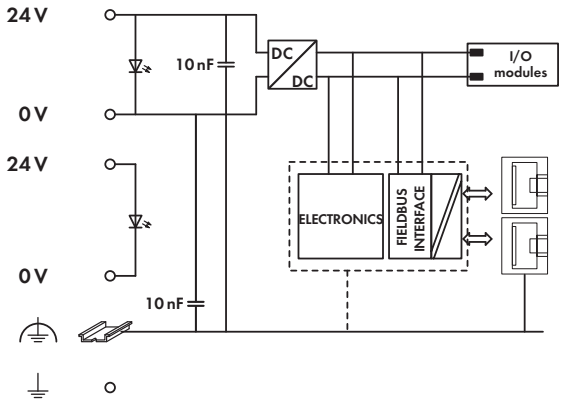
Approvals

Conformity marking	CE
Shipbuilding	pending
UL 508	

System Data

No. of couplers connected to Master	limited by PROFINET specification
Transmission medium	Twisted Pair S-UTP 100 Ω cat. 5
Max. length of fieldbus segment	100 m between hub station and 750-375; max. length of network limited by PROFINET specification
Baud rate	10 Mbit/s (ETHERNET protocols), 100 Mbit/s full duplex (PROFINET IO)
Transmission method	100Base-TX
Buscoupler connection	2 x RJ-45
PROFINET IO standard	V2.3 (conformance class C, pending)





Technical Data

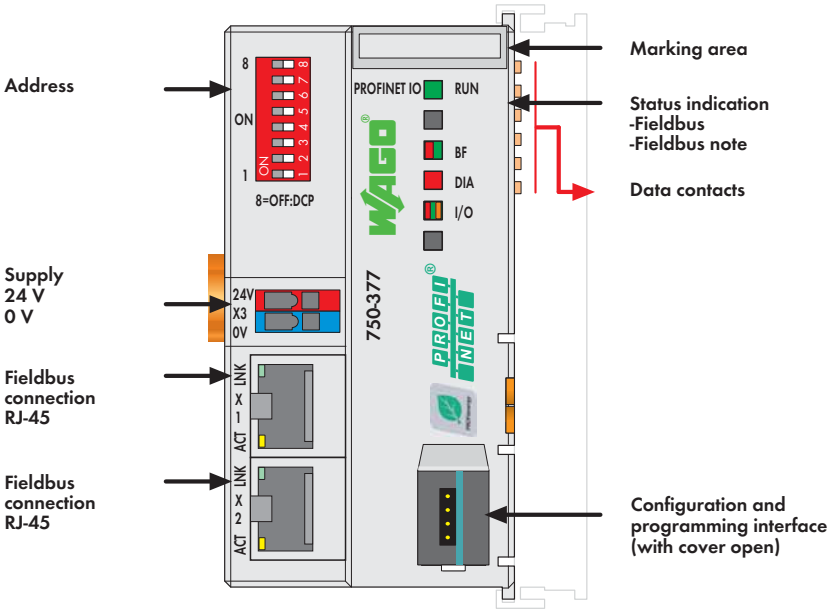
Number of I/O modules	64
with bus extension	250
Fieldbus	
Max. input process image	512 bytes
Max. output process image	512 bytes
Configuration	via PC
PROFINET IO features	Integrated 2-port switch; Auto-negotiation, Auto-MDIX; Isochronous real-time communication (pending); Transmission clock: 1 ms (RT), 1, 2, 4 ms (IRT); Device replacement without programming tool; Shared device, shared input (pending)
Protocols	Topology detection / LLDP, Network diagnostics / SNMP / MIB-2, media redundancy / MRP (pending), Web server / HTTP
Profiles supported	PROFIsafe V2, PROFIenergy V1.1
ID code	Vendor ID: 0x011D; Device ID: 0x02EE; Coupler ID: 0x01000177
Power supply	24 V DC (-25 % ... +30 %)
Input current typ. at rated load (24 V)	500 mA
Efficiency of the power supply (typ.) at nominal load (24 V)	90 %
Internal current consumption (5 V)	450 mA
Total current for I/O modules (5 V)	1700 mA
Isolation	500 V system/supply

General Specifications

Operating temperature	0 °C ... +55 °C
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Strip lengths	8 ... 9 mm / 0.33 in
Dimensions (mm) W x H x L	62 x 65 x 100
	Height from upper-edge of DIN 35 rail
Weight	160 g
Storage temperature	-25 °C ... +85 °C
Relative air humidity (no condensation)	95 %
Vibration resistance	acc. to IEC 60068-2-6
Shock resistance	acc. to IEC 60068-2-27
Degree of protection	IP20
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
EMC: CE - emission of interference	acc. to EN 61000-6-3 (2007)
EMC: marine applications	
- immunity to interference	pending
EMC: marine applications	
- emission of interference	pending

PROFINET IO advanced ECO Fielbus Coupler

2-port switch; 100 Mbit/s; digital, analog and complex signals



The 750-377 Fieldbus Coupler connects the WAGO-I/O-SYSTEM 750 to PROFINET IO (open, real-time industrial ETHERNET automation standard). The coupler identifies the connected I/O modules and creates local process images for one IO controller and one IO supervisor according to preset configurations. The process images may include a mixed arrangement of analog, digital or specialty modules. Analog and specialty module data is sent via words and/or bytes; digital data is sent bit by bit.
The fieldbus coupler operates as an IO device in the network. It features an integrated 2-port switch, simplifying the creation of a line structure without additional network components.
The device name can be assigned via DCP protocol or set via DIP switch.

Description	Item No.	Pack. Unit
PROFINET IO adv. ECO 2-Port	**750-377**	1

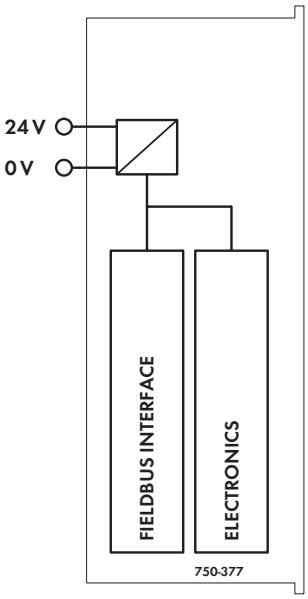
Accessories		Item No.	Pack. Unit
Miniature WSB Quick marking system			
	plain	**248-501**	5
	with marking	see Full Line Catalog AUTOMATION 2012/2013	

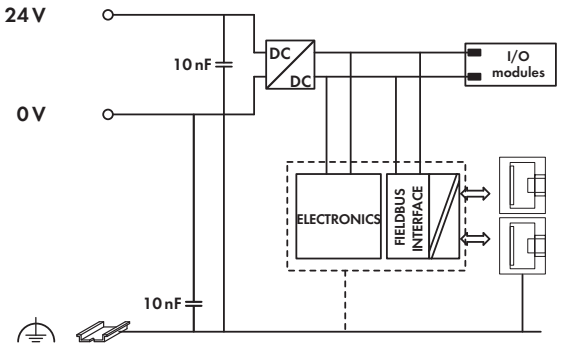
Approvals

Conformity marking	CE
Shipbuilding	pending
UL 508	

System Data

No. of couplers connected to Master	limited by PROFINET specification
Transmission medium	Twisted Pair S-UTP 100 Ω cat. 5
Max. length of fieldbus segment	100 m between hub station and 750-377; max. length of network limited by PROFINET specification
Baud rate	10 Mbit/s (ETHERNET protocols), 100 Mbit/s full duplex (PROFINET IO)
Transmission method	100Base-TX
Buscoupler connection	2 x RJ-45
PROFINET IO standard	V2.3 (conformance class C, pending)





Technical Data

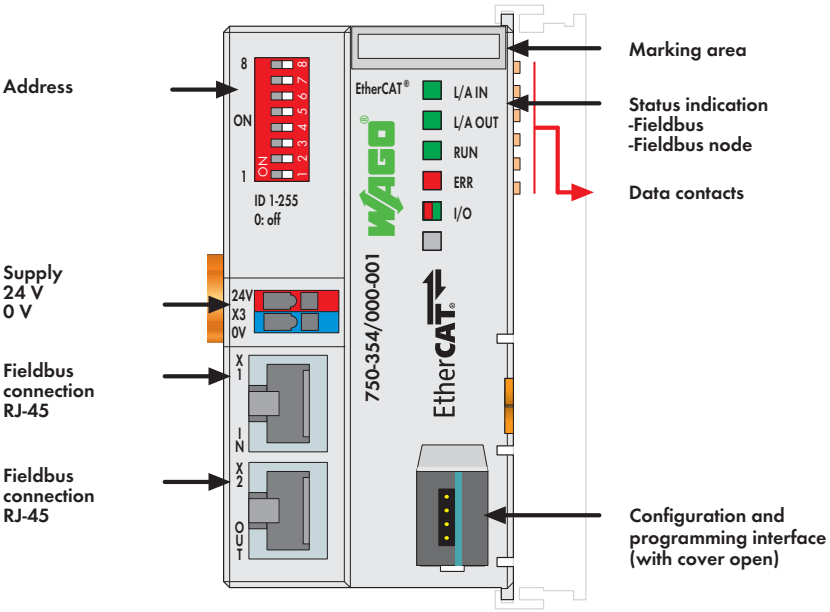
Number of I/O modules	64
Fieldbus	
Max. input process image	256 bytes
Max. output process image	256 bytes
Configuration	via PC
PROFINET IO features	Integrated 2-port switch;
	Auto-negotiation, Auto-MDIX;
	Isochronous real-time communication
	(pending);
	Transmission clock: 1 ms (RT), 1, 2, 4 ms
	(IRT);
	Device replacement without programming
	tool
Protocols	Topology detection / LLDP,
	Network diagnostics / SNMP / MIB-2,
	media redundancy / MRP (pending),
	Web server / HTTP
Profiles supported	PROFIsafe V2, PROFIenergy V1.1
ID code	Vendor ID: 0x011D;
	Device ID: 0x02EE;
	Coupler ID: 0x01000179
Power supply	24 V DC (-25 % ... +30 %)
Input current typ. at rated load (24 V)	280 mA
Efficiency of the power supply (typ.) at	
nominal load (24 V)	90 %
Internal current consumption (5 V)	450 mA
Total current for I/O modules (5 V)	700 mA
Isolation	500 V system/supply

General Specifications

Operating temperature	0 °C ... +55 °C
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 1.5 mm² / AWG 28 ... 14
Strip lengths	5 ... 6 mm / 0.22 in
Dimensions (mm) W x H x L	50 x 65 x 97
	Height from upper-edge of DIN 35 rail
Weight	110 g
Storage temperature	-25 °C ... +85 °C
Relative air humidity (no condensation)	95 %
Vibration resistance	acc. to IEC 60068-2-6
Shock resistance	acc. to IEC 60068-2-27
Degree of protection	IP20
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
EMC: CE - emission of interference	acc. to EN 61000-6-3 (2007)
EMC: marine applications	
- immunity to interference	pending
EMC: marine applications	
- emission of interference	pending

EtherCAT® Fieldbus Coupler, ID Switch

100 Mbit/s; digital and analog signals



The 750-354 EtherCAT® Fieldbus Coupler connects EtherCAT® to the modular WAGO-I/O-SYSTEM.
The fieldbus coupler automatically configures, creating a local process image which may include analog, digital or specialty modules. Analog and specialty module data is sent via words and/or bytes; digital data is sent bit by bit.

The upper EtherCAT® interface connects the coupler to the network. The lower RJ-45 socket connects additional EtherCAT® devices to the same line.

EtherCAT® (Ethernet Control Automation Technology) is a real-time ETHERNET solution designed for industrial automation applications and characterized by high performance, flexible topology and simple configuration. With EtherCAT®, the costly ETHERNET star topology can be replaced with a simple line or tree structure.
The address selection switch is used to set an Explicit Device ID (EDI), which allows a fixed address to be assigned to an EtherCAT® slave.

Description	Item No.	Pack. Unit
EtherCAT® Fieldbus Coupler, ID Switch	**750-354/000-001**	1

Accessories		Item No.	Pack. Unit
Miniature WSB Quick marking system			
	plain	**248-501**	5
	with marking	see Full Line Catalog AUTOMATION 2012/2013	

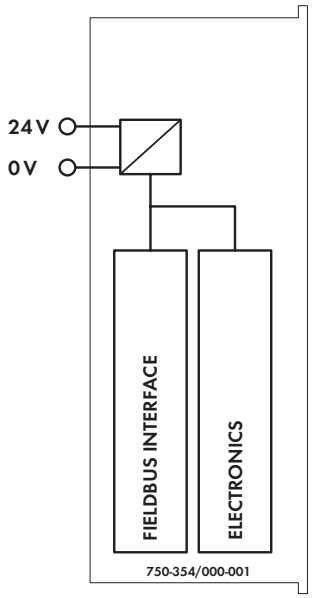
Approvals

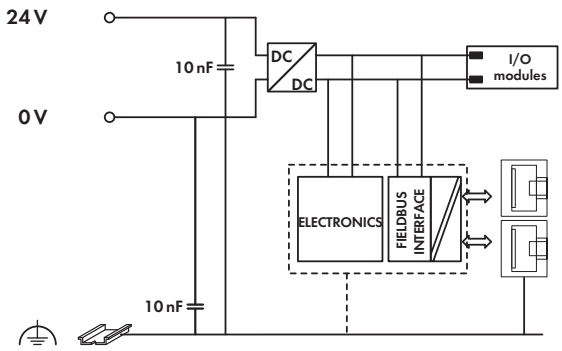
Conformity marking	CE
UL 508	

System Data

No. of couplers connected to Master	limited by EtherCAT specification
Transmission medium	Twisted Pair 2 x 2 or 4 x 2;
	AWG 26/7 to AWG 22/1;
	SF/FTP, SF/UTP or S/FTP;
	100 Ω, Cat 5;
	Max. line length: 100 m
Baud rate	100 Mbit/s
Transmission performance	Class D acc. to EN 50173-1
Buscoupler connection	2 x RJ-45
Protocols	EtherCAT (direct mode)

*EtherCAT® is regristered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.





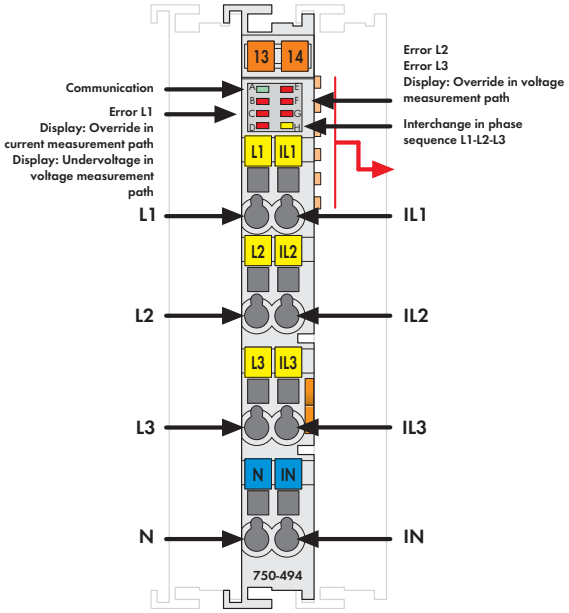
Technical Data

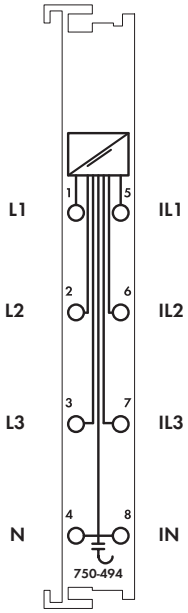
Number of I/O modules	64
Fieldbus	
Max. input process image	1024 bytes
Max. output process image	1024 bytes
Configuration	via PC
Power supply	24 V DC (-25 % ... +30 %)
Input current typ. at rated load (24 V)	250 mA
Efficiency of the power supply (typ.) at	
nominal load (24 V)	85 %
Internal current consumption (5 V)	300 mA
Total current for I/O modules (5 V)	700 mA
Isolation	500 V system/supply

General Specifications

Operating temperature	0 °C ... +55 °C
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 1.5 mm² / AWG 28 ... 14
Strip lengths	5 ... 6 mm / 0.22 in
Dimensions (mm) W x H x L	65 x 50 x 97
	Height from upper-edge of DIN 35 rail
Weight	152 g
Storage temperature	-25 °C ... +85 °C
Relative air humidity (no condensation)	95 %
Vibration resistance	acc. to IEC 60068-2-6
Shock resistance	acc. to IEC 60068-2-27
Degree of protection	IP20
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
EMC: CE - emission of interference	acc. to EN 61000-6-3 (2007)

3-Phase Power Measurement Module





Delivered without miniature WSB markers

The 750-494 3-Phase Power Measurement Module measures electrical data in a three-phase supply network. The voltage is measured via network connection to L1, L2, L3 and N. The current of the three phases is fed to IL1, IL2, IL3 and IN via current transformers. The 750-494 Module transmits metrics (e.g., reactive/apparent/effective power, energy consumption, power factor, phase angle, frequency, over-/undervoltage) directly into the process image, without requiring high computing power from the controller. Both comprehensive metrics and harmonic analysis up to the 41st harmonic permit an extensive network analysis via the fieldbus.
Metrics allow the operator to optimize the supply to a drive or machine, protecting the system from damage and failure.

The 4-quadrant display indicates the type of load (inductive, capacitive) and whether it is an energy consumer or producer.

Description	Item No.	Pack. Unit
3-Phase Power Measurement Module (480V/1A)	**750-494**	
3-Phase Power Measurement Module (480V/5A)	**750-494/000-001**	

Accessories		Item No.	Pack. Unit
Miniature WSB Quick marking system			
	plain	**248-501**	5
	with marking	see Full Line Catalog AUTOMATION 2012/2013	

Approvals

Conformity marking	CE

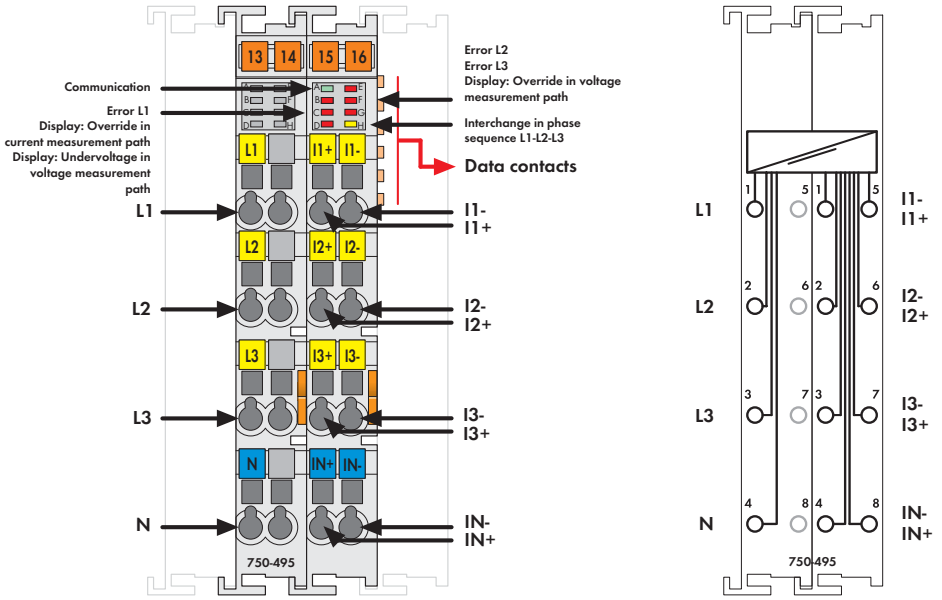
Technical Data

Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Strip lengths	8 ... 9 mm / 0.33 in
Width	12mm
Weight	48.5 g
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
EMC: CE - emission of interference	acc. to EN 61000-6-3 (2007)

Technical Data

Number of measurement inputs	6 (3 voltage measurement inputs, 3 current measurement inputs)
Measuring voltage (max.)	480 VAC 3-phase
Input resistance voltage path (typ.)	1071 kΩ
Measuring current (max.)	1 A (750-494) 5 A (750-494/000-001)
Input resistance current path (typ.)	22 mΩ (750-494) 5 mΩ (750-494/000-001)
Resolution	24 bits
Frequency range with activated DC filter	10 Hz ... 3300 Hz
Frequency range with deactivated DC filter	0 Hz ... 3300 Hz
Max. operating frequency	approx. 72.3 kHz
Signal form	any (taking the maximum frequency into account)
Measuring error for current and voltage	AC: Max. 0.5 %; DC: 1.0 % (of the upper range value); DC measurement (2 channels only)
Measuring procedure	True RMS measurement
Measuring cycle time	Adjustable for arithmetic mean value, Min_Max_Values
Measured values	Line-to-line voltage, power output, energy, power factors, mains frequency, harmonic analysis (up to the 41st harmonic), THD
Power supply	via system voltage internal bus (5 V)
Current consumption (internal)	100 mA
Isolation	2.5 kV system/supply
Bit width	2 x 128 bits data 2 x 64 bits control/status

3-Phase Power Measurement Module



Delivered without miniature WSB markers

The 750-495 3-Phase Power Measurement Module measures electrical data in a three-phase supply network. The voltage is measured via network connection to L1, L2, L3 and N. The current of the three phases is fed to IL1, IL2, IL3 and IN (two clamping points each +,-) via current transformers. The 750-495 Module transmits metrics (e.g., reactive/apparent/effective power, energy consumption, power factor, phase angle, frequency, over-/undervoltage) directly into the process image, without requiring high computing power from the controller. Both comprehensive metrics and harmonic analysis up to the 41st harmonic permit extensive network analysis via the fieldbus.

Metrics allow the operator to optimize the supply to a drive or machine, protecting the system from damage and failure.
Insulation failures can be detected and prevented via current measurement performed in the neutral conductor. The 4-quadrant display indicates the type of load (inductive, capacitive) and whether it is an energy consumer or producer.

Description	Item No.	Pack. Unit
3-Phase Power Measurement Module (690V/1A)	**750-495**	
3-Phase Power Measurement Module (690V/5A)	**750-495/000-001**	

Accessories		Item No.	Pack. Unit
Miniature WSB Quick marking system			
	plain	**248-501**	5
	with marking	see Full Line Catalog AUTOMATION 2012/2013	

Approvals

Conformity marking	CE

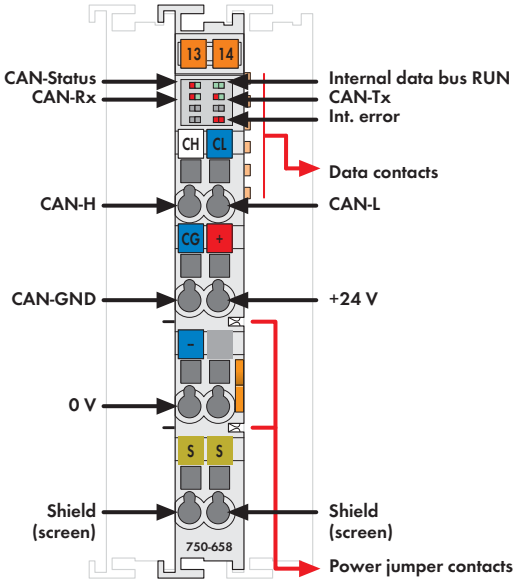
Technical Data

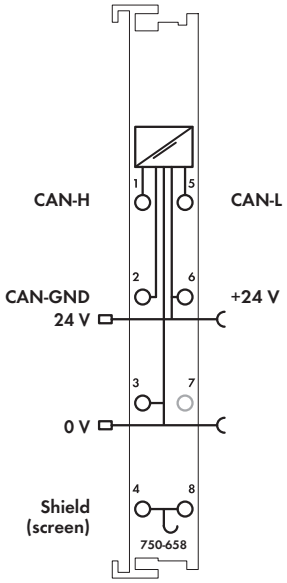
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Strip lengths	8 ... 9 mm / 0.33 in
Width	24mm
Weight	48.5 g
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
EMC: CE - emission of interference	acc. to EN 61000-6-3 (2007)

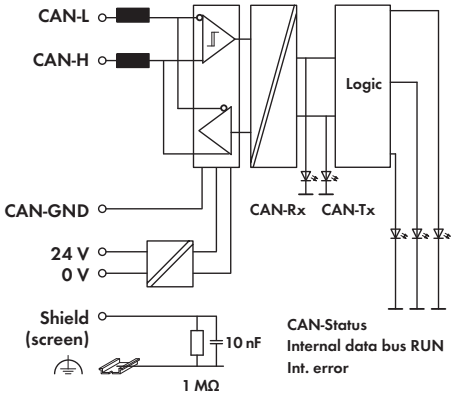
Technical Data

Number of measurement inputs	7 (3 voltage measurement inputs, 4 differential current measurement inputs)
Measuring voltage (max.)	690 VAC 3-phase
Input resistance voltage path (typ.)	1428 kΩ
Measuring current (max.)	1 A (750-495) 5 A (750-495/000-001)
Input resistance current path (typ.)	22 mΩ (750-495) 5 mΩ (750-495/000-001)
Resolution	24 bits
Frequency range with activated DC filter	10 Hz ... 3300 Hz
Frequency range with deactivated DC filter	0 Hz ... 3300 Hz
Max. operating frequency	approx. 72.3 kHz
Signal form	any (taking the maximum frequency into account)
Measuring error for current and voltage	Max. 0.5 % (of the upper range value)
Measuring procedure	True RMS measurement
Measuring cycle time	Adjustable for arithmetic mean value, Min_Max_Values
Measured values	Line-to-line voltage, power output, energy, power factors, mains frequency, harmonic analysis (up to the 41st harmonic), THD
Power supply	via system voltage internal bus (5 V)
Current consumption (internal)	100 mA
Isolation	5 kV system/supply
Bit width	2 x 128 bits data 2 x 64 bits control/status

CAN Gateway







The CAN Gateway supports CAN Layer 2, while meeting CAN specifications 2.0A (11-bit identifier) and 2.0B (29-bit identifier). Function blocks allow the gateway to read and write higher-protocol telegrams (e.g., CANopen).

The gateway adjusts itself to baud rates between 10 kbit/s to 1 Mbit/s via automatic bit-rate detection (Auto Baud Rate). It is also possible to set a fixed transmission rate. Six configurable filters for input telegrams allow CAN messages to be filtered via the CAN identifiers.

Three operation modes are available: Sniffer mode provides a detailed CAN bus analysis without interactions. In transparent mode, the gateway works as an active CAN device that can send and receive any type of CAN telegrams. Mapped mode enables CAN telegrams to be generated directly from the process image. It also allows select process values to be copied from received telegrams into the input process image.
A CAN telegram may be sent cyclically, manually or event-triggered (change of process value).

Description	Item No.	Pack. Unit
CAN Gateway	**750-658**	1

Accessories		Item No.	Pack. Unit
Miniature WSB Quick marking system			
	plain	**248-501**	5
	with marking	see Full Line Catalog AUTOMATION 2012/2013	

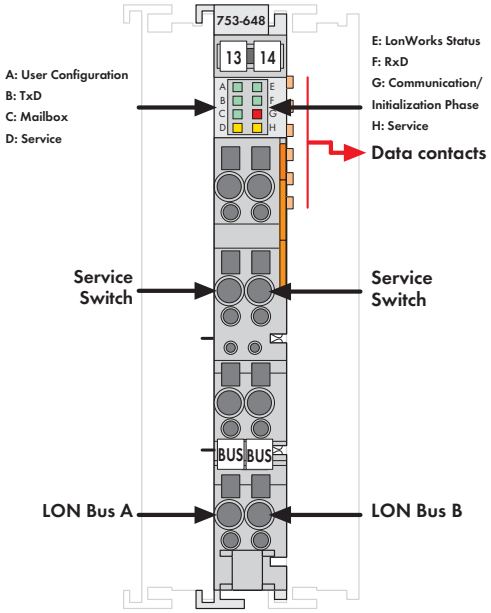
Approvals

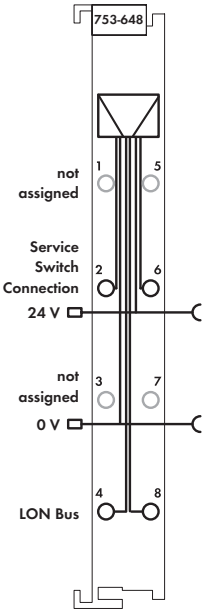
Conformity marking	CE
Shipbuilding	pending
UL 508	pending

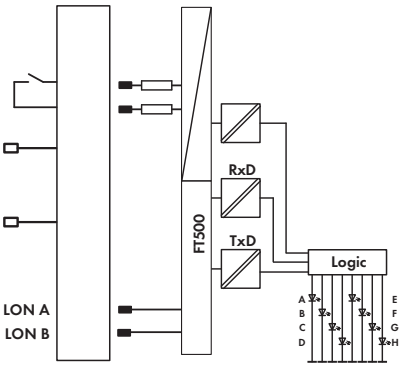
Technical Data

Number of CAN interfaces	1
Supported baud rates	10 kbit/s, 20 kbit/s, 50 kbit/s, 125 kbit/s, 250 kbit/s, 500 kbit/s, 800 kbit/s, 1 Mbit/s, Auto Baud Rate
CAN data formats	acc. to 2.0A (Standard: 11-bit ID), acc. to 2.0B (Extended: 29-bit ID)
Operation modes	Sniffer mode, transparent mode, mapped mode
Internal bit width	8, 12, 16, 20, 24, 32, 40, 48 bytes configurable; incl. control/status byte
Isolation (peak value)	V_M = 500 V system/supply
Current consumption typ. (24 V)	30 mA
Current consumption typ. (KBUS)	50 mA
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Strip lengths	8 ... 9 mm / 0.33 in
Width	12mm
Weight	55 g
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005), EN 61131-2 (2007)
EMC: CE - emission of interference	acc. to EN 61000-6-3 (2007), EN 61131-2 (2007)
EMC: marine applications - immunity to interference	pending
EMC: marine applications - emission of interference	pending

LON FTT Module







The 753-648 LON FTT Module complies with the ISO/IEC 14908 standard. The 1/2 inch (12 mm) wide I/O module connects LON to 750 Series Controller and Modules (e.g., BACnet, KNX, EnOcean, DALI, MODBUS). It is a full-fledged and flexible LON device within LonWorks FT or LP networks. The module's network variable interface defines 249 network variables of any type and supports both LonMark objects and configuration properties. LON network interface is defined via LON Configurator, a comprehensive and easy-to-use WAGO-I/O-PRO software tool. Interface representations are programmed via IEC-61131-3 and can be easily used for further applications. Fieldbus nodes are programmed via WAGO-I/O-PRO software. WAGO provides a comprehensive IEC-61131-3 library of function blocks, simplifying the creation of complex control applications.

A maximum of two modules may be connected to one controller. However, the number of modules depends on the memory required by the IEC application and the type of controller. The module is supplied via 24V power jumper contacts.

Description	Item No.	Pack. Unit
LON FTT Module	**753-648**	

Accessories		Item No.	Pack. Unit
LON-LIB		Download: www.wago.com	
LON Configurator		see page 27	
WAGO-I/O-PRO V2.3, RS-232 kit		**759-333**	1
	Miniature WSB Quick marking system		
	plain	**248-501**	5
	with marking	see Full Line Catalog AUTOMATION 2012/2013	
753 Series Connectors		**753-110**	25
Coding fingers		**753-150**	100

753 Series pluggable connectors and coding fingers are included.

Approvals

Conformity marking	CE
UL 508	pending

Technical Data

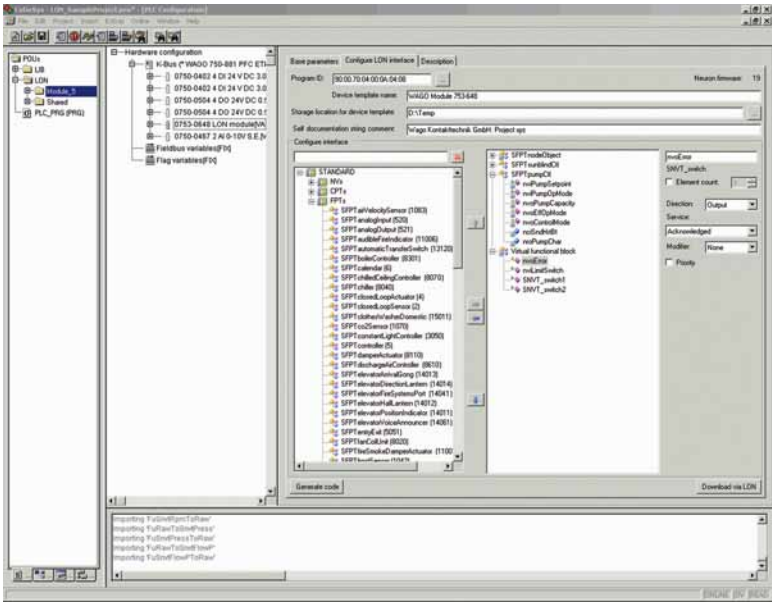
Transmission medium	Twisted Pair - FTT
Max. length of fieldbus segment	500 m (free topology); 2700 m (bus topology)
Topology	acc. to LON specification
Baud rate	78 kbps
Commissioning	via WAGO-I/O-CHECK
Programming	via WAGO-I/O-PRO
Interface to LON network	programmable via WAGO-I/O-PRO
Number of network variables	max. 254 (249 for application)
Number of aliases	max. 127
ISI (Interoparable Self-Installation)	no
DMF (Direct Memory Files)	no
Processor	FT5000
Transceiver	FTX2
Transmission channel	1
Current consumption (internal)	30 mA
Power supply	via system power
Isolation	500 V system/supply
Internal bit width	24-byte data
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	9 ... 10 mm / 0.37 in
Width	12 mm
Weight	55 g
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
EMC: CE - emission of interference	acc. to EN 61000-6-3 (2007)
EMC: marine applications	
- immunity to interference	acc. to Germanischer Lloyd (2003)
EMC: marine applications	
- emission of interference	acc. to Germanischer Lloyd (2003)

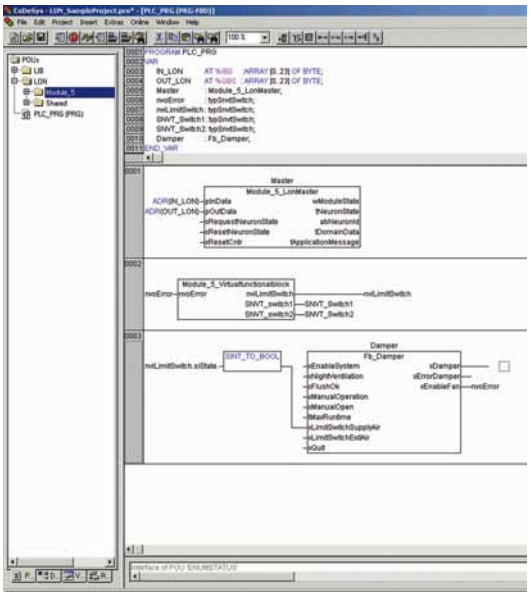
LON Configurator

LON Configurator is an integral part of the WAGO-I/O-PRO IEC-61131-3 programming environment. The configurator supports both 753-648 LON Module's LonWorks network interface configuration and WAGO-I/O-PRO project integration. Network variables of any type can be defined. In addition to standard network variable types (SNVTs) and standard configuration property types (SCPTs), user-defined types (UNVTs/UCPTs) as well as LonMark functional profiles are also supported. Network variables are defined using the types and objects of the LonMark resources installed on your computer.
IEC-61131-3 function blocks are automatically created in the IEC application, simplifying operation. The function blocks represent the LON network interface in this application. When starting the control unit, both network variable interface and configuration data are automatically downloaded into the module.
An external interface file (XIF) is created for offline configuration in a network management tool.

Features:

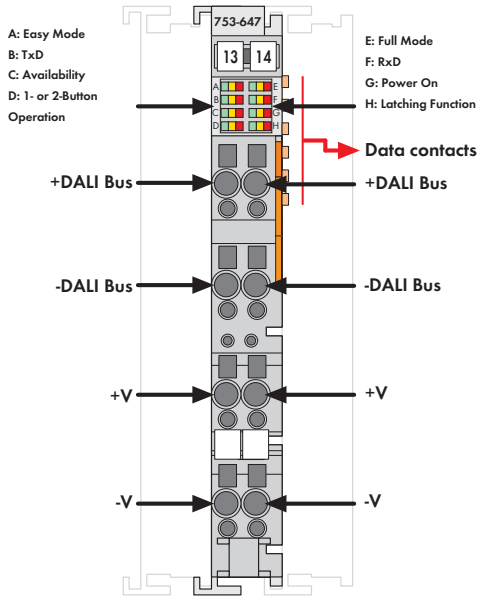
- Integral part of WAGO-I/O-PRO programming software
- Defines and implements a LON network interface
- Automatically generates IEC-61131-3 function blocks representing the LON network interface in the IEC application
- Downloads both network interfaces and configuration data when starting the control unit
- Generates XIF files
- Configuration check

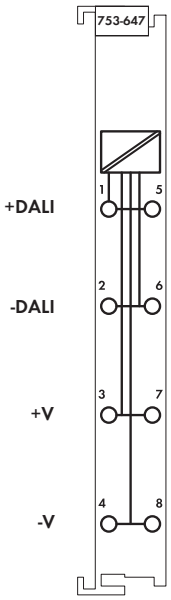


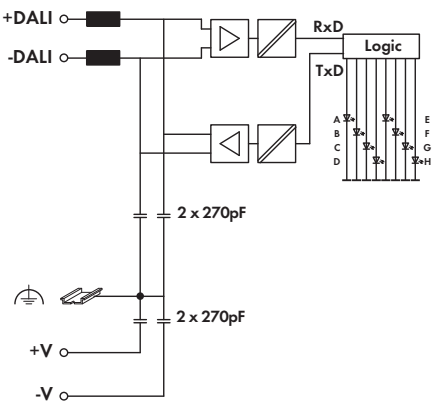


LON Configurator is available as part of WAGO-I/O-PRO (Version 2.3.9.34 and higher)

DALI Multi-Master Module







The 753-647 DALI Multi-Master Module complies with DALI standard according to IEC 62386. This manufacturer-independent protocol ensures interoperability of DALI devices in lighting applications.
The 1/2 inch (12 mm) wide module is a DALI interface used in combination with WAGO 750 Series Controllers and Modules (e.g., BACnet, KNX, EnOcean, LON, MODBUS). Each DALI Multi-Master Module supports 64 addresses for electronic control gears (ECGs) and 64 addresses for DALI sensors. Each DALI ECG can be assigned to 16 groups and 16 scenes. The 753-647 Module also offers 16 additional virtual groups on the DALI bus.
Using the WAGO-I/O-SYSTEM, DALI control devices are seamlessly integrated with all supported BA and fieldbus protocols. Several DALI masters can be connected to a single fieldbus node. The maximum number of modules that can be connected to a controller depends on the memory required by the application. Fieldbus nodes are programmed via WAGO-I/O-PRO software. WAGO provides a comprehensive IEC-61131-3 library of function blocks, simplifying the creation of complex lighting applications.

Alternatively an "Easy Mode" allows lighting functions to be easily controlled without any complicated PLC programming. The 753-647 Module is future-proof and upgradable to the latest DALI release. A comprehensive and easy-to-use commissioning and maintenance tool is available as stand-alone application or as integrated WAGO-I/O-CHECK software component.
The two following power supply options are available for the 753-647 Series:
1. The 753-620 DALI Multi-Master DC/DC Converter is used to supply one single module.
2. The 787-1007 Power Supply is used to supply several modules.

Description	Item No.	Pack. Unit
DALI Multi-Master Module	**753-647**	

Accessories	Item No.	Pack. Unit
DALI Configurator	see page 29 or download: www.wago.com	
WAGO-I/O-CHECK, RS-232 kit	**759-302**	1
Miniature WSB Quick marking system		
plain	**248-501**	5
with marking	see Full Line Catalog AUTOMATION 2012/2013	
753 Series Connectors	**753-110**	25
Coding fingers	**753-150**	100

753 Series pluggable connectors and coding fingers are included.

Approvals

Conformity marking	CE
UL 508	pending
EN 60079-0, -15	pending
EN 61241-0, -1	

Technical Data

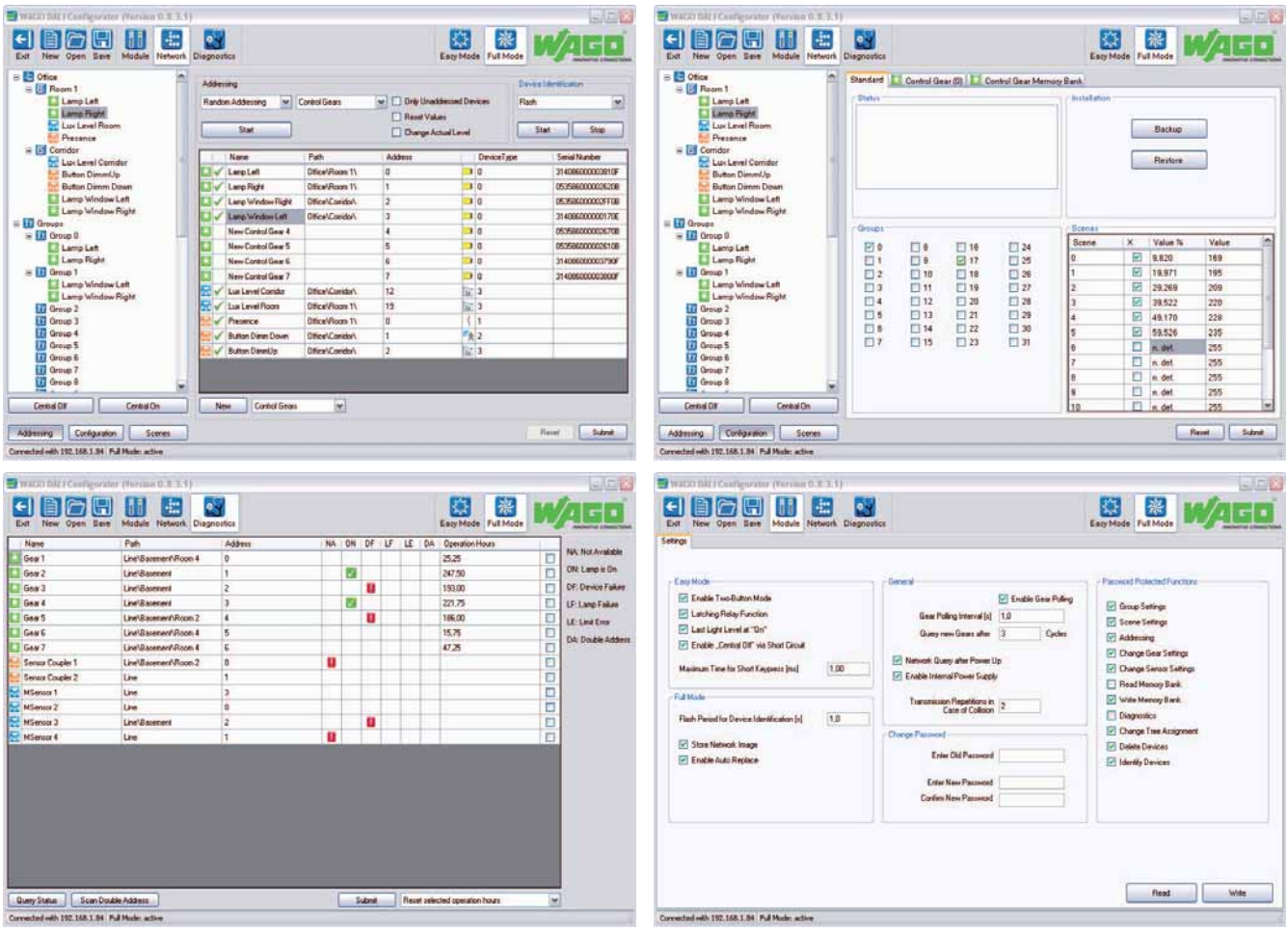
DALI specification	DIN IEC 62386 only in conjunction with 753-620 or 787-1007 Power Supplies
Number of slaves (DALI)	addressable: 64 control devices + 64 control gears
Module power supply at +V and -V	18 V via 753-620 / 787-1007 Power Supplies
Transmission channel	1
Technical information acc. to DALI specification	
Maximum supply current	250 mA
Guaranteed supply current	200 mA
Current consumption (internal)	30 mA
Power supply	via system voltage (DC/DC)
Isolation	1500 V DC DALI bus/Internal data bus
Internal bit width	24-byte data
Commissioning	via WAGO-I/O-CHECK
Configuration	with WAGO DALI Configurator
Programming	via WAGO-I/O-PRO
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	9 ... 10 mm / 0.37 in
Width	12 mm
Weight	55 g
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005) *
EMC: CE - emission of interference	acc. to EN 61000-6-3 (2007) *
	* Only in conjunction with 753-620 / 787-1007 DC/DC Converter
EMC: marine applications	
- immunity to interference	acc. to Germanischer Lloyd (2003)
EMC: marine applications	
- emission of interference	acc. to Germanischer Lloyd (2003)

DALI Configurator

The DALI Configurator allows easy commissioning of a DALI network via 753-647 DALI Multi-Master Module. The configurator is available as stand-alone Windows application or for use with WAGO-I/O-CHECK software.
It provides the following functions: easy commissioning, configuration, service, support and maintenance of a DALI network. Comprehensive backup & restore features, as well as offline configuration option for the entire DALI network (including ECGs and sensors) are available.

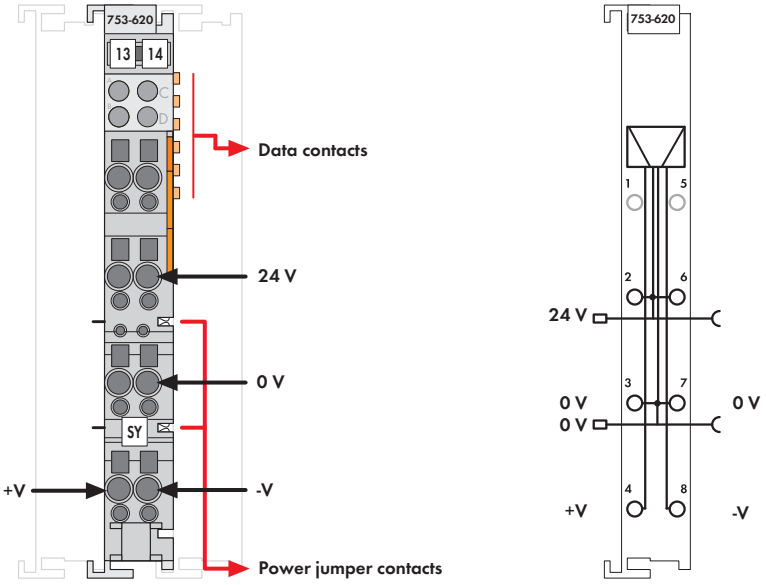
Features:

- Stand-alone software or for use with WAGO-I/O-CHECK
- Commissioning functions:
  - Addressing
  - Formation of scenes and groups
  - Control gear configuration
  - Offline configuration option
- Service, support and maintenance functions:
  - Backup & restore
  - Status messages from defective ECGs/lamps
  - Identification of double addresses
  - Operating hours display
- Windows-conform user interface:
  - Multiple selection for time-optimized configuration
  - Displays network in a clear tree structure
  - Supports different commissioning workflows



DALI Configurator is available as part of WAGO-I/O-CHECK (Version 3.4.1.9 and higher) or as a stand-alone application (www.wago.com).

DALI Multi-Master DC/DC Converter



Part of the WAGO-I/O-SYSTEM, the 753-620 DALI Multi-Master DC/DC Converter is just ½ inch (12mm) wide. It supplies power to the 753-647 DALI Multi-Master Module and delivers maximum 200mA current to operate a single DALI line. The maximum number of slaves depends on the total power consumption of the single DALI devices.
The 753-620 DC/DC Converter is supplied via 24V power jumper contacts. Cable bridges connect the DC/DC Converter to the DALI Multi-Master Module.

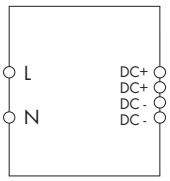
Description	Item No.	Pack. Unit
DALI Multi-Master DC/DC Converter	**753-620**	1

Accessories		Item No.	Pack. Unit
	**Miniature WSB Quick marking system**		
	plain	**248-501**	5
	with marking	see Full Line Catalog AUTOMATION 2012/2013	
753 Series Connectors		**753-110**	25
Coding fingers		**753-150**	100
753 Series pluggable connectors and coding fingers are included.			

Technical Data	
Voltage via power jumper contacts (max.)	24 VDC
Input voltage range	18 ... 31.2 VDC
Current via power jumper contacts (max.)	10 ADC
Output voltage	18 VDC (at +V and -V)
Nominal output current	200 mA
Short circuit protection	permanent
Test voltage input / output	1.5 kV eff.
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Stripped lengths	9 ... 10 mm / 0.37 in
Width	12 mm
Weight	55 g

Power Supply

for 753-647 DALI Multi-Master Module



The 787-1007 Primary Switch Mode Power Supply is specially designed to supply the 753-647 DALI Multi-Master Module. The 787-1007 features a 54mm-wide DIN-rail mount enclosure with input voltage range of 85 to 264VAC (120 – 373VAC). The power supply provides an output voltage of 18VDC and a maximum output current of 1100mA – enough to supply up to five parallel modules. The maximum current per DALI line is limited to 200mA in each DALI Multi-Master Module.

- Supplies up to five 753-647 DALI Multi-Master Modules*
- Prepared for class II equipment
- Natural convection cooling when horizontally mounted
- Stage profile, ideal for distribution boards or distribution boxes

Description	Item No.	Pack. Unit
Primary Switch Mode Power Supply, 18 VDC / 1.1A	**787-1007**	1

Technical Data

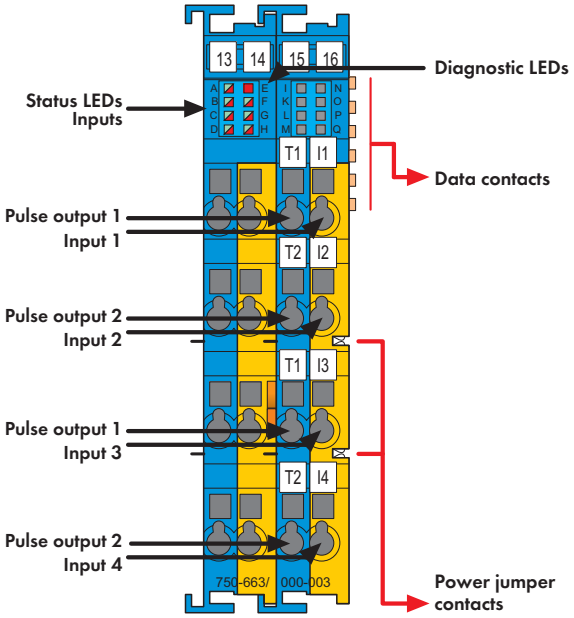
Input:	
Nominal input voltage Vi nom	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 ... 373 VDC
Frequency	44 ... 66 Hz; 0 Hz
Input current Ii	0.6 A at 110 VAC / 0.4 A at 230 VAC
Inrush current	< 30 A, NTC
Mains failure hold-up time	> 10 ms at 110 VAC / > 80 ms at 230 VAC
Output:	
Nominal output voltage Vo nom	18 VDC
Output current Io	1.1 A at 18 VDC
	max. 0.8 A (18 VDC) in any mounting position
Factory preset	18 VDC
Adjustment accuracy	2 %
Residual ripple	< 150 mV (peak-peak)
Current limitation	1.1 x Io typ.
Overload behavior	Constant current
Operational indication	LED green (Va)
Efficiency / power losses:	
Efficiency	80 % typ.
Power loss P_V	3 W (no load) / 6 W (rated load)
Fuse protection:	
Internal fuse	2 AT
External fuse	Wire breaking 10 A, 16 A, Characteristic B, C
	An external DC fuse is required for the DC input voltage

* **Note:** The 787-1007 Power Supply must be operated in a DALI network with interconnected 753-647 DALI Multi-Master Module. Otherwise the connected DALI devices will be destroyed.

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +55 °C
Storage temperature	-25 °C ... +80 °C
Rel. humidity	30 % ... 85 % (no condensation)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Enclosure	Plastic, light gray, Flammability class V0 acc. to UL94
Test voltage pri. - sec.	4.2 kV DC
Protection class	Prepared for class II equipment
Degree of protection	IP20 (acc. to EN 60529)
No-load proof	yes
Feedback voltage	max. 20 VDC
Short circuit protection	yes
MTBF	500000 h
Connection and type of mounting:	
Wire connection	Input/Output: WAGO Series 740
Cross sections	Input/Output: 0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Stripped lengths	Input/Output: 6 ... 7 mm / 0.24 ... 0.28 in
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Dimensions (mm) W x H x L	54 x 89 x 59
	Length: 55 mm, from upper-edge of DIN 35 rail
Weight	170 g
Standards and approvals:	
Standards/Specifications	EN 60950 (SELV), EN 61204-3, GL (Environmental Category A, EMC 2), UL 60950**, UL 508** (** pending)

Intrinsically Safe, 4-Channel Digital Input Module with Inputs for Functional Safety, PROFIsafe V2 iPar



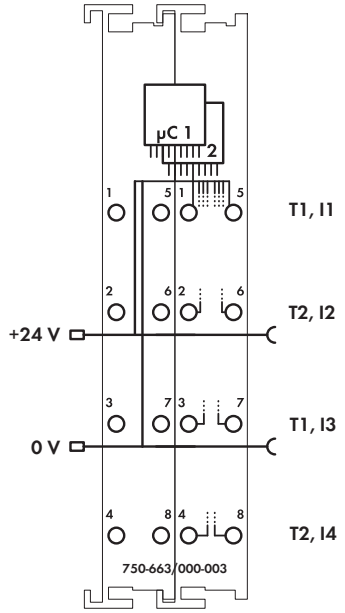
The intrinsically safe 750-663/000-003 PROFIsafe Input Module for functional safety provides risk reductions up to SIL 3, Cat. 4, PL e, and connects to potential-free, contact-based emergency stop switches, safety door switches, mode selectors, as well as safety sensors, that are located hazardous environments 0, 1 and 2. The fail-safe input module must be located in Zone 2.
The input module has 4 clock sensitive inputs (I1 ... I4) that are fed by 2 differently clocked, short-circuit proof outputs (T1 ... T2). Inputs are continually monitored for cross circuits and voltage supply from separate sources.
Additional safety-relevant functions (e.g., operating modes, switching off test pulses, discrepancy or filter times) can be configured via WAGO-I/O-CHECK.
This configuration tool supports both CC2 and CC3 tool calling interfaces (TCI).
When exchanging the module, parameters are automatically downloaded by the controller via PROFIsafe-compatible iPar server – depending on settings. The module supports both PROFIsafe V1 and V2 (PROFIBUS, PROFINET) protocols.

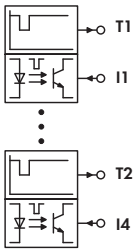
Individual I/O modules can be arranged in any combination within the fieldbus node's Ex segment.
Note 1:
The PROFIsafe input module shall only be operated using an Ex i 24VDC power supply (e.g., 750-606, 750-625/000-001)! General information (e.g., installation regulations) on explosion protection is available in the WAGO-I/O-SYSTEM 750 manuals!
Note 2:
To protect the module against surge voltages (surge protection acc. to IEC 61000-4-5), a filter module (750-626 or 750-624) or an external surge filter must be used before the Ex i 24VDC power supply.
Reference the product manual for further information!

Description	Item No.	Pack. Unit
4F Ex i DI 24V PROFIsafe V2 iPar	**750-663/000-003**	1

Accessories		Item No.	Pack. Unit
Miniature WSB Quick marking system			
	plain	**248-501**	5
	with marking	see Full Line Catalog AUTOMATION 2012/2013	

Technical Data	
Inputs:	
Sensor inputs	I1 ... I4; clock sensitive to T1 ... T2
	Type 1 acc. to IEC 61131
Input current (typ.)	3 mA
Input frequency (max.)	50 Hz
Input filter	0 ms ... 200 ms, configurable in steps
Clock outputs	T1 ... T2
Output current (max.)	≤ 5 mA
Short-circuit current	≤ 25 mA
General specifications:	
Voltage supply	5 V system voltage via internal bus
Voltage via power jumper contacts	Supply via 24 V DC Ex i supply module
Isolation (peak value)	V_M = 375 V system/supply
Line length (max.)	100 m





Technical Data

Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Strip lengths	8 ... 9 mm / 0.33 in
Width	24mm
Weight	100 g
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
EMC: CE - emission of interference	acc. to EN 61000-6-4 (2007)
EMC: marine applications	
- immunity to interference	pending
EMC: marine applications	
- emission of interference	pending

Explosion Protection

Electric circuit, safety-relevant data	V_0 = 27.3 V; I_0 = 23 mA; P_0 = 157 mW;
	Characteristic: Linear
Reactances Ex ia IIC	L_0 = 61 mH; C_0 = 64 nF
Reactances Ex ia IIB	L_0 = 100 mH; C_0 = 552 nF
Reactances Ex ia I	L_0 = 100 mH; C_0 = 2.95 µF
	(The above-listed ratings do not account for
	the coincidental occurrence of
	capacitances and inductances. For ratings
	taking the coincidental occurrence of
	capacitances and inductances into
	account, see manual)

Functional Safety

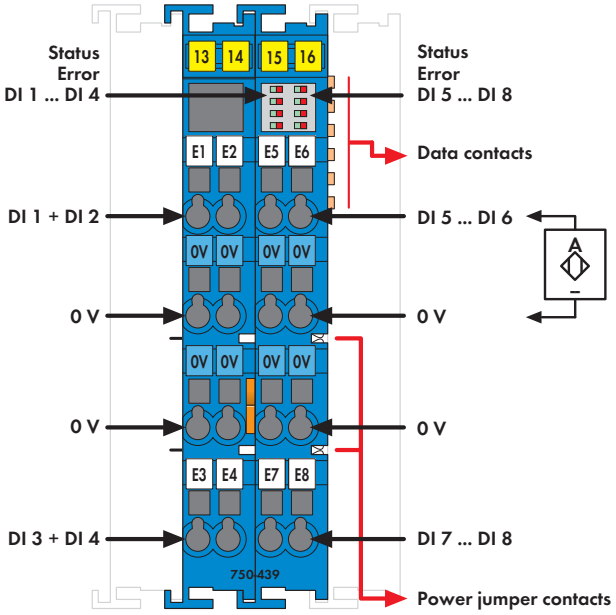
Achievable risk reduction	SIL 3 acc. to IEC 61508:2010;
	SIL 3 acc. to IEC 61511:2005;
	SIL 3 acc. to IEC 62061:2005;
	Cat. 4, PL e acc. to EN ISO 13849:2008

Standards, Guidelines and Approvals

EC EMC guideline	2004/108/EC
Ex directive 94 / 9 / EG	EN 60079-0:2012, EN 60079-11:2012
	EN 60079-15:2010
Conformity marking	CE
Safety standards	IEC 61508:2010;
	IEC 62061:2005;
	EN ISO 13849:2008;
	IEC 61511:2005
Shipbuilding	pending
cULus UL 508	pending
cULus ANSI/ISA 12.12.01	pending
TÜV 12 ATEX 106032 X	I M2 (M1) Ex d [ia Ma] I Mb
	II 3 (1) G Ex nA [ia Ga] IIC T4 Gc
	II 3 (1) D Ex tc [ia Da] IIIC T135°C Dc
Permissible ambient operating temperature: 0 °C ≤ T_A ≤ +60 °C	
IECEx TUN 12.0039 X	Ex d [ia Ma] I Mb
	Ex nA [ia Ga] IIC T4 Gc
	Ex tc [ia Da] IIIC T135°C Dc
Permissible ambient operating temperature: 0 °C ≤ T_A ≤ +60 °C	

8-Channel Digital Input Module NAMUR, Ex i

Proximity switch acc. to DIN EN 50227



The 750-439 Digital Input Module records binary signals from sensors operating in hazardous environments of Zones 0 and 1, permitting channel-by-channel short-circuit and wire-break diagnostics. NAMUR sensors, optocouplers, mechanical contacts (LED diagnostics can be turned off via control byte) or other actuating elements can be connected via intrinsically safe devices.

The WAGO-I/O-SYSTEM 750 must be installed either in Zone 2 or in a non-hazardous area. Each sensor is supplied with a short-circuit-protected voltage of 8.2V.
Field and system levels are electrically isolated.
LED displays:

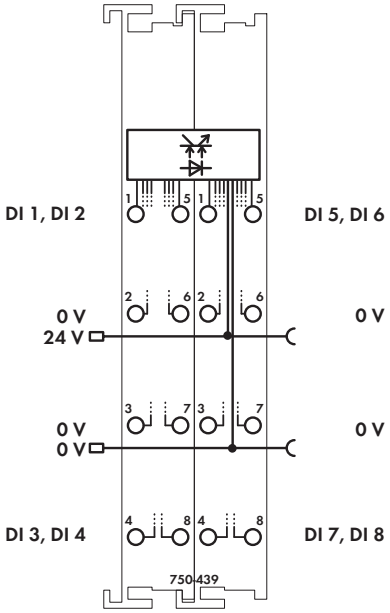
- Green LED (signal ON)
- Red LED (short-circuit)
- Red flashing LED (wire-break)

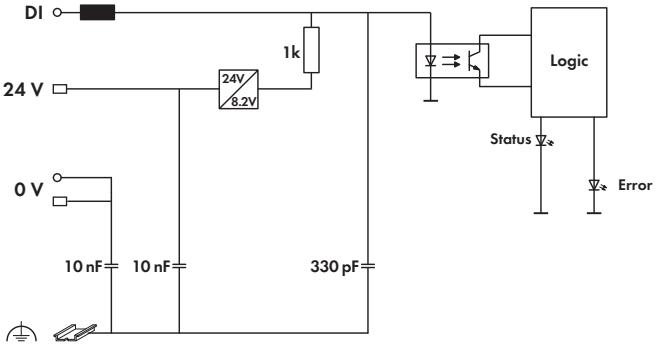
Note: The digital input module must only be operated via Ex i 24VDC power supply!
General information (e.g., installation regulations) on explosion protection is available in the WAGO-I/O-SYSTEM 750 manuals!

Description	Item No.	Pack. Unit
8DI NAMUR Ex i	**750-439**	1

Accessories		Item No.	Pack. Unit
Miniature WSB Quick marking system			
	plain	**248-501**	5
	with marking	see Full Line Catalog AUTOMATION 2012/2013	

Technical Data	
Number of inputs	8
Current consumption typ. (internal)	56 mA
Voltage via power jumper contacts	Supply via 24 VDC Ex i supply module
Open-circuit voltage	8.2 VDC
Sensor supply	V_V = 8.2 V (± 0.2 V)
Signal current (0)	≤ 1.2 mA
Signal current (1)	≥ 2.1 mA
Input filter	3.0 ms
Switching hysteresis	0.2 mA
Open-circuit voltage	8.2 VDC
Input resistance	1 kΩ
Input pulse duration	≥ 5 ms
Input pulse separation	≥ 3 ms
Short-circuit current	≤ 8.2 mA (± 0.2 mA)
Short-circuit monitoring	> 6.4 mA
Line break monitoring	< 0.3 mA
Current consumption typ. (field side)	11 mA + load
Power consumption P (max.)	1.2 W
Power loss P_V	0.54 W
Isolation (peak value)	U_M = 375 V system/supply
Bit width	16 bits (status)





Technical Data

Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Strip lengths	8 ... 9 mm / 0.33 in
Width	24mm
Weight	92 g
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
EMC: CE - emission of interference	acc. to EN 61000-6-4 (2007)

Explosion Protection

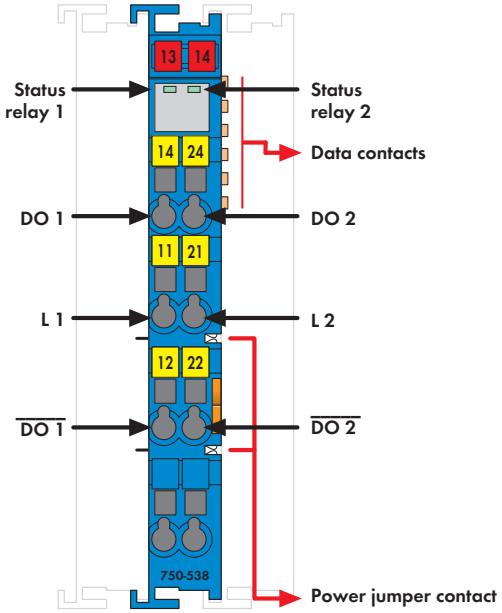
Ex directive 94 / 9 / EG	EN 60079-0:2009, EN 60079-11:2012
	EN 60079-15:2010, EN 60079-31:2009
Electric circuit, safety-relevant data	V_0 = 11.76 V; I_0 = 12.48 mA;
	P_0 = 36.67 mW; Characteristic: Linear
Reactances Ex ia IIC	L_0 = 100 mH; C_0 = 1 µF
Reactances Ex ia IIB	L_0 = 100 mH; C_0 = 9.9 µF
Reactances Ex ia I	L_0 = 100 mH; C_0 = 30 µF
Reactances	(The above-listed ratings do not account for the coincidental occurrence of capacitances and inductances. For ratings taking the coincidental occurrence of capacitances and inductances into account, see manual)

Standards, Guidelines and Approvals

EC EMC guideline	2004/108/EC
EC low voltage guideline	2006/95/EC
Conformity marking	CE
Shipbuilding	pending
UL 508	pending
ANSI/ISA 12.12.01	pending
ATEX approval	pending
IECEx approval	pending

2-Channel Relay Output Module 125 V AC, 30 V DC, Ex i

Isolated outputs; 2 changeover contacts



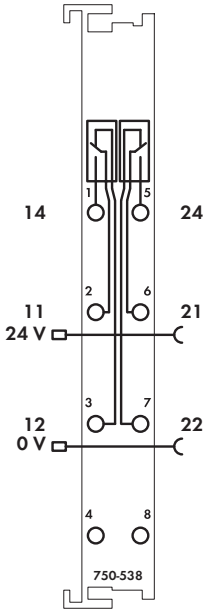
The digital output module switches intrinsically safe circuits of Zone 0+1 (e.g., magnetic valves, contactors, optical/acoustic encoders).
The internal system voltage triggers the relay.
Both maximum switching current and voltage must comply with EN 60079-11.
The switched status of the relays is shown by an LED.
The NO contacts are electrically isolated.
The WAGO-I/O-SYSTEM 750 must be installed either in Zone 2 or in a non-hazardous area.

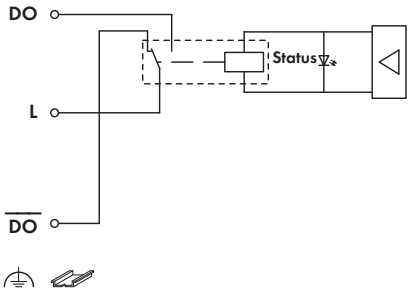
Note: The digital output module must only be operated via Ex i 24VDC power supply!
General information (e.g., installation regulations) on explosion protection is available in the WAGO-I/O-SYSTEM 750 manuals!

Description	Item No.	Pack. Unit
2DO RELAY Ex i	**750-538**	1

Accessories		Item No.	Pack. Unit
Miniature WSB Quick marking system			
	plain	**248-501**	5
	with marking	see Full Line Catalog AUTOMATION 2012/2013	

Technical Data	
No. of outputs	2 changeover contacts
Current consumption typ. (internal)	26 mA
Voltage via power jumper contacts	Supply via 24 VDC Ex i supply module
Type of load	resistive, inductive, lamps
Max. switching frequency	20/min
Max. switching voltage	125 V AC / 30 V DC
Max. switching current	0.5 A AC / 1 A DC
Min. switching current	0.01 mA / 10 mV DC
Switching power	62.5 VA / 30 W
Pull-in time (max.)	4 ms
Drop-out time (max.)	4 ms
Contact material	Silver alloy, gold-plated
Mechanical life	1 x 10^8 switching operations
Electrical life	1 x 10^5 (0.5 A / 125 V AC)
	2 x 10^5 (1 A / 30 V DC)
Isolation	V_M = 375 V system/supply
Power consumption $P_{max.}$	0.7 W
Power loss P_V	0.7 W
Bit width	2 bits (status)





Technical Data

Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Strip lengths	8 ... 9 mm / 0.33 in
Width	12mm
Weight	48.5 g
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
EMC: CE - emission of interference	acc. to EN 61000-6-4 (2007)

Explosion Protection

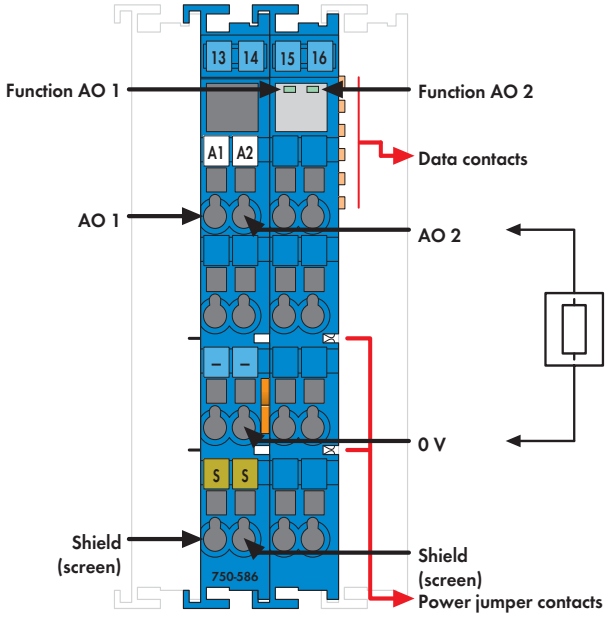
Ex directive 94 / 9 / EG	EN 60079-0:2012, EN 60079-11:2012, EN 60079-15:2010, EN 60079-31:2009
Electric circuit, safety-relevant data	pending
Reactances Ex ia IIC	pending
Reactances Ex ia IIB	pending
Reactances Ex ia I	pending
Reactances	(The above-listed ratings do not account for the coincidental occurrence of capacitances and inductances. For ratings taking the coincidental occurrence of capacitances and inductances into account, see manual)

Standards, Guidelines and Approvals

EC EMC guideline	2004/108/EC
EC low voltage guideline	2006/95/EC
Conformity marking	CE
Shipbuilding	pending
cULus UL 508	pending
cULus ANSI/ISA 12.12.01	pending
ATEX approval	pending
IECEx approval	pending

Also see "Approvals Overview" in Section 1

2-Channel Analog Output Module 4-20 mA, Ex i



The analog output module transmits intrinsically safe 4-20mA signals in the hazardous Zone 0+1.
The WAGO-I/O-SYSTEM 750 must be installed either in Zone 2 or in a non-hazardous area.
Power is derived from the power jumper contacts.
The outputs are short-circuit proof.

LED indicators:
- Green LED (output status)

An optocoupler provides electrical isolation between the bus and the field side.

Note:

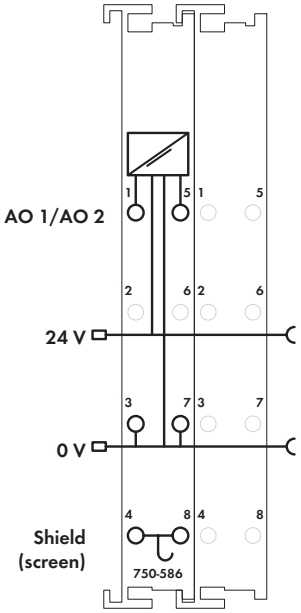
Only use the analog output module in connection with the 24VDC Ex i Supply Module (note the power supply instructions)!

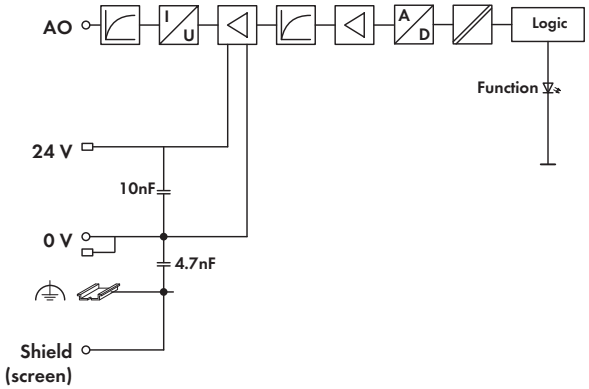
General information (e.g., installation regulations) on explosion protection is available in the WAGO-I/O-SYSTEM 750 manuals!

Description	Item No.	Pack. Unit
2AO 4-20 mA Ex i	**750-586**	1

Accessories		Item No.	Pack. Unit
Miniature WSB Quick marking system			
	plain	**248-501**	5
	with marking	see Full Line Catalog AUTOMATION 2012/2013	

Technical Data	
No. of outputs	2
Max. current consumption (internal)	21 mA
Voltage via power jumper contacts	Supply via 24 V DC Ex i supply module
Signal current	4 mA ... 20 mA
Load impedance	< 500 Ω
Linearity	± 2 LSB
Resolution	12 bits
Conversion time	< 2 ms
Measuring error (25 °C)	< ± 0.2 % of the full scale value
Temperature coefficient	< ± 0.01 % / K of the full scale value
Current consumption typ. (field side)	19 mA / module + load (2 x 20 mA)
Power consumption P (max.)	1.5 W
Power loss P_V	0.9 W
Isolation	375 V system/supply
Bit width	2 x 16 bits data





Technical Data

Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Strip lengths	8 ... 9 mm / 0.33 in
Width	24mm
Weight	91.6 g
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
EMC: CE - emission of interference	acc. to EN 61000-6-4 (2007)

Explosion Protection

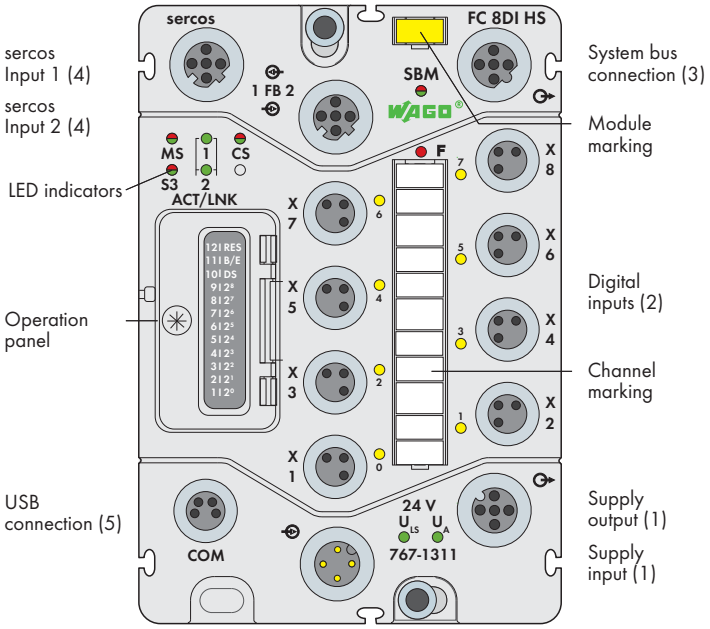
Ex directive 94 / 9 / EG	EN 60079-0:2012, EN 60079-11:2007, EN 60079-15:2010, EN 60079-31:2009
Electric circuit, safety-relevant data	V_0 = 27.3 V ; I_0 = 57.5 mA; P_0 = 392 mW; Characteristic: Linear
Reactances Ex ia IIC	L_0 = 11 mH; C_0 = 88 nF
Reactances Ex ia IIB	L_0 = 56 mH; C_0 = 680 nF
Reactances Ex ia I	L_0 = 110 mH; C_0 = 3.5 µF
	(The above-listed ratings do not account for the coincidental occurrence of capacitances and inductances. For ratings taking the coincidental occurrence of capacitances and inductances into account, see manual)

Standards, Guidelines and Approvals

EC EMC guideline	2004/108/EC
EC low voltage guideline	2006/95/EC
Conformity marking	CE
Shipbuilding	pending
cULus UL 508	
cULus ANSI/ISA 12.12.01	pending
Ex TÜV 07 ATEX 554086 X	I M2 (M1) Ex d [ia Ma] I Mb, II 3 (1) G Ex nA [ia Ga] IIC T4 Gc, II 3 (1) D Ex tc [ia Da] IIIC T135°C Dc
Permissible ambient operating temperature: 0 °C ≤ T_A ≤ +60 °C	
Ex TUN 09.0001X	Ex d [ia Ma] I Mb, Ex nA [ia Ga] IIC T4 Gc, Ex tc [ia Da] IIIC T135°C Dc
Permissible ambient operating temperature: 0 °C ≤ T_A ≤ +60 °C	

sercos Fieldbus Coupler

incl. 8 digital high-speed inputs (8 x M8)



Short description:
This fieldbus coupler links the WAGO SPEEDWAY 767 system to the sercos network. It determines station structureand generates the required process images of the configured inputs and outputs. Setting up the station can involve a mixed arrangement of analog, digital or specialty I/O modules. The fieldbus coupler application allows access to the device as a sercos I/O device on the network. The sercos service channel (SVC), real-time channel (RTC) and IP channel (NRT) are supported for standard TCP/IP communication. Two integrated ETHERNET ports allow easy creation of a line and ring structure without requiring additional components. Each port supports Auto MDI/MDI-X and automatically detects the direction of transmission, allowing both patch and crossover cables to be used. Assigning the sercos address can be performed via switch 10, either using the operation panel (switches) or software (retentive memory). In addition, the fieldbus coupler has 8 digital inputs to capture binary signals from switches and sensors.

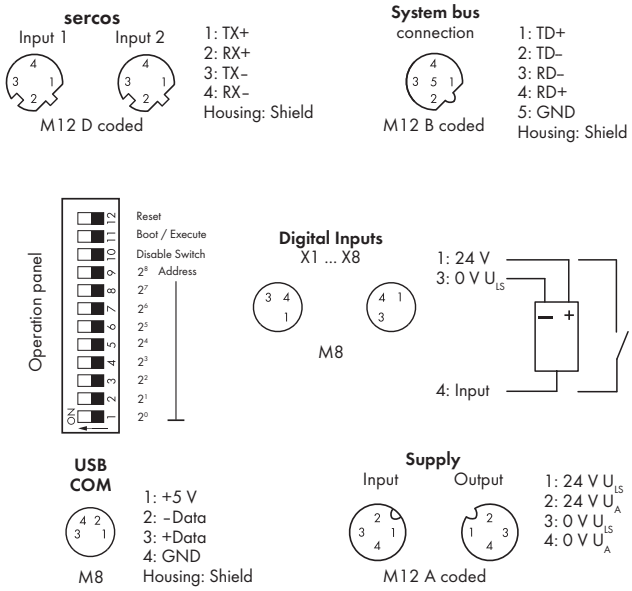
Characteristics:
- 8 digital high-speed inputs, type 1 (IEC 61131)
- Hardware delay: 10 µs
- Modular and extendable by up to 64 I/O modules (via system port)
- USB interface for service purposes
- Configuration and parameter setting via SDDML device description file
- Parameter setting via FDT/DTM (incl. diagnostics and simulation)
- Sealable operation panel (operating mode and address switches)

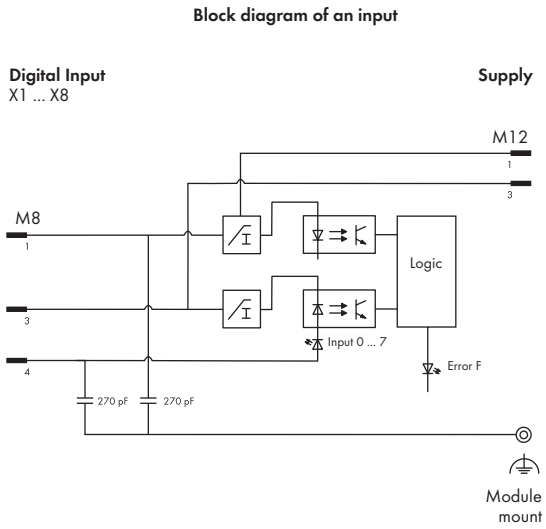
Included:
- 1 x WMB marker, yellow
- 1 x channel marking strip
- 2 x M8 protective cap

Description	Item No.	Pack. Unit
FC sercos 8DI 24V DC HS	**767-1311**	1

Accessories	Item No.
ETHERNET cable + accessories	
System bus/power supply cable + accessories	
General accessories	see Full Line Catalog AUTOMATION 2012/2013
DTM (Device Type Manager)	Download: www.wago.com
SDDML files	Download: www.wago.com

Technical Data	
Fieldbus:	
Device type	sercos I/O device
Connection type (4)	M12 connectors, D coded, 5 poles
Baud rate	100 Mbit/s, full duplex
Transmission medium	Copper cable (Cat. 5e, Class D)
Station address	0 – 511 (adjustable via operation panel or software)
Protocols	sercos v1.1.2, TCP/IP, FTP, HTTP
sercos services	SVC, RTC, CC, IP
sercos profiles	GDP_Basic, SCP_VarCfg, SCP_Sync, SCP_Diag, SCP_WD, SCP_NRT, FSP_IO
Module supply:	
Connection type (1)	M12 connectors, A coded, 4 poles
Current carrying capacity of supply connections	Max. 8 A (U_{LS}: 4 A, U_A: 4 A)
Supply voltage	
Logic and sensor voltage UL_S	24 VDC (-25 % ... +30 %)
Actuator voltage U_A	24 V DC (-25 % ... +30 %); Also required for power supply transmission
Supply current	
Logic and sensor current I_{LS}	typ. 140 mA + sensors (max. 400 mA)
Actuator current I_A	5mA
Protection	Reverse voltage protection for U_{LS} + U_A; short circuit protection for sensor supply





Technical Data

Digital inputs:	
Number of inputs	8
Connection type (2)	M8 connectors, 3 poles
Wire connection	2- or 3-wire
Input filter	Hardware: ≤ 10 µs, software parametrizable depending on operating mode
Hardware delay	
up to fieldbus	10 µs (direct mode)
Input characteristic	Type 1, acc. to IEC 61131-2
Signal voltage (0)	-3 V ... +5 V DC
Signal voltage (1)	+15 V ... +30 V DC
Input wiring	high-side switching
Input voltage	24 VDC (-30 VDC < U_{IN} < +30 VDC)
Input current (typ.)	2.8 mA
Cable length, unshielded	≤ 30 m
Wrong connection of inputs	No effect
System bus:	
Number of expendable modules	64
Connection type (3)	M12 connectors, B coded, 5 poles, shielded
Distance between two modules	20 m
Total extension per station	200 m
Isolation:	
Channel - Channel	No
U_{LS}, U_A, system bus, fieldbus	500 VDC each
Service:	
Type	USB standard 1.1
Connection type (5)	M8 connectors, 4 poles
Standards and approvals:	
cULus UL 508	
Conformity marking	CE
Configurable functions:	
Fieldbus coupler	see manual
Digital Inputs	depending on operating mode
Input filter (per channel)	0.1/ 0.5/ 3 /15 /20 ms/ filter off
Inversion (per channel)	On/off
Online simulation (per channel)	Lock/unlock, simulation value: 0/1
I/O diagnostics:	
I/O diagnostics (per module)	Short circuit of sensor supply Undervoltage (U_{LS} + U_A)

Technical Data

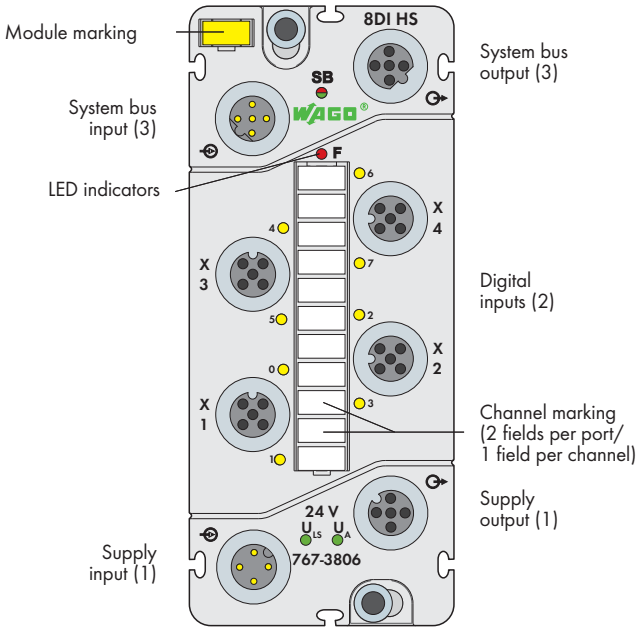
Process image:	
Input process image	2048 bytes
Output process image	2048 bytes
LED indicators:	
MS: Module status	LED (green/red)
S3: sercos status	LED (green/red)
ACT/LNK 1 : ETHERNET data exchange/network connection	LED (green)
ACT/LNK 2 : ETHERNET data exchange/network connection	LED (green)
CS : Fieldbus coupler status	LED (green/red)
SBM : System bus master status	LED (green/red)
F: Error status	LED (red)
0 ... 7: Input signal status	LED (yellow)
U_{LS} + U_A: Supply status	LED (green)
Indicators	Non-latching
Advanced features:	
Operating hours counter	Values in [h]
High-speed inputs	parametrizable, depending on operating mode (see manual)

General Specifications

Dimensions (mm) W x H x L	75 x 35.7 x 117
Weight	400 g

Digital Input Module, 24 VDC, High Speed

8 inputs (4 x M12, two inputs per connector)



Short description:
This digital input module records binary signals from sensors with short response times.
The 767-3806 Module features high-speed inputs - ideal for use with fast ETHERNET-based fieldbus systems (e.g., sercos).

Features:
- 8 digital inputs, 24 VDC
- Front-end cycle time (hardware) max. 6 µs
- Diagnostic-capable (module by module)
- Parametrizable (filter, inversion, online simulation and diagnostics)

Included:
- 1 x WMB marker, yellow
- 1 x marking strip
- 2 x M12 protective cap

Description	Item No.	Pack. Unit
8DI 24VDC HS (4xM12)	**767-3806**	1

Accessories	Item No.
Marking strips, marking pen, spacer module and protective caps	
IP67 cables and connectors	see Full Line Catalog AUTOMATION 2012/2013

Technical Data	
Module supply:	
Connection type (1)	M12 connectors, A coded, 4 poles;
	Derating must be observed
Current carrying capacity of supply	
connections	Max. 8 A (U_{LS}: 4 A, U_A: 4 A)
Supply voltage	
Logic and sensor voltage UL_S	24 V DC (-25 % ... +30 %)
Actuator voltage U_A	24 V DC (-25 % ... +30 %);
	Also required for power supply
	transmission
Supply current	
Logic and sensor current I_{LS}	typ. 45 mA + sensors (max. 1.0 A)
Actuator current I_A	5 mA
Protection	Reverse voltage protection for U_{LS} + U_A;
	short circuit protection for sensor supply
Digital inputs:	
Number of inputs	8
Connection type (2)	M12 connectors, A coded, 5 poles,
	shielded
Wire connection	2- or 3-wire
Front-end cycle time (hardware)	max. 6 µs
Front-end jitter/skew (input)	< 2 µs
Input characteristic	Type 3, acc. to IEC 61131-2
Signal voltage (0)	-3 V ... +5 V DC
Signal voltage (1)	+11 V ... +30 V DC
Input wiring	high-side switching
Input voltage	24 VDC (-3 VDC < U_{IN} < +30 VDC)
Input current (typ.)	2.8 mA
Connection of 2-wire BEROs	max. 1.5 mA admissible closed current
Cable length, unshielded	≤ 30 m
Wrong connection of inputs	No effect

System bus

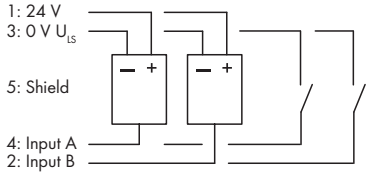
M12 B coded

1: RD+/TD+
2: RD–/TD–
3: TD–/RD–
4: TD+/RD+
5: GND
Housing: Shield

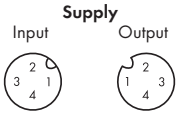
Digital Inputs X1 ... X4
(two intputs/connector)

M12 A coded

1: 24 V
3: 0 V U_{LS}
5: Shield
4: Input A
2: Input B
Housing: Shield



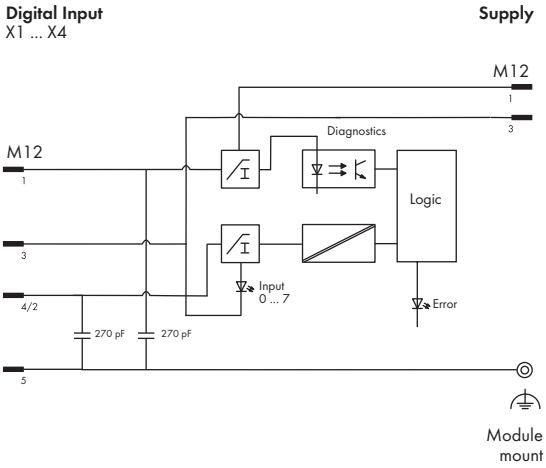
Supply



M12 A coded

1: 24 V U_{LS}
2: 24 V U_A
3: 0 V U_{LS}
4: 0 V U_A

Block diagram of an input



Technical Data

Input characteristic:	
Input voltage	Typical input current
0 V	0 mA
5 V	1.6 mA
11 V	2.7 mA
24 V	2.8 mA
30 V	2.8 mA
System bus:	
Connection type (3)	M12 connectors, B coded, 5 poles, shielded
Standards and approvals:	
UL 508	
Conformity marking	CE

Technical Data

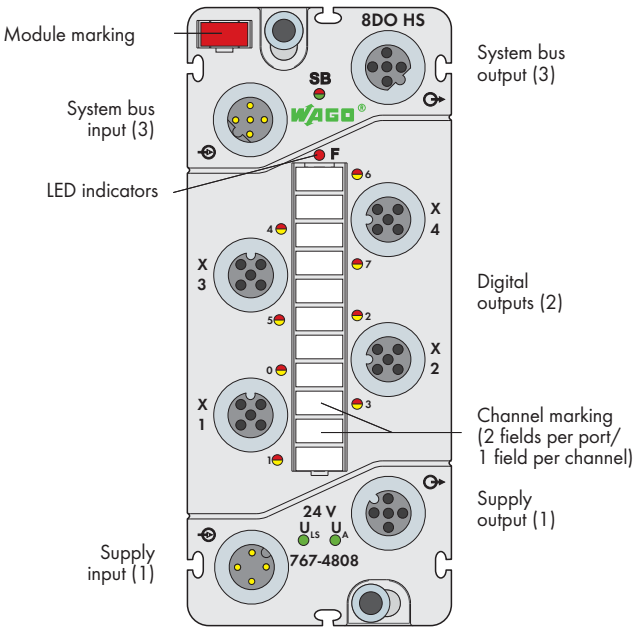
Isolation:	
Channel - Channel	No
U_{LS}, U_A, system bus	500 VDC each
Configurable functions:	
Input filter (per channel)	10/ 25/ 50/ 100/ 200 µs/ 1/ 3 ms/ filter off
Inversion (per channel)	On/off
Online simulation (per channel)	Lock/unlock, simulation value: 0/1
Online simulation (per module)	Diagnostics
I/O diagnostics:	
I/O diagnostics (per module)	Short circuit of sensor supply
	Undervoltage (U_{LS} + U_A)
Process image:	
Process data width	1-byte data + status
LED indicators:	
SB: System bus status	LED (green/red/orange)
F: Error status	LED (red)
0 ... 7: Input signal status	LED (yellow)
U_{LS} + U_A: Supply status	LED (green)
Indicators	Non-latching

General Specifications

Dimensions (mm) W x H x L	50 x 35.7 x 117
Weight	270 g

Digital Output Module, 24 VDC, 0.1 A, High Speed

8 outputs (4 x M12, two outputs per connector)



Short description:
This digital output module outputs signals from actuators with short response times. The 767-4808 Module features high-speed outputs - ideal for use with fast ETHERNET-based fieldbus systems (e.g., sercos).

Features:
- 8 digital outputs, 24 VDC / 0.1 A
- Front-end cycle time (hardware) max. 0,5 µs
- Diagnostic-capable (channel by channel/module by module)
- Parametrizable (inversion, substitute value strategy, substitute value, manual mode, online simulation and diagnostics)

Included:
- 1 x WMB marker, red
- 1 x marking strip
- 2 x M12 protective cap

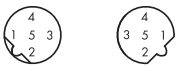
Description	Item No.	Pack. Unit
8DO 24VDC 0,1A HS (4xM12)	**767-4808**	1

Accessories	Item No.
Marking strips, marking pen, spacer module and protective caps	
IP67 cables and connectors	see Full Line Catalog AUTOMATION 2012/2013

Technical Data	
Module supply:	
Connection type (1)	M12 connectors, A coded, 4 poles; Derating must be observed
Current carrying capacity of supply connections	Max. 8 A (U_{LS}: 4 A, U_A: 4 A)
Supply voltage	
Logic and sensor voltage UL_S	24 V DC (-25 % ... +30 %)
Actuator voltage U_A	24 V DC (-25 % ... +30 %)
Supply current	
Logic and sensor current I_{LS}	typ. 40 mA (logic component only)
Actuator current I_A	typ. 35 mA + actuator supply (≤ 1 A) + load
Protection	Reverse voltage protection for U_{LS} + U_A, short-circuit protection for actuator supply
Digital outputs:	
No. of outputs	8
Connection type (2)	M12 connectors, A coded, 5 poles, shielded
Wire connection	2- or 3-wire
Output voltage	≤ U_A
Output current (per channel)	0.1 A, short-circuit/overload proof (thermal disconnection)
Voltage drop against U_A at nominal load	Max. 1.7 V DC
Output current (module)	max. 0.8A
Leakage current in OFF state	typ. 50 µA
Output circuit	Push/Pull

System bus

Input Output

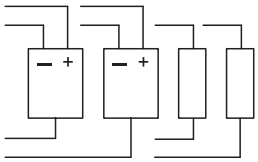


M12 B coded

1: RD+/TD+
2: RD–/TD–
3: TD–/RD–
4: TD+/RD+
5: GND
Housing: Shield

Digital Outputs X1 ... X4
(two outputs/connector)

M12 A coded



1: 24 V
3: 0 V U_A
5: Shield
4: Output A
2: Output B
Housing: Shield

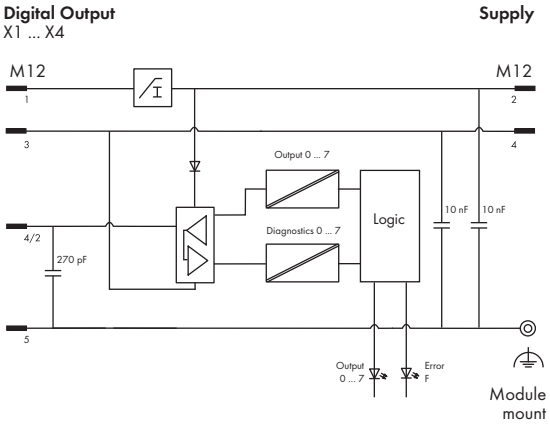
Supply

Input Output

M12 A coded

1: 24 V U_{LS}
2: 24 V U_A
3: 0 V U_{LS}
4: 0 V U_A

Block diagram of an output



Technical Data

Information on actuator selection:	
Front-end cycle time 90%	
(hardware)	max. 0,5 µs
Edge steepness	$T_{ON/OFF}$: typ. < 0,2 µs
Front-end jitter/skew (output)	< 0,2 µs
Cable length	≤ 30 m
Type of load	Inductive, resistive loads and lamps
Switching frequency	Inductive load upon request
	Resistive load upon request
	Lamp load upon request
Type of protective circuit	External protection (e.g., recovery diodes)
Operating state influence on output:	
PLC CPU stop	Acc. to substitute value strategy
Fieldbus disruption	Acc. to substitute value strategy
S-bus (system bus) disruption	0 V status
Supply voltage under rated voltage	
tolerance	0 V status
Interruption of	
supply voltage	0 V status
Output operation	Non-latching
Overload behavior	Automatic restart
System bus:	
Connection type (3)	M12 connectors, B coded, 5 poles, shielded
Standards and approvals:	
UL 508	
Conformity marking	CE

Technical Data

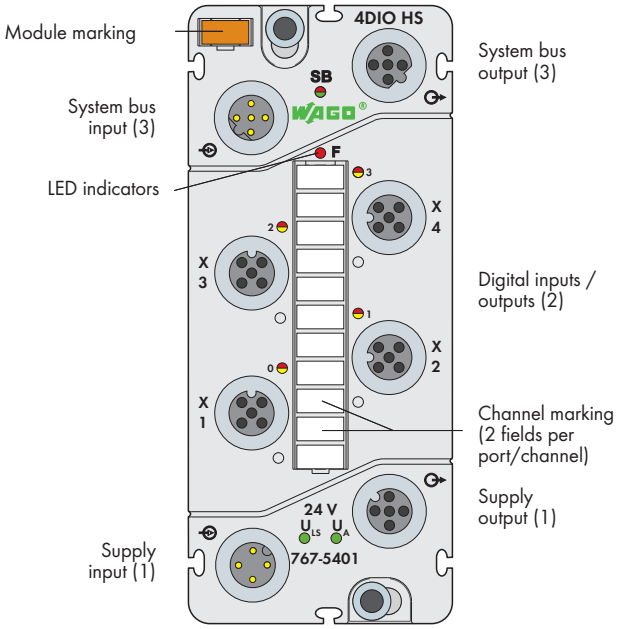
Isolation:	
Channel - Channel	No
U_{LS}, U_A, system bus	500 VDC each
Configurable functions:	
Inversion (per channel)	On/off
Substitute value strategy (per channel)	Switch substitute value/hold last value
Substitute value (per channel)	0/1
Manual mode (per channel)	On/off
Manual mode value (per channel)	0/1
Online simulation (per channel)	Lock/Unlock; simulation value: 0/1;
	diagnostics
I/O diagnostics:	
I/O diagnostics (per channel)	Overtemperature, actuators
I/O diagnostics (per module)	Undervoltage (U_{LS} + U_A)
Process image:	
Process data width	1-byte data + status
LED indicators:	
SB: System bus status	LED (green/red/orange)
F: Error status	LED (red)
0 ... 7: Output signal status	LED (yellow/red)
U_{LS} + U_A: Supply status	LED (green)
Indicators	Non-latching

General Specifications

Dimensions (mm) W x H x L	50 x 35.7 x 117
Weight	260 g

Digital Input/Output Module, 24 VDC / 0.2 A, High Speed

4 inputs/outputs (4 x M12)



Short description:
This digital input/output module records/outputs binary signals from sensors/actuators with short response times. The 767-5401 Module features high-speed inputs/outputs - ideal for use with fast ETHERNET-based fieldbus systems (e.g., sercos).

Features:
- 4 digital inputs/outputs, 24 VDC / 0.2 A, incl. counter function
- Front-end cycle time (hardware) max. 3 µs
- Diagnostic-capable (channel by channel/module by module)
- Parametrizable (operating mode, filter, inversion, substitute value strategy, substitute value, manual mode, online simulation and diagnostics)

Included:
- 1 x WMB marker, orange
- 1 x marking strip
- 2 x M12 protective cap

Description	Item No.	Pack. Unit
4DIO 24VDC 0.2A HS (4xM12)	**767-5401**	1

Accessories	Item No.
Marking strips, marking pen, spacer module and protective caps	
IP67 cables and connectors	see Full Line Catalog AUTOMATION 2012/2013

Technical Data

Module supply:	
Connection type (1)	M12 connectors, A coded, 4 poles; Derating must be observed
Current carrying capacity of supply connections	Max. 8 A (U_{LS}: 4 A, U_A: 4 A)
Supply voltage	
Logic and sensor voltage UL_S	24 V DC (-25 % ... +30 %)
Actuator voltage U_A	24 V DC (-25 % ... +30 %)
Supply current	
Logic and sensor current I_{LS}	typ. 40 mA (logic component only)
Actuator current I_A	typ. 30 mA + sensors/actuators (max. 1000 mA) + load
Protection	Reverse voltage protection for U_{LS} + U_A; Short-circuit protection for sensor/actuator supply

Technical Data

Digital inputs:	
Number of inputs	4
Connection type (2)	M12 connectors, A coded, 5 poles, shielded
Wire connection	2- or 3-wire
Front-end cycle time (hardware)	max. 3 µs
Front-end jitter/skew (input)	< 2 µs
Input characteristic	Type 1, acc. to IEC 61131-2
Signal voltage (0)	-3 V ... +5 V DC
Signal voltage (1)	+15 V ... +30 V DC
Input wiring	high-side switching
Input voltage	24 VDC (-3 VDC < U_{IN} < +30 VDC); Power from U_A strongly recommended
Input current (typ.)	2.9 mA
Connection of 2-wire BEROs	max. 1.5 mA admissible closed current
Cable length, shielded	≤ 30 m
Input characteristic:	
Input voltage	Typical input current
0 V	0 mA
5 V	2.0 mA
15 V	2.5 mA
24 V	2.9 mA
30 V	3.2 mA
Counters:	
No. of counters	1
Counter type	Event, gateway time, pulse duration
Counting/switching frequency	0 Hz ... 1 kHz

System bus

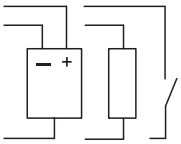
M12, B coded

1: RD+/TD+
2: RD–/TD–
3: TD–/RD–
4: TD+/RD+
5: GND
Housing: Shield

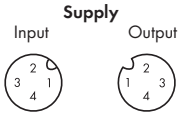
Digital Inputs/Outputs X1 ... X4

M12, A coded

1: 24 V
3: 0 V U_A
5: Shield
4: In-/Output
Housing: Shield



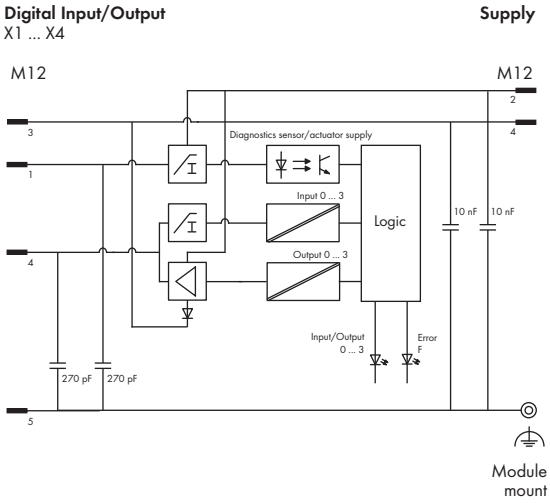
Supply



M12, A coded

1: 24 V U_{LS}
2: 24 V U_A
3: 0 V U_{LS}
4: 0 V U_A

Block diagram of an input/output



Technical Data

Digital outputs:	
No. of outputs	4
Connection type (2)	M12 connectors, A coded, 5 poles, shielded
Wire connection	2- or 3-wire
Output voltage	≤ U_A
Output current (per channel)	0.2 A, short-circuit/overload proof (thermal disconnection)
Voltage drop against UA	
at 200 mA	Max. 2.0 V DC
Output current (module)	max. 0.8A
Leakage current in OFF state	typ. 100 µA
Output circuit	Push/Pull
Information on actuator selection:	
Front-end cycle time 90%	
(hardware)	max. 0,5 µs
Edge steepness	$T_{ON/OFF}$: typ. < 0,2 µs
Front-end jitter/skew (output)	< 0,2 µs
Type of load	Inductive, resistive loads and lamps
Switching frequency	Inductive load upon request
	Resistive load upon request
	Lamp load upon request
Type of protective circuit	External protection (e.g., recovery diodes)
Operating state influence on output:	
PLC CPU stop	Acc. to substitute value strategy
Fieldbus disruption	Acc. to substitute value strategy
S-bus (system bus) disruption	0 V status
Supply voltage under rated voltage	
tolerance	0 V status
Interruption of	
supply voltage	0 V status
Output operation	Non-latching
Overload behavior	Automatic restart

Technical Data

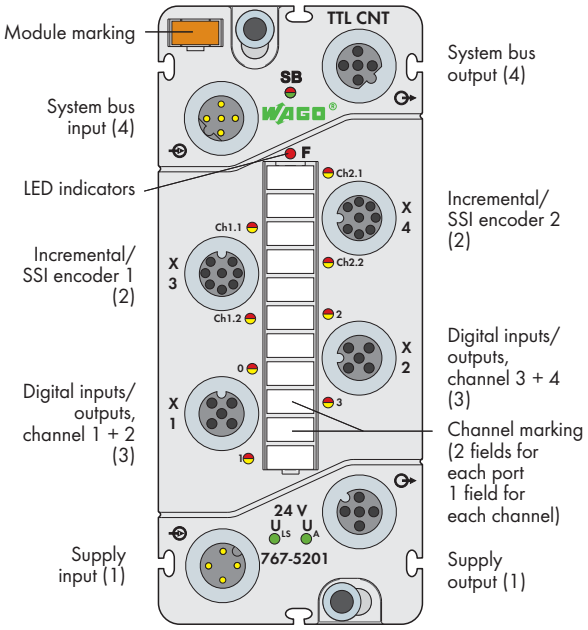
System bus:	
Connection type (3)	M12 connectors, B coded, 5 poles, shielded
Standards and approvals:	
UL 508	
Conformity marking	CE
Isolation:	
Channel - Channel	No
U_{LS}, U_A, system bus	500 VDC each
Configurable functions:	
Operating mode (per module)	DO module/DI module/DIO module/ DIO + 1 counter
Input filter (per channel)	10/ 25/ 50/ 100/ 200 µs/ 1/ 3 ms/ filter off
Inversion (per channel)	On/off
Substitute value strategy (per channel)	Switch substitute value/hold last value
Substitute value (per channel)	0/1
Manual mode (per channel)	On/off
Manual mode value (per channel)	0/1
Online simulation (per channel)	Lock/unlock, simulation value: 0/1
Online simulation (per channel/	Diagnostics
I/O diagnostics:	
I/O diagnostics (per channel)	Overtemperature
I/O diagnostics (per module)	Short-circuit of sensor/actuator supply
	Undervoltage (U_{LS} + U_A)
Process image:	
Process data width	depends on operating mode
LED indicators:	
SB: System bus status	LED (green/red/orange)
F: Error status	LED (red)
0 – 3: Signal status, inputs/outputs	LED (yellow/red)
0 – 3: Diagnostics, outputs	LED (red)
U_{LS} + U_A: Supply status	LED (green)

General Specifications

Dimensions (mm) W x H x L	50 x 35.7 x 117
Weight	255 g

TTL Incremental/SSI Encoder Interface

Two encoder interfaces (2 x M12) + 4 digital inputs/outputs (2 x M12, two inputs/outputs per connector)



Short description:
The 767-5201 Module evaluates both incremental and absolute encoders with RS-485 signal levels. Integrated DIOs allow outputs to be directly set and inputs to be read depending on counter states. Two of the four DIO channels can also be used as PWM outputs.

Characteristics:
- Two incremental/SSI encoder interfaces
- Four digital inputs/outputs 24 VDC/0.1 A (incl. 2 PWM* outputs)
- Configurable (incremental/SSI encoder, DIOs)
- Diagnostic-capable (channel by channel/module by module)

Included:
- 1 x WMB marker, orange
- 1 x marking strip
- 2 x M12 protective cap

*PWM = Pulse width modulation

Description	Item No.	Pack. Unit
TTL Incremental/SSI Encoder	**767-5201**	1

Accessories

Marking strips, marking pen, spacer module and protective caps	see Full Line Catalog AUTOMATION 2012/2013
IP67 cables and connectors	

Technical Data

Module supply:	
Connection type (1)	M12 connectors, A coded, 4 poles
Current carrying capacity of supply connections	max. 8 A (U_{LS}: 4 A, U_A: 4 A)
Supply voltage	
Logic and sensor voltage UL_S	24 V DC (-25 % ... +30 %)
Actuator voltage U_A	24 V DC (-25 % ...+30 %)
Supply current	
Logic and sensor current I_{LS}	typ. 50 mA
Actuator current I_A	typ. 25 mA + actuators (max. 800 mA)
Protection	Reverse voltage protection for U_{LS} + U_A
	Short-circuit protection for sensor/actuator supply
Incremental encoder:	
Number of inputs	2
Connection type (2)	M12 connectors, A coded, 8 poles, shielded
Sensor supply	5 V/24 V, max. 300 mA
Encoder connection (incremental)	A, A\, B, B\, C, C\

Technical Data

Signal input	RS-485/RS-422 differential signal
Counter	32 bits
Max. operating frequency	1 MHz
Evaluation	2-, 4-fold
Zero impulse latch	32 bits
Type of cable, cable length	shielded, ≤ 30 m
SSI encoder:	
Number of inputs (SSI encoder)	2
Connection type (2)	M12 connectors, A coded, 8 poles, shielded
Sensor supply	5 V/24 V, max. 300 mA
Encoder connection (SSI)	D+, D-, CL+, CL-
Signal input (SSI encoder)	+D, -D: RS-485/RS-422 differential signal
Signal output (SSI encoder)	CL+, CL-: RS-485/RS-422 differential signal
Bit width	32 bits
Baud rate	62.5 kHz ... 2 MHz
Method of conversion	Binary/Gray
Type of cable, cable length	shielded, ≤ 30 m
Digital inputs:	
Number of inputs	4
Connection type (3)	M12 connectors, A coded, 5 poles, shielded
Wire connection	2- or 3-wire
Input filter	Hardware: ≤ 5 µs
Input characteristic	Type 3, acc. to IEC 61131-2
Signal voltage (0)	-3 V ... +5 V DC
Signal voltage (1)	+15 V ... U_A DC
Input wiring	High-side switching
Input voltage	24 VDC (-3 VDC < U_{IN} < +30 VDC); Power from U_A is strongly recommended, recovery for voltages > U_A
Connection of 2-wire BEROs	max. 1.5 mA admissible closed current

System bus

Input Output

M12 B coded

1: RD+/TD+
2: RD–/TD–
3: TD–/RD–
4: TD+/RD+
5: GND
Housing: Shield

Incremental/SSI encoder
X3 ... X4

M12 A coded

Incremental	SSI encoder
1: GND	1: GND
2: +5 V/24 V	2: +5 V/24 V
3: A	3: +CL
4: A\	4: -CL
5: B	5: +D
6: B\	6: -D
7: C	7: n.c.
8: C\	8: n.c.

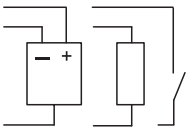
Housing: Shield

Digital Inputs/Outputs
X1 ... X2
(two inputs/outputs / connector)

M12 A coded

1: 24 V
3: 0 V U_A

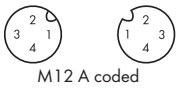
5: n.c.



4: In-/Output A
2: In-/Output B
Housing: Shield

Supply

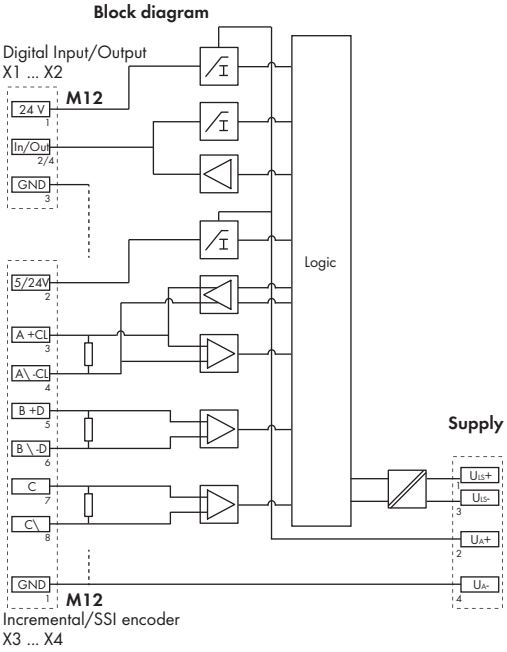
Input Output



M12 A coded

1: 24 V U_{LS}
2: 24 V U_A
3: 0 V U_{LS}
4: 0 V U_A

Block diagram



Technical Data

Type of cable,	
cable length (digital inputs)	unshielded, ≤ 30 m
Wrong connection of inputs	No effect
Input characteristic:	
Input voltage	Typical input current
5 V	2.7 mA
24 V	3.2 mA
30 V	7.1 mA
Digital outputs (see manual for actuator selection information)	
No. of outputs	4
Connection type (3)	M12 connectors, A coded, 5 poles, shielded
Wire connection	2- or 3-wire
Number of DOs/PWM DOs	4/2
Output voltage	≤ U_A
Output current (channel/module)	0.1 A/0.4 A
Output current, channel (short time, 1s)	0.2A
Response time	approx. 10 µs (output, 90%)
Pulse width modulation (PWM)	
Pulse frequency	100 Hz ... 10 kHz
Pulse duty factor	0 ... 100 %
Resolution	16 bits (≤ 1 kHz), 12 bits (10 kHz)
Output protection	Short-circuit/overload protection, thermal shutdown
Voltage drop against U_A	max. 1.7 V at 100 mA
Leakage current in OFF state	typ. 150 µA
Output circuit	push-pull
System bus:	
Connection type (4)	M12 connectors, B coded, 5 poles, shielded
Standards and approvals:	
cULus UL 508	
Conformity marking	CE
Isolation:	
Channel - Channel	no
U_{LS}, U_A, system bus	500 V DC each

Technical Data

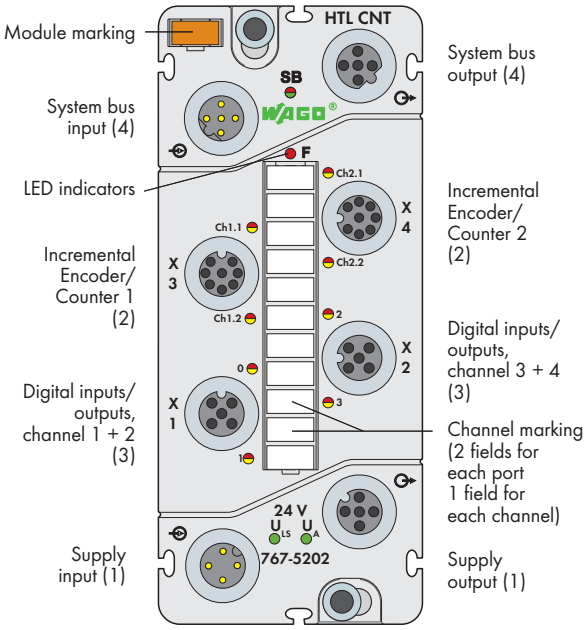
Configurable functions: (see manual for configuration details)	
Incremental encoder (channel by channel)	Evaluation, input filter, inversion, latch, gate, preset, cam function and threshold values
SSI encoder (channel by channel)	Encoder type, "single-turn" evaluation, inversion, transmission rate, parity, output format (encoder), cam function and threshold values
DIOs (channel by channel)	Operating mode, input filter, inversion, substitute value strategy, manual mode, pulse width modulation
Configurable functions (channel by channel/module by module)	Online simulation and diagnostics
I/O diagnostics:	
I/O diagnostics (per channel)	**Encoder:** Over-/underflow, wire break, limit value violation (min./max.); **DIO:** Overtemperature (actuators)
I/O diagnostics (per module)	**DIO:** Short-circuit of sensor/actuator supply, undervoltage (U_{LS} + U_A)
Process image:	
Process data width	2 x 4-byte encoder value, 2 x 2-byte control data, 1-byte status DI/control DO
Synchronous diagnostics (optional)	2 bytes
LED indicators:	
SB: System bus status	LED (green/red)
F: Error status	LED (red)
0 – 3: Signal status, inputs/outputs	LED (yellow/red)
Ch1 + Ch2: Encoder status	LED (green/yellow/red)
U_{LS} + U_A: Supply status	LED (green)
Indicators	Non-latching

General Specifications

Dimensions (mm) W x H x L	50 x 35.7 x 117
Weight	on request

HTL Incremental Encoder/Counter Interface

Two encoder/counter interfaces (2 x M12) + 4 digital inputs/outputs (2 x M12, two inputs/outputs per connector)



Short description:
The 767-5202 Module evaluates incremental encoders and counts binary signals with 24V signal levels. Integrated DIOs allow outputs to be directly set and inputs to be read depending on counter states. Two of the four DIO channels can also be used as PWM outputs.

Characteristics:
- Two incremental encoder/counter interfaces
- Four digital inputs/outputs 24 VDC/0.1 A (incl. 2 PWM* outputs)
- Configurable (incremental encoder, counter, DIOs)
- Diagnostic-capable (channel by channel/module by module)

Included:
- 1 x WMB marker, orange
- 1 x marking strip
- 2 x M12 protective cap

*PWM = Pulse width modulation

Description	Item No.	Pack. Unit
HTL Incremental Encoder/Counter	**767-5202**	1

Accessories

Marking strips, marking pen, spacer module and protective caps	see Full Line Catalog AUTOMATION 2012/2013
IP67 cables and connectors	

Technical Data

Module supply:	
Connection type (1)	M12 connectors, A coded, 4 poles
Current carrying capacity of supply connections	max. 8 A (U_{LS}: 4 A, U_A: 4 A)
Supply voltage	
Logic and sensor voltage UL_S	24 V DC (-25 % ... +30 %)
Actuator voltage U_A	24 V DC (-25 % ...+30 %)
Supply current	
Logic and sensor current I_{LS}	typ. 50 mA
Actuator current I_A	typ. 25 mA + actuators (max. 800 mA)
Protection	Reverse voltage protection for U_{LS} + U_A
	Short-circuit protection for sensor/actuator supply
Incremental encoder:	
Number of inputs	2
Connection type (2)	M12 connectors, A coded, 8 poles, shielded
Sensor supply	5 V/24 V, max. 300 mA
Encoder connection (incremental)	A, A\, B, B\, C, C\

Technical Data

Signal input	HTL, differential/single-ended
Counter	32 bits
Max. operating frequency	250 kHz
Evaluation	2-, 4-fold
Zero impulse latch	32 bits
Type of cable, cable length	shielded, ≤ 30 m
Counters:	
Number of inputs (counter)	2
Connection type (2)	M12 connectors, A coded, 8 poles, shielded
Counter type	U/D counter (up/down pulse counting), peak-time counter (number of pulses per time unit), AB counter (A+B; A-B), frequency counter (input frequency, cycle duration), pulse width (pulse width ratio), pulse duration (time in µs)
Zählereingang	DC 24 V
Power supply	max. 300 mA
Counter depth	32 bits
Zählfrequenz	250 kHz
Digital inputs:	
Number of inputs	4
Connection type (3)	M12 connectors, A coded, 5 poles, shielded
Wire connection	2- or 3-wire
Input filter	Hardware: ≤ 5 µs
Input characteristic	Type 3, acc. to IEC 61131-2
Signal voltage (0)	-3 V ... +5 V DC
Signal voltage (1)	+15 V ... U_A DC

System bus

Input Output

M12 B coded

1: RD+/TD+
2: RD–/TD–
3: TD–/RD–
4: TD+/RD+
5: GND
Housing: Shield

HTL Incr. Enc./Counter
X3 ... X4

M12 A coded

HTL Incr. Enc.	Counter
1: GND	1: GND
2: +24 V	2: +24 V
3: A	3: Input A
4: A\	4: Input A\
5: B	5: Input B
6: B\	6: Input B\
7: C	7: n.c.
8: C\	8: n.c.

Housing: Shield

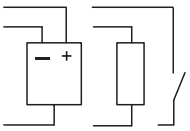
Digital Inputs/Outputs
X1 ... X2
(two inputs/outputs / connector)

M12 A coded

1: 24 V
3: 0 V U_A

5: n.c.

4: In-/Output A
2: In-/Output B
Housing: Shield



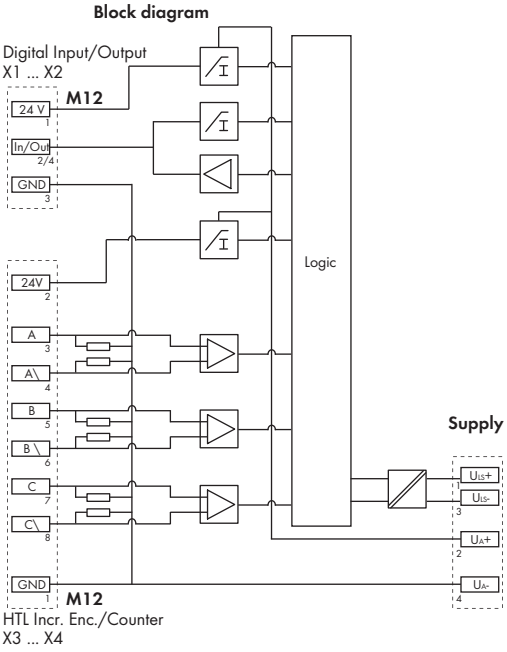
Supply

Input Output

M12 A coded

1: 24 V U_{LS}
2: 24 V U_A
3: 0 V U_{LS}
4: 0 V U_A

Block diagram



Technical Data

Input wiring	High-side switching
Input voltage	24 VDC (-3 VDC < U_{IN} < +30 VDC); Power from U_A is strongly recommended, recovery for voltages > U_A
Connection of 2-wire BEROs	max. 1.5 mA admissible closed current
Type of cable, cable length (digital inputs)	unshielded, ≤ 30 m
Wrong connection of inputs	No effect
Input characteristic:	
Input voltage	Typical input current
5 V	2.7 mA
24 V	3.2 mA
30 V	7.1 mA
Digital outputs (see manual for actuator selection information)	
No. of outputs	4
Connection type (3)	M12 connectors, A coded, 5 poles, shielded
Wire connection	2- or 3-wire
Number of DOs/PWM DOs	4/2
Output voltage	≤ U_A
Output current (channel/module)	0.1 A/0.4 A
Output current, channel (short time, 1s)	0.2A
Response time	approx. 10 µs (output, 90%)
Pulse width modulation (PWM)	
Pulse frequency	100 Hz ... 10 kHz
Pulse duty factor	0 ... 100 %
Resolution	16 bits (≤ 1 kHz), 12 bits (10 kHz)
Output protection	Short-circuit/overload protection, thermal shutdown
Voltage drop against U_A	max. 1.7 V at 100/400 mA
Leakage current in OFF state	typ. 150 µA
Output circuit	push-pull
System bus:	
Connection type (4)	M12 connectors, B coded, 5 poles, shielded
Standards and approvals:	
UL 508	
Conformity marking	CE
Isolation:	
Channel - Channel	no
U_{LS}, U_A, system bus	500 V DC each

Technical Data

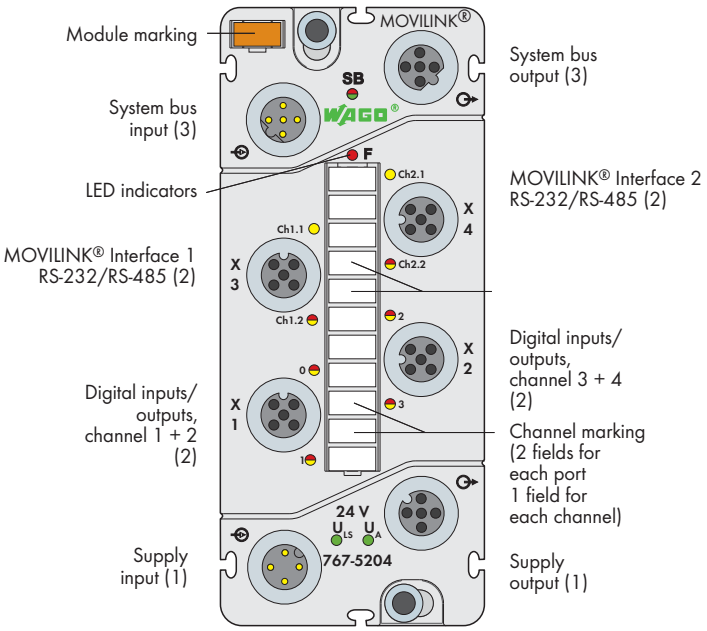
Configurable functions: (see manual for configuration details)	
Incremental encoder (channel by channel)	Evaluation, input filter, inversion, latch, gate, preset, cam function and threshold values
Counter (channel by channel)	Operating mode, evaluation, input filter, inversion, count, compare (up/down), preset, latch, count direction, gate, gate time, output status and limit values
DIOs (channel by channel/module by module)	Operating mode, input filter, inversion, substitute value strategy, manual mode, pulse width modulation
Configurable functions (channel by channel/module by module)	Online simulation and diagnostics
I/O diagnostics:	
I/O diagnostics (per channel)	**Encoder:** Over-/underflow, wire break, limit value violation (min./max.); **DIO:** Overtemperature (actuators)
I/O diagnostics (per module)	**DIO:** Short-circuit of sensor/actuator supply, undervoltage (U_{LS} + U_A)
Process image:	
Process data width	2 x 4-byte encoder value, 2 x 2-byte control data, 1-byte status DI/control DO
Synchronous diagnostics (optional)	2 bytes
LED indicators:	
SB: System bus status	LED (green/red)
F: Error status	LED (red)
0 – 3: Signal status, inputs/outputs	LED (yellow/red)
Ch1 + Ch2: Encoder status	LED (green/yellow/red)
U_{LS} + U_A: Supply status	LED (green)
Indicators	Non-latching

General Specifications

Dimensions (mm) W x H x L	50 x 35.7 x 117
Weight	300 g

MOVILINK® Interface (RS-232, RS-485)

2 interfaces (2 x M12) + 4 digital inputs/outputs (2 x M12, two inputs/outputs per connector)



Short description:
Interface module for drive control via MOVILINK® protocol (see note).
The maximum number of drives per interface (e.g., 4 pcs) depends on the type of application and is described in more detail in the manual.

Features:
- 2 MOVILINK® interfaces (RS-232, RS-485)
- 4 digital inputs/outputs, 24 VDC / 0.5 A
- Diagnostic-capable (channel by channel/module by module)
- Parametrizable (operating mode, baud rate, filter, inversion, substitute value strategy, substitute value, manual mode, online simulation and diagnostics)

Included:
- 1 x WMB marker, orange
- 1 x marking strip
- 2 x M12 protective cap

Note:
MOVILINK® is a registered trademark of SEW-EURODRIVE GmbH & Co. KG

Description	Item No.	Pack. Unit
MOVILINK® Interface (RS-232, RS-485)	**767-5204**	1

Technical Data

Module supply:	
Connection type (1)	M12 connectors, A coded, 4 poles;
	Derating must be observed
Current carrying capacity of supply	
connections	max. 8 A (U_{LS}: 4 A, U_A: 4 A)
Supply voltage	
Logic and sensor voltage UL_S	24 V DC (-25 % ... +30 %)
Actuator voltage U_A	24 V DC (-25 % ...+30 %)
Supply current	
Logic and sensor current I_{LS}	typ. 75 mA + sensors (max. 400 mA)
Actuator current I_A	typ. 25 mA + actuators 2.4 A (4 x 600 mA)
Protection	Reverse voltage protection for U_{LS} + U_A
	Short-circuit protection for sensor/actuator supply
MOVILINK® Interface	
Interfaces	2
Connection type (2)	M12 connectors, A coded, 5 poles, shielded
Transmission channels	1 RxD / 1 TxD (full/half duplex)
Type of cable, cable length	15 m (RS-232); 1000 m (RS-485)
Baud rate	9,600 Baud - 57,600 Baud
Protocols	MOVILINK® PDU types,
	0x05 (cyclic) and 0x85 (acyclic)
Data bits (per channel)	8
Parity	Even
Stop bits	1

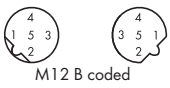
Accessories

Marking strips, marking pen, spacer module and protective caps	
IP67 cables and connectors	see Full Line Catalog AUTOMATION 2012/2013

Technical Data

Digital inputs:	
Number of inputs	4
Connection type (2)	M12 connectors, A coded, 5 poles, shielded
Wire connection	2- or 3-wire
Input filter	Hardware: ≤ 110 µs
	Software: parametrizable
Input characteristic	Type 2, acc. to IEC 61131-2
Signal voltage (0)	-3 ... +5 VDC
Signal voltage (1)	+ 11 VDC ... V_A
Input wiring	High-side switching
Input voltage	24 VDC (-3 VDC < U_{IN} < +30 VDC);
	Power from U_A is strongly recommended, recovery for voltages > U_A
Input current (typ.)	7.3 mA
Connection of 2-wire BEROs	max. 1.5 mA admissible closed current
Cable length, unshielded	≤ 30 m
Wrong connection of inputs	No effect
Input characteristic:	
Input voltage	Typical input current
-3 V < U_{IN} < 0 V	0 mA
5 V	2.3 mA ... 2.5 mA
11 V	6.4 mA ... 6.7 mA
24 V < U_A < 31.2 V	7.3 mA ... 7.5 mA

System bus



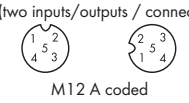
1: RD+/TD+
2: RD–/TD–
3: TD–/RD–
4: TD+/RD+
5: GND
Housing: Shield

MOVILINK® Interface
X3 **X4**

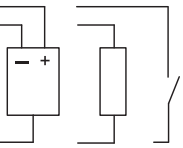
	RS-232	RS-485
1:	n.c.	Tx-/Z
2:	TxD	Tx+/Y
3:	n.c.	Rx-/B
4:	RxD	Rx+/A
5:	GND	GND

Housing: Shield

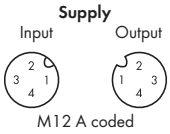
Digital Inputs/Outputs
X1 ... X2
(two inputs/outputs / connector)



1: 24 V
3: 0 V U_A
5: n.c.
4: In-/Output A
2: In-/Output B
Housing: Shield

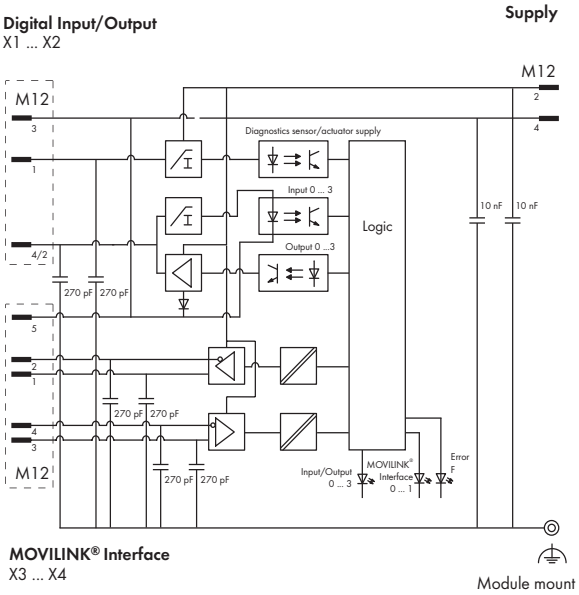


Supply



1: 24 V U_{LS}
2: 24 V U_A
3: 0 V U_{LS}
4: 0 V U_A

Block diagram



Technical Data

Digital outputs:	
No. of outputs	4
Connection type (2)	M12 connectors, A coded, 5 poles, shielded
Wire connection	2- or 3-wire
Output voltage	≤ U_A
Output current (per channel)	0.5 A (max. 0.6 A), short-circuit/overload proof (thermal disconnection)
Voltage drop against U_A at 500 mA	max. 0.2 V DC
Output current (module)	max. 2A
Leakage current in OFF state	typ. 500 µA
Output circuit	High-side switching
Information on actuator selection:	
Delay time HW from "0" to "1" (0-90%)	typ. 90 µs (resistive load)
Delay time HW from "1" to "0" (0-90%)	typ. 310 µs (resistive load)
Rise time from "0" to "1"	typ. 60 µs (resistive load)
Fall time from "1" to "0"	typ. 45 µs (resistive load)
Cable length	≤ 30 m
Reverse current (in case of recovery for voltages > U_A	≤ 1 A (error: 1 channel)
Type of load	Inductive, resistive loads and lamps
Switching frequency	Inductive load approx. 20 Hz
	Resistive load approx. 500 Hz
	Lamp load approx. 500 Hz
Parallel connection of 2 outputs	for power boost
	for redundant actuation of a load
Type of protective circuit	External protection (e.g., recovery diodes)
Output resistance	< 0,4 Ω
Operating state influence on output:	
PLC CPU stop	Acc. to substitute value strategy
Supply voltage under rated voltage tolerance	0 V status
Interruption of supply voltage	0 V status
Output operation	Non-latching
Overload behavior	Automatic restart
System bus:	
Connection type (3)	M12 connectors, B coded, 5 poles, shielded

Technical Data

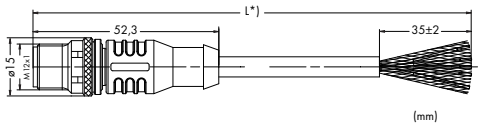
Standards and approvals:	
UL 508	
Conformity marking	CE
Isolation:	
Channel – Channel	no
U_{LS}, U_A, system bus	500 V DC each
Parameterizable functions, MOVILINK® Interface	
Operating mode (per channel)	RS-232; RS-485
Baud rate (per channel)	9,600 ... 57,600 baud
Cycle time (per channel)	20, 50, 100, 200, 500 ms
PDU type (per channel)	cyclic (0x05); acyclic (0x85)
Parameterizable functions, digital inputs/outputs	
Operating mode, input filter, inversion, substitute value strategy, substitute value, manual mode, online simulation and diagnostics	For details, see manual.
I/O diagnostics:	
I/O diagnostics (per channel)	Overtemperature (DO)
I/O diagnostics (per module)	Short-circuit of sensor/actuator supply
	Undervoltage (U_{LS} + U_A)
Process image:	
Process data width	Interface: 8 bytes (data In/Out + status);
	DIO: 1-byte data In/Out + 1-byte status
LED indicators:	
SB: System bus status	LED (green/red/orange)
F: Error status	LED (red)
0 – 3: Signal status, inputs/outputs	LED (yellow/red)
Ch1.1 + Ch2.1: Transmission status	LED (yellow)
Ch1.2 + Ch2.2: Reception status	LED (yellow/red)
U_{LS} + U_A: Supply status	LED (green)
Indicators	Non-latching

General Specifications

Dimensions (mm) W x H x L	50 x 35.7 x 117
Weight	255 g

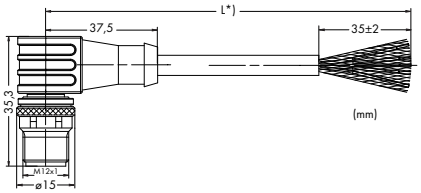
WAGO *SPEEDWAY 767*

sercos cabel, fitted at one or at both ends



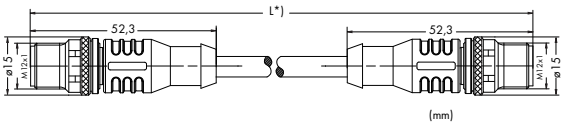
Pin 1 - 4: 0.34 mm²
1 yellow
2 white
3 orange
4 blue

M12 plug, straight, D coded	Item No.	Pack. Unit
M12 plug, straight, one free cable end, 2.0 m	**756-1601/060-020**	1
M12 plug, straight, one free cable end, 5.0 m	**756-1601/060-050**	1
M12 plug, straight, one free cable end, 10.0 m	**756-1601/060-100**	1
M12 plug, straight, one free cable end, 20.0 m	**756-1601/060-200**	1



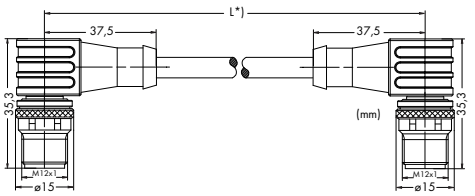
Pin 1 - 4: 0.34 mm²
1 yellow
2 white
3 orange
4 blue

M12 plug, right angle, D coded	Item No.	Pack. Unit
M12 plug, right angle, one free cable end, 2.0 m	**756-1602/060-020**	1
M12 plug, right angle, one free cable end, 5.0 m	**756-1602/060-050**	1
M12 plug, right angle, one free cable end, 10.0 m	**756-1602/060-100**	1
M12 plug, right angle, one free cable end, 20.0 m	**756-1602/060-200**	1



Pin 1 - 4: 0.34 mm²
1 yellow
2 white
3 orange
4 blue

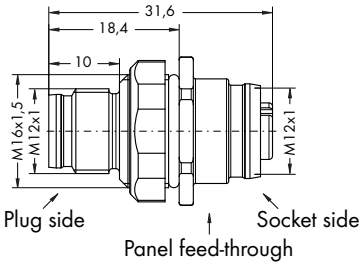
M12 plug, straight / M12 plug, straight, D coded	Item No.	Pack. Unit
M12 plug, straight, M12 plug, straight, 2.0 m	**756-1603/060-020**	1
M12 plug, straight, M12 plug, straight, 5.0 m	**756-1603/060-050**	1
M12 plug, straight, M12 plug, straight, 10.0 m	**756-1603/060-100**	1
M12 plug, straight, M12 plug, straight, 20.0 m	**756-1603/060-200**	1



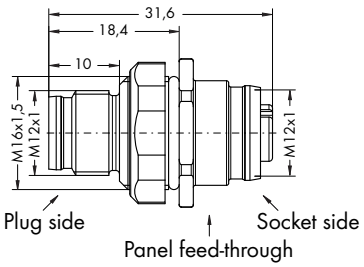
Pin 1 - 4: 0.34 mm²
1 yellow
2 white
3 orange
4 blue

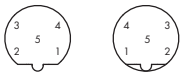
M12 plug, right angle / M12 plug, right angle, D coded	Item No.	Pack. Unit
M12 plug, right angle, M12 plug, right angle, 2.0 m	**756-1604/060-020**	1
M12 plug, right angle, M12 plug, right angle, 5.0 m	**756-1604/060-050**	1
M12 plug, right angle, M12 plug, right angle, 10.0 m	**756-1604/060-100**	1
M12 plug, right angle, M12 plug, right angle, 20.0 m	**756-1604/060-200**	1

* Cable length



M12 socket / M12 plug, A coded	Item No.	Pack. Unit
M12 panel feed-through connectors, A coded	756-9217/050-000	1





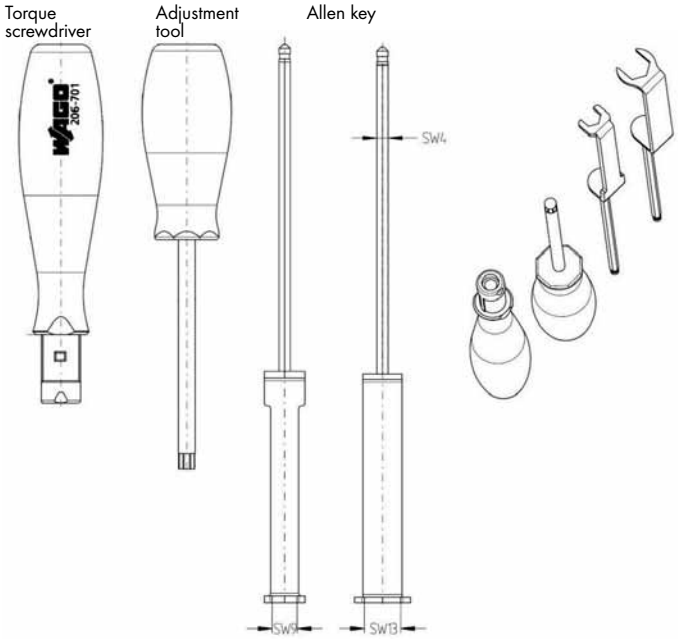
M12 socket / M12 plug, B coded	Item No.	Pack. Unit
M12 panel feed-through connectors, B coded	756-9406/050-000	1

Carrier rail and profile adapters

Carrier rail adapters and profile adapters	Item No.	Pack. Unit
Carrier rail adapter for I/O module 8 x M12	767-125	1
Profile adapter for I/O module 8 x M12	767-126	1

Torque Wrench M8 and M12

Assembly kit



Assembly kit for 756 Series pre-assembled IP67 cables and connectors, consisting of:

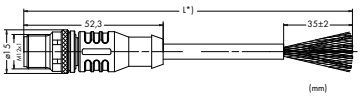
- Torque screwdriver with adjustable torque (window scale)
- Adjusting tool for changing the torque
- One Allen key each (interchangeable 4 mm blade) for M8 and M12 connectors

A torque of 0.6 Nm is defined for the cable and connector material of the 756 Series.

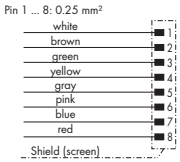
Description	Item No.	Pack. Unit
Torque Wrench M8 and M12	**206-701**	1

Technical Data	
Torque range	0.4 … 1 Nm ±6 % (adjustable)
Material	Soft zone: PP (Polypropylene);
	Hard zone: TPE (Thermoplastic elastomers);
	Allen key: Stainless steel V2A (1.4301)
Color	black
Standards/Specifications	EN ISO 6789;
	BS EN 26789;
	ASME B107.14.M

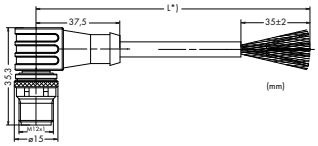
Sensor/actuator cables, with one end of cable fitted



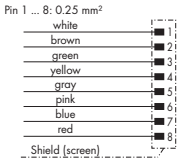
M12 plug



M12 Sensor/actuator cables, with one end of cable fitted		Item No.	Pack. Unit
8-pole, shielded	M12 plug, straight, one free cable end, 1.5 m	**756-5311/090-015**	10
	M12 plug, straight, one free cable end, 5 m	**756-5311/090-050**	10
	M12 plug, straight, one free cable end, 10 m	**756-5311/090-100**	10

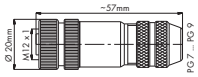


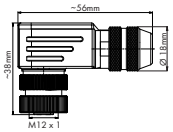
M12 plug

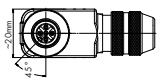


M12 Sensor/actuator cables, with one end of cable fitted		Item No.	Pack. Unit
8-pole, shielded	M12 plug, right angle, one free cable end, 1.5 m	**756-5312/090-015**	10
	M12 plug, right angle, one free cable end, 5 m	**756-5312/090-050**	10
	M12 plug, right angle, one free cable end, 10 m	**756-5312/090-100**	10

Configurable connectors







M12 socket

Conductor size
Ø 6 ... 8 mm/0.14 ... 0.50 mm²

M12 Plug, for self assembly		Item No.	Pack. Unit
8-pole, shielded	M12 socket, straight, screw clamp connection	**756-9211/090-000**	1
	M12 socket, right angle, screw clamp connection	**756-9214/090-000**	1

* Cable length

Bluetooth® Module, RS-232, IP67

WAGO's *757-801 Bluetooth*® Module wirelessly connects a serial interface to external *Bluetooth*® devices (e.g., PCs/notebooks with Bluetooth®). Data is exchanged via Bluetooth® SPP (Serial Port Profile).

Substitute cabling between two serial devices by automatically restoring the outgoing wireless connection (e.g., to a second Bluetooth® module).
High protection class provides enhanced, wireless Bluetooth® module's installation outside of control cabinets.

Coexistence properties:
- AFH (Adaptive Frequency Hopping)
- Adaptive transmission power with configurable upper limits for data exchange and device discovery
- Configurable channel blacklist for FHSS (Frequency Hopping Spread Spectrum)
- Coexistence optimized device discovery supported (media allocation < 5 %, allocation duration < 100 ms)

Description	Item No.	Pack. Unit
***Bluetooth*® Module**	**757-801**	1

Accessories

Marking strips, felt-tip pen	see Full Line Catalog AUTOMATION 2012/2013

Approvals

Conformity marking	CE
Bluetooth	*Bluetooth*® approval

Technical Data

Version	2.1
Radio class	Class 1/max. 100 m
Antenna	integrated
RF output power	max. +10 dBm
RF input sensitivity	typ. -82 dBm
Frequency range	2.402 ... 2.483 GHz (ISM band)
Type of communication	Point-to-point connection
Profiles supported	Serial Port Profile (SPP)
Security encryption	Bluetooth® security mode 4
	"Secure Simple Pairing"
	128-bit encryption
Dimensions (mm) W x H x L	30 x 20 x 117 (without cable)
Weight	418 g
Fixing	Screw mounting
Ports	RS-232 interface (RX/TX) with hardware flow control (CTS/RTS) *Bluetooth*® radio interface

Technical Data

Baud rate	9600 ... 115200 bps
Indicators	five LEDs
Voltage supply	+24 VDC
Voltage range	+10 V ... +32 VDC
Current input (at 24 VDC)	< 50 mA
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
EMC: CE - emission of interference	acc. to EN 61000-6-3 (2007)
Permissible temperature range	-20 °C ... +60 °C (static);
	-5 °C ... +60 °C (moving)
Storage temperature	-30 °C ... +80 °C
Degree of protection	IP67
Connecting cable	
Cable length	approx 5 m
Cable design	Outer sheath PUR halogen-free
	Black
Cable Ø	6.6 mm (± 0.2 mm)
Screening	Copper braiding, tin-plated,
	0.10 mm single-wire diameter
Conductor design	4 x 0.34 mm^2 + 2 x 0.75 mm^2
	conductor 0.34 mm^2, extra-fine stranded,
	43 x 0.10 mm
	conductor 0.75 mm^2, extra-fine stranded,
	21 x 0.205 mm
bending radius	10 x cable diameter for flexible application
Bending cycles	1 million cycles

WLAN ETHERNET Gateway

Wireless transmission link for ETHERNET protocols

Power connector:
M12 plug, A-coded

1: Vin + (DC 9 ... 30 V)
2: External Trigger Ground
3: Vin GND (0 V)
4: External Trigger + (DC 9 ... 30 V)
5: n.c.

ETHERNET connector:
M12 socket, D-coded

1: Transmit +
2: Receive +
3: Transmit -
4: Receive -

WAGO WLAN ETHERNET Gateways simplify creation of a wireless transmission link for ETHERNET protocols (e.g., PROFINET, MODBUS/TCP, Ethernet/IP).

The gateway is used as a cable substitute to create a robust, industry-proven WLAN link between two automation devices.

The IP65 housing and circularly polarized antenna allow the gateway to be used even in harsh industrial environments. Simple, push-button operation provides very fast connection between two WLAN ETHERNET Gateways.

Note:
Two WLAN ETHERNET Gateways of the same type are required to establish a point-to-point connection.

Description	Item No.	Pack. Unit
WLAN ETHERNET Gateway, 2.4 GHz	**758-916**	1
WLAN ETHERNET Gateway, 5 GHz	**758-917**	1

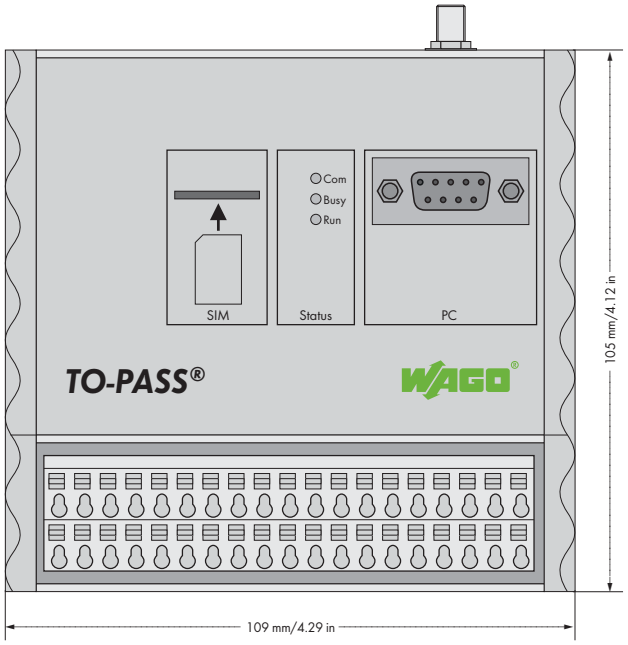
Accessories	Item No.	Pack. Unit
IP67 cables and connectors	see Full Line Catalog 2012/2013, Volume 3, Sections 2 and 5	

Approvals	
	R&TTE (Europe)
	FCC/CFR 47 part 15
	IC (Industry Canada)
Conformity marking	CE

Technical Data	
Wireless technology	IEEE 802.11 bgn (758-916)
	IEEE 802.11 an (758-917)
Topology	Point-to-point connection
Security authentification	Open, Shared, WPA/WPA2 PSK, LEAP, PEAP
Security encryption	None, WEP64, WEP128, TKIP, AES/CCMP
Frequency band	License-free ISM band, 2.4 GHz (758-916)
	License-free ISM band, 5 GHz (758-917)
Transmission range	up to 400 m (758-916)
	up to 200 m (758-917)
Antenna	Internal, circularly polarized, directional antenna
Voltage supply	24 V DC
Voltage range	9 V ... 30 V DC
Ports	**ETHERNET connector:**
	M12 socket, D-coded
	Power connector:
	M12 plug, A-coded
Configuration	Simple, push-button operation and Web-based management
Number of inputs	1 (trigger input 9 V ... 30 VDC)
Dimensions (mm) W x H x L	66 x 36.2 x 91
Weight	120 g
Operating temperature	-30 °C ... +65 °C
Storage temperature	-40 °C ... +85 °C
Degree of protection	IP65
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)

TO-PASS® Compact, 2 AI, Web, MODBUS, RS-485

Telecontrol module for fault detection/indication, monitoring and remote control



Compact telecontrol module provides fault detection/indication and Internet connectivity for machines and installations over a GSM network. The module can be used in many countries via an integrated quad-band GSM modem. Messages are sent via SMS, e-mail, fax or phone call. In addition, the process image can be transmitted in an adjustable cycle to a user-selected Internet address. A MODBUS slave (e.g., 750-815) can be connected via RS-485 interface to link additional process values. Switching of outputs is performed via SMS or TO-PASS® Web Portal.
The module is equipped with 4 digital inputs, 4 analog outputs and 2 digital inputs, including an integrated GSM modem. Ideal for applications in distributed stations for temperatures ranging from -20 °C to +70 °C. Ability to mount on DIN-rail and intuitive user software make unit easy to use. Operating voltage ranges from +10 to +30 VDC.

Specialty functions:

- Acknowledgement: Any fault message
- Stand-by: Automatic remote switching of stand-by service
- Remote parameterization: Programming and process visualization conveniently performed from the office
- GPRS-dedicated line: Permanent online connection to the process on a Web server or PC with fixed IP address (e.g., DSL connection)
- Counter function: Maximum four of the digital inputs can be used as up or down counter. The maximum operating frequency is 1250 Hz.

Description	Item No.	Pack. Unit
***TO-PASS*® Compact, 2 AI, Web, MODBUS, RS-485**	**761-114**	1

Accessories

Antennas, USB adapter, GSM modem and power supply units	see Full Line Catalog AUTOMATION 2012/2013

Approvals

Approvals	for all EU countries
	Approvals for other countries on request
UL 508	pending

Technical Data

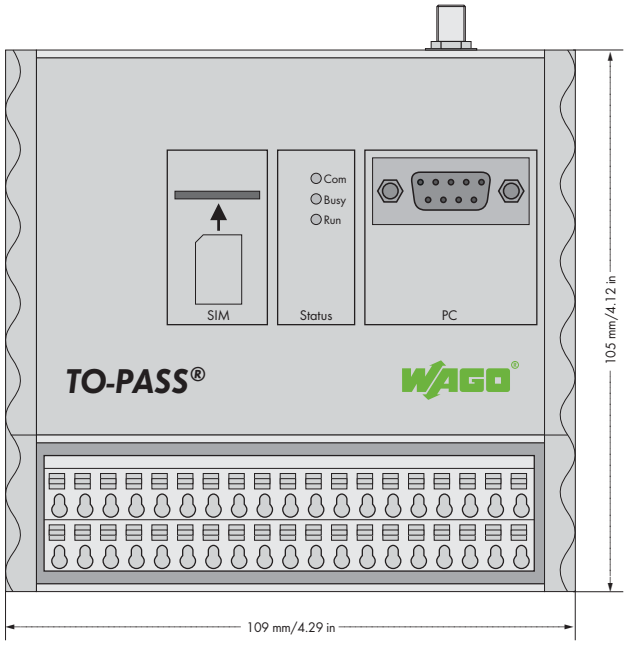
Operating temperature	-20 °C ... +70 °C
Type of mounting	DIN 35 rail
Antenna connection	SMA
Wire connection	Terminal strips (WAGO 250 Series) with PUSH WIRE® connection
Cross sections	0.5 mm² ... 1.5 mm² / AWG 22 ... 14
Strip lengths	9 mm /0.35 in
Dimensions (mm) W x H x L	109 x 105 x 78
Weight	412 g
Storage temperature	-40 °C ... +85 °C
Degree of protection	IP20
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
EMC: CE - emission of interference	acc. to EN 61000-6-3 (2007)

Technical Data

MODBUS	
Transmission modes	RS-485 (2-conductor), RTU Master
Baud rate	9.6 and 19.2 kbaud (8N1, 8E1, 8O1, 8N1)
Read-out register	max. 64 registers (input or holding)
Digital inputs:	
Number of inputs	4 (Type 3)
Input current	max. 2.9 mA at 30 V DC
Signal voltage (0)	0 V ... 5 V DC
Signal voltage (1)	7 V ... 30 V DC
Analog inputs:	
Number of inputs	2 (0/4 mA ... 20 mA)
Internal resistance	approx. 200 Ω / 20 mA
Measuring error (25 °C)	< ± 1 % of the full scale value
Temperature coefficient	< ± 0.1 % / K of the full scale value
Digital outputs:	
No. of outputs	4 contacts
Output current (max.)	0.5 A/ 30 V DC, short-circuit protected
Analog outputs:	
Measuring error (25 °C)	< ± 1 % of the full scale value
Temperature coefficient	< ± 0.1 % / K of the full scale value
Communication	GSM quad-band
Communication types	SMS (bidirectional), telecommunication dial-up connection (CSD)
	GPRS connection to Internet
Signaling	3 LEDs for operating status indication
Operating voltage	+10 V ... +30 V DC
Closed current	approx. 20 mA at +24V operating voltage
Current during transmission	< 500 mA at +24V operating voltage

TO-PASS® Compact, 8 AI, Web, MODBUS, RS-485

Telecontrol module for fault detection/indication, monitoring and remote control



Universal telecontrol module provides fault detection/indication and Internet connectivity for machines and installations over a GSM network. The module can be used in many countries via an integrated quad-band GSM modem. Messages are sent via SMS, e-mail, fax or phone call. The data memory stores up to 4096 process images in an adjustable cycle time. In addition, the process image can be transmitted in an adjustable cycle to a user-selected Internet address. A MODBUS slave (e.g., 750-815) can be connected via RS-485 interface to link additional process values. Switching of outputs is performed via SMS or TO-PASS® Web Portal.
The module is equipped with 8 digital inputs, 8 analog inputs, 4 digital outputs and 2 analog outputs, including an integrated GSM modem. Ideal for applications in distributed stations for temperatures ranging from -20 °C to +70 °C. Ability to mount on DIN-rail and intuitive user software make unit easy to use. Operating voltage ranges from +10 to +30 VDC.

Specialty functions:

- Acknowledgement: Any fault message
- Stand-by: Automatic remote switching of stand-by service
- Remote parameterization: Programming and process visualization conveniently performed from the office
- GPRS-dedicated line: Permanent online connection to the process on a Web server or PC with fixed IP address (e.g., DSL connection)
- Event logger: Saves all occurring status changes
- Data logger: Saves all process values with adjustable cycle
- Counter function: Maximum four of the digital inputs can be used as up or down counter. The maximum operating frequency is 1250 Hz.

Description	Item No.	Pack. Unit
***TO-PASS*® Compact, 8 AI, Web, MODBUS, RS-485**	**761-217**	1

Accessories

Antennas, USB adapter, GSM modem and power supply units	see Full Line Catalog AUTOMATION 2012/2013

Approvals

Approvals	for all EU countries
	Approvals for other countries on request
cULus UL 508	pending

Technical Data

Operating temperature	-20 °C ... +70 °C
Type of mounting	DIN 35 rail
Antenna connection	SMA
Wire connection	Terminal strips (WAGO 250 Series)
	with PUSH WIRE® connection
Cross sections	0.5 mm² ... 1.5 mm² / AWG 22 ... 14
Strip lengths	9 mm /0.35 in
Dimensions (mm) W x H x L	109 x 105 x 78
Weight	412 g
Storage temperature	-40 °C ... +85 °C
Degree of protection	IP20
EMC: CE - immunity to interference	acc. to EN 61000-6-2 (2005)
EMC: CE - emission of interference	acc. to EN 61000-6-3 (2007)

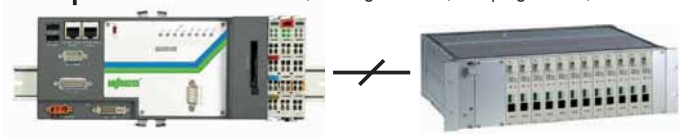
Technical Data

MODBUS	
Transmission modes	RS-485 (2-conductor), RTU Master
Baud rate	9.6 and 19.2 kbaud (8N1, 8E1, 8O1, 8N1)
Read-out register	max. 64 registers (input or holding)
Digital inputs:	
Number of inputs	8 (Type 3)
Input current	max. 2.9 mA at 30 V DC
Signal voltage (0)	0 V ... 5 V DC
Signal voltage (1)	7 V ... 30 V DC
Analog inputs:	
Number of inputs	8 (0/4 mA ... 20 mA)
Internal resistance	approx. 200 Ω / 20 mA
Measuring error (25 °C)	< ± 1 % of the full scale value
Temperature coefficient	< ± 0.1 % / K of the full scale value
Digital outputs:	
No. of outputs	4 contacts
Output current (max.)	0.5 A/ 30 V DC, short-circuit protected
Analog outputs:	
No. of outputs	2 (0/4 mA ... 20 mA)
Load impedance	≤ 600 Ω
Measuring error (25 °C)	< ± 1 % of the full scale value
Temperature coefficient	< ± 0.1 % / K of the full scale value
Communication	GSM quad-band
Communication types	SMS (bidirectional),
	telecommunication dial-up connection
	(CSD)
	GPRS connection to Internet
Signaling	3 LEDs for operating status indication
Operating voltage	+10 V ... +30 V DC
Closed current	approx. 20 mA at +24V operating voltage
Current during transmission	< 500 mA at +24V operating voltage

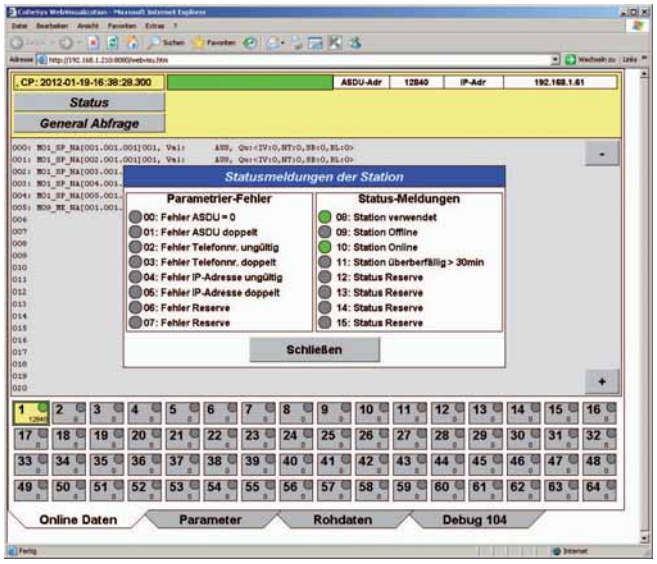
WAGO Telecontrol Gateway

Connection to control system acc. to IEC 60870-5-104

Max. 12 RS-232 I/O modules and
ISDN/analog modem (19'' plug-in card)



Max. 64 substations can be connected via fieldbus controller
acc. to IEC 60870-5:
- 101 via analog, GSM or ISDN dial-up connections
- 104 via ETHERNET or GPRS



Parameter setting and diagnostics via Web server

WAGO Telecontrol Gateway (WTG), in connection with WAGO I/O-IPC-C10, is a gateway software for communication between max. 64 telecontrol substations (IEC 60870-5-101/ -104) and a control system equipped with interface (IEC 60870-5-104).
This gateway is ideal for connecting telecontrol substations via dial-up connections, or for control system applications with a restricted number of connections.
In addition to data transfer bundling, the WTG also supports coordination of incoming and outgoing analog, GSM or ISDN dial-up connections to substations.

Description	Item No.	Pack. Unit
WAGO Telecontrol Gateway	**759-200**	1

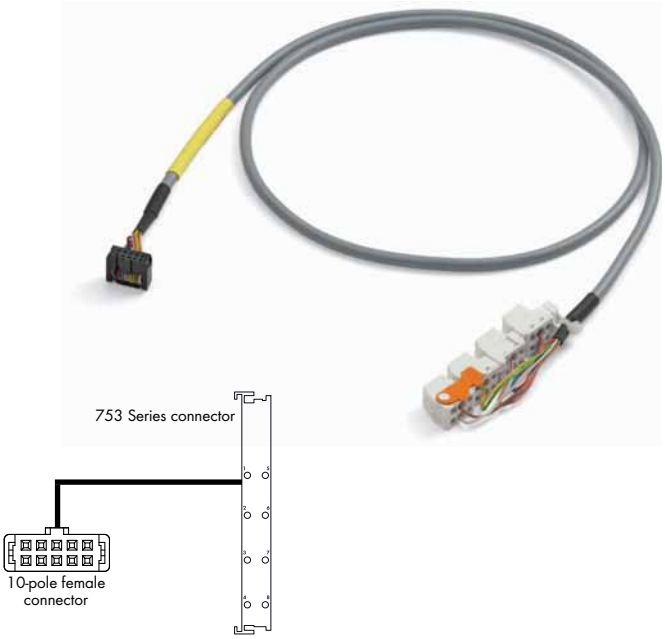
Technical Data

Number of I/O modules	max. 12 (750-652 RS-232 I/O module)
Number of connectable telecontrol substations	max. 64

Accessories

Accessories for WAGO Telecontrol Gateway:
Telecontrol I/O-IPC-C10: 758-875/000-130
RS-232 module, WAGO-I/O-SYSTEM: 750-652
End module, WAGO-I/O-SYSTEM: 750-600
19'' rack, INSYS: 11-02-05-01-01.006
19'' plug-in card (ISDN modem), INSYS: 11-02-05-03-01.003
Alternative: 19'' plug-in card (analog modem), INSYS: 11-02-05-02-03.003
Telecontrol substation with ISDN dial-up modem:
WAGO Telecontroller: 750-872
Additional 750/753 Series I/O modules, if necessary
End module, WAGO-I/O-SYSTEM: 750-600
RS-232 null modem cable: 761-9011
ISDN modem (for DIN rail mounting), INSYS ISDN-TA 4.0: 11-02-01-02-00.018
Telecontrol substation with analog dial-up modem:
WAGO Telecontroller: 750-872
Additional 750/753 Series I/O modules, if necessary
End module, WAGO-I/O-SYSTEM: 750-600
RS-232 null modem cable: 761-9011
Analog modem (for DIN rail mounting), INSYS Modem 56k 4.2: 11-02-01-01-40.039
Telecontrol substation with GSM connection:
WAGO Telecontroller: 750-872
Additional 750/753 Series I/O modules, if necessary
End module, WAGO-I/O-SYSTEM: 750-600
RS-232 null modem cable: 761-9011
GSM modem (for DIN rail mounting), INSYS GSM 4.3: 11-02-01-03-01.042
Magnetic foot antenna for INSYS GSM 4.3: 31-01-01.007
Telecontrol substation with DSL/ETHERNET connection:
WAGO Telecontroller: 750-872
Alternative: WAGO Telecontroller: 750-880/025-001
Additional 750/753 Series I/O modules, if necessary
End module, WAGO-I/O-SYSTEM: 750-600

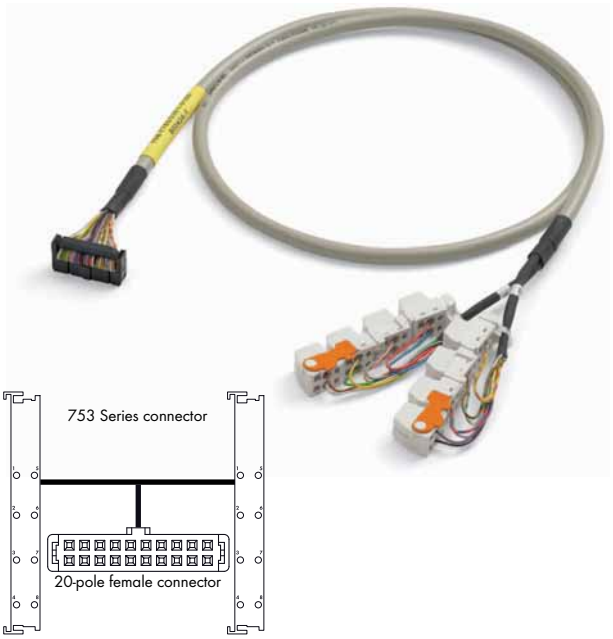
WAGO Ribbon Cables



WAGO ribbon cables provide fast and easy connection of WAGO I/O modules equipped with pluggable connectors (e.g., 753-430, -431, -530) to appropriate interface or relay modules featuring a 10-pole female connector.

Description	Item No.	Pack. Unit
WAGO ribbon cable, 1 x 753 Series pluggable connector/10-pole female connector, 1 m long	**706-7753/300-100**	1
For other cable lengths, please contact factory.		

Technical Data	
Wire cross-section	0.14 mm² LiYY
Color coding	acc. to DIN VDE 47100
Current per channel	max. 1 A
Operating temperature *	-25 °C ... +70 °C
Degree of protection	IP20
Length	1 m



WAGO ribbon cables provide fast and easy connection of WAGO I/O modules equipped with pluggable connectors (e.g., 753-430, -431, -530) to appropriate interface or relay modules featuring a 20-pole female connector.

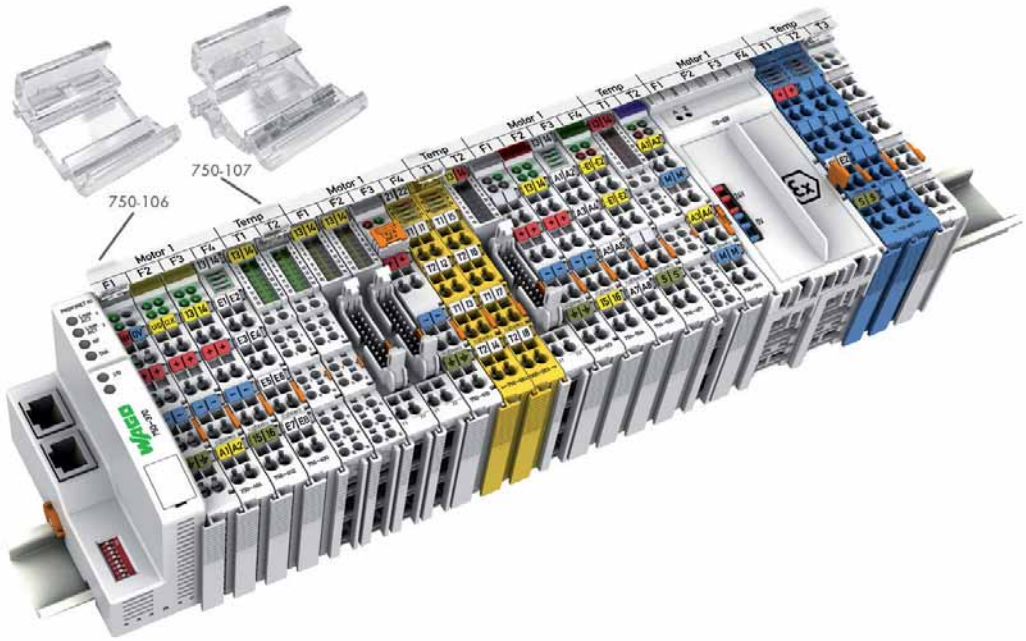
For example, this cable connects two WAGO I/O modules to one relay output module (16-channel).

Description	Item No.	Pack. Unit
WAGO ribbon cable, 2 x 753 Series pluggable connector/20-pole female connector, 2 m long	**706-7753/301-200**	1
For other cable lengths, please contact factory.		

Technical Data	
Wire cross-section	0.14 mm² LiYY
Color coding	acc. to DIN VDE 47100
Current per channel	max. 1 A
Operating temperature	-25 °C ... +70 °C
Degree of protection	IP20
Length	2 m

* Observe maximum operating temperature of the WAGO I/O modules used.

Marker Carriers for 750/753 Series



WAGO's 750-106 and 750-107 Marker Carriers allow I/O functions to be identified throughout the node via continuous marking strips. Both carrier models permit continuous marking regardless of the I/O module housing used.

- 750-106, for I/O module housing with up to 4 LEDs, as well as for 48 mm I/O module housing
- 750-107, for I/O module housing with 8 or 16 LEDs

The marker carrier can be accommodated in the upper miniature WSB marker slot. It is not necessary to use a carrier on each I/O module to mount the marking strip.

Description	Item No.	Pack. Unit
Marker Carrier for 750/753 Series, 4 LEDs	**750-106**	50
Marker Carrier for 750/753 Series, 8/16 LEDs	**750-107**	50

Accessories	Item No.	Pack. Unit
Marking strip, plain, 11 mm wide, 50 m roll	**2009-110**	1
WMB Inline, pitch 5 mm, stretchable, 5 mm ... 5.2 mm, on reel	**2009-115**	1

Technical Data	
Material	Polycarbonate
Weight	0.4 g

WAGO *flex*ROOM® Distribution Box, 2854 Series

WAGO ***flex***ROOM® office distribution boxes support the automation of commercial and functional buildings (offices) with floor plans based on a room axis concept. The boxes automate both lighting and sun protection, while performing single-room control (heating/cooling) for up to 24 room axes. In addition to the room axes, special areas (e.g., stairways, corridors, sanitary facilities) may be automated via specialty ***flex***ROOM® distribution boxes.

Control is performed via WAGO 750-884 Application Controller, which is included in the ***flex***ROOM® distribution box and preloaded with a ***flex***ROOM® office application. Initial commissioning (IP address assignment via BootP server) can be performed via WAGOupload PC software.

A standard Web browser performs both initial room axis configuration and later reconfiguration directly on the distribution box's controler.

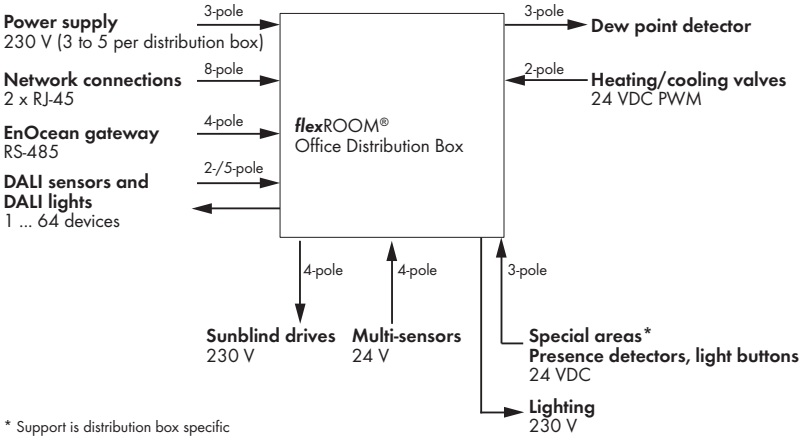
Several ***flex***ROOM® distribution boxes can be combined into a network via ETHERNET. A standard Web browser also establishes communication between the distribution boxes.
A ***flex***ROOM® distribution box for weather stations can transmit weather data (e.g., outside temperature or wind alarms) to other ***flex***ROOM® distribution boxes for further processing.

For the connection of higher-level management stations, each ***flex***ROOM® distribution box provides data in MODBUS tables, that can be read and partly be written by the stations.
Configuration data of the ***flex***ROOM® distribution box can cyclically be saved either directly on the included controller or on a separate computer.

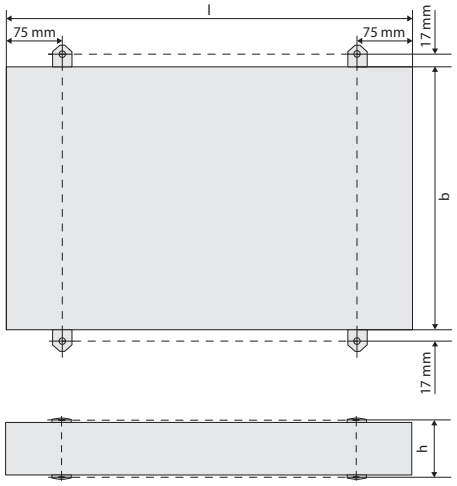
The ***flex***ROOM® distribution box is equipped with WAGO *WINSTA*® connectors. The ***flex***ROOM® distribution boxes differ from each other in the number of room axes, the support of specialty application areas, various functions depending on the inputs and outputs used.

Description	Item No.	Pack. Unit
Type 1 – 8 axes	2854-0300/1008-0032	1
Type 1 – 16 axes	2854-0300/1016-0032	1
Type 1 – 24 axes	2854-0300/1024-0032	1
Type 1 – 8 axes with specialty areas	2854-0300/1008-8032	1
Type 1 – 16 axes with specialty areas	2854-0300/1016-8032	1
Type 3 – 8 axes	2854-0300/1008-0002	1
Type 3 – 16 axes	2854-0300/1016-0002	1
Type 3 – 24 axes	2854-0300/1024-0002	1
Type 3 – 8 axes with specialty areas	2854-0300/1008-8002	1
Type 3 – 16 axes with specialty areas	2854-0300/1016-8002	1
Connector set for *flex*ROOM® Office Distribution Box (upon request)		1
For detailed information on *WINSTA*® connection technology, see "Distribution Box" documentation.		
***WINSTA*® accessories**		
WINSTA® Distribution Box	770-631/100-000	1
Three-phase to single-phase distribution connector with phase selection	770-640	1
h-distribution connector for 2 sockets	770-993	1
Distribution connector, 3-way,	770-609	1
Fixing pin	890-601	1
Interconnecting cable, plug/socket, 3 x 2.5 mm², 40 cm	771-9993/007-041	1

Technical Data	
Power supply	
Supply voltage	230 VAC, 50 ... 60 Hz
Voltage range	+/- 10 %
Fuse protection	In accordance with applicable regulations and electrotechnical provisions outside the enclosure; SCPD 16 A (B)
Connectors	3-pole plug-in connectors, WAGO 770-713
Configuration	
Configuration	via Web server
Bus connection (ETHERNET)	
Transmission medium	Twisted Pair S-UTP, 100 Ohm, Cat. 5; 100 m maximum cable length
Baud rate	10/100 Mbit/s
Transmission performance	Class D acc. to EN 50173
Bus connection	2 x RJ-45
Room axes	
Inputs	
Dew point detector	
Signaling	24 VDC
Multi-sensors	
Signaling, presence	24 VDC
Signaling, brightness	0 ... 10 VAC
Outputs	
Sunblind drive	
Switching voltage	230 VAC, 50 ... 60 Hz
Voltage range	+/- 10 %
Switching current	1.5 A at 230 VAC
Switching power (relay)	300 W (AC3)
Output short-circuit protection	Not short-circuit protected
Lighting (DALI)	
Switching voltage	230 VAC; +/-10%
Voltage range	+/- 10 %
Switching current	max. 16 A in total
Switching power	3.600 VA in total
Heating/Cooling valves	
Switching voltage	24 VDC; +/-10%
Switching current	250 mA
Switching power	6 W (temporary), 3 W (average)



* Support is distribution box specific



Technical Data

Special areas	
Inputs	
Sunblind, light buttons, presence detector	
Signalizing	24 VDC
Outputs	
Sunblind drives	see room axes
Lighting (relay)	
Switching voltage	230 VAC; +/-10%
Voltage range	+/- 10 %
Switching current$_{max}$	16 A in total with DALI lighting fixtures
Switching power$_{max}$	3600 VA in total with DALI lighting fixtures

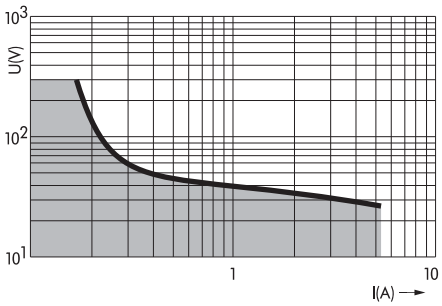
Standards and approvals	
CE conformity	DIN EN 61439-1/2:2009
General specifications	
Operating temperature	-5 °C ... +45 °C, non-condensing
Storage temperature	-20 °C ... +70 °C
Type of mounting	Wall, screw fixing
Assembly	Interior area, e.g., intermediate floors, suspended ceiling
Mounting position	any
Degree of protection	IP20
Pollution degree	2
Housing material	Galvanized steel plate, material DC01 hot-dip galvanized, raw

	Subsystems			Office areas									Special areas									General				Abbreviation
				Inputs				Outputs					Inputs				Outputs					Dimensions			Weight	
	DALI	EnOcean		Dew point detector	Multi-sensors (conventional)*	DALI sensors*		Heating/Cooling	Lighting (DALI)	Sunblinds (relays)			Sunblind button	Light button	Presence detector		Heating/Cooling	Lighting (relay)	Sunblinds (relays)			L in [mm]	W in [mm]	H in [mm] incl. accessories	Wt in [kg]	
2854-0300/1008-0032	x	x		2	4	x		8	16	8			-	-	-		-	-	-			550	350	120	8.8	T1 A8
2854-0300/1016-0032	x	x		2	8	x		16	32	16			-	-	-		-	-	-			550	500	150	12.7	T1 A16
2854-0300/1024-0032	x	x		2	12	x		24	48	24			-	-	-		-	-	-			750	500	140	17	T1 A24
2854-0300/1008-8032	x	x		2	4	x		8	16	8			4	4	4		2	4	4			650	500	150	14.3	T1 A8S
2854-0300/1016-8032	x	x		2	8	x		16	32	16			4	4	4		2	4	4			650	500	150	16	T1 A16S
2854-0300/1008-0002	x	x		2	-	x		8	16	8			-	-	-		-	-	-			550	350	120	8.5	T3 A8
2854-0300/1016-0002	x	x		2	-	x		16	32	16			-	-	-		-	-	-			550	500	150	12.3	T3 A16
2854-0300/1024-0002	x	x		2	-	x		24	48	24			-	-	-		-	-	-			750	500	140	16.5	T3 A24
2854-0300/1008-8002	x	x		2	-	x		8	16	8			4	4	4		2	4	4			650	500	150	13.8	T3 A8S
2854-0300/1016-8002	x	x		2	-	x		16	32	16			4	4	4		2	4	4			650	500	150	15.5	T3 A16S

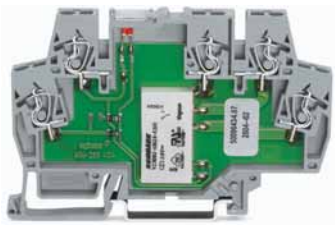
*Either Multi-sensors or DALI sensors can be used.

Rail-Mounted Terminal Blocks with Miniature Switching Relay

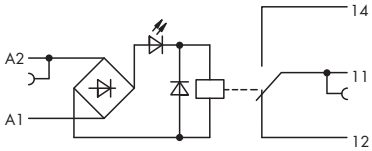
	Relay with 1 changeover contact (1 u) for normal switching power Nominal input voltage V_N: 60 V AC/DC Coil voltage supplements 859-353 ... -358 models	Relay with 1 changeover contact (1 u) Gold-plated contacts, 5 µm Au Extended input voltage range: V_N -30 % ... +25 %; Operating temperature range: -25 °C ... +70 °C Nominal input voltage V_N: 24 ... 48 VDC Coil voltage supplements 859-317 model

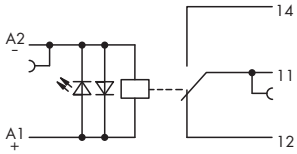


DC load limit curve



** In order to prevent the gold layer from being damaged, 30 VDC switching voltages and 50 mA currents shall not be exceeded.
Higher switching power leads to evaporation of the gold layer. The resulting deposits in the housing may cause sparkovers between the coil and the contact.

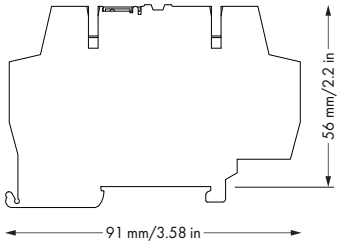


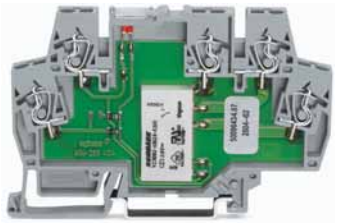


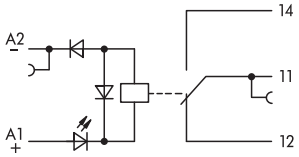
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal blocks with miniature switching relay, for DIN 35 rail	60 V AC/DC	4.1 mA	**859-356**	1	24 VDC	10 mA	**859-392**	1
					36 VDC	10.1 mA	**859-386**	1
					48 VDC	7.9 mA	**859-384**	1

Technical Data	For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC	For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC
Coil:		
Input voltage range	V_N -15 % ... +20 %	V_N -30 % ... +25 %
Contacts:		
Contact material	AgNi	AgNi + 5 µm Au
Max. continuous current	5 A	3 A **
Max. make current (resistive) at a 10 % OT *	-	-
Max. switching voltage	250 VAC	250 VAC **
Max. switching power (resistive)	1250 VA AC; DC see load curve	750 VA AC; DC see load curve
Recommended minimum load	≥ 100 mA / 12 V AC/DC	≥ 1 mA / 1 V / 50 mW
Pull-in/drop-out/bounce time typ.	5 ms / 6 ms / 5 ms	5 ms / 6 ms / 5 ms
Mechanical life	5 x 10^6 switching operations	5 x 10^6 switching operations
General specifications:		
Nominal voltage to EN 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Dielectric strength contact-coil (AC, 1 min)	4 kV_{rms}	4 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-	-
Ambient operating temperature at V_N	-25 °C ... +50 °C	-25 °C ... +70 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Strip lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Standards/Specifications	EN 60664; EN 61810-5; UL 508;	859-384, 859-386:
	EEx nC II T4 / DEMKO 02 ATEX 132280U; ㏈	EN 60664; EN 61810-5; EN 50155
		859-392:
		EN 60664; EN 61810-5; EN 50155; UL 508;
		EEx nC II T4 / DEMKO 02 ATEX 132280U; ㏈
* (OT = On-Time)		

	Relay with 1 changeover contact (1 u) **Extended input voltage range: V_N ±40 %;** **Operating temperature range: -25 °C ... +70 °C** **Normal switching power** **Railway applications** **Coil voltage supplements 859-398 model**	







Note: Inductive loads have to be attenuated by an appropriate protective circuit in order to protect relay coils and contacts.

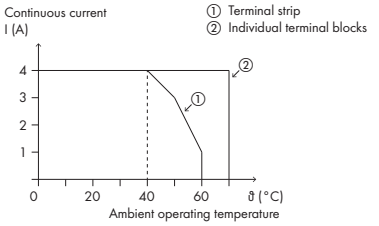
Description	V_N	I_N	Item No.	Pack. Unit	
Rail-mounted terminal blocks with miniature	48 VDC	7.9 mA	**859-397**	1	
switching relay, for DIN 35 rail	110 VDC	3.1 mA	**859-399**	1	

Technical Data	For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC
Coil:	
Input voltage range	V_N ± 40 %
Contacts:	
Contact material	AgNi
Max. continuous current	3 A
Max. make current (resistive) at a 10 % OT *	-
Max. switching voltage	250 VAC
Max. switching power (resistive)	750 VA AC; DC see load curve
Recommended minimum load	≥ 100 mA / 12 V AC/DC
Pull-in/drop-out/bounce time typ.	5 ms / 6 ms / 5 ms
Mechanical life	5 x 10^6 switching operations
General specifications:	
Nominal voltage to EN 60664-1	250 V / 4 kV / 3
Dielectric strength contact-coil (AC, 1 min)	4 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-
Ambient operating temperature at V_N	-25 °C ... +70 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Strip lengths	5 ... 6 mm / 0.22 in
Standards/Specifications	EN 60664; EN 61810-5; EN 50155

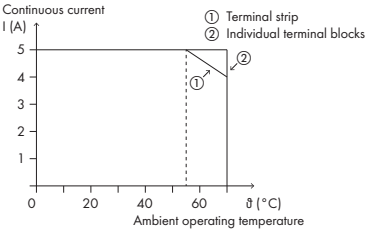
* (OT = On-Time)

Rail-Mounted Terminal Blocks with Optocoupler

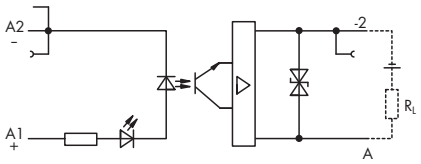
	Power optocoupler **Input: 12 ... 48 VDC** **Output: 3 ... 53 VDC / 4 A**	**Power optocoupler** **Input: 24 VDC** **Output: 3 ... 30 VDC / 5 A**

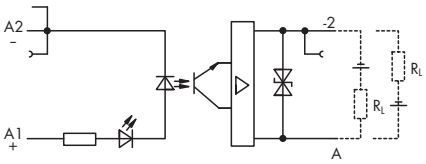


Derating for 859-744



Derating for 859-737

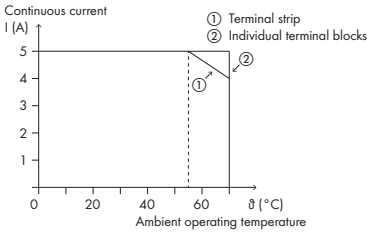




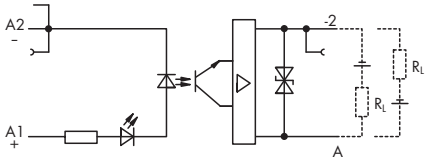
Description	V_N	I_N	**Item No.**	**Pack. Unit**	V_N	I_N	**Item No.**	**Pack. Unit**
Rail-mounted terminal blocks with optocoupler, for DIN 35 rail	48 VDC	5 mA	**859-744**	1	24 VDC	3.5 mA	**859-737**	1

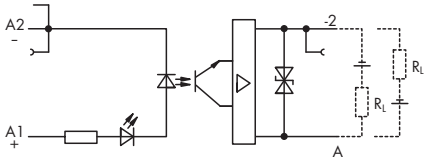
Technical Data	For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC	For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC
Control circuit:		
Input voltage range (low level)	0 ... 4 VDC	0 ... 5 VDC
Input voltage range (high level)	10 ... 53 VDC	15 ... 30 VDC
Load circuit:		
Output voltage range	3 ... 53 VDC	3 ... 30 VDC
Max. continuous current	4 A	5 A
Peak output current	30 A	25 A
Turn-on time	200 µs	200 µs
Turn-off time	450 µs	450 µs
Max. switching frequency	100 Hz	100 Hz
Max. voltage drop at output	0.2 V	0.2 V
Reverse voltage transistor/triac	80 V	55 V
General specifications:		
Dielectric strength control/switching circuit	2.5 kV	2.5 kV
Dielectric strength channel/channel	-	-
Ambient operating temperature	-25 °C ... +70 °C (Derating must be observed)	-25 °C ... +70 °C (Derating must be observed)
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Strip lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Standards/Specifications	EN 60664	EN 60664

	Power optocoupler Input: 5 VDC Output: 3 ... 30 VDC / 5 A	Power optocoupler Input: 12 VDC Output: 3 ... 30 VDC / 5 A



Derating



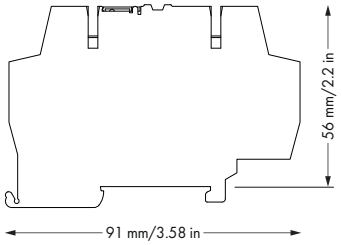


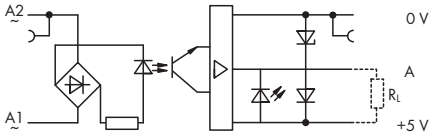
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal blocks with optocoupler, for DIN 35 rail	5 VDC	7.2 mA	**859-738**	1	12 VDC	3.2 mA	**859-739**	1

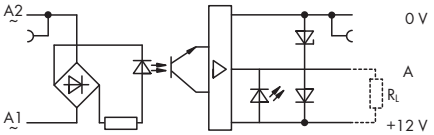
Technical Data	For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC	For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC
Control circuit:		
Input voltage range (low level)	0 ... 2 VDC	0 ... 5 VDC
Input voltage range (high level)	4 ... 6 VDC	9.6 V ... 14.4 VDC
Load circuit:		
Output voltage range	3 ... 30 VDC	3 ... 30 VDC
Max. continuous current	5 A	5 A
Peak output current	25 A	25 A
Turn-on time	200 µs	200 µs
Turn-off time	450 µs	450 µs
Max. switching frequency	100 Hz	100 Hz
Max. voltage drop at output	0.2 V	0.2 V
Reverse voltage transistor/triac	55 V	55 V
General specifications:		
Dielectric strength control/switching circuit	2.5 kV	2.5 kV
Dielectric strength channel/channel	-	-
Ambient operating temperature	-25 °C ... +70 °C (Derating must be observed)	-25 °C ... +70 °C (Derating must be observed)
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Strip lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Standards/Specifications	EN 60664	EN 60664

Rail-Mounted Terminal Blocks with Optocoupler

	Optocoupler Input: 230 VAC Output: 5 VDC/500 mA Negative switching	Optocoupler Input: 230 VAC Output: 12 VDC/500 mA Negative switching



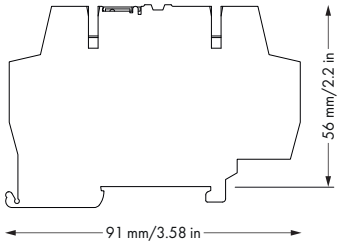


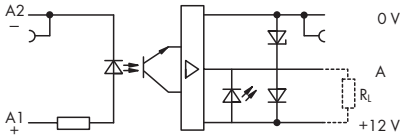


Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal blocks with optocoupler, for DIN 35 rail	230 VAC	0.6 mA	**859-710**	1	230 VAC	0.6 mA	**859-711**	1

Technical Data	For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC	For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC
Control circuit:		
Input voltage range (low level)	0 ... 90 VAC	0 ... 90 VAC
Input voltage range (high level)	175 ... 250 VAC	175 ... 250 VAC
Load circuit:		
Output voltage range	4 ... 6.25 VDC	8 ... 18 VDC
Max. continuous current	500 mA	500 mA
Peak output current	4 A	4 A
Turn-on time	< 30 ms	< 30 ms
Turn-off time	< 30 ms	< 30 ms
Max. switching frequency	-	-
Max. voltage drop at output	1.2 V	1.2 V
Reverse voltage transistor/triac	80 V	80 V
General specifications:		
Dielectric strength control/switching circuit	2.5 kV	2.5 kV
Dielectric strength channel/channel	-	-
Ambient operating temperature	-25 °C ... +55 °C	-25 °C ... +55 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Strip lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Standards/Specifications	EN 60664	EN 60664

	Optocoupler **Input: 24 VDC** **Output: 12 VDC / 500 mA** **Negative switching**	





Description	V_N	I_N	Item No.	Pack. Unit	
Rail-mounted terminal blocks with optocoupler, for DIN 35 rail	24 VDC	7 mA	**859-707**	1	

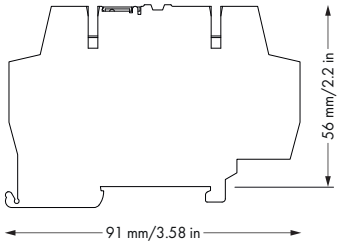
Technical Data

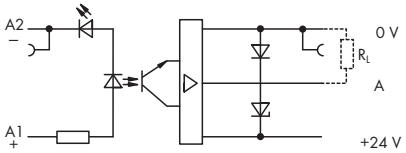
For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC

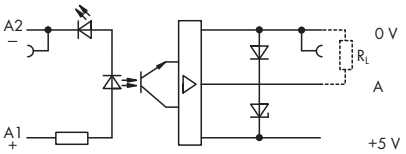
Control circuit:	
Input voltage range (low level)	0 V ... 5 VDC
Input voltage range (high level)	19 V ... 30 VDC
Load circuit:	
Output voltage range	4 ... 6.25 VDC
Max. continuous current	500 mA
Turn-on time	< 10 µs
Turn-off time	< 10 µs
Max. switching frequency	25 kHz
Typ. switching frequency	10 kHz
Max. voltage drop at output	1.2 V
Reverse voltage transistor/Triac	80 V
General specifications:	
Dielectric strength, control/load circuit	2.5 kV
Dielectric strength channel/channel	-
Ambient operating temperature	-25 °C ... +55 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Strip lengths	5 ... 6 mm / 0.22 in
Standards/Specifications	EN 60664

Rail-Mounted Terminal Blocks with Optocoupler

	Optocoupler **Input: 5 VDC** **Output: 24 VDC/100 mA** **Positive switching**	**Optocoupler** **Input: 24 VDC** **Output: 5 VDC/100 mA** **Positive switching**



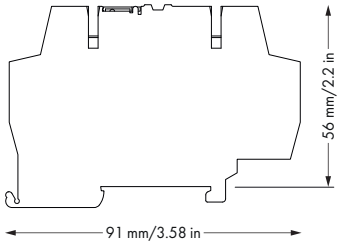


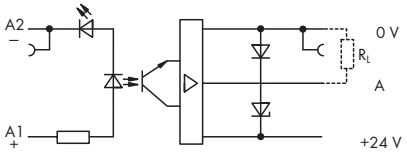


Description	V_N	I_N	**Item No.**	**Pack. Unit**	V_N	I_N	**Item No.**	**Pack. Unit**
Rail-mounted terminal blocks with optocoupler, for DIN 35 rail	5 VDC	16.5 mA	**859-753**	1	24 VDC	9 mA	**859-755**	1

Technical Data	For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC	For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC
Control circuit:		
Input voltage range (low level)	0 ... 1 VDC	0 ... 5 VDC
Input voltage range (high level)	4 ... 6.25 VDC	20 ... 30 VDC
Load circuit:		
Output voltage range	20 ... 28.8 VDC	4 ... 6 VDC
Max. continuous current	100 mA	100 mA
Peak output current	0.8 A	0.8 A
Turn-on time	< 0.5 µs	< 0.5 µs
Turn-off time	< 5 µs	< 2 µs
Max. switching frequency	100 kHz	100 kHz
Max. voltage drop at output	0.6 V	0.6 V
Reverse voltage transistor/triac	40 V	40 V
General specifications:		
Dielectric strength control/switching circuit	2.5 kV	2.5 kV
Dielectric strength channel/channel	-	-
Ambient operating temperature	-25 °C ... +55 °C	-25 °C ... +55 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Strip lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Standards/Specifications	EN 60664; UL 508	EN 60664

	Optocoupler **Input: 24 VDC** **Output: 24 VDC/100 mA** **Positive switching**	



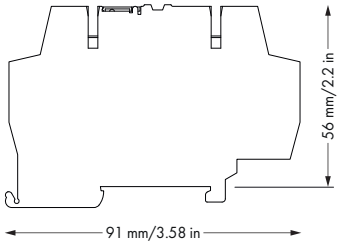


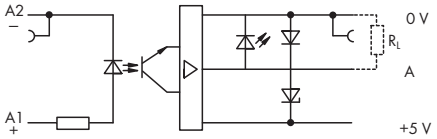
Description	V_N	I_N	Item No.	Pack. Unit	
Rail-mounted terminal block with optocoupler, for DIN 35 rail	24 VDC	9 mA	**859-759**	1	

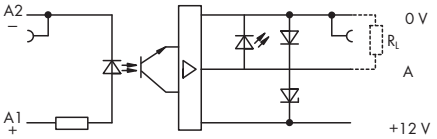
Technical Data	For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC	
Control circuit:		
Input voltage range (low level)	0 ... 5 VDC	
Input voltage range (high level)	20 ... 30 VDC	
Load circuit:		
Output voltage range	20 ... 28.8 VDC	
Max. continuous current	100 mA	
Peak output current	0.8 A	
Turn-on time	< 0.5 µs	
Turn-off time	< 2 µs	
Max. switching frequency	100 kHz	
Max. voltage drop at output	1.2 V	
Reverse voltage transistor/triac	40 V	
General specifications:		
Dielectric strength control/switching circuit	2.5 kV	
Dielectric strength channel/channel	-	
Ambient operating temperature	-25 °C ... +55 °C	
Storage temperature	-40 °C ... +70 °C	
Dimensions (mm) W x H x L	6 x 56 x 91	
	Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP®	
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	
Strip lengths	5 ... 6 mm / 0.22 in	
Standards/Specifications	EN 60664	

Rail-Mounted Terminal Blocks with Optocoupler

	Optocoupler Input: 5 VDC Output: 5 VDC / 500 mA Positive switching	Optocoupler Input: 5 VDC Output: 12 VDC / 500 mA Positive switching



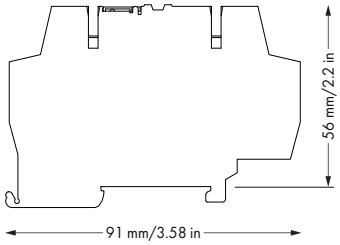


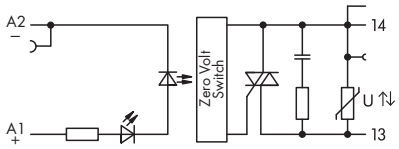


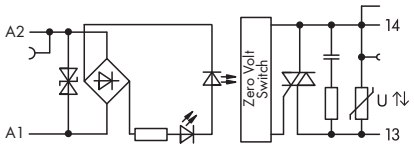
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal blocks with optocoupler, for DIN 35 rail	5 VDC	8 mA	**859-750**	1	5 VDC	8 mA	**859-751**	1

Technical Data	For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC	For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC
Control circuit:		
Input voltage range (low level)	0 ... 1 VDC	0 ... 1 VDC
Input voltage range (high level)	4 ... 6.25 VDC	4 ... 6 VDC
Load circuit:		
Output voltage range	4 ... 6.25 VDC	8 ... 18 VDC
Max. continuous current	500 mA	500 mA
Peak output current	4 A	4 A
Turn-on time	< 15 µs	< 15 µs
Turn-off time	< 30 µs	< 30 µs
Max. switching frequency	10 kHz	10 kHz
Max. voltage drop at output	1.2 V	1.2 V
Reverse voltage transistor/triac	80 V	80 V
General specifications:		
Dielectric strength control/switching circuit	2.5 kV	2.5 kV
Dielectric strength channel/channel	-	-
Ambient operating temperature	-25 °C ... +40 °C	-25 °C ... +40 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Strip lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Standards/Specifications	EN 60664; UL 508;	EN 60664; UL 508;
	EEx nA II T4 / DEMKO 02 ATEX 132280U	EEx nA II T4 / DEMKO 02 ATEX 132280U

	Optocoupler Input: 24 VDC Output: 24 ... 260 VAC / 500 mA Zero-voltage switching	Optocoupler Input: 24 VAC Output: 24 ... 260 VAC / 500 mA Zero-voltage switching





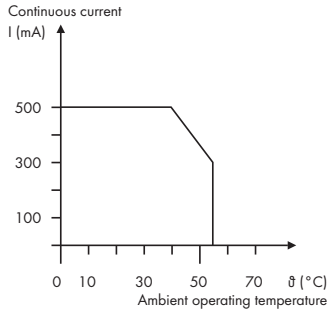


Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Rail-mounted terminal blocks with optocoupler, for DIN 35 rail	24 VDC	6 mA	**859-734**	1	24 VAC	7.5 mA	**859-760**	1

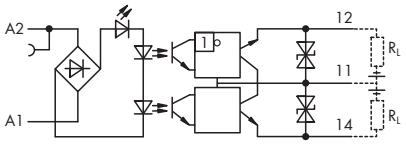
Technical Data	For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC	For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC
Control circuit:		
Input voltage range (low level)	0 ... 5 VDC	0 ... 5 VAC
Input voltage range (high level)	19 ... 28.8 VDC	16.8 ... 28.8 VAC
Load circuit:		
Output voltage range	24 ... 260 VAC (50 Hz ... 60 Hz)	24 ... 260 VAC (50 Hz ... 60 Hz)
Max. continuous current	500 mA	500 mA
Peak output current	30 A	30 A
Turn-on time	10 ms	10 ms
Turn-off time	10 ms	10 ms
Max. switching frequency	-	-
Max. voltage drop at output	1 V	1 V
Reverse voltage transistor/triac	600 V	600 V
General specifications:		
Dielectric strength control/switching circuit	2.5 kV	2.5 kV
Dielectric strength channel/channel	-	-
Ambient operating temperature	-25 °C ... +55 °C	-25 °C ... +55 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	6 x 56 x 91	6 x 56 x 91
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Strip lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Standards/Specifications	EN 60664; UL 508	EN 60664

Rail-Mounted Terminal Blocks with Optocoupler

	Optocoupler **Input: 24 VDC** **Output: 3 ... 30 VDC / 500 mA** **Changeover contact output**	



Derating

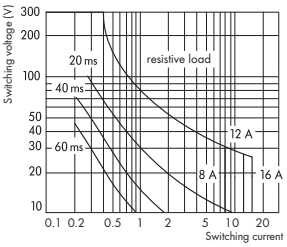


Description	V_N	I_N	Item No.	Pack. Unit	
Rail-mounted terminal block with optocoupler, for DIN 35 rail	24 VDC	5.3 mA	**859-732**	1	

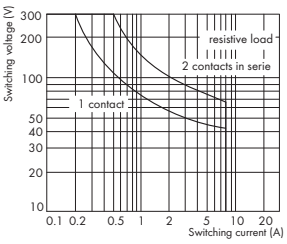
Technical Data	For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC	
Control circuit:		
Input voltage range (low level)	0 ... 5 VDC	
Input voltage range (high level)	15 V ... 42 VDC	
Load circuit:		
Output voltage range	3 ... 30 VDC	
Max. continuous current	500 mA	
Peak output current	4 A	
Turn-on time	< 25 µs	
Turn-off time	< 150 µs	
Max. switching frequency	1.5 kHz at I_N	
Max. voltage drop at output	1.5 V	
Reverse voltage transistor/triac	80 V	
General specifications:		
Dielectric strength control/switching circuit	3.75 kV	
Dielectric strength channel/channel	-	
Ambient operating temperature	-25 °C ... +55 °C (Derating must be observed)	
Storage temperature	-25 °C ... +70 °C	
Dimensions (mm) W x H x L	6 x 56 x 91	
	Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP®	
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	
Strip lengths	5 ... 6 mm / 0.22 in	
Standards/Specifications	EN 60664; UL 508	

Sockets with Miniature Switching Relay

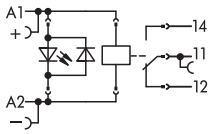
	Relay with 1 changeover contact and status indication (25 mm high) Nominal input voltage V_N: 12 VDC Coil voltage supplements 788-324 model	Relay with 2 changeover contacts and status indication (25 mm high) Nominal input voltage V_N: 12 VDC, 110 VDC Coil voltage supplements 788-334 model

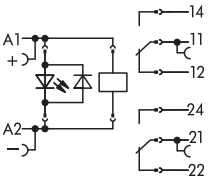


DC load limit curve 788-323



DC load limit curve 788-333 and 788-337





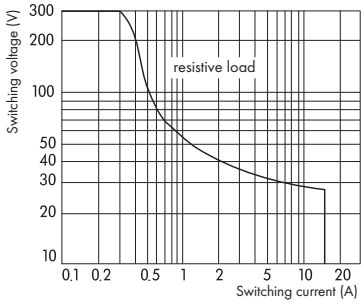
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Sockets with miniature switching relay, for DIN 35 rail	12 VDC	45 mA	**788-323**	1	12 VDC 110 VDC	45 mA 6.8 mA	**788-333** **788-337**	1 1

Technical Data	For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC	For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC
Coil:		
Input voltage range	V_N ± 10 %	V_N ± 10 %
Contacts:		
Contact material	AgCdO	AgCdO
Max. continuous current	16 A	2 x 8 A
Max. make current (resistive) at a 10 % OT *	25 A / 4 s (AC)	14 A / 4 s (AC)
Max. switching voltage	250 VAC	250 VAC
Max. switching power (resistive)	4 kVA AC, DC see load curve	2 x 2 kVA AC, DC see load curve
Recommended minimum load	-	-
Pull-in/drop-out/bounce time typ.	8 ms / 2 ms / 4 ms	9 ms / 3 ms / 3 ms
Mechanical life	30 x 10^6 switching operations	20 x 10^6 switching operations
General specifications:		
Nominal voltage to EN 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Dielectric strength contact-coil (AC, 1 min)	4 kV_{rms}	4 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-	2.5 kV_{rms}
Ambient operating temperature at V_N	-25 °C ... +50 °C	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	15 x 63 x 86	15 x 64 x 86
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® S	CAGE CLAMP® S
Cross sections	0.34 mm² ... 2.5 mm² / AWG 22 ... 12	0.34 mm² ... 2.5 mm² / AWG 22 ... 12
Strip lengths	9 ... 10 mm / 0.37 in	9 ... 10 mm / 0.37 in
Standards/Specifications	EN 61810-1, EN 60664-1, EN 61140, UL 508 (max. 40 °C/10 A)	EN 61810-1, EN 60664-1, EN 61140, UL 508 (max. 40 °C/10 A)

* (OT = On-Time)

Socket with Miniature Switching Relay

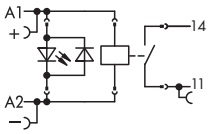
Relay with 1 make contact and status indication (15 mm high)
Nominal input voltage V_N: 24 VDC
for lamp loads



DC load limit curve

Similiar to picture

Contact life, type of load	Electrical life
1000 W, incandescent lamp	80,000
16 A, 240 VAC, UL 508	50,000
21/3.5 A, 230 VAC, Compressor, cos φ = 0.5	230,000

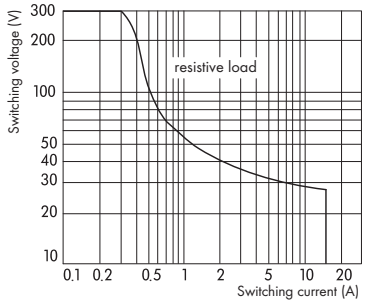


Description	V_N	I_N	Item No.	Pack. Unit
Socket with miniature switching relay, for DIN 35 rail	24 VDC	19 mA	**788-356**	1

Technical Data	For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC
Coil:	
Input voltage range	V_N -15 % ... +20 %
Contacts:	
Contact material	$AgSnO_2$
Max. continuous current	16 A
Max. make current (resistive) at a 10 % OT *	30 A / 4 s (AC); 80 A / 20 ms (AC)
Max. switching voltage	250 VAC
Max. switching power (resistive)	4 kVA AC, DC see load curve
Recommended minimum load	≥ 100 mA / 12 V AC/DC
Pull-in/drop-out/bounce time typ.	8 ms / 3 ms / -
Mechanical life	30 x 10^6 switching operations
General specifications:	
Nominal voltage to EN 60664-1	250 V / 4 kV / 3
Dielectric strength contact-coil (AC, 1 min)	5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-
Ambient operating temperature at V_N	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	15 x 53 x 86
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® S
Cross sections	0.34 mm² ... 2.5 mm² / AWG 22 ... 12
Strip lengths	9 ... 10 mm / 0.37 in
Standards/Specifications	EN 61810-1, EN 60664-1, EN 61140, UL 508 (max. 50 °C/10 A)

* (OT = On-Time)

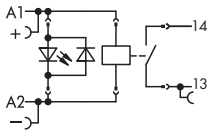
Relay with 1 make contact and status indication (15 mm high)
Nominal input voltage V_N: 24 VDC
for lamp loads



DC load limit curve

Contact life, type of load	Electrical life
3000 W, incandescent lamp, 230 VAC, OT 8.3 % ①, 5 min^{-1}	12,000
620 W, gas discharge lamp, CCG ②, 120/277 VAC, UL 508, 50 °C	6,000
1200 W, tungsten lamp, 120/277 VAC, UL 508, 50 °C	6,000
16 A, 250 VAC, cos φ = 1, 85 °C, IEC 61810	5,000

① OT= On-Time
② CCG = Conventional Control Gear



Description	V_N	I_N	Item No.	Pack. Unit
Socket with miniature switching relay, for DIN 35 rail	24 VDC	17 mA	**788-357**	1

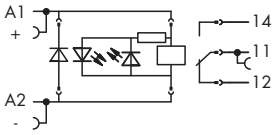
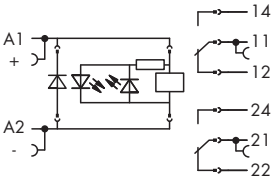
Technical Data

For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC

Coil:	
Input voltage range	V_N -10 % ... +20 %
Contacts:	
Contact material	$AgSnO_2$, W pre-make contact
Max. continuous current	16 A
Max. make current (resistive) at a 10 % OT *	165 A / 20 ms (AC)
Max. switching voltage	250 VAC
Max. switching power (resistive)	4 kVA AC, DC see load curve
Recommended minimum load	-
Pull-in/drop-out/bounce time typ.	10 ms / 5 ms / 4 ms
Mechanical life	5 x 10^6 switching operations
General specifications:	
Nominal voltage to EN 60664-1	250 V / 4 kV / 3
Dielectric strength contact-coil (AC, 1 min)	4 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1.25 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-
Ambient operating temperature at V_N	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	15 x 53 x 86
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® S
Cross sections	0.34 mm² ... 2.5 mm² / AWG 22 ... 12
Strip lengths	9 ... 10 mm / 0.37 in
Standards/Specifications	EN 61810-1, EN 60664-1, EN 61140

* (OT = On-Time)

Socket with Miniature Switching Relay

	Relay with 1 changeover contact Electrical and mechanical status indication (25 mm high) Nominal input voltage V_N: 24 VDC Railway applications	Relay with 2 changeover contact Electrical and mechanical status indication (25 mm high) Nominal input voltage V_N: 24 VDC Railway applications
		
		

Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Sockets with miniature switching relay, for DIN 35 rail	24 VDC	19.1 mA	**788-391**	1	24 VDC	19.1 mA	**788-390**	1

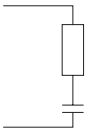
Technical Data	For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC	For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC
Coil:		
Input voltage range	V_N -30 % ... +25 %	V_N -30 % ... +25 %
Contacts:		
Contact material	AgNi	AgNi
Max. continuous current	3 A (single socket)	2 x 3 A (single socket)
Max. make current (resistive) at a 10 % OT *	16 A	2 x 8 A
Max. switching voltage	250 VAC	250 VAC
Max. switching power (resistive)	750 VA AC	2 x 750 VA AC
Recommended minimum load	≥ 10 mA / 12 V AC/DC	≥ 10 mA / 12 V AC/DC
Pull-in/drop-out/bounce time typ.	15 ms / 8 ms / -	15 ms / 8 ms / -
Mechanical life	5 x 10^6 switching operations	5 x 10^6 switching operations
General specifications:		
Nominal voltage to EN 60664-1	250 V / 4 kV / 3	250 V / 4 kV / 3
Dielectric strength contact-coil (AC, 1 min)	5 kV_{rms}	5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-	2.5 kV_{rms}
Ambient operating temperature at V_N	-25 °C ... +70 °C	-25 °C ... +70 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	15 x 73 x 86	15 x 73 x 86
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® S	CAGE CLAMP® S
Cross sections	0.34 mm² ... 2.5 mm² / AWG 22 ... 12	0.34 mm² ... 2.5 mm² / AWG 22 ... 12
Strip lengths	9 ... 10 mm / 0.37 in	9 ... 10 mm / 0.37 in
Standards/Specifications	EN 61810-1, EN 60664-1, EN 61140, UL 508 (max. 40 °C/10 A)	EN 61810-1, EN 60664-1, EN 61140, UL 508 (max. 40 °C/10 A)

* (OT = On-Time)

Accessories, 788 and 858 Series

	Suppressor module, pluggable, for 788 and 858 Series Relay Sockets	

Similiar to picture



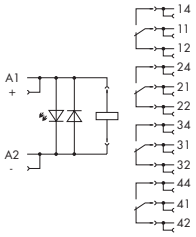
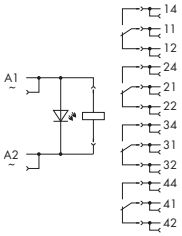
Note: To guarantee safe operation, residual voltages (due to the cable capacitance of long connection lines or leakage currents of semi-conductor switches and their protective circuits) must be lower than the release voltage of the relays.
For DC relays, the release voltage is specified with ≤ 5 % of the nominal voltage; for AC relays, it is 15 % of the nominal voltage (acc. to VDE 0435).
The relay may not reset if a high residual voltage exists. Depending on the reason for the residual voltage, changing the cable routing or a parallel connection of an RC element could remedy this situation.

Description	Item No.	Pack. Unit	
Suppressor Module for Miniature Switching Relay	**788-148**	50	

Technical Data

Operating data:		
Operating voltage	max. 230 VAC, 50 ... 60 Hz	
Operating current	3.6 mA at 115 VAC, 50 Hz	
	7.2 mA at 230 VAC, 50 Hz	
Module's characteristics:		
Resistor	470 Ω	
Capacity	100 nF	
General specifications:		
Ambient operating temperature	-25 °C ... +70 °C	
Storage temperature	-40 °C ... +70 °C	
Dimensions (mm) W x H x L	15 x 15 x 10	
Standards/Specifications	EN 60664	

Relay Sockets with Industrial Relay

	Relay sockets with industrial relay Coil voltage: 48 V, 110 V, 220 V DC 4 changeover contacts Coil voltage supplements 858-304 model	Relay sockets with industrial relay Coil voltage: 24 V, 115 V AC 4 changeover contacts Coil voltage supplements 858-508 model
		
		

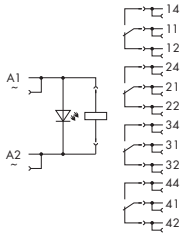
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Relay sockets with industrial relay,	48 VDC	18.5 mA	**858-305**	1	24 VAC	50 mA	**858-504**	1
for DIN 35 rail	110 VDC	10 mA	**858-307**	1	115 VAC	10 mA	**858-507**	1
	220 VDC	4.1 mA	**858-308**	1				

Technical Data	For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC	For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC
Coil:		
Input voltage range	V_N -20 % ... +10 %	V_N -20 % ... +10 %
Contacts:		
Contact material	AgCe	AgCe
Max. continuous current	5 A	5 A
Max. make current (resistive) at a 10 % OT *	15 A / 4 s	15 A / 4 s
Max. switching voltage	250 VAC	250 VAC
Max. switching power (resistive)	1250 VA AC	1250 VA AC
Recommended minimum load	≥ 100 mA / 12 V AC/DC	≥ 100 mA / 12 V AC/DC
Pull-in/drop-out/bounce time typ.	25 ms / 25 ms / 4 ms	25 ms / 25 ms / 4 ms
Mechanical life	20 x 10^6 switching operations	20 x 10^6 switching operations
General specifications:		
Nominal voltage to EN 60664-1	250 V / 2.5 kV / 2	250 V / 2.5 kV / 2
Dielectric strength contact-coil (AC, 1 min)	1.5 kV_{rms}	1.5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	1.5 kV_{rms}	1.5 kV_{rms}
Ambient operating temperature at V_N	-25 °C ... +70 °C	-25 °C ... +70 °C
Storage temperature	-40 °C ... +80 °C	-40 °C ... +80 °C
Dimensions (mm) W x H x L	31 x 73 x 97	31 x 73 x 97
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® S	CAGE CLAMP® S
Cross sections	2 x 0.34 mm² ... 2 x 1.5 mm² /	2 x 0.34 mm² ... 2 x 1.5 mm² /
	1 x 2.5 mm²/	1 x 2.5 mm²/
	AWG 22 ... 16	AWG 22 ... 16
Strip lengths	9 ... 10 mm / 0.37 in	9 ... 10 mm / 0.37 in
Standards/Specifications	EN 61810-1, EN 60664-1	EN 61810-1, EN 60664-1

* (OT = On-Time)

Relay sockets with industrial relay
Coil voltage: 24 V, 115 V AC
4 changeover contacts (gold plating)

Coil voltage supplements 858-518 model



** In order to prevent the gold layer from being damaged, 30 VDC switching voltages and 50 mA currents shall not be exceeded.
Higher switching power leads to evaporation of the gold layer. The resulting deposits in the enclosure may cause sparkovers between the coil and the contact.

Description	V_N	I_N	Item No.	Pack. Unit
Relay sockets with industrial relay,	24 VAC	50 mA	**858-514**	1
for DIN 35 rail	115 VAC	10 mA	**858-517**	1

Technical Data

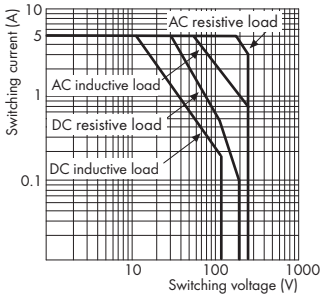
For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC

Coil:	
Input voltage range	V_N -20 % ... +10 %
Contacts:	
Contact material	AgCe + 5 µm Au
Max. continuous current	5 A **
Max. make current (resistive) at a 10 % OT *	15 A / 4 s
Max. switching voltage	250 VAC **
Max. switching power (resistive)	1250 VA AC
Recommended minimum load	≥ 1 mA / 1 V / 50 mW
Pull-in/drop-out/bounce time typ.	25 ms / 25 ms / 4 ms
Mechanical life	20 x 10^6 switching operations
General specifications:	
Nominal voltage to EN 60664-1	250 V / 2.5 kV / 2
Dielectric strength contact-coil (AC, 1 min)	1.5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	1.5 kV_{rms}
Ambient operating temperature at V_N	-25 °C ... +70 °C
Storage temperature	-40 °C ... +80 °C
Dimensions (mm) W x H x L	31 x 73 x 97
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® S
Cross sections	2 x 0.34 mm² ... 2 x 1.5 mm² /
	1 x 2.5 mm²/
	AWG 22 ... 16
Strip lengths	9 ... 10 mm / 0.37 in
Standards/Specifications	EN 61810-1, EN 60664-1

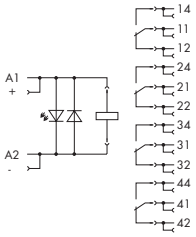
* (OT = On-Time)

Relay Sockets with Industrial Relay

Relay socket with industrial relay
Coil voltage: 24 VDC
4 changeover contacts
Railway applications



Load limit curve



Note: Inductive loads have to be attenuated by an appropriate protective circuit in order to protect relay coils and contacts.

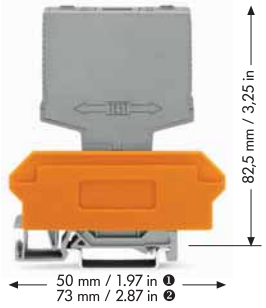
Description	V_N	I_N	Item No.	Pack. Unit
Relay socket with industrial relay, for DIN 35 rail	24 VDC	42 mA	**858-354**	1

Technical Data	For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC
Coil:	
Input voltage range	V_N -30 % ... +25 %
Contacts:	
Contact material	AgCe
Max. continuous current	5 A
Max. make current (resistive) at a 10 % OT *	15 A / 4 s
Max. switching voltage	250 VAC
Max. switching power (resistive)	1 kVA AC, DC see load curve
Recommended minimum load	≥ 100 mA / 12 V AC/DC
Pull-in/drop-out/bounce time typ.	25 ms / 25 ms / 4 ms
Mechanical life	20 x 10^6 switching operations
General specifications:	
Nominal voltage to EN 60664-1	250 V / 2.5 kV / 2
Dielectric strength contact-coil (AC, 1 min)	1.5 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	1.5 kV_{rms}
Ambient operating temperature at V_N	-25 °C ... +70 °C
Storage temperature	-40 °C ... +80 °C
Dimensions (mm) W x H x L	31 x 72 x 96
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® S
Cross sections	2 x 0.34 mm² ... 2 x 1.5 mm² /
	1 x 2.5 mm²/
	AWG 22 ... 16
Strip lengths	9 ... 10 mm / 0.37 in
Standards/Specifications	EN 61810-1, EN 60664-1

* (OT = On-Time)

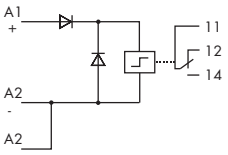
Pluggable Modules – Latching Relays

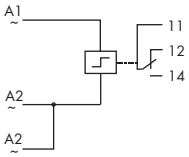
	Latching relays with 1 changeover contact (1 u)	Latching relay with 1 changeover contact (1 u) Extended input voltage and temperature range Railway applications

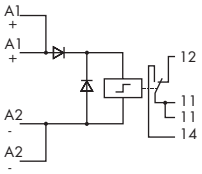


WSB marker cards
- Marking K; Item No.: 209-782
- Marking 1 ... 10; Item No.: 209-702
- Marking A1, A1, A2, A2, 11, 12, 13, 14, 23, 24; Item No.: 209-693
- Marking A1, A3, A2, 11, 12, 14; Item No.: 249-607

5 cards, each containing 10 strips with 10 markers







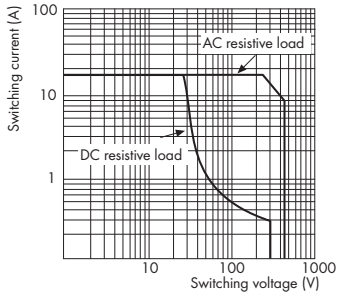
Description	V_N	I_N	Item No.	Pack. Unit	V_N	I_N	Item No.	Pack. Unit
Latching Relay	24 VDC	40 mA	**286-573**	1	24 VDC	70 mA	**286-575**	1
	230 VAC	10 mA	**286-574**	1				

Technical Data	For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC	For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC
Coil:		
Input voltage range	V_N -15 % ... +10 %	V_N -30 % ... +25 %
Contacts:		
Contact material	$AgSnO_2$	$AgSnO_2$
Max. continuous current	6 A	3 A (6 A at 50 °C)
Max. make current (resistive) at 10 % OT *	50 A (20 ms)	50 A (20 ms)
Max. switching voltage	250 V	250 V
Max. switching power (resistive)	1500 VA	1500 VA
Recommended minimum load	≥ 10 mA / 10 V	≥ 10 mA / 10 V
Mechanical life	10 x 10^6 switching operations at DC	10 x 10^6 switching operations
	1 x 10^5 switching operations at AC	
General specifications:		
Nominal voltage to EN 60664-1	250 V / 4 kV / 2	250 V / 4 kV / 2
Dielectric strength contact-coil (AC, 1 min)	4 kV_{rms}	4 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1.5 kV_{rms}	1.5 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-	-
Ambient operating temperature at V_N	-25 °C ... +50 °C	-25 °C ... +70 °C (Ia < 3 A)
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L	17 x 82.5 x 73	22 x 82.5 x 73
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Standards/Specifications	EN 60664	EN 60664
* (OT = On-time)		

Accessories		Item No.	Pack. Unit		Item No.	Pack. Unit
Terminal block for pluggable modules,						
with 2-conductor terminal blocks, orange separator ❶	17 mm / 0.669 in	**280-619**	1	22 mm / 0.866 in	**280-638**	1
with 4-conductor terminal blocks, orange separator ❷	17 mm / 0.669 in	**280-609**	1	22 mm / 0.866 in	**280-628**	1
with 4-conductor terminal blocks, marker plate ❷	20 mm / 0.787 in	**280-763**	1	25 mm / 0.984 in	**280-764**	1

Relay Modules in DIN-Rail Mount Enclosure

Relay with 1 make contact (1 a)
Nominal input voltage V_N: 24 VDC
for lamp loads

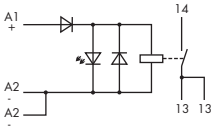


Load limit curve

Similiar to picture

Contact life, type of load	Capability	Electrical life
Incandescent lamp	2200 W	20,000
Halogen lamp 230 VAC	1400 W	50,000
Halogen trafo	120 VA	20,000
Fluorescent lamp not comp., CCG ①, cos φ 0.406	20 x 58 W	25,000
Fluorescent lamp comp., CCG ①, C parallel	9 x 58 W	25,000
Fluorescent lamp comp., CCG ①, Duo-circuit	600 W	20,000
Fluorescent lamp with ECG ②	12 x 58 W	25,000
Energy saving lamp 15 W	25 pcs	20,000
Energy saving lamp 13 W	30 pcs	20,000
Energy saving lamp 9 W	38 pcs	20,000
Gas discharge lamp	1000 W	20,000
Dulux-Lamp not compensated	800 W	20,000
Dulux-Lamp compensated	500 W	20,000
Max. capacitance at 230 VAC	60 µF	> 5,000

① CCG = Conventional Control Gear
② ECG = Electronic Control Gear



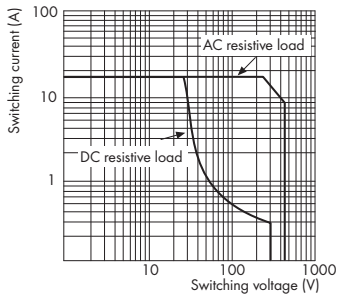
Note: Inductive loads have to be attenuated by an appropriate protective circuit in order to protect relay coils and contacts.

Description	V_N	I_N	Item No.	Pack. Unit
Relay modules in DIN-rail mount enclosure, for DIN 35 rail	24 VDC	19 mA	**789-320**	1

Technical Data	For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC
Coil:	
Input voltage range	V_N -15 % ... +20 %
Contacts:	
Contact material	Ag alloy
Max. continuous current	16 A
Max. make current (resistive) at a 10 % OT *	120 A / 50 ms (AC)
Max. switching voltage	250 VAC
Max. switching power (resistive)	4 kVA AC, DC see load curve
Recommended minimum load	≥ 100 mA / 12 V AC/DC
Pull-in/drop-out/bounce time typ.	15 ms / 5 ms / -
Mechanical life	10 x 10^6 switching operations
General specifications:	
Nominal voltage to EN 60664-1	250 V / 4 kV / 3
Dielectric strength contact-coil (AC, 1 min)	4 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-
Ambient operating temperature at V_N	-25 °C ... +40 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	17.5 x 55 x 90
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Strip lengths	5 ... 6 mm / 0.22 in
Standards/Specifications	EN 61810-1, EN 60664-1,
	EN 61140, EN 50178

* (OT = On-Time)

Relay with 1 make contact (1 a)
Nominal input voltage V_N: 24 V, 230 V AC
for lamp loads

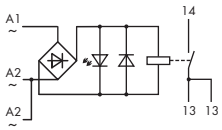


Load limit curve

Similiar to picture

Contact life, type of load	Capability	Electrical life
Incandescent lamp	2200 W	20,000
Halogen lamp 230 VAC	1400 W	50,000
Halogen trafo	120 VA	20,000
Fluorescent lamp not comp., CCG ①, cos φ 0.406	20 x 58 W	25,000
Fluorescent lamp comp., CCG ①, C parallel	9 x 58 W	25,000
Fluorescent lamp comp., CCG ①, Duo-circuit	600 W	20,000
Fluorescent lamp with ECG ②	12 x 58 W	25,000
Energy saving lamp 15 W	25 pcs	20,000
Energy saving lamp 13 W	30 pcs	20,000
Energy saving lamp 9 W	38 pcs	20,000
Gas discharge lamp	1000 W	20,000
Dulux-Lamp not compensated	800 W	20,000
Dulux-Lamp compensated	500 W	20,000
Max. capacitance at 230 VAC	60 µF	> 5,000

① CCG = Conventional Control Gear
② ECG = Electronic Control Gear



Note: Inductive loads have to be attenuated by an appropriate protective circuit in order to protect relay coils and contacts.

Description	V_N	I_N	Item No.	Pack. Unit
Relay modules in DIN-rail mount enclosure,	24 VAC	32 mA	**789-520**	1
for DIN 35 rail	230 VAC	15 mA	**789-321**	1

Technical Data

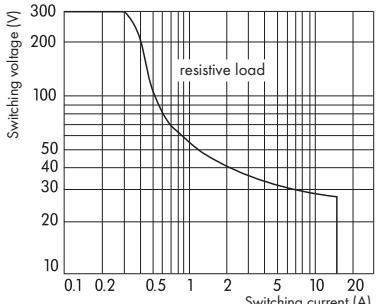
For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC

Coil:	
Input voltage range	V_N -15 % ... +20 %
Contacts:	
Contact material	Ag alloy
Max. continuous current	16 A
Max. make current (resistive) at a 10 % OT *	120 A / 50 ms (AC)
Max. switching voltage	250 VAC
Max. switching power (resistive)	4 kVA AC, DC see load curve
Recommended minimum load	≥ 100 mA / 12 V AC/DC
Pull-in/drop-out/bounce time typ.	15 ms / 5 ms / -
Mechanical life	10 x 10^6 switching operations
General specifications:	
Nominal voltage to EN 60664-1	250 V / 4 kV / 3
Dielectric strength contact-coil (AC, 1 min)	4 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-
Ambient operating temperature at V_N	-25 °C ... +40 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	17.5 x 55 x 90
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Strip lengths	5 ... 6 mm / 0.22 in
Standards/Specifications	EN 61810-1, EN 60664-1,
	EN 61140, EN 50178

* (OT = On-Time)

Relay Modules in DIN-Rail Mounted Enclosure

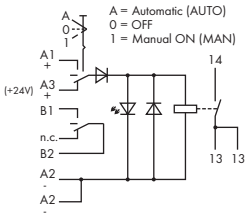
Relay with 1 make contact (1 a), manual-0-automatic switch with monitoring contact



DC load limit curve

Contact life, type of load	Electrical life
3000 W, incandescent lamp, 230 VAC, OT 8.3 % ①, 5 min^{-1}	12,000
620 W, gas discharge lamp, CCG ②, 120/277 VAC, UL 508, 50 °C	6,000
1200 W, tungsten lamp, 120/277 VAC, UL 508, 50 °C	6,000
16 A, 250 VAC, cos φ = 1, 85 °C, IEC 61810	5,000

① OT= On-Time
② CCG = Conventional Control Gear



Note: Inductive loads have to be attenuated by an appropriate protective circuit in order to protect relay coils and contacts.

Description	V_N	I_N	Item No.	Pack. Unit	
Relay modules in DIN-rail mount enclosure, for DIN 35 rail	24 VDC	17 mA	**789-324**	1	

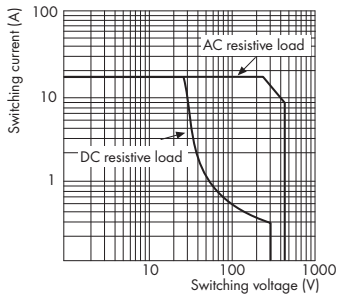
Technical Data

For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC

Coil	
Input voltage range	V_N -15 % ... +20 %
Contacts	
Contact material	$AgSnO_2$, W pre-make contact
Max. continuous current	16 A
Max. make current (resistive) at 10 % OT*	165 A / 20 ms (AC)
Max. switching voltage	250 VAC
Max. switching power (resistive)	4 kVA AC, DC see load curve
Recommended minimum load	-
Pull-in/drop-out/bounce time typ.	10 ms / 5 ms / 4 ms
Mechanical life	5 x 10^6 switching operations
General specifications:	
Nominal voltage to EN 60664-1	250 V / 4 kV / 3
Dielectric strength contact-coil (AC, 1 min)	4 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1.25 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-
Ambient operating temperature at V_N	-25 °C ... +40 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	17,5 x 55 x 90
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Strip lengths	5 ... 6 mm / 0.22 in
Standards/Specifications	EN 61810-1, EN 60664-1, EN 61140

* (OT = On-time)

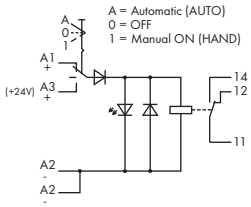
Relay with 1 changeover contact (1 u), Manual/OFF/Auto switch for lamp loads



Load limit curve

Contact life, type of load	Capability	Electrical life
Incandescent lamp	2200 W	20,000
Halogen lamp 230 VAC	1400 W	50,000
Halogen trafo	120 VA	20,000
Fluorescent lamp not comp., CCG ①, cos φ 0.406	20 x 58 W	25,000
Fluorescent lamp comp., CCG ①, C parallel	9 x 58 W	25,000
Fluorescent lamp comp., CCG ①, Duo-circuit	600 W	20,000
Fluorescent lamp with ECG ②	12 x 58 W	25,000
Energy saving lamp 15 W	25 pcs	20,000
Energy saving lamp 13 W	30 pcs	20,000
Energy saving lamp 9 W	38 pcs	20,000
Gas discharge lamp	1000 W	20,000
Dulux-Lamp not compensated	800 W	20,000
Dulux-Lamp compensated	500 W	20,000
Max. capacitance at 230 VAC	60 µF	> 5,000

① CCG = Conventional Control Gear
② ECG = Electronic Control Gear



Note: Inductive loads have to be attenuated by an appropriate protective circuit in order to protect relay coils and contacts.

Description	V_N	I_N	Item No.	Pack. Unit
Relay modules in DIN-rail mount enclosure, for DIN 35 rail	24 VDC	19 mA	**789-326**	1

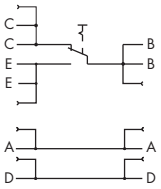
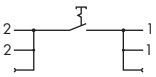
Technical Data

For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC

Coil:	
Input voltage range	V_N -15 % ... +20 %
Contacts:	
Contact material	Ag alloy
Max. continuous current	12 A
Max. make current (resistive) at a 10 % OT *	120 A / 50 ms (AC)
Max. switching voltage	250 VAC
Max. switching power (resistive)	4 kVA AC, DC see load curve
Recommended minimum load	≥ 100 mA / 12 V AC/DC
Pull-in/drop-out/bounce time typ.	15 ms / 5 ms / -
Mechanical life	10 x 10^6 switching operations
General specifications:	
Nominal voltage to EN 60664-1	250 V / 4 kV / 3
Dielectric strength contact-coil (AC, 1 min)	4 kV_{rms}
Dielectric strength open contact (AC, 1 min)	1 kV_{rms}
Dielectric strength contact-contact (AC, 1 min)	-
Ambient operating temperature at V_N	-20 °C ... +40 °C
Storage temperature	-40 °C ... +70 °C
Dimensions (mm) W x H x L	17.5 x 55 x 90
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Strip lengths	5 ... 6 mm / 0.22 in
Standards/Specifications	EN 61810-1, EN 60664-1, EN 61140, EN 50178

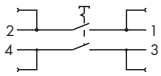
* (OT = On-Time)

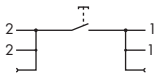
Switching Modules

	Switching module, changeover,1-pole	Switching module, breaker, 1-pole
		
		Similiar to picture
		

Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Switching module in DIN-rail mount enclosure, for DIN 35 rail	**789-800**	1	**789-801**	1
Technical Data	For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC		For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC	
Contacts:				
Contact material	Ag alloy		Ag alloy	
Operating voltage	250 VAC		250 VAC	
Max. switching power (resistive)	10 A		16 A	
Max. switching power (motor load)	4 A		4 A	
Peak inrush current	100 A, capacitive		100 A, capacitive	
Contact resistance	< 100 mΩ (12 V / 1A DC, new condition)		< 100 mΩ (12 V / 1A DC, new condition)	
Insulation resistance	> 100 MΩ (500 VDC, new condition)		> 100 MΩ (500 VDC, new condition)	
Contact gap	≥ 3 mm		≥ 3 mm	
Mechanical life	1 x 10^5 switching operations		5 x 10^4 switching operations	
Electrical life	1 x 10^4 switching operations		1 x 10^4 switching operations	
General specifications:				
Dielectric strength open contact	1.25 kV		1.25 kV	
Nominal voltage to EN 60664-1	250 V / 4 kV / 3		250 V / 4 kV / 3	
Ambient operating temperature at V_N	-20 °C ... +55 °C		-20 °C ... +55 °C	
Storage temperature	-40 °C ... +80 °C		-40 °C ... +80 °C	
Dimensions (mm) W x H x L	17.5 x 55 x 90		17.5 x 55 x 90	
	Height from upper-edge of DIN 35 rail		Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP®		CAGE CLAMP®	
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14		0.08 mm² ... 2.5 mm² / AWG 28 ... 14	
Strip lengths	5 ... 6 mm / 0.22 in		5 ... 6 mm / 0.22 in	
Standards/Specifications	EN 50178; EN 60664-1, EN 61058-1		EN 50178; EN 60664-1, EN 61058-1	

	Switching module, breaker, 2-pole	Switching module, switch, 1-pole

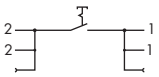




Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Switching module in DIN-rail mount enclosure, for DIN 35 rail	**789-802**	1	**789-803**	1
Technical Data	For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC		For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC	
Contacts:				
Contact material	Ag alloy		Ag alloy	
Operating voltage	250 VAC		250 VAC	
Max. switching power (resistive)	16 A		16 A	
Max. switching power (motor load)	4 A		4 A	
Peak inrush current	100 A, capacitive		100 A, capacitive	
Contact resistance	< 100 mΩ (12 V / 1A DC, new condition)		< 100 mΩ (12 V / 1A DC, new condition)	
Insulation resistance	> 100 MΩ (500 VDC, new condition)		> 100 MΩ (500 VDC, new condition)	
Contact gap	≥ 3 mm		≥ 3 mm	
Mechanical life	5 x 10^4 switching operations		5 x 10^4 switching operations	
Electrical life	1 x 10^4 switching operations		1 x 10^4 switching operations	
General specifications:				
Dielectric strength open contact	1.25 kV		1.25 kV	
Nominal voltage to EN 60664-1	250 V / 4 kV / 3		250 V / 4 kV / 3	
Ambient operating temperature at V_N	-20 °C ... +55 °C		-20 °C ... +55 °C	
Storage temperature	-40 °C ... +80 °C		-40 °C ... +80 °C	
Dimensions (mm) W x H x L	17.5 x 55 x 90		17.5 x 55 x 90	
	Height from upper-edge of DIN 35 rail		Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP®		CAGE CLAMP®	
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14		0.08 mm² ... 2.5 mm² / AWG 28 ... 14	
Strip lengths	5 ... 6 mm / 0.22 in		5 ... 6 mm / 0.22 in	
Standards/Specifications	EN 50178; EN 60664-1, EN 61058-1		EN 50178; EN 60664-1, EN 61058-1	

Switching Modules

	Switching module, push-button switch, 1-pole	



Description	**Item No.**	**Pack. Unit**	
Switching module in DIN-rail mount enclosure, for DIN 35 rail	**789-804**	1	

Technical Data	For accessories, see Full Line Catalog 2012 INTERFACE ELECTRONIC	
Contacts:		
Contact material	Ag alloy	
Operating voltage	250 VAC	
Max. switching power (resistive)	16 A	
Max. switching power (motor load)	4 A	
Peak inrush current	100 A, capacitive	
Contact resistance	< 100 mΩ (12 V / 1A DC, new condition)	
Insulation resistance	> 20 MΩ	
Contact gap	≥ 3 mm	
Mechanical life	5 x 10^4 switching operations	
Electrical life	1 x 10^4 switching operations	
General specifications:		
Dielectric strength open contact	1.25 kV	
Nominal voltage to EN 60664-1	250 V / 4 kV / 3	
Ambient operating temperature at V_N	-20 °C ... +55 °C	
Storage temperature	-40 °C ... +80 °C	
Dimensions (mm) W x H x L	17.5 x 55 x 90	
	Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP®	
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	
Strip lengths	5 ... 6 mm / 0.22 in	
Standards/Specifications	EN 50178; EN 60664-1, EN 61058-1	

Pilot-Box for eMobility

6/10/16/32 A, Case "B" (connection)

Short description:
The Pilot-Box is a control unit for electric vehicle supply equipment (EVSE). It is typically mounted in a distribution box that also contains the following components: residual current operated device (RCD), miniature circuit breaker (MCB), charging contactor, power supply and socket outlet.
The unit is designed as a charging control unit without billing system (e.g., for private charging stations). It can be combined with a logic controller (PLC) for intelligent charging station management.
In conductive EVSEs, the Pilot-Box permits communication between EV and power supply system according to IEC 61851-1 (Mode 3, Case "B").
In addition, it also monitors both charging process and charging infrastructure.

Standard functions:
Checking for proper EV connection
- Continuous ground conductor contact monitoring
- System powering on/off
- Charging current setting

Additional functions:
- Defining ventilation requirements during charging process
- Detecting/Adjusting the load current being supplied
- Connector locking/unlocking
- Connector emergency release

The Pilot-Box also provides the following indications:
- Charging cable plug-in detection
- Maximum charging current
- EV's ventilation requirements

Description	Item No.	Pack. Unit
Pilot-Box	**879-101**	1

Technical Data

General specifications:	
Supply voltage	12 ... 24 VDC (± 10 %)
Protection class	III (Safety extra-low voltage)
Power consumption P (max.)	< 2 W
Input:	
Level inputs	inactive: < 5 V;
	active: > 10 V, max. 24 V
Current consumption of an active input	< 1 mA
Output:	
Switch output	
Charge, Ventilation, Interlock_1/2	Relay contact against operating voltage,
	max. 2 A
Signal output	
Act_Max_Current, Plugin_Detection	Electronic switch against operating voltage,
	max. 100 mA

Technical Data

Environmental requirements:	
Ambient operating temperature	-30 °C ... +75 °C
Storage temperature	-30 °C ... +75 °C
Maximum permissible humidity	95% non-condensing
Degree of pollution	3
Degree of protection	IP40 housing, IP20 connection
Enclosure	acc. to DIN 43880 (built-in installation
	devices)
Plug interlock control	Suitable for
	Mennekes (31015, 31016) or
	Walther (741xx, 743xx, 746xx) sockets
Connection and type of mounting:	
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 1.5 mm² / AWG 28 ... 14
Strip lengths	6 ... 7 mm / 0.28 in
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Weight	172 g
Dimensions (mm) W x H x L	54 x 90 x 62 (without connectors)
Standards and approvals:	
Standards/Specifications	IEC 61851-1

879-101

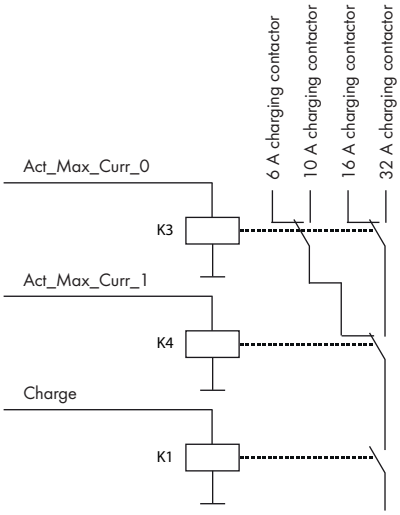
LED Displays

LED Display	Meaning
Power	
LED "OFF"	No supply voltage available
LED "green"	Supply voltage available
Release	
LED "OFF"	Release input for charging inactive; charging blocked
LED blinks "yellow" slowly	Start delay active. Approx. 15 seconds for charging the internal buffer for charging plug emergency release
LED "yellow"	Release input for charging active; charging released
LED blinks "red"	Error with connector locking (feedback faulty)
Plug-In Detection / Charge	
LED "OFF"	No charging cable detected
LED blinks "yellow" slowly	Charging cable detected, state A
LED blinks "yellow" quickly	EV detected; charging not yet started; state B
LED "yellow"	Charging started (charging contactor closed); state C

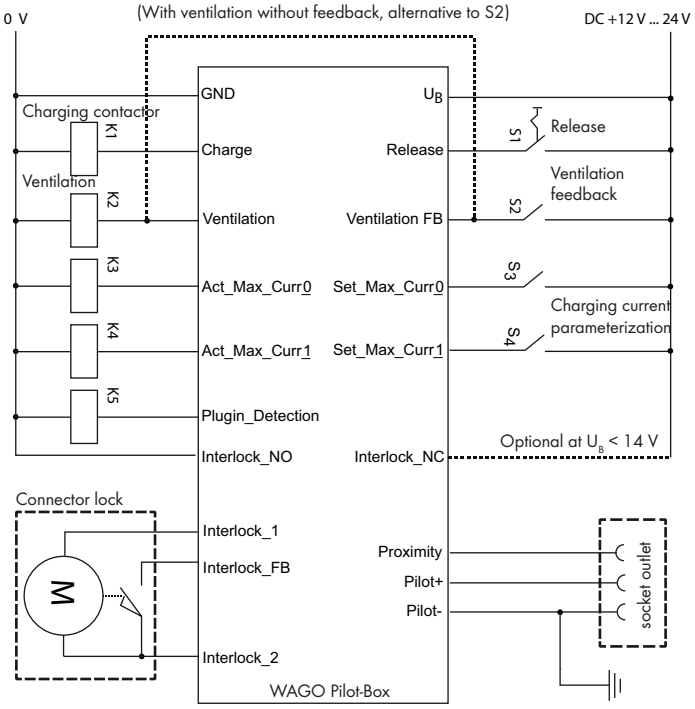
Setting/Feedback of Maximum Possible Charging Current

Set_Max_Curr_0 Act_Max_Curr_0	Set_Max_Curr_1 Act_Max_Curr_1	Power
inactive	inactive	6 A
active	inactive	10 A
inactive	active	16 A
active	active	32 A

According to IEC 61851-1: section 10.1, the installation contractor must ensure that the rated current of the charging cable assembly corresponds to the rated value of the miniature circuit breaker. In this case, the "Act_Max_Current" digital outputs can be switched accordingly.



Application Example



Pilot-Box for eMobility

6/10/16/32 A, Case "C" (connection)

Short description:
The Pilot-Box is a control unit for electric vehicle supply equipment (EVSE). It is typically mounted in a distribution box that also contains the following components: residual current operated device (RCD), miniature circuit breaker (MCB), charging contactor, power supply and charging cable assembly. The Pilot-Box complies with the IEC 61851-1 charging standard (Mode 3, Case "C").
It is designed as a charging control unit without billing system (e.g., for private charging stations). The unit can be combined with a logic controller (PLC) for intelligent charging station management.
In conductive EVSEs, the Pilot-Box permits communication between EV and power supply system. In addition, it also monitors both charging process and charging infrastructure.

Standard functions:
- Checking for proper EV connection
- Continuous ground conductor contact monitoring
- System powering on/off
- Charging current setting

Additional functions:
- Defining ventilation requirements during charging process
- Detecting/Adjusting the load current being supplied

The Pilot-Box also provides the following indications:
- Maximum charging current
- EV's ventilation requirements

Description	Item No.	Pack. Unit
Pilot-Box	**879-111**	1

Technical Data

General specifications:	
Supply voltage	12 ... 24 VDC (± 10 %)
Protection class	III (Safety extra-low voltage)
Power consumption P (max.)	< 2 W
Input:	
Level inputs	inactive: < 5 V;
	active: > 10 V, max. 24 V
Current consumption of an active input	< 1 mA
Output:	
Switch output	
Charge, Ventilation	Relay contact against operating voltage,
	max. 2 A
Signal output	
Act_Max_Current	Electronic switch against operating voltage,
	max. 100 mA

Technical Data

Environmental requirements:	
Ambient operating temperature	-30 °C ... +75 °C
Storage temperature	-30 °C ... +75 °C
Maximum permissible humidity	95% non-condensing
Degree of pollution	3
Degree of protection	IP40 housing, IP20 connection
Enclosure	acc. to DIN 43880 (built-in installation devices)
Connection and type of mounting:	
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 1.5 mm² / AWG 28 ... 14
Strip lengths	6 ... 7 mm / 0.28 in
Type of mounting	DIN-rail mount (EN 60715)
Dimensions and weight:	
Weight	172 g
Dimensions (mm) W x H x L	54 x 90 x 62 (without connectors)
Standards and approvals:	
Standards/Specifications	IEC 61851-1

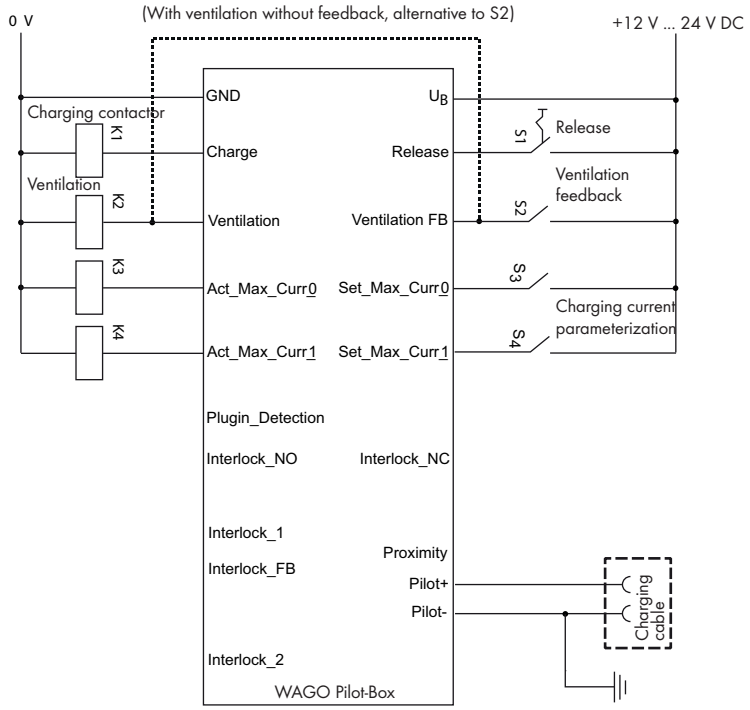
LED Displays

LED Display	Meaning
Power	
LED "OFF"	No supply voltage available
LED "green"	Supply voltage available
Release	
LED "OFF"	Release input for charging inactive; charging blocked
LED blinks "yellow" slowly	Start delay (approx. 15 s)
LED "yellow"	Release input for charging active; charging released
Charge	
LED "OFF"	No EV detected
LED blinks "yellow" quickly	EV detected; charging not yet started; state B
LED "yellow"	Charging started (charging contactor closed); state C

Setting/Feedback of Maximum Possible Charging Current

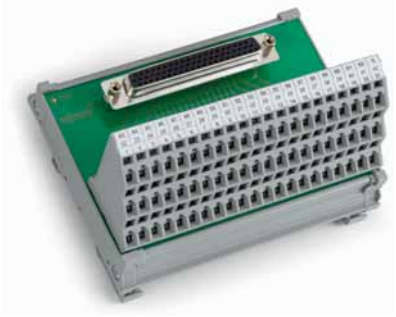
Set_Max_Curr_0 Act_Max_Curr_0	Set_Max_Curr_1 Act_Max_Curr_1	Power
inactive	inactive	6 A
active	inactive	10 A
inactive	active	16 A
active	active	32 A

Application Example

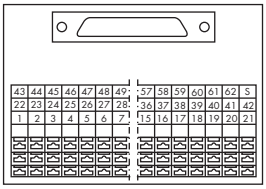


Interface Modules

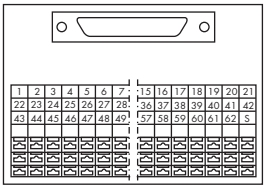
	Interface module with HD D-sub female connector, mounting carrier for DIN 35 rail	Interface module with HD D-sub male connector, mounting carrier for DIN 35 rail



Picture: 289-708
Drawing: 289-708



Similiar to picture
Drawing: 289-710

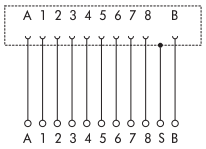


Description	No. of Poles	Width	Item No.	Pack. Unit	No. of Poles	Width	Item No.	Pack. Unit
Interface module	15	35	**289-713**	1	15	35	**289-714**	1
	44	79	**289-707**	1				
	62	108	**289-708**	1	62	62	**289-710**	1

Technical Data

Operating voltage	125 V AC/DC	125 V AC/DC
Nominal current	1 A	1 A
Connector contact	Copper alloy, gold-plated, 0.1 µm	Copper alloy, gold-plated, 0.1 µm
Contact resistance	≤ 10 mΩ	≤ 10 mΩ
Performance level	3	3
Nominal voltage to EN 60664-1	125 V / 0.8 kV / 2	125 V / 0.8 kV / 2
Mounting direction	vertical	vertical
Pull relief stud bolt	UNC 4-40	UNC 4-40
Ambient operating temperature	-20 °C ... +55 °C	-20 °C ... +55 °C
Storage temperature	-40 °C ... +70 °C	-40 °C ... +70 °C
Dimensions (mm) W x H x L		
incl. mounting feet or mounting carrier	W x 62 x 85	W x 62 x 85
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP® (WAGO 737 Series)	CAGE CLAMP® (WAGO 737 Series)
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)	0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)
Strip lengths	5 ... 6 mm / 0.22 in	5 ... 6 mm / 0.22 in
Standards/Specifications	VDE 0660, EN 60947	VDE 0660, EN 60947
Accessories:		
WMB Multi marking system for mounting carrier	See Full Line Catalog 2012 INTERFACE ELECTRONIC	See Full Line Catalog 2012 INTERFACE ELECTRONIC
Marker strips for mounting carrier	White 709-198 / Transparent 709-197	White 709-198 / Transparent 709-197

	RJ-45 interface module with shield carrier for WAGO shield clamping saddle Mounting carrier for DIN 35 rail	



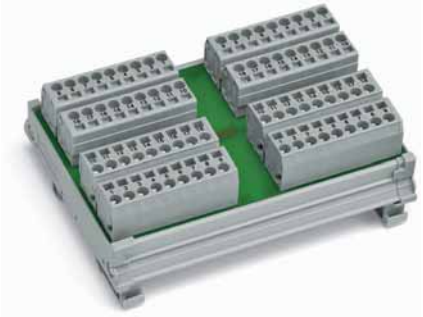
Description	Item No.	Pack. Unit	
Interface module	**289-179**	1	

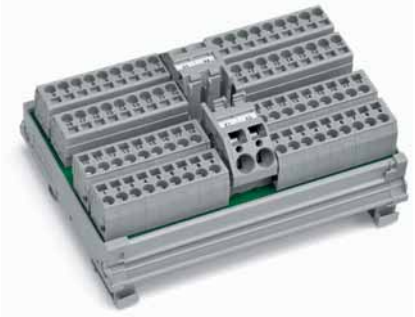
Technical Data

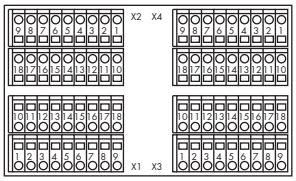
Connecting cable	min. CAT5	
Max. transmission length	100 m	
Connector	RJ-45, shielded	
Min. mating cycles	1000	
Current load	≤ 2.1A	
Voltage load	35 VAC / 50 VDC	
Insulation resistance	> 500 MΩ	
Dielectric strength contact-contact	1 kV_{rms}	
Contact resistance typ.	< 40 mΩ	
WAGO shield (screen) clamping saddle	790-108 (11 mm wide; up to 8 mm cable diameter)	
Ambient operating temperature	-20 °C ... +85 °C	
Dimensions (mm) W x H x L		
incl. mounting feet or mounting carrier	30 x 67 x 85	
	Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP® (WAGO 739 Series)	
Cross sections	0.08 mm² ... 1.5 mm² / AWG 28 ... 14	
Strip lengths	5 ... 6 mm / 0.22 in	
Standards/Specifications	ISO/IEC 11801: 2002-09; EN 55022	
Accessories:		
WMB Multi marking system for mounting carrier	See Full Line Catalog 2012 INTERFACE ELECTRONIC	

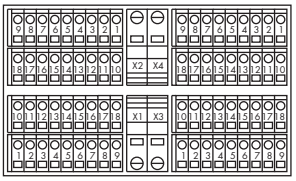
DIN-Rail Mount Potential Multiplication Modules

	DIN-rail mount potential multiplication module 4 potentials with each 18 connection points	DIN-rail mount potential multiplication module 4 potentials with each one power supply and 18 connection points, jumpable





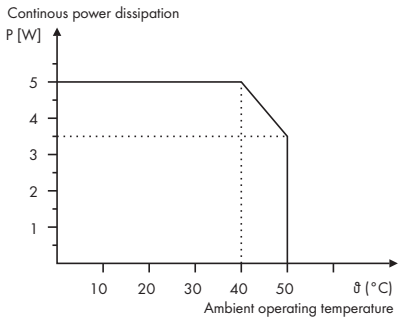




Description	Item No.	Pack. Unit	Item No.	Pack. Unit
Potential multiplication module	**288-825**	1	**288-837**	1
Technical Data				
Max. operating voltage per potential	250 V AC/DC		250 V AC/DC	
Max. total current per potential	12 A		32 A	
Max. current per connection	12 A		12 A	
Nominal voltage to EN 60664-1	250 V / 4 kV / 3		250 V / 4 kV / 3	
Ambient operating temperature	-20 °C ... +50 °C		-20 °C ... +50 °C	
Storage temperature	-40 °C ... +80 °C		-40 °C ... +80 °C	
Dimensions (mm) W x H x L				
incl. mounting feet or mounting carrier	85 x 45 x 115		85 x 45 x 115	
	Height from upper-edge of DIN 35 rail		Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP® (WAGO 739 Series)		Power supply: CAGE CLAMP® (WAGO 745 Series)	
			Connection points: CAGE CLAMP® (WAGO 739 Series)	
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)		Power supply:	
			0.2 mm² ... 6 mm² / AWG 24 ... 10	
			Connection points:	
			0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)	
Strip lengths	8 ... 9 mm / 0.33 in		Power supply: 11 ... 12 mm / 0.45 in	
			Connection points: 8 ... 9 mm / 0.33 in	
Accessories:				
Comb-style jumper bar, 2-pole			745-382	

DIN-Rail Mount Resistor Modules

	Module with freely wirable resistor	

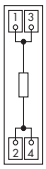


Derating

Picture: 289-128/003-000

Depending on operating conditions, the components' temperature may exceed the limit temperature for accessible parts.

For other resistors, please contact factory.



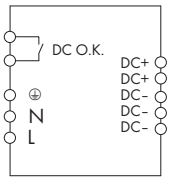
Description	Resistor	Item No.	Pack. Unit	
Resistor modules	100R	**289-128/005-000**	1	
	270R	**289-128/006-000**	1	
	2K4	**289-128/001-000**	1	
	4K7	**289-128/002-000**	1	
	6K8	**289-128/003-000**	1	
	9K1	**289-128**	1	

Technical Data

Temperature coefficient	50 ppm	
Tolerance	± 10 %	
Power dissipation	5 W	
Ambient operating temperature	-20 °C ... +50 °C (Derating must be observed)	
Storage temperature	-40 °C ... +70 °C	
Dimensions (mm) W x H x L		
incl. mounting feet or mounting carrier	13 x 34 x 85	
	Height from upper-edge of DIN 35 rail	
Wire connection	CAGE CLAMP® (WAGO 236 Series)	
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)	
Strip lengths	5 ... 6 mm / 0.22 in	

Switched-Mode Power Supply

***EPSITRON*® ECO Power**



- Prepared for class I equipment
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Fast and tool-free termination via lever-actuated terminal blocks
- Bounce-free switching contact (DC OK)
- Parallel operation
- Electrically isolated output voltage (SELV) acc. to EN / UL 60950-1

Description	Item No.	Pack. Unit
Switched-Mode Power Supply, 24 VDC / 20 A	**787-734**	1

Technical Data

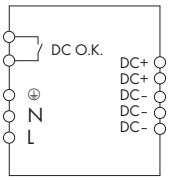
Input:	
Nominal input voltage Vi nom	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 130 ... 373 VDC (use of DC requires external protection)
Frequency	47 Hz ... 63 Hz
Input current Ii	3 A typ. at 230 VAC; 6.0 A at 115 VAC
Discharge current	1.7 mA
Inrush current	< 30 A
Mains failure hold-up time	> 20 ms at 230 VAC
Output:	
Nominal output voltage Vo nom	24 VDC, SELV
Output voltage range	22 ... 28 VDC adjustable
Output current Io	20 A at 24 VDC
Factory preset	24 VDC
Adjustment accuracy	1 %
Residual ripple	< 100 mV (peak-peak)
Overload behavior	1.15 ... 1.4 x Io, shutdown in the event of a short-circuit and permanent overload
Operational indication	LED green (24 V DC o.k.), LED red (overload)
Efficiency / power losses:	
Efficiency	90 % typ.
Power loss P_V	65 W (230 VAC / nominal load)
Max. power loss P_V	107 W typ. (110 VAC / 24 VDC, 23 A)
Fuse protection:	
Internal fuse	16 AT / 250 V
External fuse	Circuit breakers 10 A, 16 A, characteristic: B or C An external DC fuse is required for the DC input voltage

Technical Data

Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-25 °C ... +85 °C
Rel. humidity	95 % (no condensation)
Derating	see instruction manual
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage pri.-sec./ pri.-gr. / sec.-gr.	3 kV AC kV / 1.5 kV AC kV / 0.5 kV AC
Test voltage pri. - sec.	3 kV AC
Protection class	Prepared for class I equipment
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage protection	via varistor at primary circuit
Short circuit protection	yes
No-load proof	yes
Feedback voltage	29 VDC
Parallel operation	yes
Series connection	yes
MTBF	> 250000 h
Connection and type of mounting:	
Wire connection	Input/Signalising: WAGO 2706 Series Output: WAGO 2716 Series
Cross sections	Input/Signalising: 0.5 mm² ... 6 mm² / AWG 20 ... 10 Output: 1.5 mm² ... 16 mm² / AWG 16 ... 6
Strip lengths	Input/Signalising: 11 ... 12 mm / 0.45 in Output: 12 ... 13 mm / 0 in
Type of mounting	DIN-rail mounting (DIN EN 50022)
Dimensions and weight:	
Dimensions (mm) W x H x L	115 x 136 x 152 Length from upper-edge of DIN 35 rail
Weight	2400 g
Standards and approvals:	
Standards/Specifications	EN 60950 (SELV), EN 61000-6-2, EN 61000-6-3 UL 60950*, UL 508* (* pending)

Switched-Mode Power Supply

***EPSITRON*® ECO Power**



- Prepared for class I equipment
- Natural convection cooling when horizontally mounted
- Enclosed for use in switchgear cabinets
- Fast and tool-free termination via lever-actuated terminal blocks
- Bounce-free switching contact (DC OK)
- Parallel operation
- Electrically isolated output voltage (SELV) acc. to EN / UL 60950-1

Description	Item No.	Pack. Unit
Switched-Mode Power Supply, 24 VDC / 40 A	**787-736**	1

Technical Data

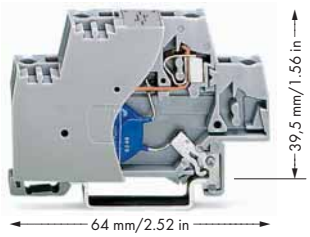
Input:	
Nominal input voltage Vi nom	100 ... 240 VAC
Input voltage range	85 ... 264 VAC; 120 ... 370 VDC
	(use of DC requires external protection)
Frequency	47 Hz ... 63 Hz
Input current Ii	< 6 A at 230 VAC;
	< 12 A at 115 VAC
Discharge current	< 3.5 mA
Inrush current	< 30 A at 230 VAC;
	< 25 A at 115 VAC
Mains failure hold-up time	> 17 ms at AC 230 V / nominal load
Power factor	> 0.94 at 230 VAC
	> 0.98 at 115 VAC
Output:	
Nominal output voltage Vo nom	24 VDC, SELV
Output voltage range	22 ... 28 VDC adjustable
Output current Io	40 A at 24 VDC
Factory preset	24 VDC
Adjustment accuracy	1 %
Residual ripple	< 100 mV (peak-peak)
Overload behavior	Constant power
	(in overload range:1.15 ... 1.4 x Io);
	shutdown and automatic restart in the event
	of a short circuit
Operational indication	LED green (24 V DC o.k.),
	LED red (overload)
Signaling	Contact DC o.k.; make contact
	(max. 31.2 V / 20 mA)
Efficiency / power losses:	
Efficiency	90 % typ.
Power loss P_V	107 W at AC 230 V / nominal load
Fuse protection:	
Internal fuse	20 AT / 250 V
External fuse	Circuit breakers 13 A, 16 A, 20 A,
	characteristic: B or C
	An external DC fuse is required for the DC
	input voltage

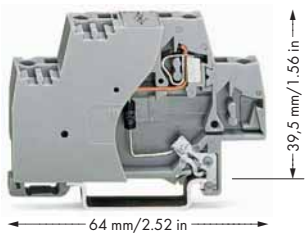
Technical Data

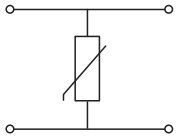
Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Rel. humidity	95 % (no condensation)
Derating	-2.66 % / K (> 55 °C);
	-2 % / V (Vi < 100 VAC)
Degree of pollution	2 (acc. to EN 50178)
Climatic category	3K3 (acc. to EN 60721)
Safety and protection:	
Test voltage pri.-sec./pri.-gr./sec.-gr./	3 kV AC / 1.5 kV AC / 0.5 kV AC /
sec.-DC o.k.	0.5 kV AC
Protection class	Prepared for class I equipment
Degree of protection	IP20 (acc. to EN 60529)
Overvoltage protection	via varistor at primary circuit
Short circuit protection	yes
No-load proof	yes
Feedback voltage	29 VDC
Parallel operation	yes
Series connection	yes
MTBF	> 250000 h
Connection and type of mounting:	
Wire connection	Input/Signalising:
	WAGO 2706 Series
	Output: WAGO 2716 Series
Cross sections	Input/Signalising:
	0.5 mm² ... 6 mm² / AWG 20 ... 10
	Output:
	1.5 mm² ... 16 mm² / AWG 16 ... 6
Strip lengths	Input/Signalising:
	11 ... 12 mm / 0.43 ... 0.47 in
	Output: 12 ... 13 mm / 0.47 ... 0.51 in
Type of mounting	DIN-rail mounting (DIN EN 50022)
Dimensions and weight:	
Dimensions (mm) W x H x L	170 x 136 x 150
	Length from upper-edge of DIN 35 rail
Weight	3500 g
Standards and approvals:	
Standards/Specifications	EN 60950 (SELV)*, EN 61000-6-2*,
	EN 61000-6-3*, UL 60950*, UL 508*
	(* pending)

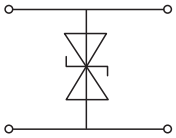
Rail-Mounted Terminal Blocks with Overvoltage Protection

	Varistor V_{BN} 24 V AC/DC ... 230 VAC; I_{SN} 300 A ... 1 kA Nominal current: 20 A Terminal block width: 10 mm/0.394 in.	Suppressor diode V_{BN} 24 V AC/DC ... 230 VAC; I_{SN} 37 ... 305 A Nominal current: 20 A Terminal block width: 10 mm/0.394 in.









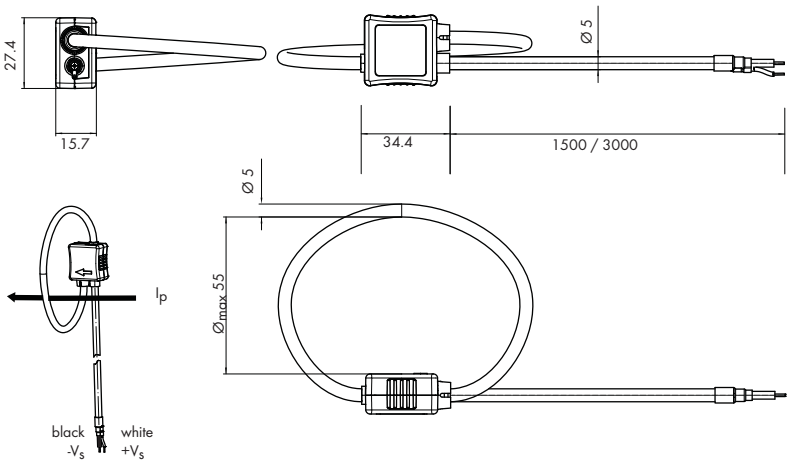
Description	V_N	Item No.	Pack. Unit	V_N	Item No.	Pack. Unit
Double-deck terminal blocks with surge suppression device	24 VDC	**280-504/281-582**	25	24 VDC	**280-944/281-589**	25
	48 VDC	**280-504/281-583**	25	48 VDC	**280-944/281-590**	25
	60 VDC	**280-504/281-584**	25	60 VDC	**280-944/281-591**	25
	110 VDC	**280-502/281-585**	25	110 VDC	**280-944/281-592**	25
	24 VAC	**280-504/281-586**	25	24 VAC	**280-944/281-593**	25
	115 VAC	**280-504/281-587**	25	115 VAC	**280-944/281-594**	25
	230 VAC	**280-504/281-588**	25	230 VAC	**280-944/281-595**	25

Technical Data	V_N	Max. Operating Voltage $V_{B\ max.}$	Nominal Discharge Current I_{SN}	Max. Surge Current $I_{S\ max.}$	Capacity	Protection Level
Terminal blocks with varistor and end plate	24 VDC	31 VDC	300 A	1 kA	≤ 4.6 nF	77 VDC
	48 VDC	56 VDC	300 A	1 kA	≤ 2.8 nF	135 VDC
	60 VDC	85 VDC	1 kA	4.5 kA	≤ 1.7 nF	165 VDC
	110 VDC	150 V DC	1 kA	4.5 kA	≤ 0.8 nF	300 VDC
	24 VAC	30 VAC	300 A	1 kA	≤ 3.5 nF	93 VAC
	115 VAC	150 VAC	1 kA	4.5 kA	≤ 0.57 nF	360 VAC
	230 VAC	275 VAC	1 kA	4.5 kA	≤ 0.32 nF	710 VAC
Terminal blocks with suppressor diode and end plate	24 VDC	28 VDC	305 A		≤ 2.7 nF	59 VDC
	48 VDC	53 VDC	162 A		≤ 1.7 nF	111 VDC
	60 VDC	70 VDC	123 A		≤ 1.35 nF	146 VDC
	110 VDC	128 VDC	68 A		≤ 0.85 nF	265 VDC
	24 VAC	26 VAC	258 A		≤ 2.4 nF	70 VAC
	115 VAC	133 VAC	46 A		≤ 0.63 nF	388 VAC
	230 VAC	253 VAC	37 A		≤ 0.4 nF	706 VAC

Technical Data

Wire connection	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 14	0.08 mm² ... 2.5 mm² / AWG 28 ... 14
Strip lengths	8 ... 9 mm / 0.33 in	8 ... 9 mm / 0.33 in

Rogowski Coils RT 500



Output voltage (open output, no load)

- dynamic	$V_{out} = M \times dI_p/dt$
- sinusoidal signal	$V_{out} = 2 \times \pi \times M \times f \times I_p$ AC Example: $V_{out} = 2 \times \pi \times 0.064\ \mu H \times 50\ Hz \times 500\ A = 10.05\ mV$

Short description:
The Rogowski coil is a closed-air coil with non-magnetic split core, placed around a conductor or a current bar.
The magnetic field produced by the AC current flowing through the conductor induces an output voltage in the coil.
This measurement procedure provides galvanic isolation between the primary circuit (power) and secondary circuit (measurement).
Easy placement of the Rogowski coils allows existing systems to be retrofitted without time-consuming installation or process interruption.
The Rogowski coil can be used together with the 789-652 Signal Conditioner or the 857-552 Rogowski Transducer.

Features:
- Split-core style coil for easy installation
- Ø 55 mm coil aperture for non-contact measurement
- 1.5 m or 3 m output cable
- Insulated plastic case to UL 94-V0

Description	Item No.	Pack. Unit
Rogowski Coil RT 500, 1.5 m output cable	**855-9100/500-000**	3
Rogowski Coil RT 500, 3 m output cable	**855-9300/500-000**	3

Approvals

Conformity marking	CE
Standards/Specifications	IEC 61010-1:2001 (2nd edition), IEC 61010-2-032:2002, IEC 61010-031:2002 + A1:2008

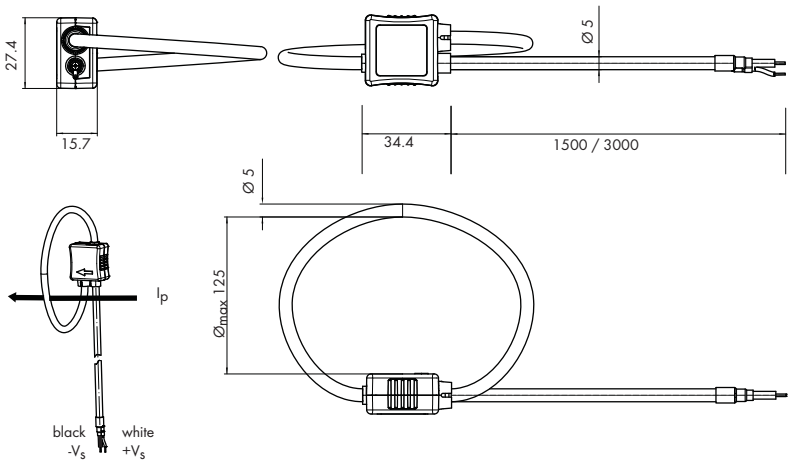
Technical Data

Electrical data:	
Primary rated current I_{pN}	500 A_{rms}
Coil inductance (± 5 %)	125 µH
Coil resistance	40 Ω (at 20 °C ambient operating temperature, typ.)
Transfer ratio M	0.064 µH (WAGO provides uncalibrated coils with 5 % tolerance)
Output signal	Example shown above 10.05 mV at I_{pN} = 500 A, sinusoidal, 50 Hz (open output, no load)
Max. operating frequency	700 kHz (open output, no load)

Technical Data

Accuracy and dynamic performance:	
Linearity error	none
Temperature coefficient	30 ppm/K, related to transfer ratio M
Positioning error	855-9100/500-000: max. 0.65 % 855-9300/500-000: max. 0,80 % (considering a primary conductor of at least Ø 15 mm perpendicular to the coil)
Safety and protection:	
Nominal isolation voltage	300 V_{rms} (between primary conductor and ground)
Voltage for isolation test	3.5 kV_{rms} AC / 50 Hz / 1 min
Impulse withstand voltage (1.2/50 µs)	6.5 kV
Adjacent contacts	6 mm / 6 mm
Comparative Tracking Index (CTI,	600 V (plastic parts)
Degree of protection	IP2X
General specifications:	
Cable length	855-9100/500-000: 1.5 m 855-9300/500-000: 3 m
Ambient operating temperature	-10 °C ... +65 °C
Storage temperature	-25 °C ... +70 °C
Weight	85 g

Rogowski Coils RT 2000



Output voltage (open output, no load)

- dynamic	$V_{out} = M \times dI_p/dt$
- sinusoidal signal	$V_{out} = 2 \times \pi \times M \times f \times I_p$ AC Example: $V_{out} = 2 \times \pi \times 0.064\ \mu H \times 50\ Hz \times 2000\ A = 40.2\ mV$

Short description:
The Rogowski coil is a closed-air coil with non-magnetic split core, placed around a conductor or a current bar.
The magnetic field produced by the AC current flowing through the conductor induces an output voltage in the coil.
This measurement procedure provides galvanic isolation between the primary circuit (power) and secondary circuit (measurement).
Easy placement of the Rogowski coils allows existing systems to be retrofitted without time-consuming installation or process interruption.
The Rogowski coil can be used together with the 857-552 Rogowski Transducer.

Features:
- Split-core style coil for easy installation
- Ø 125 mm coil aperture for non-contact measurement
- 1.5 m or 3 m output cable
- Insulated plastic case to UL 94-V0

Description	Item No.	Pack. Unit
Rogowski Coil RT 2000,		
1.5 m output cable	**855-9100/2000-000**	3
Rogowski Coil RT 2000,		
3 m output cable	**855-9300/2000-000**	3

Approvals

Conformity marking	CE
Standards/Specifications	IEC 61010-1:2001 (2nd edition), IEC 61010-2-032:2002, IEC 61010-031:2002 + A1:2008

Technical Data

Electrical data:	
Primary rated current I_{pN}	2000 A_{rms}
Coil inductance (± 5 %)	190 µH
Coil resistance	60 Ω (at 20 °C ambient operating temperature, typ.)
Transfer ratio M	0.064 µH (WAGO provides uncalibrated coils with 5 % tolerance)
Output signal	Example shown above 40.2 mV at I_{pN} = 2000 A, sinusoidal, 50 Hz (open output, no load)
Max. operating frequency	500 kHz (open output, no load)

Technical Data

Accuracy and dynamic performance:	
Linearity error	none
Temperature coefficient	30 ppm/K, related to transfer ratio M
Positioning error	855-9100/2000-000: max. 0.65 % 855-9300/2000-000: max. 0,80 % (considering a primary conductor of at least Ø 15 mm perpendicular to the coil)
Safety and protection:	
Nominal isolation voltage	300 V_{rms} (between primary conductor and ground)
Voltage for isolation test	3.5 kV_{rms} AC / 50 Hz / 1 min
Impulse withstand voltage (1.2/50 µs)	6.5 kV
Adjacent contacts	6 mm / 6 mm
Comparative Tracking Index (CTI,	600 V (plastic parts)
Degree of protection	IP2X
General specifications:	
Cable length	855-9100/2000-000: 1.5 m 855-9300/2000-000: 3 m
Ambient operating temperature	-10 °C ... +65 °C
Storage temperature	-25 °C ... +70 °C
Weight	90 g

Plug-In Current Transformers

	Plug-In Current Transformers Secondary rated current: 1 A	Plug-In Current Transformers Secondary rated current: 5 A

Short description:
The 855 Series Plug-In Current Transformers are inductive, single-conductor current transformers. Based on the principle of measurement, current transformers of this type are used exclusively in AC networks.

Features:
- Screwless CAGE CLAMP® connection technology
- Several mounting options available
- Vibration- and shock-resistant
- High mechanical retention forces
- High current-carrying capacity
- Continuous overload of 120 % the nominal primary current
- Low-voltage current transformer for max. operating voltages up to 1.2 kV
- Can be used in 690 V power networks
- UL Recognized Components

Description	I_{pN}	I_{sN}	S_N	G	Item No.	Pack. Unit	I_{pN}	I_{sN}	S_N	G	Item No.	Pack. Unit
Plug-In Current Transformers	50 A	1 A	1.25 VA	3	**855-301/050-103**	1	50 A	5 A	1.25 VA	3	**855-305/050-103**	1
	60 A	1 A	1.25 VA	1	**855-301/060-101**	1	60 A	5 A	1.25 VA	1	**855-305/060-101**	1
	75 A	1 A	2.5 VA	1	**855-301/075-201**	1	75 A	5 A	2.5 VA	1	**855-305/075-201**	1
	100 A	1 A	2.5 VA	1	**855-301/100-201**	1	100 A	5 A	2.5 VA	1	**855-305/100-201**	1
	150 A	1 A	5 VA	1	**855-301/150-501**	1	150 A	5 A	5 VA	1	**855-305/150-501**	1
	200 A	1 A	5 VA	1	**855-301/200-501**	1	200 A	5 A	5 VA	1	**855-305/200-501**	1
	250 A	1 A	5 VA	1	**855-301/250-501**	1	250 A	5 A	5 VA	1	**855-305/250-501**	1
I_{pN} = Primary rated current	400 A	1 A	10 VA	1	**855-301/400-1001**	1	400 A	5 A	10 VA	1	**855-305/400-1001**	1
I_{sN} = Secondary rated current	600 A	1 A	10 VA	1	**855-301/600-1001**	1	600 A	5 A	10 VA	1	**855-305/600-1001**	1
S_N = Rated power	400 A	1 A	5 VA	1	**855-401/400-501**	1	400 A	5 A	5 VA	1	**855-405/400-501**	1
G = Accuracy class	1000 A	1 A	10 VA	1	**855-501/1000-1001**	1	1000 A	5 A	10 VA	1	**855-505/1000-1001**	1

Technical Data

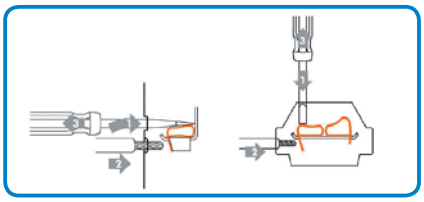
Input:		
Rated continuous thermal current I_{cth}	1.2 x I_N	1.2 x I_N
Rated short-time thermal current I_{th}	60 x I_N (max.100 kA), 1 s	60 x I_N (max.100 kA), 1 s
Max. operating voltage $V_{B\ max.}$	1.2 kV_{rms}	1.2 kV_{rms}
Rated frequency	50 Hz ... 60 Hz	50 Hz ... 60 Hz
Overcurrent limiting factor	FS5 or FS10 (type-dependent, see type plate inscription)	FS5 or FS10 (type-dependent, see type plate inscription)
Environmental requirements:		
Ambient operating temperature	-5 °C ... +50 °C	-5 °C ... +50 °C
Storage temperature	-25 °C ... +70 °C	-25 °C ... +70 °C
Max. operating altitude	1000 m	1000 m
Safety and protection:		
Test voltage	6 kV_{rms} AC / 50 Hz / 1 min	6 kV_{rms} AC / 50 Hz / 1 min
Insulation class	E	E
Connection and type of mounting:		
Connection technology	CAGE CLAMP®	CAGE CLAMP®
Cross sections	0.08 mm² ... 4 mm² / AWG 28 ... 12	0.08 mm² ... 4 mm² / AWG 28 ... 12
Strip lengths	9 ... 10 mm / 0.37 in	9 ... 10 mm / 0.37 in
Standards and approvals:		
Conformity marking	CE	CE
Standards/Specifications	DIN EN 60044-1 (12/2003) VDE 0414-1 (12/2003)	DIN EN 60044-1 (12/2003) VDE 0414-1 (12/2003)
cULus (Recognized Components)	E356480	E356480

Accessories

	Item No.	Pack. Unit
Carrier rail adapter for plug-in current transformers		
(for 855-3xx/xxxx-xxxx and 855-4xx/xxxx-xxxx)	**855-9900**	1
Quick-mount kit	**855-9910**	1
Operating tool, with partially insulated shaft, type 2, blade (3.5 x 0.5) mm	**210-720**	1

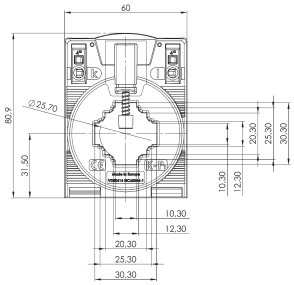
Connection / Connection Assignment

Implementation of the primary winding is designated with "K-P1" and "L-P2." Connections for the secondary winding are designated with the corresponding lower case letters " k-S1" and "l-S2."



Dimensions:

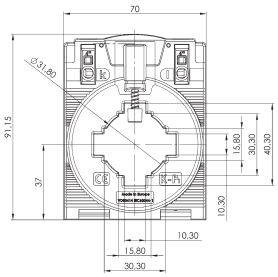
Item No.
855-3xx/xxxx-xxxx



Current bar 1: 30 x 10 mm
Current bar 2: 25 x 12 mm
Current bar 3: 20 x 20 mm
Round cable: 26 mm

Width: 60 mm
Overall height: 80.5 mm
Overall depth: 52 mm

Item No.
855-4xx/xxxx-xxxx

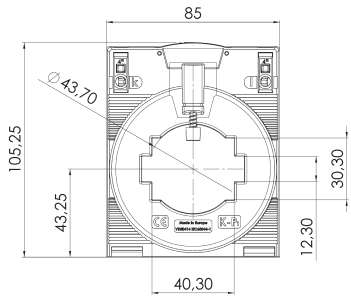


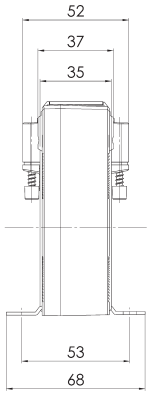
Current bar 1: 40 x 10 mm
Current bar 2: 30 x 15 mm

Round cable: 32 mm

Width: 70 mm
Overall height: 91 mm
Overall depth: 52 mm

Item No.
855-5xx/xxxx-xxxx

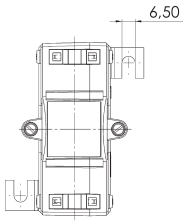




Current bar 1: 50 x 12 mm
Current bar 2: 40 x 30 mm

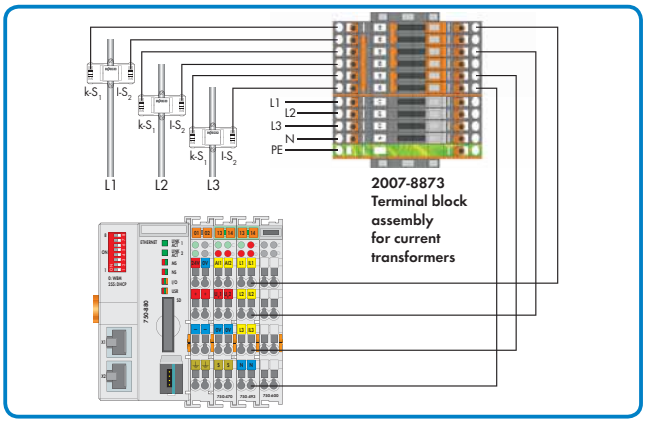
Round cable: 44 mm

Width: 85 mm
Overall height: 105.25 mm
Overall depth: 52 mm

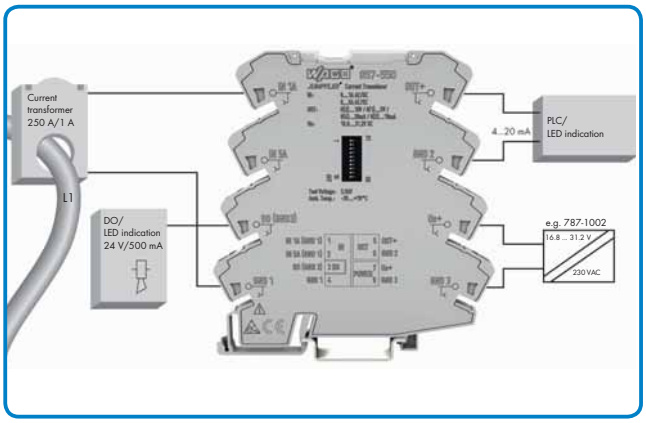


Application examples:

750 Series (3-Phase Power Measurement Module)



857 Series (*JUMPFLEX*® Current Transducer)



Mounting Options

Mounting on round cable

Mounting on copper current bar

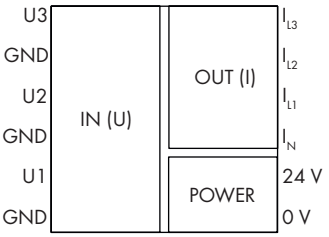
Mounting on carrier rail with carrier rail adapter

Mounting on mounting plate

Quick-mount installation for conductors

Note:
* The carrier rail adapter is only suitable for 855-3xx/xxxx-xxxx and 855-4xx/xxxx-xxxx transformers.

Current Transducer for RT 2000 Rogowski Coils



Short description:
The Rogowski Current Transducer acquires 5–2000A alternating currents in a three-phase system.
The magnetic field produced around each conductor is sensed via three non-contact Rogowski coils and provided as a proportional voltage signal to the signal conditioner. The current transducer adjusts the phase of each of the three voltage signals, converting them into 100mA alternating current signals. These are then transmitted to the 750-493/000-002 3-Phase Power Measurement Module.

The 750-493/000-002 3-Phase Power Measurement Module within the WAGO-I/O-SYSTEM measures electrical data (e.g., voltages, currents, effective power and energy consumption) in a three-phase supply network. Thus, the user is always able to determine the load condition (imbalance, capacitive components), to optimize consumption and protect machines or systems from damage and breakdowns. Easy installation of Rogowski coils also allows existing systems to be retrofitted without process interruption.

Description	Item No.	Pack. Unit
Signal Conditioner for RT 2000 Rogowski Coils	**789-654**	1

Accessories	Item No.	Pack. Unit
Rogowski Coil RT 2000, 1.5 m output cable	**855-9100/2000-000**	3
Rogowski Coil RT 2000, 3 m output cable	**855-9300/2000-000**	3
3-Phase Power Measurement Module (R.C.)	**750-493/000-002**	1

Technical Data

Input:	
Input signal	3 x RT 2000 (2000 A)
Sensitivity	42.2 mV
	50 Hz sinus
Outputs:	
Output signal	3 x 100 mA AC
Rated output current	100 mA AC (for direct connection to 750-493/000-002 Phase Power Measurement Module)
Overcurrent	3000 A (max. 150 mA per output)

Technical Data

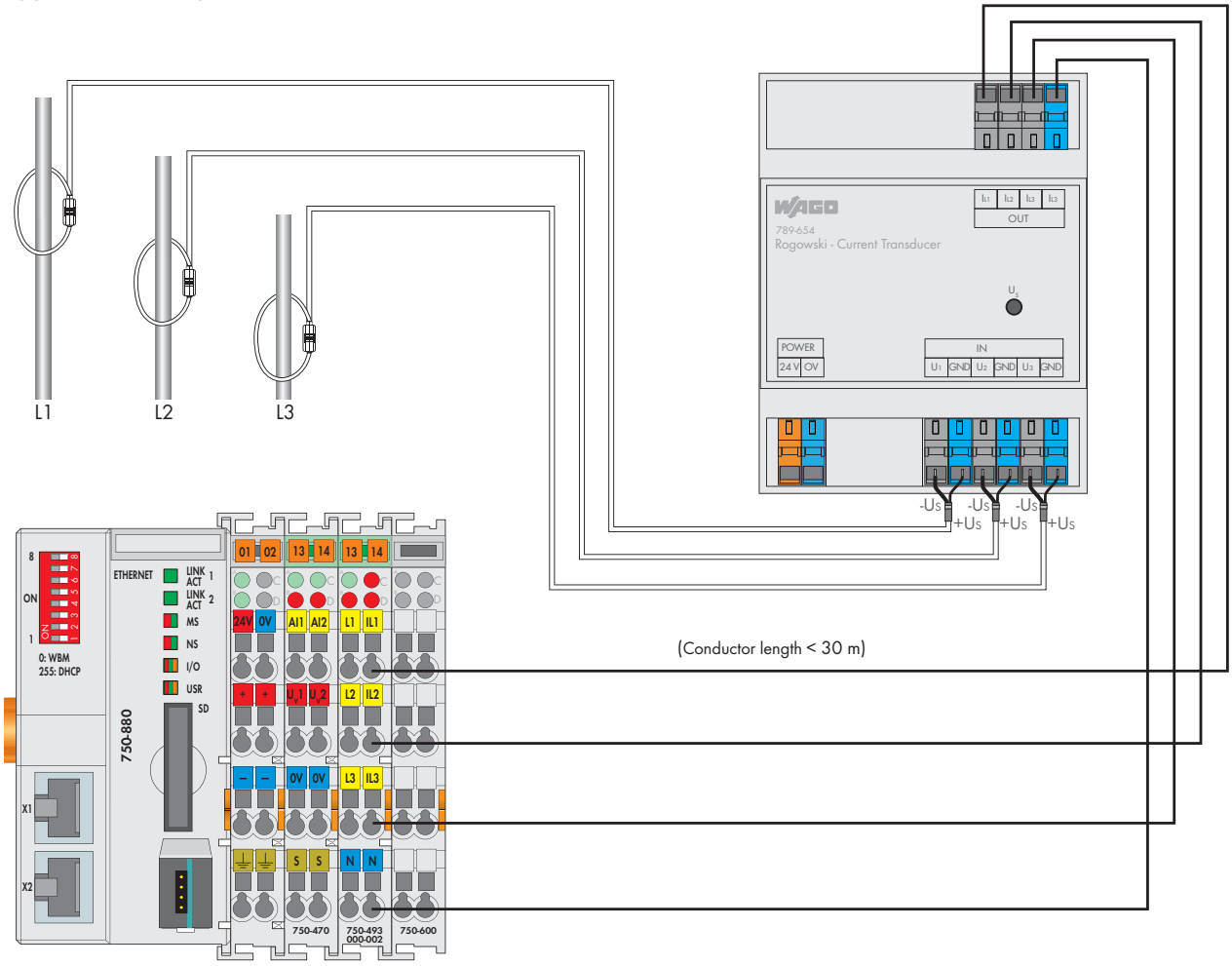
General specifications:	
Supply voltage range	16.8 ... 32 V
Max. power consumption	4000 mW
Operational indication	LED, green
Degree of protection	IP20
Phase error	< 1°
Max. operating frequency	300 Hz (phase accuracy at 50 Hz only)
Linearity	≤ 0.1 %
Temperature coefficient	≤ 0.1 %/K
Transmission error	< 1.1 %
Response threshold	2 A
Environmental requirements:	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Safety and protection:	
Test voltage	
(input/output/supply)	2.5 kV AC, 50 Hz, 1 min.
Connection and type of mounting:	
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / AWG 28 ... 12
Strip lengths	5 ... 6 mm / 0.22 in
Dimensions and weight:	
Dimensions (mm) W x H x L	70 x 55 x 90
Weight	128.4 g
Standards and approvals:	
Conformity marking	CE
cULus UL 508	(pending)

Recommended conductor sizes and lengths: 759-654

Conductor size in mm²	Conductor length in m							
	1	2	3	5	10	15	20	25
0.14	0.26	0.51	0.77	1.28	2.55	3.83	5.10	6.38
0.34	0.11	0.21	0.32	0.53	1.05	1.58	2.10	2.63
0.5	0.07	0.14	0.21	0.36	0.71	1.07	1.43	1.79
0.75	0.05	0.10	0.14	0.24	0.48	0.71	0.95	1.19
1	0.04	0.07	0.11	0.18	0.36	0.54	0.71	0.89
1.25	0.03	0.06	0.09	0.14	0.29	0.43	0.57	0.71
1.5	0.02	0.05	0.07	0.12	0.24	0.36	0.48	0.60
2.5	0.01	0.03	0.04	0.07	0.14	0.21	0.29	0.36

Conductor resistance in Ω (total value for both outgoing and return conductors)
Recommendation: Select the conductor size so that the conductor resistance is ≤ 0.3 Ω.

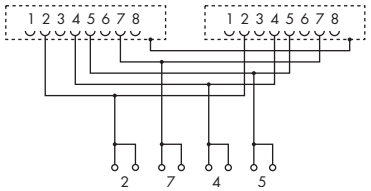
Application example:

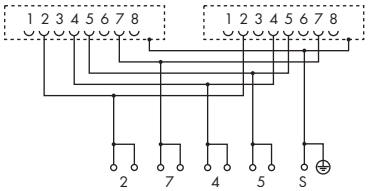


Accessories for 789 Series Current Sensor Modules

	RJ-45 interface module for current sensor modules Mounting carrier for DIN 35 rail	RJ-45 interface module for current sensor modules with shield clamping saddle Mounting carrier for DIN 35 rail

Compatible with 789-620, 789-621 and 789-622 Current Sensor Modules on the field side.
Required terminal assignment:
2: + Supply
7: + Supply
4: D+
5: D-
For 289-966, direct shield connection to the carrier rail via shield grounding foot.





Description	Item No.	Pack. Unit	Item No.	Pack. Unit
RJ-45 interface module	**289-965**	1	**289-966**	1

Technical Data

Connecting cable	assembled RJ-45 cable	assembled, shielded RJ-45 cable
	(recommended: UTP)	(recommended: UTP, STP)
Connector	RJ-45, shielded	RJ-45, shielded
Min. mating cycles	500	500
Current load	≤ 1.5 A	≤ 1.5 A
Insulation resistance	> 500 MΩ	> 500 MΩ
Dielectric strength contact-contact	0.5 kV_{rms}	0.5 kV_{rms}
Contact resistance typ.	< 20 mΩ	< 20 mΩ
WAGO shield (screen) clamping saddle		790-124 (included)
Ambient operating temperature	-20 °C ... +85 °C	-20 °C ... +85 °C
Dimensions (mm) W x H x L,	40 x 58 x 85	40 x 69 x 85
	Height from upper-edge of DIN 35 rail	Height from upper-edge of DIN 35 rail
Wire connection	Clamping units 4, 5:	Clamping units 4, 5:
	CAGE CLAMP® (WAGO 236 Series)	CAGE CLAMP® (WAGO 236 Series)
	Clamping units 2, 7:	Clamping units 2, 7:
	CAGE CLAMP® (WAGO 745 Series)	CAGE CLAMP® (WAGO 745 Series)
Cross sections	Clamping units 4, 5:	Clamping units 4, 5:
	0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)	0.08 mm² ... 2.5 mm² / AWG 28 ... 12 (THHN, THWN)
	Clamping units 2, 7:	Clamping units 2, 7:
	0.2 mm² ... 6 mm² / AWG 24 ... 10	0.2 mm² ... 6 mm² / AWG 24 ... 10
Strip lengths	Clamping units 4, 5: 5 ... 6 mm / 0.22 in	Clamping units 4, 5: 5 ... 6 mm / 0.22 in
	Clamping units 2, 7: 11 ... 12 mm / 0.45 in	Clamping units 2, 7: 11 ... 12 mm / 0.45 in

Thermal Transfer Printer *smart*PRINTER

Description	Item No.	Pack. Unit
***smart*PRINTER**		
Includes: external unwinder, power supply unit and cable,		
USB cable, 1 empty cardboard spool		
	258-5000	1

Accessories

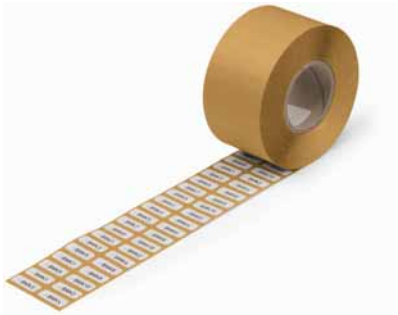
Ink ribbon for *smart*PRINTER		
	**258-5005**	1
Roller for *marking*STRIP		
	**258-5006**	1
Roller for WMB Inline		
	**258-5007**	1

Technical Data

Printing method	Thermal transfer
Print head	Glass layer, spring-mounted
Print speed	max. 127 mm/s
	(WAGO recommends 50.8 mm/s)
Print width (max.)	47 mm
Print length (max.)	762 mm
Print resolution	300 dpi (12 pixels/mm)
Transmissive/Reflective sensor	yes, centrally fixed
Operating display	Color TFT LCD with navigation button
Memory	8 MB Flash, 16 MB SDRAM
Interfaces	USB, RS-232, ETHERNET 10/100 Mbps
Operating voltage	100 ... 240 VAC, 50 ... 60 Hz
	(automatic adjustment)
Dimensions (W x H x D)	135 x 175 x 245 mm
Weight	2000 g (without printing material)
Operating temperature	5 °C ... 40 °C (41 °F ... 104 °F)
Storage temperature	-20 °C ... 50 °C (-4 °F ... 122 °F)
Safety approvals	CE (EMC)
Ink ribbon	External roll diameter: 40 mm;
	Internal core diameter: 0.5" (12.7 mm);
	Max. length: 110 m; Max. width: 58 mm

Type Plates and Labels

Type plates	Label rolls	Continuous labels



	Item No.	Pack. Unit
Type plates		
Polyester		
500 markers per roll		
44 x 99 mm		
white	**210-803**	1
silver	**210-804**	1

	Item No.	Pack. Unit
Label roll		
Polyester		
3000 labels per roll		
15 x 6 mm		
white	**210-805**	1
yellow	**210-805/000-002**	1
15 x 9 mm		
white	**210-806**	1
yellow	**210-806/000-002**	1
20 x 8 mm		
white	**210-807**	1
yellow	**210-807/000-002**	1
9.5 x 25 mm		
white	**210-808**	1
5 x 35 mm		
white	**210-810**	1
Label roll		
Fabric		
3000 labels per roll		
20 x 7 mm		
white	**210-811**	1
yellow	**210-811/000-002**	1

	Item No.	Pack. Unit
Continuous labels		
Polyester		
9 lengths at 25 m		
Width: 2.3 mm		
white	**210-831**	1
Width: 3 mm		
white	**210-832**	1
5 lengths at 25 m		
Width: 5 mm		
white	**210-834**	1
Width: 6 mm		
white	**210-833**	1

Push-Button and Wire Markers

Push-button markers	Wire markers	Wire markers

Similiar to picture

Similiar to picture

	Item No.	Pack. Unit
Push-button markers		
without adhesive, with light adhesive rubber coating		
1,000 markers per roll		
26.5 x 18 mm		
silver	**210-850**	1
Transparent covers		
without adhesive		
100 covers		
26.5 x 18 mm		
transparent	**210-851**	1
Push-button markers		
without adhesive, with light adhesive rubber coating		
1,000 markers per roll		
27.5 x 17.5 mm		
silver	**210-856**	1
Transparent covers		
without adhesive		
100 covers		
27.5 x 17.5 mm		
transparent	**210-857**	1
Label roll DD (device designation)		
Polyester		
500 labels per roll		
28 x 28 mm		
175 µm thick		
silver	**210-854**	1

	Item No.	Pack. Unit
Wire markers for cable tie		
500 pieces per roll		
25 x 20 mm		
white	**211-835**	1

	Item No.	Pack. Unit
Wire markers for thread-on mounting		
1000 pieces per roll		
23 x 5 mm		
white	**211-861**	1
26 x 7 mm		
white	**211-862**	1

Wire and Mini-WSB Inline Markers

Wire markers

	Item No.	Pack. Unit
Wire markers for sleeves		
12 x 4 mm		
2500 pieces per roll		
white	**211-811**	1
Sleeves for wire markers		
Sleeve length: 12 mm		
500 pcs		
Diameter: 1.4 to 5 mm		
transparent	**211-812**	1
Diameter: 5 to 11 mm		
transparent	**211-813**	1
Wire markers for sleeves		
23 x 4 mm		
2500 pieces per roll		
white	**211-821**	1
Sleeves for wire markers		
Sleeve length: 23 mm		
500 pcs		
Diameter: 1.4 to 5 mm		
transparent	**211-823**	1
200 pcs		
Diameter: 5 to 11 mm		
transparent	**211-824**	1

Wire markers

	Item No.	Pack. Unit
Sleeves for wire markers		
Sleeve length: 23 mm		
Mounting via cable tie		
200 pcs		
transparent	**211-829**	1
Wire markers for sleeves		
23 x 4 mm		
2500 pieces per roll		
white	**211-821**	1

Mini-WSB Inline markers

Similiar to picture

	Item No.	Pack. Unit
Mini-WSB Inline markers		
plain		
stretchable 5 ... 5.2 mm		
1,700 WMB markers (5 mm) per roll		
white	**2009-145**	1
Spare roller for TP 298+		
for accommodating the Mini-WSB Inline markers		
(for printer 04/2012 and later)		
	258-183	1

Item Number Index

Products highlighted in RED are new items for Spring 2013

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