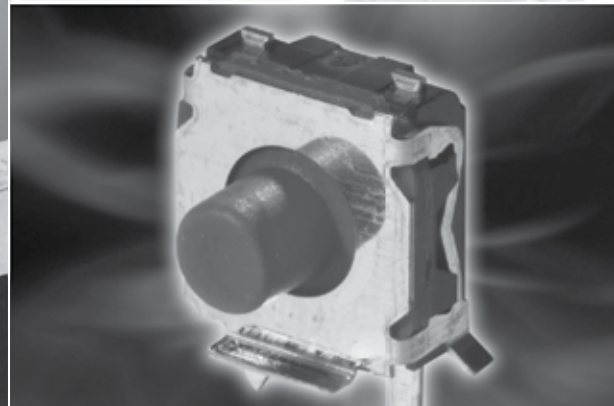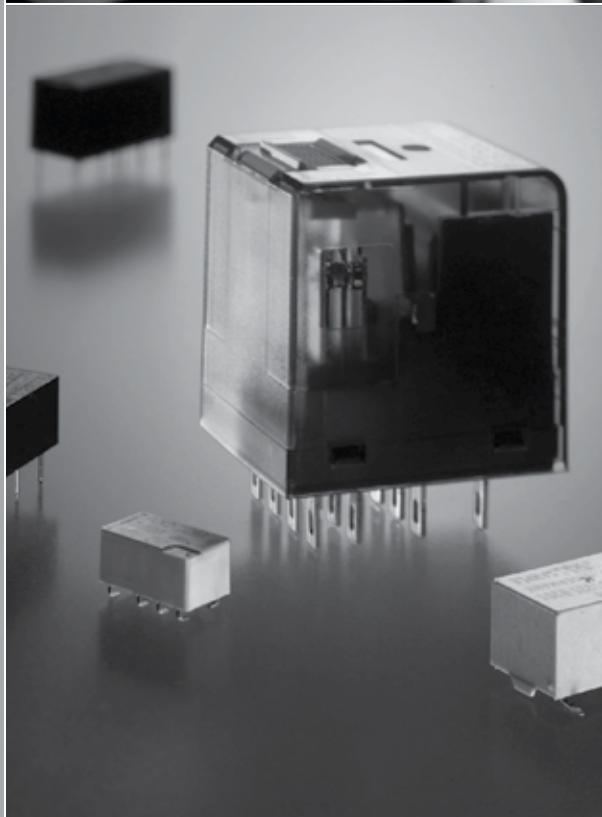# Connector and Electromechanical Components
Product Guide

TTI, Inc. – Never Short on Solutions

CONTENTS

TTI, Inc. – Never Short on Solutions
The World's Largest Specialist Distributor for Passive, Discrete, Connector & Electromechanical Components

TTI's European headquarters in Maisach-Gernlinden occupies 19,000m², with 16,000m² of dedicated warehouse space on three levels. We provide local service in over 40 sales locations across Europe.

Our suppliers are the most innovative and capable in the electronics industry. Together with them, we put emphasis on product knowledge, inventory and logistics to provide our customers with industry leading service support and value.

Our focused product line and comprehensive supply chain management solutions have made TTI the supplier of choice for our OEM and CEM customers worldwide.

By focusing on new product introductions, high technology products and working with Mouser, we provide our customers and suppliers with unparalleled design-in support, ensuring the best and newest parts are always available.

TTI realises customers do not always have the time or resources to assemble connectors. Therefore, the company is committed to providing customers with the best connector value-added services in the industry. TTI increases inventory capacity and the capabilities of the multiple assembly lines while continuing to consistently achieve the best lead-times and quality results in the industry. The connector operations group has the capability to offer a wide range of customised services, including, but not limited to:

• Connector, Backshell, and Accessory assembly
• Full Customised Connector Capability
• Special Packaging and Labelling
  Lead Preparation and Modification
• Customised Marking and Identification and the best is yet to come for the future

Why buy from TTI?

TTI concentrates on the basic strategy of focusing on our products and striving to be the best at what we do. No other company offers the unique combination of benefits we provide:

• Specialist in Passive, Discrete, Connector
  & Electromechanical Components
• Deepest and Broadest Inventory
• Best in Class Support
• Leading Global Suppliers
• Focused Line Card
• Technology Leader
• Only Distributor with Catalogue Division – Mouser
• Opportunity to Consolidate Supplier Base
• Reduced Lead-Times
• Specialist Local Support
• World Class Supply Chain Programs
• Reduced Total Cost of Acquisition

To support your design you can request free of charge samples from TTI.

LINE CARD – CONNECTORS & ELECTROMECHANICAL

Connectors

	3M	AMPHENOL	AVX/ELCO	BOURNS	C&K	DELPHI	FCI	GLENAIR	HARWIN	MOLEX	OMRON	PANASONIC	PANDUIT	PHOENIX CONTACT	RADIALL	SOURIAU	SPECTRUM CONTROL	TE CONNECTIVITY	TRI STAR
RF/Coaxial/Microwave																			
1.0/2.3, 1.6/5.6, 7/16		●								●					●			●	
BMA, BNC		●								●					●			●	
MCX/MMCX		●							●	●					●			●	
QMA		●								●					●			●	
SMA, SMB, SMC, SSMA		●								●					●			●	
Type F/G, Type N		●								●					●			●	
Triax/Twinax		●								●					●			●	●
Type F/G, Type N		●								●								●	
Wire to Board/Wire to Wire																			
0.4mm to 10mm pitch	●	●	●				●		●	●	●							●	
Bus Bar							●			●								●	
Cable Assembly	●	●	●			●	●			●					●	●		●	
FFC/FPC		●	●				●		●	●	●	●						●	
IDC Discrete Wire	●	●	●				●		●	●				●				●	
IDC/Mass Termination	●	●	●				●		●	●	●							●	
Power	●	●	●			●	●		●	●				●				●	
SATA/SAS/mini SATA	●	●					●			●							●	●	
SCSI I, II, III	●	●					●			●							●	●	
Backplane																			
10 Gb/s+ Solutions	●	●					●			●								●	
DIN 41612	●		●				●			●								●	
Card Edge	●	●					●			●								●	
Compact PCI	●						●			●								●	
Fibre Optic		●					●			●								●	
Power	●	●	●				●			●								●	
Board to Board																			
0.4mm to 10.00mm pitch	●	●	●				●		●	●	●							●	
Board Stacking	●	●	●				●		●	●								●	
Breakaway Headers & Sockets	●	●	●				●		●	●	●	●						●	
Mezzanine	●						●		●	●	●							●	
Power	●	●	●				●		●	●								●	
Device to Board																			
LED Sockets							●			●								●	
IC, PCMCIA, PGA, PLCC	●						●		●	●								●	
SIP	●								●									●	
SO DIMM & RIMM			●				●			●								●	
Memory Card Connectors																			
CompactFlash	●	●	●				●			●								●	
DDR, DDR2, Mini DDR2			●							●								●	
Mini SD, Micro SD			●				●			●						●		●	
PC Card, CardBus	●	●					●			●								●	
PCMCIA	●						●		●	●								●	
Smartcard (SIM/Micro SIM)		●			●		●			●								●	
Terminal Blocks																			
PCB Mounted		●	●				●			●				●				●	●
DIN Rail Mounted		●												●				●	●
Input/Output																			
Audio		●				●	●		●	●							●	●	
Circular		●				●	●	●	●	●	●			●	●	●		●	
D-Subminiature	●	●			●		●			●	●				●	●		●	
DVI/HDMI		●					●		●	●								●	
Micro D		●					●	●		●					●	●		●	
Modular Plugs & Jacks		●					●			●						●		●	
Power		●				●	●	●	●	●					●	●		●	
SFP/XFP		●					●			●								●	
RJ/Industrial Ethernet		●					●			●				●		●		●	
USB/Mini USB/USB OTG/Micro USB		●	●			●	●		●	●	●							●	
Wire & Board Management/Accessories																			
Backshells	●	●	●			●	●	●		●						●		●	●
Cable Assemblies/Value Added	●					●	●	●		●					●			●	
Cable Management	●					●			●				●					●	
Discrete Wire	●																	●	
FFC Jumpers										●								●	
Flat Ribbon Cable	●	●																●	
Hand Crimp Tools	●	●	●			●	●		●	●		●				●		●	●
Heat Shrink Products	●							●		●		●	●					●	
IDC Presses	●	●														●		●	
Labels & Labelling Systems														●	●			●	
Semi-automatic Crimp Tools	●	●				●	●		●	●		●				●		●	
Audio																			
1/4" Phone (T&M Series, Jacks)		●																	
3.5mm PCB		●																	
AC Series		●																	
Accessories		●																	
AX Series XLR Cable		●																	
Multipin Series		●														●			
Speciality Connectors																			
Automotive		●				●	●			●				●				●	
Battery		●	●		●	●	●	●		●								●	
COTS		●					●	●		●					●	●		●	
Filtered		●				●	●	●		●					●	●		●	
Hermetic		●				●	●	●		●					●	●		●	
High Voltage		●					●	●		●					●			●	
Industrial	●	●	●				●	●		●				●	●			●	
Mil/Aero		●				●	●	●	●	●					●	●		●	●
Space		●			●	●		●	●	●					●			●	

Electromechanical

	BOURNS	C&K	HONEYWELL S&C	MEDER ELECTRONIC	OMRON	PANASONIC	TE CONNECTIVITY
Relays							
Automotive					●	●	●
Communication				●	●	●	●
Control				●	●	●	●
Counters					●		
Crystal Can							●
Definite Purpose Contactors							●
DIN Rail Mounted					●	●	●
Forcibly-Guided Contact					●		●
General Purpose					●	●	●
High Frequency			●				
High Voltage Switching			●		●	●	●
Industrial DC & AC					●	●	●
Input/Output Modules					●		●
Low Signal PCB			●		●	●	●
Magnetic Latching				●	●	●	●
Microwave							●
Military/Aerospace							●
Miniature PCB					●	●	●
Photomos					●	●	
Panel/Plug-In					●	●	●
Power					●	●	●
Programmable Time Delay					●		●
Protective					●	●	●
Reed			●				●
Rotary							●
Safety					●	●	●
Sensors					●	●	●
Signal			●		●	●	●
Sockets					●	●	●
Solid State					●		●
Time Delay					●		●
Timers					●		●
TO-5							●
Traffic Control							●
Sockets & Accessories					●		●
Circuit Breakers							
Magnetic Circuit Breakers							●
Thermal Circuit Breakers							●
Switches							
Analog		●	●				
Detector		●				●	
DIP	●	●			●		●
Encoder		●				●	●
Keylock		●	●		●		
Keyswitch		●	●				●
Knobs		●					
Light Touch		●			●	●	
Limit		●	●		●		
Navigation		●					
Optical			●		●	●	
Paddle		●	●				●
Panel Mount		●	●		●		
Power Rocker		●					
Power Tool					●	●	
Pushbutton		●	●		●		●
Pushwheel		●					
Rocker		●			●		
Rotary	●	●	●		●		●
Safety		●	●				
Selector		●					
Slide		●			●	●	●
Snap Action		●	●		●		
Surface Mount	●	●			●	●	
Tactile	●	●			●	●	
Thumbwheel		●					
Toggle		●	●				●
Sensors							
Airflow			●			●	
Board Mount			●		●		
Current			●				
Fibre Optic			●		●		
Flexible Heaters			●				
Flow			●		●		
Hall Effect			●				
Humidity			●				
Infrared			●				
Liquid Level			●	●	●		
Optical			●				
Speed/Position			●		●	●	
Pressure & Force			●	●	●	●	
Safety Light Curtain			●		●		
Stainless Steel Pressure			●				
Temperature			●		●	●	
Ultrasonic			●				
Wireless Limit Switches			●				

EUROPE'S LARGEST INVENTORY
of Passive, Discrete, Connector & Electromechanical Components

3M

Amphenol®

API Delevan

AVX
A KYOCERA GROUP COMPANY

BOURNS®

C&K

COOPER Bussmann

DELPHI

EPCOS

FCI

Glenair®

HARWIN
INTERCONNECT DESIGN & MANUFACTURE

Honeywell

The Capacitance Company
KEMET
CHARGED.®

Kingbright
Kingbright Electronic Europe GmbH

KOA
Your Passive Solution

Lelon

Littelfuse®
Expertise Applied | Answers Delivered

Standex
MEDER
ELECTRONICS

molex
one company › a world of innovation

muRata

muRata Ps
Murata Power Solutions

nichicon

OHMITE®

OMRON®

Panasonic
ideas for life

PANDUIT™

PHŒNIX CONTACT
INSPIRING INNOVATIONS

Radiall™

SAMSUNG
ELECTRO-MECHANICS

SOURIAU

SPECTRUM
Advanced Specialty
P R O D U C T S
A Spectrum Control Business

SYFER

TDK®

TE
connectivity
Authorized Distributor

TOSHIBA
Leading Innovation ›››

CARLISLE
INTERCONNECT TECHNOLOGIES
TRI-STAR
ELECTRONICS INTERNATIONAL, INC.

TT electronics

VISHAY®

VISHAY
PRECISION
GROUP

WIMA®

YAGEO
Innovative Service Around the Globe

CONNECTORS

3M™ MDR Connector Series

Series Selection	MDR Board Mount Connectors	Drawing Number
N102XX-62XX	0.050" Through-hole, vertical receptacle	TS-0427
N102XX-52XX	0.050" Through-hole, right angle receptacle – shielded, die-cast body	TS-0531
102XX-55X3	0.050" Through-hole, right angle receptacle – shielded, plastic body	TS-0621
102XX-1210	0.050" Surface mount, right angle receptacle – shielded	TS-0755
102XX-R2XX	0.050" Compliant pin, vertical receptacle – shielded	TS-0961
102XX-M218	0.050" Through-hole, right angle condo receptacle – shielded	TS-0671
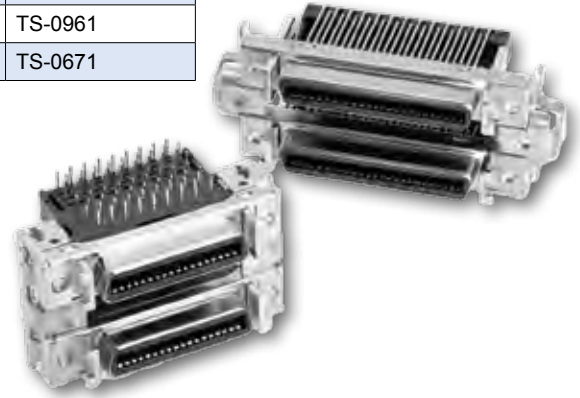
Features & Benefits
• Many assorted complete assembly solutions are available
• Wiper-on-wiper contact for reliable, repetitive plugging
• Digital LCD interface in 20 or 26 contact connectors
• IEEE 1284C interface as a 36 contact connector
• CameraLink® interface in 26 contact connector with SMT
• Vertical through-hole, SMT and press-fit design board mount receptacles
• 14 to 100 contact connector interface options
• RoHS compliant solution
• Customised cable assemblies

Applications
• Industrial instruments/controls
• Medical
• Communications systems
• Security
• Storage systems
• Computer peripherals
• Transportation
• POS terminals
• Imaging systems

3M™ MDR Wire Mount IDC Connectors 101XX-6000 Series

Features & Benefits
• 101XX-6000 Series
• 14 – 100-pin count availability
• Accepts a wide variety of cable constructions, including flat, round, twisted pair and twin-ax
• Easy IDC termination
• Multiple styles of backshells available
• Drawing number TS-0423

3M™ MDR Straddle Mount Plug Connectors 101XX-900A Series

Features & Benefits
• Mates to standard MDR receptacles
• Available in 26, 50, 68 and 100 positions
• Unique straddle mount PCB edge connection
• Allows use as a wire mount solution in custom active cable assemblies
• Drawing number TS-0698

3M™ MDR Solder Connectors 101XX-3000 Series

Features & Benefits
• Wiper-on-wiper contact for reliable repetitive plugging
• Solder termination requires no special tooling
• Accepts a wide variety of discrete wire (24AWG – 30AWG) cable construction
• Contacts: 14, 20, 26, 36, 40 and 50
• Drawing number TS-0669

3M™ Ribbon Cable Socket 2mm x 2mm, 158 Series and 3M™ Shrouded Boardmount Header 2mm x 2mm, 159 Series

Series	Ribbon Cable Socket and Shrouded Boardmount Header	Drawing Number
1581xx-1x00	Ribbon Cable Socket 2mm x 2mm, adhesive cover (best)	78-5100-2358-9
1582xx-0x20xx	Ribbon Cable Socket 2mm x 2mm, pre-assembled cover, (better)	78-5100-2358-9
1583xx-211015	Ribbon Cable Socket 2mm x 2mm, separate cover, (value)	78-5100-2358-9
1591xx-xxxx	Shrouded Boardmount Header 2mm x 2mm, 076µm Au (best)	78-5100-2359-7
1592xx-xxxx	Shrouded Boardmount Header 2mm x 2mm, 038µm Au (better)	78-5100-2359-7

Features & Benefits
- Diverse pin counts ranging from 6 – 50 pos
- Body socket: high temp polyester, body header: high temp LCP
- Temperature rating: -55 – +105˚C
- Plating: 0.38mm/0.76mm Au (wiping area)
- Centre-bump & friction-bump option
- Recommended cable: 28AWG/7 str -> 3M 3625
- Socket mates with 3M 159 Series header and competitor headers
- Header, solder process temp. 260˚C maximum (IPC/JEDEC J-STD 020D)
- Header, plating (solder tails): matte tin
- Polarisation slots and friction latch options
- Header mates with 3M 158 Series socket and competitor sockets (standard length)
- Header mates with 3M 870 Series socket (extended length)
- Available styles: STR; R/A; SMT – standard and extended length

Applications:
- Industrial Production Equipment
- Communications
- Military/Aerospace
- Computer/Datacom
- Medical

3M™ Latch/Eject Header, Straight Latch, 2mm, 1552 Series

Features & Benefits
- From 6 – 50 positions
- Latch/eject mechanism securely latches to socket
- Roll pins retain latches to vibration environments
- Ejector to make unmating easier
- High temperature insulators
- Robust system solution
- Fits to 3M™ IDC Wiremount Sockets or 3M™ Moulded Cable Assemblies
- SMT latch/eject headers in tape + reel

3M™ 3625 Round Conductor Flat Cable 1mm
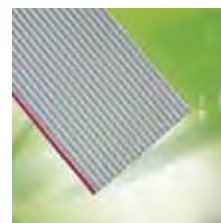
Features & Benefits
- Suitable to a broad line of 2mm IDC connectors
- Flexible stranded wire 28AWG (7 x 0.127 tinned copper)
- 6 up to 50 conductors
- Temperature rating > -20˚C – +105˚C
- Zippable for branching or discrete termination
- RoHS compliant

3M™ 2mm Board Stacking Sockets

Features & Benefits
- Reduces board space requirements
- End-and-side stackable design
- Surface mount and through-hole availability
- Low-profile stacking options
- RoHS compliant solution
- 0.38µm and 0.76µm Au plating available

3M™ 2mm Board Stacking Headers

Features & Benefits
- Reduces board space requirements
- End-and-side stackable design
- Stacking custom length pins available
- Surface mount and through-hole availability
- Low-profile stacking options
- RoHS compliant solution
- 0.38µm and 0.76µm Au plating available

3M™ Halogen Free Cables

Series	Ribbon Cable Socket and Shrouded Boardmount Header	Drawing Number
HF365	Round Conductor Flat Cable, AWG 28, Stranded Wire, 1.27mm	TS-2334
HF659	Round, Shielded/Jacketed, AWG 28, Stranded Wire, 1.27mm	TS-2335
HF759	Round, Jacketed, AWG 28, Stranded Wire, 1.27mm	TS-2336
HF100	Twisted Pair Flat Cable, AWG 28, Stranded Wire, 1.27mm	TS-2344
HF017	Round Conductor Flat Cable, shielded, AWG 28, Stranded Wire, 1.27mm	TS-2345-C
HF625	Round Conductor Flat Cable, AWG 28, Stranded Wire, 1.00mm	TS-2338
HF319	High Flex Life Cable, 19 Strands, 1.27mm, 25 million cycles	TS-2342

Features & Benefits
- Low Smoke Zero Halogen (LSZH) in compliance with IEC 61034-2:2005
- Low toxicity in compliance with NF-X 70-100-2:2006
- Broad operating temperature range: -40˚C – 105˚C
- 28AWG stranded conductors on 1mm pitch permits mass terminations to a broad line of metric IDC connectors
- Flat cables and primary cables are zippable for branching or discrete terminations
- Round Cable construction permits easier routing
- All cable versions suitable for IDC termination
- Dual shielding provides 35dB average shielding, Series HF759

Applications
- Control systems
- Power utilities/reactors
- Transport and traffic applications
- Aerospace applications
- Telecommunications, data processing and signal transfer systems
- Public buildings and facilities
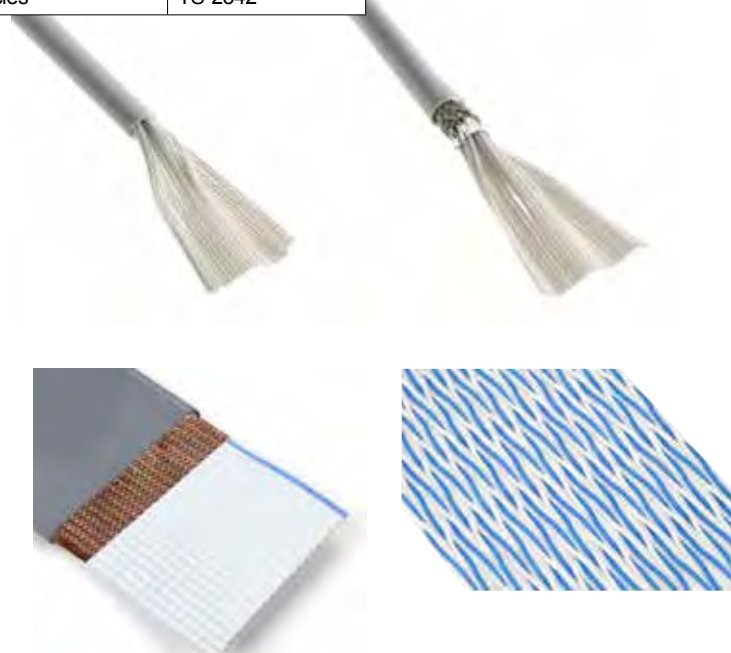
Moulded Cable Assemblies 2.0mm

Features & Benefits
- Part of a complete cable assembly
- Mates with industry standard 0.25" square contacts on 0.100" x 0.100" centres
- 1 piece, moulded-on construction with integral strain relief
- High and low-profiles available, both accommodate typical header latches (short and long)
- Slotted ends allow mating to continuous row headers
- Industry standard polarisation
- Moulded-on polarity keys available in selective contacts
- Closed-end construction
- Modular tooling allows customised designs
- RoHS compliant when used with compliant cable

Moulded Cable Assemblies 2.54mm
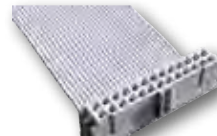
Features & Benefits
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- Moulded-on polarity keys available in selective contacts
- Closed-end construction
- Modular tooling allows customised designs
- RoHS compliant when used with compliant cable

3M™ MDR High Speed Cable Assemblies According CameraLink™ Standard

Features & Benefits
- 11 shielded twin-ax pairs and 4 drain wires
- Entire cable bundle is shielded with foil and braid for additional signal protection
- Rugged MDR ribbon type contact
- Rugged thumbscrew retention
- EMI shielded junction shell in either plastic or overmoulded construction
- RoHS compliant

3M™ Twin Axial Cable SL8800 Series and 3M™ High Routability Internal Mini Serial Attached SCSI (miniSAS) Cable Assemblies

Series (Cables)	Plating	Typical Application	Drawing Number	Pairs	Sidebands
SL8801/12-10DA5-00, SL8801/12-11DA5-00	Silver Tin	MiniSAS SFF 8087 with sidebands	78-5100-2412-4	4	4
SL8802/08-20DN5-00, SL8802/08-21DN5-00	Silver Tin	MiniSAS SFF 8087 with sidebands	78-5100-2413-2	4	0
SL8803/08-10DN5-00, SL8803/08-11DN5-00	Silver Tin	SFF 8087 to SATA fanout cable	78-5100-2414-0	4	0
SL8802/04-10DN5-00, SL8802/04-11DN5-00	Silver Tin	HD SAS SFF 8643	78-5100-2401-7	2	0
SL8802/04-50DN5-00, SL8802/04-51DN5-00	Silver Tin	HD SAS SFF 8643	78-5100-2400-9	2	0
SL8801/12-20DA5-00, SL8801/12-21DA5-00	Silver Tin	SFF 8087 68 position half wide cable	78-5100-2463-7	4	4
SL8801/11-10DA5-00, SL8801/11-11DA5-00	Silver Tin	PCIe on SFF 8087 extra pair for clock	78-5100-2462-9	5	1

Features & Benefits
- 100Ω differential pairs
- Four pairs with and without sidebands and other geometries
- Solid polyolefin insulation
- 0.88mm thick, making system assembly easier
- The cable used in this assembly is UL AWM 21008 (150V, 80C); file number E42769
- The connector materials (resin/PCB) are rated 94V-0
- Halogen-free

Applications
- Internal miniSAS assemblies
- Ethernet application, fast I/O application
- Data centres
- Storage and server
- High speed internal applications
- Equipment with high internal cable counts
- Equipment with tight mechanical requirements

3M™ High-Speed Card-Edge Connector, SPD08
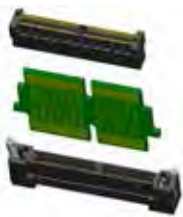
Features & Benefits
- Supports high-speed board-to-board connections extended
- Flexible stacking height and robust connection
- Robust contact design is tolerant of misalignment
- High density board footprint
- 20-200 contact positions
- Flexible design options
- Widespread applicability

3M™ DIN

Features & Benefits
- DIN 41612
- C-form, R-form, Q-form plug and socket
- C-form, B-form, wire mount plug and socket
- Solder or press-fit tail options
- Inverse versions
- First Make/Last Break loading available
- RoHS compliant solution

3M™ MetPak™ Inverse

Features & Benefits
- Footprint compatible with standard Futurebus+®
- 3 level EMLB sequencing levels or selective loading options
- Ideal for hot swapping applications
- Sockets on the backplane for increased system reliability
- Guide alignment feature eliminates bent pins on the backplane
- Right angle header idea for "pizza box" applications

3M™ MetPak™ High Speed Hard Metric Connectors

Features & Benefits
- 5Gb/s
- Orthogonal design
- Differential pairs in rows or columns
- Virtual coax capable
- 5-row and 8-row versions
- Power, shielding, guide pin, coding

3M™ Mini Serial Attached SCSI (Mini SAS)

Series	Mini Serial Attached SCSI (Mini SAS)	Drawing Number
8AX6	Board mount, right angle connector 26P	TS-2210
8A36	Board mount vertical, right angle connector 36P	TS-2214
8B36	Board mount vertical, internal shield	TS-2218
8B36	Board mount vertical, right angle, internal shield	TS-2219
8C26	Board mount, right angle, external shield	TS-2211
8N36	36P cable, internal assembly	TS-2212
8N26	26P cable, external assembly	TS-2211

Features & Benefits

- 6Gb/s signal bandwidth
- 26 internal and 36 external positions
- Cable and board mount connector solutions
- Options for board thickness and termination types
- Multiple keying and polarisation options
- SFF 8086, 8087 and 8088 compliant

Applications

- Servers
- RAID
- Server clusters
- Storage clusters
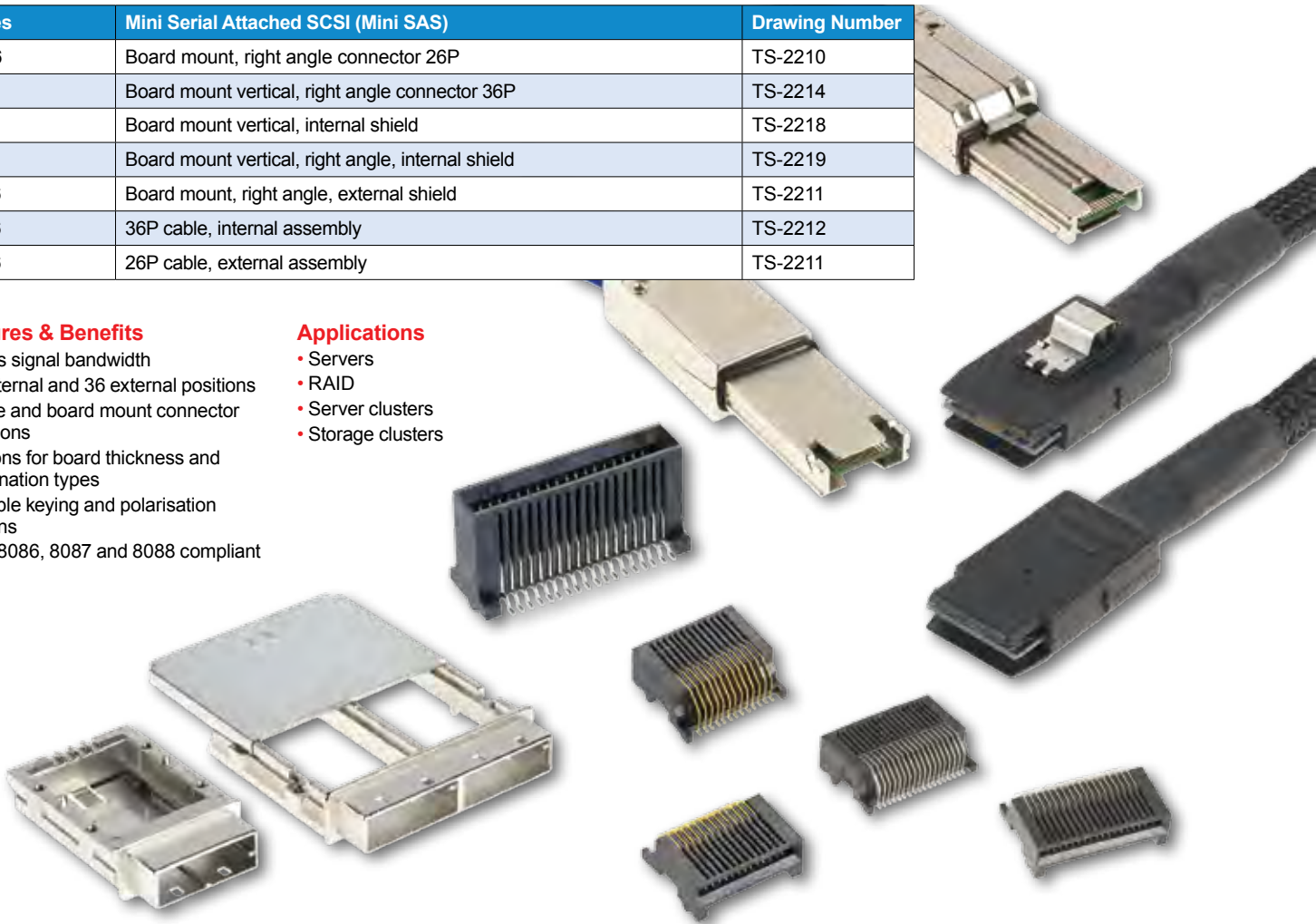
3M™ SATA Assemblies

Features & Benefits

- Supports 1.5Gb/s transfer rate
- FMLB contacts for hot swap requirements
- Reduced pin counts (22) and voltage requirements (250mV)
- Assemblies offer separate power & signal cables to allow discrete and unitised backplane solutions
- Rugged overmould cable assembly construction provided in standard lengths
- RoHS compliant solution

3M™ Compact Flash™ II

Features & Benefits

- Headers mate with both Compact Flash™ II type 1 and type II cards
- Polarisation for top or bottom board mount option
- Guide rail mounted ESD clips
- Optional 2mm standoff version
- Short and long guide options
- Meets CFA standards
- RoHS compliant solution

3M™ Card Connector microSD™, 2900 Series, 2908-05WB-MG

Features & Benefits

- 1.85mm low-profile height
- Small size of 14 x 14.2mm footprint
- Smooth push-push eject mechanism
- Card polarisation
- Will accept a card thickness of 0.8mm
- Card detection indicator
- Metal-shielded cover
- MicroSD™ specification compliant
- RoHS compliant

3M™ Connector for CFast™ Memory Card

Features & Benefits

- Headers mate with both CFast Type I and Type II cards
- Extended guide rails enable accurate and easy card insertion
- Single-row surface mount solder tails facilitate auto placement and IR soldering
- Optional 2mm board standoff enables board population
- Meets CFA standards for known compatibility and reliability
- Optional ejector and card retainer can be purchased pre-assembled or separately
- Integral side solder tabs with card grounding feature help prevent the card from "flying" out of the header during ejection

3M™ Industrial RJ45 Modular Plug, 3R108 Series

Features & Benefits
- Allows customers to use only the cable length they need
- Easy and reliable IDC termination with no special wire prep; no stripping, tinning or special tooling
- Compatible to double-shielded Cat5e cables
  - Solid Wire: AWG 24
  - Stranded Wire: AWG 24-26 (7 wires)
  - Max Diameter: 6.8mm
- Robust structured latch helps minimise breakages
- 4-side shielding
- Compact length: 44mm

Applications
- Programmable logic controller (PLCs)
- Remote I/Os
- Human machine interface (HMIs)
- Industrial PCs
- Industrial robots
- Inspection cameras
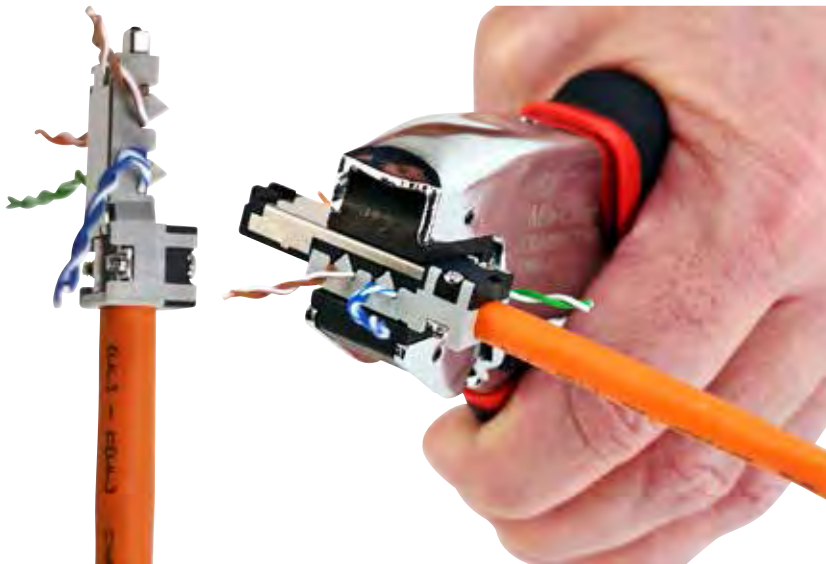
3M™ Mini Clamp Connectors

Features & Benefits
- 2mm pitch, 3 or 4 contacts
- 36 wiremount types for different wire diameters and wire gauges
- 18 boardmount types, though hole and SMT
- IDC termination
- Semi transparent covers for visual inspection
- Latches for rugged performance applications

3M™ Power Clamp Connectors
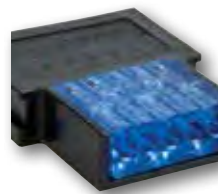
Features & Benefits
- 3mm, IDC, 5-position
- Wiremount plug and socket connectors for different wire diameters and wire gauges
- Current rating up to 10A
- One touch latching mechanism
- Semi transparent covers for visual inspection

3M™ Link Connectors

Features & Benefits
- Hermaphroditic wiremount connector
- 9 types for different wire diameters, wire gauges
- Vertical and horizontal boardmount types
- Suitable for open CC Link standard
- T-Tap termination enables mid-cable terminations
- Latches for rugged performance applications

3M™ Cables for Power Clamp and Link Connectors

Features & Benefits
- 2 shielded, jacketed, 4-position roundcable for power clamp products
- 1 shielded, jacketed, 4-position roundcable for link connectors (CC-Lin applications)
- 2 flat ribbon cable, blue or colour coded

External Mini-SAS Connectors and Cages

Features & Benefits
- High speed I/O connector system: 26-position SMT connector used with zinc die-cast EMI cage provides gigabit serial data transmission signal speeds
- Rated for 3Gb/s, capable up to 10Gb/s
- Connector available with enhanced SMT tabs for improved PCB retention
- RoHS compliant
- Compliant metal gasket on external cages provides excellent mechanical performance and EMI suppression
- Compliant with SFF 8086, 8087 and 8088
- Various port keying configurations available
- Single and multiport versions available
- Cage is mounted separately from connector so stresses imposed by mating cable plug do not affect connector solder joints
- New Amphenol design

Applications
- Storage devices
- Servers
- Networking
- Peripheral device connections

SFP

Features & Benefits
- Full range of SFP electrical connectors and cages
- RoHS compliant
- Speed ratings higher than SFP specification
- Custom cages available
- Light pipes, heat sinks, enhanced EMI control
- XFP cages and connectors available

Applications
- Servers, routers, storage devices, switches, optical networking devices

InfiniBand™/External SAS/CX4

Features & Benefits
- Full range of lanyard latch and thumbscrew receptacles and plug kit available
- Variety of hardware options available RoHS compliant
- Superior EMI performance
- Unique patent pending belly-to-belly design
- Custom mounting available

Applications
- Routers, servers, storage devices, HBA cards, SANs

QSFP+

Features & Benefits
- Product families:
  – QSFP+ for data rate 10Gbps
  – ExpressPort™ QSFP+ with Resonance Cancellation, for data rate 14Gbps
  – ExpressPort™ QSFP+ E Series, for data rate 25.7Gbps
- Resp. QDR, FDR and EDR Infiniband
- For passive, active and optical cable
- Stacked version available

SAS/SATA

Features & Benefits
- Full range of internal board mount connectors available
- Board mount and cable mount available
- Variations: through-hole, surface mount, press-fit, right angle, vertical, horizontal
- RoHS compliant

Applications
- Motherboards, backplane, storage systems, servers, set top boxes, game consoles, cable assemblies

AMPHENOL

Amphenol's broad range of I/O registered jacks (RJ) offer solutions to meet the increasing demand for faster speeds and greater bandwidth required by telecom & networking markets for VoIP, Ethernet, WLAN, and other applications. Amphenol is currently employing the latest available technological innovations within each component of its RJ connectors to ensure the most stringent market demands are met. With the variety of available options coupled with exceptional performance and reliability, Amphenol has the solution for your RJ requirements.

Added to the line are rugged modular jacks. Protection is provided for up to IP68 applications. Unique in the industry are Amphenol's Modular Jacks with high temperature LED's. They can easily withstand the heat of the reflow soldering process, thus avoiding a dual solder process and resulting in saving time and money.

Amphenol I/0 Modular Jacks (RJ)

Features & Benefits
- Right angle (side entry)
- Vertical (top entry)
- Stacked versions
- 1, 4 and 8 port configurations
- Category 5e
- EMI quite
- With or without LED's
- With or without magnetic (RJMAG)
- Filtered and shielded versions
- High, standard, low and ultra low profile
- Rugged versions
- Heat resistant LEDs

Applications
- Desktop
- Notebook
- Server
- Router
- Switches

Rugged version:
- Medical equipment
- ATM machines (rugged version
- Military vehicles
- GPS positioning equipment

RJLSE Series

Features & Benefits
- RJ45 and RJ11 configurations
- Colour options for keying requirements
- RoHS compliant
- High temperature material suitable for Pb-free solder reflow processes
- Contact coplanarity maintained to industry standard of 0.004
- Suitable for vacuum pick-and-place

RJSAE Series

Features & Benefits
- RJ45 and RJ11 configurations
- RoHS compliant
- Shielding and filtering available for enhanced EMI performance
- Variety of LED colour options
- Constructed with high temperature material
- Stacked RJ feature enables more ports with same board space

RJHSE Series

Features & Benefits
- RJ45 and RJ11 configurations
- RoHS compliant
- Variety of LED and shielding options available
- Single, multiport, right angle and vertical port options
- EMI Quiet Modular Jack

RJSSE Series

Features & Benefits
- RJ45 in surface mount
- Meets Cat 5 Ethernet performance
- Available in shielded and unshielded, with or without light pipes and in single port, 2 ports and 4 ports

MRJ Series

Features & Benefits
- RJ Rugged version for harsh environment applications
- IP67 protection per IEC60529 specification
- Data rates conform to Gigabit Ethernet (100Base T) Protocol
- Options: with RJ45, with cable header, with terminal block, with PCB for wiring
- Epoxy-free design (MRJR Series) for IP68 protection

D-Sub Stamped and Formed Connectors, SD and HD Series

Solder	L717	SD	E	09	P

Shell Style
717 = Tinned and dimpled plug
77 = Tinned socket

Series

Shell Size E, A, B, C, D

Contact Type
P = Pin   S = Socket

Number of Contacts
09, 15, 25, 37 or 50

Straight PC	L717	SD	E	H	09	P	OL2	RMB

Shell Style
717 = Tinned & dimpled plug
77 = Tinned socket

Series

Shell Size
E, A, B, C, D

Mounting Type
H = Rear insert 4-40UNC
G = Rear insert M3
No digit = Standard through-hole

Mounting Options
RM5 = Boardlocks
RM8 = Boardlocks and screwlocks

Termination Style
OL2 = Straight PC

Contact Type
P = Pin   S = Socket

Number of Contacts
09, 15, 25, 37 or 50

High Density	L77	HD	B	44	S	D1	CH	4R

Shell Style

Series

Shell Size E, A, B, C

Number of Contacts 15, 26, 44, 62

Contact Type P = Pin   S = Socket

Mounting Options
4R = Rear insert 4-40UNC
3R = Rear insert M3
4F = Front screwlock 4-40UNC
3F = Front screwlock M3

PCB Locking Type
Grounding tabs and boardlocks

Right Angle PC	L77	SD	E	09	S	1A	CH	4F

Shell Style
77 = Gold flash tinned shell for receptacle
717 = Gold flash tinned shell and dimpled for plug
177 = Tinned shell for receptacle
777 = Tinned shell and dimpled for plug

Series

Shell Size
E, A, B, C

Number of Contacts 09, 15, 25 or 37

Mounting Options
4F = Front screwlock 4-40UNC
3F = Front screwlock M3
4R = Rear insert 4-40UNC
3R = Rear insert M3

PCB Locking Type
CH = Grounding tabs and boardlocks

Termination Style
1A = European standard (10.2mm)
A4 = MIL (8.1mm)

Contact Type P = Pin   S = Socket

Features & Benefits

- Real economical connector series
- From 9 to 78 contacts
- Three quality levels: 100, 400 and 500 mating cycles
- Operating temperature up to 125˚C
- Current rating: 3A – 5A
- Standard and high density solder cup, straight and right angle PCB versions
- Crimp series available (RR and HR Series)
- High temperature series for reflow process

Applications

- Data processing (mainframes, mass storage and workstations, etc.)
- Industrial equipments (calculators, robots, variable speed transmission and UPS, etc.)
- Telecom equipment (base stations, switches and transmitters, etc.)

CoolPower™ D-Sub – LCC17 Series

Features & Benefits

- High current CoolBand® or RADSOK® power contact technology
- Intended for use in higher power distribution applications (current rating 55A Power contact)
- Low T-rise, low contact resistance
- 3W3 contact arrangements
- PCB solder tail, solder cup, crimp terminations
- Interchangeable with standard combo D-Sub contact arrangements

Applications

- power supply, medical diagnostic equipment, industrial control

D-Sub Hybrid Connectors TW Series

Features & Benefits

- 19 different configurations providing all-in-one solution
- Cable and PCB versions
- Compatible with reflow process (high temperature plastic)
- Power contacts up to 60A
- 50Ω and 75Ω coaxial contacts

Applications

- Power supply, low and high frequency signal, etc.

MDB & MDBR Rugged D-Sub

Features & Benefits

- D-Sub rugged version for harsh environment applications
- Available in 9 pin standard pin and socket connectors and 15 and 26 pin high density pin and socket connectors
- Termination options include PCB tails and solder cups
- Protection is provided for up to IP68 applications per IEC 60529 specification

Flat Ribbon IDC D-Sub DFR Series

Features & Benefits

- Designed for flat ribbon cables 1.27mm pitch
- Exists in sizes E09 to C37
- Delivered with plastic strain relief
- Screwlocks and rear inserts mounting options

Applications

- Flat ribbon cable assemblies and bus cables, etc.

RF Coax Series

Amphenol 50Ω BNC connectors are miniature, lightweight units designed to operate up to 11GHz and typically yield low reflection through 4GHz. Designed to accommodate a large variety of RG and industry standard cables, BNC connectors are available in crimp/crimp, clamp/solder, SURETWIST and field-serviceable termination styles. A full line of printed circuit board receptacles, bulkhead receptacles, resistor terminations and other accessories complement the product offering.

Amphenol also offers a full line of 75Ω BNC connectors to meet the needs for higher performance impedance-matched cable interconnections. These connectors can be used in a variety of applications where true 75Ω performance is needed to insure low signal distortion. Designed for the most popular 75Ω cables used in broadcast and CATV applications as well as for plenum and other cables, these connectors feature crimp/crimp cable affixment for quick and reliable installation.

Features & Benefits

- Bayonet coupling mechanism provides quick mating and unmating
- 50Ω and 75Ω impedance designs allow customers to match impedance to system requirements
- 50Ω and 75Ω connectors are intermateable to ensure non-destructive mating
- 3 grades of connector are available for military, industrial and commercial applications
- Base stations

Applications

- Antennas
- Broadcast
- Radios
- Telecom
- Computers/LANs

SMA
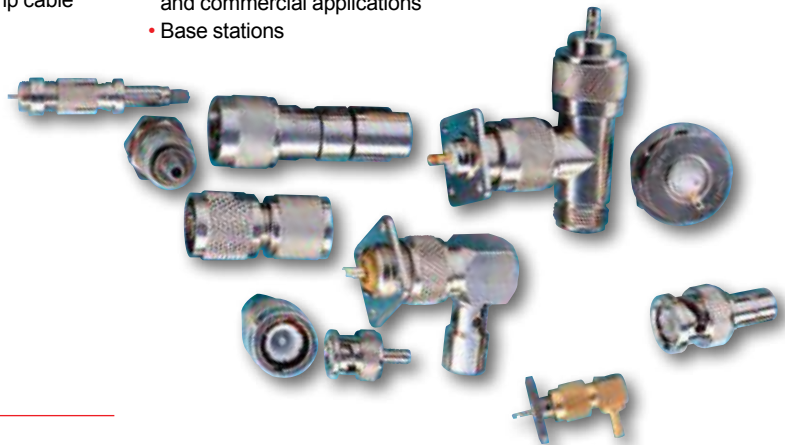
Features & Benefits

- SMA is available both in standard and reverse polarity
- Provide excellent electrical performance from DC to 18GHz
- Available in nickel or gold plating which provides approximately 30% cost reduction with 250 mating cycles

SMB

Features & Benefits

- Broadband performance with low reflection DC to 4GHz provides low cost connector and high quality
- Quick connect/disconnect snap-on mating reduces installation time
- Various plating options in nickel and gold: corrosion resistance finish, good solderability characteristics
- SMB PCB slide-on plug and jack allows board-to-board mounting with a low insertion force. This is ideal for mating a high number of connectors on a pair of PCBs

Rugged Coax Connectors

Features & Benefits

- Available in N & TNC Series
- Delivers exceptional RF broadband performance DC to 6GHz
- Protects equipment from water and dust ingress with a proven IP67-rated solution in both mated and unmated conditions
- Reduces Total Cost of Operation through Extended Product Life:
  – Durable single-piece body construction to withstand rigorous shock and vibration conditions
  – Resistance to UV and harsh chemical environment
  – Water and dust protection

MCX

Features & Benefits

- The MCX uses identical inner contact and insulator dimensions as the SMB but is 30% smaller than the SMB
- MCX provides broadband capability though 6GHz with a snap-on connector design
- Accommodates a wide range of miniature RG flexible coaxial cables, including semi-rigid cable. This provides customer flexibility in their design and manufacturing

HD-BNC

Features & Benefits

- 4 times the density of standard BNC
- True 75Ω impedance end to end
- Robust bayonet locking system
- Meets and exceeds SMPTE 292M and 424M standards
- Available for most broadcast cables
- Compatible with the present field installer tooling and strip dimensions

MMCX

Features & Benefits

- MMCX is a micro-miniature connector series with a lock-snap mechanism allowing for 360° rotation enabling flexibility in PCB layouts
- The micromate family of products is a 6GHz 50Ω interconnect system
- A range of connectors are available including surface mount, edge card and cable connectors

MIL-DTL-38999

MIL-DTL 38999 connectors are designed and approved to meet the most stringent requirements of the military and aerospace industry. Within the connector range, Amphenol produce 4 series of connectors. These cover low-profile lightweight to ruggedised scoop proof connectors. All connectors are rated at 175˚C for olive drab finish and 200˚C for electroless nickel. A cadmium free olive drab version is available. Contact counts in the connectors range from 1 to 128 with 5 sizes of contact and over 100 insert planforms available. With this broad range a MIL-DTL-38999 connector is suitable for the majority of harsh environment applications.

Features & Benefits

- JT – Lightweight low-profile bayonet connector. Ideal for use in avionics box and other limited space conditions
- SJT – A lightweight scoop proof bayonet connector intermountable with MIL-C-26482 type connectors. Currently used on European military aircraft
- LJT – A range of rugged scoop proof bayonet connectors suitable for general duty applications, i.e. ground support systems
- TV – Highest performance connector with quick threaded coupling mechanism. Used in high vibration and EMI/RFI environments and on portable communication systems. A stainless steel connector firewall version is available for use on engine harnesses

Applications

- Eurofighter avionics
- AS90 data and electrical
- Bowman
- High-vibration avionics areas
- Harsh environment electrical connections
- Shielded and sealed communications

Eco|mate Circular Connectors

Features & Benefits

- Circular connectors with 3+PE & 6+PE contacts
- Housing components made from premium moulding material
- Cable housing straight or angled
- Protection class IP 65/67 in mated condition in accordance with DIN EN 60526
- Clamping ring or internal strain relief
- Quick and easy assembly
- Screwed cable gland with clamping ring
- Strain relief and mounted gasket all in one component
- Cable housing, straight or angled, for the cable diameter 6mm-12.5mm
- Robust thread for the screwed cable gland
- Ergonomically designed product range for safe handling
- Pre-loaded ground contact
- Fastening for the protective caps on the housing of the receptacles

PCB Slimline
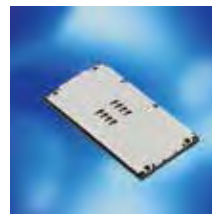
Features & Benefits

- Extremely small dimensions (56 x 30 x 3)
- Tap proof contact design to match PCI (Payment Card Industrie) specification
- Protected switch
- Metal cover to avoid the insertion of two cards
- Pick & Place assembly
- SMT solderable
- EMV (Europay Mastercard VISA) compliant

Mil-5015 97 Series

Features & Benefits

- MIL-5015 type circular connector
- DAP hard insert with solder or crimp contacts UL-V0
- UL/CSA listed
- 128 insert arrangements
- 1 to 52 circuits

Amphe-Lite Multi-Pin Cylindrical Connectors

Features & Benefits

- EMI shielding
- Ideal for a wide variety of harsh environments
- Commercial and industrial applications
- Environmentally resistant to IP67
- Lightweight and corrosion resistant
- RoHS compliant connectors
- Shell sizes 9 through 25

RoHS Compliant EU2002/95/EC

Amphenol®

SurLok™ Compression Lug with Plastic Housing using RADSOK® Technology

The SurLok™ non-environmental compression lug is a field installable, highly reliable alternative to common compression lugs. An industry-standard U-Indent/Clamshell or 4-indenter crimp tool may be used to perform the termination on the wire, thus eliminating the need to purchase special torque tools.

The head of the pin locks into place once mated to the RADSOK® connector. The plastic housing snaps over the connector and acts as a protective cover. The plastic housing is available for all sizes. This secure connection ensures voltage and amperage levels will be maintained throughout the duration of the application.

The RADSOK® high amperage contact technology utilises high tensile strength properties of the stamped and formed, high conductivity alloy grid to produce the low insertion force while maintaining large conductive surface area.

Features & Benefits
• High current rating, high ampacity in a smaller package
• High reliability – meets or exceeds the electrical performance of bolt-on compression lugs
• Easy field install – crimp with standard colour-coded dies (U-die and 4 indenter). No torque wrenches required
• Integral locking feature plus locking cap
• RADSOK® technology boosts the ampacity by 50% or more compared to mil-spec contacts. RADSOK® contacts provide the advantages of low insertion force and high cycle durability
• RoHS compliant
• Ideal markets include medical and test equipment, process control, heavy equipment and rail

Applications
Any applications that use high current, frequently plugged and unplugged cables or a "plug and play" setup would be an ideal "fit" for the SurLok™.
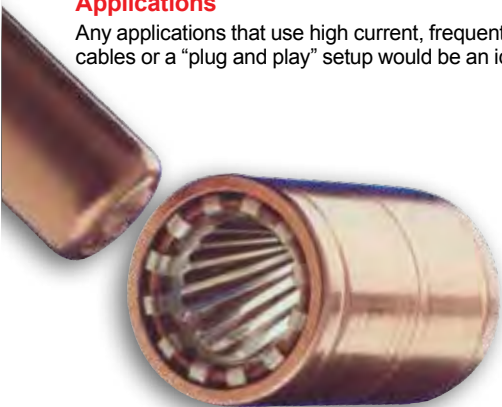
RADSOK®

A RADSOK® is a RADial SOcKet contact. It was developed from a flat stamped grid twisted into a HYPERBOLIC geometry to form a socket contact with unique characteristics.

Features & Benefits
• Up to 50% more ampacity with same size contact
• Less heat generation
• High cycle durability
• Low insertion force
• High pin to contact ratio
• Smaller package size
• Low voltage drop
• High reliability

Applications
• Automotive
• Microwave/RF components
• Commercial equipment
• Telecommunications
• Medical equipment
• Industrial equipment
• Military and aerospace

Amphe-PD Series Connector

Features & Benefits
• UL listed at 69A
• CSA listed at 55A
• Supports 80A continuous duty
• Dual pole PCB, busbar or crimp receptacle, TUV touch proof
• Crimp plug with RADSOK® contacts with locking mechanism

PPM Series Connector

Features & Benefits
• 12mm or 16mm housings
• 2 to 12 contacts of 1mm – 2.5mm in diameter
• Designed to IEC 61984
• Flammability rating of UL94V-0 and IP55 to IP67 sealing
• Operating temperature range: -40˚C – +100˚C

Amphenol Spectra-Strip is the world's premier manufacturer of high reliability, high bandwidth copper cables for applications such as SFP+, QSFP+, SAS 3.0, IEEE 802.3bj and FDR/EDR InfiniBand. In cables such as this, minimum insertion loss and deviation, minimum mode conversion and flattest possible frequency response over a wide frequency band is critical for successful signal recovery in either active or passive cables. Precision extrusion, pair shielding, and cabling are key elements necessary for consistent performance.

EXD™ US Patent 7,790,981 B2

Features & Benefits
- Unique structure eliminates high frequency resonance and also improves insertion loss

Applications
- EXD is the patented next generation solution for very high frequency applications (20GHz and over) where the periodic structure of traditional spiral shield constructions in the twinax pair shield design causes a resonance of attenuation response at high frequency

EXF™

Features & Benefits
- Spectra-Strip's family of extended frequency "EXF" SkewClear® high precision cables are foam PE spiral shield constructions
- Due to their foam PE construction, they are somewhat smaller and more flexible than the EXD solid PE cables, and are good for frequency applications up to 20GHz

Applications
- Designed for higher frequency applications such as SFP+, QSFP+, CXP, InfiniBand FDR, 40GBASE-CR4 and Mini-SAS HD for SAS 3.0

Single Pair Skewclear Cables

Features & Benefits
- Depending on the application, Single pair 100 and 85Ω SkewClear cables are typically insulated with foam or solid PE dielectrics, and come with either centre or side drain configurations
- Available in EXF (EXtended Frequency) and EXD (EXtended Distance) performance specifications
- Cables are manufactured with a heat sealed clear polyester overwrap on top of the pair shield in order to provide a high degree of mechanical robustness and electrical isolation from adjacent pairs

Applications
- Typically used for short length/high frequency (10GHz – 25GHz) flexible backplane applications where even new "low loss" board dielectrics are too lossy.

Flat Skewclear SAS cables

Features & Benefits
- Spectra-Strip's new family of 100 and 85Ω laminated flat SkewClear® high precision SAS cable is optimised to save space inside SAS drive bays, where traditional internal SAS cables cannot fit
- Consistent electrical compliance to all current SAS specifications
- Cables are typically 4 or 8 pair, with varying quantities of sideband signal wires, depending on the application

Applications
- Designed for high frequency applications
- SAS drive bays

Flat LPF™ cable

Features & Benefits
- LPF (Low Profile Flat) is a new family of planar Skewclear construction designed for high frequency applications where the cable must be bent and folded very tightly with no electrical degradation. Incorporating a longitudinal shield, it has flat frequency response out to 30GHz. Cable edges are also insulated with a proprietary edge insulation system. Available in 100Ω or 85Ω

Applications
- Designed for high frequency applications where the cable must be bent and folded very tightly with no electrical degradation.

RJ Field

RJ Field allows you to use an Ethernet Class D/Cat. 5e connection for 10 BaseT, 100 BaseTX or 1000 BaseT networks in harsh environments.

With the patented RJStop® system you can use a standard RJ45 cordset in a metallic plug which will protect it from shocks, dust and fluids.

No hazardous on-field cabling and grounding!

Features & Benefits

- Compliant with IEC 60603-7 variant 11
- Bayonet coupling ("Audible and Visual" coupling signal)
- Robust metallic shells based on MIL-C-26482
- RJ45 cordset retention in the plug: 100N in the axis
- Mating cycles: 500min
- Sealed against fluids and dust (IP67)
- Shock, vibration and traction resistant
- No cabling operation in field and no tools required
- Mechanical coding/polarisation (4 positions)

Data Transmission

10 BaseT, 100 BaseTX and 1000 BaseT networks Cat 5e per TIA/EIA 568B and ClassD per ISO/IEC 11801

Applications

- Robotics
- Industrial process control
- CNC machines
- Special machines
- Oil and gas
- Motion control
- Data acquisition and transmission in harsh environments
- Tele-maintenance

USBFTV Series & Rugged USB Memory Stick

Features & Benefits

- Reinforced USB 3.0 keys, derived from MIL-DTL 38999 Series III
- IP 68 and can resist harsh shocks and vibrations
- Coupling mechanism is capable of registering and transferring data in the most extreme conditions
- Tested according to MIL-STD810F norm
- Compatible with any USB 2.0 port & USBFTV Series receptacles

RJF RB – RJFast

Features & Benefits

- Sealed against fluids and dust (IP67)
- Shock, vibration and traction resistant
- No cabling operation in field, no tools required
- Reverse bayonet coupling
- RJ45 cordset retention in the plug: 70N in the axis
- Mating cycles: 500min

RJF TV

Features & Benefits

- Sealed against fluids and dusts (IP67)
- Shock, vibration and traction resistant
- No cabling operation in field and no tools required
- Mechanical coding/polarisation (4 positions)
- Improved EMI protection
- Tri Start Thread coupling mechanism (MIL-DTL-38999 Series III type) with anti-decoupling device
- Robust metallic shells
- RJ45 cordset retention in the plug: 100N in the axis
- Mating cycles: 500min

Military Ethernet Switch

Features & Benefits

- Full MIL-STD compliant
- Managed and unmanaged available
- Can be exposed to EMI &RFI perturbation, vibrations, shock
- IP67 sealed
- Possibility to have a mixed cooper and fibre optic ports

0.3mm & 0.5mm FFC/FPC

Pitch	Series	Height mm	FPC Thickness	Contact	Type	Contact Number	Current Rating	Voltage Rating	Standard Packaging
0.5mm	6210	2.0	0.30	Bottom	ZIF	4P – 30, 33-36, 38, 40, 42P	0.4A	50V	2KPCS/REEL
	6212	2.0	0.30	Top	ZIF	4P – 30, 32-36, 38, 40P	0.4A	50V	2KPCS/REEL
	6214	4.1	0.30	Vertical	ZIF	6P – 30, 40P	0.4A	50V	1KPCS/REEL
	6222	2.0	0.30	Bottom	LIF	5P – 30P	0.4A	50V	2KPCS/REEL
	6223	2.0	0.30	Top	LIF	5P – 30P	0.4A	50V	2KPCS/REEL
	6238	1.1	0.30	Bottom	Flip ZIF	5P – 12, 14-20, 22, 24, 26, 28, 30P	0.4A	50V	
	6239	1.5	0.30	Bottom	Flip ZIF	5P – 30P	0.4A	50V	2KPCS/REEL
	6240	2.0	0.30	Bottom	Flip ZIF	6P, 8, 10, 12-16, 20, 22, 24, 28, 30-50, 54, 60P	0.4A	50V	2KPCS/REEL
	6244	4.1	0.30	Vertical	LIF	"Normal 12, 14, 20, 22 Reverse 16, 18, 21, 23, 24, 26P"	0.4A	50V	1KPCS/REEL
	6251	5.45	0.30	Bottom	Secure Lock	10, 16, 30, 40, 45, 50, 60, 64	0.4A	50V	1KPCS/REEL
	6260	2.0	0.30	Bottom	ZIF	6-30P, 33-36, 38, 40P	0.4A	50V	2KPCS/REEL
	6262	2.0	0.30	Top	ZIF	Same as 6212	0.4A	50V	2KPCS/REEL
	6266	3.5	0.30	Dual	LIF	5P – 7, 10, 11, 13, 18P	0.4A	50V	1KPCS/REEL
	6269	1.5	0.30	Bottom	Flip ZIF	Same as 6239	0.4A	50V	2KPCS/REEL
	6274	4.4	0.30	Vertical	ZIF	31P-50P	0.4A	50V	1KPCS/REEL
	6277	0.9	0.20	Dual	Backlock ZIF	3P-7P	0.4A	50V	2KPCS/REEL
	6282	2.0	0.30	Top	ZIF	45P, 50, 60P	0.4A	50V	
	6284	1.5	0.30	Dual	LIF	5P-12, 14-18, 20, 21, 24, 30P	0.4A	50V	4KPCS/REEL
	6288	2.0	0.30	Bottom	Secure Lock	8P, 10, 12, 15, 16, 20, 24, 26, 30, 40, 50, 55, 60P	0.4A	50V	2KPCS/REEL
	6298	0.9	0.20	Bottom	Backlock ZIF	3P-6, 8, 9, 11, 13P	0.4A	50V	2KPCS/REEL
	6299	0.9	0.30	Bottom	Flip ZIF	20P, 23, 24, 27, 30, 40P	0.4A	50V	2 0R 5KPCS/REEL
	6299	0.90	0.20	Bottom	Flip ZIF	9P, 12, 20, 24, 30, 40, 50P	0.4A	50V	2 0R 5KPCS/REEL
	6800	1.2	0.30	Dual	ZIF	45P, 55, 60P	0.4A	50V	1KPCS/REEL
	6801	5.5	0.30	Vertical	Secure Lock	30, 40, 50	0.4A	50V	1KPCS/REEL
	6882	2.1	0.30	Top	Backflip ZIF	10, 24, 30, 40, 51	0.4A	50V	1KPCS/REEL
0.3mm	6281	1.3	0.20	Bottom	Flip ZIF	15P, 19, 21, 25, 33, 35, 39, 45, 51, 53, 55, 61, 65, 67, 71, 75, 81P	0.2A	50V	2KPCS/REEL
	6283	1.1	0.20	Top	Backlock ZIF	21P, 33, 37, 39, 45, 51P	0.2A	50V	2KPCS/REEL
	6293	0.9	0.15	Dual	Backlock ZIF	9P, 13, 17, 21, 25, 27, 31, 33, 35, 37, 41, 43, 45, 49, 51, 61	0.2A	50V	2KPCS/REEL
	6296	1.0	0.20	Bottom	Flip ZIF	11P, 15, 19, 21, 23, 25, 27, 29, 31, 33, 37, 39, 41, 45, 51, 61	0.2A	50V	2KPCS/REEL
	6841	3.6	0.20	Vertical	ZIF	21P, 23, 27, 31, 33, 35, 39, 45, 51P	0.2A	50V	2KPCS/REEL
	6842	1.2	0.20	Dual	Backlock ZIF	75P	0.2A	50V	2KPCS/REEL
	6843	1.1	0.20	Dual	ZIF	17P, 19, 25, 27, 29, 33, 41, 45, 51, 55P	0.2A	50V	2KPCS/REEL

Features & Benefits

- Compatible products for FFC/FPC thicknesses from 0.3mm to 0.14mm
- Profiles as low as 0.9mm
- The ZIF (Zero Insertion Force) style of connection allows high numbers of mating cycles with minimal wear
- Pin Counts: 3-80
- The cover options guarantee excellent cable retention even in the smallest sizes
- ZIF contacts allow for the easy insertion of low-profile cables
- The secure lock design guarantee excellent cable

Applications

- LCD displays
- Industrial controls
- Military radar and communications
- Security systems
- Telecommunications
- Consumer equipment

5036 – SIM Card Connector

Features & Benefits

- Conforms to GSM standards 11.11
- Positive click spring ejection mechanism
- Available in 6 or 8 positions, with or without slide lock
- Metal shell for EMI protection
- Compatible for automated pick-and-place technology

Applications

- Utility metering asset tracking
- RF modules

5678 Floating Board-to-Board Connector

Features & Benefits

- Floating function: +/-0.4mm at X&Y direction
- 0.8mm Pitch
- Pin counts: 20 – 120
- Stacking height: 10.0mm-19.0mm
- High Frequency capability – PCI Express 2.0, USB & SATA
- Impedance matched design – Impedance: 100Ω+/-15%

Series 6288/6801/6251 Secure Lock FPC/FFC Connector

Features & Benefits

- Available from 8 – 80 circuits
- Colour contrast allows for auto checking by camera
- Shaped cable sits securely in connector and makes almost impossible for accidental removal

Applications

- Automotive: navigation systems, climate control, digital readout displays, heated mirrors
- Security: alarm systems, communications systems, home automation
- Medical: defibrillators, lab equipment, displays, touch panels, infusers

Wire-to-Board IDC Contact & Cap Series 9175, 9176 & 9177

The 917X Series of surface mount Insulation Displacement Connectors (IDC) were developed to meet the harsh automotive and industrial market applications for connecting individual wires directly to a PCB ranging from 14AWG to 28AWG. This industry proven contact system has been tested to automotive levels of shock, vibration, and temperature cycling to prove their reliability and robustness. This new contact was developed as a standalone component to enhance the application uses with the IDC technology. The simplicity of inserting a wire into an SMT contact with a small tool or optional retention/termination cap allows a wide range of devices to be connected to the PCB without soldering. In SSL applications specifically, these contacts are used to bring power and signal onto the PCB or are used to daisy chain multiple boards together in a long string. While the IDC contact provides a gas-tight connection to conductor of the wire, the optional cap provides a positive strain relief even in the harshest conditions. In case of repair, the wires can be removed and replaced up to three times.

The single 9176 Series contact and cap accepts 18AWG to 28AWG wires with an insulation diameter ranging from 1.1mm to 2.1mm. These dual beam contacts support a 10A current rating with a large SMT solder base to provide maximum stability on the PCB. The optional locking strain relief cap acts as the termination tool for severe vibration applications.

Features & Benefits
- IDC contact is supplied in T&R pockets for standard SMT placement
- IDC contact provides a gas-tight connection to the PCB for long term reliability
- Optional termination cap provides additional strain relief for severe environments
- Tested to automotive levels on shock, vibration and temperature cycling for reliability
- Reduced total applied cost versus solder or crimp processes
- Operating temperature: -40˚C – +125˚C

- Individual contacts can be located anywhere on the PCB based on specific application
- Current rating: Insulator version up to 15A, Single Discrete version up to 10A
- Voltage rating: Dependant on component proximity
- Insulator material: Nylon 46; UL94V0
- Contact material: Phosphor bronze
- Plating: Tin over nickel
- Durability: 3 Cycles

Applications
- Connecting discrete wire components directly to the PCB
- Bringing power and signals onto a PCB
- Daisy chaining PCBs together to create a continuous string of boards
- Designed for LED Light Bulb, but possible for other applications requiring rear plug ins
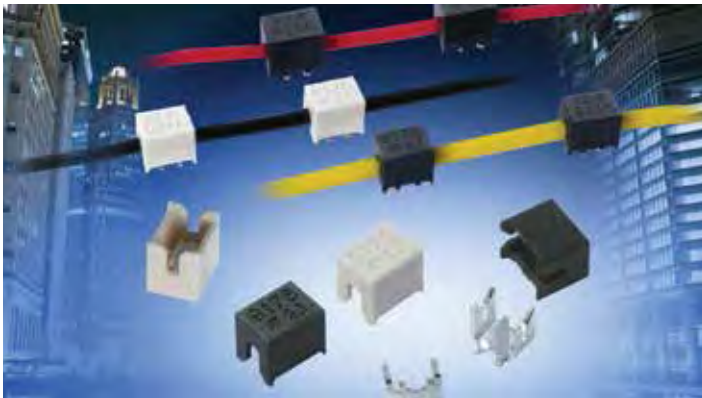
9286 Series Wire-To-Wire Poke Home Connectors
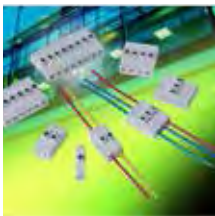
Features & Benefits
- Through-wire version connecting maximum 8 pairs
- Junction box version connecting maximum 8 wires together
- Current rating: 8A per contact (1-way 10A)
- Push button activation for easy wire insertion and removal
- Wires can be mix and matched (different AWGs) within each connector making them very field friendly

9276 Series Wire-To-Board Poke Home Connectors

Features & Benefits
- Wire-to-board connectors up to 8-ways
- Solid and stranded wires: AWG 18-24
- Current rating: 6A
- Tool for simple wire extraction
- Operating temperature: -40˚C – +125˚C

9159 Series Family 2-part connectors
Board-To-Board and Wire-To-Board
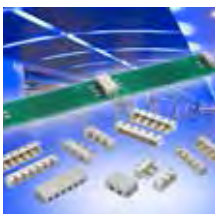
Features & Benefits
- Current rating: 5A
- Board-to-board plug & socket connectors up to 6-way
- Wire-to-board IDC cabled plug & socket up to 6-way
- Horizontal and vertical solution available
- Operating temperature: -40˚C – +125˚C

9159-500 Series Through-Board
Card Edge Connectors
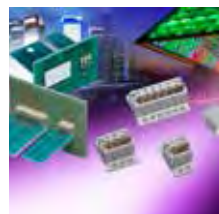
Features & Benefits
- Designed for LED Light Bulb, but possible for other applications requiring rear plug ins
- Perpendicular PCB connection through the rear of the main PCB
- Available 2-6 ways, with a special cover cap
- Low profile top-side height of only 0.6mm (without cap) and 1.0mm high (with cap fitted)
- Current rating: 2A, UL approved, Halogen free

Delphi is a leading global supplier of electronics and technologies for automotive, commercial vehicle and other market segments. Operating major technical centres, manufacturing sites and customer support facilities in 30 countries, Delphi delivers real-world innovations that make products smarter and safer as well as more powerful and efficient.

Global Terminal Series (GT)

Features & Benefits

- In-line connectors
- Headers
- Lever lock
- Mixed
- SlimLine
- Sealed and unsealed configurations
- Tangless terminals
- Low engagement force
- Pump-handle primary lock
- Secondary lock, CPA and TPA capabilities
- Mates to ISO, SAE blades

- Conforms to USCAR design footprint
- Cam lever/mechanical assist or hand engage/disengage
- Optimised content packaging for space efficient terminations
- Pre-staged male blade stabiliser or superior male blade protection
- Mixed terminal capability for design flexibility
- Protected seal interface
- Enhanced terminal meets J2030 standards

Applications

- Ergonomic connections for in-line, device, header, and bulkhead
- Designed for both 1.5mm and 2.8mm blade width applications
- Automotive
- Commercial vehicles
- Agriculture
- Construction
- Marine
- Industrial equipment
- Caravanning
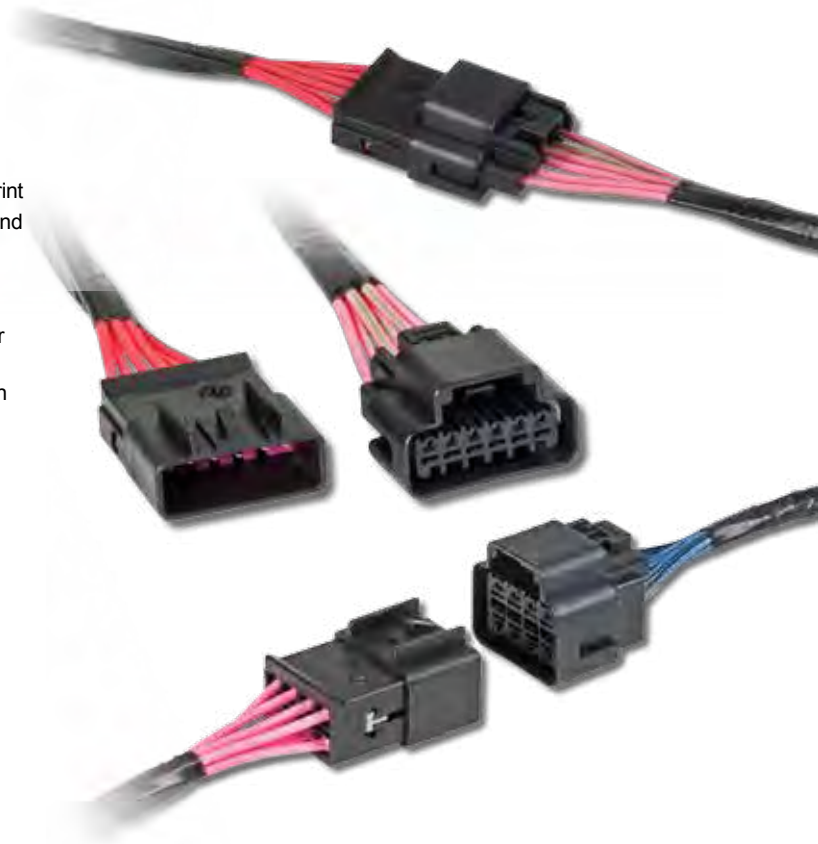
Harsh Environment Series (HES)

Features & Benefits

- Circular connector size 24 shell
- Various terminal sizes and patterns
- J1939 diagnostic connector
- Terminal designed for lower insertion forces
- Size 20 and 16 available
- 3-rib design provides better sealing capability compared to existing industry designs
- Environmentally sealed to IP67
- Robust, specialised finger design virtually eliminates terminal unseats
- Validated for interchangeability with industry standard products

- Male pin and female socket terminal cavity compatible with all industry pin and socket connections
- Frontward/backward compatibility
- Rugged construction to withstand harsh environments
- Sonic welded design provides 360 degrees of contact to withstand high vibration to meet J-2030 standards
- Validated to SAE J-2030 and various other customer specifications

Applications

- Ideally suited for making connections in a vehicle sheet metal firewall pass-through location
- Intended for use in any high density, in-line application
- Commercial vehicles
- Construction
- Agriculture
- Military
- Marine
- Industrial equipment

RF Coax Cable Assemblies

Features & Benefits
- Coaxial cables
- Flexible manufacturing cells allow high volume/low mix and low volume/high mix
- Extensive experience in transportation E/E architecture design and manufacturing
- Fully certified testing/validation lab
- Full participation in global standards activities

Applications
- Ground position sensors and antenna applications
- Commercial vehicles
- Agriculture
- Construction
- Marine
- Motorcycles

Power Pack Series (PP)

Features & Benefits
- Connectors
  – In-line
  – Right angle
- Terminals male/female
- Connector seals
- Cable seals
- TPAs
- CPAs
- Terminal lock seal retainer
- High-current carrying capability
  – Power pack 2,000 – 250A
  – Power pack 1,000 – 145A
- Hand engage/disengage eliminates the need for tools and reduces manufacturing time
- Individually sealed terminal cavities for redundant sealing protection
- Terminal system can mate in the in-line or right-angle direction
- Connector Position Assurance (CPA) and Terminal Position Assurance (TPA) for superior connection reliability
- Robust vibration performance in harsh environments
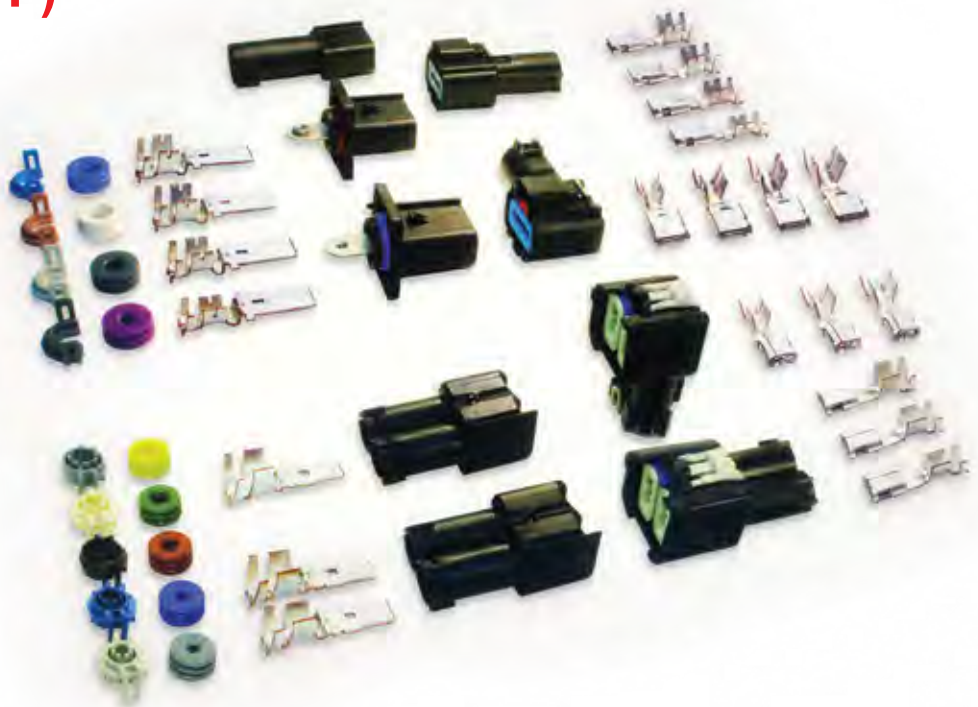
Applications
Delphi's Power Pack Connectors are an ideal fit for high-current/high-power sealed and unsealed applications:
- Electrical centre power feed
- Electric power steering
- Front wall pass-through
- High-current module interface
- Hybrid vehicle modules
- In-line for battery cable
- Automotive
- Commercial vehicles
- Construction
- Agriculture
- Industrial equipment

DELPHI

Power Solutions

Power Solutions℠

PwrBlade® AC/DC Power Distribution Connector System

Features & Benefits

- 48A/individual power contact; 30A/contact for 10 adjacent contacts at 30˚C temperature rise in still air
- 60A/contact using UL test guidelines
- SSI-compliant connector interface for pluggable power supplies and power distribution applications
- Provides power contacts for power distribution and signal contacts for power control
- Number and placement of power and signal contacts are highly configurable for custom power needs
- Power contact spacing options exist for AC (300V maximum), DC (200V maximum) or high-density power (at same voltage)
- Meets applicable UL current interruption criteria for hot plug applications

Applications

- AC/DC pluggable power supplies in data, telecom & datacom/networking
- Server System Infrastructure (SSI)-compliant server systems
- Industrial PCs
- Industrial controls and instrumentation
- Medical

Main Product	Part References
Power+Signal+Power Right Angle Header	51720-1XXXXXXXXX LF
Power+Signal+Power Vertical Header	51700-1XXXXXXXXX LF
Power+Signal+Power Right Angle Receptacle	51760-1XXXXXXXXX LF
Power+Signal+Power Vertical Receptacle	51740-1XXXXXXXXX LF
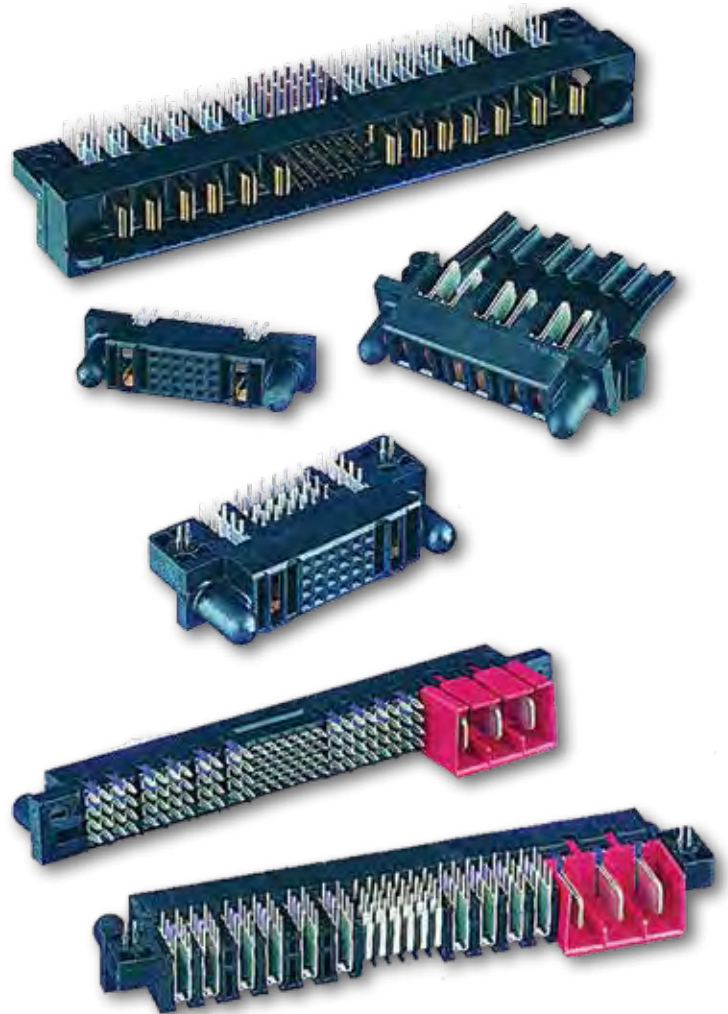
High Power Card Edge (HPCE®)
Next Generation Power Card Edge Connector

Features & Benefits

- Current rating to 9A/power contact beam (with multiple power contacts fully energised) without exceeding a 30˚C temperature rise in still air
- Low profile height (2.8mm for straddle mount; 7.50mm for right angle) maximises airflow for effective system cooling
- One piece assembly enables cost-effective power delivery for 1U and 2U power supplies or power distribution applications
- Highly vented housing design maximises heat dissipation
- Vertical, right angle and straddle mount options are available with both power contacts for power distribution and signal contacts for power control

HCI® – AC/DC High Power Distribution Connector System

Features & Benefits

- Up to 135A/power contact without exceeding a 30˚C temperature rise in still air
- 95A/contact using UL test guidelines
- For high-wattage or high current density needs in power supplies and power distribution applications
- Provides power contacts for power distribution and signal contacts for power control
- Number and placement of power and signal contacts are highly configurable for custom power needs

Pwrblade+™ AC/DC Power Distribution Connector System

Features & Benefits

- High power contact option (up to 75A/contact; a 30˚C temperature rise in still air for cost effective power delivery in 1U and 2U power supplies or power distribution applications
- Low power contact option (up to 49A/contact; 30˚C temperature rise in still air) for applications with multiple voltages and lower power requirements
- Highly vented housing design maximises heat dissipation for effective cooling
- Half-bullet guides offer a reduced connector footprint
- Housing material is halogen-free for next generation environmental requirements

Pwr Profile+™ Low Profile I/O Cable Assemblies

Features & Benefits

- Current rating to 37A/contact for two contacts without exceeding a 30˚C temperature rise in still air
- Compact design is ideal for limited space applications
- Low 8.38mm profile height maximises airflow for system cooling
- Vented cable housing maximises heat dissipation
- Two signal contacts are available for presence detection or power control

Board-to-Board & Wire-to-Board Modular systems

BergStik®/Dubox™/Quickie®/PV™ 2.54mm Modular System

Features & Benefits
- Versatile 2.00mm and 2.54mm modular system includes board-to-board, wire-to-board and flat cable interconnects, offering complete design flexibility
- Selective plating is reliable and economical
- Bergstik unshrouded headers available in custom configurations

Applications
- Electronic equipment or devices requiring a parallel, planar or perpendicular board-to-board, wire-to-board or flat cable Interconnects
- Uses span industry segments (e.g. base stations, nearing equipment, industrial control)
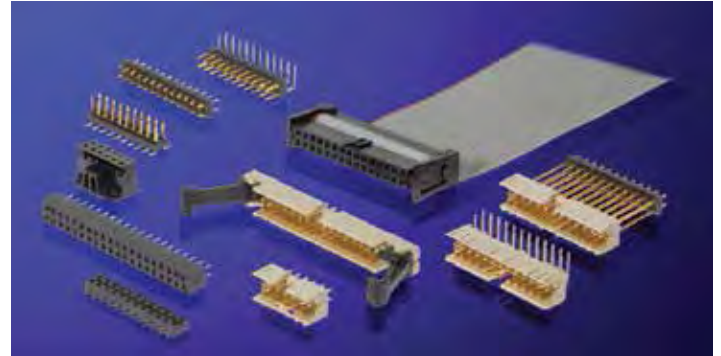
Main Products	Type	Part References
BergStik® Unshrouded Headers	Straight	77311/77313/95293/95278/98401/67997/68000/68001/68002/67996/68602
	Right-angle	77315/77317/68015/68020/68016/68021
	Stacking	54111/54121/54112/54122/54242
Dubox™ Shrouded Headers	Straight	76384/76385
	Right-angle	76382/76383
PV® Shrouded Headers	Straight	69167/69168
	Right-angle	78208/78207
Dubox™ PCB-Mounted Receptacles	Vertical	91601/89898/91614/91615/91618/71991/87606/76341/76342/71991/75915/71920/89891
	Horizontal	71607/71609/89882/89883
Crimp-to-Wire Receptacles	Dubox™ contacts	76347/76357
	Dubox™ housings	65239/65240
	PV® contacts	Master print 47212/75543
	PV® housings	65039/65043/65846/78211
Quickie® IDC System	IDC receptacles	71600/69830
	Eject latch headers	71918/71922
	Low-profile headers	75867/75869/10056844/10056845/72454
Shunts		68786/69145/63429

Dubox™

Features & Benefits
- Reliable and cost effective modular system
- Designed for 2.54mm grid stacking
- Board-to-board and wire-to-board interconnections
- Broad range of single and double row receptacle housings, board mounting headers and contacts

BergStik®

Features & Benefits
- 2.54mm modular system 1 or 2 rows
- Can be broken to length manually or with special tooling
- Drawn (not stamped) 0.62mm square wire presenting 4 equal quality surfaces, also suitable for wire wrapping
- Standoffs allow cleaning to eliminate soldering contaminations

Quickie®

Features & Benefits
- Versatile 2.54mm modular system includes wire-to-board and flat cable interconnects
- Selective plating is reliable
- Range: 2 x 2 to 2 x 36 positions
- Industry standard IDC connector system
- Also available in PIP versions

Minitek™ 2mm Modular System

Features & Benefits
- Everything inter-mateable
- The most complete 2mm system ever! Board-to-Board, Wire-to-Board, Flat Cable-to-Board
- 38% less board space, yet fully equivalent to 2.54mm BergStick®, Dubox™ etc.
- Lowest profile eject header
- Lowest coplanarity at 0.1mm
- Operating temperature as high as 125˚C

Board-to-Board & Wire-to-Board Modular systems

Minitek 127®

Features & Benefits
- One of the most fully configured systems available
- Intermateable with other common designs, not a proprietary system
- Inventory of the most common parts held at FCI's distribution partners
- True global coverage
- Simple to find your part using
- Online product selector
- Easy-to-use printed catalogue

Applications
- Data
- Communications
- Industrial and instrumentation
- Machine to Machine (M2M)
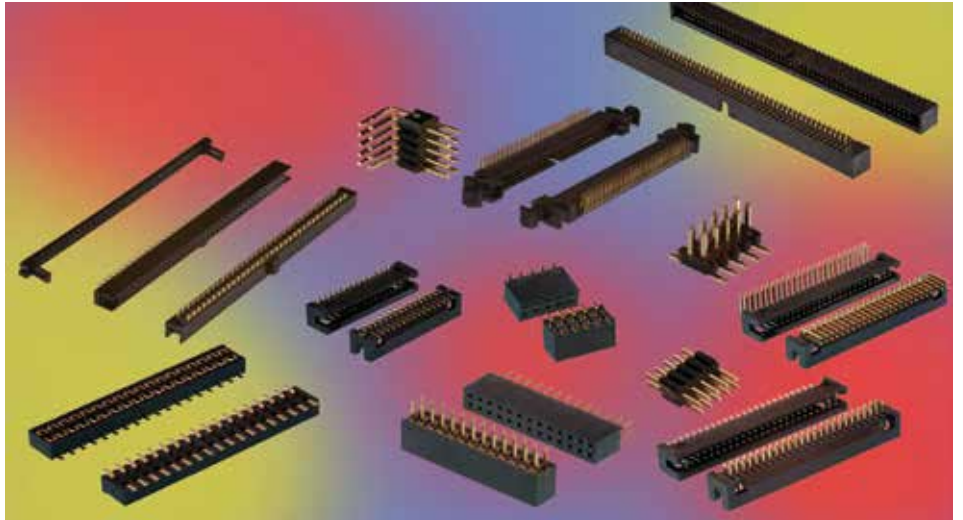
Main Products	Part References
Unshrouded headers	20021111, 20021112, 20021121, 20021122
Shrouded Headers	20021211, 20021212, 20021221
PCB Receptacles	20021311, 20021321, 20021323
IDC Receptacles	20021444
IDC Headers	20021511, 20021521, 20021512, 20021611, 20021612/20021621

1.25 Wire-to-Board Systems

Features & Benefits
- Extensive, fully featured system
- Available up to 15 positions
- Straight and right angle
- Through mount and surface mount
- UL approved

Applications
- Consumer
- Industrial and instrumentation
- Machine to Machine (M2M)
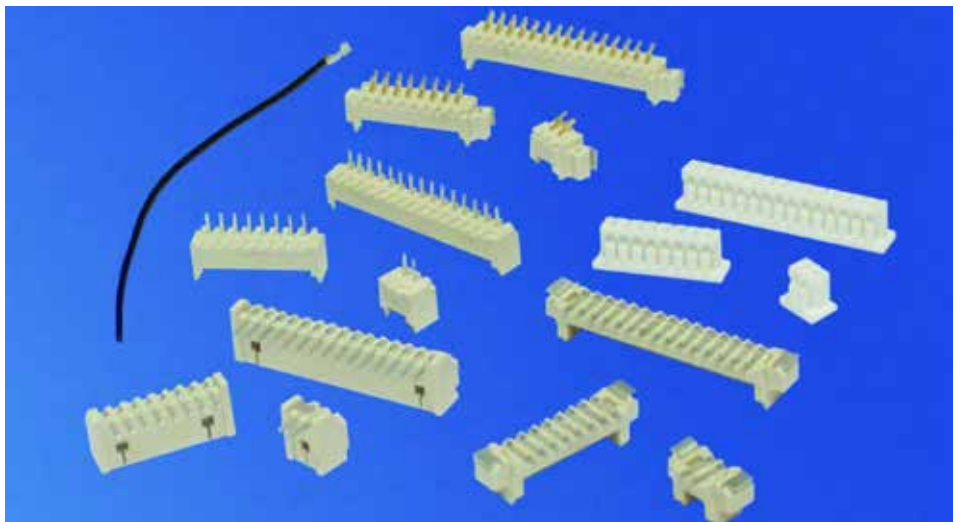
Main Products	Type	Part References
Headers	Vertical, through-mount	10114829
	Right angle, through-mount	10114831
	Vertical, SMT	10114828
	Right angle, SMT	10114830
Housing		10114826
Contact		10114827

Backplane Connectors

High Speed Backplane Connector Systems

ZipLine™ High-Speed, High-Density Connector System

Features & Benefits

- Supports backplane, coplanar and orthogonal midplane applications
- 6-pair modules with IMLAs on 1.8mm column pitch deliver 84.6 differential pairs per inch of card edge while allowing a minimum 1" card slot pitch
- Provides maximum signal density available at data rates up to 12.5Gb/s
- Use FCI technologies for shield-less design with no metallic plates and closely coupled differential pairs to deliver low insertion loss and crosstalk

AirMax VS® High Speed Connectors for CompactPCI® Serial

Features & Benefits

- Meet the mechanical and electrical requirements of the CompactPCI Serial specification
- FCI technologies for shield-less design with no metallic plates and closely coupled differential pairs deliver low loss and crosstalk
- Support PCI express, SATA/SAS, USB 2.0/3.0 and 10 gigabit ethernet high-speed serial interfaces
- Signal density of up to 184 pin pairs (on 3U) with serial data rates up to 12.5Gb/s

FCI AirMax VS connectors required for the CompactPCI Serial specification

Front Daughtercard Connectors Right-Angle Headers

Designator	Type	Columns	Walls	Positions	FCI Part Number
P6	D	8	4	96	10052838-101LF
P5	C	6	2	72	10052824-101LF
P4 P3 P2	B	8	2	96	10052837-101LF
P1 P0	A	6	4	72	10052825-101LF

Mid Plane Front Side Connectors Vertical Receptacles

Designator	Type	Columns	Walls	Positions	FCI Part Number
J6	F	8	4	96	10052842-101LF
J5	E	6	2	72	10052829-101LF
J4 J3 J2	F	8	2	96	10052842-101LF
J1 J0	E	6	4	72	10052829-101LF

Airmax VS® Quick Selector Guide

Applications	# Contacts per module	# Differential pairs per module	Nominal Plug in Unit Pitch [mm]	Contact pitch (columns)	Heading Drawing Number		Receptacle Drawing Number	Impedance [Ω]
	Back Panel	Gender	Right Angle	Header	Vertical	Receptacle		
"5 pair"	150	50	25	2mm	10025613	10016527	10016537	100
	150	50	25	3mm	10037324	10037323	10035146	100
	150	50	25	2mm	10097311		10099767	85
	150	50	25	3mm	10087771		10099768	85
	120	40	25	3mm	10064489	10064488	10064493	100
	120	40	25	2mm	10041460	10041746	10040993	100
"4 pair"	120	40	20	2mm	10028436	10029391	10028264	100
	120	40	20	3mm	10035515	10035514	10035465	100
	96	32	20	2mm	10052838	10052837	10052842	100
	72	24	20	2mm	10052825	10052824	10052829	100
"3 pair"	90	30	17	2mm	10034249	10034264	10034251	100
	72	24	17	2mm	10045267	10045266	10045271	100
	54	18	17	2mm	10039851	10040862	10043546	100
	54	18	17	2mm	10097256		10096461	85

AirMax VSe® High Speed Backplane Connectors
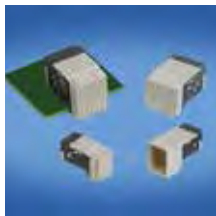
Features & Benefits

- Provides AirMax® system migration path for up to 25Gb/s per differential pair
- FCI technologies for a shield-less design with no metallic plates and closely edge-coupled differential pairs combined with innovative design improvements yield low loss and crosstalk
- Fully backwards mating-compatible interfaces to existing AirMax VS® connectors with minimal changes to connector PCB footprints
- Maintains pin assignment flexibility of AirMax VS open pin field design

Millipacs® 2mm HM System

Features & Benefits

- Hard metric building practices
- Modular system with 5+2-row and 8+2-row high density connectors
- Designed in accordance with IEC 917 and IEC 61076-4-101 as well as CompactPCI hard metric board and cable connector offering
- Extended functionalities: staggered contacts, shielding, keying, guiding, power and coax inserts and shrouds

DIN 41612

Features & Benefits

- Standardised per DIN 41612
- Full interconnect system
  - BTB and I/O solutions
  - Signal and power
- Low cost application solutions
  - Press-fit termination, receptacle and header
  - IDC cable termination

Metral® 1000, 2000, 4000 High Speed Backplane Connectors

Features & Benefits

- IEC 61076-4-104/Telcordia*GR-1217-CORE
- Optimised signal integrity performance and cost efficiency
- Part of the Metral® system to allow performance and cost efficiency
- 2mm square pitch for efficient straight vertical and horizontal routing

*Telcordia® is registered trademark of Telcordia®

Mezzanine Connectors MEZ Select™

MEG-Array® High Speed Mezzanine Connectors

Features & Benefits

- Flexible ground distribution sustains high speed signal integrity up to 28Gb/s
- 1.27mm x 1.27mm array saves space and optimises trace routing
- Proven BGA (Ball Grid Array) termination supports standard, low cost SMT assembly
- Wide range of sizes and stack heights
- Online signal integrity reports and S-parameter models support high speed designs and performance

Applications

- Communications, Data, I&I

GIG-Array® High Speed Mezzanine Connectors

Features & Benefits

- RoHS compliant (lead-free) options are available
- Optimised design for utilisation in high-density, high-speed mezzanine applications
- Ball Grid Array (BGA) termination for process friendly attachment
- 1mm x 0.65mm BGA interface pitch optimises routing and electrical performance

Size	Type	Total Mated Height					
		4mm	6mm	8mm	10mm	12mm	14mm
81 Position 9 x 9	Plug	55714					
	Receptacle	55715					
100 Position 10 x 10	Plug	84512					
	Receptacle	84513					
200 Position 10 x 20	Plug	84516	84516	84516	84530	84530	84530
	Receptacle	84517	55724	84535	84517	55724	84535
300 Position 10 x 30	Plug	84500	84500	84500	84578	84578	84578
	Receptacle	84501	84502 for 5.5mm BTB	84553	84501	84502 for 11.5mm BTB	84553
400 Position 10 x 40	Plug	84740	84740	84740	84520	84520	84520
	Receptacle	74221	74388	74390	74221	74388	74390
240 Position 8 x 30	Plug	74213	74213				
	Receptacle	74217	55755				
528 Position 12 x 44	Plug		10022671				
	Receptacle		10026846				

MEG-Array® Connector Selector – Guide to Plug and Receptacle Drawing Numbers

Rib-Cage™ 1.27mm

Features & Benefits

- Exclusive Rib-Cage™ multi-point receptacle contacts provide optimal reliability in high vibration and shock-prone applications
- High density 1.27mm (.050") x 1.27mm (.050") system for connecting PCBs
- Multiple stack height options
- Polarisation option prevents mis-mating
- Surface mount and through-hole attachment options
- Versatile range of heights

BergStak® 0.8mm Connectors

Features & Benefits

- Vast range of heights and sizes:
  – 5mm-16mm stack heights
  – 40-200 positions
- Precision mini-contact design assures easy mating, long term performance and reliability
- Blade-on-beam contacts prevent "stubbing" and allow "peeling"
- Surface mount product design, mounting and packaging support automated assembly
- Generous lead-in angles and mate polarisation provide worry free mating

Conan® 1mm Connectors

Features & Benefits

- Blade-on-beam contacts prevent "stubbing" and allow "peeling"
- High un-mating force is ideal for portable and mobile electronics
- Snap engagement contacts signal reliable mating with and audible "click"
- Surface mount product design, mounting and packaging support automated assembly
- Generous lead-in angles and mate polarisation provide worry free mating

Mezzostak™ 0.5mm Hermaphroditic Fine Pitch, Mezzanine Connectors

Features & Benefits

- Hermaphroditic design "mates to itself"
  – Consolidates connector selection and documentation
  – Reduces component engineering costs
- Easy, reliable mating
  – Guidance "scoops" permit easy mating when misaligned
  – Polarisation prevents mis-mating
  – Dual-point, long wipe contacts
- High un-mating force insures connection security
- Extreme operating temperature range: -40˚C – 125˚C

Flex Connectors

Pitch	Family Name	Height (mm)	Contact Location	ZIF/NON-ZIF(*)	Part Reference
0.2mm	XL-D	0.9	Bottom	ZIF (FF)	10108361
0.3mm	YLL-D	0.9	Bottom	ZIF (FF)	10061122
	YLL-U	0.9	Top	Non-ZIF (FF)	10064555
0.4mm	SFGL	0.9	Bottom	ZIF (BF)	10117184
0.5mm	VLP	0.7	Bottom	ZIF (BF)	10062827
	SFVL-D	0.9	Bottom	ZIF (BF)	59453
	SFVL-U	0.9	Top	ZIF (BF)	59453
	SFVE	1.2	Top	ZIF (FF)	10054365
	VLL	1.2	Bottom	ZIF (BF)	10051922
	VLH	1.3	Bottom	ZIF (BF)	10042867
	VLK	1.3	Bottom	ZIF (FF)	10076529
	SFV-R	1.8	Top, Bottom	ZIF (SL)	SFVxxR
	OPU-D	2.0	Bottom	ZIF (SL)	62684
	OPU-U	2.0	Top	ZIF (SL)	62684
	VHC	2.0	Bottom	ZIF (FF)	10085901
	SFV-S	4.1	N/A	ZIF (SL)	62674
1.0mm	HFW-R	1.9	Top, Bottom	Non-ZIF	HFWxxR
	HFW-S	5.3	N/A	Non-ZIF	HLWxxS
	HLW-R	3.9	Top	Non-ZIF	HLWxxR
	HLW-S	5.9	N/A	Non-ZIF	HLWxxS
	SFW-R	2.7	Top, Bottom	ZIF (SL)	SFWxxR
	SFW-S	5.3	N/A	ZIF (SL)	SFWxxS
	SLW-R	4.0	Bottom	ZIF (SL)	SLWxxR
	SLW-S	5.5	N/A	ZIF (SL)	SLWxxS
1.25mm	HLEM-S	8.0	N/A	Non-ZIF	HLEMxxS
	HLEM-R	5.0	Top	Non-ZIF	HLEMxxR
2.54mm	Duflex	Contact and Housings			76785/67013/66987
	Clincher	Pre-assembled snap-shut system (mates to PCB Headers)			65801/67516/66226/10027313/10022753
		Shrouded PCB headers for 2.54mm Clincher			95735/95736

(*) ZIF (SL): Slider Action   ZIF/Non-ZIF (FF): Front side flip   ZIF/Non-ZIF (BF): Back side flip

0.30mm Pitch

Features & Benefits
- Heights down to 0.9mm for applications demanding the utmost in miniaturization
- ZIF with prehold
- Surface mount termination
- Front flip actuation to insure easy, error free, cable insertion
- Upper and lower contact options
- Optional cable lock
- RoHS compliant

1.00mm Pitch

Features & Benefits
- Options in 4-30 positions
- ZIF with prehold option or non-ZIF cable insertion
- Vertical and right angle cable insertion
- Through-hole or surface mount board termination
- RoHS compliant on all series

0.50-0.80mm Pitch

Features & Benefits
- Right angle or vertical cable insertion
- 4-60 positions
- Surface mount termination
- Heights down to 0.9mm
- ZIF with prehold to insure error free processing
- Back slide flip actuation for easy error free cable termination
- Robust cable locking
- RoHS compliant

Clincher™ 2.54mm Flex Circuit Connectors

Features & Benefits
- Plug and receptacle
- Available in 2 – 32 positions
- Available with active latch and keying options
- Standard tin or optional gold
- Patented clinching contact technology
- Pre-assembled for mass termination affords lowest applied cost

High Speed Connectors

High Speed
CONNECTI/ONS

Mini SAS/SATA Connectors, Cages & Cables Assemblies For High-Speed Mini SAS or Mini SATA 4x Links

FCI's external Mini SAS/SATA connector, cage and cable assembly system solution addresses the storage industry's demand for more compact, high speed serial I/O interfaces that also support evolving signal speed requirements. Increasing numbers of drives within a system demand additional I/O ports along a card edge, dictating more densely packaged serial I/O solution that meets the bandwidth requirements of current and future applications in servers and external storage systems. FCI's connectors and cable assemblies meet Serial Attached SCSI (SAS) or Serial ATA (SATA) requirements for mini multi-lane external systems thus assuring inter-mateability with standardised port interfaces. Specifically, FCI's mini-SAS/SATA solutions satisfy the applicable requirements of the INCITS T10 SAS2.0 & SAS2.1 specification or the SATA-IO solutions satisfy the applicable requirements of the INCITS T10 SAS 2.0 & SAS 2.1 specification or the SATA-IO Serial ATA specification and conform to the mechanical requirements described in the associated SFF-8086 and SFF-8088 documents. The availability of both mini-SAS and mini SATA compatible connectors, cages and cable assemblies gives the user the option to choose the most appropriate and cost effective link for their respective application.

Features & Benefits: Cable Assemblies

- Ruggedised 26-postion cabling interconnect system is SFF-8088 26-position cabling interconnect system is SF-8088 (shielded-external) and SFF-8086 compatible
- Available options support Mini SAS (SAS 2.0 & 2.1) and Mini SATA 4x external I/O requirements
- Cable assembly paddle card design is optimised for signal integrity and mechanical performance
- Low profile "pull-to-release" latching system provides secure connection and allows stacking
- Adapter, robust EMI Gasket and die-cast backshell assure proper EMI shielding
- Robust cable strain relief system isolates cable termination from mechanical stress
- Reduced backshell protrusion and provides short cable termination from mechanical stress
- Fully compliant with all SAS and SATA defined keying options
- Controlled wire management and termination process assures consistent high speed electrical performance
- RoHS compliant

Target Markets/Applications

- DATA
  - Servers
  - RAID system
  - Storage racks
  - External storage systems
  - SAS/SARA HBA interfaces
  - Direct-attached storage (DAS)
- Communications Switches
- Industry Standards
  - SATA-IO Serial ATA (SATA) specification
  - INCITS/ANSI Serial-attached SCSI
  - (SAS) specification
  - SFF-8088 and SFF-8086

High Speed Backpanel

Features & Benefits
- Wide range of high-speed interconnection available
- Metral®, Air Max US® and ZipLine™
- Serves Industry standards like: Interlaken, Storage bridge bay, Compact PCI I/O, Server system infrastructure, Intel quick path interconnect
- AirMaxVS® and ZipLine™ uses "shield less" technology

High Speed Mezzanine including MEG Array®, GIG Array®, Twin Mezz™
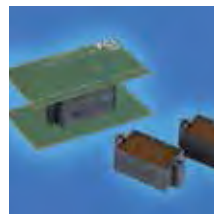
Features & Benefits
- For speeds up to 20+Gb/s signal speeds
- 600 signals or contacts
- 38mm stack height

Coplanar High Speed

Features & Benefits
- Compatible with hard metric design practice
- Support differential signalling at up to 12.5Gb/s
- Opposed dual beam receptacle contact structure provides high reliability

High Speed Orthogonal

Features & Benefits
- Compatible with hard metric design practice
- Support differential signalling at up to 12.5GB/s
- Vertical header on midplane; right-angle receptacle on the daughtercards
- Press-Fit tails are designed to fit 0.50mm finished hole diameter

Terminal Blocks

Terminal Blocks

Features & Benefits
- Robust and solid design
- Modular system: 2 – 24 positions
- Various configurations in pluggable and fixed
- Signal and power
- Pitch-sizes: 3.50/3.81/5.00/5.08/7.62mm
- End-to-end stackable
- High performance cage-damp contact system
- RoHS compatible
- Durability: 200 cycles
- Flammability UL94V-0

Series No.	Pitch	Type	Description	Positions per row
20020008	3.50mm/3.81mm	pluggable signal	TERMINAL BLOCK Pluggable plug, key on wire entry side	02~24p
20020004	3.50mm/3.81mm	pluggable signal	TERMINAL BLOCK Pluggable plug, contact up side	02~24p
20020107	3.50mm/3.81mm	pluggable signal	TERMINAL BLOCK Pluggable socket, straight	02~24p
20020110	3.50mm/3.81mm	pluggable signal	TERMINAL BLOCK Pluggable socket, right angle	02~24p
20020039	3.50mm/3.81mm	pluggable spring	TERMINAL BLOCK Pluggable plug spring	02~24p
20020008	5.00mm/5.08mm	pluggable signal	TERMINAL BLOCK Pluggable plug, hook on wire entry side	02~24p
20020007	5.00mm/5.08mm	pluggable signal	TERMINAL BLOCK Pluggable plug, contact down side	02~24p
20020107	5.00mm/5.08mm	pluggable signal	TERMINAL BLOCK Pluggable socket, straight	02~24p
20020110	5.00mm/5.08mm	pluggable signal	TERMINAL BLOCK Pluggable socket, right angle	02~24p
20020038	5.00mm/5.08mm	pluggable spring	TERMINAL BLOCK Pluggable plug spring	02~24p
20020327	3.50mm/3.81mm	fixed signal	TERMINAL BLOCK Fixed horizontal wire-inlet	02~24p
20020303	3.81mm	fixed spring	TERMINAL BLOCK Fixed spring horizontal wire inlet	02~24p
20020316	5.00mm/5.08mm	fixed signal	TERMINAL BLOCK Fixed horizontal wire-inlet	02~24p
20020303	5.00mm/5.08mm	fixed spring	TERMINAL BLOCK Fixed spring horizontal wire inlet	02~24p
20020516	7.62mm	pluggable power	TERMINAL BLOCK Pluggable plug, contact down side	02~16p
20020620	7.62mm	pluggable power	TERMINAL BLOCK Pluggable socket, straight	02~16p
20020618	7.62mm	pluggable power	TERMINAL BLOCK Pluggable socket, right angle	02~16p
20020705	7.62mm	fixed power	TERMINAL BLOCK Fixed horizontal wire-inlet	02~03p

Pluggable plugs & sockets
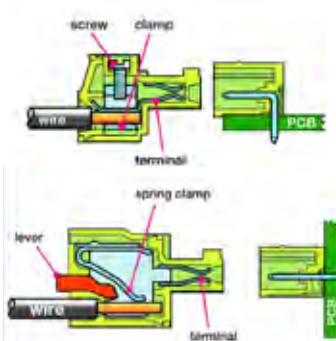
Fixed board mounted connectors
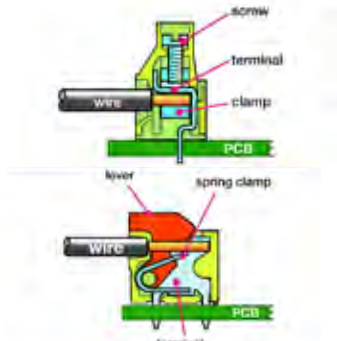
Product Selector
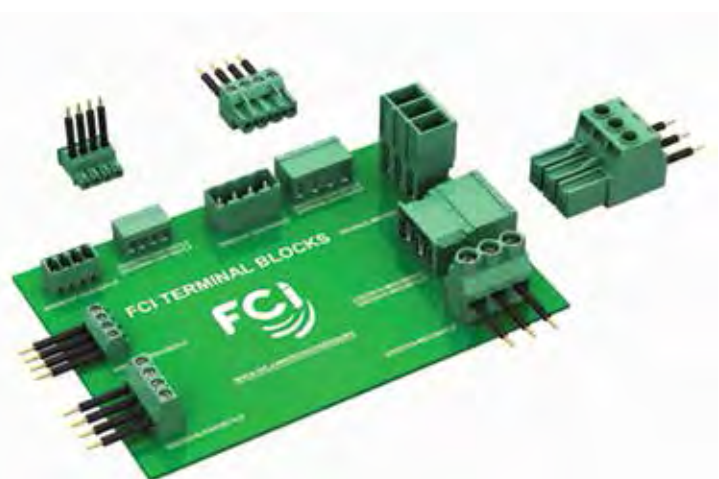
I/O Products

CONNECTI/ONS

Smart Card Connectors

Features & Benefits
- Through mount, SMT or flex mounted
- Sliding or landing contact technology
- Durability: From 10K to 200K cycles
- Vandalism-proof designs
- Suitable for friendly, harsh, portable or automotive environments
- EMV, NDS approved
- Blade or sealed switch available
- 6, 8 or 16 data contacts available

Applications
- Networking
  – Analogue or digital set-top box
  – Internet decoder
  – Laptops
- Automotive
  – Car radio
  – GPS
  – Tachograph/tachometer

Main Products										
Product	Number of Cycles	Card Size		Termination			Contact Technology		Switch Type	
		Full	SIM	TMT	SMT	FFC/FPC	Sliding	Landing	Blade	Sealed
Smart Card Reader 10010556/556040 Series	10K/25K	X				X	X		X	
L04 Series	100K	X		X			X		X	
L08 Series	100K	X		X			X			X
L26 Series High Performance	10K-100K	X		X		+Flex	X		X	
L26 Series	2.5K	X		X			X		X	
E Series	200K	X			X	+Flex		X		X
P Series	100K	X			X	+Flex	X		X	
C Series	100K	X		X			X			
S Series	10K	X	X		X		X		X	

Part Number	Termination	Pin	Thickness	Push-Pull Cycles
10010556-0**LF	Customised FPC/FFC	8	3.6mm	Without push-push
10026297-00*LF	Customised FPC	8	3.8mm	10K
55640-2*20*LF/-20211LF	Customised FPC	8	3.7mm	10K/25K

D-Sub

Features & Benefits
- 9 – 50 positions standard and high density
- Headers and receptacles
- Right angle and straight
- Through-hole, pin-in-paste and press fit
- PCB and cable connectors
- Signal and (mixed) power

USB 3.0

Features & Benefits
- USB 3.0 compliant/backward compatible
- PCB Mount receptacles – Type A, Type B, Type A Double Deck, Mini B, Mini AB
- PCB Mount plugs – Type A
- Cable plug kits – Type A, Type B, straight, right angle
- Automotive qualified

Modular Jack

Features & Benefits
- 4, 6, 8, 10 positions, fully or selectively loaded
- Right angle or straight
- Cat3; Cat5 performance
- Single to stacked multi-ports
- Shielded or non-shielded
- Different peg options
- Through-mount or SMT

Latch-N-Lok™ I/O Connector System

Features & Benefits
- Versatile cable-to-board system includes PCB headers and cable connector kits for signal, power, grounding and shielding applications
- Supports high speed, serial data transmission
- Quick disconnect system provides positive latching with an audible "click"
- High reliability design features FCI PV™ receptacle contacts mating to phosphor bronze .025"sq pin contacts in single and double row configurations

A World of Backshells and Other Circular and Rectangular Connector Accessories

AS85049 Military Standard and Commercial Products: The World's Most Complete Selection

No where in the world, under one roof, does anyone manufacture and supply such a complete selection of commercial and military backshell connector accessories: from simple wire bundle strain reliefs, backshells, dummy stowage receptacles and protective covers, to advanced electromagnetic shielding and termination systems, extender backshells, pipe thread adapters, shorting caps, and cable sealing backshells; Glenair produces literally hundreds of thousands of different designs to meet every application need including virtually every AS85049 Mil-Spec accessory ever documented.

Features & Benefits
• Worlds largest inventory of Backshells
• Backshells for every connector manufacturer's product:
  – Amphenol, Souriau, Deutsch and others
• Every MIL-Standard available

EMI/EMP Filter Connectors

High-Reliability Military Standard and Commercial Connectors for EMI Suppression

Designing interconnect systems which deliver clean data streams, undistorted by electromagnetic interference or pulses (EMI/EMP) is an enormous challenge. Electromagnetic Compatibility (EMC) requirements have been established to insure that the performance of an individual electronic device is not degraded due to its proximity to high-frequency electromagnetic interference, and also to prevent the device itself from becoming a potential source of EMI. Sensitive electronic devices also need to be protected from voltage spikes generated during transient states or static discharges in the overall system.

Features & Benefits
• Depth of experience in our technical staff,
• Complete in-house filter planar array manufacturing capability

Series 77 "Full Nelson" Environmental Shrink Boots
Features & Benefits
• These adhesive-lined shrink boots provide a dependable, leak-proof seal for interconnect cable assemblies
• Shrink boots provide mechanical and environmental protection to connector-to-cable transitions
• Specially formulated polymers are injection-moulded, then heated and expanded
• The shape-memory property of the material allows it to return to its original shape when heated with a hot air gun
• Optional adhesive coatings on the inside of the boot provide a watertight, high-strength bond to the cable jacket and the connector or adapter

EZ-BoardWare

The EZ–BoardWare products from Harwin are all designed to make production processes easier, and in some cases eliminate extra processes altogether. Surface mount designs, available in tape and reel for fully automated assembly, these products will increase design flexibility and decrease costs.
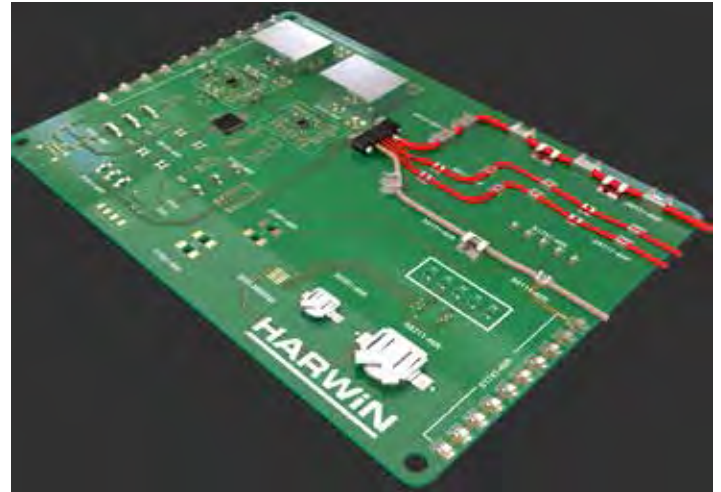
EZ–Shield Clips
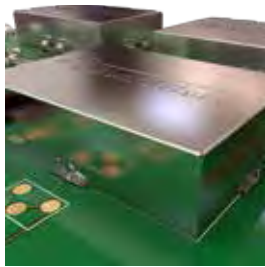
Features & Benefits
- Provides a fast and secure method of attaching shield cans to the PCB
- Allows shield to be placed and removed as necessary
- Remove secondary soldering, and makes re-work and maintenance damage-free and easy
- Available in a variety of sizes

EZ-Test Points
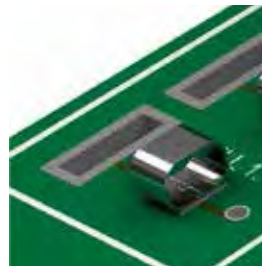
Features & Benefits
- Provides test engineers with convenient points to take test readings
- Minimises damage risk, and reduces process costs
- Used with industry standard probes, clips and hooks
- Strong and durable design

EZ-Cable Clips

Features & Benefits
- Replaces manual assembly of plastic cable clips
- SMT cable clips save space over conventional through board solutions
- Available in a variety of sizes
- Ideally suited for use as a grounding clip with coax cable

EZ-Links

Features & Benefits
- EZ-Links provide bridges over tracks and jump over tracks
- Simplifies board layout and eliminates unnecessary through holes
- Rated to 10A electrical current
- Allows designers to avoid moving from a single to multi-layer PCB

EZ-Shield Fingers
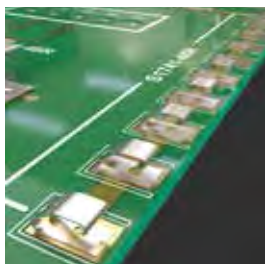
Features & Benefits
- SMT devices for use in shielding, grounding and general electrical connection applications
- Wide selection of styles and sizes available
- Protected tips prevent product from hooking
- Suitable for both wiping and sliding action
- Spring design ensures positive contact with mating surface

EZ-Sockets

Features & Benefits
- Offers a cost effective alternative to turned PCB sockets
- Accepts pins of between 1.10 and 1.80mm diameter
- Rated to 8A electrical current
- Greatly reduces costs by removing the need for secondary operations
- Very low above board profile

ARCHER

Archer 1.27mm Connectors

Harwin's Archer range is a 1.27mm pitch connector system for board-to-board and IDC cable-to-board applications.

Available with row spacings of 1.27 or 2.54mm, Archer connectors feature a current rating of 1A per contact, voltage rating of 150VAC and an insulation resistance of 1,000MΩ minimum. Insertion force is as low as 0.6N max, and the operating temperature range is -40 to +105˚C.

Archer Product Families

M50-9XX – IDC Cable Connector, available with pre-assembled cable lengths

M50-3XX – DIL Headers and Sockets

M50-4XX – DIL Headers and Sockets with polarisation and shrouding

M52-SIL and DIL Pin Headers on a 1.27mm pitch with 2.54mm row spacing

Features & Benefits
• Vertical and horizontal through-board and SMT styles
• Tape & reel option available
• 1A per contact current carrying capacity
• Choice of socket heights
• Broad range of styles including pin header variants

M40 1.00mm Pitch Board-to-Board Connectors

M40 Series connectors are miniature board-to-board range on a 1.00mm pitch. Made up of pin headers, sockets and low profile board connectors, the range provides a cost effective solution to PCB-to-PCB connections.

M40-3XX – Pin Headers and Sockets

Features & Benefits
• DIL system with twin beam construction for durability sensitive applications
• 1A per contact current carrying capacity
• 300 operations durability rating
• Packed in tape & reel with pick and place caps for automated assembly
• SMT connector featuring location pegs

M40-6XX – Low profile Connectors

Features & Benefits
• DIL, low profile system with staggered pin-out
• 0.5A per contact current carrying capacity
• 30 operations durability rating
• Packaged in tape & reel with pick and place tape or in tubes
• Solder tabs secure the connector to the PCB

HARWIN

Datamate Datamate

Datamate is a 2mm pitch high reliability, high performance COTS connector system which has a proven track record under the most extreme conditions. This performance is made possible by Harwin's high reliability, low frequency, four finger beryllium copper contact technology. Secure termination is achieved by latches (L-Tek), jackscrews (J-Tek) or the new 101Lok fast mate hardware which speeds and simplifies mating.

Features & Benefits

- Four finger Beryllium Copper contact ensures integrity of signal connection
- High reliability connector system at commercial prices
- Ideally suited to applications where high vibration, shock and extremes of temperature are experienced
- Highly durable system approved to 500 operations
- 2mm pitch
- 3A per signal contact, 20A per power contact and 6Ghz per coax contact
- Polarised mouldings
- Environmental classification: 55/125/56 days at 95% RH
- Operational temperature: -55°C – 125°C
- Vibration sensitivity: 10Hz – 2,000Hz; 10G for 6 hours
- Shock severity: 100G for 6ms
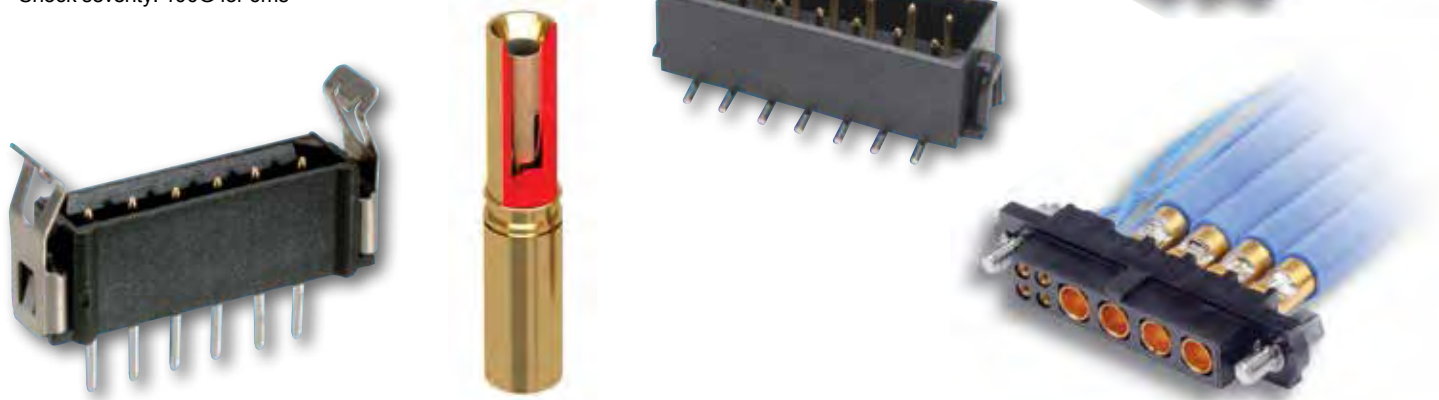
Mix-Tek Datamate Mix-Tek

Features & Benefits

- High performance mixed layout connector system
- Features signal coax and power in one connector housing
- 3A signal, 20A power and 6Ghz coax
- Stocked Off-The-Shelf layouts available for short lead time
- Board-to-board, wire-to-board and wire-to-wire configurations available

S-Tek Datamate S-Tek

Features & Benefits

- Fully shielded cable to cable and cable to board connectors
- 30dBs of RF attenuation between 10kHz to 400MHz
- Tested in accordance with MIL-STD-1377
- 3A per contact
- Features jackscrews for added security of connection

Transportation Products

SRC (Sealed Rectangular Connector)

New generation 84-way Sealed Rectangular Connectors, with single-handed blind-mate functionality, use proven MX150™ (current ratings up to 18.0A) and MX150L™ (current ratings up to 40.0A) terminals to offer a hybrid, high power-and-signal circuit-count system for harsh applications in commercial vehicles.

Features & Benefits
- Rugged, sealed wire-to-panel (bulkhead) and wire-to-wire hybrid connector system
- Pre-assembled connector housing, seals, rear cover and TPA ship in one piece resulting in reduced inventory and applied labour and cost savings
- This simple crimp, poke and plug application using standard MX150™ and MX150L™ terminals require no crimping of individual wire seals

MX150™

Features & Benefits
- Pre-assembled, fully-submersible single- and dual-row, high-performance connector system
- Reduced 3.50mm pitch housing design supports single-row configurations for 2 to 6 circuits and dual-row configuration for 4 to 12, 16 (hybrid) and 20 circuits
- Pre-assembled connector housing, seals, rear cover and TPA ship in one piece, allowing simplified assembly processes resulting in applied labour and cost savings
- System meets or exceeds USCAR-2 Class 3 requirements
- Audible and tactile clicks on insertion, extraction and mating facilitate reliable mating and terminal loading and removal

CMC

Features & Benefits
- Sealed (IPX9K), high density, modular wire-to-board and wire-to-wire connection system
- Hybrid connection system on a 2.54mm pitch offering current ratings from 2.50A -21.0A by the use of different terminals
- Matte seal technology used for 0.635mm and 1.50mm terminals and single wire seals used for 2.80mm terminal
- Mechanical and visual (colour coding) polarisation options ease cycle times during harness assembly
- 32-circuit wire-to-wire system is designed for either bracket or clip mounting
- Sliding latch with cam action enables single-handed mating and locking action without the use of tools for mating assembly; the latch does not interfere with wire harness
- The IP69K-tested, integral, two-way matte seal plus interface seal with improved retention features is suitable for applications in harsh environments
- Connector system retention is greater than 200N, suitable for harsh applications in high-vibration environments
- Protective rear cover protects and provides strain relief to the wire seal interface
- Anti-Scooping feature ensures no terminal damage when header and connector are mated

MX150L™

Features & Benefits
- Rugged 2- to 16-circuit, sealed 5.84 and 7.62mm pitch supporting up to 40.0A per circuit
- Wire-to-wire, wire-to-panel-mount plugs and wire-to-board configurations
- Integral wire and interface seals provide sealing up to IP67
- Sealed panel-mount plugs are equipped with blind-hole boss feature which improves the sealing process during assembly
- Integral terminal position assurance (TPA) ensure that crimped terminal leads are properly locked into connector

XRC™ (Extra Rugged Circular)

Features & Benefits
- IP67 sealed, plastic circular connectors
- Available in 14 and 31 circuits (18 and 24 shell size)
- Rugged design for heavy-duty, in-line or panel-mount applications
- Bayonet-style latch provides quick and easy connections and ensures proper mated depth
- Low-insertion-force stamped terminals are economical and reduce connector housing mating force

Transportation Products

Mini50™

Molex's unsealed miniature Mini50™ single-row wire-to-board connection system with reduced size terminals allows the fitting of more low-current current electrical circuits in to interior, unsealed transportation-vehicle environments.

Features & Benefits
- This reduced package size is approximately 50% smaller than USCAR 0.64mm unsealed connection systems
- 4- and 8-circuit versions in both vertical and right-angle headers
- Several orientation features are moulded into the header; either vertical or right-angle orientations are possible, providing wire-routing and module design flexibility
- Board alignment and retention features simplify header to PCB placement, retain the header to PCB during soldering operation(s) and protect soldering joints during connector (un)mating

HSAutoLink™

Features & Benefits
- High-speed in-vehicle data bus connector system
- Protocols supported include USB 2.0, LVDS and IEEE 1394
- Vertical and right-angle PCB headers
- Rugged assemblies with positive latching and assembly guide rails provides a proven interface offering durability exceeding 5,000 cycles
- Full-length cable shielding provides superior signal performance and reduced EMI
- Multiple header keying options provide assurance of proper mating with side-by-side parts
- Pre-alignment and solder hold down posts for shield assembly and main housing body provide robust PCB mount retainment
- High-temperature thermoplastic housings withstand infrared (IR) and wave lead-free solder processing per ES-40000-5013 Molex specification, maximum temperature +260°C
- Female terminal wire grips for wire-size reduction provide weight, space and cost savings
- Available in three discrete mechanical, visual and coloured polarisation options
- An independent secondary lock (ISL) terminal-retention feature is moulded into the receptacle housing meaning reduced inventory and offering applied cost savings
- CTX50 terminal wire grip design offers harness manufacturers' the ability to reduce wire gauge sizes while maintaining retention strength

H-DAC 64™ Dual-Row

Features & Benefits
- Wire-to-wire and wire-to-board connector system with vertical and right-angle header options
- 6 – 20 circuits and 24-way hybrid
- Scoop-proof housing protects against accidental bending of pins
- Available in three coloured polarisation options to prevent from mis-mating
- Terminal Position Assurance (TPA) to increase final terminal retention
- Positive lock with audible click ensures mated system is secured

Customer Convenience Port (CCP)

Features & Benefits
- Active and passive I/O media modules provide innovative I/O solutions for the entire transportation market
- CCP modules enable the integration of multiple connection types such as HS Autolink™, USB, HDMI, 1394, Ethernet, SD Memory cards, Auxiliary jack inputs and more to meet end system requirements in either passive or active designs
- Molex CCPs enable state of the art audio and video capabilities in in-vehicle applications

Transportation Products

Stac64™ 2.54mm Pitch Single, Multi Pocket and Hybrid Wire-to-Board Connector System

This stackable connection system provides single and multi-pocket PCB solutions, offering a diverse range of circuit sizes and greatly reducing time-to-market by completely eliminating custom tooling; female connectors feature the only finger actuated design in the industry.

Features & Benefits
- Stackable PCB headers ensure reduced time-to-market: engineering and validation times are reduced significantly; no tooling necessary to produce custom multi-bay header assemblies
- The header and female receptacle housings are moulded in standard USCAR colour schemes offering visual polarisation and aiding in connection system assembly
- Pre-assembled, linear Mylar PC tail alignment strip for right-angle headers reduces PCB packaging complexity and provides space savings

S8 Bulb Sockets

Features & Benefits
- Industries first one piece S8 design
- Wedge socket design provides easy installation
- Crimped wire seals provide superior insulation protection and easy assembly
- Single-piece housing simplifies Inventory needs
- Three circuit housing design accommodates both single and dual filament bulbs
- Durable high temperature material withstands high vibration and prevents lamp fogging
- SAE/USCAR-15 Compliant
- Standard dovetail feature moulded into the modular housings allow headers to be ganged together in large assemblies
- PCB alignment posts ensure all terminals are properly aligned into PCB through-holes during assembly and help to retain header to PCB during assembly and solder processing
- PCB stand-offs are moulded into the housings, providing an additional trace-routing area under the headers
- High-temperature thermoplastic housings withstand infrared (IR) and wave lead-free solder processing per ES-40000-5013 Molex specification, maximum temperature +260°C
- TPA release latches on the female connector retain the TPA in both pre- and final locked positions greatly reducing the possibility of the TPA un-seating during transit and handling plus they require no tools for service
- Pre-assembled TPA-to-receptacle housing is shipped as single assembly offering applied assembly labour and cost savings
- Bio-plastic Stac64™-e system using plant based resins in development

Mizu-P25™

Features & Benefits
- Miniature wire- to -wire sealed connector system – sealed to IP67
- 2-, 3- and 4-circuit single row configuration
- Seal stopper provides waterproof protection and low terminal insertion force
- Inner positive lock provides secure mating retention
- Female terminals include unique spring beam design giving higher contact pressure and reduced deflection for high vibration applications
- Male terminals feature a raised body design providing polarisation and preventing mis-mating

Squib Right-Angle AK-2 Cable Assemblies

Features & Benefits
- AK-2 interface with unique CPA design ensures scoop-proof "Kojiri-safe" interconnections and provides a fully reliable (blind-) mating operation
- Welded-cable connection design maintains low and stable contact resistance
- Large ferrite design with superior performance in filtering EMI
- Fully compatible to the 2-way interface Code 1, 2 and 3, as defined by global industry specifications
- Plug holes on the cover enable the connector to be tested multiple times during the supply-chain quality process without any damage to the active area of the terminal
- Blocked-active Connector Position Assurance (CPA) button design with travel distance over 3.00m, ensures the CPA button will not lock prior to mating, provides easy and reliable one-step connector mating and is also manually serviceable

MOLEX

RF Connectors

SMP-MAX Board-to-Board

SMP-MAX connectors are a cost effective 3 piece board-to-board, module-to-module and panel-to-panel RF connector system that handles up to 300 watts at 25°C, 2.7GHz. Ideal for high-power applications such as power amplifiers.

Features & Benefits

- Frequency range DC to 6GHz enables wide operating frequency
- Rugged construction allows a minimum of 100 mating cycles
- Largest misalignment tolerance in the industry, for simple and reliable connections, even in blind-mate applications
- The patented impedance matching insulator facilitates a large operating gap between connectors
- Capable of handling a maximum board-to-board tilt (radial travel) of 4° and up to 2.00mm of distance (axial) misalignment without a spring – which is 300% more than the standard SMP connectors
- Also available from Molex are SMP Subminiature RF Connectors

2.40mm Precision Test Connector
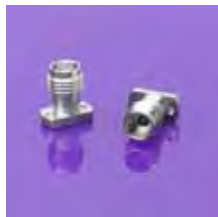
Features & Benefits

- Only vertical, compression mount PCB connector for the high-speed digital testing industry; ideal for use in test and measurement equipment
- Achieve up to 50GHz analogue, or over 20Gbps digital signal performance
- Durable stainless steel body withstands over 500 mating cycles
- Connectors are tightened to the PCB using 0-80 UNF screws thus eliminating the need for soldering and enabling the test points to be located almost anywhere on the PCB
- Unparalleled design flexibility through a unique compression-mount construction

48 volt Power Connector for RRH (Remote Radio Heads)

Features & Benefits

- Standard 2-way 48V DC power configuration for base stations
- UL and IEC Certified
- Bayonet locking for secure cable retention
- 360° EMI shielding gives excellent electrical noise suppression
- Connector sealed to IP65
- Working temperature: -40°C – + 85°C
- System is ISO/FDIS 21207 corrosion test compliant
- Connectors meet the requirements of the IEC 61 984 Connectors – Safety requirements and tests

BNC 3GHz RF Connectors

Features & Benefits

- Low return loss exceeds Industry standard requirements allowing for bandwidth expansion without hardware upgrades
- Double-studded bayonet coupling lock provides quick and secure mating and un-mating
- Available in Right Angle, vertical, edge mount and bulkhead PCB configurations
- Used in telecommunications, HDTV, video, audio and test equipment applications
- Also available from Molex are Mini-BNC RF jacks and plugs, providing 40% higher density over traditional BNC connectors

QMA RF Connectors
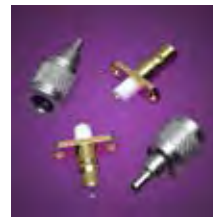
Features & Benefits

- Push Pull version of the threaded SMA RF connector system allowing for fast, secure mating and un-mating
- Push Pull technology also allows for higher PCB/panel density when compared to threaded versions
- Snap-on coupling with >60 pounds retention giving superior axial retention when compared with inter-mateable competing products
- DC to 18GHz, ideal for wireless and GPS applications

Power Products – up to 14 Amps

Mini-Fit® Family

The Mini-Fit® family is a truly versatile product family designed for higher-current/higher-density applications which require design flexibility in wire-to-wire, wire-to-board and board-to-board configurations.
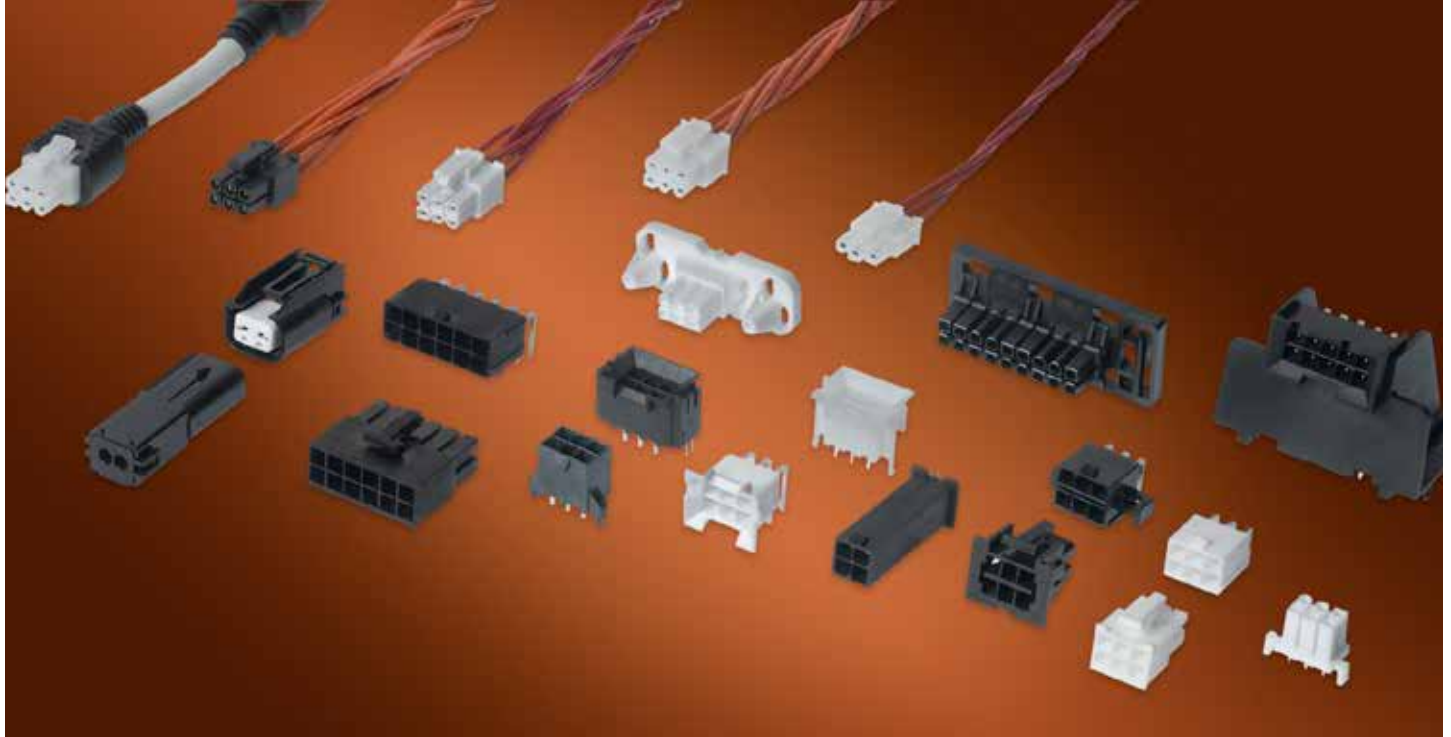
Features & Benefits

- UL recognised, CSA approved, TUV licensed and IEC 60335-1 Glow Wire compliant versions
- All components are lead-free and RoHS compliant
- Operating temperature: -40 – +105°C and fully isolated terminals
- Positive housing locks, low-engagement forces and polarised housings and receptacles
- Custom options available for specific applications, such as First-Mate-Last-Break, longer tail lengths for thicker boards, voided circuits and coloured housings
- Mini-Fit Jr.™ available in 2 – 24 circuits, 4.20mm pitch for wire-to-wire and wire-to-board applications
- Mini-Fit® Plus HMC (High Mating Cycle) female terminal for high current (up to 13.0A per circuit) applications where increased mating cycles are required (up to 1,500 cycles)

- Mini-Fit® Plus HCS (High current system) uses terminals produced from a proprietary high current alloy for applications up to 13.0A per circuit
- Mini-Fit® BMI available in 4 – 24 circuits, 4.20mm pitch for wire-to-wire, wire-to-board and board-to-board blind-mating applications allow misalignments of up to 2.54mm
- Mini-Fit® Compliant Pin Interface (CPI) available in 4 – 24 circuits for wire-to-board applications feature press-fit headers that eliminate the need for soldering with the added benefit of flanges on the vertical headers for blind-mating applications
- Mini-Fit® TPA (Terminal Position Assurance) plugs and receptacles available in 2 – 16 circuits, for wire-to-wire and wire-to-board applications prevents accidental terminal backout
- Other members of the Mini-Fit® family include RTC, H2O™ Sealed, Overmolded™ cable assemblies, Mini-Fit Sr.™

MLX™ Power Connection System

Features & Benefits
- The MLX™ Series is interchangeable, inter-mateable and intermountable with other industry standard 2.13mm diameter plug and cap power connectors allowing greater flexibility when mating with existing wire harness connectors or PCB headers
- Capable of handling up to 13.5A of current at 600V
- UL recognised and CSA approved, housings and headers are also available in IEC 60335-1 Glow Wire compliant materials
- Housings accept male and female terminals, enabling design flexibility and added polarisation features
- Positive hosing locks help avoid accidental mis-mating
- Wire and interface seals provide sealing up to IP67 requirements

Standard .093" Power Connection System

Features & Benefits
- Industry standard connector system based on 0.93" diameter pin terminals handling currents up to 14.0A
- Available in 1 – 15 circuits for wire-to-wire and wire-to-board applications
- Housings accept both male and female terminals to both increase design flexibility and help with polarisation
- PCB headers also feature mixed layout male and female terminals

MOLEX

Power Products – up to 5 Amps

Micro-Fit 3.0™ Connectors

3.00mm Pitch high-density, versatile connector system available in wire-to-wire, wire-to-board and board-to-board configurations up to 5.0A to meet low- to mid-range power application needs.
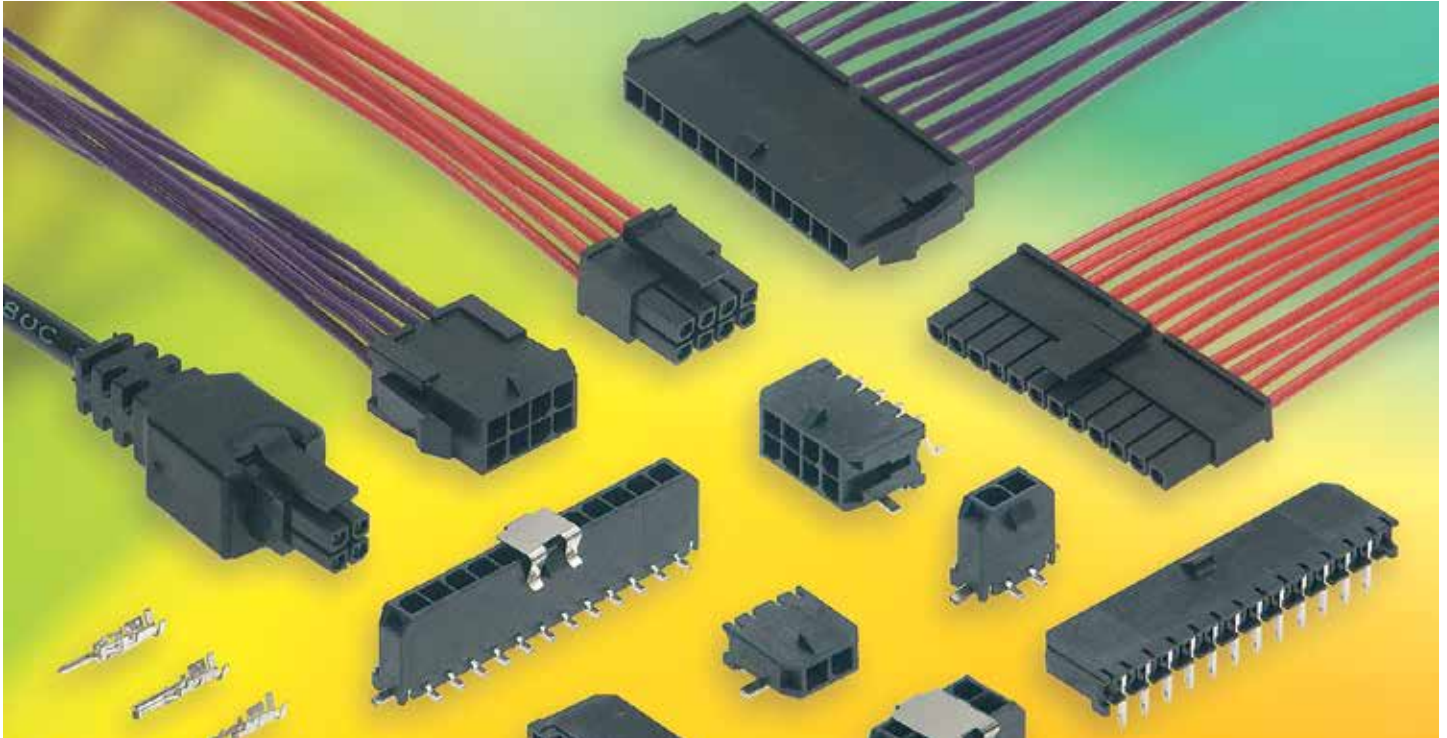
Features & Benefits

- Available in 2 to 24 circuits, single and dual row versions
- Interconnects are UL recognised, CSA approved and TUV licensed. All components are lead-free, RoHS compliant, halogen free and glow-wire compatible
- Headers made of high-temperature LCP material withstand high-temperature 265°C IR reflow processes
- Available in SMT, press-fit or surface mount compatible versions that meet many application needs

- Fully polarised housings prevent accidental mis-mating and positive latching prevents accidental disconnects
- Blind Mate options suitable for drawer type applications
- Contacts are fully isolated on each side of the interface to eliminate potential arcing and incorporate four points of contact
- Locking tang on terminal secures terminals in housings
- Various header retention options including fitting nails and solderable clips enable design flexibility, increased PCB retention and strain relief

KK®

Features & Benefits

- Suitable for any application on centres from 2.50mm – 5.08mm with a maximum current of 13.0A per circuit when used with the MarKK™ terminal
- Friction lock headers and friction lock ramp housings ensure secure mating
- Polarising backwalls and housings prevent mis-mating
- Kinked PC tails ensure good PCB retention prior to soldering
- Various terminal designs with extra contact points available for high-vibration environments
- Vertical, right-angle headers, top and bottom, right-angle PCB receptacles provide design flexibility
- Custom modifications and extensions provide added features and offer designers flexibility when considering application solutions

Standard .062"

Features & Benefits

- Pin and socket connector system for power or signal rated up to 5.0A per circuit with standard brass terminals (18AWG – 30AWG)
- 1 – 36 circuit housings; male and female terminals may be used in either plug or receptacle housings, providing design flexibility
- Circuit identifiers and polarised housings enable fast, accurate assembly
- Terminals may be oriented in any direction for fast assembly, reducing applied cost
- Free-hanging or panel-mount housing versions
- Friction lock to help prevent accidental mis-mating

Power Products – 15 Amps Plus

Extreme Guardian™

Exceed high-current and reliability requirements in top-end server and high-power applications with the compact, EXTreme Guardian™ 2- and 3-circuit Power Connector System, providing EMI/RFI shielding, overmoulding and discrete-wire options for design flexibility.

Features & Benefits

- EXTreme Guardian™ header and cable assemblies feature a small centreline pitch of 11.00mm for reduced PCB footprint compared to legacy power products
- The system supports up to 80.0A per contact giving excellent high current density per inch (185.0A inch) with UL safety features and hot-plugging capabilities
- Redundant contact design handles up to 600V, supports AC and DC high-voltage applications with the lowest feasible voltage drop and irreversible dissipative power (I2R) losses
- Headers available in 2-circuit, single-flanged and 3-circuit, dual-flanged versions. Through-hole solder retention design provides flexible manufacturing options, insert-moulded threaded nut for secure panel attachment
- Cable assemblies available in 2- and 3-circuit overmould shielded and unshielded versions, single or double ended in various standard lengths
- Right-angle left and right-entry 2-circuit cable assemblies provide space saving connections in confined spaces
- 2- and 3-circuit crimp receptacle housings, terminals and TPA clips available for in house cable assembly production

EXTreme LPHPower™

Features & Benefits

- Low-profile hybrid high power and signal connector system, can be used as a traditional two-piece board-to-board system or can be used as a single-piece connector in card edge and bus bar applications
- Low-profile design, 7.50mm height enhances system airflow and provides 127.0A per linear inch
- Two isolated power contacts per housing bay (top and bottom) allow power and return circuits in a single bay for a total of 60.0A per power bay
- Rugged power and signal terminals reduce the potential for stubbing or damage and are rated for current interruption hot-plugging requirements, FMLB options are also available on power contacts

EXTreme PowerEdge™

Features & Benefits

- Hybrid card edge connector system handling currents up to 40.0A on power contacts and up to 3.0A on signal contacts
- Vertical mounting connector mates with standard 1.57mm (0.62") PCBs or bus bar systems
- Available in 2-, 3- and 4-segment, 2 isolated power or 8 signal contacts per segment with solder or press fit mounting options
- Segments are end to end stackable to provide design and application flexibility

Mini-Fit Sr.™

Features & Benefits

- Compact 10.00mm high-power connector system for use in wire-to-wire and wire-to-board applications, capable of handling up to 50.0A
- Housings available in 2 – 14 circuits accepting terminals for 8AWG – 12AWG wires provide design flexibility
- Housings feature a positive lock for secure mating and headers feature metal PCB retention clips for secure PCB mounting
- Integrally moulded TPA on single row product (TPA is a separate piece, 43980, for dual row) prevents terminal back-out
- First-Mate-Last-Break (FMLB) option for grounding and ESD protection; polarised housing design prevents mis-mating
- Thermoplastic headers, with fully isolated contacts withstand reflow process
- Headers and Housings are manufactured from Glow Wire compliant materials

MOLEX

Memory and Storage Products

Micro-SIM Card Sockets

Molex offers a broad range of micro-SIM card sockets in both push-push and push-pull styles that offer excellent electrical reliability and maximum space savings. High contact force versions, Anti-shorting versions and versions with metal card tray's for card locking/retention assurance make up the comprehensive range.

Features & Benefits

- Push-push version available in two styles: a six-circuit 503960 Series with 1.42mm profile height and 0.3N contact force for added card retention and 104118 Series with 1.60mm profile height
- Anti-short push-pull version available in two styles: a 78727 Series with detect switch and 1.40mm profile height, and 78646 Series without detect switch and 1.45mm profile height
- Measuring 12.00mm x 15.00mm, ideal for ultra-slim smartphones, tablet PCs, GSM/UMTS modems, PC cards, WLAN (wireless LAN) cards, Smart meters and Machine-to-Machine (M2M) systems
- Terminal-beam design with gradual lead-in prevents contact stubbing while providing smooth card insertion/withdrawal
- Anti-shorting feature that eliminates any risk of shorting between metal shield and contact pads on micro-SIM cards
- Card polarisation features that prevent micro-SIM card from being inserted wrongly
- Multiple soldering points provide secure PCB hold-down for both 6 and 8 circuit versions

SD Memory Card Connector
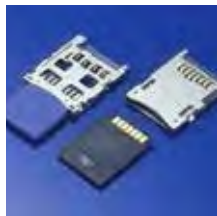
Features & Benefits

- Space-saving SD Card with anti-card-fly-out feature, ideal for compact consumer and data communication devices
- Push-push ejector type for easy card extraction with tactile feel
- Top mount shielded 503500 Series allows card to extend 6.00mm outside the shell in the locked position
- Card polarisation features to prevent incorrect card insertion
- Gold-plated bevelled contacts to help prevent terminal stubbing while providing secure electrical connections
- Detect and write protection switch functions

MicroSD/SIM Card Combo Connector

Features & Benefits

- Two port, single footprint design with a profile height of 2.75mm
- Push-push reverse-mount style with detect switch and push-pull normal-mount style SIM, supporting up to 10,000 mating cycles
- Left- and right-entry port design provides design flexibility
- Available with six- and eight-circuit mini-SIM connector slot to meet the needs of both GSM and CDMA-style applications, plus two extra circuits to enable functionality upgrades
- Visible solder tails on two sides for easy inspection, space savings and able to keep co-planarity to 0.10mm maximum after reflow

Micro Serial ATA Connectors

Features & Benefits

- Delivers high-speed data at 6Gbps with uncompromised quality for 1.80" Solid State Drive (SSD), mobile computing and consumer applications
- Micro SATA Revision 3.0 Specification-compliant, backwards compatible with 1.5Gbps and 3.0Gbps implementations
- Improves read-write and response speed without compromising data quality
- Features include: LIF, First-Mate-Last-Break, guide post and pockets, friction locks, solder tabs, high temperature thermoplastic housing, robust PCB retention features and lead-free processing capability
- Suitable for hot-plugging and blind-mating

LED Array Holders

Molex uses advanced interconnect technology to produce a range of solderless LED holder solutions for mounting LED arrays into a luminaire. These holders make it very easy to integrate LEDs into a lighting fixture without the need for special tools. Unique compression contacts power the arrays, while eliminating solder variability due to hand soldering. The easy screw-down connection enables lean manufacturing and easy integration of the latest.

LED technology into a luminaire. The latest designs from Molex feature a double-ended wire-trap terminal to attach the power source, which allows for serial or parallel LED wiring sequences.

The screw-mount attachment method secures the array to a heat sink, providing voltage isolation between the LED and heat sink. A releasable wire trap enables field serviceability for rework or replacement. A high-temperature thermoplastic housing withstands heat-generating environments. With the increased ease of installation, more flexibility in manufacturing and better ways to update a system with the latest LED technology, Molex LED holders help to drive down the overall system cost.

CLL 010 Citizen LED Holder‡

Sharp* Mega Zenigata† LED Holder with Zhaga cover

*†Sharp and Zenigata are registered trademarks of Sharp
‡Citizen is a registered trademark of Citizen Electronics Co., Ltd.

Connectors for Lighting

Flexi-Mate™

Features & Benefits
• 3.70mm system provides a full range of co-planar board-to-board and wire-to-board solutions for the lighting industry
• Designed to easily and reliably connect LED panels across lighting fixtures in office and industry lighting applications
• Provides the same 1.0A of current as similar 2.00mm pitch systems
• Uses 45% less PCB real estate as compared to typical 2.00mm wire-to-board systems
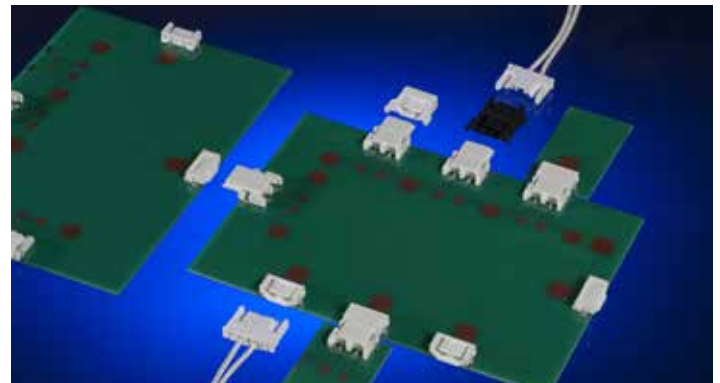
PicoBlade™

Features & Benefits
• 1.25mm pitch single row wire-to-board and wire-to-wire system with SMT and through-hole headers designed for high-density harness applications

Terminal Blocks and Barrier Strips

Features & Benefits
• Multiple configurations and styles available for broad range of wire-to-board and wire-to-wire configurations, supporting currents from 8.0A – 115.0A
• Available in circuit sizes from 1 – 48 and pitch sizes from 3.50mm – 17.46mm

Cable Assemblies

Molex provides unique and customer-specific cable harnesses and, with our manufacturing capabilities around the world, we can achieve quick turnaround times. Molex can also help you with LED assemblies on flexible substrates. These unique capabilities help to reduce overall system cost and increase ease of assembly of a lighting system.

Features & Benefits
• Total interconnect solution to meet customer cost and performance needs
• Complete electrical and functional testing L/CSA/ISO certified manufacturing locations
• Power and Signal Solution
• I/O Solutions
• Industry Standard Solutions
• Flatflex and Ribbon Cable Solutions

MOLEX

I/O and Modular Jacks

Molex offers jacks in a variety of styles and configurations, modular jacks with integrated magnetics, available in single and multi-port versions that support Power-over-Ethernet (PoE) functionality. Specialised, sealed jacks and plugs for harsh environments, right-angle, top entry, bottom entry, through hole and SMT, shielded and unshielded lacks using gold or high durability palladium-nickel plating.

PoE Plus Integrated PDJack™

Features & Benefits

- Based on the RJ45 connector the Molex magnetic PDjack™ is the first integrated PD (Power Device) jack in the market to combine PoE+ PD controller and bridge rectifiers with gigabit magnetics in one connector and provide a complete drop-in single port solution
- Available in Class 0 – 4 to allow customers to limit the power output of the connector up to 25.5 watt
- Simplified PoE Plus implementation for any network device, reducing time-to-market, lowering costs and achieving PCB space savings
- IEEE compliant bridge rectifiers to accommodate all PoE Power Sourcing Equipment (PSE) types
- Detection and classification circuitry fully IEEE802.3at compliant eliminates complex design and testing, enabling faster time-to-market, reduced investment, lower direct and associated purchasing and production costs
- Fully shielded connector design to protect against ESD (electrostatic discharge) and EMI (electromagnetic interference)
- Gigabit Ethernet magnetics with common-mode choke designed for operating with industry-leading PHY chip vendors at 10/100/1000 Mbps

Single and Multi Port PoE/PoE+ Jacks

Features & Benefits

- PoE/PoE+ options available for design flexibility
- IEEE 802.3at ensures PoE and PoE Plus compatibility
- Available in single port (1-by-1), 8-port (2-by-4), and 12-port (2-by-6) configurations and with LED options
- Protection circuitry ensures module is robust against external disturbances: ESD, EFT and EMI
- Integrated Jacks or ICMs that provide a cost-effective, plug-and-play solution for customers implementing PoE and PoE Plus (PoE+)

HDMI* Micro Connectors

Features & Benefits

- Molex's High Definition Multimedia Interface Micro connector is a 0.40mm pitch dual-row receptacle, half the size of the current Mini HDMI receptacle
- 5,000 mating cycles for receptacles meet durability requirements for mobile applications
- Product designed and manufactured to the HDMI 1.4 specification
- Full SMT, though-hole shell tabs and hybrid SMT and through-hole tab versions offer multiple PCB mounting configurations for design flexibility
- Friction lock on receptacle shell offers excellent retention force and tactile feel when mating
- Rear receptacle-shell-over-housing feature prevents damage to PCB receptacle from over-insertion of the cable plug
- Receptacle terminal hold-down feature prevents terminal stubbing

Backplane Products

Impact™ Backplane Connector System

The Impact™ Backplane Connector System from Molex pushes the density envelope to meet next-generation high-speed application demands. Featuring data rates up to 25Gbps, superior signal integrity, electrical performance and modular design. The Impact™ product is available in 100Ω and 85Ω Impedance and a wide range of configurations like conventional, coplanar, mezzanine, orthogonal midplane and orthogonal direct. It also includes power and cable solution options. Depending on configuration, it is available in 2 to 6 pair columns.

Features & Benefits
- Data rates scalable up to 25Gb/s support future system performance upgrades
- Broad-edge-coupled, differential-pair system for superior density, low cross-talk, low insertion loss and minimal performance variation across all high-speed channels
- Differential-pair density up to 80 pairs per linear inch provides the highest speed, highest differential-pair density per square inch in the industry
- IEEE 10GBASE-KR and Optical Internetworking Forum (OIF) Stat Eye Compliant channel performance demonstrates end-to-end channel performance compliance
- PCB routing flexibility provides simple 1.90mm by 1.35mm (.075 by .053") grid on both backplane and daughtercard reduces PCB routing complexity and costs
- Two compliant-pin attach options provide customers ultimate flexibility to optimise their designs for superior mechanical and electrical performance
- Inline staggered, bifurcated contact beams in daughtercard interface for superior mating performance with two points of contact for long-term reliability and built-in ground-signal sequencing

Applications
- Telecommunications equipment
  – Hubs, switches, routers
  – Central office, cellular infrastructure and multi-platform service (DSL, Cable Data) systems
- Data networking equipment
  – Servers
  – Storage
- Test and measurement equipment
- Medical diagnostic equipment

GbX I-Trac™ Backplane Connector System
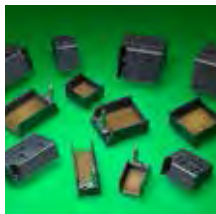
Features & Benefits
- High speed data rates scalable from 2Gb/s to beyond 12.5Gb/s, support future system upgrades without requiring platform re-design
- Broadside-coupled, skew equalised, differential pair system provides superior impedance control, low cross-talk, and improved insertion loss performance
- Differential pair density up to 69 pairs per linear inch using open-pin field design offers high-density, high-bandwidth connection with pin-by-assignment flexibility
- Allows standard and orthogonal architectures using the same header part numbers, providing design flexibility, connector and PCB cost savings

GbX® Backplane Connector System
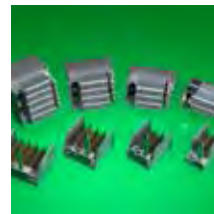
Features & Benefits
- Data rate options up to 10Gb/s, able to support future daughtercard speed upgrades of XAUI (10 Gigabit Attachment Unit Interface) and InfiniBand† based systems and of those based on ATCA (Advanced Telecom Computing Architecture) and OIF (Optical Internetworking Forum) chip protocols
- Available in 2 – 5 pair columns
- Bifurcated contact beams in daughtercard receptacle ensure greater reliability with 2 points of contact to header pin

VHDM*

Features & Benefits
- 6- and 8-row versions offer 72 or 100 real signals per 25mm
- 3.125Gb/s performance
- Internal ground planes control impedance and minimise crosstalk
- Press-fit construction avoids solder-related defects
- Test systems: semi-conductor test equipment
- Internet working: routers, switches, hubs
- Servers: high-end, low-end, mid-range

Z-Pack TinMan* 85Ω Backplane System

Features & Benefits
- Achieve low crosstalk and high through-put performance at 12.5Gbps data rates
- Ideal for use on daughtercards and mezzanine boards in telecommunication, data networking and storage markets
- Up to 66 differential pairs per linear inch saves board real estate, improves airflow and provides ultimate design flexibility

*Z-Pack and Z-Pack TinMan are trademarks of Tyco Electronics. **GbX and VHDM-HSD are a trademark and registered trademark or Teradyne, Inc.
†InfiniBand is a registered trademark of the InfiniBand Trade Association

MOLEX

Wire-to-Board Products

Molex offers one of the most complete ranges of micro miniature fine pitch wire-to-board connectors available today offering design engineers multiple solutions to even the most challenging applications.

Pitch	Name	Circuit Size	1 or 2 Rows	Plating	Rated Current (max.)	Rated Voltage (max.)	Locking: Friction (F) or Positive (P)	Temp. (min.)	Temp. (max.)	Vertical Through-Hole Header	Vertical Surface Mount Technology Header	Right-Angled Through-Hole Header	Right-Angled Surface Mount Technology Header	Crimp Housing	Terminal
1.00mm	Pico-Clasp™	2-15	single	tin	1.0A	50V	F & P	-40°C	+85°C		501331	–	501568	501330	501334
		3-5					P				501940		501953	501939	
		20, 30, 40, 50	dual	gold							501190		501571	501189	501193
1.20mm	Pico-EZmate™	2-6	single	gold	1.5A	50V	F	-25°C	+85°C	–	–	–	78171	78172	78172
1.25mm	PicoBlade™	2-15	single	tin	1.0A	125V	F	-40°C	+85°C	53047	53398	53048	53261	51021	50079
										–	–	–	–	–	50058
1.25mm	Clik-Mate™	2-15	single	tin	1.0A	50V	P	-25°C	+85°C	–	502382	–	502386	502380	502381
1.50mm		2-15	single		2.0A	100V				503159	502584	503175	502585	502578	503429
		8-32	dual		1.0A/2.0A						503154		503148	503149	502579
2.00mm	MicroClasp™	2-15	single	tin	3.0A	250V	P	-25°C	+85°C	55932	–	55935	–	51382	56134
		20, 30, 40	dual								55763			51242	
		8-40								55917	–	55959		51353	
2.00mm	Micro-Latch™	2-15	single	tin	2.0A	125V	F	-40°C	+105°C	53253	–	53524	–	51065	50212
2.00mm	Sherlock™	2-20	single	tin	2.0A	125V	P	-40°C	+105°C	35362	–	35363	–	35507	50212
2.00mm	Clik-Mate™	4-6, 8, 12-15	single	tin	3.0A	250V	P	-25°C	+85°C	–	502443	–	502494	502439	502438
2.00mm	iGrid™	10-40	dual	tin	2.0A	250V	P	-25°C	+85°C	501645	–	501876	–	501646	501647
										–	–	–	–	–	501648
2.50mm	Mini-Latch™	2-15	single	tin	3.0A	250V	F	-40°C	+105°C	5045	–	5046	–	51191	50802

Pico-Clasp™

Features & Benefits
- 1.00mm pitch wire-to-board system
- Circuit sizes: 2 – 15, single row, tin plated
- 20, 30, 40 & 50 circuits, dual row, gold plated
- Rated for 1.0A, 50V
- Applicable wire size: 28AWG – 32AWG
- Positive Lock from 6 circuits and higher
- Friction Lock for 2 – 15 circuits

CLIK-Mate™

Features & Benefits
- 1.25mm, 1.50mm and 2.00mm pitch
- Inner positive lock system
- 1.25mm: 2 – 15 circuits, single row, SMT
- 1.50mm: 2 – 15 circuits, single, SMT and through-hole
- 1.50mm: 8 – 32 circuits, dual row, SMT
- 2.00mm: 4 – 15 circuits, single row, SMT

PicoBlade™

Features & Benefits
- 1.25mm pitch wire-to-wire, wire-to-board system
- Circuit sizes: 2 – 15, single row
- Rated for 1.0A, 125V
- Vertical and right-angle versions
- Through-hole or SMT options
- Standard pre-crimped lead assemblies available

Sherlock™

Features & Benefits
- 2.00mm wire-to-board system
- Single row, through-hole
- Circuit sizes: 2 – 20
- Rated for 2.0A, 125V
- Applicable wire size: 24AWG – 30AWG
- Positive Lock system

MicroClasp™
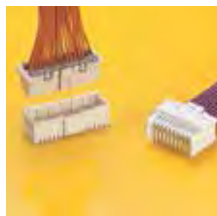
Features & Benefits
- 1.25mm pitch wire-to-wire, wire-to-board system
- Circuit sizes: 2 – 15, single row
- Rated for 1.0A, 125V
- Vertical and right-angle versions
- Through-hole or SMT options
- Standard pre-crimped lead assemblies available

Picoflex®

Features & Benefits
- 1.27mm ribbon cable, wire-to-board and board in system
- Dual row 4 to 26 circuit
- Through hole, SMT and latched headers available
- Tin and palladium nickel with gold flash(PdNi) plating options
- Standard cable assemblies available

iGrid™

Features & Benefits
- 2.00mm wire-to-board system
- Dual row, through-hole
- Circuit sizes 10 – 40
- Rated for 2.0A, 250V
- Applicable wire size: 22AWG – 28AWG
- Inner Positive Lock system

Pico-EZmate™

Features & Benefits
- 1.20mm pitch wire-to-board system
- Circuit sizes: 2 – 6
- 20mm (0.047") pitch wire to board system
- Rated for 1.5A, 50V
- Applicable wire size 28AWG – 30AWG
- Gold plated
- Low profile
- Top entry mating style

Board-to-Board Connectors

SlimStack™

The SlimStack™ micro board-to-board connector family offers design engineers a wide variety of space-saving choices and design flexibility in all applications requiring fine pitch mezzanine and right angle type board to board solutions. Molex's SlimStack™ 0.40mm connector family includes stack heights as low as 0.70mm and widths as narrow as 2.50mm.

Features & Benefits
- 0.4mm – 0.8mm pitch board-to-board connectors
- Straight or right angle
- Pick & Place cap/tape versions available
- Fitting nails and peg SMT versions available
- Circuit sizes ranging from 6 to 240
  Most popular: 0.40, 0.50 and 0.635mm pitch series
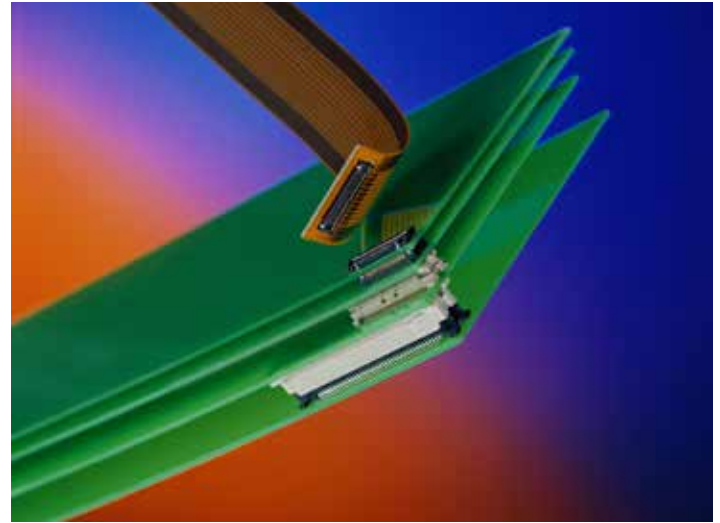
Receptacle Series	Plug Series	Pitch	Mated Height	Width	Nail	Peg	Circuit Size
503304	503308	0.40mm	0.70mm	2.60mm	o	x	12 to 60
503548	503552	0.40mm	0.70mm	2.60mm	o	x	06 to 18
503772	50776	0.40mm	0.80mm	2.50mm	o	x	10 to 60
501591	501594	0.40mm	0.90mm	3.40mm	o	x	10 to 70
502426	502430	0.40mm	1.00mm	2.60mm	o	x	08 to 80
503489	503308	0.40mm	1.00mm	2.60mm	o	x	30 to 60
501527	501531	0.40mm	1.30mm	3.40mm	o	x	20 to 90
503105	503108	0.40mm	1.50mm	2.60mm	x	x	30 to 50
51338	55909	0.40mm	1.50mm	3.40mm	o	x	10 to 100
500913	55909	0.40mm	1.80mm	4.20mm	o	x	24 to 100
51338	501745	0.40mm	2.00mm	3.40mm	o	x	12 to 80
500913	501745	0.40mm	2.30mm	4.20mm	o	x	30 to 60
54684	501017	0.40mm	4.00mm	5.20mm	x	x	24 to 100
54552	*503376	0.40mm	3.20mm	4.35mm	o	o	30 to 40
54722	55560	0.50mm	1.50mm	6.00mm	x	x	16 to 80
54363	55650	0.50mm	2.00mm	6.00mm	o	x	20 to 70
54102	53885/500334	0.50mm	2.50mm	5.30mm	x	x	16 to 80
52991	53748	0.50mm	3.00mm	5.40mm	x	x	20 to 80
52991	53916/501920	0.50mm	4.00mm	5.40mm	x	x	20 to 80
52885	55091	0.635mm	6.00mm	6.40mm	o	o	20 to 160
52885	53625	0.635mm	7.00mm	6.40mm	o	o	30 to 240
52885	53647	0.635mm	8.00mm	6.40mm	o	o	20 to 160
52885	53649	0.635mm	9.00mm	6.40mm	o	o	30 to 100
52885	53627	0.635mm	10.00mm	6.40mm	o	o	20 to 200
52901	55091	0.635mm	12.00mm	6.40mm	o	o	20 to 160
52901	53625	0.635mm	13.00mm	6.40mm	o	o	30 to 160
52901	53647	0.635mm	14.00mm	6.40mm	o	o	20 to 160
52901	53649	0.635mm	15.00mm	6.40mm	o	o	30 to 100
52901	53627	0.635mm	16.00mm	6.40mm	o	o	20 to 140
52465	53309	0.80mm	4.70mm	5.10mm	x	x	10 to 40
52465	*53307	0.80mm	4.50mm	5.10mm	x	x	10 to 40

*: Right angle   o: Applicable   x: Not Applicable

Micro-Miniature Products

FFC/FPC Connectors and Premo-Flex™

Molex offers a wide variety of connectors for flat flexible cable (FFC) and flexible printed circuitry (FPC). Included in this FFC/FPC family are Zero Insertion Force (ZIF) connectors with actuators and Non-ZIF connector without actuators on 0.20, 0.25, 0.30, 0.50, 1.00mm and 1.25mm pitch.

Features & Benefits
- Profile height as low as 0.62mm
- Slide-type and flip-type (Easy-On™ and BackFlip™) actuators
- Vertical and right angle versions
- Surface Mount Technology (SMT) and through-hole
- Top, bottom and dual contact style for right angle connectors
- Circuit size range: 3 – 80
- Most popular: 0.30, 0.50 and 1.00mm pitch series
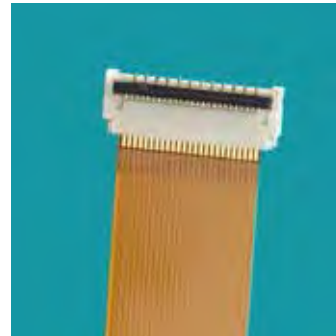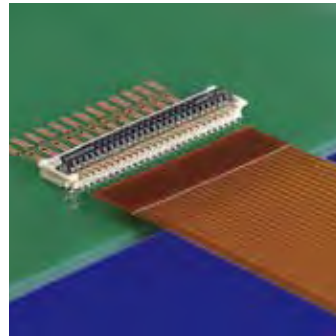
Molex Series	Pitch	Height	Orientation	PCB Mounting	FFC/FPC Insertion	Actuator Style	Contact Style	Circuit Size
502250	0.30mm	0.90mm	Right angle	SMT	ZIF	BackFlip™	Dual contact	17 to 51
503566	0.30mm	0.95mm	Right angle	SMT	ZIF	Easy-On™	Bottom contact	09 to 51
502598	0.30mm	1.15mm	Right angle	SMT	ZIF	BackFlip™	Dual contact	23 to 51
501912	0.30mm	1.80mm	Right angle	SMT	ZIF	Easy-On™	Bottom contact	15 to 51
52559	0.50mm	3.90mm	Vertical	SMT	ZIF	Slide	N/A	06 to 40
501951	0.50mm	4.05mm	Vertical	SMT	ZIF	Easy-On™	N/A	20 to 70
503480	0.50mm	1.20mm	Right angle	SMT	ZIF	BackFlip™	Dual contact	04 to 32
51281	0.50mm	1.20mm	Right angle	SMT	Non-ZIF	N/A	Dual contact	05 to 26
54548	0.50mm	1.20mm	Right angle	SMT	ZIF	Slide	Bottom contact	04 to 26
54550	0.50mm	1.20mm	Right angle	SMT	ZIF	Slide	Top contact	04 to 26
52435	0.50mm	2.00mm	Right angle	SMT	ZIF	Slide	Top contact	21 to 30
52437	0.50mm	2.00mm	Right angle	SMT	ZIF	Slide	Bottom contact	21 to 30
52745	0.50mm	2.00mm	Right angle	SMT	ZIF	Slide	Top contact	04 to 20
52746	0.50mm	2.00mm	Right angle	SMT	ZIF	Slide	Bottom contact	04 to 20
54104	0.50mm	2.00mm	Right angle	SMT	ZIF	Slide	Top contact	30 to 50
54132	0.50mm	2.00mm	Right angle	SMT	ZIF	Slide	Bottom contact	30 to 50
502790	0.50mm	2.50mm	Right angle	SMT	ZIF	Easy-On™	Bottom contact	30 to 80
52610	1.00mm	5.75mm	Vertical	SMT	ZIF	Slide	N/A	05 to 30
52808	1.00mm	5.10mm	Vertical	SMT	Non-ZIF	N/A	N/A	04 to 30
52030	1.00mm	5.20mm	Vertical	Through-hole	ZIF	Slide	N/A	04 to 30
52806	1.00mm	5.40mm	Vertical	Through-hole	Non-ZIF	N/A	N/A	03 to 30
52207	1.00mm	2.70mm	Right angle	SMT	ZIF	Slide	Top contact	03 to 30
52271	1.00mm	3.00mm	Right angle	SMT	ZIF	Slide	Bottom contact	04 to 30
52852	1.00mm	3.10mm	Right angle	SMT	Non-ZIF	N/A	Bottom contact	04 to 30
52793	1.00mm	3.10mm	Right angle	SMT	Non-ZIF	N/A	Top contact	04 to 30
52807	1.00mm	3.60mm	Right angle	Through-hole	Non-ZIF	N/A	Top contact	03 to 30

Premo-Flex™ FFC (Flat Flex Cable)

Features & Benefits
- 0.50mm, 1.00mm and 1.25mm pitch flat flex cable jumpers
- Ultra-thin, 0.12mm cable option supports up to 9,000 cycles
- 11 standard lengths and custom lengths available over 305.00mm
- 4 – 60 circuits
- Current range: 0.5A – 1.4A, 60V
- Temperature range: -40 – +105°C
- RoHS compliant/Halogen Free

Premo-Flex™ Etched Polyamide Jumpers

Features & Benefits
- 0.30mm pitch etched polyamide jumper
- Cable termination thickness of 0.12mm
- 5 standard lengths available
- Circuit size range: 23 – 51 circuits (8 circuit size options available)
- Current 0.2A, 50V
- Temperature range: -40 – +105°C
- RoHS compliant/Halogen Free
- Compatible with Molex 502598 Series ZIF connector

FPC Connectors

XF2M– 10 1 5–1 A H

Series No.

No. of Pins
10, 12, 14, 18, 20, 22, 24, 26, 30, 32, 33, 34, 35, 36, 38, 40, 42, 45, 50, 55, 60

Contact Arrangement
1 = One row, double-sided contacts

Special Correspondence
H = For only 55 pins or more

Plating
A = Gold

FPC Thickness
1 = 0.3mm

Terminal Shape
5 = SMT terminals, side entry

Features & Benefits
- 0.5mm pitch, 2mm height
- Applicable FPC thickness 0.3mm
- Rotary backlock
- Moulding wall on the base
- Double-sided contact
- Halogen-free

Applications
- Home appliances
- Industrial
- Building automation
- Energy meter
- Consumer products

XF2J– 06 2 4–11 A

Series No.

No. of Pins
6, 8, 10, 12, 14, 16, 18, 20, 20, 22, 24, 26, 28, 30, 40

Contact Arrangement
2 = Top entry, single-sided contact

Plating A = Gold

Terminal Arrangement
1 = Standard
2 = Reverse

FPC Thickness
1 = 0.3mm

Terminal Shape
4 = SMT terminals, top entry

Features & Benefits
- 0.5mm top-entry ZIF connector
- Applicable FPC thickness 0.3mm
- 4.15mm height
- Models with reverse terminal arrangement also available
- Zero insertion force
- Low profile
- Secured space for the pick-and-place on top of connector

Applications
- Home appliances
- Industrial
- Building automation
- Energy meter
- Consumer products

Omron's Rotary Backlock Mechanism

Rotary Slider

FPC Socket

Upper Contact

Lower Contact

Benefits & Features

Upper Contact

Lower Contact

Rotary slider independent of the FPC socket
▸ Slider does not disconnect if the FPC is lifted.
High reliability-A mounted FPC will not come off if excess force is applied to it.
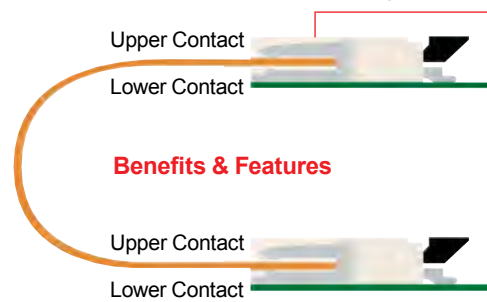
Double-sided contact
Note: Except the XF2C and 61-pin XF2B-61
▸ No need to discriminate between the upper and lower FPC contacts.
Connectors are the same, so it's not necessary to distinguish between the upper and lower contacts when connecting upper and lower PCBs.
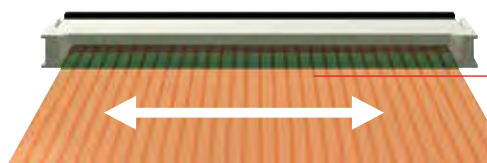
Four-sided FPC housing
▸ Construction prevents FPC displacement.
Mounting reliability is enhanced because the FPC is held in a four-sided housing and is unaffected by the slider operation.

Delivered with the rotary slider open
▸ Reduces the labour required to mount FPCs.
Assembly speed is improved over the conventional rotary locking type because the rotary slider does not need to be released.

Conventional Rotary Connector
1. Mount the connector
2. Release the rotary slider
3. Insert the FPC
4. Lock the rotary slider

XF2 Series
1. Mount the connector
2. Insert the FPC
3. Lock the rotary slider

XF2W FPC Connector

Features & Benefits
- Rotary backlock mechanism
- 0.5mm Pitch
- 5, 7, 8, 9, 16, 18, 20, 24, 45, 50, 55, 64 pins are available
- Low profile of 1.1mm
- Applicable FPC thickness 0.3mm
- Ultra-slim as depth of 3.5mm
- Double-sided contact
- Moulding wall on the base
- Halogen free

XF3B FPC Connector

Features & Benefits
- Rotary backlock mechanism
- 0.3mm Pitch
- 8, 19, 25, 35, 51, 67 pins are available
- Low profile of 0.9mm
- Applicable FPC thickness 0.2mm
- Double-sided contact
- Moulding wall on the base
- Halogen free

OMRON

IDC Flat Cable Connectors

	XG4	M–	10	30–	T	

Series No.

Type
M = Socket

No. of Pins
10, 14, 16, 20, 26, 30, 34, 40, 50, 60, 64

Strain Relief Type
T = Socket and Strain Relief Sets
U = Socket and Strain Relief with Locks Sets

No. of Polarity Guides
30 = 1 guide
31 = 2 guide

	XG4	A–	10	31	

Series No.

Type
A = Plug with locks
C = Box-type Plug

No. of Pins
10, 14, 16, 20, 26, 30, 34, 40, 50, 60, 64

Terminal Type
31 = Straight DIP terminals
34 = Right-angle DIP terminals
71 = Straight DIP terminals
74 = Right-angle DIP terminals

Features & Benefits

The mainstream of circuit board connectors conforming MIL standards with improved design
• Conform to MIL standards (MIL-C-83503)
• UL standards (file No. E103202)
• Flat cable is connected by IDC technology
• Type XG4M-U:
  Lock in socket enables space saving of 24%
  Possible to connect and disconnect with one hand

Applications

• Home appliance
• Industrial
• Building automation
• Medical
• OA
• PC peripheral
• Telecom
• Consumer
• Clean energy etc.

XG4M-T/XG4A, XG4M-T/XG4C and XG4MU-T/XG4C

Features & Benefits

• The mainstream of circuit board connectors
• Conforming MIL standards with improved design
• Conform to MIL standards (MIL-C-83503)
• UL standards (file No. E103202)
• Flat cable is connected by IDC technology
• Type XG4M-U:
  – Lock in socket enables space saving of 24%
  – Possible to connect and disconnect with one hand

Applications

• Home appliance
• Industrial
• Building automation
• Medical
• OA
• PC peripheral
• Telecom
• Consumer
• Clean energy etc.

DVI Connectors

XM4M–	29	32–	13	12	

Series No.

No. of Pins
24, 29

Accessories
50 = No anchors
13 = Inch screws
(length=5.8mm)

Features & Benefits
- Shielded against EMI for high-speed data transfer
- Digital and digital/analogue models available

Applications
- Home appliance
- Industrial
- Building automation
- Medical
- OA
- PC peripheral
- Telecoms
- Consumer
- Clean energy etc.

USB Connectors

XM7	A–	04	42–	A	

Series No.

Type
A = Type A
B = Type B

Row Type
Blank = Single-row
A* = Double-row (*only Type A)

Terminal Type
41 = Right-angle DIP terminals
42 = Straight DIP terminals

Features & Benefits
- Enables hot swapping so equipment can remain on
- Superior bend resistance during Connector insertion and removal

Applications
- Home appliance
- Industrial
- Building automation
- Medical
- OA
- PC peripheral
- Telecoms
- Consumer
- Clean energy etc.

D-Sub Connectors

XM3B–	09	42–	132L	

Series No.
XM3B = sockets with right-angle DIP terminals
XM2C = plugs with right-angle DIP terminals
XM2E = plugs with straight DIP terminals
XM2F = sockets with straight DIP terminals

Anchors Type
112L = M2.6 x 0.45
132L = #4-40 UNC

Terminal Type
40 = straight DIP terminals
42 = right-angle DIP terminals

No. of Pins
9, 15, 25

Features & Benefits
- Determine anchor screw diameters at a glance
- Greatly simplified anchor combinations

Applications
- Home appliance
- Industrial
- Building automation
- Medical
- OA
- PC peripheral
- Telecoms
- Consumer
- Clean energy etc.

DVI Connectors-XM4M

Features & Benefits
- Used for both digital video (TMDS) and conventional analogue (RGB) signals
- OMRON's DVI Connector is an analogue interface capable of up to 2.5-GHz bandwidths
- Transfers broadband data up to 9.9GHz (dual link) to ensure full compatibility with advanced broadband applications
- Shielded against EMI for high-speed data transfer
- Digital and digital/analogue models available

USB Connector

Features & Benefits
- New, compact, USB-compliant interface connectors
- Enables hot swapping so equipment can remain on
- Superior bend resistance during connector insertion and removal
- A-type sockets connect to personal computers and USB hubs. B-type sockets connect to a modem, scanner, mouse, or other personal computer peripheral devices

D-Sub Connectors

Features & Benefits
- Determine anchor screw diameters at a glance
- Greatly simplified anchor combinations
- Shielded against EMI
- EMI/RFI shielded hoods available

OMRON

Solutions for FPC – Connection
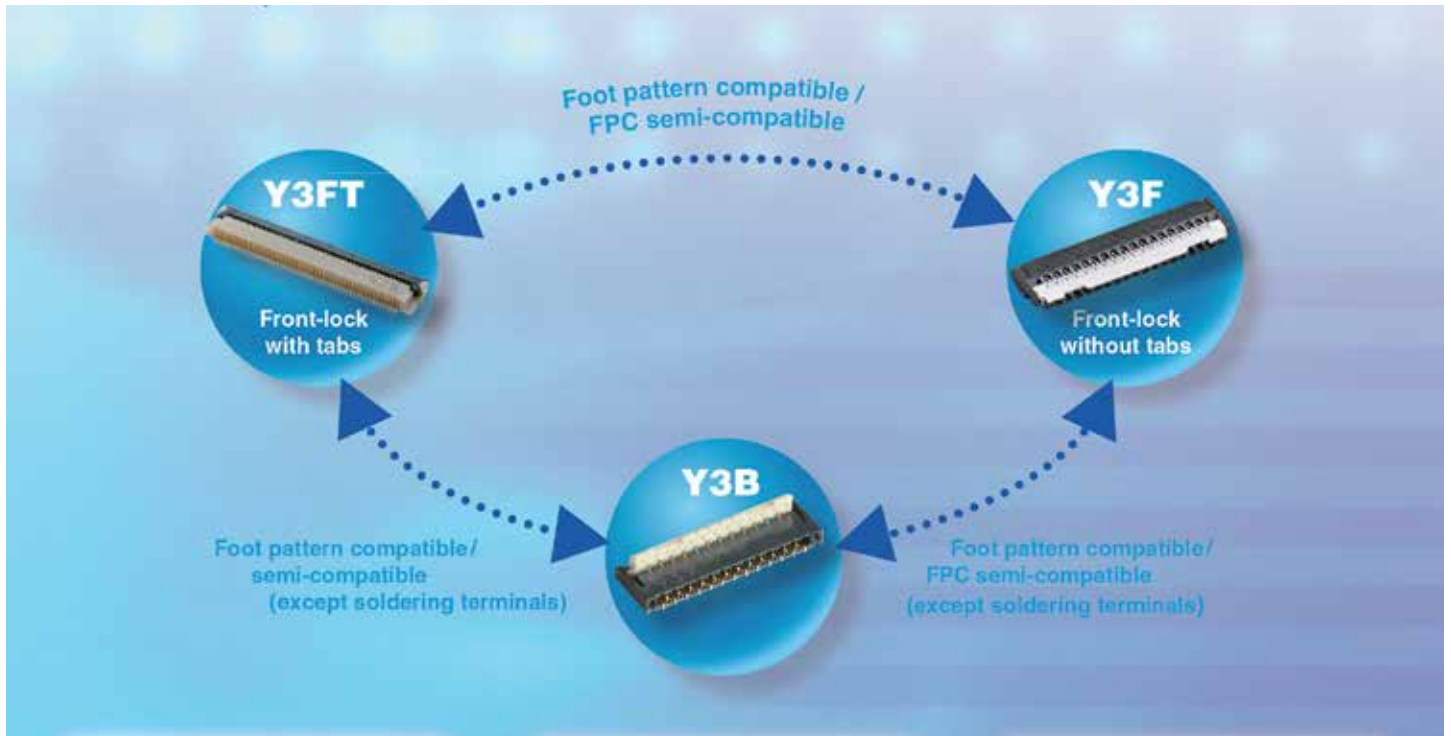
Features & Benefits
- Low profile and space saving design
- Wiring patterns can be located underneath the connector
- Ni barrier with high resistance to solder creep

Applications
- LCD to board connection
- Digital cameras
- Electronics
- Measurement device
- Security systems
- Consumer equipment

Circuit Board Connections

Board-to-Board

A connection type comprising two connector halves (socket/header). This type is used when space limitations require stacking printed circuit boards, or when small module circuit boards are mounted on a motherboard. Board-to-board enables parallel connections between printed circuit boards, with one-to-one signal transmission.

Board-to-FPC

Used to connect flexible and rigid circuit boards. This connection type is often used for small modules (such as camera modules and display panels) requiring a connection to the motherboard, or if other routing options are not feasible due to space limitations.
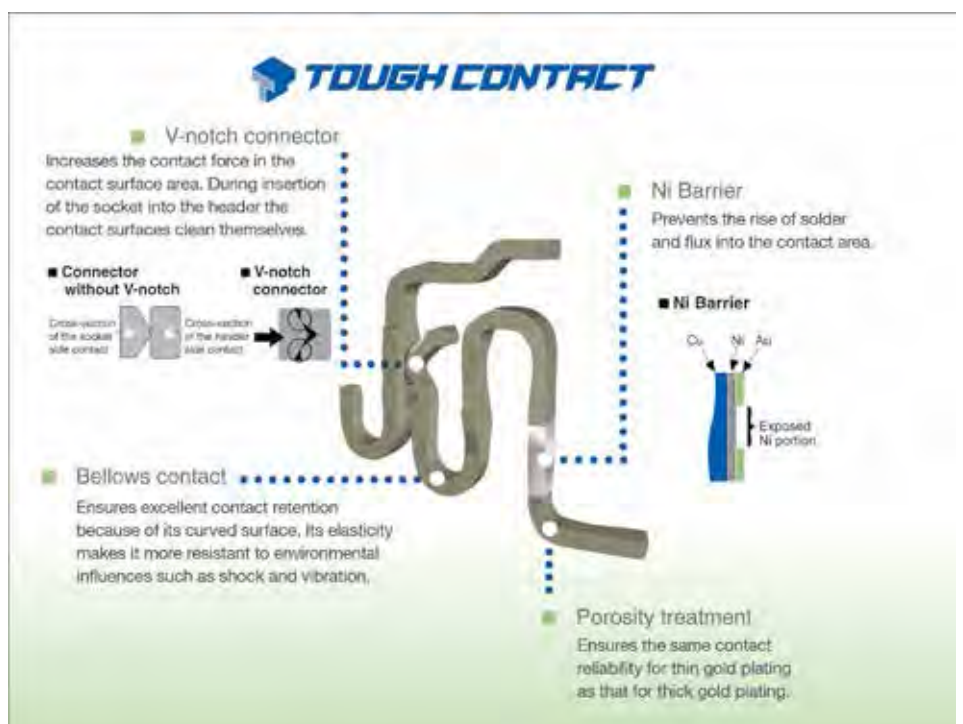
Cable Ties and Installation Systems

Features & Benefits
- PAT1M/PAT1 0.5M reel-fed systems for miniature cross section cable ties (18lb (80N) minimum loop tensile)
- Consists of tool head, dispenser, feeder hose and continuously moulded, reel-fed cable ties (5000 ties per reel)
- Choice of 2 tool head sizes for bundle diameters up to 0.82" (21mm) or up to 1.3" (33mm)
- Operates on 65 psig. non-lubricated, filtered air and 100VAC, 120VAC and 230VAC
- Installs cable ties in less than 1 second
- Dispenser and hose designed to operate with either tool head for maximum versatility and economy
- Design permits complete mobility in the use of the tool and location of the dispenser

The following chart can be used as a guide for tool selection:

Tool	Sub Miniature	Miniature	Intermediate	Standard	Light Heavy	Heavy	Extra Heavy	Per Minute	Per Year	Operation	Applications
GTS	●	●	●	●				4 to 6	Under 50 000	Hand	Low/medium volume OEM tie usage, MRO or construction
GS2B		○	○	○							
GTH				●	●	●					
GS4H				○	○	○					
GS4H/B				●	●						
GS4H121W				○	○						
GS4EH					●	●	●				
STS2		○	○	○				1 to 4	Under 10 000	Hand	MRO or Construction
STH2				●	●						
ST2EH					○	○	○				
PTS	●	●	●	●				5 to 8	Up to 250 000	Pneumatic	Medium/high volume OEM tie usage, where a variety of tie sizes are needed
PPTS		○	○	○							
PPTEH					●	●	●				
PAT1M/PAT1.5M Systems (Automatic)		○						30 to 40	250 000 and above	Pneumatic/Electric	High Volume OEM

Dome Top Barb Tie

Features & Benefits
- Nylon cable tie with stainless steel locking barb
- Delivers high tensile strength with a low thread force
- Available in a wide variety of colours and styles
- Also available in weather resistant black

Dome Top Marker and Flag Ties
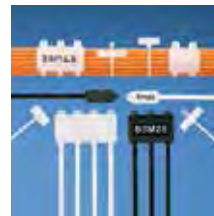
Features & Benefits
- Used to fasten and identify bundles at the same price, driving cost out
- They can be marked with PANDUIT® Marker Pens
- Available in miniature and standard cross section
- Available in natural and weather resistant nylon

Tool Controlled Tension and Cutoff Tools

Features & Benefits
- PANDUIT® cable tie installation tooling ensures quick, secure cable installations
- Tool-controlled tension allows ties to be installed without abrading or damaging cable
- Engineered to promote worker safety, reduce downtime, increase productivity and quality and provide the lowest installed cost

Harness Board Accessories

Features & Benefits
- Faster routing and forming of wires for harness fabrication
- Holds the harness a uniform height above the board for easy application of cable ties
- Improves installation speed by 30% over harness board nails

PANDUIT

Cable and Component ID Solutions

EASY-MARK™ Labelling Software

Generate labels quickly and easily with EASY-MARK™ labelling software featuring new market specific labelling application tools that assist in creating labels for wires/cable, terminal blocks, safety signs, voltage marking and more. EASY-MARK™ saves time and money in creating labels for wire/cable, circuit board and electrical components and safety identification. Features such as WYSIWYG user interface, data import, symbol import and pre-loaded label formats make label creation easy and flexible.

Features & Benefits

- Alpha numeric serialisation reduces time required to create incremented legend lists
- WYSIWYG (What You See Is What You Get) interface allows you to see labels on-screen as they will appear when printed, which improves productivity and reduces errors
- Data file import reduces time and errors by importing data previously created in EXCEL† (.XLS) files or comma separated value (.CSV) files onto labels
- Pre-loaded PANDUIT® label formats for thermal transfer, laser/inkjet and dot matrix labels reduce formatting errors

CAD-CONNECT™ Labelling Software

Generate labels quickly and easily within CAD programmes such as AutoCAD* or Visio† using CAD-CONNECT™ labelling software.

This programme combines the power of an innovative wizard interview process and EASY-MARK™ labelling software to capture and organise identifiers from electronic CAD files to automatically create and print labels. CAD-CONNECT™ labelling software eliminates the steps and time spent manually copying identifiers into labelling software.

Features & Benefits

- Wizard interview process facilitates quick and easy organisation of identifiers from CAD for printing within EASY-MARK™ labelling software
- Accommodates the industry's most common CAD programmes (AutoCAD* and Visio†) providing convenience and flexibility – compatible with AutoCAD* 2000i and Visio† 2002 and newer versions
- Easily capture and organise CAD data for future use and documentation by exporting identifiers to alternative formats such as EXCEL† (.XLS) or text (.CSV) files

* AutoCAD is a registered trademark of Autodesk, Inc.
† Visio and EXCEL are registered trademarks of Microsoft Corporation in the USA and/or other countries

Cougar LS9 Hand-Held Printer

Features & Benefits
- Dramatically increases labelling productivity
- Wide variety of label material and sizes
- Labels are provided on smart cassettes that recalls last legend
- Partial cut feature provides the flexibility to choose tear apart strips

Polyamide Component Labels

Features & Benefits
- Technically engineered to withstand flash temperatures as high as 617˚C for up to 5 minutes and temperatures of up to 482˚C for up to 30 minutes
- Makes it perfect for application on the PCB before soldering takes place
- Can withstand harsh solvents, oils and chemicals without lamination

Thermal Transfer Heat Shrink Wire & Cable Markers

Features & Benefits
- Durable, high-quality, permanent heat shrink markers
- Pre-cut tubing mounted on plastic carrier
- Flattened polyolefin material
- Temperature range: -22˚F – 220˚F (-30˚C – 105˚C)
- Shrink ratio: 3:1 at 212˚F (100˚C)
- Meets UL Standard 224 for flammability
- For best results use with PANDUIT® Wax Thermal Transfer Ribbons

Thermal Transfer Labels

Features & Benefits
- Labels offer crisp, clear legends with superior legibility
- Available in polyester, vinyl cloth and polyamide materials and supplied on rolls
- Designed for use with thermal transfer desktop printers, including the TDP42H and TDP43M printers
- Includes all label formats for quick and easy label production

Device Connection Highlights
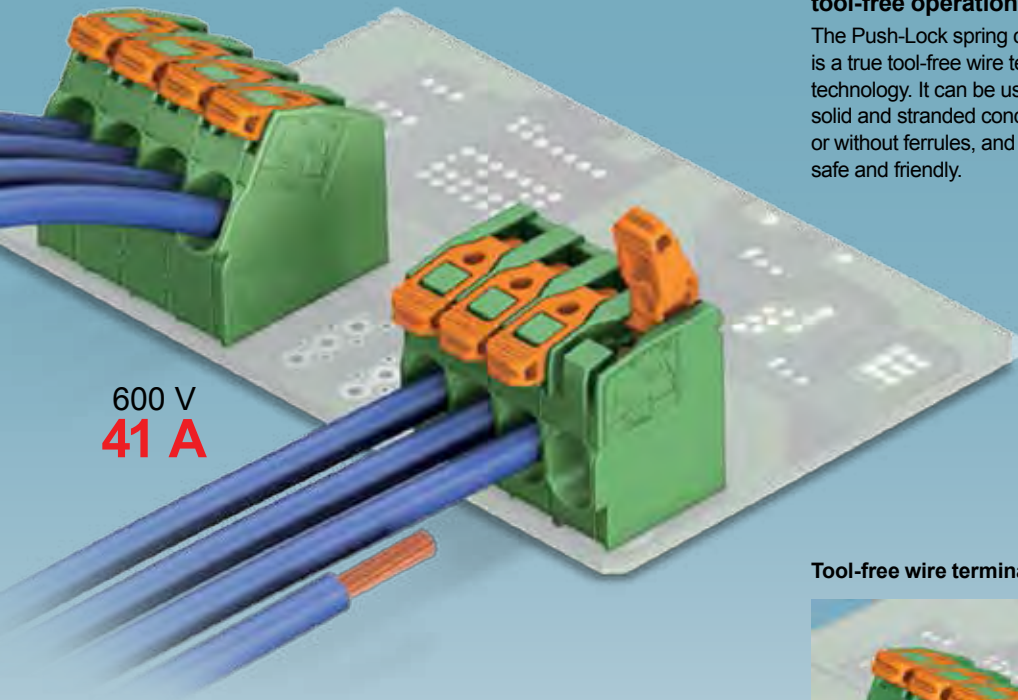
600 V
41 A

PCB connectors with tool-free operation

The Push-Lock spring connection is a true tool-free wire termination technology. It can be used with solid and stranded conductor, with or without ferrules, and is user-safe and friendly.
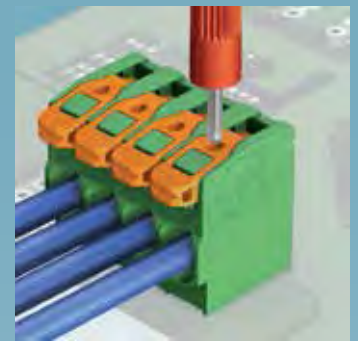
Integrated test point

Tool-free wire termination
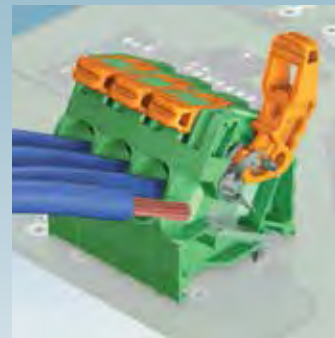
1. Insert the conductor
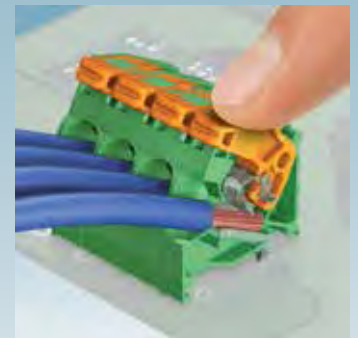
2. Close the lever and your connection is complete!

COMBICON Control
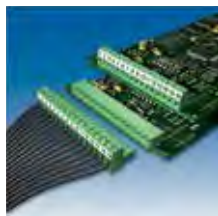
Features & Benefits
- Measurement, control, and instrumentation applications
- Screw, spring and IDC connection technologies
- SMD, THR, wave-solder, press-in, and direct connection types
- Customer specific variants

COMBICON Compact

Features & Benefits
- Building lighting and control, and telecommunications applications
- Pin-strip connector series
- Screw and spring connection technologies
- TWIN spring versions
- Board mounted fibre optic connectors
- Custom colours available

PHOENIX

Device Connection Highlights
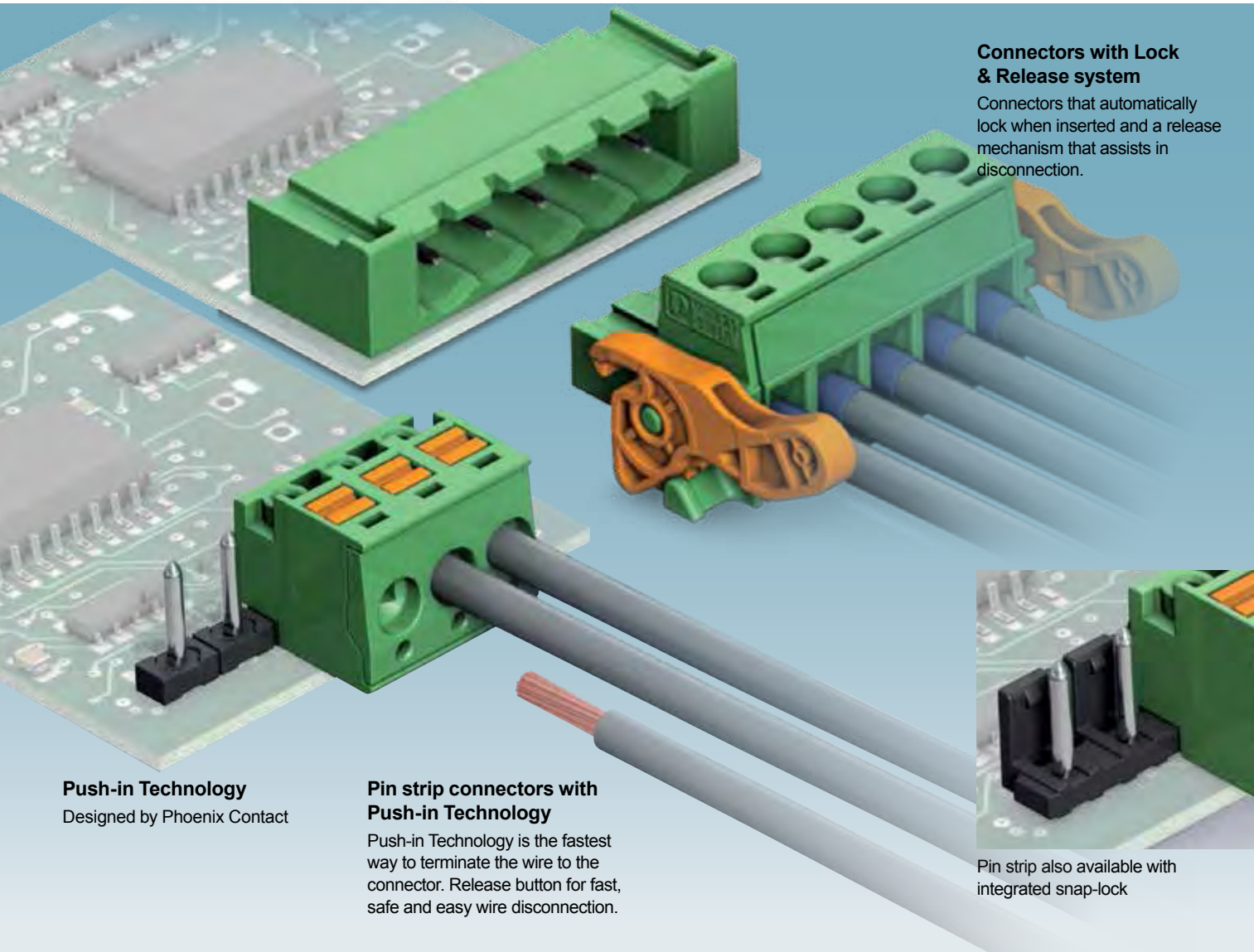
Connectors with Lock & Release system

Connectors that automatically lock when inserted and a release mechanism that assists in disconnection.

Push-in Technology

Designed by Phoenix Contact

Pin strip connectors with Push-in Technology

Push-in Technology is the fastest way to terminate the wire to the connector. Release button for fast, safe and easy wire disconnection.

Pin strip also available with integrated snap-lock

COMBICON Power

Features & Benefits
- Power electronic applications
- Screw, and spring connection technologies
- Board mounted terminals rated up to 125A
- Pluggable connectors rated up to 76A
- Flying lead connections
- Panel feed-through versions
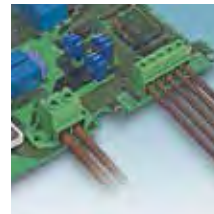
COMBICON Housing

Features & Benefits
- Electronic PCB enclosures for a wide range of applications
- Including metal housings up to IP65
- Various colours, printing, milling available
- DIN-rail and panel-mount versions
- Integrated bus connections
- All connection technologies possible
- Customer specific solutions
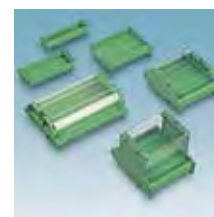
About Radiall

Radiall is a global leader in design, development and manufacturing of leading edge interconnect solutions that support the telecommunications, defence, aerospace, automotive and industrial markets. It offers the most extensive range of high quality competitively priced RF coaxial connectors and cable assemblies, fibre optic and microwave components. Dedicated to understanding the global economy's business and its customer's needs, Radiall has earned the reputation for being "the best of the best" in engineering ingenuity by providing a constant flow of creative system solutions that meet today's demanding signal transmission applications. In addition, the company is committed to investing in its people, future technologies and the environment.

BNC 75Ω HDTV Coaxial Connector

Features & Benefits

- Easy to connect and disconnect from the rear – ideal for high-density and recessed bulkhead applications (No tool required to plug/unplug)
- Colour coded boot directly on the connector for easy video signal identification (ten colours available)
- Inter-mateable with most popular broadcast cables (BELDEN, DRAKA, CAE, ARGOSY)
- 1000 mating cycles minimum for guaranteed durability in the field
- Provides outstanding electrical performance with a frequency range of up to 6GHz
- Typical VSWR 1.05 at 3GHz (-32dB return loss)
- Data rates up to 3Gbps or higher while meeting or exceeding SMPTE 292M and 424M standards
- True 75Ω design inter-mateable with 50Ω and 75Ω BNC Products

BNC

Features & Benefits

- Bayonet coupling
- Has gained wide acceptance in video & RF applications and many types of test equipment
- 50Ω & 75Ω

Composite Connectors

Features & Benefits

- N and 7/16 composite connectors available
- Low intermodulation
- No corrosion
- Low weight
- Inter-mateable with standard N plugs

SMA

Features & Benefits

- Screw-on
- Steel SMA (R125) is designed for high-end applications
- Some connectors are specified up to 27GHz
- Brass SMA-COM (R124) for telecom and industrial applications

Attenuators & Terminations

Features & Benefits

- Wide range of attenuators from 1W to 100W
- Connectorised in SMA, QMA, SMB, SMC, BNC, N, TNC, QN, 7/16
- Wide range of terminations/loads
- Available from 1W – 100W with many various interfaces

Optical Connectors

Features & Benefits

- Radiall offers LC, SC, FC, ST, EC, FSMA connectors for indoor applications
- Outdoor optical connectors are also available for harsh environment needs
- Available in multimode and singlemode PC and APC configurations
- Optical pigtails, patchcords and harnesses are available with many optical connector configurations

RADIALL

Aerospace and Defence

8D Series MIL-DTL-38999 Connectors

Since the early 80's, Souriau is a major supplier of 38999 Series III, the screw-coupled version of MIL-DTL-38999. Present on the main international programs, Souriau has developed a range of products that meet the performance required in extreme environments. Always at the cutting edge of innovation, Souriau's teams have continuously improved this range of connectors (composite, titanium, RoHS solutions...).

This product family is in accordance with MIL-DTL-38999 Series III, EN3645, VG95319, CECC, (standard for bronze) and also meets many customers' standards (Rolls-Royce, ABS, BACC...).

Features & Benefits

- High contact density layouts available
- Screw coupling
- Shell size from 9 – 25
- Contact protection:
  – 100% scoop proof
- Protected by cadmium, nickel, green zinc cobalt or black zinc nickel plating
- RFI – EMI shielding and shell to shell continuity
- Accessories (protective caps, backshells, etc.)
- Hermetic versions
- High power up to 850A
- Optical layouts
- 230V layouts available (ABS qualified)

Applications

- Civil aeronautic
- Military aeronautic
- Ground military
- Industrial
- Marine and offshore

38999 High Power Connectors

Features & Benefits

- 3 aluminium shell sizes available
- Up to 850A maximum at 40°C
- Modular design for easy installation
- Safety (protective caps)
- EMI backshell (right angle and straight)

38999 High Speed Connectors

Features & Benefits

- Fibre optic technology with ELIO® contacts (singlemode and multimode) - Up to 10Gbits/s
- Quadrax contacts up to Cat6 for ethernet et high speed networks – up to 1Gbits/s
- BMA coaxial contacts for high frequency transmission – DC 18GHz

Aerospace and Defence

Micro38999 Connectors

The micro38999 ranges are made to meet a new generation of applications where space and weight are limited (Tactical radio, UAV, on board equipment, infantry, C4ISR, instrumentation, small equipment for industry…).

The micro38999 is the first complete platform of miniature products available on the market with a 38999 design in order to be compliant with the harshest specification (Vibration, operating temperature, durability, corrosion resistance, EMI shielding…).

Features & Benefits
- A compact solution
  – The smallest connector available on the market (shell size 3)
  – Miniaturization of MIL-DTL-38999 Series III
  – Threaded coupling with ratcheting system, bayonet and break away
- Integrated backshell:
  – Easy to wire and handle, compatible with heat shrink boot and braid retention band, compliant with overmoulding
  – Triple-start thread
- A versatile solution
  – 3 shells sizes: 3, 5, 7
  – Plug; In line, square flange and jam nut receptacle
  – Aluminium: Zinc nickel (RoHS), Nickel (RoHS), Cadmium
  – Stainless steel: passivated (RoHS)
  – Crimp & PC tail contacts
  – Removable contacts #22D & #26
  – 6 keyings
- Harsh environment-resistant solution
  – Cavity to cavity sealed with interfacial seal and grommet
  – EMI ring
  – Fluid resistant

Applications
- Tactical radio
- Autonomous robot
- UAV
- Sensors
- On board electronics & networks
- Display
- Interconnect for infantry
- Helmet
- Civil aeronautic
- Satellite
- Remote control
- Small equipment & instrumentation
- Drilling
- Medical

Micro38999 Accessories & Tooling

Features & Benefits
- Micro band-it & Band-it tool
- Gaskets
- Metallic caps for plugs and receptacles
- Crimping tool
- Insertion & extraction tool

Micro38999 with PC Tail Contacts

Features & Benefits
- High density: 3 – 9 contacts
- Contacts #22 or #26
- PCB compounded termination
- Bayonet or threaded coupling
- Jam nut, oval & square flange
- Rear and front mounting

Speciality Connectors & Cabling

Features & Benefits

- Capacitance Range:
  500pF – 20,000pF
  Specials available
- Configurations:
  C, CL, LC, PI & T
- Insulation Resistance:
  5GΩ minimum
- DC Resistance:
  30MΩ maximum
- Harnessing to customer
  specification
- Various MIL styles available
- Mechanical interchangeability
  with unfiltered connectors
- All lines 100% tested before
  shipment
- Reliability
- Design flexibility
- Excellent filtering
- Better cost control
- Better quality control

Audio Connectors

Features & Benefits

- Easy retro-fit or upgrade
- Reduced cost and lead time
- Design flexibility and quality assurance
- Custom designs
- Versatility
- Per MIL-DTL-55116
  – Filtered and unfiltered versions available

Rapid Mate Connectors

Features & Benefits

- Hot shoe style
- Custom filtering
- Rugged and reliable
- Resists sand, dust and water
- Low, flexible mating force

D-sub Connectors

Features & Benefits

- Available in 9, 15, 25, 37 & 50 positions
- Variety of termination configurations
- Capacitive and PI filters
- RoHS compliant versions
- Product range from chip-on-board Series 100 to
  high performance Series 700

Micro-D Connectors

Features & Benefits

- Light weight
- Compact size
- Environmentally sealed when mated
- Corrosion resistant
- RoHS compliant
- Custom filtering

TE Connectivity is a global, $14 billion company that designs and manufactures highly engineered solutions that connect and protect data and power inside millions of products that touch every aspect of our lives. In a world where everything is connected...

Every Connection Counts

TE's strength in engineering, design, manufacturing and service extends to customers in every major region of the world. Working side-by-side to create innovative and efficient ways to solve their connectivity challenges, TE is committed to moving our customers forward, faster and in more places than ever before.

Z-PACK HM Zd Plus Connectors
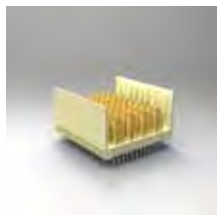
Features & Benefits
- Receptacle mates to existing Z-PACK HM-Zd header to help enable increased field speed up to 20Gbps
- Receptacle and lead frame include a double ground design to help reduce noise/crosstalk
- Reduced plated-through-hole to 0.46mm helps to improve electrical performance
- Meets next-generation ATCA standard
- 2, 3 and 4 pair options tooled with production tooling in place

Applications
- Base stations
- IP multimedia subsystem servers
- Media gateways and soft switches
- DSLAMs
- Multi-service switches
- Media servers
- Blade servers
- VOIP session controllers

CeeLok FAS-T Connectors

Features & Benefits
- Patented, noise-cancelling contact arrangement minimising cross talk
- Achieves speeds up to 10Gb Ethernet with Cat 6a or Cat 7 wire (1Gb with Cat 5a)
- The small and lightweight design allows for improved performance with less space
- Rugged design ideal for harsh environments
- Backshell integrated in plug body provides low profile, low cost, low weight strain relief and EMI protection
- Crimp-Snap, 39029-style contacts for easy termination and field repairability
- Compatible with Raychem brand shrink boots for sealed harness applications

Applications
Military
- Rotary wing
- Fixed wing
- Ground vehicle
- Soldier systems
- Missiles and smart munitions
- Space
- Shipboard
- C4I

Commercial & Civilian Aircraft
- In flight entertainment and connectivity
- Avionics
- Communication systems
- Production breaks (high speed signal)

EP II Power Connector Series

Features & Benefits
- Housing locking latch
- Polarisation tabs
- New lance-less terminal design with integrated TPA feature
- Better vibration resistance
- Increased voltage capability
- Terminal can only be loaded in one way
- Window slots for probe tip
- Anti-snag feature

Applications
- Household appliance
- HVAC
- Industrial machinery (e.g. control boards)

Circular Plastic Connectors

Features & Benefits
- Lightweight, all-plastic and metal-shell connectors
- UL 94V-0 rated and made of stabilised, heat resistant, self-extinguishing thermoplastic material
- Quick connect/disconnect capability with thread assist, positive detent coupling
- Built-in pin and socket protection
- Polarised for proper mating of connector halves
- Removable contacts and replaceable coupling ring make field repair easy

Applications
- Industrial machinery, factory automation; material handling equipment
- Rail and transit vehicles and systems
- Medical instrumentation and Equipment
- Communication equipment, networking, data storage, computers and peripherals
- HVAC, commercial and building equipment
- Lighting and signage
- Motor vehicles – auto/bus/truck; off-road and recreational vehicles; agricultural machinery; construction equipment
- Aerospace and defence equipment and systems

CeeLok FAS-T, Raychem, Z-PACK, TE Connectivity and TE connectivity (logo) are trademarks.

RAPID LOCK Bus Bar Connectors

Designed as a fast installable and reliable replacement for power lugs and threaded studs in Power Distribution Units (PDUs), Power Supply Units (PSUs) and various power distribution structures.

Features & Benefits

- No installation tools are required
- No loose nuts, which means no fretting or heat rise
- Well defined low-ohmic connection, not depending on proper torque settings in the installation process
- Snap lock retains the terminal without additional hardware

- Supports up to 250A per contact
- Low contact resistance
- Right angled and straight orientation allows compact wire routing
- Wire sizes from 2.5 up to 95mm^2
- Colour coding available
- UL certified

Applications

- Power Distribution Units (PDUs)
- Power Supply Units (PSUs)
- Various power distribution structures
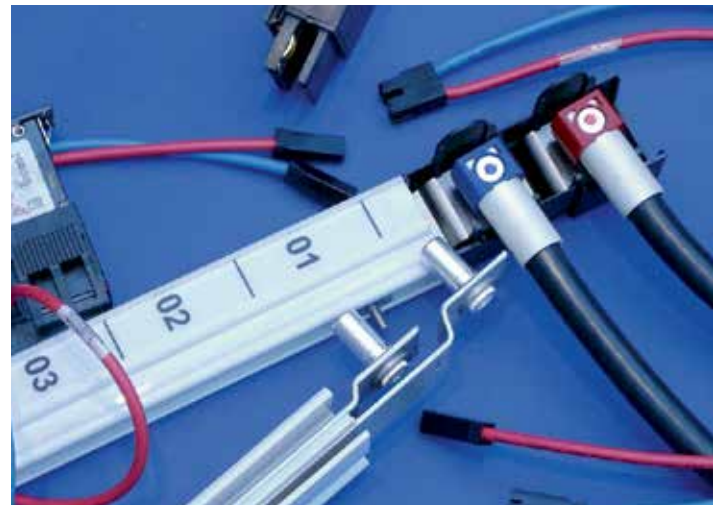
Universal Power Modules

Features & Benefits

- Designed to compliment most 2mm hard-metric backplane connectors
- Right angle and vertical plugs, right angle and vertical receptacles
- Suited for Telcordia (Bellcore) GR1216 applications
- Hot pluggable and low mating force for high durability and high reliability
- Standard power grade of 10A and high power of 16A
- Available in three contact mating lengths for a variety of sequencing patterns
- Connectors with 3 – 12 positions available

Applications

- Telecommunications equipment
- Industrial computing
- Servers and storage
- AC/DC power supplies
- Computer and peripherals

AMP Power Series

Features & Benefits

- No installation tools are required
- No loose nuts, which means no fretting or heat rise
- Well defined low-ohmic connection, not depending on proper torque settings in the installation process
- Snap lock retains the terminal without additional hardware
- Supports up to 250A per contact
- Low contact resistance
- Right angled and straight orientation allows compact wire routing
- Wire sizes from 2.5 up to 95mm^2
- Colour coding available
- UL Certified

Applications

- Power Distribution Units (PDUs)
- Power Supply Units (PSUs)
- Various power distribution structures

ICCON Connectors

Features & Benefits

- Optional locking feature helps to support improved connection integrity, securing against accidental unmating in harsh conditions
- Provides reliable high current power interconnection for environments with space constraints
- Multi-fingered spring provides greater surface contact area, ensuring small millivolt drop, minimum heat generation and low insertion/extraction forces
- Available with press-fit or solder tails providing mounting flexibility for both PCB and busbar applications
- Convenient industry standard mounting accommodated by a 10 pin DIP footprint
- Through hole socket connectors are ideal for "bottom entry" applications

Applications

- Power distribution
- Board-to-board interconnection
- Board-to-busbar interconnection
- Board-to-wire interconnection
- High-density power designs
- Board stacking

ET Power Connectors

Features & Benefits

- Cost effective
- Low profile (8mm)
- Silver plated contacts
- Cable size supported from 2.5mm – 6mm^2
- Currents supported up to 37.5A
- Positive latch retention
- Pick and place PCB version
- PCB hold downs

Applications

- Power distribution
- Power supplies
- Telecom base stations
- Computer servers
- Storage systems
- Industrial electronic equipment cabinets

AMP, ICCON, RAPID LOCK, TE Connectivity and TE connectivity (logo) are trademarks.

Authorized Distributor

MOTORMAN Hybrid Connectors

TE is pleased to present MOTORMAN Hybrid Connectors! This innovative connector allows for decentralised automation and can lead to a more efficient, energy-saving industrial product line.

Features & Benefits
- Compact design allows for efficient use of space
- Satisfy power, signal and communication needs in one compact connector
- Robust contact system to help minimise effects of impact and vibration
- Spacious, side internal access assists easy and safe configuration
- Sealing element covers cable diameters from 13mm – 17mm (IP65)
- Contacts may be mounted selectively allowing for design flexibility

Applications
- I/O connector for decentral servo motors
- I/O connector for AC servo motors
- Drivers (amplifiers)
- Industrial packaging, assembly, woodworking or food processing machines

Power4Net Hybrid Connector

Features & Benefits
- Hybrid design, combining power and data communication
- Housing with 8 power contacts and fast Ethernet interface/8+4 power and signal contacts
- Optional housing with 11 + PE (Protection Earth) contacts
- Wire-to-board and wire-to-wire design
- Extremely robust contact design with stainless steel locking lance and multiple contact points
- Gold, silver and tin plated contacts
- Radial sealing elements provide IP67 sealing performance
- Hydraulic oil-resistant plastic enclosures or EMC protected metal enclosures
- Bulkhead, connector and wire-to-wire connectors in 90° and 180° design
- Turning catch-lock ensure safe locking even when vibrations and shocking is applied

Applications
- High performance process control systems
- Machine automation systems
- Factory automation systems
- Control valves and control units
- Stand alone or remote power units
- Railway systems and outdoor transportation control systems

Heavy Duty Connectors

Features & Benefits
- Impact resistant die-cast aluminium
- Powder coated surface for corrosion resistance
- EMI protection
- IP68 classification for submersion in water
- Protection against shock and vibration
- Silver and gold plated contacts
- Crimp, screw and spring clamp style wire termination
- Laser-marked inserts for permanent product identification

Applications
- Machinery
- Manufacturing equipment
- Factory automation
- Field instrumentation

Dynamic Connectors- 3000-5000 Series

Features & Benefits
- Standard set of contacts which reduces the amount of inventory needed and increases manufacturing productivity
- Diverse offering designed to meet most industrial applications in order to provide maximum design flexibility
- The contact design features a spring concept, uses a highly conductive material, and utilizes three points contacts within its box shape
- Dynamic Series helps to prevents the problem of contact stubbing due to the depth of the TAB housing, audible click sounds, and integrated keying features help reduce troublesome mis-mating for users in the field
- Contact housings indicate the circuit numbers as well as having space for labels allowing the user to clearly identify circuits for improved wiring times and troubleshooting

D3000 Series
- Available for AWG#28 to #14
- Signal and power lines up to 15A per contact
- Except the standard types such as wire-to-wire, wire-to-panel and wire-to-board, module type, common type, drawer type motor type are available

D5000 Series
- Available for AWG#14 – #10
- Power line up to 30A per contact

Applications
- Designed for industrial applications that require a high reliability connection system
- Dynamic Series Connectors are the perfect solution for wire-to-wire, wire-to-panel and wire-to-board applications

Universal MATE-N-LOK

Features & Benefits
- Pins and sockets can be intermixed in the same housing
- Positive polarisation
- Rear cavity identification
- Positive locking housings
- Insulation capability to 0.200 [5.08] diameter
- Removable, crimp snap-in contacts
- Low contact mating force
- Panel mount or free hanging
- Splash proof versions

MATE-N-LOK, MOTORMAN, Power4Net, TE Connectivity and TE connectivity (logo) are trademarks.

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TE CONNECTIVITY

CoolSplice Connectors

Features & Benefits
- Easy factory or field installation, due to simple push button termination
- Insulation displacement technology eliminates the need to pre-strip the insulation
- Independent terminations for left and right sides of connector
- Available in unsealed and sealed configurations (IP65 and IP67 rating) which provide waterproof protection
- Slim-symmetrical glossy appearance with transparent cover for a visually controlled termination and inspection
- Internal strain relief prevents wire back-out from the contact

Applications
- Commercial refrigeration lighting
- Display and cabinet lighting
- Lighting in furniture
- Outdoor lighting
- Signs and building façade lighting
- Security and alarm systems
- Audio speaker connections
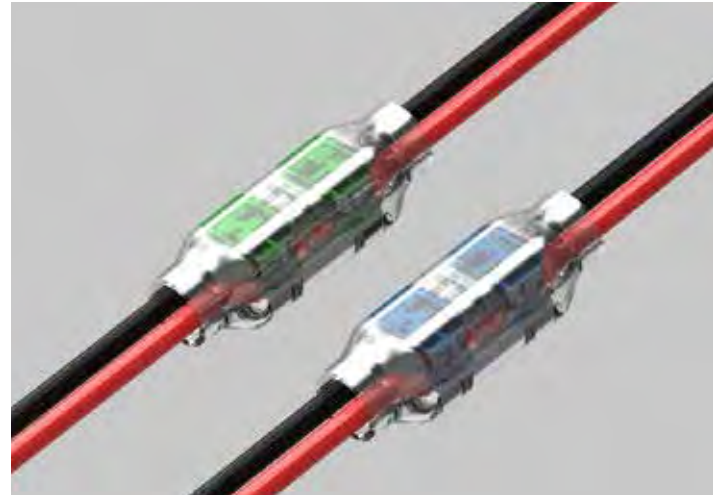
Industrial USB Connectors

Features & Benefits
- USB 2.0 standard, USB type A & B connection system
- Rugged IP20 solution
- Integrated locking mechanism provides excellent click feeling and strong lock strength
- Secondary locking with metal spring accomplishes higher locking strength
- Guaranteed locking function with TE receptacles
- Inter-mateable with existing USB type A receptacles
- Sealed IP67 solution
- Bayonet locking provides reliable connections in harsh environments
- Available pass-through receptacle style
- Bulkhead receptacle mounts to either outside or inside panel cutout
- Protective cover available for the receptacles
- Plastic and metal housing
- Cable assemblies upon request

Applications
- Factory automation industry
- Industrial printers and diagnostic equipment
- Industrial PC solutions, PLCs
- Industrial data network systems
- Industrial control cabinets & units
- Motion and control, inverters and robotics
- Fieldbus systems

RJ *point five* Connectors

Features & Benefits
- Approximately double the density offered over the standard RJ45 ethernet link
- Same footprint to support both integrated magnetic and non-integrated solutions
- Cable assemblies capable of field termination
- Cable management features available from TE for higher density configurations

Applications
- High density ethernet switching/routing products
- Data centre switching applications: Top of rack – end of row – mid-row
- Server I/O applications
- Wiring closet switching products

Mini I/0 Connectors

Features & Benefits
- 8-position
- Voltage Rating: 30V
- Wire-to-board
- Current rating: 0.5A
- .635mm pitch
- Operating temperature: -40°C – 70°C
- Cable diameter: 6.7mm maximum
- Wire size: 22AWG maximum
- Durability: 1500 cycles
- Cable retention force: 98N(10kg)

Applications
- Industrial controls, Motion controls, PLCs, Robotics

SlimSeal SSL Connectors

Features & Benefits
- Available in 2, 3 and 4 positions
- SMT and thru-hole
- Wire-to-wire and wire-to-board (vertical and right angle)
- 18 – 24 AWG stranded wire
- Positive integral latching
- Polarised connectors
- Pre-assembled seals and wire guides
- IP67 rating
- UV resistance (wire-to-wire)

Applications
- Billboards
- Live events lighting
- Wall wash lighting
- Spot lighting
- Street lighting
- Tunnel lighting
- Flood lights
- LED strip lighting

Tooling

TE Application Tooling is dedicated to providing high quality equipment options to meet all levels of TE Connectivity connector product specifications. Our equipment range is vast and almost unmatched by others operating in the same industry segments, as is our global presence and support network in the form of field service engineers and product managers.

CERTI-CRIMP II Hand Tools

Features & Benefits
- CERTI-CRIMP hand tools are premium, hand-operated tools for crimping a broad range of terminals, contacts and special wiring devices. All CERTI-CRIMP hand tools feature a reliable ratchet control that, when used properly, guarantees a complete crimp
- Powered options are available for all CERTI-CRIMP heads including pneumatic, electric and battery powered. These tools are well-suited for low production runs, prototype work and repairs

Power-Assisted Battery Tools

Features & Benefits
- The use of battery hand tools is only recommended for prototyping, service and repair, as continued use can cause operators to experience repetitive strain injury
- TE Application Tooling is continually adding to the power-assist range to minimise this risk. All electric, all pneumatic and now battery powered options. With the improvement of battery life and small motor power, the practicality and convenience of battery powered tools is now well known

Hydraulic Crimp Tooling

Features & Benefits
- The hydraulic crimp tooling product line offers industry-standard 10,000psi hydraulic compression crimp heads, pumps and interchangeable U-dies for precision crimping at fixed or remote locations

Pistol Grip Hand Tooling System for Insulation Displacement Connections

Features & Benefits
- The pistol grip hand tooling system uses interchangeable terminating heads to apply a broad range of TE Connectivity IDC products
- The basic tool requires a pistol grip handle assembly and a terminating head; terminating force is provided by a manual, pneumatic, or electric-powered assembly

SDE (Standard Die Envelope) Die-Sets

Features & Benefits
- SDE is a flexible approach to crimp tooling that allows the use of the same dies with tooling across a range of application platforms
- A large selection of die options are already available for crimping a broad range of terminals and wire sizes
- Many die sets have multiple cavities for crimping more than one wire or terminal size and we can provide custom designs where volumes permit

SDE PRO-CRIMPER III Hand Tools

Features & Benefits
- SDE PRO-CRIMPER III hand tools combine the versatility of general purpose, commercial tools with the reliability and features incorporated in our premium grade tools
- The PRO-CRIMPER tools feature an adjustable ratchet with emergency release for a complete crimp cycle every time. They're ideally suited for R&D prototyping, networking applications, and commercial, industrial, and institutional maintenance work

SDE Straight Action Hand Tool

Features & Benefits
- With a unique geometry and comfortable, easy-to-use handle design, this tool is optimised for easy accessibility in space constrained applications
- The large crimp jaw arc minimises "roll", particularly important when crimping open barrel terminals

AT-SC Safety Crimping Machine

Features & Benefits
- The range of TE Application Tooling crimping machines close the gap between manual processing of loose piece terminals with hand tools and semi-automatic processing of taped terminals
- Semi-automatic machines can process loose piece terminals with cross sections of up to 300.0mm² (copper). Hand tool dies, for example ERGOCRIMP dies and SDE dies can be used in conjunction with adapters and a crimping machine
- TE Application Tooling offers two pneumatic crimping machines with a crimp force of 3.5t and 6.7t, as well as a hydraulic version of up to 15.0t

Insertion and Extraction Tools

- Insertion and extraction tools are used for inserting discrete terminals into connector housings or removing them, without causing damage to either the terminals or housings
- Our new standard design features a comfortable handle and snap-in/out protective cover that allows users to stow the business end of the tool to help protect from inadvertent personal injury when the tools are not in use

NOTES

ELECTROMECHANICAL

ELECTROMECHANICAL

Non-Contacting Hall Effect Sensor

Bourns® Sensors & Controls Product Line releases the new Non-contacting Single-turn Hall Effect Sensor AMS22S Series. The Bourns® AMS22S sensor is designed to meet the specifications of heavy-duty applications requiring long cycle life and high reliability. The Bourns® AMS22S Hall Effect Position Sensor features extremely low mechanical torque with a programmable electrical angle from ten to 360 degrees.

Available in a servo mount configuration with a rotational life of up to 50 million cycles, the Bourns® AMS22S sensor is a highly versatile device. Combining high accuracy and 12-bit resolution along with a factory programmable zero position, the single-turn Hall Effect sensor is a cost-effective solution for heavy-duty rotary position sensing applications.

Recommended input voltage for the Model AMS22S is 5V ±10 %. The standard independent linearity is ±0.5%, with a tighter linearity available upon request. The minimum recommended load resistance is 10kΩ with an operating temperature range from -40°C to +125°C.

Features & Benefits
- Non-contacting magnetic technology
- Highly resistant to vibration/shock
- Highly resistant to fluid/dust ingress
- Programmable at factory for zero position
- Robust design for industrial applications
- Highly repeatable
- RoHS compliant*

Applications
- Patient platform positioning feedback
- Pneumatic control valve position feedback
- Marine throttle position feedback
- Camera positioning
- Geared DC servo motors
- Foot pedal, steering, lift-and-shuttle and suspension system position sensors
- Rudder positioning
- Tilt control and tilt positioning feedback

New EMS22 Rotary Magnetic Encoder

Bourns® EMS22 Rotary Magnetic Encoder is a non-contacting rotary magnetic encoder with a Hall Effect application-specific standard product (ASSP) capable of producing four distinct output waveforms.
These waveforms include a 2-bit Quadrature up to 256 PPR, a Step/Direction up to 512 PPR, a Pulse-Width Modulated (PWM) output with 1024 positions and an Absolute with 1024 positions.

Model EMS22 is available in either a 3.3 or 5.0 VDC supply voltage and is offered in two different versions. This product has the capability to rotate up to 10,000 RPM while maintaining code accuracy, making it suitable for MMI applications such as robotics and industrial automation. Extended rotational life is achieved by utilising dual ball bearings in the construction of the device, resulting in superior performance of up to 100,000,000 shaft revolutions.

Features & Benefits
- Offered in four different configurations
  – 1/4" shaft diameter with single ball bearing
  – 1/8" shaft with dual ball bearing
  – 1/8" shaft with servo lid
  – 6mm shaft with single ball bearing
- RoHS compliant*
- Sealed to IP64 with an optional upgrade to IP67
- Outstanding performance due to use of non-contacting technology of the austriamicrosystem® AS5040 Hall Effect ASSP

Applications
- Ideal for use in harsh environments where extreme levels of temperature, moisture and particles are present within rated limits

austriamicrosystems® is a registered trademark of austriamicrosystems AG.
*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011.

Designing Technology into Solutions

Power Pushbutton Switches Provide Excellent Tactile Feel with Quiet Detent

The PWR power pushbutton switch features redundant double break contacts and provides excellent tactile feel with quiet detent. Designed with a SMD package, the PWR Series allows single step processing of SMD boards. The momentary, single-pole single throw (SPST) PWR switch has a voltage range of 20VAC to 250VAC, a current range of 10mA to 2A, with a maximum contact resistance of 100mΩ. The PWR Series handles inrush loads up to 7A.
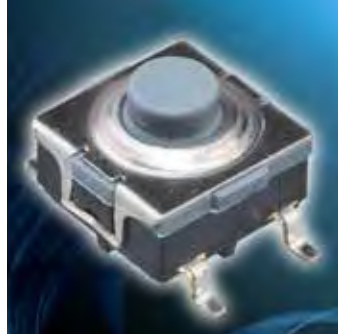
Features & Benefits
• IP65 sealing
• Extended operating life of 100,000 cycles
• Operating force is 7N
• Operating travel is 1.0mm

Applications
• White good and appliance main power
• Industrial panels
• Multiple automotive power functions
• Computer and peripheral power switch applications

Sealed Tactile Switch with Customisable Actuation and Button Height

C&K Components has expanded its popular KSC Series sealed tactile switch offering to include a version with customisable actuation and button height. The surface mountable KSC9 Series switch delivers a specific actuator with a groove for button clipping and compatibility. The SPST momentary IP67-sealed tactile switch features a unique design that provides simple integration by way of adjustable height with buttons, full SMD pick-and-place capability, and overload resistance.

Features & Benefits
• Improves upon other available designs by sustaining better guidance and tactile effects with top actuation capacity
• Extended life expectancy of 300,000 actuations
• Operating force 2N, 3N, and 4N

Applications
• Industrial electronics
• Network equipment
• Telecommunication devices

C&K DIP Series

Features & Benefits
• 100mA – 0.4VA
• SMT and through-hole options
• SPST and coded outputs available
• From 1 – 16 position options
• RoHS compliant

C&K Push-button

Features & Benefits
• 20mA – 6A options available
• Momentary and latching options available
• Snap-action and alternate action options available
• SPST, SPDT, DPST, DPDT, 4PDT, 6PDT, 8PDT, 10DT options available
• Illuminated options available
• Wide variety of actuator and termination options

C&K Rocker Series

Features & Benefits
• 20mA – 16A options available
• Illuminated and non-Illuminated versions available
• Snap-in mounting available
• SPST, SPDT, DPST, DPDT, 3PDT, 4PDT options available
• Pad printing of symbols or logos available
• Wide variety of actuator and termination options

C&K Snap-Action Series

Features & Benefits
• 0.3A – 30.1A options available
• SPST and SPDT options available
• Multiple termination styles
• Sealed options available
• Wide variety of actuator styles available
• Broad range of operating forces available
• RoHS compliant

C&K Tactile Series

Features & Benefits
• Illuminated and non-illuminated options available
• Top and side actuated options available
• Long-life versions available
• Hard plastic or silicon rubber actuators available
• Wide variety of actuation forces and travel
• High IP sealing levels available

C&K Smart Card Interconnect Devices

Features & Benefits
• Variety of contact configurations
• Optional card detection switches
• SIM/SAM cards
• Standard or reverse card reading
• Fixed or hinged covers

Honeywell

Honeywell

Sensing and Control Product Portfolio

Product reliability. Industry knowledge. Expertise. Standard with every order.

With more than 50,000 sensing, switching, and control products ranging from snap-action, limit, toggle, and pressure switches to position, speed, pressure, and airflow sensors, Honeywell Sensing and Control has one of the broadest sensing and switching portfolios available.

Electromechanical Switches

MICRO SWITCH™ Basic Switches

Features & Benefits
• Snap-action precision switches
• Compact
• Lightweight
• Designed for repeatability and enhanced life. Premium and standard snap-action switches: standard, miniature, subminiature, hermetically sealed and high-temperature versions

Applications
Vending machines, communication equipment, HVAC, appliances, electronic gaming machinery, valve controls, irrigation systems, foot switches, pressure and temperature controls

MICRO SWITCH™ Safety Switches

Features & Benefits
• For operator point-of-operation protection
• Access detection
• Presence sensing
• Gate monitoring
• Electrical interfacing
• High-quality, dependable
• Cost-effective solutions

Applications
Packaging and semi-conductor equipment, plastic moulding machinery, machine tool, textile machines, lifts, industrial doors, balers, compactors, aircraft bridges, telescopic handlers, refuse vehicles

MICRO SWITCH™ Watertight Basics

Features & Benefits
• Degree of protection: IP67 (except terminals parts)
• Wide current range: 0.1A, 5A, 10A
• SPDT, SPNC, SPNO options
• Special terminations available upon request
• Gold contact options

Applications
Appliances, wire harnesses, foot pedal controls, HVAC wall controls, lock modules for tailgates/trucks, hospital beds, subassemblies for convertible roofs, tank and hood latch detection, and valves

Limitless™ Solutions

Features & Benefits
• Combines the best of MICRO SWITCH™ limit switches with latest commercial wireless technology
• Beneficial for remote monitoring where wiring/maintenance is not physically possible or economically feasible
• Used for position sensing and presence/absence detection

Applications
Valve position, crane boom/jib/skew position, lifts, material handling, presses construction/ag machines, conveyors, remote/temporary equipment, grain diverters or flaps and door position

MICRO SWITCH™ Limit Switches

Features & Benefits
• Broadest and deepest limit switch portfolio
• Rugged, dependable position detection solutions
• MICRO SWITCH™ heavy-duty limit switches (HDLS) and global limit switches
• Hermetically and environmentally sealed switches

Applications
Machine tools, woodworking, textile, and printing machinery, metal fabrication, balers/compactors, forklifts, bridges, robotics, wind turbines, elevators, moving stairs, doors, dock locks/levellers, aerial lifts, cranes, conveyors, rail, shipboards and dock side

Electronic Sensors

SMART Position Sensor

Features & Benefits
- The SMART position sensor linear configuration is one of the most durable, adaptable and lightweight linear position devices available in the industry today
- Its simple, non-contact design eliminates mechanical failure mechanisms, reduces wear and tear, improves reliability and durability, enhances operation efficiency and safety and minimises downtime

Applications
Valve position, material handling, plastic moulding, cutting/slitting, wafer handling, CNC machines, passenger bus level position, truck-mounted crane outrigger position, heavy equipment attachment identification, hydraulic cylinders, marine motors, syringe pumps and aircraft actuators

TruStability® Silicon Pressure Sensors

Features & Benefits
- Comprised of the HSC and SSC Series, these sensors offer three benefits not found in other equivalent devices: industry-leading stability that helps prevent drift over time
- Temperature compensated and calibrated to provide an extremely tight accuracy specification
- Flexible design offers a wide variety of package styles and options
- HSC Series: Industry-leading ±1% total error band
- SSC Series: ±2 % total error band

Applications
Airflow monitors, anaesthesia machines, blood analysis machines, gas chromatography, kidney dialysis machines, life sciences, oxygen concentrators, respiratory machines, sleep apnoea equipment, ventilators, potential industrial applications include barometry, flow calibrators, gas flow instrumentation, HVAC and pneumatic controls

Basic Board-Mount Pressure Sensors

Features & Benefits
- Cost-effective pressure sensing solution
- Very small package size allows for easy placement on crowded PCBs or in small devices
- Many features for use in tough environments
- Numerous package styles, pressure ranges, housings, gel coating, and porting options

Applications
Hospital beds, oxygen concentrators, wound therapy, blood pressure monitoring, HVAC, environmental control, level indicators, leak detection, industrial and pneumatic controls

Airflow sensors

Features & Benefits
- Advanced microstructure technology
- Sensitive and fast response to flow amount/ direction of air or other gas
- Proportional output voltage
- Thin-film, thermally isolated bridge structure consists of a heater and temperature sensing elements

Applications
HVAC, respirators, process control, oxygen concentrators, gas metering, chromatography, leak detection equipment, medical/analytical instrumentation and ventilation equipment

Speed and Direction Sensors

Features & Benefits
- Measure speed, position and presence detection utilising magnetoresistive, variable reluctance, Hall-effect, variable inductance and Spiral technologies

Applications
Cam and crankshafts, transmissions, fans, pumps, mixers, rollers, compressors, industrial process control, engines/motors, wheels, and tachometers

Magnetic Sensors

Features & Benefits
- Digital and analogue Hall-effect position IC
- Magnetoresistive position IC
- Hall-effect vane, gear-tooth & magnetic sensor

Applications
Speed and RPM sensing, motor/fan control, magnetic encoding, disc speed, tape, flow-rate sensing, conveyors, ignitions, motion control/ detection, power/position, magnetic code reading, vibration and weight sensing

Temperature Sensors

Features & Benefits
- Customised probes, thermistors, and RTD sensors. Plastic/ceramic, miniaturized, surface-mount housings and printed circuit board terminations.

Applications
Semi-conductor protection, vending machines, power generation, hydraulic systems, thermal management and temperature compensation

Ultrasonic Sensors

Features & Benefits
- Ultrasonic sensors measure time delays between emitted and echo pulses, often accurately determining the sensor-to-target distance. These non-contact-based products solve the toughest sensing problems by detecting targets made of virtually any material, regardless of colour, transparency, shine or opacity

Applications
Level measurement, height and thickness sensing, and diameter control

MEDER ELECTRONICS

Reed Range

MEDER electronics is a highly innovative leader in the Reed Technology market. Meder produces a wide range of Reed Relays, Reed Sensors and Reed Switches for many applications. Many years of experience and the expertise of their employees ensures competent service over their entire product line of standard items, as well as the development of customer specific items according to customers' specific requirements and applications.

SIL Reed Relays

The SIL (Single-In-Line) Series Reed Relays reduce the required space to a minimum. Requiring only half the PCB area of the DIP or DIL Series, the SIL relays offer all the advantages of Reed Technology.

This SIL package is also offered in an instrumentation grade RF version capable of switching signals from DC to 1.5GHz.

Features & Benefits
• High resistance coils of up to 2000Ω at 12V
• Magnetic shield available
• Breakdown voltage coil-contact up to 4.25kVDC
• ATE

Applications
• Measurement equipment
• Telecommunications
• Security

Specifications	
Coil Voltage	3VDC – 24VDC
Coil Resistance	20Ω – 2000Ω
Contact Form	1A, 1B, 1C
Rated Power	0W – 15W
Switching Voltage	0VDC – 500VDC
Switching Current	0A – 1.0A
Carry Current	0A – 1.25A
Breakdown Voltage	200 – 1500 Minimum VDC

CRF Reed Relays

Features & Benefits
• Ceramic/thermoset moulded package
• Patent pending
• Smallest in the industry
• No lead frame surface mount design eliminates skewing of leads and co-planarity issues
• Available with BGA
• Internal magnetic shield standard
• Very low profile
• Gold plated leads

Applications
• Telecommunications
• Test and measurement systems
• Medical applications
• High frequency

SIL High Voltage/ High Current Series

Features & Benefits
• Very high initial peak current capability
• Can carry high current pulses for hundreds of millions of operations
• Can switch up to 1000v and carry up to 5A for up to 50ms at a consistent repetition

Applications
• Automatic test systems
• Testing high power MOSFETS

SIL RF Series

The SIL RF Series is configured in a standard SIL through-hole package with UL certification. Since it is in a standard SIL package, its foot print is compatible with other sources. Built-in diode suppression is another option.

Features & Benefits
• Internal coaxial shield offers a consistent 50Ω impedance path for excellent RF characteristics at an economical cost
• Insertion loss is flat from DC to 1.5GHz
• Capable of switching up to 10W and voltages up to 200V while providing over 1500V isolation, switch to coil
• Contacts can switch up to 0.4A while maintaining a consistent 100mΩ on state resistance

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SIL High Voltage/High Current Series

Features & Benefits

- The SIL High Voltage/High Current Series was designed primarily for use in automatic test systems, testing high power MOSFETs
- These rugged semiconductors have very high initial peak current capability
- Having a reed relay that can carry high current pulses for hundreds of millions of operations is a critical requirement. This series can switch up to 1000V and carry up to 5A for up to 50ms at a consistent repetition rate

All Data at 20˚C		Relay Series			Unit
		SIL RF	SIL HV	MS RF	
Height Profile		7.8	8.13	6.8	mm
		0.307	0.320	0.268	inches
Overall Length		19.8	24.13	15.2	mm
		0.780	0.950	0.598	inches
Rated Power (maximum)	Any DC combination of V & A not to exceed their individual maximums	10	10	10	W
Switching Voltage (maximum)	DC or peak AC	200	1000	200	V
Switching Current (maximum)	DC or peak AC	0.4	1.0	1.0	A
Carry Current (maximum)	DC or peak AC	0.5	2.5	2.0	A
Pulsed Carry Current 5ms (maximum)	DC or peak AC	2.5	5.0	2.5	A
Insulation Resistance (typical)	RH 45%	10^{10}	10^{12}	10^{14}	Ω
Breakdown Voltage (minimum)	Across contacts	230	4000	225	VDC
Breakdown Voltage (minimum)	Contacts to coil and/or shield	1500	4000	1500	VDC
Thermal Offset Voltage		15	20	15	µV
Capacitance	Across contacts	0.2	0.2	0.2	pF
Capacitance	Contacts to coil and/or shield	1.5	1.8	1.4	pF
Insertion Loss	-3dB drop off point	1.5	N/A	1.0†	GHz
Isolation	-3dB drop off point	14	N/A	18	GHz
VSWR	-3dB drop off point	1.5	N/A	1.35	GHz

Switch Products

Switch Capabilities

Molex is a global leader in membrane switch and capacitive user interface technology. With manufacturing capabilities strategically placed around the world, Molex provides local sourcing; engineering and design support in ISO9001, ISO 14000, and TS16949 certified facilities. Fully equipped reliability labs in each location qualify products prior to final tooling and can provide in-depth analysis.

Our capabilities include double-sided circuits for space-constrained applications; LED bonding for high-volume applications; and vertically integrated assemblies including PCBs, copper flex circuits, connectors and cables. Our solutions directly address today's electromechanical engineering requirements in the appliance, consumer, automotive, industrial, datacom, transportation, and medical industries.

Capacitive Switches

Molex capacitive designs incorporate and combine multiple switch formats and layouts. Available options include discrete switches, slide switches, rotary wheels and combinations of tactile and not tactile products. Haptic, or tactile vibration, feedback and proximity sensing are additional options provided for integrated designs. Interfaces can be built on printed circuit boards, polyamide or polyester circuits for direct contact with curved surfaces. Molex's unique backlighting concepts can be combined for seamless, innovative designs. Capacitive overlays allow for easy cleaning and are available in a variety of cosmetic options, and in virtually any non-conductive material.

Features & Benefits
- Full in house design support including mechanical, electronic and embedded software through to full production
- Communication via industry standard protocols including I2C, SPI and UART
- Unique backlighting solutions provide evenly lit icons across the whole display
- Key sensitivity easily adjusted via the embedded software
- Wide variety of overlay options including glass, polycarbonate, polyester, leather, wood or acrylic
- Polyester and Polyamide substrates can be mounted on to curved surfaces
- Fluid level sensing applications also catered for

Membrane Switches (Tactile and Non-tactile)

Features & Benefits
- High-reliability Molex domes
- Unlimited non-tactile contact configurations
- Automated global circuit printing
- 3D membrane switches enhanced with rubber keypads

Membrane Switches with Embedded LEDs

Features & Benefits
- SMT LEDs for backlighting
- SMT LEDs for indication
- Embossed windows provide enhanced viewing angle
- Fully automated component bonding (resistors, caps, ICs)

LED/Display Flex Assemblies

Features & Benefits
- Multiple circuit substrate options
- Unlimited optoelectronic options:
  – 7 segment displays
  – LEDs
  – Diodes/Photodiodes
  – Emitters/Detectors/Sensors
- Allow for flexible mounting configuration

Rubber Keypad Assemblies
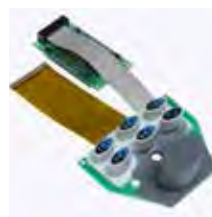
Features & Benefits
- Enhance design aesthetics
- Increase switch travel and tactile feedback
- Provide discrete key appearance with multiple surface finishes
- Patented Molex rocker switch options
- Hard keycap options/in-mould decorating
- Multiple backlighting options

Power Relays

G5RL–	1	A	E	LN	12	VDC	

Series No.

No. of Poles
1 = 1 Pole

Contact Form/Contact Construction
Blank = SPDT, A = SPST – NO

Contact Ratings
Blank = 12A, E = 16A

Rated Coil Valve
24, 100, 115, 120, 200, 230/240VAC 5,
12, 24, 48 VDC

Special Function
Blank = Standard
HR = High inrush
LN = Silent

Features & Benefits

- Low-profile relay (15.7mm high) with various models
- RoHS compliant
- Models with AC coil
- Approved to VDE (EN 61810-1), UL and CSA
- High inrush model (inrush peak currents up to 100A)
- Silent model available (approx. 25% (15dB) less sound pressure than standard G5RL Series)
- 16A at 250VAC/24VDC (NO), 5A at 250VAC/24VDC (NC)
- SPDT and SPST-NO configuration
- 400mW to 430mW power consumption (DC), 0.75VA (AC)
- Creepage and clearance distance between coil and contacts 8mm/8mm. Between contacts of same polarity 3mm/4mm

Applications

- Home appliances
- Emergency lighting (HR version)
- Industrial control
- Home automation (LN version)

G5Q-EU Power Relay

Features & Benefits

- Compact 10A/250VAC high isolation relay
- RoHS compliant
- Ensures a withstand voltage of 8000V between coil and contacts
- Low power consumption (SPST-NO: 200mW, SPDT: 400mW)
- Tracking resistance meets or exceeds CTI250
- VDE, UL and CSA approved

G2RL Power Relay

Features & Benefits

- Low-profile power relays (15.7mm high) available in various models
- RoHS compliant
- High sensitivity (250mW) and high capacity (16A) models available
- Available in 1 or 2 pole from 8A to 16A
- Creepage and clearance distance 10mm/10mm
- VDE, UL and CSA approved

G6RL Power Relay

Features & Benefits

- Low-profile 8A/250VAC relay
- RoHS compliant
- Dielectric strength: 5kV
- Creepage and clearance: 10mm
- Aimed at HVAC and industrial markets
- VDE and UL approved

G5LA Power Relay

Features & Benefits

- Sugar cube, single pole 10A relay
- RoHS compliant
- Low-profile 19.6 x 15.6 x 15.6
- Standard 360mW coil
- High insulation dielectric strength 2,000V, withstand impulse voltage 4,500V
- VDE and UL approved

OMRON

MOSFET Relay Range

G3VM– 4 1 A L

Series No.

Load Voltage
2 = 20V	20 = 200V
4 = 40V	25 = 250V
6 = 60V	35 = 350V
8 = 80V	40 = 400V
10 = 100V	60 = 600V

Contact Form
1 = 1a (SPST-NO)
2 = 2a (DPST-NO)
3 = 1b (SPST-NC)
4 = 2b (DPST-NC)
5 = 1a1b (SPST-NO + SPST-NC)
6 = others

Additional Function
L = Current limit function
M = Multi-function
MD = Multi-function without diode
ML = Multi-function with current limit
R = LOW ON resistance (L = 10Ω)
S = Slow-on/slow-off
Y = >2.5kV High dielectric strength,
    input and output

Terminal Style
A = T/H 4 pin	G = SOP 4 pin
B = T/H 6 pin	H = SOP 6 pin
C = T/H 8 pin	J = SOP 8 pin
D = SMD 4 pin	K = SOP 18 pin
E = SMD 6 pin	HR = High inrush
F = SMD 8 pin	LN = Silent

Features & Benefits
- Choice of through-hole, surface mounting and small outline package (SOP) in all popular load voltages
- 4, 6 and 8 pin configurations
- New range includes, 1 and 2 Form A, 1 and 2 Form B and 1 Form A + 1 Form B (C/O) models
- Models switching DC to 600VAC
- I/O isolation 1,500V RMS to 5,000V RMS
- Some models with current limit function (CLR) built in
- New super small outline packages available
- Long life
- High reliability
- Small size
- Silent contactless operation
- Maintenance free

Applications
- Communications
- Measurement devices
- Automatic exchange systems
- Broadband
- Data loggers
- Security systems
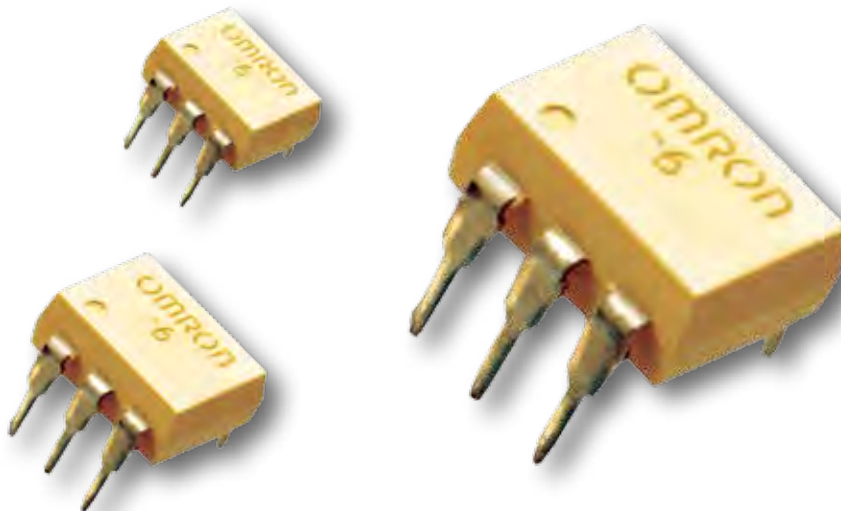
G6DS Power Relay

Features & Benefits
- Slim 5mm width and miniature size (21.3mm x 5.08mm x 12.5mm max.)
- Ideal for high-density mounting
- Highly sensitive coil type (120mW) also available
- Delivers high switching performance (5A at 250VAC/30VDC) and enables various loads
- Satisfies EN61131-2 (PLC) and EN61010 reinforced insulation requirements
- Special socket also added to the series (P6DS)

G6Z High Frequency Relay

Features & Benefits
- Surface mounting high frequency relay
- 2.6GHz frequency
- Superior high frequency characteristics (such as isolation of 30dB min)
- Miniature dimensions of 20mm x 8.6mm x 8.9mm
- Series includes E and Y shape terminal structure
- Through-hole versions available

G6K Signal Relay

Features & Benefits
- Surface mounting relay with height of just 5.2mm
- Operates at a current as low as 100mW
- Models with inside L mounting terminals are available
- Dielectric strength of 1,500VAC
- Y models offer impulse withstand voltage of 2,500V
- Conforms to FCC Part 68

G5V-1/G5V-2 Signal Relay

Features & Benefits
- Ultra-miniature SPDT (G5V-1) and DPDT (G5V-2) relays
- Wide switching power of 1mA to 1A (G5V-1) and 1mA to 2A (G5V-2)
- High sensitivity – 150mW nominal coil power versions
- Fully sealed construction
- Conforms to FCC Part 68 requirements for coil to contacts
- UL, CSA approved

Microswitches

D3V 21 G 1 M 1 C 4 T

Series No.

Ratings
25 = 22 (5) A at 250VAC
21 = 20 (4) A at 250VAC
16 = 16 (3) A at 250VAC
11 = 11 (3) A at 250VAC
6 = 6 (2) A at 250VAC
01 = 0.1A at 125VAC

Contact Gap
Blank = 1mm (F gap)
G = 0.5mm (G gap)

Actuator
Blank = Pin plunger
1 = Short hinge lever
2 = Hinge lever
3 = Long hinge lever
4 = Simulated roller lever
5 = Short hinge roller lever
6 = Hinge roller lever

Hinge Position
Blank = Internal/far from plunger
M = External/far from plunger
K = External/near plunger

Contact Form
1 = SPDT
2 = SPST – NC
3 = SPST – NO

Special Code
Blank = Standard
H = High temperature (125°C)
E = Special rating = 21(8) A

Mounting Hole Size
Blank = 3.1mm
K = 2.9mm

Enclosure Material
Blank = Standard

T = High temperature (200°C, 155°C and EN60695-2-11/-12 (glow wire flammability test methods) approved)

W2 = Standard temperature (105°C, 85°C and EN60695-2-11/-12 (glow wire flammability test methods) approved) PTI250

Maximum Operating Force
6 = 3.92N (400gf)   5B = 3.43N (350gf)
5 = 1.96N (200gf)   4B = 1.47N (150gf)
4A = 1.23N (125gf) 4 = 0.98N (100gf)
3 = 0.49N (50gf)   2 = 0.25N (25gf)

Terminal
A = Solder/quick-connect terminal (#187)
C2 = Quick-connect terminal (#187)
C = Quick-connect terminal (# 250)
C6 = Rast 5 terminal (#250)

Features & Benefits
- Industry standard basic switch with external levers
- 0.1A, 6A, 11A, 16A, 21A and 25A models available
- Self cleaning contacts
- Available with internally or externally fitted levers
- 2 fixing positions for external levers
- Wide range of standard levers available
- Customised levers can be manufactured to customers specification
- 3 contact forms available (SPDT, SPST-NO, SPST-NC)
- Mechanical operations of 10 million
- Up to 500,000 electrical operations
- Temperature: up to 200°C

Applications
- Home appliance
- Office automation
- Fire and security
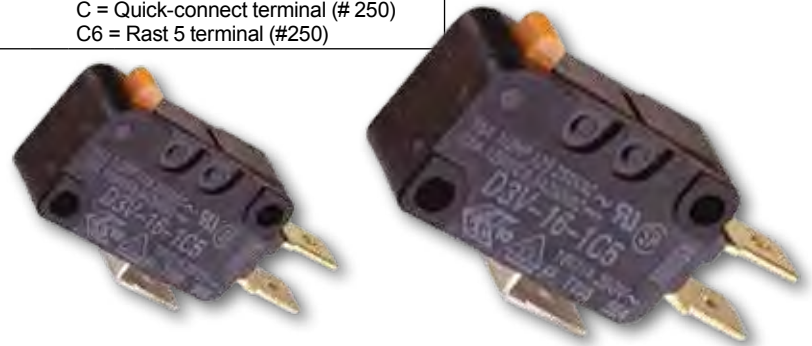
D2HW Microswitch

Features & Benefits
- Ultra sub-miniature snap-action switch
- RoHS compliant
- Fully sealed
- Extra long stroke even without levers (OT 1.4mm)
- Various mounting structures, terminals and actuators

D3SH Microswitch

Features & Benefits
- World's smallest detection switch
- Size just 3mm x 3.4mm x 0.9mm (WxDxH)
- Unique mechanism enables high contact reliability
- Horizontal 2-way detection and long stroke
- Variety of contact and lever options

A6T/A6S Dip Switch

Features & Benefits
- DIP switches with slide pins
- Surface mount and through-hole versions
- Washable with seal tape available
- Gold plate contacts and slide-type, self-cleaning mechanism ensure high reliability

B3U Tactile Switch

Features & Benefits
- Ultra small tactile switch
- High reliability contact
- Dimensions 1.2mmx3mmx2.5mm (HxWxD)
- Dust-proof construction provides high reliability in dusty environments
- Top and side actuator models
- Models with ground terminals are available

OMRON

Special Sensors

D6F–	01	A1–	110

Series No.

Flow Range
01 = 0-1LPM
02 = 0-2LPM
03 = 0-3LPM
05 = 0-5LPM

Case
110 = PPS
000 = Thermoplastic resin/aluminium alloy

Gas
A1 = Air
N2 = LNG (ISA)
L2 = LPG
A5 = Air (NBR 'O' ring)
A6 = Air (Rc 1/4 screw)

Features & Benefits
- Compact MEMS flow sensor
- Can detect mass flows with a repeatability of up to +/-0.1% and an accuracy of up to +/-3% full scale
- Extreme sensitivity achieved with a tiny heating element, associated with temperature sensors on both sides
- Non-linear analogue output of 1V to 5V
- Supersensitive flow sensor element with an area of just 1.5mm² achieving a size of 1/7th of other flow sensors in the same class

Applications
- Medical
- Industrial
- Home appliance

B6TS Touch Sensors

Features & Benefits
- New touch sensor IC family
- Durable replacement to any type of tactile switch
- Freedom to build your own circuits around the sensor
- Touch keys can be produced using any non-conducting material
- B6TWorkbench allows touch panel prototype build in hours rather than days

D6F-W/D6F-V

Features & Benefits
- Precision air flow detection sensors
- 1m/s, 3m/s and 4m/s versions available
- Incorporate a Dust Segregation System (DSS) that helps maintain sensing performance
- Separates up to 99.5% of dry particles optimally adjusted at factory so easy and rapid user application is guaranteed

D6BN-1

Features & Benefits
- Ultra-compact hall effect 2 axis tilt sensor
- Low power consumption with a maximum of 10µA
- Dimensions of just 7mm x 7mm x 2mm
- Detects inclination of sensor between 40˚ and 80˚
- Reset angle between 50˚ and 10˚

D7E

Features & Benefits
- Pure mechanical vibration sensor
- Reliable switching when device is subject to undesirable vibration (e.g. earthquake)
- Output capacity from 0.1mA to 100mA at 30VDC
- Environmentally friendly unique ball mechanism

Relays

The number of electronic devices used by consumers on a daily basis continues to be on the rise, and the demand for reliable, long-lasting component parts has increased accordingly. Whether it be as central switching elements for household devices such as dishwashers, TVs, or printers, or as components for industrial application areas such as manufacturing plants, uninterruptible power supplies, or traffic light controllers, Panasonic's relays are designed to meet the most rigorous customer requirements. Panasonic Electric Works offers a versatile product line that provides solutions for practically any application.
Once you've chosen one of Panasonic's products, you'll appreciate the benefits: As an ISO 9001-certified supplier, Panasonic not only delivers the quality you've come to expect but also offers the support that only global players can provide.

The portfolio of Panasonic Electric Works Relays: Automotive Relays, High-frequency Relays, PhotoMOS, Power Relays, Safety Relays, Signal Relays, Solid State Relays (SSR).

SF-Y- Safety Relay Family

Features & Benefits
- Very compact flat type safety relay, up to 40% space saving
- Available as 4-pole type with the contact arrangements 2 NO and 2 NC (2a2b) or 3 NO and 1 NC (3a1b), dimensions 31.0mm x 28.6mm x 14.5mm (LxWxH)
- 6-pole type with the contact arrangements 4 NO and 2 NC (4a2b) or 5 NO and 1 NC (5a1b), dimensions 39.0mm x 28.6mm x 14.5mm (LxWxH)
- Forcibly guided contacts according to EN50205, Type A
- Nominal switching current 6A
- Max. switching voltage 250VAC, 30VDC
- Low coil power consumption, only 670mW
- Reinforced insulation according to EN 50178, creepage and clearance distance ≥5.5mm (V=230V overvoltage category III, 6kV)

Applications
- Machine safety engineering
- Safety control units
- Automation technology
- Elevators, escalators, cable cars
- Railway and signal technology

RS High Frequency Relay

Features & Benefits
- Miniaturized high frequency relay with excellent HF characteristics up to 3GHz
- Isolation: min. 35dB, Insertion loss max. 0.35dB, VSWR: max. 1.4 at 3GHz (50Ω PCB type)
- 1 change over contact
- Available in more than 50 versions including 50Ω and 75Ω, reversed contact type, SMD and THT, monostable or latching coil
- Silent version available

Applications
- Digital broadcasting equipment
- STB/tuners
- Mobile phone base stations
- Antenna switching
- Wireless devices
- Measurement applications

AQA Solid State Relay (SSR)

Features & Benefits
- Hockey-puck SSR
- Random and zero-cross type
- Optimised for 230VAC applications
- Up to 40A load current
- Wide-range input
- Integrated varistor protection
- Pre mounted protection cover

Applications
- Climatic chambers
- Industrial machinery
- Laboratory equipment
- Professional cooking equipment
- Environmental testing

VSSOP PhotoMOS

Features & Benefits
- Semiconductor relay with MOSFET output
- Worlds smallest mounting area
- AC & DC loads up to 40V
- Continuous load current up to 250mA
- Very low CxR value for high frequency loads
- Very low leakage current

Applications
- Multiplexer
- IC & board tester
- Multipoint recording

ADW Power Relay

Features & Benefits
- Polarised energy saving power relay (200mW for 1 coil latching type and 400mW for 2 coil latching type)
- Compact design 24mm x 10mm x 18.8mm (LxWxH)
- Up to 8A/250VAC
- 6mm creepage and clearance distance between contact and coil
- 5kV breakdown voltage between contact and coil
- 12kV surge withstand voltage between contact and coil
- LCP housing material, pin-in-paste construction suitable for reflow solder mounting
- PBT material available upon request
- UL/CUL, VDE approvals

Applications
- Smart meters
- White goods (eg. washing machines, dishwashers, dryers)
- Industrial equipment
- Security equipment
- Various power supplies
- Battery-driven applications
- Building automation

APF Power Relay

Features & Benefits
- Slim Power relay with sensitive coil (170mW for 4.5VDC–24VDC and 217mW for 48VDC and 175mW for 60VDC)
- Compact design 28mm x 5mm x 15mm (LxWxH)
- Up to 6A/250VAC
- Conform to EN60335-1 clause 30 (GWT)
- Reinforced insulation standard (EN/IEC 61810-1)
- 4kV breakdown voltage between contact and coil
- 6kV surge withstand voltage between contact and coil
- UL/CUL, VDE approvals

Applications
- Interface relay for programmable controllers
- Output relay for measuring equipment, timers, counters and temperature controllers
- Industrial equipment, office equipment
- Household appliances for Europe

PANASONIC

Panasonic Infrared Sensors

The latest sensing technologies allows Panasonic to make these devices smart, effective and more energy efficient and thus offer additional benefits to the end users. Using passive infrared sensors is one of the most effective ways to achieve energy savings and offer freedom of design with ease of implementation. The motion sensors from Panasonic have established themselves as high end, most precise and compact in size.

Features & Benefits

- Low current consumption – up to 1µA: A specialised circuit reduces current consumption to 1µA during sleep mode. This maximises battery lifetime
- Lead-free pyroelectric elements: Compared to conventional PIR sensing elements made of ferroelectric ceramic (PZT), which contains lead, Panasonic PaPIRs use lead-free, lithium tantalite pyroelectric elements
- Intelligent design prevents false detection: The sensing elements of PaPIRs are enclosed in a metallic can (TO-5) to minimise adverse effects of electromagnetic fields
- Semi-flat lens maximises design flexibility : PaPIRs' state-of-the-art lens formation technology means the lens barely protrudes from the device, freeing up space for design.

PaPIR Series

Ideal for Lighting Management Systems, HVAC, Security Systems, wireless security devices requiring longer detection range (1, 2 & 6µA) etc.

Features & Benefits

- Lenses are available in white, black and pearl white
- Available as standard detection type (64 zones) and long distance detection type (92 zones) with a detection range of 5m and 12m respectively
- TO-5 metallic casing reduces the adverse effects of external electro-magnetic fields
- Operating voltage: 3.0 – 6.0VDC
- Average circuit stability time is 25s/30s Electrical current consumption: 1µA, 2µA, 6µA and 170µA

NaPiOn Series

Features & Benefits

- Lenses are available in white and black
- Available as:
  – Standard detection type: up to 5m
  – Slight motion detection type: up to 2m
  – Spot detection type: up to 5m with spot detection angle
  – Long distance detection type: up to 10m
- Available in digital and analogue signal output

Applications

- Lighting controls ie. ON/OFF of lighting
- Automatic ventilation fan
- Security applications
- Automatic lighting in conference room
- Automatic toilet seat opening/closing
- Motion detection for instant photography machines

Grid Eye – Infrared Array Sensor

High Precision Infrared Array Sensor based on Advanced MEMS Technology featuring 64 thermopile elements in an 8 x 8 grid format. Combining a built-in thermistor and an integrated circuit makes temperature measurement possible in a small mount package.

Features & Benefits

- Temperature detection achieved on a two dimensional area with 8 x 8 (64) pixels
- Digital output
- Miniature SMD package

Applications

- High performance home appliance (Microwave oven and air conditioner)
- Energy savings in office (Air-conditioning and lighting controls)
- Digital signage
- Automatic door and elevator
- Building automation (e.g. lighting control)
- Security and people counting
- Kiosk/ATM display control
- Medical imaging (patient detection and positioning)
- Clean rooms (security and control)

Relays

TE Connectivity offers a broad range of relays and contactors in the world. TE Connectivity's product line includes leading brands such as AGASTAT, AXICOM, CII, HARTMAN, KILOVAC, OEG, P&B, PRODUCTS UNLIMITED and SCHRACK. Switching capabilities range from dry circuit to 1600A, up to 70kV and as high as 6GHz. Electromechanical, solid state and hybrid types range from SMT PC board mount devices to large panel mount units. TE Connectivity's broad line of relays features expansive sets of options for enclosure, termination, input, contact arrangement and rating. High performance types are designed specifically to operate in extremely rigorous environments (shock, vibration, temperature, altitude) such as encountered in military and aerospace applications.

The relay product portfolio includes:
- Automotive relays
- Communication/signal PC board relays
- High voltage relays
- Low signal, high performance relays
- Mid-range, high performance relays
- Power PC board relays
- Power plug-in/panel mount relays
- Relays with forcibly guided contacts (safety relays)
- Socket and accessories
- Contactors
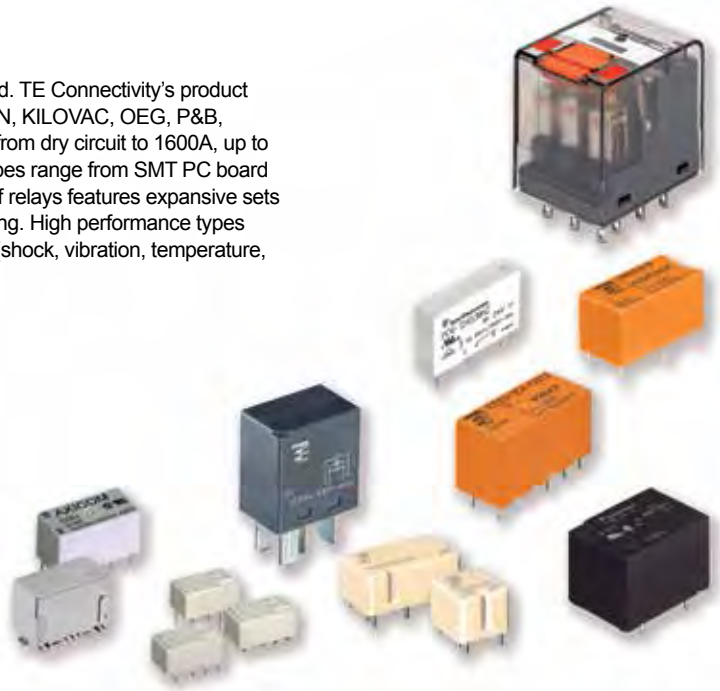
IM Relays

Features & Benefits
- Slim line 10mm x 6mm, low profile 5.65mm and minimum board-space 60mm^2
- Switching current 2/5A, switching power 60W/62.5VA and switching voltage 220VDC/250VAC
- Low coil power consumption: -140mW standard, 100mW for high sensitive version, 50mW for ultra
- High sensitive version and 100mW for bi-stable version
- High dielectric and surge capability up to 2500Vrms between open contacts and 3000Vrms between coil and contacts
- High mechanical shock resistance up to 300g functional

Applications
- Telecommunications
- Access and transmission equipment
- Optical network terminals
- Modems
- Office and business equipment
- Consumer electronics
- Measurement and test equipment
- Industrial control
- Medical equipment
- Automotive applications

Slimline PCB Relay PCN

Features & Benefits
- 1 -pole 3A, 1 form A (NO) contact
- Only 5mm wide
- 3A switching current, load range 1mA up to 5A
- Sensitive coil 120mW
- Allows high function-/packing density
- Cadmium-free contacts
- Z type with reinforced insulation
- RoHS compliant (Directive 2002/95/EC)

Applications
- PLCs
- Temperature control
- I/O modules

Power PCB Relay RTX

Features & Benefits
- 1-pole 16A, 1 form A (NO) contact (W pre-make contact + AgSnO 2)
- 16AX rated fluorescent load according to EN60669-1
- Bi-stable coil
- 5kV/10mm coil-contact
- Reinforced insulation

Applications
- Lighting control systems
- Movement sensors (e.g. passive infrared sensors),
- Home automation applications (bus systems, remote switching)
- Electronic switches for fixed installation

Power PCB Relay RZ

Features & Benefits
- Pole 12/16 A, 1 form C (CO) or 1 form A (NO) contact
- DC coil 400 mW
- 5kV/10mm coil-contact, reinforced insulation
- Ambient temperature 85°C (clear cover: 70°C)
- Product in accordance to IEC 60335-1

Applications
- Household appliances
- Boiler control
- Timers
- Garage door control
- POS automation

TE CONNECTIVITY

Switches

TE Connectivity provides a wide product range of switches for all types of applications. The product offering extends from miniature slim line tactile switches to rugged industrial switches.

The switches programme covers applications from mA range up to 25A range, from 1 pole to 10 poles. TE Connectivity provides high quality products for reliable switching and cost-effective performance.

The product portfolio includes DIP switches, tactiles, slide switches, toggles/pushbuttons, power rocker and micro switches. Knobs, boots, caps and other accessories are also available.

Applications
- Automotive application
- Household appliances (white goods)
- Industrial application
- Lighting industry
- Telecommunication and consumer products (e.g. brown goods, set-top boxes, mobile phones, pagers)
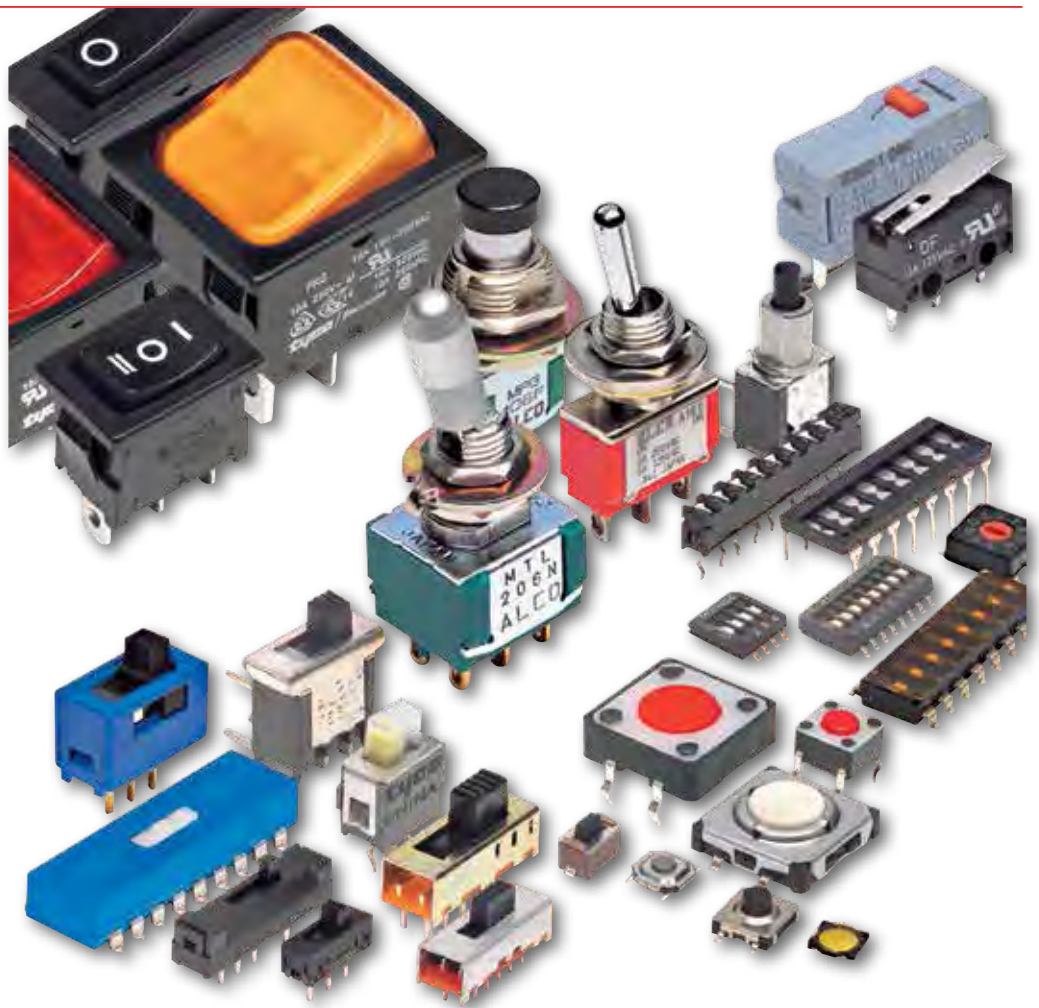
AW Series Power Toggle Switch

Features & Benefits
- IP67 front panel sealed
- UL & CSA rated for 20A at 30VDC and 20A at 250VAC
- Wide range of switch function available
- Electrical life 20,000 cycles

ADE/F/P

Features & Benefits
- Available from 2 – 12 positions
- PC and SMD terminals
- Surface mount compatible to 260°C
- Extended, flush and piano style actuators
- All types available in tape-and-reel packaging

Power Rocker

Features & Benefits
- Meets industry standards
- Large number of variants within each family
- Strong tactile feedback, no mistaking when the switch is actuated
- Dual-colour rocker option available; easily identifies to user what position the switch is in
- Completes TE's portfolio together with industrial relays and sockets for panel and cabinet builder
- Single (10A/250VAC) and double pole (6A/250VAC) version

F Series Toggle Switch

Features & Benefits
- Wide choice of toggles
- Wide range of functions available
- Terminals are gold plated to prevent oxidation
- Up to 4 poles rated 6A at 250VAC

GDH Series Half Pitch Low Profil

Features & Benefits
- Available from 2-10 position
- Bifurcated gold wiping contact system
- Half Pitch 1.27mm terminal spacing
- SMD terminals
- Vacuum pick and place compatible

Ultra Miniature Micro Switch

Features & Benefits
- Long actuation life – long reliability in application
- Straight or right angle PC terminals – variety of mounting options
- 2 current ratings – usable in applications requiring higher currents or in dry circuit applications
- 2 operating force options – provides variety to fit the application
- Available with or without lever – ability to choose different operating positions

TE CONNECTIVITY

Filters

Corcom offers over 300 solutions for RFI problems associated with susceptibility, as well as compliance with international emissions standards. CORCOM is globally recognised as the leader in EMI/RFI technology. CORCOM filters include both signal line and power line types. From SMT PC board components and filtered jacks, to snap-in power entry modules for equipment to large NEMA-style cabinet facility filters rated for thousands of amps, all have been designed and tested for susceptibility and/or emissions applications. They carry approvals from agencies worldwide.

Corcom Medium P Series

Features & Benefits
- Suitable for applications with increased attenuation requirements in higher frequencies where a smaller size is desirable
- Multiple configuration options to fit your customers' unique design requirements
- Snap-in or flange mounting design with a choice of vertical or horizontal mounting ears offers different mounting options and increased design
- Compact design ideal for small applications
- Dual stage electrical setup helps improve the performance of the filter

Applications
- Switch mode power supplies
- Vending and service machines
- Computing & accessories
- Home applications
- Gaming equipment
- Fitness equipment
- Measuring & test equipment
- Instrumentation

Corcom FB Series

Features & Benefits
- Designed to bring lighting devices, fluorescent lamp and related lighting ballasts in compliance with international EMI requirements
- Screw mount design allows for easy installation in light fixtures using industry standard stamped nuts
- Compact size enables the FB Series to fit standard lighting tracks in compact applications

Applications
- Fluorescent ballasts
- LED displays
- Office and Hospital lighting
- Architectural lighting
- Outdoor lighting & signage
- UV curing lights
- Lower current industrial applications (AC or DC rated)
- Wide range of other single phase applications

P-Series (representing Power Entry Modules)

Features & Benefits
- Offers most popular features in a small footprint design
- Provides all five power entry functions in a compact 10A module
- Snap-in or flange mounting
- Standard IEC 60321-1 C14 power inlet
- Both North American and European fusing capabilities
- Two voltage selection options
- Optional DPST on/off switch
- Filter options for general purpose, medical and high-performance RFI filtering
- Modular construction allows selection of the required power entry feature without altering the panel cutout

SRB-Series (representing IEC Connector Filters)

Features & Benefits
- One of the smallest depth RFI filter available on the market
- Complete shielded design
- Wide range of capacitor values
- Attenuates coupled EMI up to 300MHz
- Full range of mounting and termination options
- Unique vertical and horizontal orientation slide in mounts eliminates the need for mounting hardware
- Minimal to low leakage current versions are suitable for medical equipment

EMC-Series (representing 1-phase Filters)

Features & Benefits
- Compact dual stage filter series
- Cost effective design
- Current rating up to 30A
- High differential mode attenuation in the lower frequency range
- High common mode performance
- Ideal for switching mode power supplies

BCF-Series (representing 3-phase Filters)

Features & Benefits
- Compact book-form design
- Insulated high quality safety terminals for in and output
- Very high common and differential mode performance over the complete frequency range
- Current rating up to 180A
- Low weight and cost effective design