

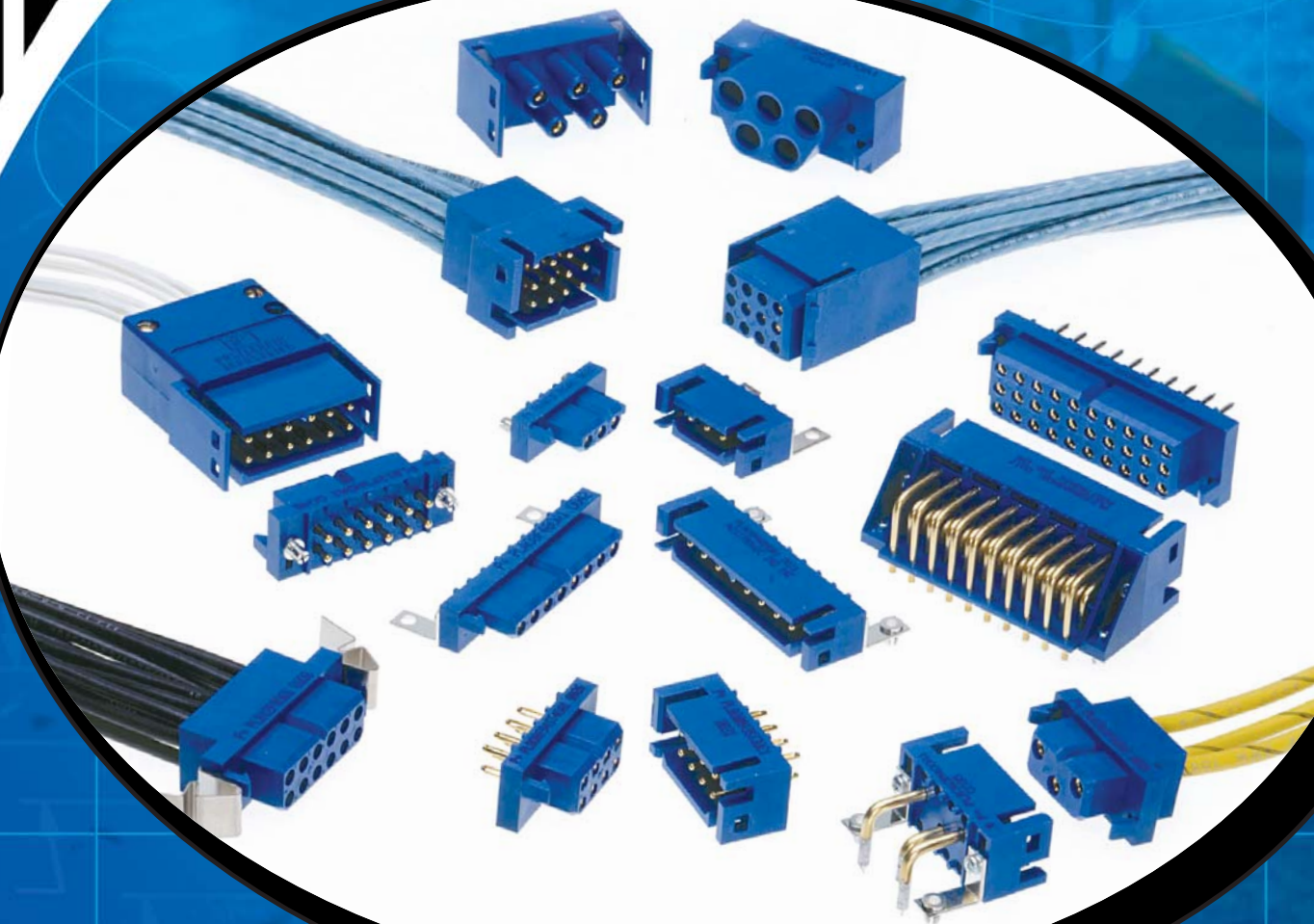


POSITRONIC INDUSTRIES



Power Connection Systems

Versatile, High-Current Power Connectors



RoHS Compliant
options available!

Catalog C-014 Rev. D

WWW.CONNECTPOSITRONIC.COM

Connector Excellence

POSITRONIC INDUSTRIES

ABOUT US

Founded in 1966, Positronic Industries is a vertically integrated manufacturer of high quality interconnect products. Positronic has earned the worldwide reputation as a service oriented, quick-reaction, top quality connector supplier. We are committed to maintaining this reputation by continuous implementation of our **Complete Capability** concept.

COMPLETE CAPABILITY

Design & Development

- Designs new connectors and modifies existing connectors to meet industry requirements
- Continuously conducts marketing studies to identify industry needs for new products
- Ongoing interest in unique connector designs

Tooling

- Tooling support for all manufacturing areas within company
- Provides 80% of new tooling, punch press dies, molds, jigs and fixtures used at Positronic factory locations worldwide

Machining

- Automatic screw machines produce finely crafted contacts and hardware for connector bodies
- Trained technicians operate machines from Tornos, Bechler and Brown & Sharpe

Molding

- Molds all plastic connector components such as insulators, hoods, angle brackets and more
- Overmold capability available

Plating

- Applies gold and other metal finishes to connector components to any required thickness
- Plating conforms to all military specifications

Quality Assurance Lab

- Quality assurance system certified to ISO 9001
- Maintains aggressive TQM program
- Able to test to IEC, EIA, UL, MIL-DTL-24308, MIL-DTL-28748, SAE AS 39029 and MIL-C-85049 requirements

Finished Stock Inventory

- Each main factory location maintains a large inventory of connector components and accessories
- Same day shipments available on many standard connector products
- Stocking agreements available for qualified customers

Worldwide Sales & Service

- Responsive attitude toward customer needs
- Fully trained sales staff located worldwide



Machining



Molding



Finished Stock Inventory

Products described within this catalog may be protected by one or more of the following US. patents:

#4,721,472 #4,900,261 #5,255,580
#5,329,697 #6,260,268 #6,835,079

Patented in Canada, 1992 Other Patents Pending

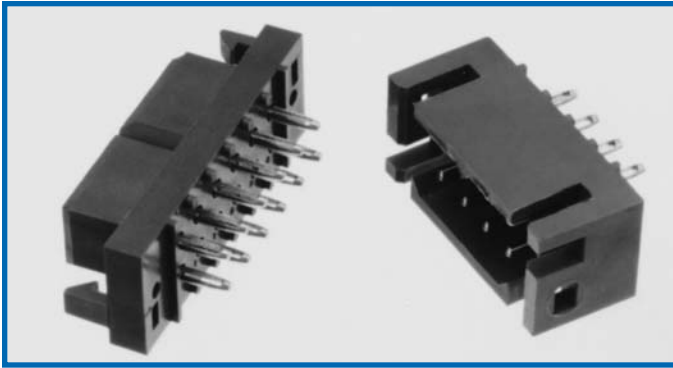
Unless otherwise specified, **dimensional tolerances** are:

- 1) ± 0.001 inches [0.03 mm] for male contact mating diameters.
- 2) ± 0.003 inches [0.08 mm] for contact termination diameters.
- 3) ± 0.005 inches [0.13 mm] for all other diameters.
- 4) ± 0.015 inches [0.38 mm] for all other dimensions.

Positronic Industries believes the data contained herein to be reliable. Since the technical information is given free of charge, the User employs such information at his own discretion and risk. Positronic Industries assumes no responsibility for results obtained or damages incurred from use of such information in whole or in part.

Positronic Industries' FEDERAL SUPPLY CODE (Cage Code) FOR MANUFACTURERS is 28198

Proven Performance



In 1989, Positronic Introduced the Power Connection Systems series. Since that time PCS has been the power connector of choice in a wide variety of applications. The popularity of PCS is due to a growing list of features: They include:

****Solid Machined Contacts****

****Large Surface Area
Mating System****

****Low Contact Resistance****

****Sequential Mating Options****

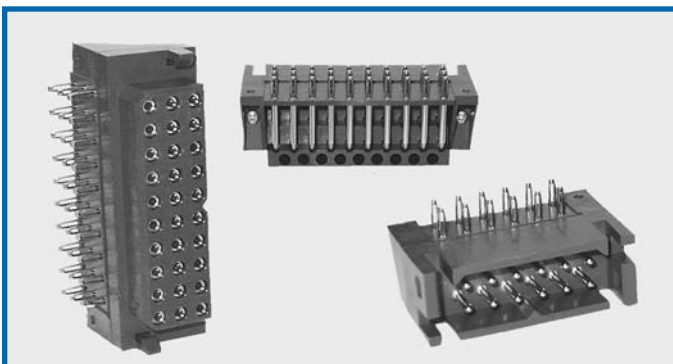
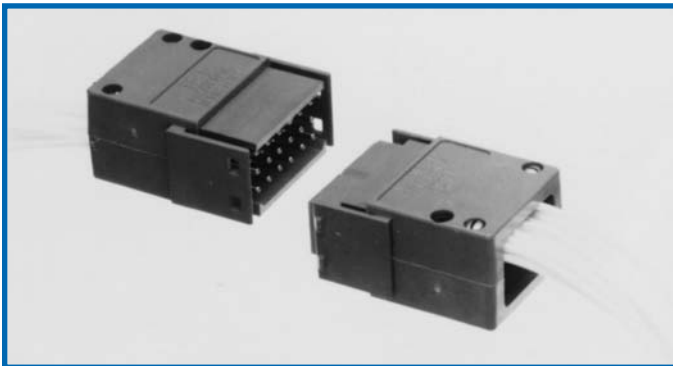
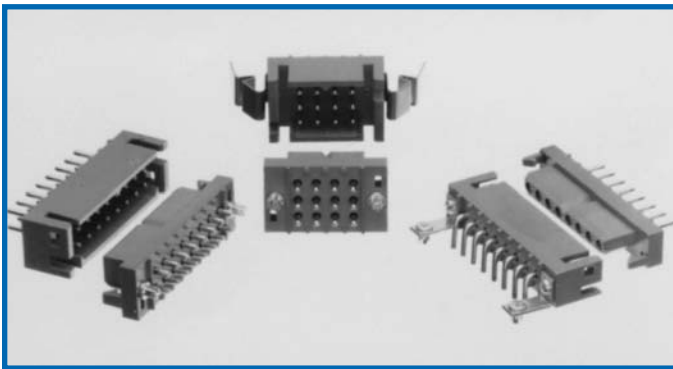
****Discriminating Locking System****

****Board to Board / Board -
Cable / Cable - Cable****

****Size 12 Contacts with
Screw Terminations****

****Safety Shrouded Options****

****Many Connector Variants
Available From Stock****



**RoHS Compliant
options available!**

DIMENSIONS ARE IN INCHES [MILLIMETERS].
ALL DIMENSIONS ARE SUBJECT TO CHANGE.



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Connection
Systems

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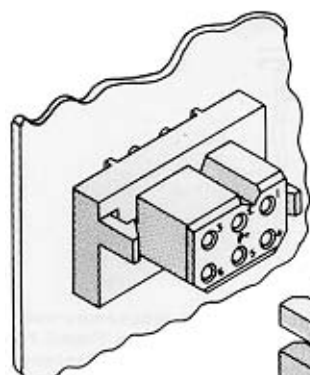


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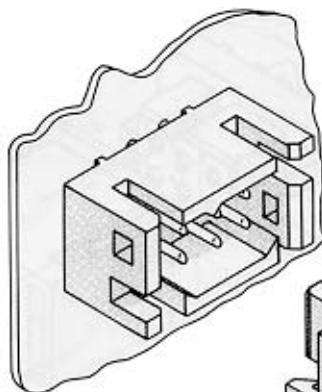
Printed Board To Printed Board Connection Systems

Power
Connection
Systems

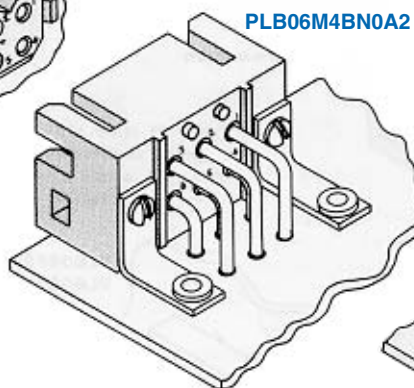
SYSTEM 1 MOTHER BOARD- DAUGHTER BOARD



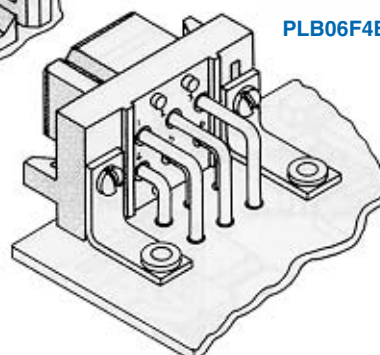
PLB06F300A1 Straight
solder or
PLB06F94ST40A1
Compliant termination
press-fit



PLB06M300A1 Straight solder or
PLB06M92ST20A1 Compliant
termination press-fit

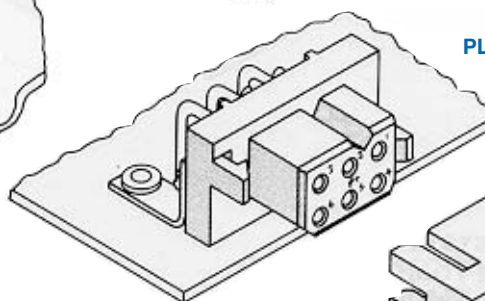


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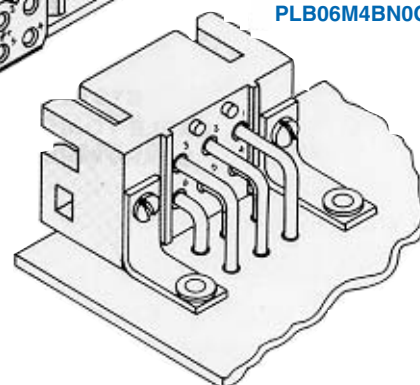


PLB06F4BN0A1

SYSTEM 2 SIDE TO SIDE BOARD MOUNTING

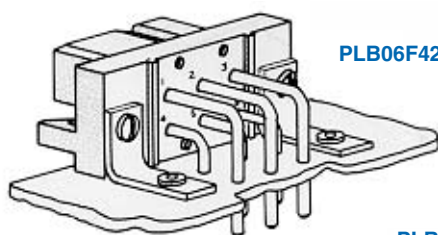


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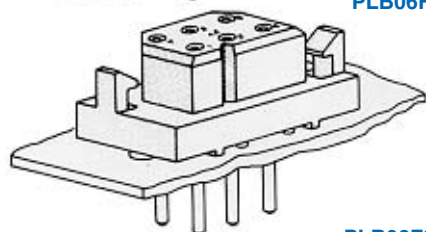


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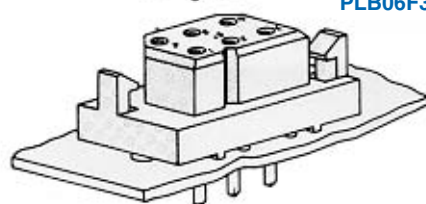
SYSTEM 3 STACKABLE BOARD MOUNTING



PLB06F42BN0C1

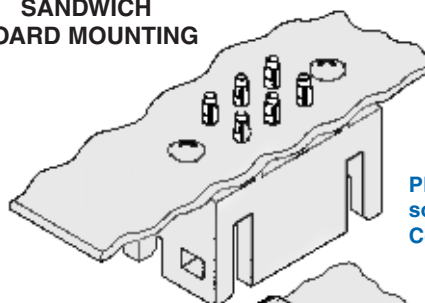


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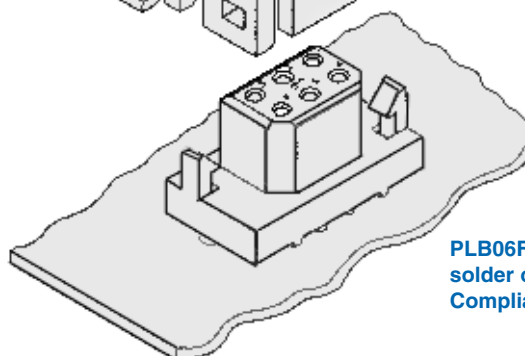


PLB06F3N0C1

SYSTEM 4 SANDWICH BOARD MOUNTING

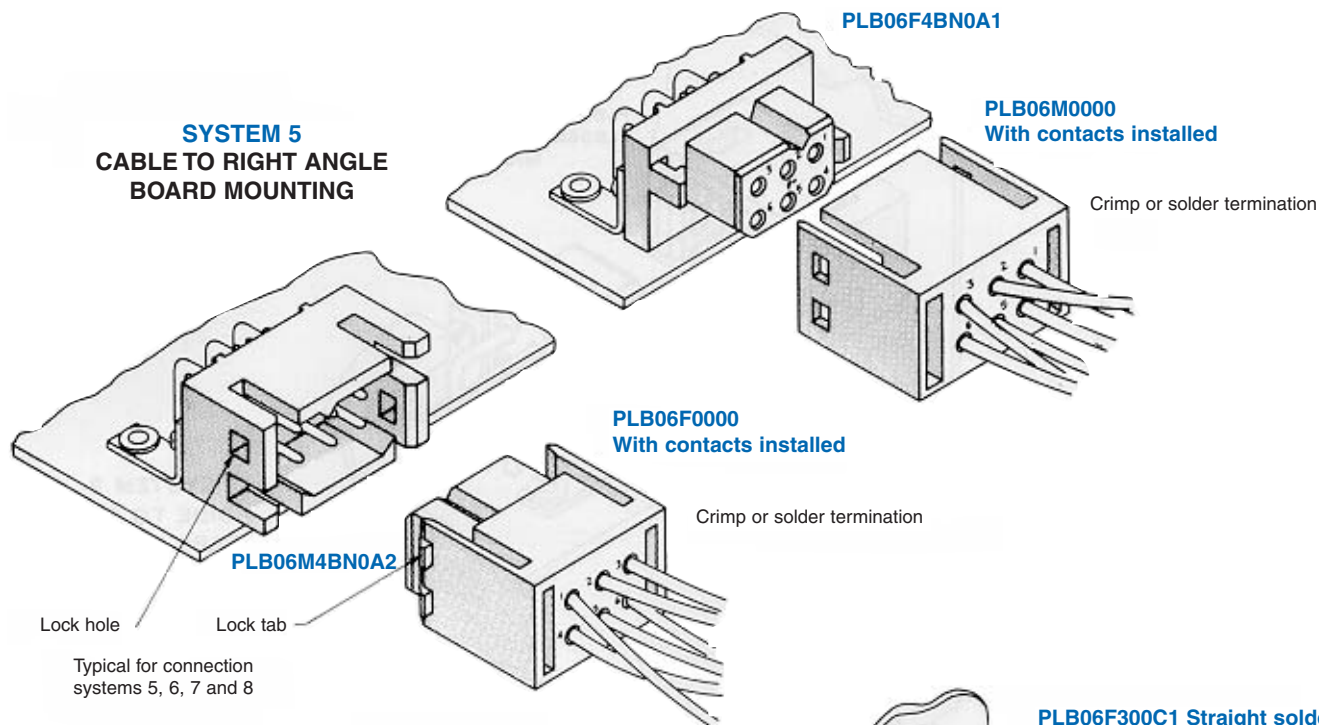


PLB06M300A1 Straight
solder or PLB06M93ST30A1
Compliant termination press-fit

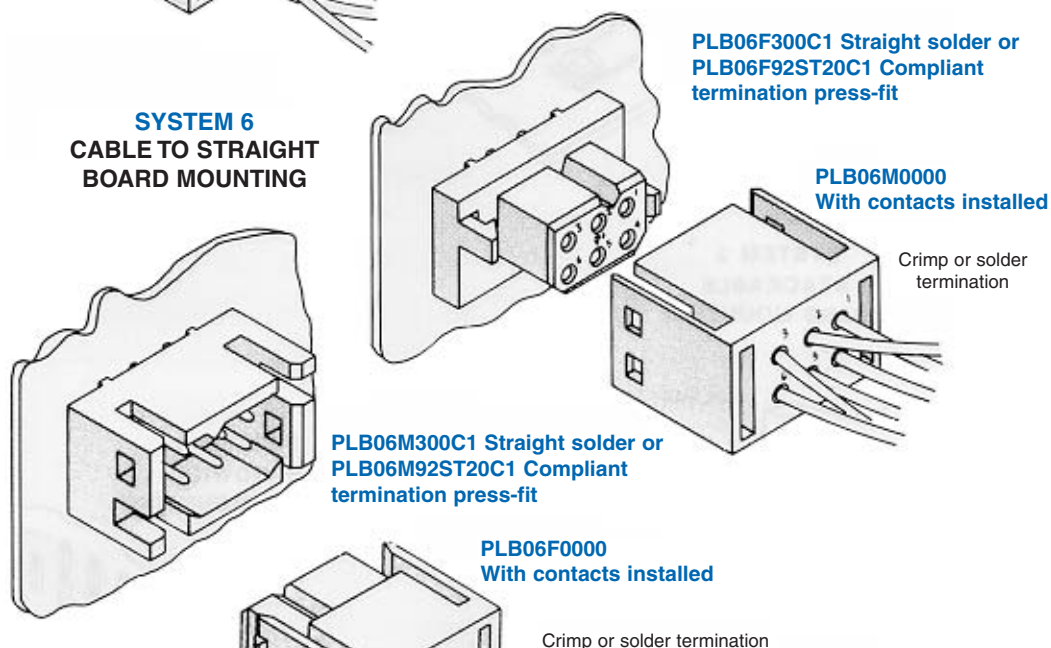


PLB06F300A1 Straight
solder or PLB06F93ST30A1
Compliant termination press-fit

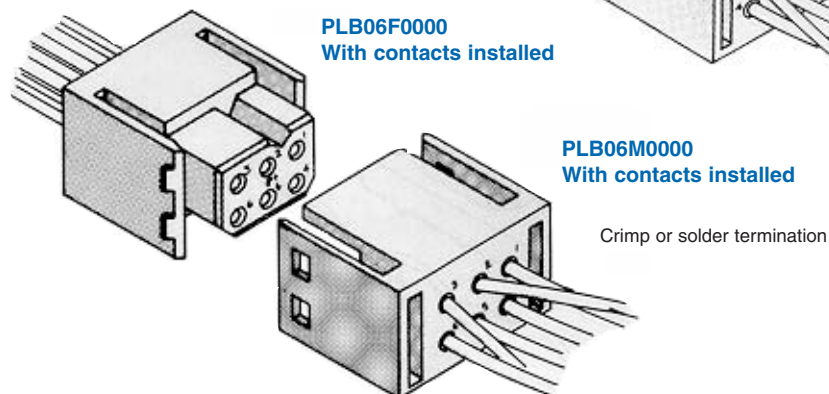
SYSTEM 5 CABLE TO RIGHT ANGLE BOARD MOUNTING



SYSTEM 6 CABLE TO STRAIGHT BOARD MOUNTING



SYSTEM 7 CABLE TO CABLE





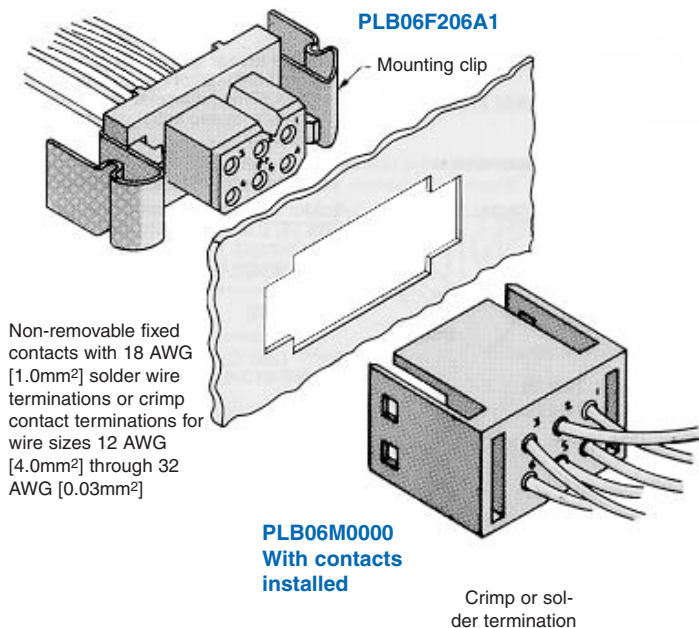
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CABLE CONNECTION SYSTEMS

Power
Connection
Systems

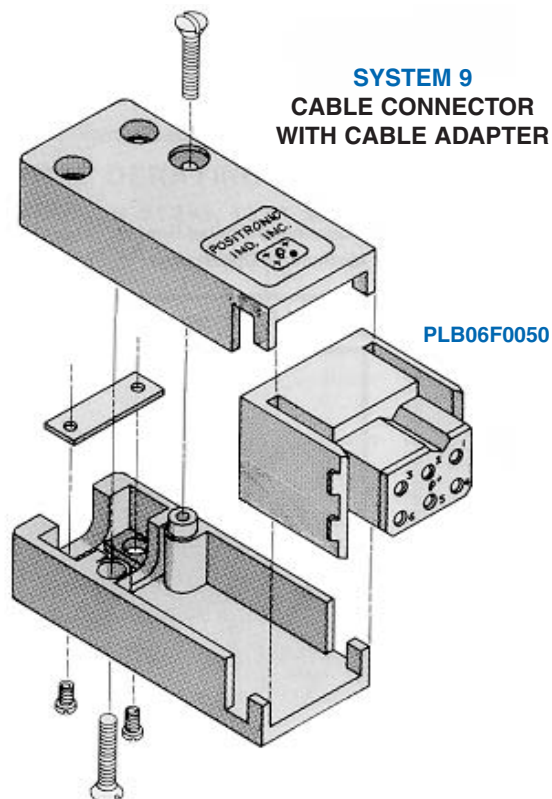
POWER CONNECTION SYSTEMS PANEL MOUNT AND CABLE ADAPTERS

SYSTEM 8 PANEL MOUNTED TO CABLE



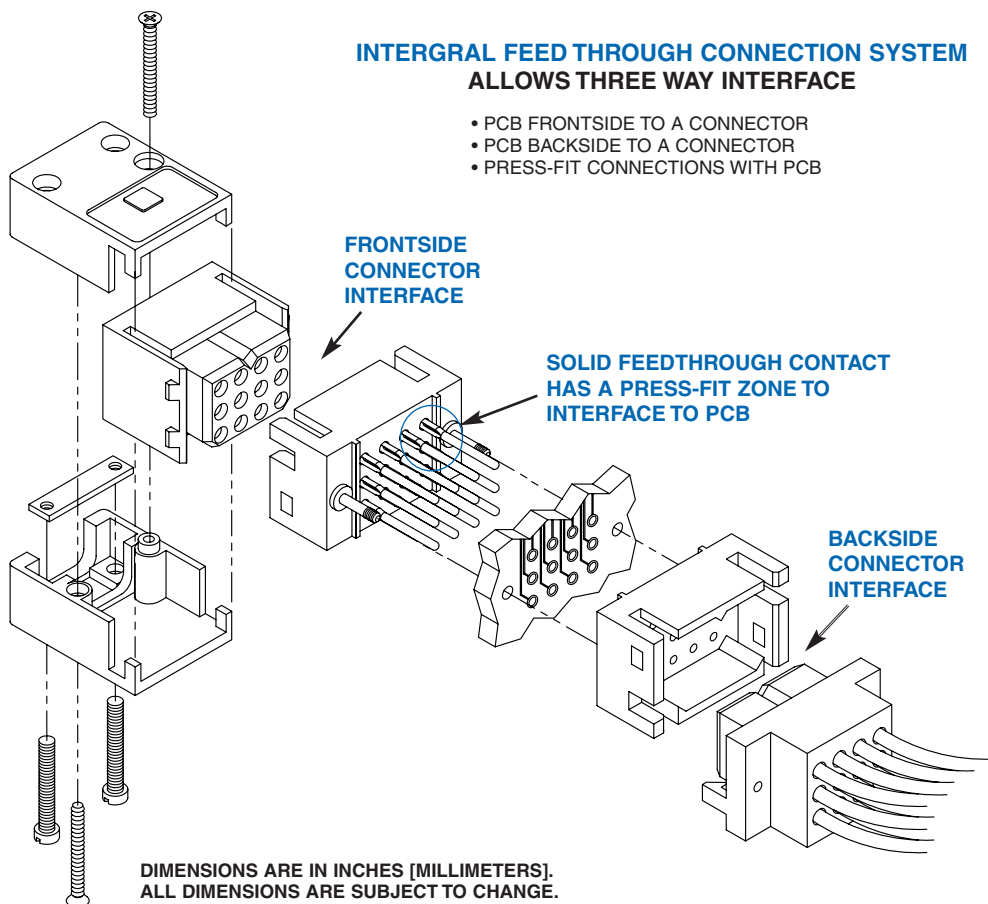
Non-removable fixed contacts with 18 AWG [1.0mm²] solder wire terminations or crimp contact terminations for wire sizes 12 AWG [4.0mm²] through 32 AWG [0.03mm²]

SYSTEM 9 CABLE CONNECTOR WITH CABLE ADAPTER



INTERGRAL FEED THROUGH CONNECTION SYSTEM ALLOWS THREE WAY INTERFACE

- PCB FRONTSIDE TO A CONNECTOR
- PCB BACKSIDE TO A CONNECTOR
- PRESS-FIT CONNECTIONS WITH PCB



CONTACT TECHNICAL
SALES FOR MORE
INFORMATION.

DIMENSIONS ARE IN INCHES [MILLIMETERS].
ALL DIMENSIONS ARE SUBJECT TO CHANGE.



DEMYSTIFYING CURRENT RATINGS

Connector current ratings seem to be shrouded in mystery at times. The user wonders how a listed current rating is relevant to a particular application. Perhaps more mysterious is how similar connectors from various manufacturers list different current rating values. While it is true that material choices and design can enhance a connector's current rating, the test method by which the rating was developed must be understood when evaluations are made.

Users of connectors for power applications are entitled to current rating test details in order to make an informed choice. Ideally, a connector's current rating should be developed within the application for which it is being considered. Although ideal, this approach is not always practical given the many differing applications. In order for connector manufacturers to give potential product users an idea of what can be expected, connectors are given current ratings based on a specific test method.

A wide variety of test methods are employed in order to develop current ratings for connectors. Some of these methods come from standards that are recognized industry-wide, while others are unique to the manufacturer or user. These various test methods can produce different results for the same product. It is no wonder confusion sometimes results.

There are key factors that, when understood, can help in choosing the right power connector. All test methods used to rate current have similarities; however, there are variables in applying the test methods which explain differing results.

Current ratings are usually established by first developing a temperature rise curve. This curve plots temperature rise against increasing current levels. The curve is a reliable tool in understanding heat generation of the connector at various currents. When a defined failure is reached, the test ends. The highest current level achieved is usually listed as the current rating.

The temperature rise curve, and therefore the current rating, will change when certain key factors are varied. These are:

- Where is the temperature sensing probe placed? If placed on the contact in the mating area (the hottest spot), the results will be quite different than if placed on the outside of the connector body.
- Are the contacts being tested and rated in free air or are they contained within the connector housing? Contacts will obviously be cooler in free air.
- Are all of the contacts in the connector under load? If only part of the contacts are under load, the temperature rise could be less.
- What is the defined failure? Does the test end when the temperature rise reaches 30°C, 40°C, or some other number? Does it end when the temperature rise plus ambient temperature equal the operating limit of the connector housing? The current rating will be fixed by the defined failure point.
- How were the test samples prepared? Were the samples energized through a P.C. board? How many layers? How large were the traces? What was the weight of the copper? Were the samples energized through wire? What size was the wire? How long was the wire? Was the sample tested in static or forced air conditions? All of these factors can affect cooling characteristics.

Clearly, a current rating value alone is not enough, and must be viewed in the context of the test used to develop the rating. When the test method is understood, evaluating and comparing power connectors for specific applications becomes much less of a mystery.



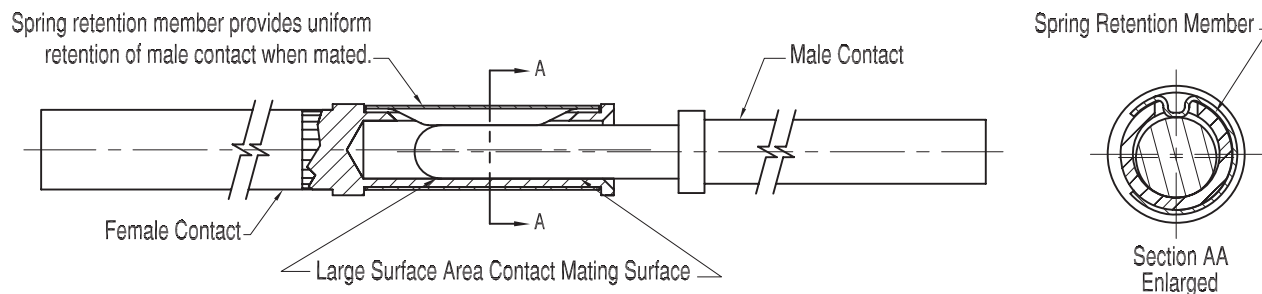
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LARGE SURFACE AREA CONTACT MATING SYSTEM

Power
Connection
Systems

THE PCS SERIES utilizes Positronic Industries' LARGE SURFACE AREA CONTACT MATING SYSTEM

- Separates mechanical and electrical functions for superior performance
- Low contact resistance provides minimized voltage drop across the contact
- “Closed Entry” design prevents damage to female contacts and will not allow misaligned or bent contacts to enter
- Precision machined from solid, high conductivity copper alloy
- Uniform insertion/withdrawal forces through repeated mating cycles



WHY IS THE L.S.A. SYSTEM SUPERIOR?

The primary function of connector contact is electrical conductivity. Also, a mechanical function is required to provide normal force between male and female contacts.

In order to provide for proper mechanical characteristics, material that has good memory or “springiness” must be chosen. This will ensure contact normal force in a coupled condition and allow for repeated coupling and uncoupling.

Unfortunately, many materials that have good memory characteristics have low electrical conductivity. For instance, beryllium copper is a good choice for mechanical function; however, some beryllium copper alloys are poor

conductors and have relatively low conductivity rates.

The conductivity path of many contact designs goes directly through materials that have been chosen based on mechanical need. If these materials have a low conductivity rating, increased contact resistance will result.

Positronic Industries Large Surface Area Contact System separates the mechanical and electrical functions. A spring retention member provides normal forces, while the electrical conductivity path is through highly conductive contact material. See above detail.

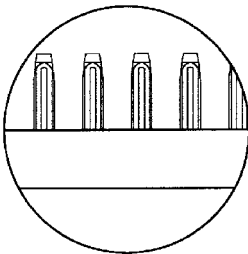
POSITRONIC INDUSTRIES' BI-SPRING POWER PRESS-FIT TERMINATIONS

The Next Evolution In Compliant Technology. Fully Compliant, Fully Reliable.

Reliable, solderless connections from connectors to backplanes started with solid press-fit technology. Although these are still used today, concerns about board damage led to the use of compliant press-fit technology. This technology allows the connection to be made through compliance of the contact termination along with P.C. board hole deformation. Although risk of damaged P.C. boards and backplanes is lessened, damage can still

occur due to relatively high insertion and extraction forces.

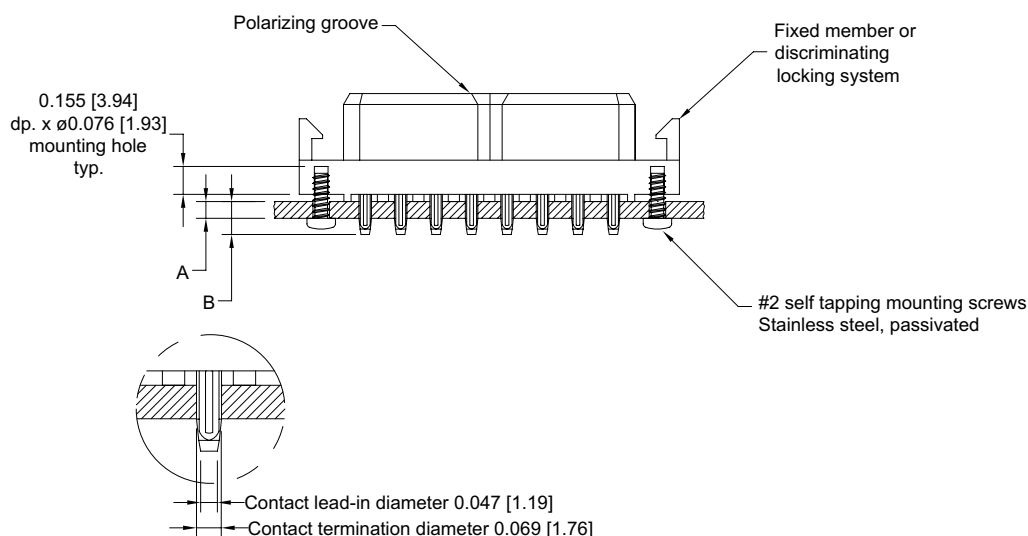
The next step in press-fit technology is a highly reliable connection between the contact termination and backplane that is accomplished with reduced insertion and extraction forces. This eliminates risk of P.C. board and backplane damage. This technology exists today with Positronic Industries Bi-Spring Power Press-Fit termination.



Bi-Spring Power Press-Fit Compliant Terminations

- Average insertion and extraction forces of size 16 contacts are 22N [5 lbs.] per contact and do not produce stresses in P.C. boards and backplanes that can occur with higher insertion forces. These stresses can cause board warpage and hole damage.
- Connector systems utilizing Bi-Spring terminations use mounting screws to secure the connector to the P.C. board or backplane. Stresses that occur during coupling, uncoupling or shock and vibration of systems are not transferred to the P.C. boards or backplanes through the press-fit connection. The electrical integrity of the connector to board interface is maintained; this is particularly important in power applications. Bellcore GR1217 details a preference for mounting hardware when using press-fit terminations.
- Size 16 Bi-Spring terminations are designed to meet the performance requirements and hole diameters as listed in the internationally recognized specification IEC60352-5.
- If a contact is damaged in manufacturing, testing or field use, the contact can be easily pushed out with the recommended tool and replaced with a new contact.
- Lower insertion and extraction forces eliminate the need for expensive pressing equipment.

COMPLIANT TERMINATION PRESS-FIT CONNECTOR



DIMENSIONS ARE IN INCHES [MILLIMETERS].
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CUSTOMER SPECIFIED ARRANGEMENTS

Power
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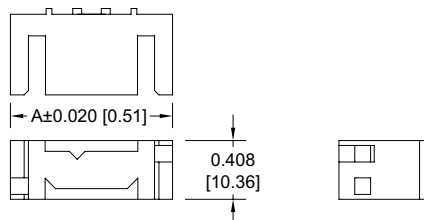
PCS SERIES

The design of Power Connection Systems Series connectors allows for the development of application specific contact arrangements in a timely manner and at a reasonable price.

Thirteen connector housing sizes exist that may accommodate size 20, size 16, or size 12 contacts (see the Power Connection Systems catalog for connector housing dimensions). After reviewing the dimensions and the following basic information, contact Technical Sales with your current, voltage, and safety requirements. We look forward to working with you to develop a connector for your specific needs.

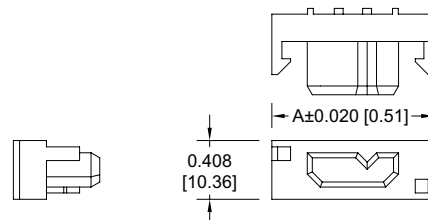
Basic Connector Dimensions

Male Connector Dimensions

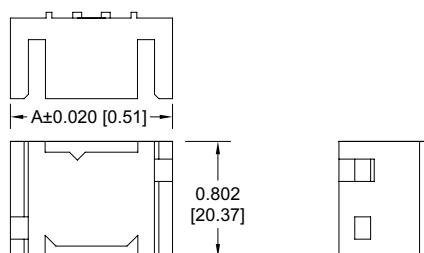
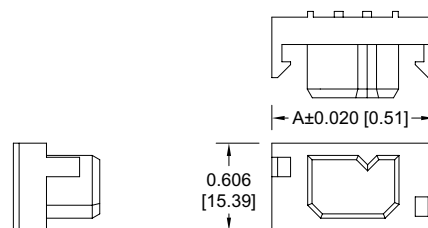


PART NUMBER	A
PLA03**00A1 PLAH03**00A1	1.126 [28.60]
PLA04**00A1 PLAH04**00A1	1.324 [33.63]
PLA06**00A1 PLAH06**00A1	1.718 [43.64]
PLA08**00A1 PLAH08**00A1	2.112 [53.64]

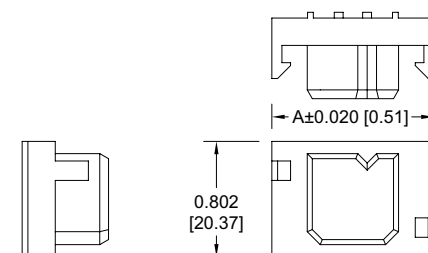
Female Connector Dimensions



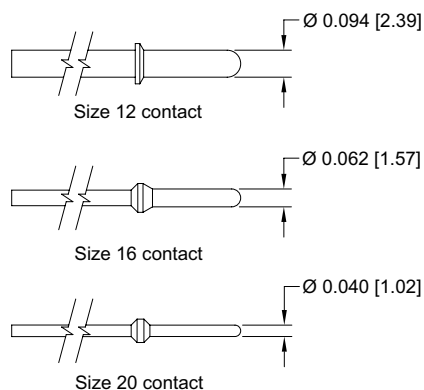
PART NUMBER	A
PLB06**00A1 PLBH06**00A1	1.126 [28.60]
PLB08**00A1 PLBH08**00A1	1.324 [33.63]
PLB12**00A1 PLBH12**00A1	1.718 [43.64]
PLB16**00A1 PLBH16**00A1	2.112 [53.64]



PART NUMBER	A
PL09**00A1 PLCH09**00A1	1.126 [28.60]
PLC12**00A1 PLCH12**00A1	1.324 [33.63]
PLC18**00A1 PLCH18**00A1	1.718 [43.64]
PLC24**00A1 PLCH24**00A1	2.112 [53.64]
PLC30**00A1 PLCH30**00A1	2.506 [63.65]



Three Contact Sizes to Choose From



Many Termination Types Can Be Supplied

Straight Solder or Press-Fit
Right Angle Solder
Crimp Removable
Removable Solder Cup

Popular Options

Sequential Mating
Selective Loading

Contact sizes and termination types may be
mixed within a single connector.



POWER CONNECTION SYSTEMS TECHNICAL CHARACTERISTICS

MATERIALS AND FINISHES:

Insulator:	Glass-filled polyester, UL 94V-0. Contact technical sales for availability of high temperature insulator material.
Contacts:	Precision machined copper alloy with gold flash over nickel, or 0.000030 inch [0.75μ] gold over nickel, or 0.000050 [1.27μ] gold over nickel. Solder coated terminations optional.
Mounting Clip:	Beryllium copper with tin plate.
Hood:	Glass filled polyester, UL 94V-0.
Mounting Bracket:	Brass with tin plate.
Push-on Fastener:	Spring tempered copper alloy, tin plate

ELECTRICAL CHARACTERISTICS:

CONTACT CURRENT RATING:

Standard Contact Material:	See page 9 for detail information.
High Conductivity Contact Material:	See page 9 for detail information.

INITIAL CONTACT RESISTANCE:

Standard Contact Material:	0.0016 ohms max. per IEC 512-2, Test 2b.
High Conductivity Contact Material:	0.0007 ohms max. per IEC 512-2, Test 2b.
Insulation Resistance:	5 G ohms per IEC 512-2, Test 3a, Method A.
Voltage Proof:	2000 V rms per IEC 512-2, Test 4a, Method C.
Creepage Distance:	0.157 inch [4 mm] minimum.
Clearance Distance:	0.125 inch [3.2 mm] minimum.
Working Voltage:	Designed to meet UL 600 VAC and CSA 600 VAC.
Working Temperature:	-55°C to +125°C Contact technical sales for availability of high temperature insulator material.

ELECTRICAL CHARACTERISTICS OF COMPLIANT PRESS-FIT CONNECTION TO PLATED-THROUGH-HOLE OF PRINTED BOARD:

Initial Contact Resistance of Connection:	0.064 inch [1.63mm] diameter hole of a 0.125 inch [3.2mm] thick printed board Less than 1.0 milliohms per IEC 512-2, Test 2a.
Change in Contact Resistance of Connection After Mechanical, Electrical or Climactic Conditioning:	Less than 0.5 milliohms increase per IEC 512-2, Test 2a.
Gas Tight Connections Test:	Less than 0.2 milliohms increase in contact resistance after 1 hour per EIA 364, TP36, Method One.

SHIELDED CONTACT TECHNICAL CHARACTERISTICS:

See page 31.

MECHANICAL CHARACTERISTICS:

Removable Contacts:	Insert contact to rear face of insulator, release from front face of insulator. Size 16, 0.062 inch [1.57 mm] diameter male contact. Female contact "closed entry" design for highest reliability.
----------------------------	--

Removable Contact Retention in Insulator:

Fixed Contacts:

Fixed Contact Retention in Insulator:

Resistance to Solder Iron Heat:

Contact Terminations:

Contact Insertion and Withdrawal Forces:

Connection Systems:

Sequential Mating System:

Locking System:

Polarizations:

Mounting to Printed Board:

Mechanical Operations:

MECHANICAL CHARACTERISTICS OF COMPLIANT PRESS-FIT CONNECTORS:

Press-Fit Contact Bi-Spring Construction, Compliant Termination:

Contact Retention in Insulator and 0.125 inch [3.2mm] thick printed board:

Vibration:

Initial Press-In Force of Individual Contact into Plated-Through-Hole:

Initial Push-Out Force of Individual Contact into Plated-Through-Hole:

15 lbs. [67N] per IEC 512-8, Test 15a.

Solder cup and printed board terminations. Size 16, 0.062 inch [1.57 mm] diameter male contact. Female contact has "closed entry" design for highest reliability.

6 lbs. [26N].

500°F [260°C] for 10 seconds duration per IEC 512-6, Test 12e, 25 watt soldering iron.

Crimp or solder removable contacts from wire sizes 12 AWG [4.0 mm²] through 24 AWG [0.25 mm²]. Straight and 90° solder printed board mount, 0.062 inch [1.57 mm] tail diameter. Compliant termination press-fit. Fixed contact solder cup termination, 18 AWG [1.0 mm²] maximum.

8 oz. [2.2N] nominal per contact.

Connector provides cable to cable, cable to printed board, cable to panel mount and printed board to printed board application.

Cable and printed board mount connectors. Male contacts provide as many as three mating lengths.

Insulators provide locking between cable to cable, cable to printed board and cable to panel mount applications.

Provided in insulator design. Further polarization in cable connectors can be provided by mixing male contacts in female insulators and female contacts in male insulators.

Rapid installation push-on fasteners. Self-tapping screws for compliant connectors. 500 operations per IEC 512-5.

0.0695 inch [1.77mm] diameter with 0.050 inch [1.27mm] lead-in diameter. Offered with two termination lengths.

5 lbs. [22N] minimum combined retention forces per MIL-STD-2166, Type III compliant contact classification, after third repair- replacement of contact in insulator and plated-through-hole, 0.064 inch [1.63mm] diameter in a 0.125 inch [3.2mm] thick printed board.

No electrical discontinuity of 1μ second or greater when tested per MIL-STD-1344, Method 2005, Test conditioning.

10 lbs. [44N] average when pushed into a 0.064 inch [1.63mm] Ø hole in a 0.125 inch [3.2mm] thick printed board.

8.5 lbs. [38N] average when pushed out of an 0.064 inch [1.63mm] Ø hole in a 0.125 inch [3.2mm] thick printed board.



For RoHS options see page 39.

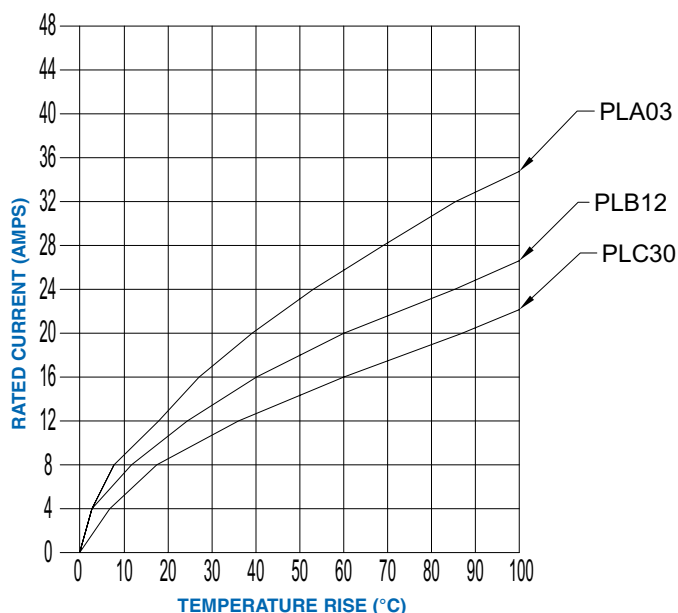
U.L. Recognized
File #E49351

CSA Recognized
File #LR54219



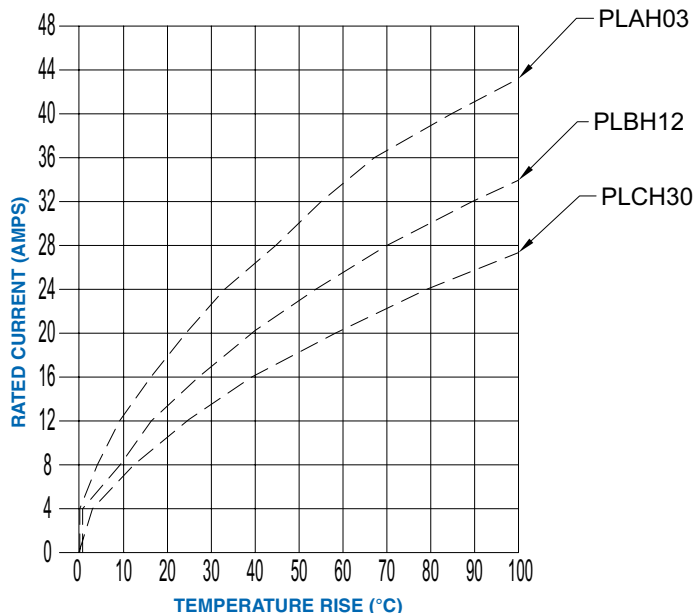
TEMPERATURE RISE CURVE

STANDARD CONTACT MATERIALS
CONNECTORS WITH PL* PREFIX



TEMPERATURE RISE CURVE

HIGH CONDUCTIVITY CONTACT MATERIALS
CONNECTORS WITH PL*H PREFIX
OR "S" SUFFIX ON CRIMP CONTACTS



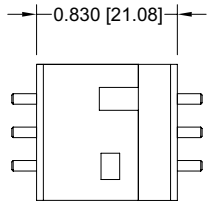
TEST DETAIL: Each curve was developed using individual connector bodies fully loaded with contacts. All power contacts energized through 12 awg wire. Temperature rise was measured in the contact mating area. Test was conducted with connectors in static air. Terminations of test connectors were straight compliant press-fit to right angle solder. See page 4 for more information.

CONTACT CURRENT RATINGS			
CONNECTOR VARIANT	STANDARD CONTACTS	CONNECTOR VARIANT	HIGH CONDUCTIVITY CONTACTS
PLA03	32 amps	PLAH03	42 amps
PLB12	25 amps	PLBH12	32 amps
PLC30	18 amps	PLCH30	24 amp

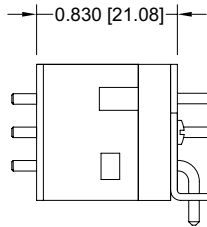
Temperature rise curves and contact current ratings were developed for the specific connector variants shown when tested in accordance with UL1977.

This information is provided so that the user can make comparisons between various connector sizes and contact materials.

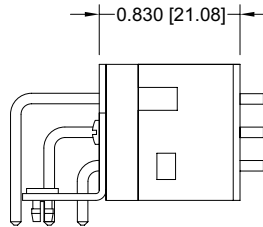
MATING DIMENSIONS (FULLY MATED)



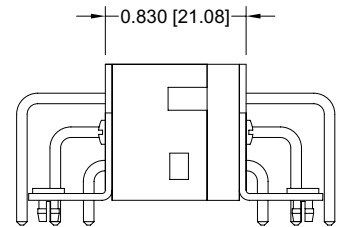
**Straight Board Mount Male
to Straight Board Mount
Female**



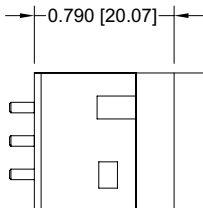
**Straight Board Mount Male
to Right Angle Board Mount
Female**



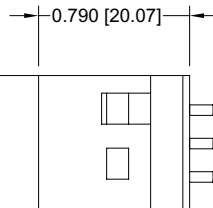
**Right Angle Board Mount
Male to Straight
Board Mount Female**



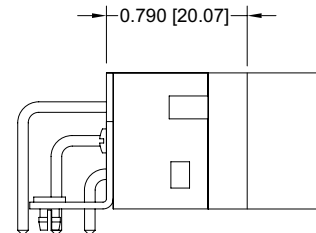
**Right Angle Board Mount
Male to Right Angle
Board Mount Female**



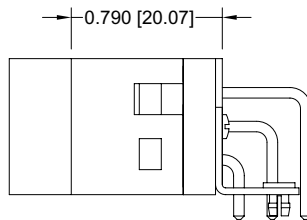
**Straight Board Mount Male
to Panel Mount
Female**



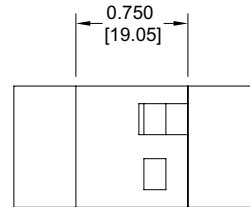
**Panel Mount Male
to Straight Board
Mount Female**



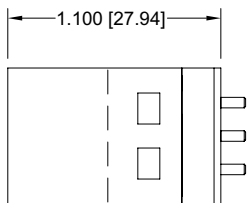
**Right Angle Board Mount
Male to Panel
Board Mount Female**



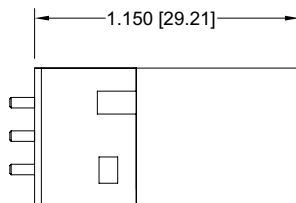
**Panel Mount Male
to Right Angle Board
Mount Female**



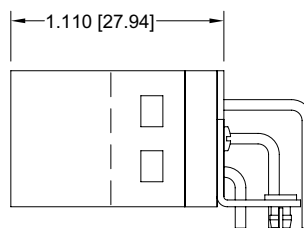
**Panel Mount Male
to Panel Mount
Female**



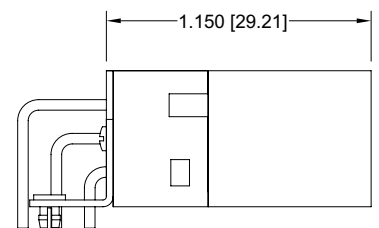
**Cable Mount Male
to Straight Board
Mount Female**



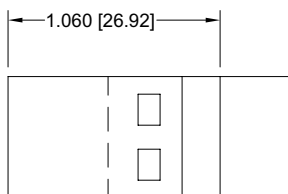
**Straight Board Mount
Male to Cable
Mount Female**



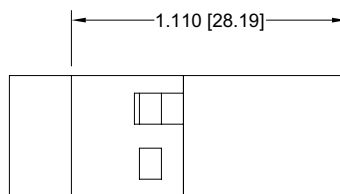
**Cable Mount Male
to Right Angle
Board Mount Female**



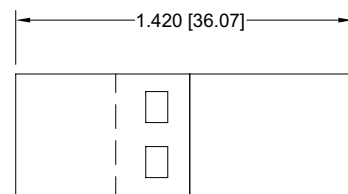
**Right Angle Board Mount
Male to Cable Mount
Female**



**Cable Mount Male
to
Panel Mount Female**



**Panel Mount Male
to Cable Mount
Female**



**Cable Mount Male
to
Cable Mount Female**



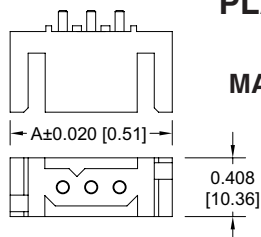
Positronic Industries
connectpositronic.com

STRAIGHT SOLDER PRINTED BOARD CONNECTORS

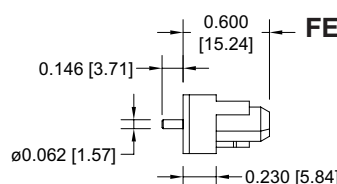
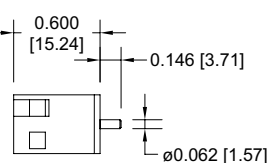
Power
Connection
Systems

PCS SERIES

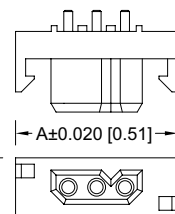
PLA STRAIGHT PRINTED BOARD MOUNT CONNECTORS CODE 3, 0.146 [3.71] CONTACT EXTENSION



MALE



FEMALE



Typical part number:
PLA03M300A1
PLAH03M300A1

Typical part number:
PLA03F300A1
PLAH03F300A1

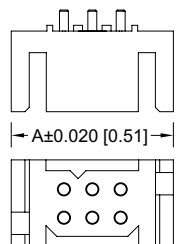
*Asterisk determines
gender of connector,
M for male,
F for female.

PART NUMBER	A	PART NUMBER	A
PLA03*300A1	1.126 [28.60]	PLA06*300A1	1.718 [43.64]
PLAH03*300A1		PLAH06*300A1	
PLA04*300A1	1.324 [33.63]	PLA08*300A1	2.112 [53.64]
PLAH04*300A1		PLAH08*300A1	

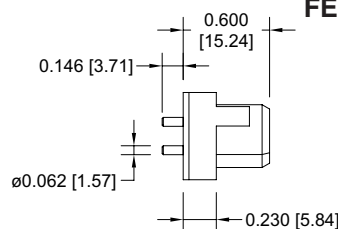
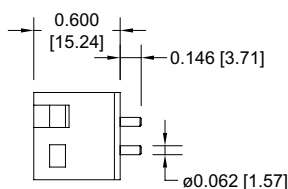
Plating- See ordering information
for contact plating options.

For connection systems 1, 4 and 6.

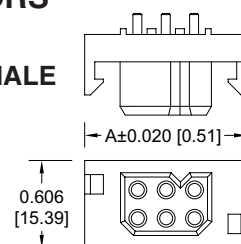
PLB STRAIGHT PRINTED BOARD MOUNT CONNECTORS CODE 3, 0.146 [3.71] CONTACT EXTENSION



MALE



FEMALE



Typical part number:
PLB06M300A1
PLBH06M300A1

Typical part number:
PLB06F300A1
PLAH06F300A1

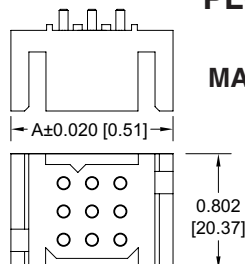
*Asterisk determines
gender of connector,
M for male,
F for female.

PART NUMBER	A	PART NUMBER	A
PLB06*300A1	1.126 [28.60]	PLB12*300A1	1.718 [43.64]
PLBH06*300A1		PLBH12*300A1	
PLB08*300A1	1.324 [33.63]	PLB16*300A1	2.112 [53.64]
PLBH08*300A1		PLBH16*300A1	

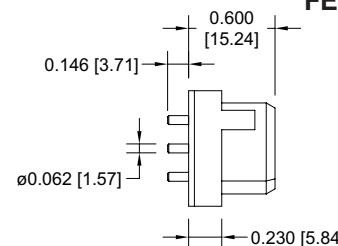
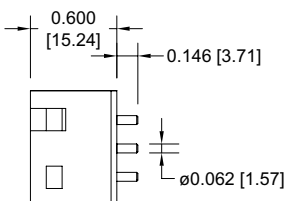
Plating- See ordering information
for contact plating options.

For connection systems 1, 4 and 6.

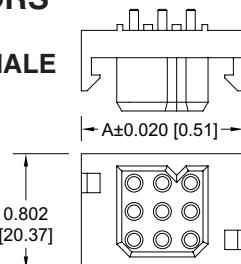
PLC STRAIGHT PRINTED BOARD MOUNT CONNECTORS CODE 3, 0.146 [3.71] CONTACT EXTENSION



MALE



FEMALE



Typical part number:
PLC09M300A1
PLCH09M300A1

Typical part number:
PLC09F300A1
PLCH09F300A1

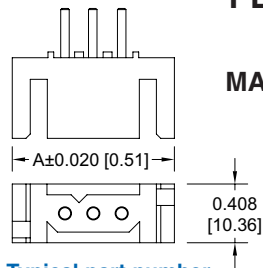
*Asterisk determines
gender of connector,
M for male,
F for female.

PART NUMBER	A	PART NUMBER	A
PLC09*300A1	1.126 [28.60]	PLC24*300A1	2.112 [53.64]
PLCH09*300A1		PLCH24*300A1	
PLC12*300A1	1.324 [33.63]	PLC30*300A1	2.506 [63.65]
PLCH12*300A1		PLCH30*300A1	
PLC18*300A1	1.718 [43.64]		
PLCH18*300A1			

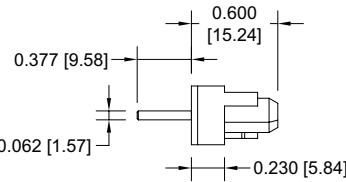
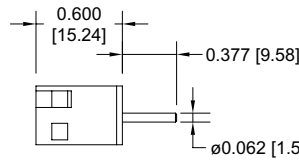
Plating- See ordering information
for contact plating options.

For connection systems 1, 4 and 6.

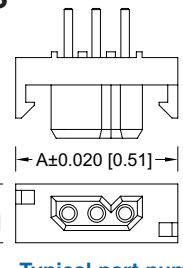
PLA STRAIGHT PRINTED BOARD MOUNT CONNECTORS CODE 32, 0.377 [9.58] CONTACT EXTENSION



MALE



FEMALE



Typical part number:
PLA03M3200A1
PLAH03M3200A1

Typical part number:
PLA03F3200A1
PLAH03F3200A1

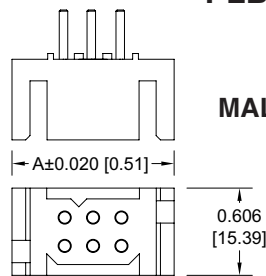
*Asterisk determines
gender of connector,
M for male,
F for female.

PART NUMBER	A	PART NUMBER	A
PLA03*3200A1	1.126 [28.60]	PLA06*3200A1	1.718 [43.64]
PLAH03*3200A1		PLAH06*3200A1	
PLA04*3200A1	1.324 [33.63]	PLA08*3200A1	2.112 [53.64]
PLAH04*3200A1		PLAH08*3200A1	

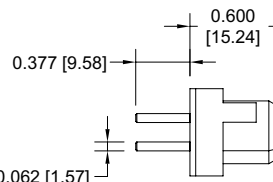
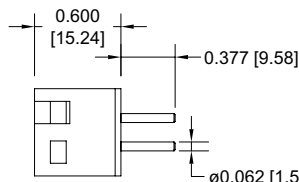
Plating- See ordering information
for contact plating options.

For connection systems 1, 3, 4 and 6.

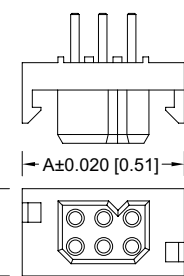
PLB STRAIGHT PRINTED BOARD MOUNT CONNECTORS CODE 32, 0.377 [9.58] CONTACT EXTENSION



MALE



FEMALE



Typical part number:
PLB06M3200A1
PLBH06M3200A1

Typical part number:
PLB06F3200A1
PLBH06F3200A1

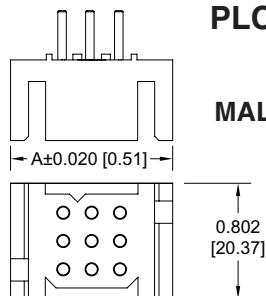
*Asterisk determines
gender of connector,
M for male,
F for female.

PART NUMBER	A	PART NUMBER	A
PLB06*3200A1	1.126 [28.60]	PLB12*3200A1	1.718 [43.64]
PLBH06*3200A1		PLBH12*3200A1	
PLB08*3200A1	1.324 [33.63]	PLB16*3200A1	2.112 [53.64]
PLBH08*3200A1		PLBH16*3200A1	

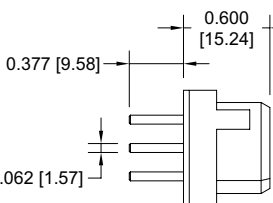
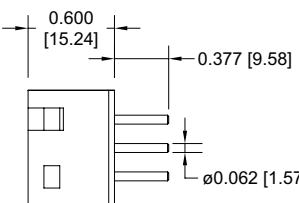
Plating- See ordering information
for contact plating options.

For connection systems 1, 3, 4 and 6.

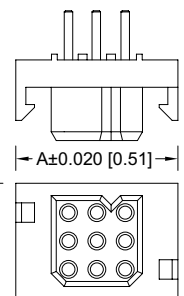
PLC STRAIGHT PRINTED BOARD MOUNT CONNECTORS CODE 32, 0.377 [9.58] CONTACT EXTENSION



MALE



FEMALE



Typical part number:
PLC09M3200A1
PLCH09M3200A1

Typical part number:
PLC09F3200A1
PLCH09F3200A1

*Asterisk determines
gender of connector,
M for male,
F for female.

PART NUMBER	A	PART NUMBER	A
PLC09*3200A1	1.126 [28.60]	PLC24*3200A1	2.112 [53.64]
PLCH09*3200A1		PLCH24*3200A1	
PLC12*3200A1	1.324 [33.63]	PLC30*3200A1	2.506 [63.65]
PLCH12*3200A1		PLCH30*3200A1	
PLC18*3200A1	1.718 [43.64]		
PLCH18*3200A1			

Plating- See ordering information
for contact plating options.

For connection systems 1, 3, 4 and 6.



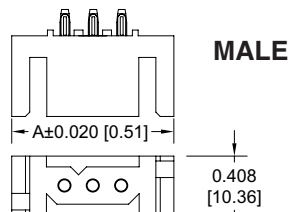
Positronic Industries
connectpositronic.com

COMPLIANT TERMINATION REPAIRABLE CONTACT PRESS-FIT POWER CONNECTORS

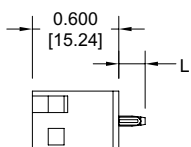
Power
Connection
Systems

PCS SERIES

PLA COMPLIANT PRESS-FIT CONNECTORS CODE 92 OR CODE 93



MALE

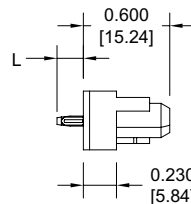


Typical part number:
PLA03M93ST30A1
PLAH03M93ST30A1

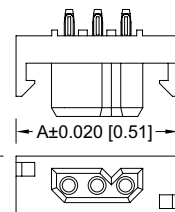
**Asterisks determine
gender of connector,
M for male,
F for female and
contact code 92 or 93.

PART NUMBER	A
PLA03**00A1	1.126 [28.60]
PLAH03**00A1	1.324 [33.63]
PLA06**00A1	1.718 [43.64]
PLAH06**00A1	2.112 [53.64]

CODE 92 OR CODE 93



FEMALE



Typical part number:
PLA03F93ST30A1
PLAH03F93ST30A1

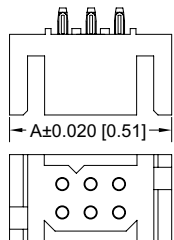
Plating- See ordering information for
contact plating options.

For connection systems 1,4 and 6.

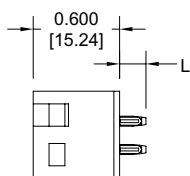
CONNECTORS ARE DESIGNED TO
BE MOUNTED TO THE PCB WITH
SCREWS, SEE SCREW CODE.

CONTACT CODE	L	PCB THICKNESS	SCREW CODE
92	0.183 [4.65]	0.093 [2.36]	ST2
93	0.218 [5.54]	0.125 [3.18]	ST3

PLB COMPLIANT PRESS-FIT CONNECTORS CODE 92 OR CODE 93



MALE



Typical part number:
PLB06M93ST30A1
PLBH06M93ST30A1

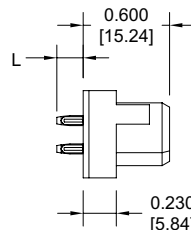
**Asterisks determine
gender of connector,
M for male,
F for female and
contact code 92 or 93.

PART NUMBER	A
PLB06**00A1	1.126 [28.60]
PLBH06**00A1	1.324 [33.63]
PLB12**00A1	1.718 [43.64]
PLBH12**00A1	2.112 [53.64]

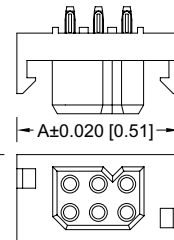
Plating- See ordering information for
contact plating options.

For connection systems 1,4 and 6.

CONNECTORS ARE DESIGNED TO
BE MOUNTED TO THE PCB WITH
SCREWS, SEE SCREW CODE.



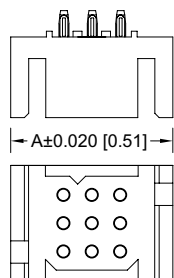
FEMALE



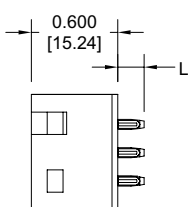
Typical part number:
PLB06F93ST30A1
PLBH06F93ST30A1

CONTACT CODE	L	PCB THICKNESS	SCREW CODE
92	0.183 [4.65]	0.093 [2.36]	ST2
93	0.218 [5.54]	0.125 [3.18]	ST3

PLC COMPLIANT PRESS-FIT CONNECTORS CODE 92 OR CODE 93



MALE



Typical part number:
PLC09M93ST30A1
PLCH09M93ST30A1

**Asterisks determine
gender of connector,
M for male,
F for female and
contact code 92 or 93.

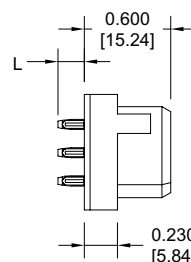
PART NUMBER	A
PLC09**00A1	1.126 [28.60]
PLCH09**00A1	1.324 [33.63]
PLC12**00A1	1.718 [43.64]
PLCH12**00A1	2.112 [53.64]
PLC24**00A1	2.506 [63.65]
PLCH24**00A1	

See page 36
for Installation Tooling.

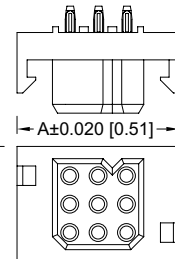
Plating- See ordering information for
contact plating options.

For connection systems 1,4 and 6.

CONNECTORS ARE DESIGNED TO
BE MOUNTED TO THE PCB WITH
SCREWS, SEE SCREW CODE.



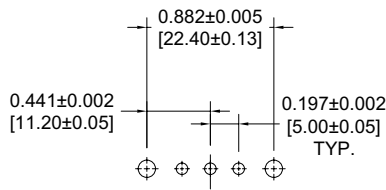
FEMALE



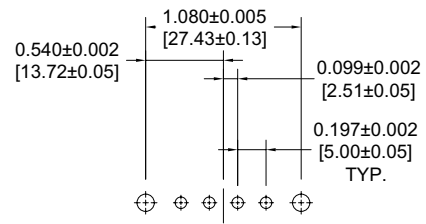
Typical part number:
PLC09F93ST30A1
PLCH09F93ST30A1

CONNECTORS ARE DESIGNED TO BE MOUNTED TO
THE PCB WITH SCREWS, SEE SCREW CODE.

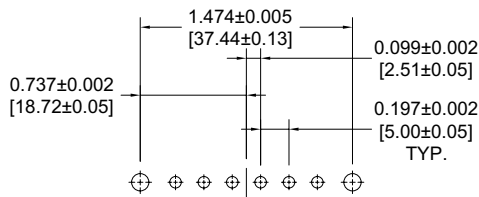
CONTACT CODE	L	PCB THICKNESS	SCREW CODE
92	0.183 [4.65]	0.093 [2.36]	ST2
93	0.218 [5.54]	0.125 [3.18]	ST3



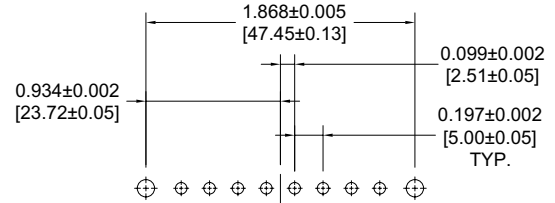
PLA 03



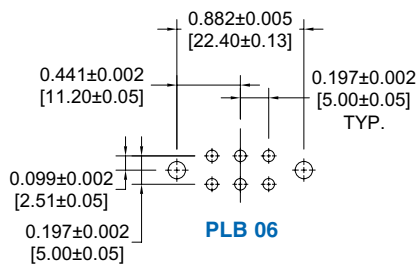
PLA 04



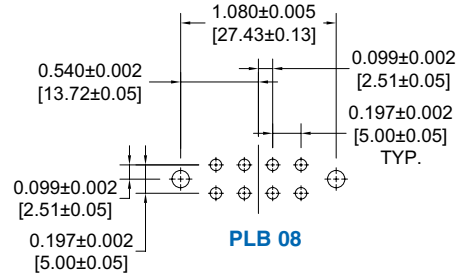
PLA 06



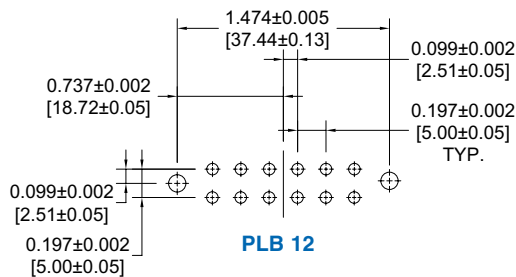
PLA 08



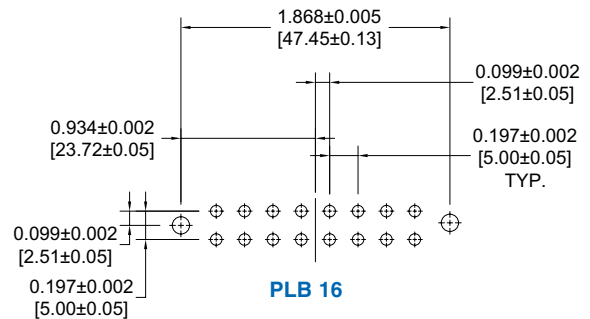
PLB 06



PLB 08



PLB 12



PLB 16

Suggest 0.080 [2.03] Ø holes in printed board for solder contact termination positions.

See page 15 for holes in printed board for compliant contact termination positions.

Suggest 0.100 [2.54] Ø holes in printed board when mounting connectors with # 2 thread forming screws.

Suggest 0.123±0.003 [3.15] Ø holes in printed board when mounting connector with push-on fasteners.

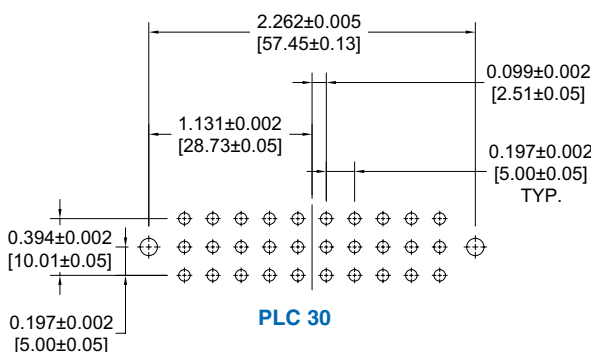
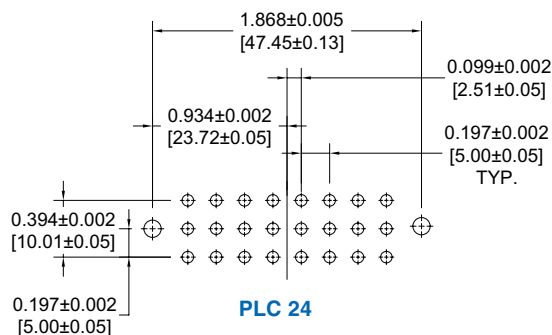
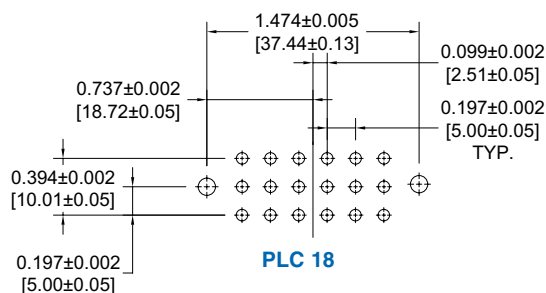
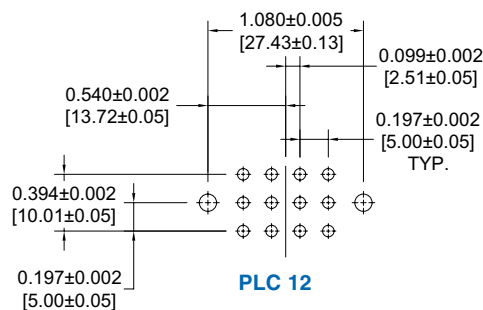
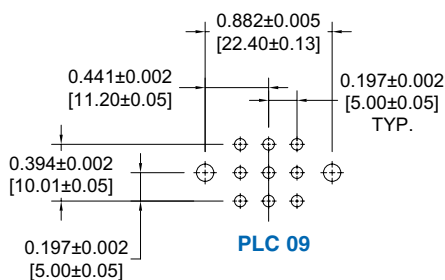


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STRAIGHT SOLDER AND COMPLIANT CONTACT HOLE PATTERN

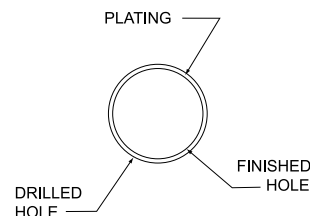
Power
Connection
Systems

PCS SERIES



SUGGESTED PRINTED BOARD HOLE SIZES FOR PRESS-FIT CONNECTORS

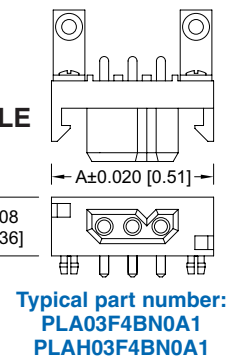
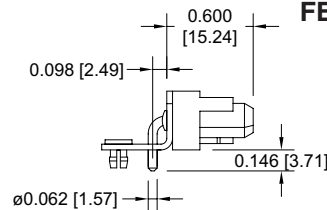
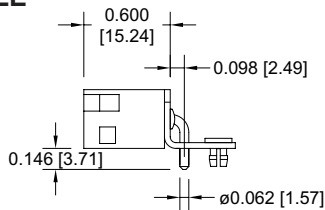
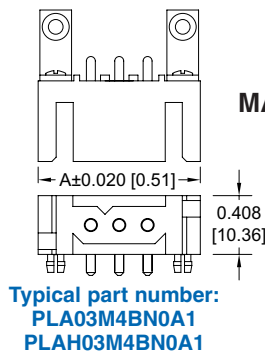
COMPLIANT PRESS-FIT CONTACT HOLE				
BOARD TYPE	CONTACT SIZE	DRILL HOLE SIZE	RECOMMENDED PLATING	FINISHED HOLE SIZES
TIN-LEAD SOLDER PCB	16	$\phi 0.0689 \pm 0.0010$ [$\phi 1.750 \pm 0.025$]	0.0006 [15 μ] minimum solder over 0.0010 [25 μ] min. copper	$\phi 0.0630 + 0.0035 - 0.0024$ [$\phi 1.600 + 0.090 - 0.060$]
COPPER PCB	16	$\phi 0.068 \pm 0.002$ [$\phi 1.73 \pm 0.05$]	0.0010 [25 μ] min. copper	$\phi 0.0630 + 0.0035 - 0.0024$ [$\phi 1.600 + 0.090 - 0.060$]
IMMERSION TIN PCB	16	$\phi 0.068 \pm 0.002$ [$\phi 1.73 \pm 0.05$]	0.000033±0.000006 [0.85±0.15 μ] immersion tin over 0.0010 [25 μ] min. copper	$\phi 0.0630 + 0.0035 - 0.0024$ [$\phi 1.600 + 0.090 - 0.060$]
IMMERSION SILVER PCB	16	$\phi 0.068 \pm 0.002$ [$\phi 1.73 \pm 0.05$]	0.000013±0.000007 [0.34±0.17 μ] immersion silver over 0.0010 [25 μ] min. copper	$\phi 0.0630 + 0.0035 - 0.0024$ [$\phi 1.600 + 0.090 - 0.060$]
ELECTROLESS NICKEL/IMMERSION GOLD PCB	16	$\phi 0.068 \pm 0.002$ [$\phi 1.73 \pm 0.05$]	0.000002 [0.05 μ] min. immersion gold over 0.000177±0.000059 [4.5±1.5 μ] electroless nickel per IPC-4552 over 0.0010 [25 μ] min. copper	$\phi 0.0630 + 0.0035 - 0.0024$ [$\phi 1.600 + 0.090 - 0.060$]



PRESS-FIT CONTACT HOLE

Note: For PCB plating compositions not shown, consult Technical Sales.

PLA 90° PRINTED BOARD MOUNT CONNECTORS CODE 4, 0.146 [3.71] CONTACT EXTENSION



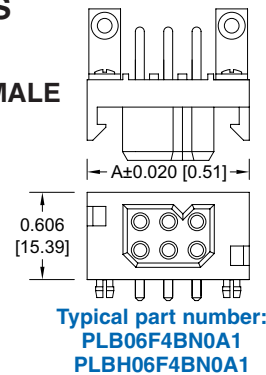
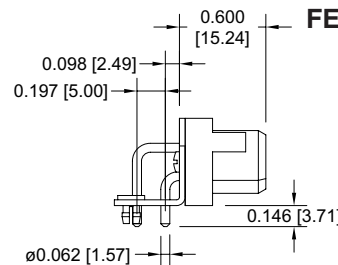
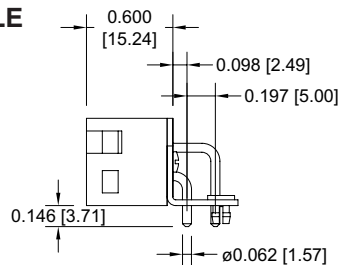
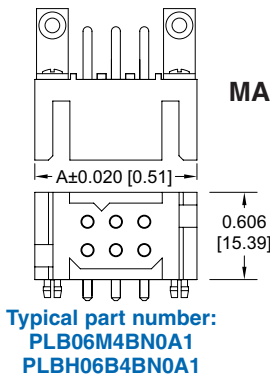
*Asterisk determines
gender of connector,
M for male,
F for female.

PART NUMBER	A	PART NUMBER	A
PLA03*400A1	1.126 [28.60]	PLA06*400A1	1.718 [43.64]
PLAH03*400A1	1.324 [33.63]	PLAH06*400A1	2.112 [53.64]
PLA04*400A1	1.324 [33.63]	PLA08*400A1	2.112 [53.64]
PLAH04*400A1	1.324 [33.63]	PLAH08*400A1	2.112 [53.64]

Plating- See ordering information for
contact plating options.

For connection systems 1, 2 and 5.

PLB 90° PRINTED BOARD MOUNT CONNECTORS CODE 4, 0.146 [3.71] CONTACT EXTENSION



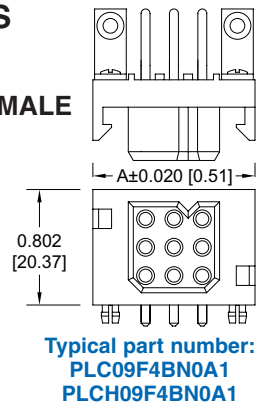
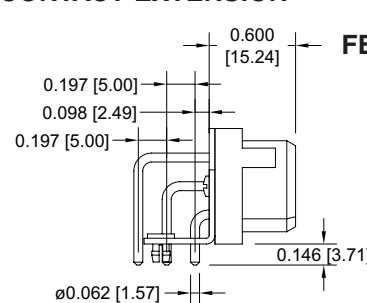
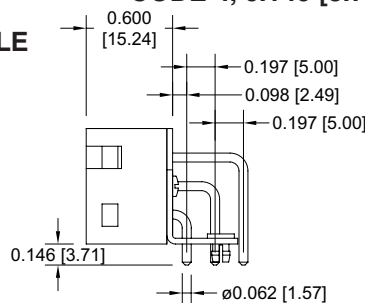
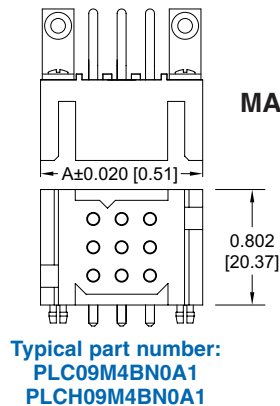
*Asterisk determines
gender of connector,
M for male,
F for female.

PART NUMBER	A	PART NUMBER	A
PLB06*400A1	1.126 [28.60]	PLB12*400A1	1.718 [43.64]
PLBH06*400A1	1.324 [33.63]	PLBH12*400A1	2.112 [53.64]
PLB08*400A1	1.324 [33.63]	PLB16*400A1	2.112 [53.64]
PLBH08*400A1	1.324 [33.63]	PLBH16*400A1	2.112 [53.64]

Plating- See ordering information for
contact plating options.

For connection systems 1, 2 and 5.

PLC 90° PRINTED BOARD MOUNT CONNECTORS CODE 4, 0.146 [3.71] CONTACT EXTENSION



*Asterisk determines
gender of connector,
M for male,
F for female.

PART NUMBER	A	PART NUMBER	A
PLC09*400A1	1.126 [28.60]	PLC24*400A1	2.112 [53.64]
PLCH09*400A1	1.324 [33.63]	PLCH24*400A1	2.506 [63.65]
PLC12*400A1	1.324 [33.63]		
PLC18*400A1	1.718 [43.64]		
PLCH12*400A1	1.324 [33.63]		
PLCH18*400A1	1.718 [43.64]		

Plating- See ordering information for
contact plating options.

For connection systems 1, 2 and 5.

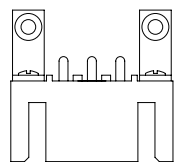


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90° SOLDER PRINTED BOARD CONNECTORS

Power
Connection
Systems

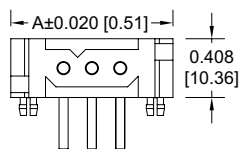
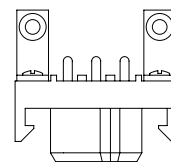
PCS SERIES



MALE

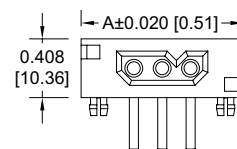
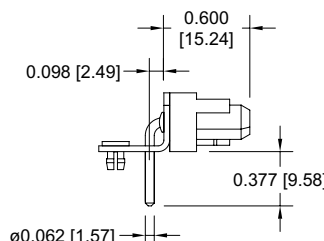
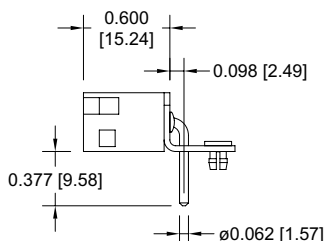
PLA 90° PRINTED BOARD MOUNT CONNECTORS CODE 42, 0.377 [9.58] CONTACT EXTENSION

FEMALE



Typical part number:
PLA03M42BN0A1
PLAH03M42BN0A1

*Asterisk determines
gender of connector,
M for male,
F for female.

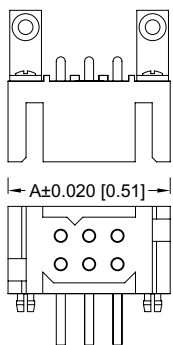


Typical part number:
PLA03F42BN0A1
PLAH03F42BN0A1

PART NUMBER	A	PART NUMBER	A
PLA03*4200A1	1.126 [28.60]	PLA06*4200A1	1.718 [43.64]
PLAH03*4200A1	1.324 [33.63]	PLAH06*4200A1	2.112 [53.64]
PLA04*4200A1	1.324 [33.63]	PLA08*4200A1	2.112 [53.64]
PLAH04*4200A1	1.324 [33.63]	PLAH08*4200A1	2.112 [53.64]

Plating- See ordering information for
contact plating options.

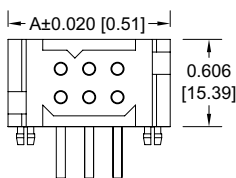
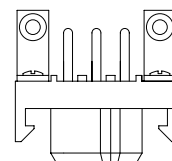
For connection systems 1,2,3 and 5.



MALE

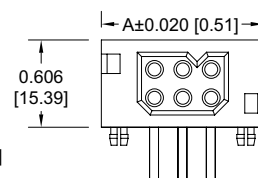
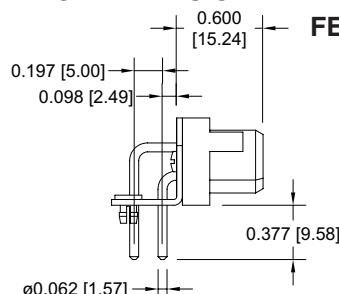
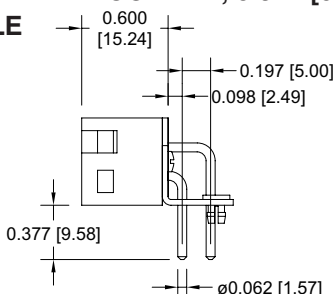
PLB 90° PRINTED BOARD MOUNT CONNECTORS CODE 42, 0.377 [9.58] CONTACT EXTENSION

FEMALE



Typical part number:
PLB06M42BN0A1
PLBH06M42BN0A1

*Asterisk determines
gender of connector,
M for male,
F for female.

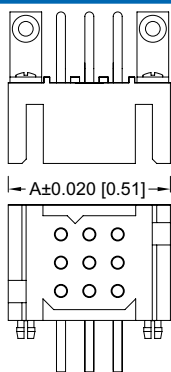


Typical part number:
PLB06F42BN0A1
PLBH06F42BN0A1

PART NUMBER	A	PART NUMBER	A
PLB06*4200A1	1.126 [28.60]	PLB12*4200A1	1.718 [43.64]
PLBH06*4200A1	1.324 [33.63]	PLBH12*4200A1	2.112 [53.64]
PLB08*4200A1	1.324 [33.63]	PLB16*4200A1	2.112 [53.64]
PLBH08*4200A1	1.324 [33.63]	PLBH16*4200A1	2.112 [53.64]

Plating- See ordering information for
contact plating options.

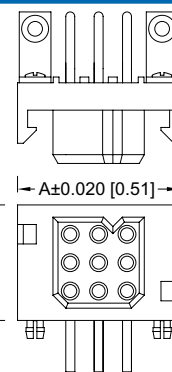
For connection systems 1,2,3 and 5.



MALE

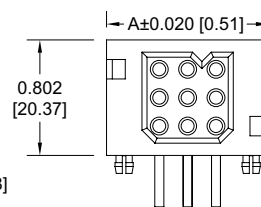
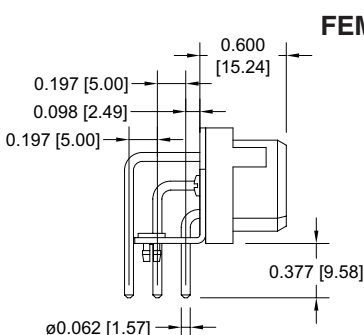
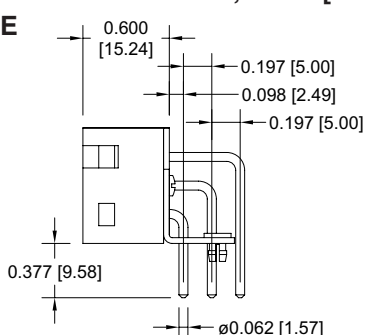
PLC 90° PRINTED BOARD MOUNT CONNECTORS CODE 42, 0.377 [9.58] CONTACT EXTENSION

FEMALE



Typical part number:
PLC09M42BN0A1
PLCH09M42BN0A1

*Asterisk determines
gender of connector,
M for male,
F for female.



Typical part number:
PLC09F42BN0A1
PLCH09F42BN0A1

PART NUMBER	A	PART NUMBER	A
PLC09*4200A1	1.126 [28.60]	PLC24*4200A1	2.112 [53.64]
PLCH09*4200A1	1.324 [33.63]	PLCH24*4200A1	2.506 [63.65]
PLC12*4200A1	1.324 [33.63]	PLC30*4200A1	2.506 [63.65]
PLCH12*4200A1	1.324 [33.63]	PLCH30*4200A1	2.506 [63.65]
PLC18*4200A1	1.718 [43.64]		
PLCH18*4200A1	1.718 [43.64]		

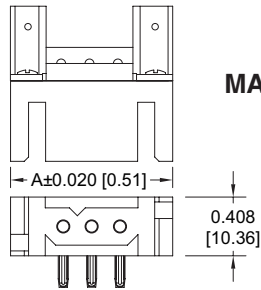
Plating- See ordering information for
contact plating options.

For connection systems 1,2,3 and 5.

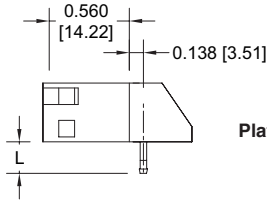
PLA 90° PRESS-FIT CONNECTORS

CODE 62 OR CODE 63

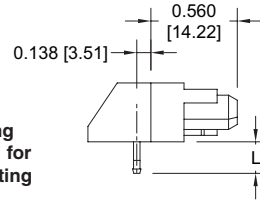
For connection systems 1,2 and 5.



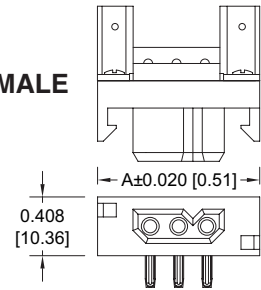
MALE



Plating- See ordering information for contact plating options.



FEMALE



Typical part number:
PLA03M63B30A1
PLAH03M63B30A1

Typical part number:
PLA03F63B30A1
PLAH03F63B30A1

PART NUMBER	A	PART NUMBER	A
PLA03**B30A1	1.126 [28.60]	PLA06**B30A1	1.718 [43.64]
PLAH03**B30A1	1.324 [33.63]	PLAH06**B30A1	2.112 [53.64]

CONNECTORS ARE DESIGNED TO BE MOUNTED TO THE PCB WITH SCREWS, SEE SCREW CODE.

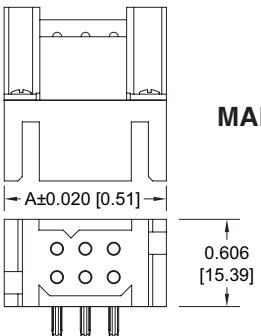
CONTACT CODE	L	PCB THICKNESS	SCREW CODE
62	0.183 [4.65]	0.093 [2.36]	ST2
63	0.219 [5.56]	0.125 [3.18]	ST3

**Asterisk determines gender of connector, M for male, F for female, and contact code 62 or 63.

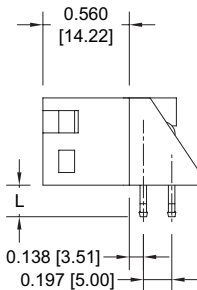
PLB 90° PRESS-FIT CONNECTORS

CODE 62 OR CODE 63

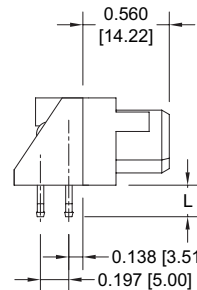
For connection systems 1,2 and 5.



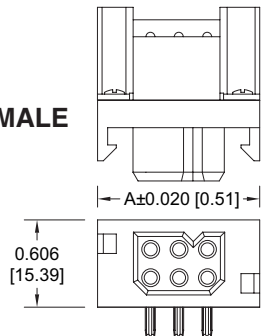
MALE



Plating- See ordering information for contact plating options.



FEMALE



Typical part number:
PLB06M63B30A1
PLBH06M63B30A1

Typical part number:
PLB06F63B30A1
PLBH06F63B30A1

PART NUMBER	A	PART NUMBER	A
PLB06**B30A1	1.126 [28.60]	PLB12**B30A1	1.718 [43.64]
PLBH06**B30A1	1.324 [33.63]	PLBH12**B30A1	2.112 [53.64]

CONNECTORS ARE DESIGNED TO BE MOUNTED TO THE PCB WITH SCREWS, SEE SCREW CODE.

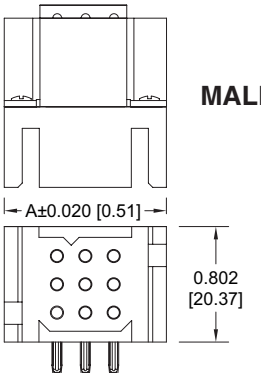
CONTACT CODE	L	PCB THICKNESS	SCREW CODE
62	0.183 [4.65]	0.093 [2.36]	ST2
63	0.219 [5.56]	0.125 [3.18]	ST3

**Asterisk determines gender of connector, M for male, F for female, and contact code 62 or 63.

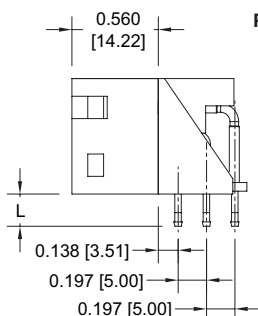
PLC 90° PRESS-FIT CONNECTORS

CODE 62 OR CODE 63

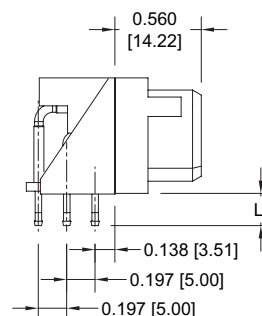
For connection systems 1,2 and 5.



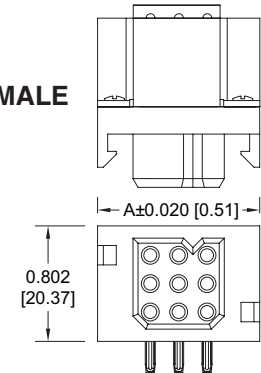
MALE



Plating- See ordering information for contact plating options.



FEMALE



Typical part number:
PLC09M63B30A1
PLCH09M63B30A1

Typical part number:
PLC09F63B30A1
PLCH09F63B30A1

PART NUMBER	A	PART NUMBER	A
PLC09**B30A1	1.126 [28.60]	PLC24**B30A1	2.112 [53.64]
PLCH09**B30A1	1.324 [33.63]	PLCH24**B30A1	2.506 [63.65]

CONNECTORS ARE DESIGNED TO BE MOUNTED TO THE PCB WITH SCREWS, SEE SCREW CODE.

CONTACT CODE	L	PCB THICKNESS	SCREW CODE
62	0.183 [4.65]	0.093 [2.36]	ST2
63	0.219 [5.56]	0.125 [3.18]	ST3

**Asterisk determines gender of connector, M for male, F for female, and contact code 62 or 63.

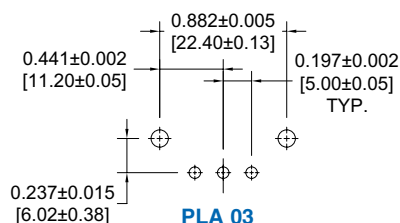


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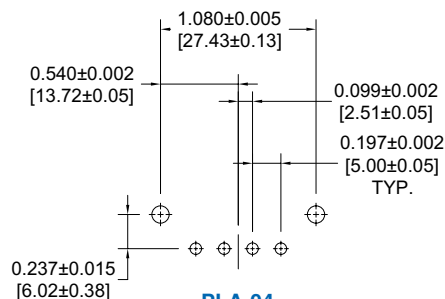
90° PRINTED BOARD CONTACT HOLE PATTERN

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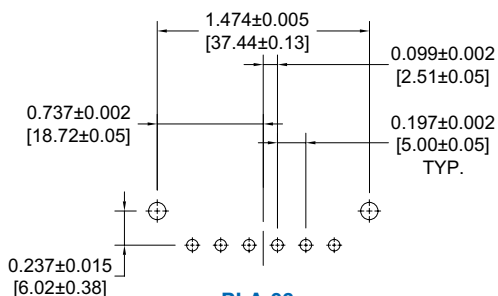
PCS SERIES



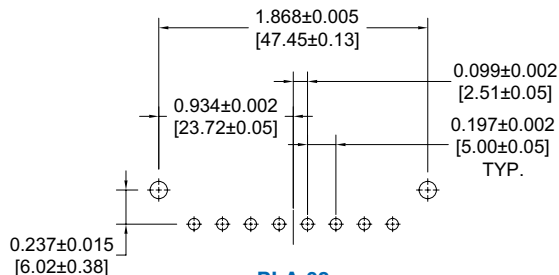
PLA 03



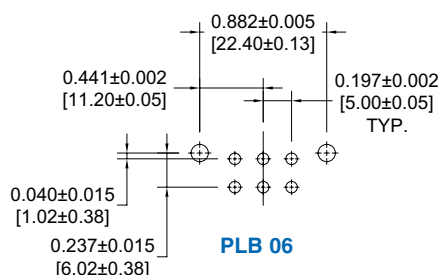
PLA 04



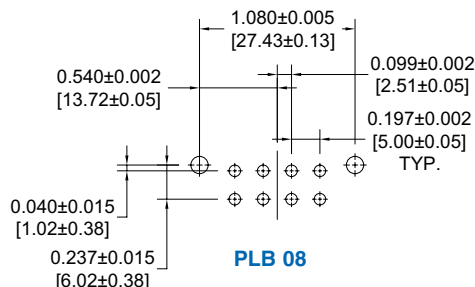
PLA 06



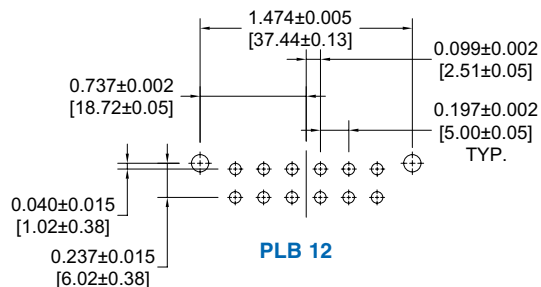
PLA 08



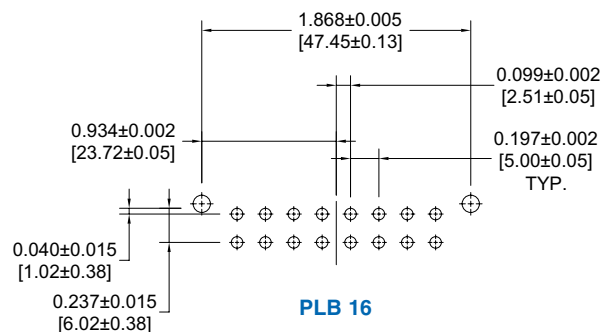
PLB 06



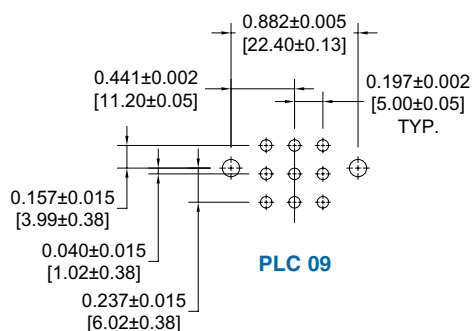
PLB 08



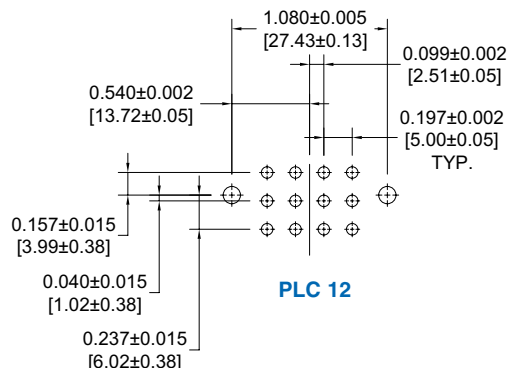
PLB 12



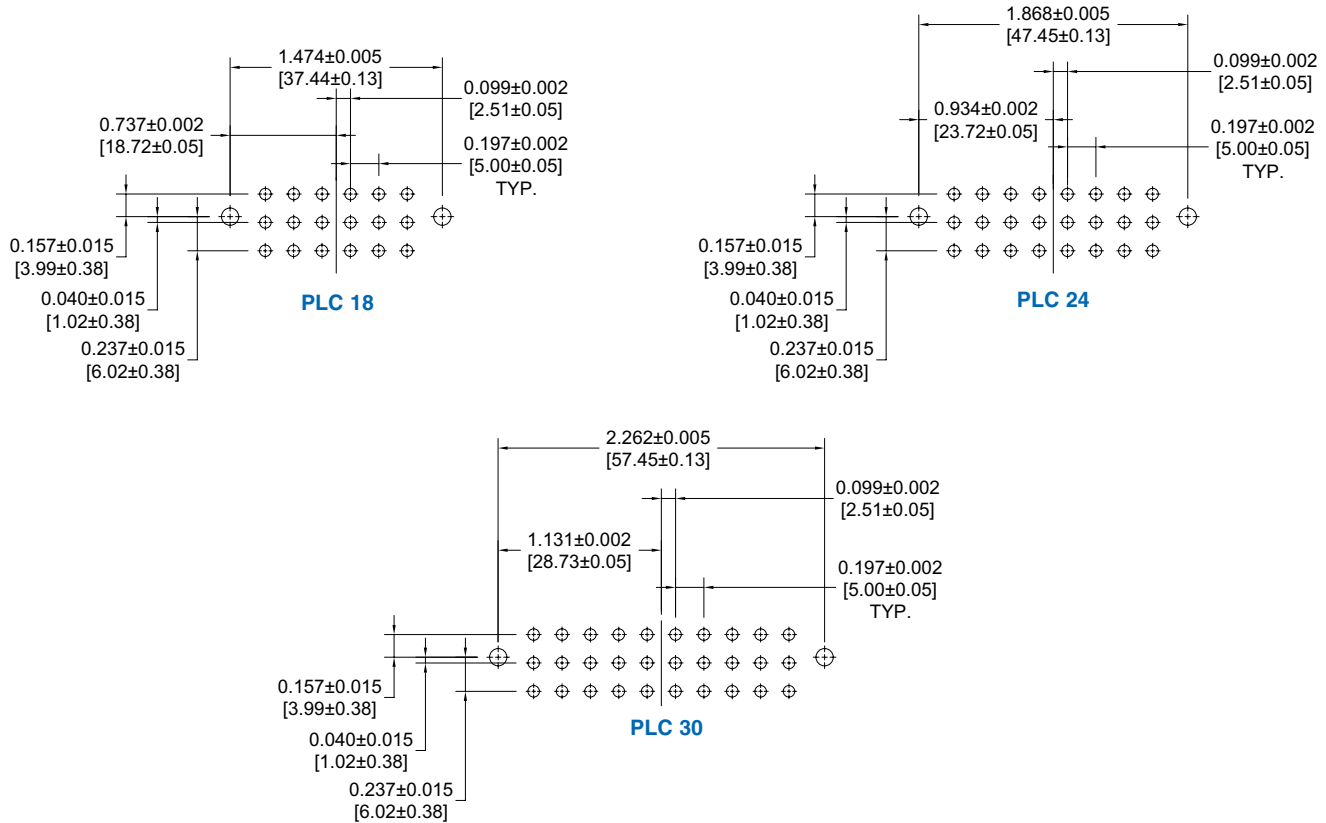
PLB 16



PLC 09



PLC 12

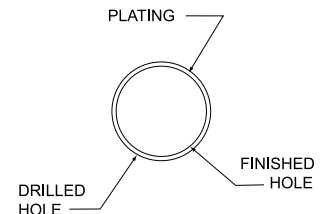


Suggest 0.080 [2.03] Ø holes in printed board for solder contact termination positions.

Suggest 0.123 ± 0.003 [3.15] Ø holes in printed board for mounting connector with push-on fasteners.

SUGGESTED PRINTED BOARD HOLE SIZES FOR PRESS-FIT CONNECTORS

COMPLIANT PRESS-FIT CONTACT HOLE				
BOARD TYPE	CONTACT SIZE	DRILL HOLE SIZE	RECOMMENDED PLATING	FINISHED HOLE SIZES
TIN-LEAD SOLDER PCB	16	$\phi 0.0689 \pm 0.0010$ [Ø1.750 ± 0.025]	0.0006 [15µ] minimum solder over 0.0010 [25µ] min. copper	$\phi 0.0630 + 0.0035 - 0.0024$ [Ø1.600 + 0.090 - 0.060]
COPPER PCB	16	$\phi 0.068 \pm 0.002$ [Ø1.73 ± 0.05]	0.0010 [25µ] min. copper	$\phi 0.0630 + 0.0035 - 0.0024$ [Ø1.600 + 0.090 - 0.060]
IMMERSION TIN PCB	16	$\phi 0.068 \pm 0.002$ [Ø1.73 ± 0.05]	0.000033 ± 0.000006 [0.85 ± 0.15µ] immersion tin over 0.0010 [25µ] min. copper	$\phi 0.0630 + 0.0035 - 0.0024$ [Ø1.600 + 0.090 - 0.060]
IMMERSION SILVER PCB	16	$\phi 0.068 \pm 0.002$ [Ø1.73 ± 0.05]	0.000013 ± 0.000007 [0.34 ± 0.17µ] immersion silver over 0.0010 [25µ] min. copper	$\phi 0.0630 + 0.0035 - 0.0024$ [Ø1.600 + 0.090 - 0.060]
ELECTROLESS NICKEL/IMMERSION GOLD PCB	16	$\phi 0.068 \pm 0.002$ [Ø1.73 ± 0.05]	0.000002 [0.05µ] min. immersion gold over 0.000177 ± 0.000059 [4.5 ± 1.5µ] electroless nickel per IPC-4552 over 0.0010 [25µ] min. copper	$\phi 0.0630 + 0.0035 - 0.0024$ [Ø1.600 + 0.090 - 0.060]



PRESS-FIT CONTACT HOLE

Note: For PCB plating compositions not shown, consult Technical Sales.

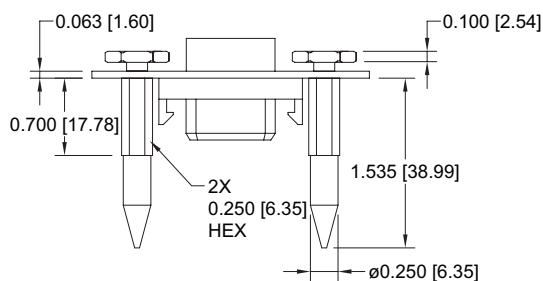
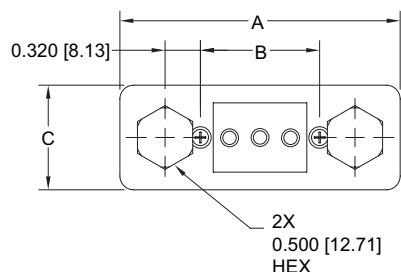


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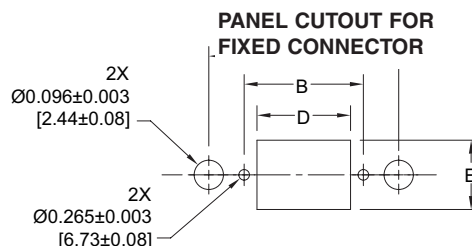
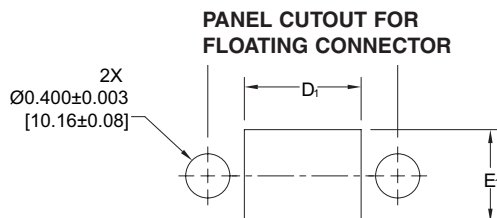
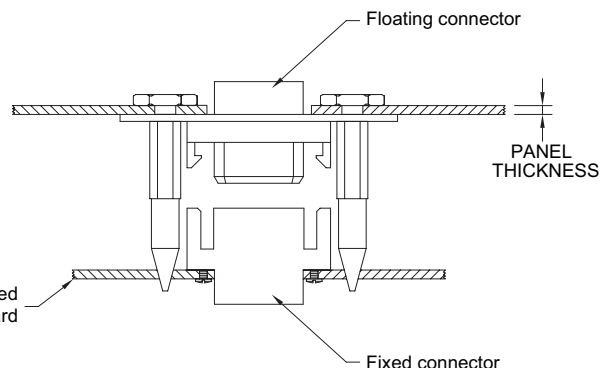
BLIND MATING SYSTEMS

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TECHNICAL CHARACTERISTICS FOR BLIND MATING SYSTEM



Typical Part Number: PLB08F10120



MATERIALS AND FINISHES:

Blind mating plate – Steel, zinc plate with chromate seal.
Blind mating guide – Stainless steel, passivated.
Float screw – steel, zinc plate with chromate seal.

NOTE: Panel thickness may impact the orientation of mating end of blind mate pin. Shimming between the panel and the head of the blind mate pin may be necessary to minimize tilt of the blind mate system. Contact technical sales for additional technical information.

Blind mating system provides lead in for 0.100[2.54] axial misalignment.

Blind mating system sold in a kit containing a connector-plate assembly, Blind mating guides, and float screws.

PART NUMBER	PANEL THICKNESS
PL*****11*	0.040 [1.02]
PL*****12*	0.060 [1.52]
PL*****13*	0.090 [2.28]
PL*****14*	0.120 [3.05]

CONNECTOR VARIANTS	A	B ±0.005	C	D ±0.005	D1 ±0.005	E ±0.005	E1 ±0.005	F ±0.005
PLA03	2.340	0.882	0.750	0.650	0.860	0.430	0.640	1.522
PLAH03	[59.44]	[22.40]	[19.05]	[16.51]	[21.84]	[10.92]	[16.26]	[38.66]
PLA04	2.537	1.079	0.750	0.847	1.057	0.430	0.640	1.719
PLAH04	[64.44]	[27.41]	[19.05]	[21.51]	[26.85]	[10.92]	[16.26]	[43.66]
PLA06	2.931	1.473	0.750	1.241	1.451	0.430	0.640	2.113
PLAH06	[74.45]	[37.41]	[19.05]	[31.52]	[36.86]	[10.92]	[16.26]	[53.67]
PLA08	3.325	1.867	0.750	1.635	1.845	0.430	0.640	2.507
PLAH08	[84.46]	[47.42]	[19.05]	[41.53]	[46.86]	[10.92]	[16.26]	[63.68]
PLB06	2.340	0.882	0.947	0.650	0.860	0.627	0.837	1.522
PLBH06	[59.44]	[22.40]	[24.05]	[16.51]	[21.84]	[15.93]	[21.26]	[38.66]
PLB08	2.537	1.079	0.947	0.847	1.057	0.627	0.837	1.719
PLBH08	[64.44]	[27.41]	[24.05]	[21.51]	[26.85]	[15.93]	[21.26]	[43.66]
PLB12	2.931	1.473	0.947	1.241	1.451	0.627	0.837	2.113
PLBH12	[74.45]	[37.41]	[24.05]	[31.52]	[36.86]	[15.93]	[21.26]	[53.67]
PLB16	3.325	1.867	0.947	1.635	1.845	0.627	0.837	2.507
PLBH16	[84.46]	[47.42]	[24.05]	[41.53]	[46.86]	[15.93]	[21.26]	[63.68]
PLC09	2.340	0.882	1.144	0.650	0.860	0.824	1.034	1.522
PLCH09	[59.44]	[22.40]	[29.06]	[16.51]	[21.84]	[20.93]	[26.26]	[38.66]
PLC12	2.537	1.079	1.144	0.847	1.057	0.824	1.034	1.719
PLCH12	[64.44]	[27.41]	[29.06]	[21.51]	[26.85]	[20.93]	[26.26]	[43.66]
PLC18	2.931	1.473	1.144	1.241	1.451	0.824	1.034	2.113
PLCH18	[74.45]	[37.41]	[29.06]	[31.52]	[36.86]	[20.93]	[26.26]	[53.67]
PLC24	3.325	1.867	1.144	1.635	1.845	0.824	1.034	2.507
PLCH24	[84.46]	[47.42]	[29.06]	[41.53]	[46.86]	[20.93]	[26.26]	[63.68]
PLC30	3.720	2.262	1.144	2.029	2.239	0.824	1.034	2.902
PLCH30	[94.49]	[57.45]	[29.06]	[51.54]	[56.87]	[20.93]	[26.26]	[73.71]

SEQUENTIAL MATING SYSTEM

EXAMPLE 1

Typical Part Number:
PLA06M300A1-E1B2B

LENGTH CODE	"X" CONTACT LENGTH
A	0.370 [9.40]
B	0.330 [8.38]
C	0.310 [7.87]
D	0.290 [7.37]
E	0.250 [6.35]

MATING CONNECTOR TYPE	CONTACT OPTIONS
Board to Board	B, D, E
Board to Cable*	A, C, E
Cable to Cable*	A, D

* Removable contacts for cable connectors must be ordered separately.

EXAMPLE 2

Typical Part Number:
PLA08M4B0C1-D8B

SEQUENTIAL MATING SYSTEM CRIMP REMOVABLE CONTACT PART NUMBERS

WIRE SIZE AWG/[mm ²]	LENGTH CODE "A"	LENGTH CODE "C"	LENGTH CODE "D"	LENGTH CODE "E"
12 – 14 [4.0 – 2.5]	MC112N–133.3	MC112N–133.2	MC112N–133.1	MC112N–133.0
16 – 18 – 20 [1.5 – 1.0 – 0.5]	MC116N–133.3	MC116N–133.2	MC116N–133.1	MC116N–133.0

SELECTION GUIDE FOR ORDERING DIFFERENT CONTACT LENGTHS STEP 8 OF ORDERING INFORMATION

SEE ORDERING INFORMATION ON PAGE 39
FOR STEPS 1 THROUGH 7 TO ORDER SEQUENTIAL MATING SYSTEM CONNECTORS

STEP	1	2	3	4	5	6	7	8	9
EXAMPLE	E	1	B	2	B	3	D	4	D

STEP 1
Specify code for most frequently used contact mating length. This length is used for all contacts not specified in steps 2 through 9.

STEP 2
Position number for first special length contact.

STEP 3
Length of contact specified in step 2. (Choose from length code chart)

STEP 4
Position number for second special length contact.

STEP 5
Length of contact specified in step 4 (Choose from length code chart).

STEP 6
Position number for third special length contact.

STEP 7
Length of contact specified in step 6 (Choose from length code chart).

STEP 8
Position number for fourth special length contact.

STEP 9
Length of contact specified in step 8 (Choose from length code chart).



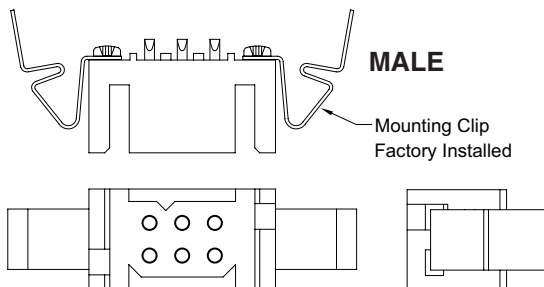
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PANEL MOUNT CONNECTORS

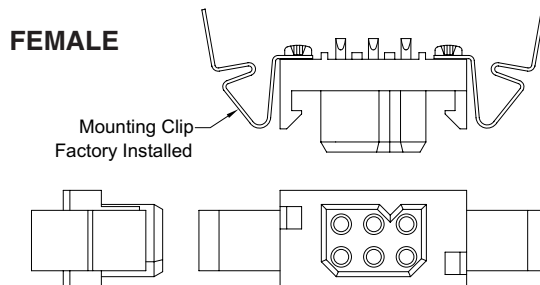
Power
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Systems

PANEL MOUNT CONNECTORS WITH QUICK RELEASE MOUNTING CLIP

CODE 2, SOLDER – 18 AWG [1.0mm] MAX.



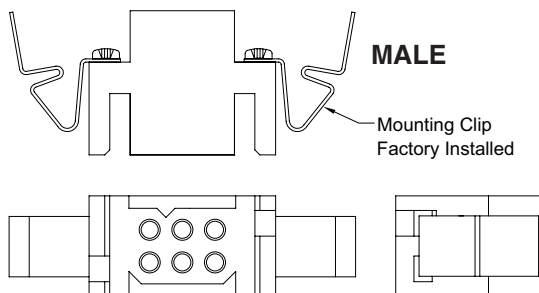
Typical part number:
PLB06M206C1



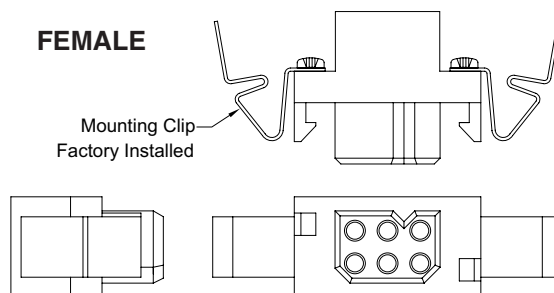
Typical part number:
PLB06F206C1

For connection system 8

PANEL MOUNT CONNECTORS WITH QUICK RELEASE MOUNTING CLIP FOR REMOVABLE CONTACTS



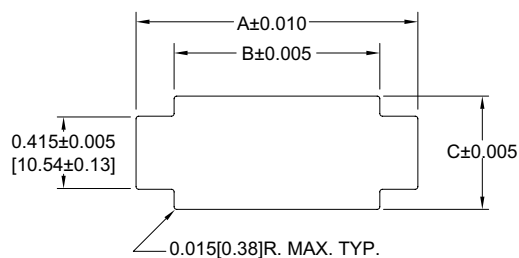
Typical part number:
PLB06M1060



Typical part number:
PLB06F1060

For connection system 8

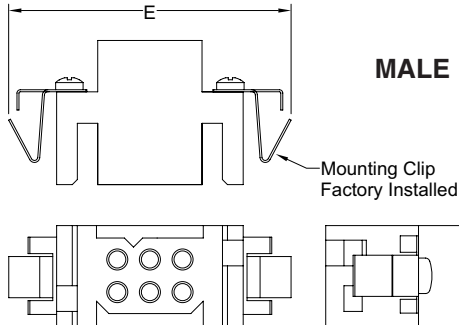
PANEL CUTOUT



Maximum panel thickness: 0.063 [1.60] nominal.

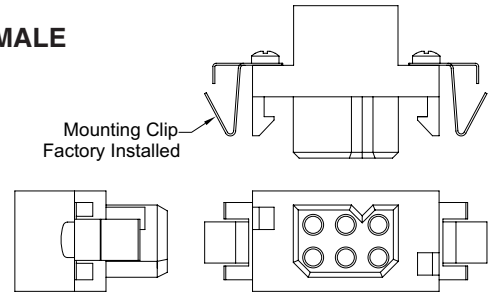
CONNECTOR VARIANTS	A	B	C
PLA03 PLAH03	1.600 [40.64]	1.168 [29.67]	0.445 [11.30]
PLA04 PLAH04	1.798 [45.67]	1.366 [34.70]	0.445 [11.30]
PLA06 PLAH06	2.192 [55.68]	1.760 [44.70]	0.445 [11.30]
PLA08 PLAH08	2.586 [65.68]	2.154 [54.71]	0.445 [11.30]
PLB06 PLBH06	1.600 [40.64]	1.168 [29.67]	0.643 [16.33]
PLB08 PLBH08	1.798 [45.67]	1.366 [34.70]	0.643 [16.33]
PLB12 PLBH12	2.192 [55.68]	1.760 [44.70]	0.643 [16.33]
PLB16 PLBH16	2.586 [65.68]	2.154 [54.71]	0.643 [16.33]
PLC09 PLCH09	1.600 [40.64]	1.168 [29.67]	0.839 [21.31]
PLC12 PLCH12	1.798 [45.67]	1.366 [34.70]	0.839 [21.31]
PLC18 PLCH18	2.192 [55.68]	1.760 [44.70]	0.839 [21.31]
PLC24 PLCH24	2.586 [65.68]	2.154 [54.71]	0.839 [21.31]
PLC30 PLCH30	2.980 [75.69]	2.548 [64.72]	0.839 [21.31]

PANEL MOUNT CONNECTORS WITH *FIXED STYLE MOUNTING CLIP



Typical part number:
PLB06M10810

FEMALE



Typical part number:
PLB06F10810

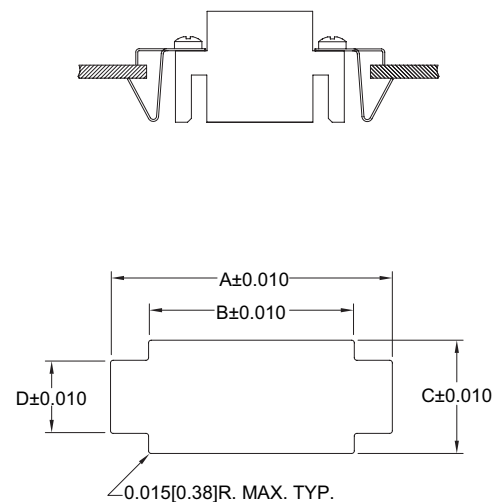
PART NUMBER	PANEL THICKNESS
PL *****81*	0.040 [1.02]
PL *****82*	0.060 [1.52]
PL *****83*	0.090 [2.29]

For connection system 8

* May be used with either fixed solder or removable contact connector insulators.

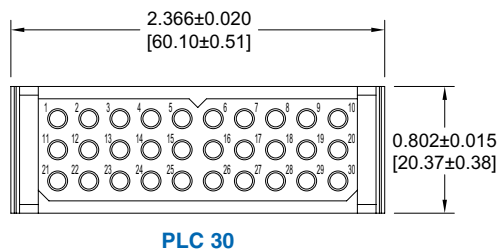
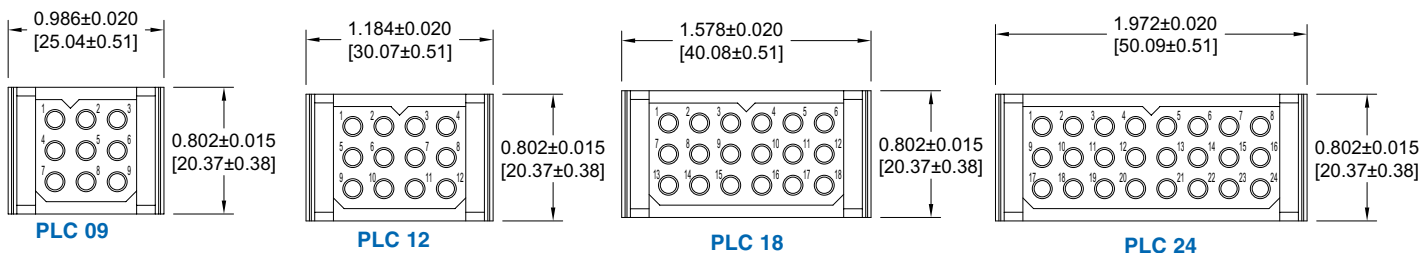
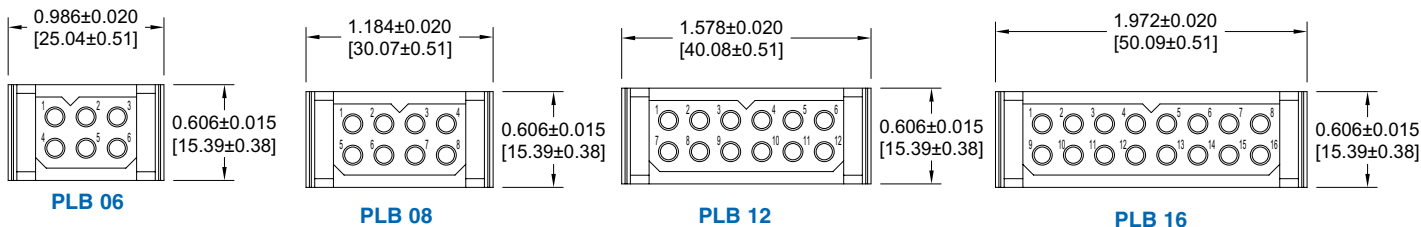
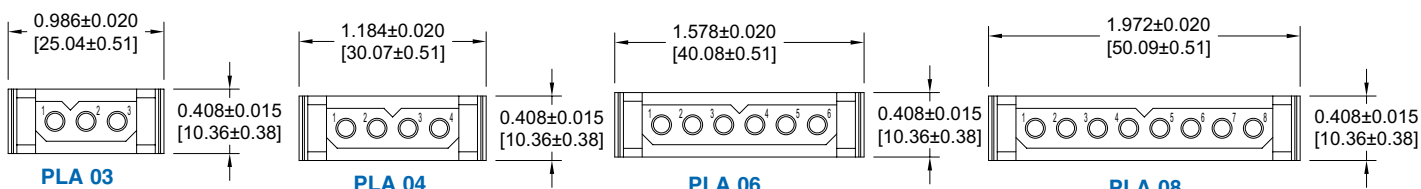
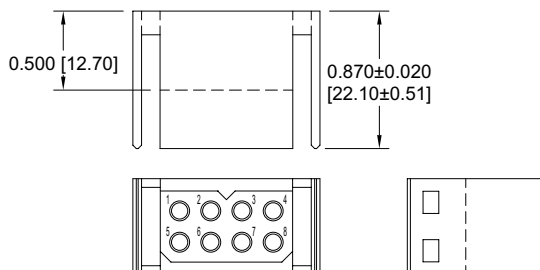
Clip material: Beryllium copper, tin plated

CONNECTOR VARIANTS	A	B	C	D	E
PLA03 PLAH03	1.380 [35.05]	1.150 [29.21]	0.445 [11.30]	0.193 [4.90]	1.598 [40.59]
PLA04 PLAH04	1.578 [40.08]	1.348 [34.24]	0.445 [11.30]	0.193 [4.90]	1.796 [45.62]
PLA06 PLAH06	1.972 [50.09]	1.742 [44.25]	0.445 [11.30]	0.193 [4.90]	2.190 [55.63]
PLA08 PLAH08	2.366 [60.10]	2.136 [54.25]	0.445 [11.30]	0.193 [4.90]	2.584 [65.63]
PLB06 PLBH06	1.380 [35.05]	1.150 [29.21]	0.643 [16.33]	0.300 [7.62]	1.598 [40.59]
PLB08 PLBH08	1.578 [40.08]	1.348 [34.24]	0.643 [16.33]	0.300 [7.62]	1.796 [45.62]
PLB12 PLBH12	1.972 [50.09]	1.742 [44.25]	0.643 [16.33]	0.300 [7.62]	2.190 [55.63]
PLB16 PLBH16	2.366 [60.10]	2.136 [54.25]	0.643 [16.33]	0.300 [7.62]	2.584 [65.63]
PLC09 PLCH09	1.380 [35.05]	1.150 [29.21]	0.839 [21.31]	0.300 [7.62]	1.598 [40.59]
PLC12 PLCH12	1.578 [40.08]	1.348 [34.24]	0.839 [21.31]	0.300 [7.62]	1.796 [45.62]
PLC18 PLCH18	1.972 [50.09]	1.742 [44.25]	0.839 [21.31]	0.300 [7.62]	2.190 [55.63]
PLC24 PLCH24	2.366 [60.10]	2.136 [54.25]	0.839 [21.31]	0.300 [7.62]	2.584 [65.63]
PLC30 PLCH30	2.760 [70.10]	2.530 [64.26]	0.839 [21.31]	0.300 [7.62]	2.978 [75.64]





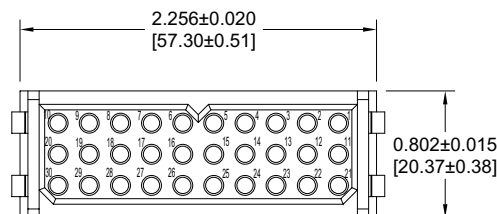
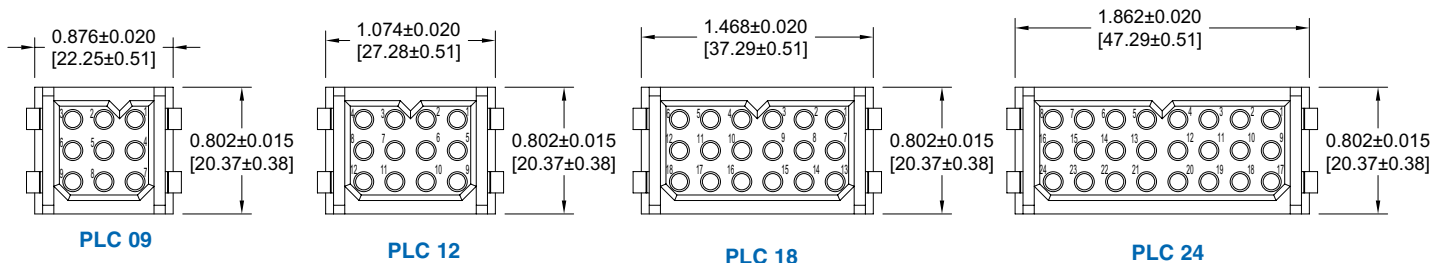
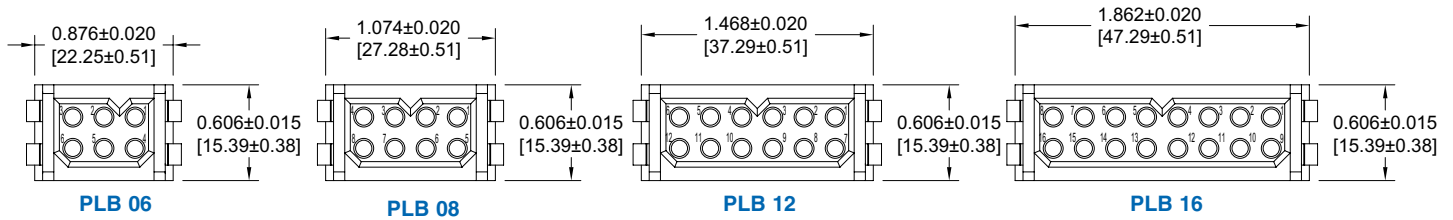
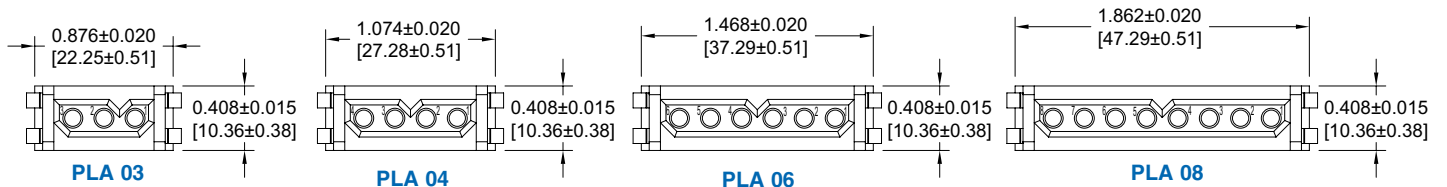
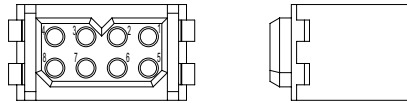
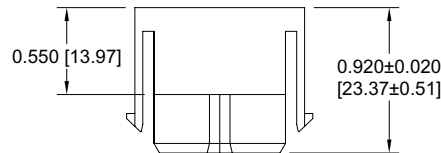
MALE INSULATOR DIMENSIONS FOR CABLE CONNECTORS WITH REMOVABLE CONTACTS CODE 0 OR CODE 7



See page 30 & 31
for Removable
Contact Options.

FEMALE INSULATOR DIMENSIONS FOR CABLE CONNECTORS WITH REMOVABLE CONTACTS

CODE 0 OR CODE 7



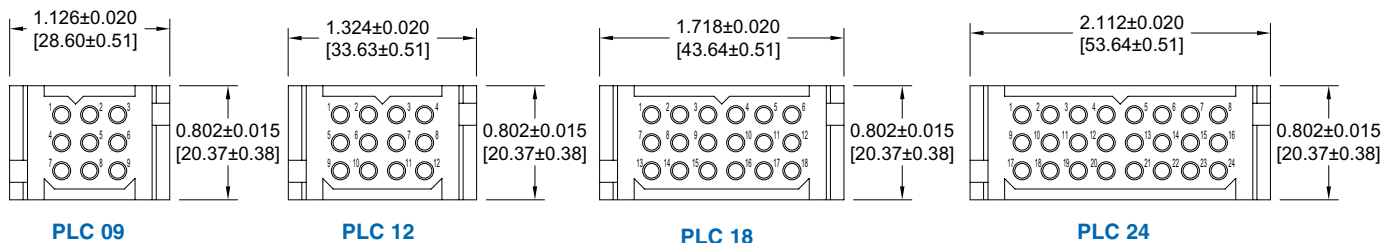
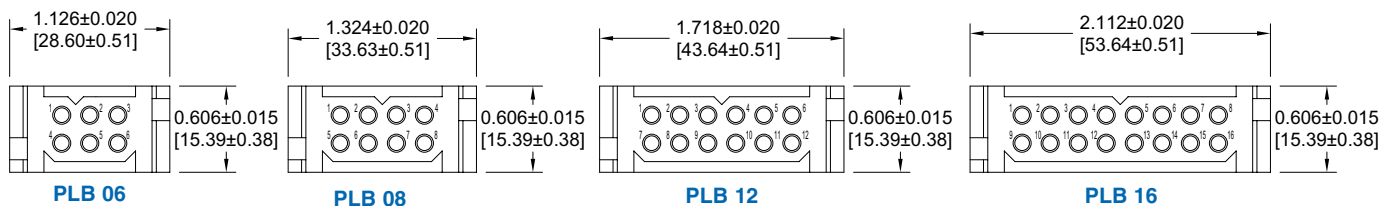
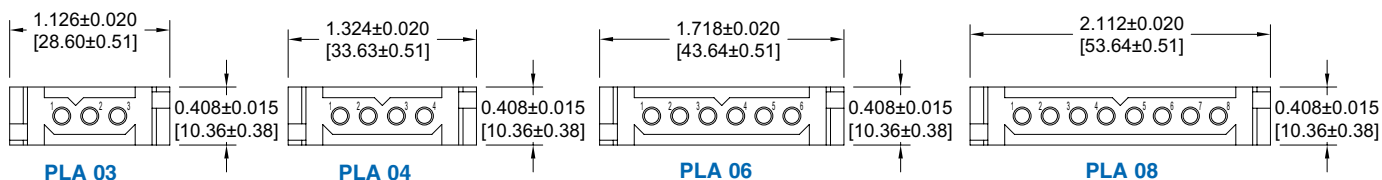
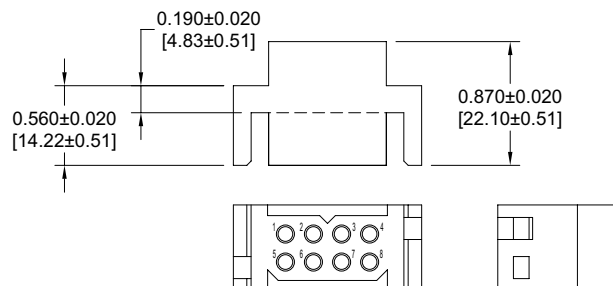
PLC 30

See page 30 & 31
for Removable
Contact Options.

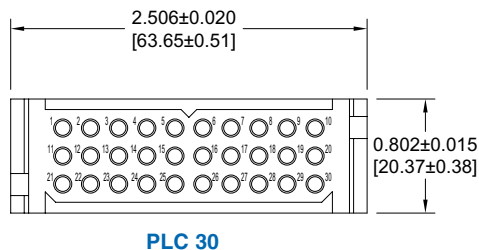


MALE INSULATOR DIMENSIONS FOR PANEL MOUNT CONNECTORS WITH REMOVABLE CONTACTS

CODE 1 OR CODE 8



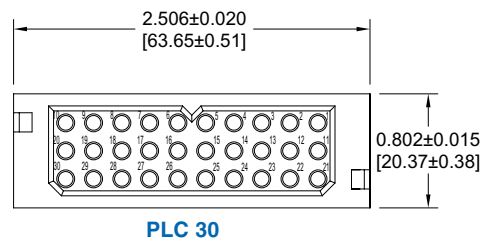
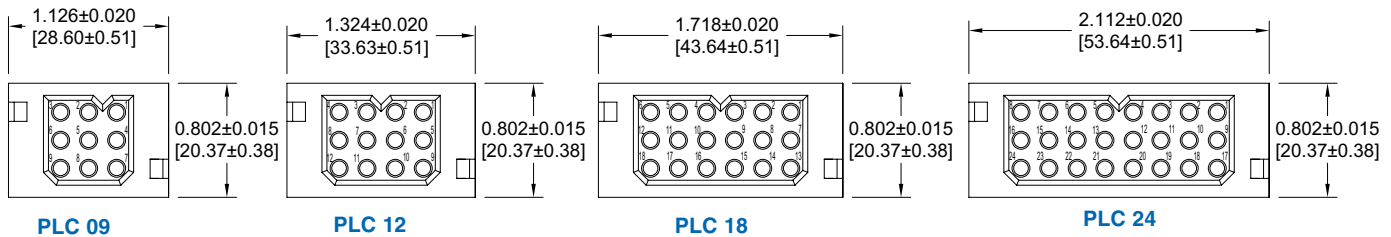
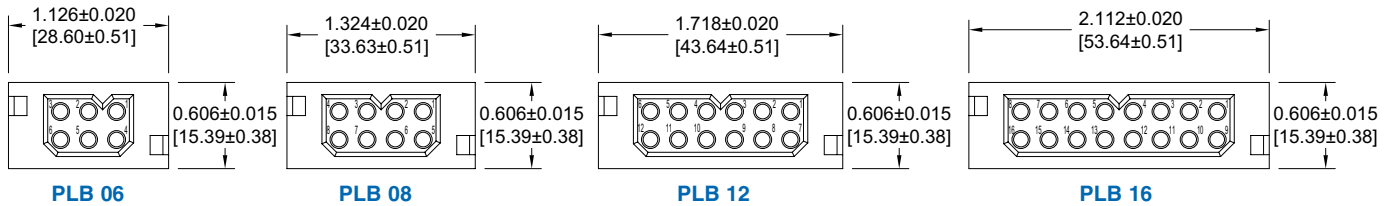
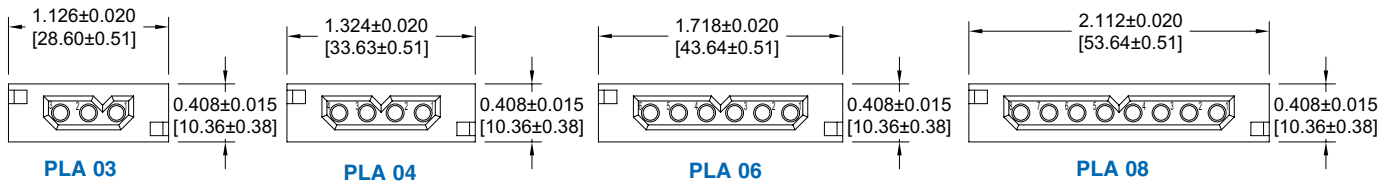
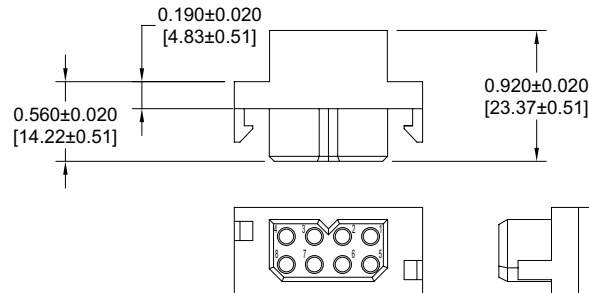
For panel cutout see page 29.



See page 30 & 31
for Removable
Contact Options.

FEMALE INSULATOR DIMENSIONS FOR PANEL MOUNT CONNECTORS WITH REMOVABLE CONTACTS

CODE 1 OR CODE 8

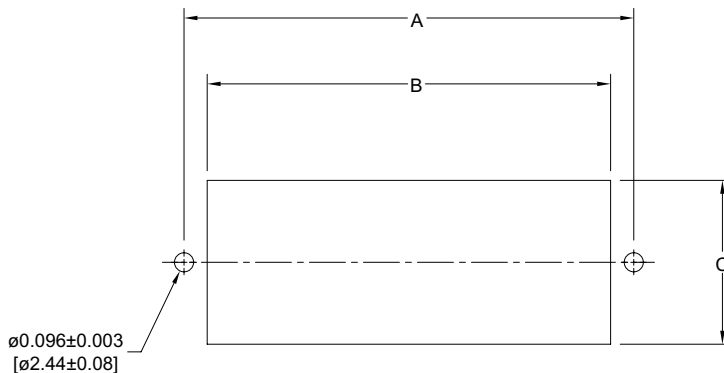


For panel cutout see page 29.

See page 30 & 31
for Removable
Contact Options.



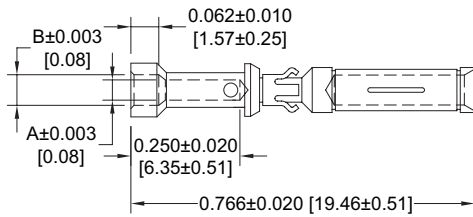
PANEL CUTOUT



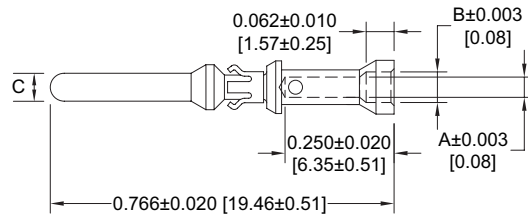
CONNECTOR VARIANTS	A ±0.005	B ±0.005	C ±0.005
PLA03 PLAH03	0.882 [22.40]	0.650 [16.51]	0.430 [10.92]
PLA04 PLAH04	1.079 [27.41]	0.847 [21.51]	0.430 [10.92]
PLA06 PLAH06	1.473 [37.41]	1.241 [31.52]	0.430 [10.92]
PLA08 PLAH08	1.867 [47.42]	1.635 [41.53]	0.430 [10.92]
PLB06 PLBH06	0.882 [22.40]	0.650 [16.51]	0.627 [15.93]
PLB08 PLBH08	1.079 [27.41]	0.847 [21.51]	0.627 [15.93]
PLB12 PLBH12	1.473 [37.41]	1.241 [31.52]	0.627 [15.93]
PLB16 PLBH16	1.867 [47.42]	1.635 [41.53]	0.627 [15.93]
PLC09 PLCH09	0.882 [22.40]	0.650 [16.51]	0.824 [20.93]
PLC12 PLCH12	1.079 [27.41]	0.847 [21.51]	0.824 [20.93]
PLC18 PLCH18	1.473 [37.41]	1.241 [31.52]	0.824 [20.93]
PLC24 PLCH24	1.867 [47.42]	1.635 [41.53]	0.824 [20.93]
PLC30 PLCH30	2.262 [57.45]	2.029 [51.54]	0.824 [20.93]

CRIMP CONTACTS

FEMALE CONTACT "CLOSED ENTRY" DESIGN



MALE CONTACT



Contacts are not supplied with connectors and must be ordered separately

PART NUMBERS	WIRE SIZE AWG/[mm ²]	AØ	BØ
FC112N2	12 [4.0]	0.098 [2.49]	
FC114N2	14-16 [2.5-1.5]	0.081 [2.06]	0.105 [2.67]
FC116N2	16-18 [1.5-1.0]	0.067 [1.70]	0.093 [2.36]
FC120N2	20-22-24 [0.5-0.3-0.25]	0.045 [1.14]	0.065 [1.65]

PART NUMBERS	WIRE SIZE AWG/[mm ²]	AØ	BØ	CØ
MC112N	12 [4.0]	0.098 [2.49]		0.0625 [1.588]
MC114N	14-16 [2.5-1.5]	0.081 [2.06]	0.105 [2.67]	0.0625 [1.588]
MC116N	16-18 [1.5-1.0]	0.067 [1.70]	0.093 [2.36]	0.0625 [1.588]
MC120N	20-22-24 [0.5-0.3-0.25]	0.045 [1.14]	0.065 [1.65]	0.0625 [1.588]

Material: Copper alloy.

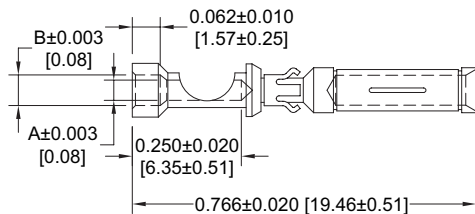
Finish: Gold flash over nickel.

0.000030 [0.75µ] gold over nickel available by adding -14 suffix onto part number. Example: FC120N2-14.

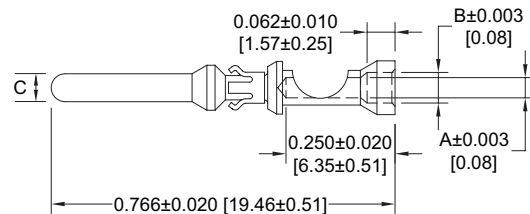
0.000050 [1.27µ] gold over nickel available by adding -15 suffix onto part number. Example: MC112N-15.

SOLDER CUP CONTACTS

FEMALE CONTACT "CLOSED ENTRY" DESIGN



MALE CONTACT



Contacts are not supplied with connectors and must be ordered separately

PART NUMBERS	WIRE SIZE MAX.	AØ	BØ
FS112N2	12 AWG [4.0 mm ²]	0.098 [2.49]	
FS114N2	14 AWG [2.5 mm ²]	0.081 [2.06]	0.105 [2.67]
FS116N2	16 AWG [1.5 mm ²]	0.067 [1.70]	0.093 [2.36]
FS120N2	20 AWG [0.5 mm ²]	0.045 [1.14]	0.065 [1.65]

PART NUMBERS	WIRE SIZE MAX.	AØ	BØ	CØ
MS112N	12 AWG [4.0 mm ²]	0.098 [2.49]		0.0625 [1.588]
MS114N	14 AWG [2.5 mm ²]	0.081 [2.06]	0.105 [2.67]	0.0625 [1.588]
MS116N	16 AWG [1.5 mm ²]	0.067 [1.70]	0.093 [2.36]	0.0625 [1.588]
MS120N	20 AWG [0.5 mm ²]	0.045 [1.14]	0.065 [1.65]	0.0625 [1.588]

Material: Copper alloy.

Finish: Gold flash over nickel.

0.000030 [0.75µ] gold over nickel available by adding -14 suffix onto part number. Example: FS120N2-14.

0.000050 [1.27µ] gold over nickel available by adding -15 suffix onto part number. Example: MS112N-15.

DIMENSIONS ARE IN INCHES [MILLIMETERS].
ALL DIMENSIONS ARE SUBJECT TO CHANGE.



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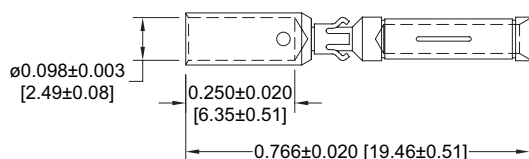
"HIGH CONDUCTIVITY" CRIMP CONTACTS AND CRIMP SHIELDED CONTACTS

Power
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Systems

"HIGH CONDUCTIVITY" CRIMP CONTACTS

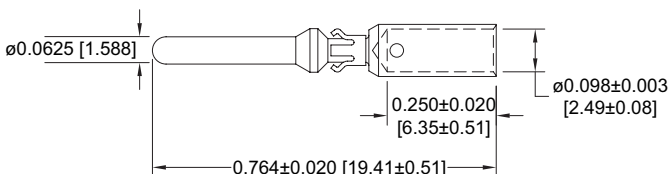
FOR USE IN CRIMP TO CRIMP OR CRIMP TO HIGH CONDUCTIVITY CONTACT PCB MOUNT

FEMALE CONTACT "CLOSED ENTRY" DESIGN



PART NUMBER: FC112N2S

MALE CONTACT



PART NUMBER: MC112NS

See page 9 for
current ratings.

Material: High conductivity tellurium copper.

Finish: Gold flash over nickel.

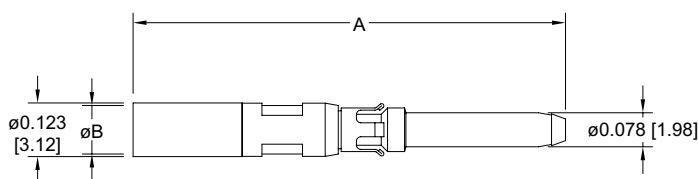
0.000030 [0.75μ] gold over nickel available by adding -14 suffix onto part number. Example: FC112N2S-14.

0.000050 [1.27μ] gold over nickel available by adding -15 suffix onto part number. Example: MC112NS-15.

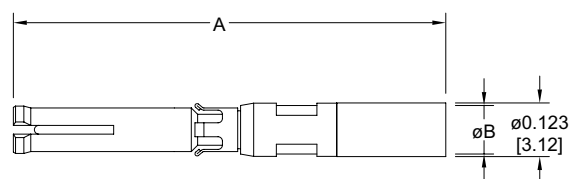
Wire size: 12 AWG [4.0mm²]

Contacts are not supplied with connectors and must be ordered separately

CRIMP SHIELDED CONTACTS

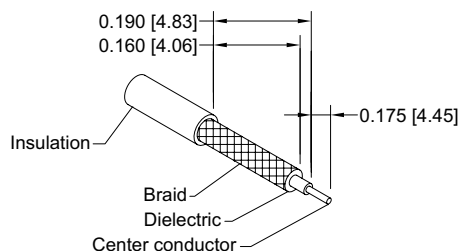


MALE CONTACT



FEMALE CONTACT

SHIELDED CABLE STRIP LENGTH



CONTACT DESIGNATION	PART NUMBER	A	B Ø	CABLE SIZE
MALE	MCS126N	0.993 [25.22]	0.045 [1.14]	RG 178 B/U RG 196 A/U
FEMALE	FCS126N2	0.967 [24.56]	0.045 [1.14]	RG 178 B/U RG 196 B/U
MALE	MCS226N	1.048 [26.62]	0.070 [1.78]	RG 179 B/U RG 316 /U
FEMALE	FCS226N2	1.022 [25.96]	0.070 [1.78]	RG 179 B/U RG 316 /U

See page 34 for hand crimp tool part # 9506-0-0-0

SHIELDED CONTACT TECHNICAL CHARACTERISTICS

MATERIALS AND FINISHES:

Insulating Material: (Dielectric) PCTFE
Inner Contacts: Phosphor bronze, 0.000030 inch [0.75μ] gold over nickel.
Outer Contacts: Brass and beryllium copper, gold flash over nickel.

MECHANICAL CHARACTERISTICS

Contact Retention
In Insulator: 18 lbs. [80N].
Removable Contacts: Rear insertion, front removable.
Insertion Force
Per Contact: 8 oz. [2.2N] per contact maximum
Durability: 100 cycles minimum.
Vibration: 20g from 10 Hz to 500 Hz
Shock: 30g - 11 ms

ELECTRICAL CHARACTERISTICS

MICRO-COAXIAL CONTACTS	CONTACT/WIRE COMBINATIONS			
	126N		226N	
	RG178	RG196	RG179	RG316
Characteristic Impedance (ohms)	50	50	75	50
Frequency Range	0-500 MHz			
VSWR	1.25			
0 to 200 MHz	1.70		2.25	
200 to 500 MHz				
Insertion Loss @ 500 MHz	0.2 dB		1.0 dB	

Dielectric Strength

At Sea Level: 600 V rms
Initial Contact Resistance: 0.012 ohms maximum
Insulator Resistance: 5 G ohms

CLIMATIC CHARACTERISTICS:

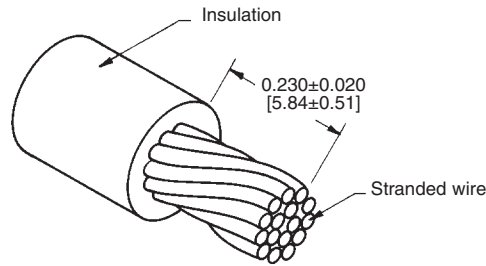
Temperature Range: -55°C to +125°C

CRIMPING INFORMATION FOR POWER CONNECTION SYSTEMS CRIMP CONTACTS

USE INDICATED POSITRONIC TOOLS FOR BEST RESULTS

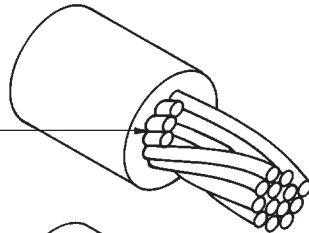
Step 1: Strip wire to indicated length

Correctly
stripped wire

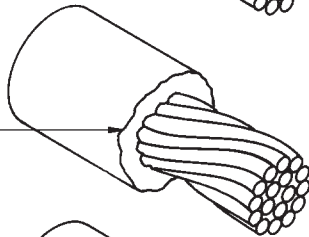


- Take care not to:
- Damage or remove strands
 - Untwist or overtwist strands
 - Leave insulation particles on strands
 - Damage insulation

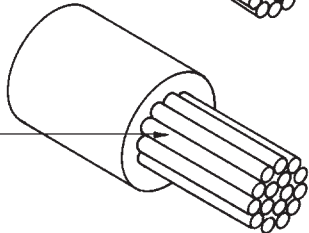
Strands damaged
or removed by
stripping tool



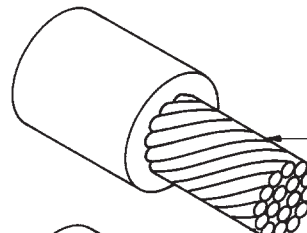
Insulation cut
incorrectly



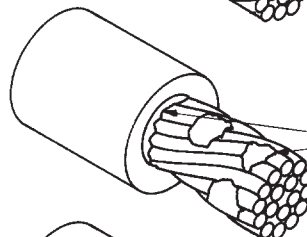
Strands untwisted



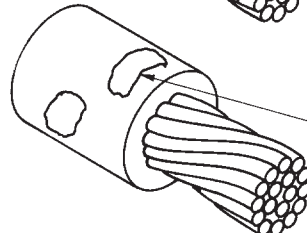
Examples of
stripping faults



Strands overtisted



Particles of
insulation on
the stripped
part of the wire



Wire insulation
damaged

Step 2: Crimp wire to contact

- For hand crimp tool:
- Place contact into crimping tool
 - Insert wire into contact
 - Center contact by slowly closing crimping tool until the crimp indenters make contact with crimp barrel
 - Complete the cycle of the crimping tool in one smooth motion
 - Remove crimped contact

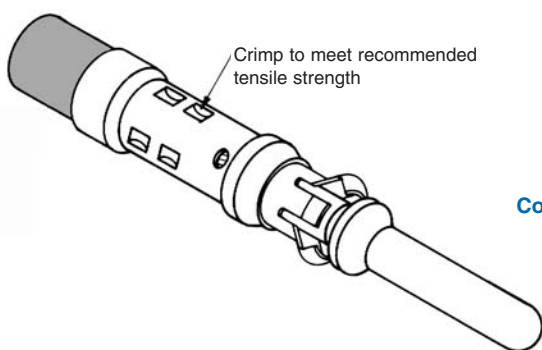
- For automatic crimp tool:
- Insert wire into the contact, positioned in the crimp tool by the plastic carrier.
 - Depress the activating device of the crimping tool to start crimping cycle
 - Remove crimped contact



CRIMPING INFORMATION FOR POWER CONNECTION SYSTEMS CRIMP CONTACTS

Step 3: Inspect crimp

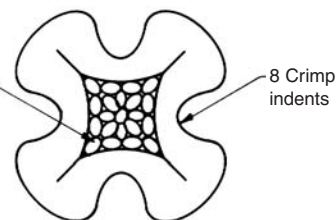
- For all tools:
- Strands to be visible through the inspection hole
 - Strands not to be visible beyond the insulation support
 - Crimped contact to meet recommended conductor tensile force shown in chart
 - Check for peeled gold and bent contact



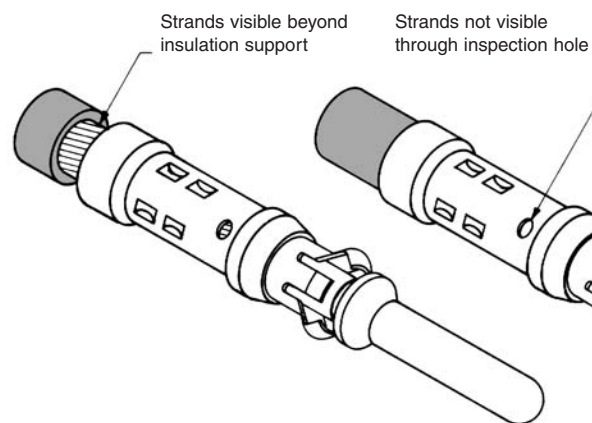
Correctly crimped contact

Cross section of correctly crimped contact

Stripped wires compressed for improved conduction

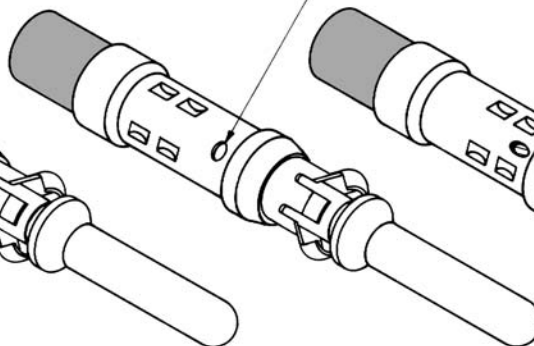


8 Crimp indents

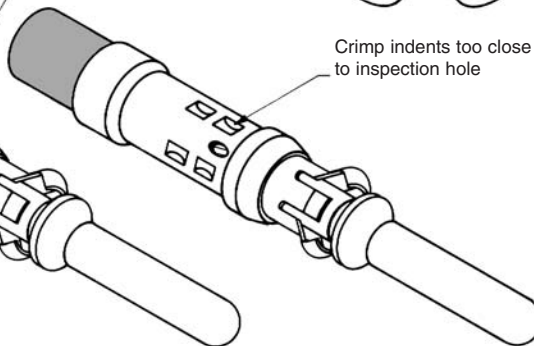


Strands visible beyond insulation support

Strands not visible through inspection hole



Stripped part of the wire too long



Stripped part of the wire too short

Crimp indents too close to inspection hole

Crimp indents incorrectly located

Positronic Recommended Conductor Tensile Strength	
WIRE SIZE	AXIAL LOAD
12 AWG [4.0mm ²]	110 lbs. [489 N]
14 AWG [2.5mm ²]	70 lbs. [311 N]
16 AWG [1.5mm ²]	50 lbs. [222 N]
18 AWG [1.0mm ²]	28 lbs. [125 N]
20 AWG [0.5mm ²]	20 lbs. [89 N]
22 AWG [0.3mm ²]	12 lbs. [53 N]
24 AWG [0.25mm ²]	8 lbs. [36 N]

Examples of crimping faults

POSITRONIC RECOMMENDED TOOLS	
TOOL TYPE	TOOL PART NUMBERS
Hand crimp tools	9501-0-0-0 with 9502-1-0-0 positioner
Automatic crimp tools	9550-0-0-0
Insertion tool	9099-0-0-0
Extraction tool	9081-0-0-0

Conductor tensile strength values are derived using silver-tin plated copper wires. Values may change depending upon what type of wire is used.

CYCLE-CONTROLLED STEP ADJUSTABLE HAND CRIMP TOOL

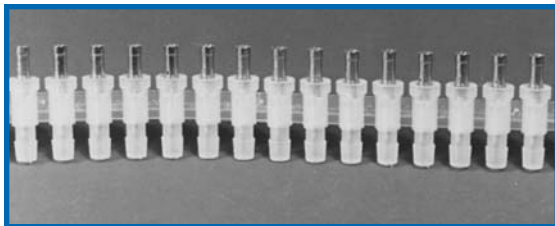
MS22520/1-01
Part No. 9501-0-0-0

Features of this positive ratchet action tool include accommodations for wire sizes 12 AWG [4.0mm²] through 24 AWG [0.25mm²] and eight (8) impression crimp on wires and contacts of various compositions. Required for use with this basic tool is the turret head part number 9502-1-0-0.



CONTACT CARRIERS FOR AUTOMATIC CRIMP TOOL

Molded thermoplastic carriers in a continuous belt feed contacts to the crimp station of the automatic crimp tool. They also locate the contacts in respect to the tool's indenters. The carriers are color coded white and natural for contact identification for both MS and proprietary applications.



AUTOMATIC CRIMP TOOL, PNEUMATICALLY ACTUATED

9550 Series

This fast cycling and reliable automatic crimp tool produces a four double-indent crimp, meeting Military Standard and proprietary specifications. For use with size 8, 12, and 16 contacts.

The tool is a bench mount unit of compact size and weight. Contacts must be ordered separately and are supplied on reels.

Foot pedal control valve is supplied as a standard accessory.



CYCLE-CONTROLLED HAND CRIMP TOOL

Part No. 9506-0-0-0

Single-step crimping action for both signal and shielding conductors of micro-miniature shielded contacts.





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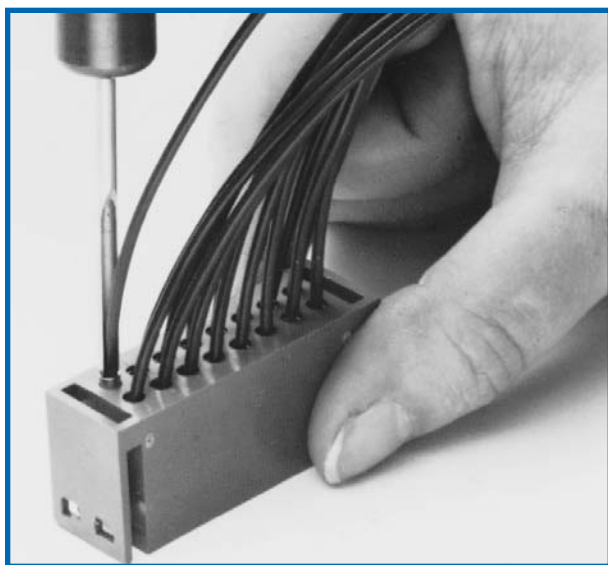
CONTACT CRIMP TOOLS AND ACCESSORIES

Power
Connection
Systems

CONTACT INSERTION TOOL

Part No. 9099-0-0-0

An easy-to-use contact insertion tool for 12 AWG [4.0mm²] and smaller wires. See photographic demonstration shown below for recommended insertion procedures.



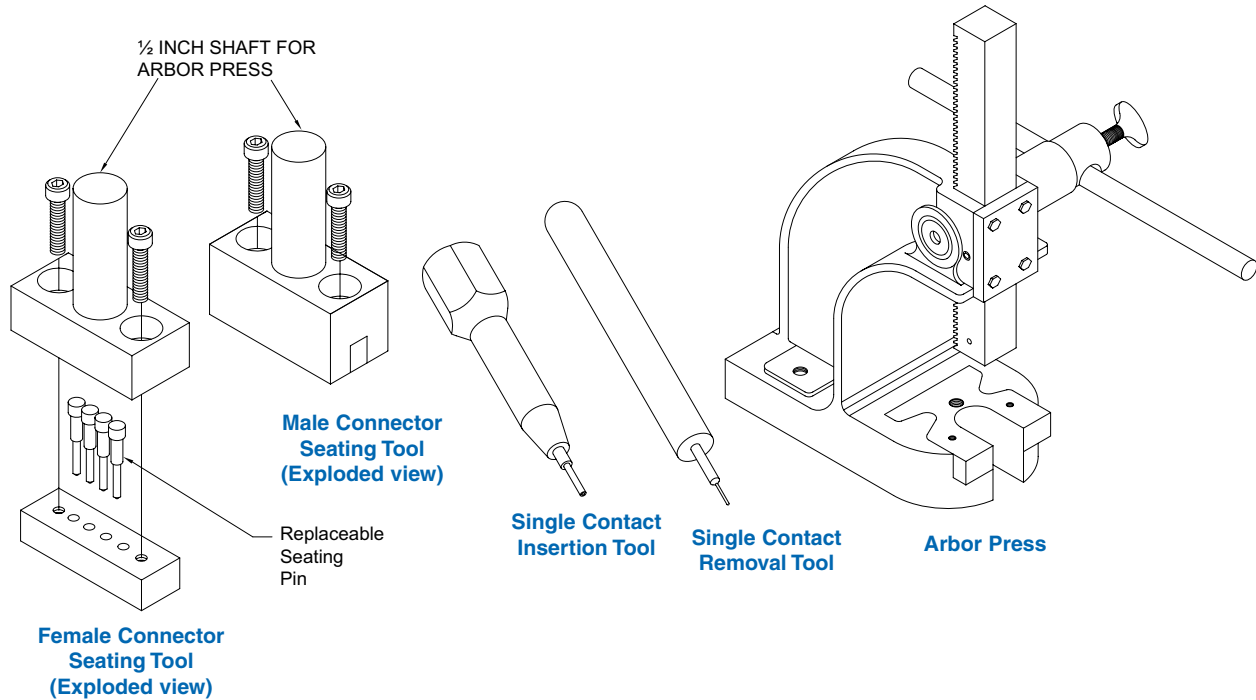
CONTACT EXTRACTION TOOL

Part No. 9081-0-0-0

The spring loaded contact extraction tool simplifies the extraction of removable contacts from the connector insulators. Simply insert the hollow tip over the male or female contact from the front face of the insulator, rotate the tool slightly while increasing the pushing force against the butt of the extraction tool. The contact will be released from the insulator retention system and "pop out" of the rear face of the insulator. See photo below for recommended removal procedure.



POWER CONNECTION SYSTEMS COMPLIANT TERMINATION PRESS-FIT CONNECTOR INSTALLATION TOOLS



Positronic recommended tools for Power Connection Systems Connectors and Contacts

CONNECTOR VARIANT	CONNECTOR SEATING		SINGLE CONTACT INSERTION		SINGLE CONTACT REMOVAL
	MALE	FEMALE	MALE	FEMALE	
PLA03	9513-1-0-41	9513-13-0-41	9513-100-0-0 FOR ALL CONNECTOR VARIANTS	9513-101-0-0 FOR ALL CONNECTOR VARIANTS	9513-102-0-0 FOR ALL CONNECTOR VARIANTS
PLA04	9513-2-0-41	9513-14-0-41			
PLA06	9513-3-0-41	9513-15-0-41			
PLA08	9513-4-0-41	9513-16-0-41			
PLB06	9513-5-0-41	9513-17-0-41			
PLB08	9513-6-0-41	9513-18-0-41			
PLB12	9513-7-0-41	9513-19-0-41			
PLB16	9513-8-0-41	9513-20-0-41			
PLC09	9513-9-0-41	9513-21-0-41			
PLC12	9513-10-0-41	9513-22-0-41			
PLC18	9513-11-0-41	9513-23-0-41			
PLC24	9513-12-0-41	9513-24-0-41			
PLC30	9513-25-0-41	9513-26-0-41			
Arbor press for connector seating tools: 9530-1-0-0 (1 ton capacity, 4 inch throat)					
Replacement pins for connector seating tools: 855-658-1-41 (female)					



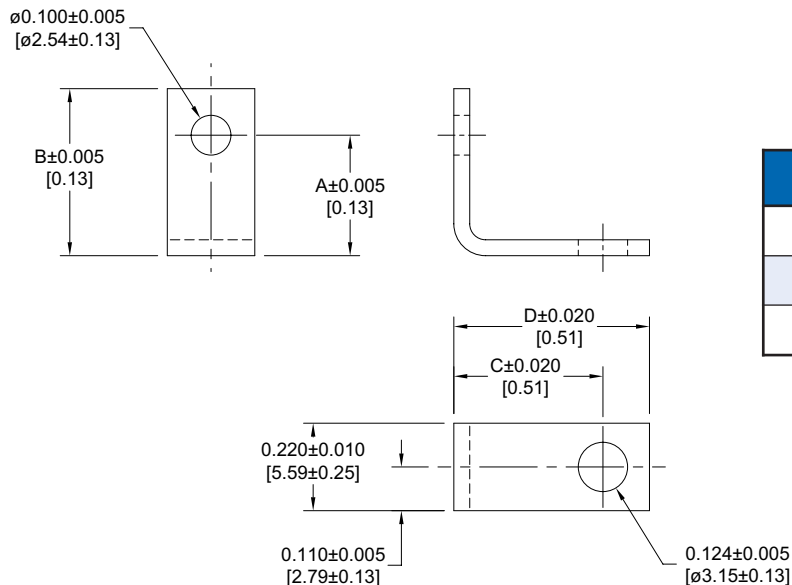
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ACCESSORIES

Power
Connection
Systems

90° METAL MOUNTING BRACKETS

CODE B OR CODE BN ON STEP 5 OF ORDERING INFORMATION PAGE

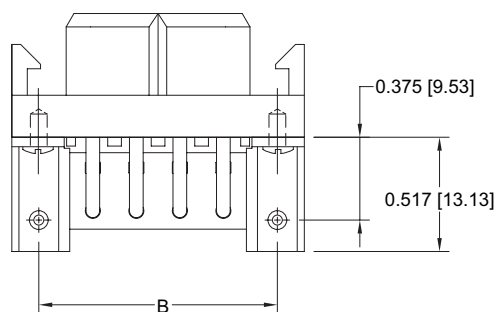


SERIES	A	B	C	D
PLA	0.204 [5.18]	0.321 [8.15]	0.375 [9.53]	0.492 [12.50]
PLB	0.303 [7.70]	0.420 [10.67]	0.375 [9.53]	0.492 [12.50]
PLC	0.401 [10.19]	0.518 [13.16]	0.375 [9.53]	0.492 [12.50]

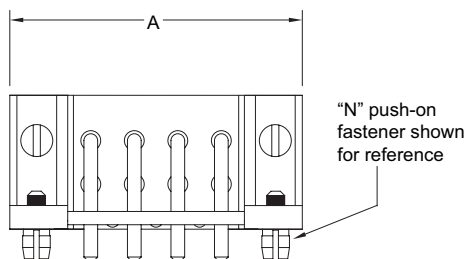
Material: Brass, tin plate.

90° PLASTIC MOUNTING BRACKET WITH CROSS BAR

CODE B3 OR CODE B3N ON STEP 5 OF ORDERING INFORMATION PAGE



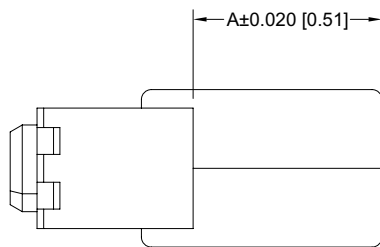
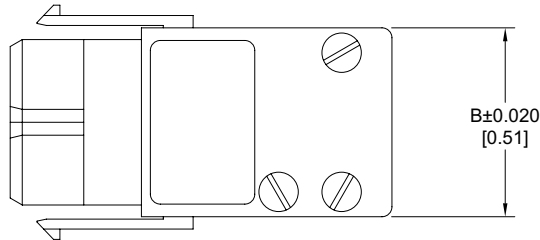
B3 style required
for 90° press-fit
connectors



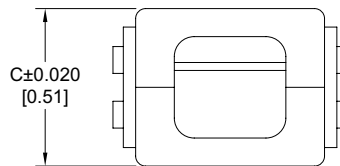
Material-
Mounting bracket/cross bar: Glass filled polyester, UL 94V-0.
Push-on fasteners: Copper alloy, tin plated.

CONNECTOR VARIANT	A	B
PLA03 PLAH03	1.126 [28.60]	0.882 [22.40]
PLA04 PLAH04	1.324 [33.63]	1.080 [27.43]
PLA06 PLAH06	1.718 [43.64]	1.474 [37.44]
PLA08 PLAH08	2.112 [53.64]	1.868 [47.45]
PLB06 PLBH06	1.126 [28.60]	0.882 [22.40]
PLB08 PLBH08	1.324 [33.63]	1.080 [27.43]
PLB12 PLBH12	1.718 [43.64]	1.474 [37.44]
PLB16 PLBH16	2.112 [53.64]	1.868 [47.45]
PLC09 PLCH09	1.126 [28.60]	0.882 [22.40]
PLC12 PLCH12	1.324 [33.63]	1.080 [27.43]
PLC18 PLCH18	1.718 [43.64]	1.474 [37.44]
PLC24 PLCH24	2.112 [53.64]	1.868 [47.45]
PLC30 PLCH30	2.506 [63.65]	2.262 [57.45]

POWER CONNECTION SYSTEMS HOOD CODE 5 ON STEP 6 OF ORDERING INFORMATION PAGE



Features internal cable clamp.

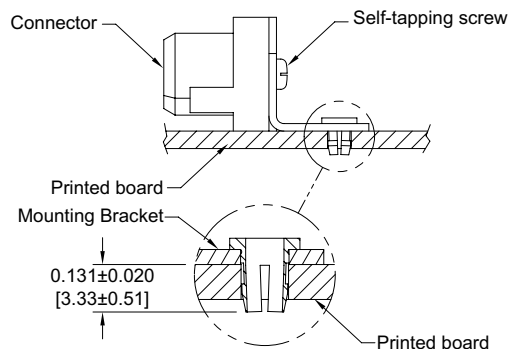


CONNECTOR VARIANT	A	B	C
PLA03 PLAH03	1.000 [25.40]	0.752 [19.10]	0.594 [15.09]
PLA04 PLAH04	1.000 [25.40]	0.950 [24.13]	0.594 [15.09]
PLA06 PLAH06	1.000 [25.40]	1.344 [34.14]	0.594 [15.09]
PLA08 PLAH08	1.000 [25.40]	1.738 [44.15]	0.594 [15.09]
PLB06 PLBH06	1.000 [25.40]	0.752 [19.10]	0.792 [20.12]
PLB08 PLBH08	1.000 [25.40]	0.950 [24.13]	0.792 [20.12]
PLB12 PLBH12	1.000 [25.40]	1.344 [34.14]	0.792 [20.12]
PLB16 PLBH16	1.000 [25.40]	1.738 [44.15]	0.792 [20.12]
PLC09 PLCH09	1.000 [25.40]	0.752 [19.10]	0.990 [25.15]
PLC12 PLCH12	1.000 [25.40]	0.950 [24.13]	0.990 [25.15]
PLC18 PLCH18	1.000 [25.40]	1.344 [34.14]	0.990 [25.15]
PLC24 PLCH24	1.000 [25.40]	1.738 [44.15]	0.990 [25.15]
PLC30 PLCH30	1.000 [25.40]	2.132 [54.15]	0.990 [25.15]

PUSH-ON FASTENERS

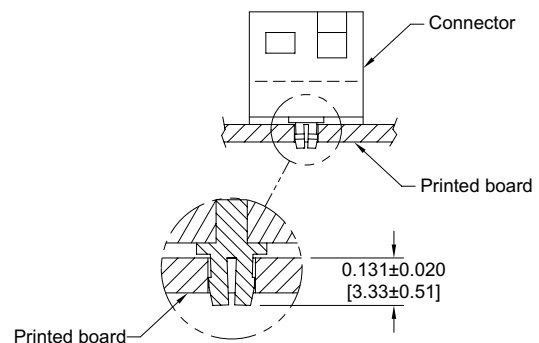
CODE BN ON STEP 5 OF
ORDERING INFORMATION PAGE

RIGHT ANGLE CONNECTORS



CODE N ON STEP 5 OF
ORDERING INFORMATION PAGE

STRAIGHT SOLDER CONNECTORS



Material—
Spring tempered copper alloy, tin plated.

Suggest 0.123 ±0.002 [3.12] Ø hole in printed board for mounting connector with push-on fasteners.



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ORDERING INFORMATION

Power
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ORDERING INFORMATION - CODE NUMBERING SYSTEM

Specify Complete Connector By Selecting An Option From Step 1 Through 7

STEP	1	2	3	4	5	6	7	8	9
EXAMPLE	PLB	06	F	3	0	0	A1	/AA	—

STEP 1 - BASIC SERIES

PLA - 1 Row
PLAH - 1 Row High conductivity contacts
PLB - 2 Row
PLBH - 2 Row High conductivity contacts
PLC - 3 Row
PLCH - 3 Row High conductivity contacts

STEP 2 - CONNECTOR VARIANTS

1 Row - 03, 04, 06, 08
2 Row - 06, 08, 12, 16
3 Row - 09, 12, 18, 24, 30

STEP 3 - CONNECTOR GENDER

M - Male
F - Female

STEP 4 - CONTACT TERMINATION TYPE

- * 0 - Order contacts separately for cable connectors for connection systems 5, 6, 7, 8 and 9.
- * 1 - Removable contact, panel mounted connector for connection system 8. Order contacts separately.
- 2 - Solder, 18 AWG [1.0mm²] max. for panel mount connector, for connection system 8. Not available as PL*H.
- 3 - Solder, Straight Printed Board Mount with 0.146 [3.71] tail extension for connection systems 1, 4 and 6.
- 32 - Solder, Straight Printed Board Mount with 0.377 [9.58] tail extension for connection system 3 and systems 1, 4 and 6.
- 4 - Solder, 90° Printed Board Mount with 0.146 [3.71] tail extension for connection systems 1, 2 and 5.
- 42 - Solder, 90° Printed Board Mount with 0.377 [9.58] tail extension for connection system 3 and systems 1, 2 and 5.
- 62 - Press-fit, compliant Termination Right Angle Printed Board Mount, termination length 0.183 [4.65]. Must select "B3" in step 5.
- 63 - Press-fit, compliant Termination Right Angle Printed Board Mount, termination length 0.219 [5.56]. Must select "B3" in step 5.
- * 7 - Order contacts separately for cable connectors for connection systems 5, 6, 7, 8 and 9. Terminating side of insulator has 0.165 [4.19] $\varnothing$ c'bore for large wire sizes.
- * 8 - Removable contact, panel mounted connector for connection system 8. Order contacts separately. Terminating side of insulator has 0.165 [4.19] $\varnothing$ c'bore for large wire sizes.
- 92 - Straight PCB Mount, Press-Fit, length 0.183 [4.65] for 0.093 inch [2.36] thick board.
- 93 - Straight PCB Mount, Press-Fit, length 0.218 [5.54] for 0.125 inch [3.18] thick board.

STEP 5 - MOUNTING STYLE

- 0 - No added accessories.
- B - Metal 90° Mounting Bracket.
- BN - Metal 90° Mounting Bracket with Push-on Fastener.
- B3 - Plastic 90° Mounting Bracket with Cross Bar.
- B3N - Plastic 90° Mounting Bracket with Cross Bar and Push-on Fastener.
- N - Push-On Fastener For Straight Printed Board Mount Connectors
- ST2 - Self-tapping screws 2-28 x 0.250 [6.35] length for 0.093 [2.36] thick board.
- ST3 - Self-tapping screws 2-28 x 0.312 [7.92] length for 0.125 [3.18] thick board.

* For high conductivity contact connectors, order PL* connectors and *C112N(2)S contacts

STEP 9 - SPECIAL OPTIONS

Sequential Mating Systems refer to page 22.

CONTACT TECHNICAL SALES FOR SPECIAL OPTIONS



STEP 8 - ENVIRONMENTAL COMPLIANCE OPTIONS

/AA - Compliant per EU Directive 2002/95/EC (RoHS)

NOTE: If compliance to environmental legislation is not required, this step will not be used.
Example: PLB06F300A1

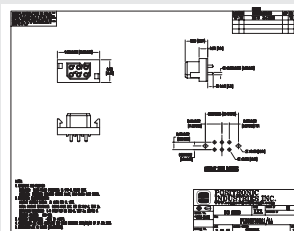
STEP 7 - CONTACT PLATING FOR PRINTED BOARD CONNECTORS

- 0 - Crimp Contacts ordered separately.
- A1 - Gold flash over nickel on mating end and termination end.
- A2 - Gold flash over nickel on mating end and 0.00020 inch [5.00 μ] tin-lead solder coat on termination end. Not available with code 62, 63, 92 or 93 in step 4.
- C1 - 0.000030 inch [0.75 μ] gold over nickel on mating end and termination end.
- C2 - 0.000030 inch [0.75 μ] gold over nickel on mating end and 0.00020 inch [5.00 μ] tin-lead solder coated termination end. Not available with code 62, 63, 92 or 93 in step 4.
- D1 - 0.000050 inch [1.27 μ] gold over nickel on mating end and termination end.
- D2 - 0.000050 inch [1.27 μ] gold over nickel on mating end and 0.00020 inch [5.00 μ] tin-lead solder coated termination end. Not available with code 62, 63, 92 or 93 in step 4.

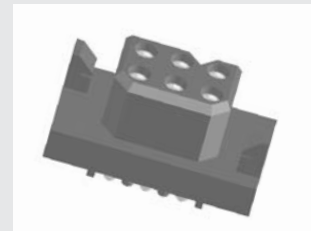
STEP 6 - HOODS AND PANEL MOUNT

- 0 - None.
- 5 - Top Opening Hood.
- 6 - Panel Mount, quick release.
- 81 - Panel Mount, fixed for 0.040 [1.02] thick panel.
- 82 - Panel Mount, fixed for 0.060 [1.52] thick panel.
- 83 - Panel Mount, fixed for 0.090 [2.29] thick panel.
- 11 - Blind Mating System for 0.040 [1.02] thick panel.
- 12 - Blind Mating System for 0.060 [1.52] thick panel.
- 13 - Blind Mating System for 0.090 [2.29] thick panel.
- 14 - Blind Mating System for 0.120 [3.05] thick panel.

NOTE: Once you have made a connector selection, contact Technical Sales if you would like to receive a drawing in DXF, PDF format or a 3-dimensional IGES file.



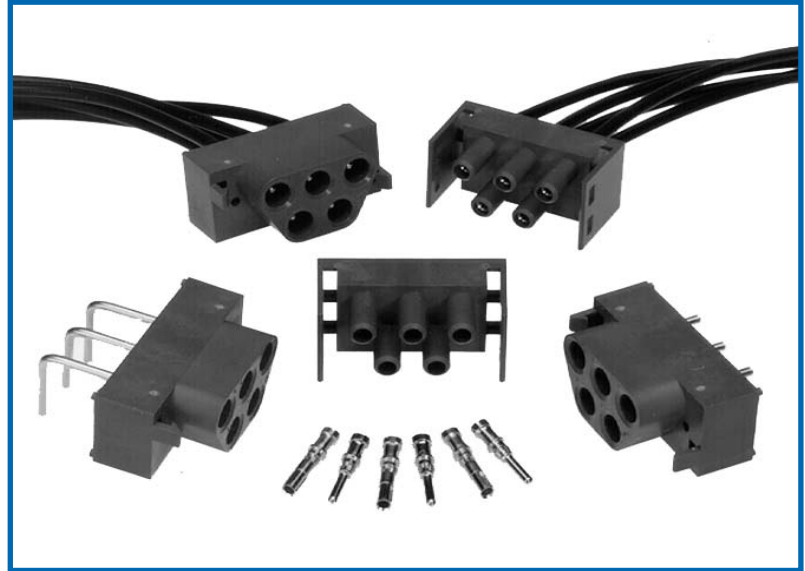
SK Drawing



3-dimensional model

Safety Shrouded Connector to Prevent Unsafe Exposure to High Energy Circuits

- * Size 12 Power Contacts
- * Large Surface Area Mating System
- * Discriminating Locking System
- * Contact Current Rating to 40 Amperes
- * Board - Cable / Cable - Cable



TECHNICAL CHARACTERISTICS

MATERIALS AND FINISHES:

Insulator:	Glass-filled polyester, UL 94V-0. Contact technical sales for availability of high temperature insulator material.
Contacts:	Precision machined copper alloy with gold flash over nickel, or 0.000030 inch [0.75μ] gold over nickel, or 0.000050 [1.27μ] gold over nickel. Solder coated terminations optional.
Push-on Fastener:	Spring tempered copper alloy, tin plate.

ELECTRICAL CHARACTERISTICS:

Contact Current Rating:	40 amperes continuous, derated per IEC 512-3, test 5b.
Initial Contact Resistance:	0.001 ohms max. per IEC 512-2, test 2b.
Insulation Resistance:	5 G ohms per IEC 512-2, test 3a.
Voltage Proof:	3,000 minimum V r.m.s. per IEC 512-2, test 4a, method A.
Clearance and Creepage Distance:	0.220 [5.60] minimum
Working Voltage:	600 minimum V. r.m.s.
Hot Pluggable [50 couplings per UL 1977 paragraph 15]:	250 VAC at 20 amperes
Working Temperature:	-55°C to +125°C Contact technical sales for availability of high temperature insulator material.

MECHANICAL CHARACTERISTICS:

Removable Contacts:	Rear insertion/ front release. Female contact features "Closed Entry" design for highest reliability. 0.094 [2.39] diameter male contact.
Removable Contact Retention in Insulator:	67N [15 lbs.] per IEC 512-8, test 15a.

MECHANICAL CHARACTERISTICS (continued):

Fixed Contacts:	Printed board terminations, both straight and 90°. Female contact features "Closed Entry" design for highest reliability. 0.094 [2.39] diameter male contact.
Fixed Contact Retention in Insulator:	15 lbs. [67N], minimum.
Resistance to Soldering Iron Heat:	500°F [260°C] for 10 seconds duration per IEC 512-6, test 12e, 25 watt soldering iron.
Contact Terminations:	Crimp removable contacts for wire size 12 AWG [4.0 mm ²]. Straight and 90° solder printed board mount, 0.090 [2.29] tail diameter.
Connection Systems:	Cable to cable, cable to printed board and cable to panel mount.
Locking System:	Insulators provide locking between cable to cable, cable to printed board and cable to panel mount applications. Provided in insulator design.
Polarization:	Rapid installation push-on fasteners.
Mounting to P.C. Board:	500 operations
Mechanical Operations:	



For RoHS options
see page 45.

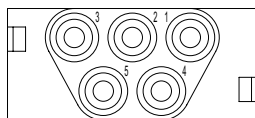


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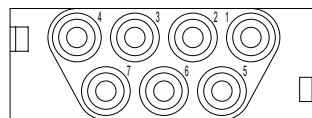
INSULATOR DIMENSIONS

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Systems

CONNECTOR VARIANTS



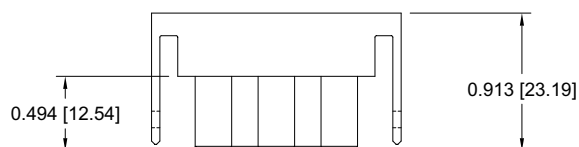
PLS5W5



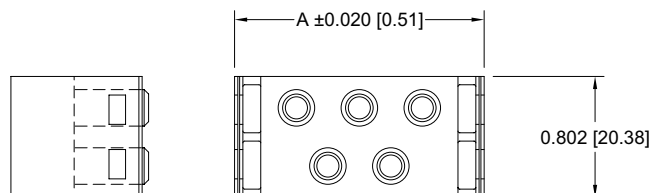
PLS7W7

FEMALE CABLE CONNECTOR CODE 0, ORDER CONTACTS SEPARATELY

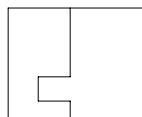
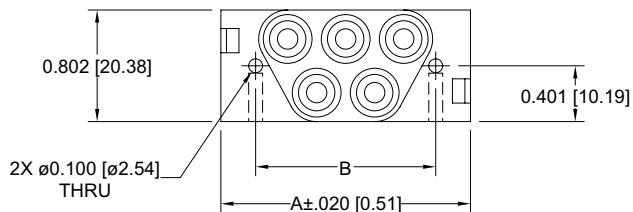
PART NUMBER	A
PLS5W5F0000	1.655 [42.04]
PLS7W7F0000	2.072 [52.64]



Typical part number:
PLS5W5F00000



MALE PANEL MOUNT CONNECTOR CODE 1, ORDER CONTACTS SEPARATELY



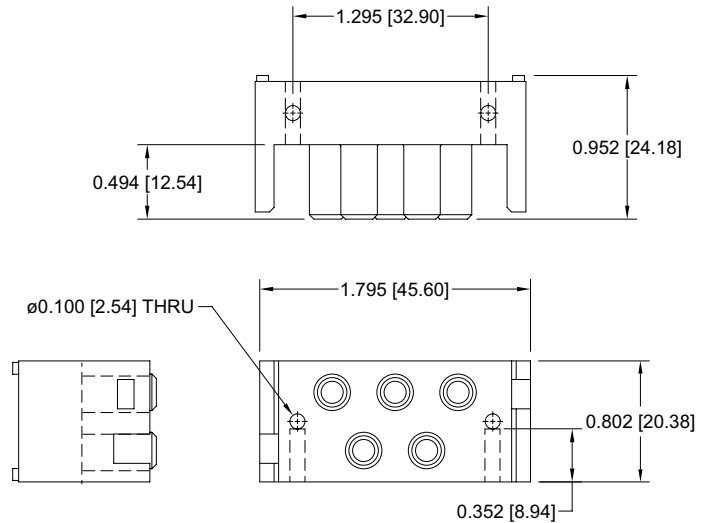
Typical part number:
PLS5W5M10000

PART NUMBER	A	B
PLS5W5M10000	1.795 [45.60]	1.295 [32.90]
PLS7W7M10000	2.213 [56.20]	1.713 [43.50]

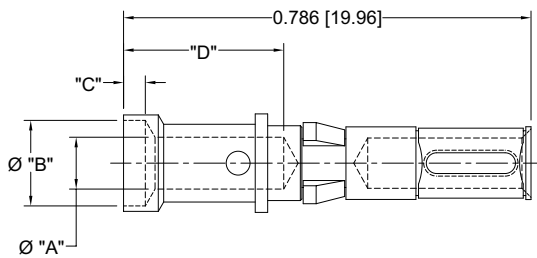
FEMALE PANEL MOUNT CONNECTOR CODE 1, ORDER CONTACTS SEPARATELY

Typical part number:
PLS5W5F10000

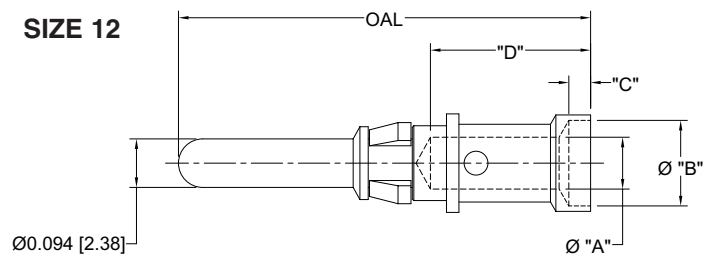
*CONTACT TECHNICAL SALES
FOR AVAILABILITY OF 7W7 VARIANT.



CRIMP AND SOLDER CUP CONTACTS

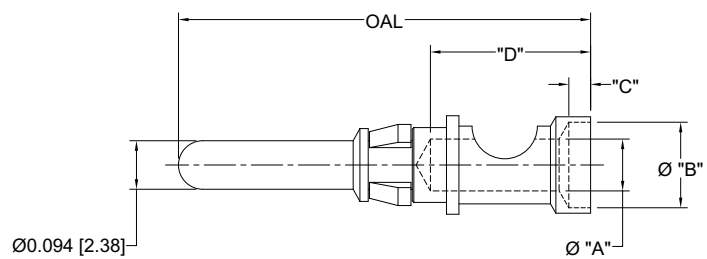
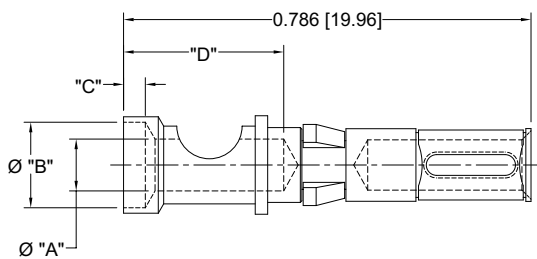


SIZE 12



PART NUMBER	WIRE SIZE AWG/[mm ²]	Ø A	Ø B	C	D
FC610N2S	10/[6.0]	0.147 [3.73]	N/A	N/A	0.254 [6.45]
FC612N2	12/[4.0]	0.100 [2.54]	0.165 [4.19]	0.042 [1.06]	0.309 [7.85]

PART NUMBER	WIRE SIZE AWG/[mm ²]	Ø A	Ø B	C	D	OAL
MC610NS	10/[6.0]	0.147 [3.73]	N/A	N/A	0.254 [6.45]	0.795 [20.19]
MC612N	12/[4.0]	0.100 [2.54]	0.165 [4.19]	0.042 [1.06]	0.309 [7.85]	0.795 [20.19]



PART NUMBER	WIRE SIZE AWG/[mm ²]	Ø A	Ø B	C	D
FS610N2S	10/[6.0]	0.147 [3.73]	N/A	N/A	0.254 [6.45]
FS612N2	12/[4.0]	0.100 [2.54]	0.165 [4.19]	0.042 [1.06]	0.309 [7.85]

PART NUMBER	WIRE SIZE AWG/[mm ²]	Ø A	Ø B	C	D	OAL
MS610NS	10/[6.0]	0.147 [3.73]	N/A	N/A	0.254 [6.45]	0.795 [20.19]
MS612N	12/[4.0]	0.100 [2.54]	0.165 [4.19]	0.042 [1.06]	0.309 [7.85]	0.795 [20.19]

Material: Copper alloy.

Finish: 0.000030 [0.75µ] gold over nickel available by adding -14 suffix onto part number. Example: FS120N2-14.

0.000050 [1.27µ] gold over nickel available by adding -15 suffix onto part number. Example: MS112N-15.

DIMENSIONS ARE IN INCHES [MILLIMETERS].
ALL DIMENSIONS ARE SUBJECT TO CHANGE.

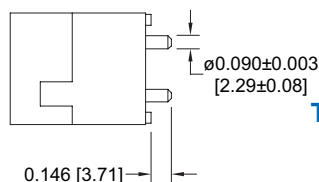
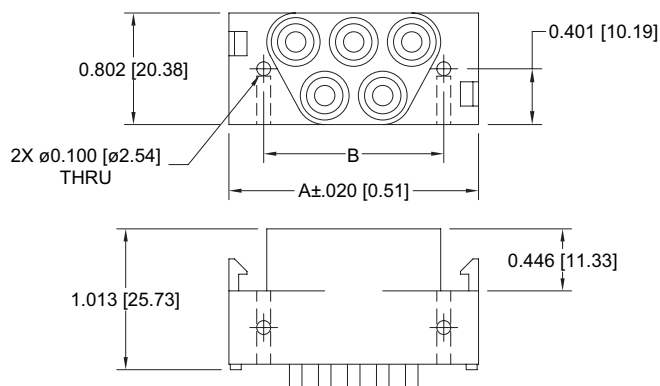


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STRAIGHT SOLDER AND 90° SOLDER PRINTED BOARD CONNECTORS

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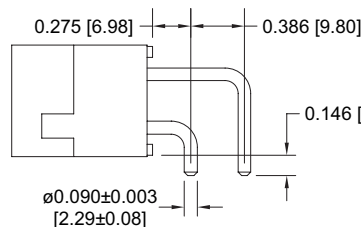
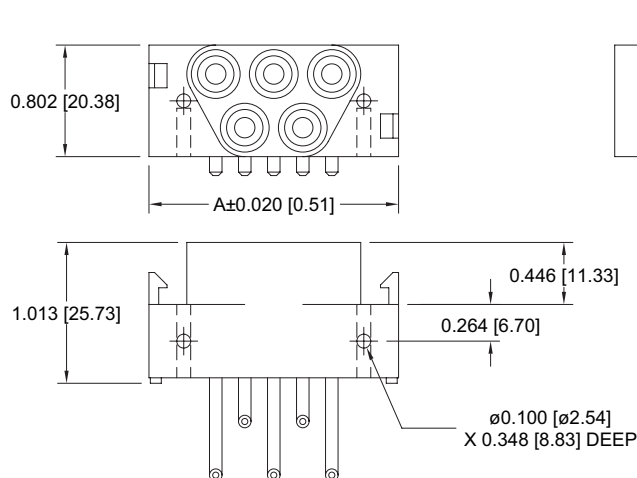
MALE STRAIGHT PRINTED BOARD MOUNT CONNECTOR CODE 3, 0.146 [3.71] CONTACT EXTENSION



Typical part number:
PLS5W5M300A1

PART NUMBER	A	B
PLS5W5M300A1	1.795 [45.60]	1.295 [32.90]
PLS7W7M300A1	2.213 [56.20]	1.713 [43.50]

MALE 90° PRINTED BOARD MOUNT CONNECTOR CODE 4, 0.146 [3.71] CONTACT EXTENSION

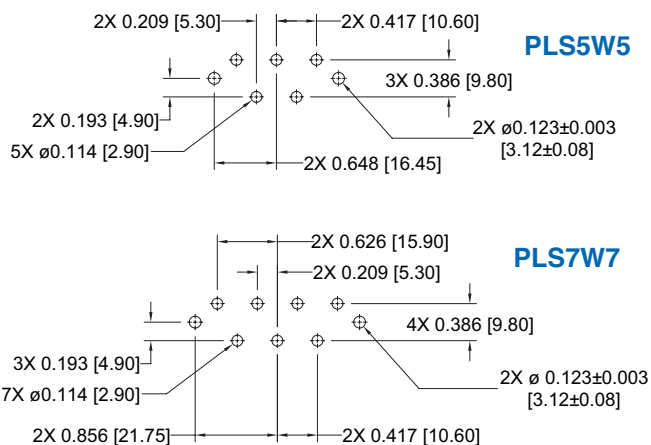


Typical part number:
PLS5W5M400A1

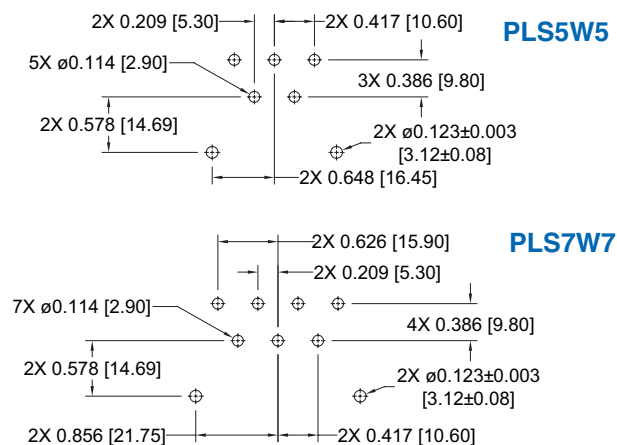
PART NUMBER	A	B
PLS5W5M400A1	1.795 [45.60]	1.295 [32.90]
PLS7W7M400A1	2.213 [56.20]	1.713 [43.50]

PRINTED BOARD CONTACT HOLE PATTERNS

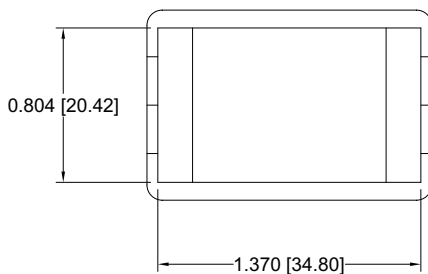
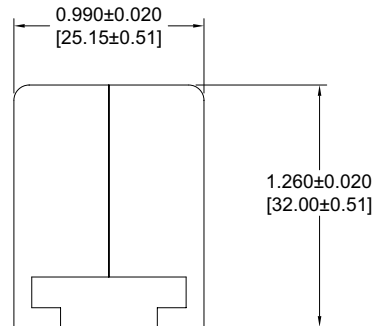
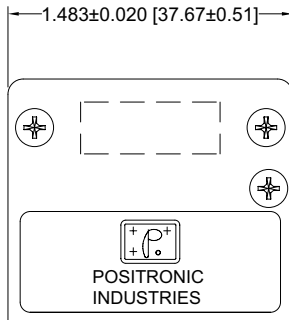
Straight Solder



90° Solder



HOOD CODE 5 ON STEP 6 OF THE ORDERING INFORMATION PAGE



For PLS5W5
Connector Only

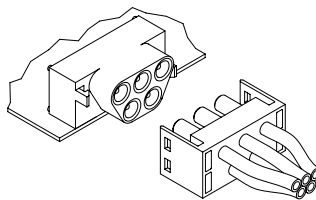
Features internal cable clamp.

CONTACT TECHNICAL SALES
FOR AVAILABILITY OF 7W7 VARIANT.

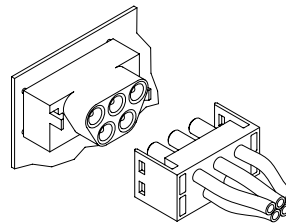
SHROUDED OPTIONS

CONNECTION SYSTEMS

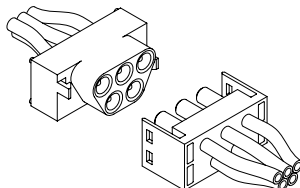
System 5
Cable to 90°
Board Mount



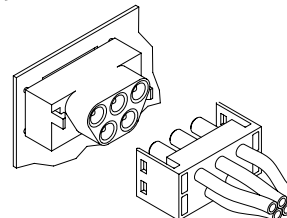
System 6
Cable to Straight
Board Mount



System 7
Cable to Cable



System 8
Panel Mounting
to Cable





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ORDERING INFORMATION

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ORDERING INFORMATION - CODE NUMBERING SYSTEM

Specify Complete Connector By Selecting An Option From Step 1 Through 7

STEP	1	2	3	4	5	6	7	8	9
EXAMPLE	PLS	5W5	M	4	0	0	A1	/AA	—

STEP 1 - BASIC SERIES

PLS - PLS Series

STEP 2 - CONNECTOR VARIANTS

5W5 - Five size 12 contacts

7W7 - Seven size 12 contacts

STEP 3 - CONNECTOR GENDER

M - Male

F - Female

STEP 4 - CONTACT TERMINATION TYPE

0 - Order contacts separately for cable connectors for connection systems 5, 6, 7 and 8.
Female connectors only. **

1 - Order contacts separately for Panel Mount connectors for connection system 7.
For 7W7 female variant consult technical sales.

3 - Solder, Straight Printed Board Mount with 0.146 [3.71] tail extension for connection system 6.
Male connectors only. ***

4 - Solder, Right Angle Printed Board Mount with 0.146 [3.71] tail extension for connection system 5.
Male connectors only. ***

STEP 5 - MOUNTING STYLE

0 - None.

N - Push-on Fastener for Straight Printed Board Mount Connectors

STEP 9 - SPECIAL OPTIONS

CONTACT TECHNICAL SALES
FOR SPECIAL OPTIONS

STEP 8 - ENVIRONMENTAL COMPLIANCE OPTIONS

/AA - Compliant per EU Directive 2002/95/EC (RoHS)



NOTE: If compliance to environmental legislation is not required, this step will not be used. Example: PLS5W5M400A1

STEP 7 - CONTACT PLATING FOR PRINTED BOARD CONNECTORS

0 - Crimp Contacts ordered separately.

A1 - Gold flash over nickel on mating end and termination end.

A2 - Gold flash over nickel on mating end and 0.00020 inch [5.00μ] tin-lead solder coat on termination end.

C1 - 0.000030 inch [0.75μ] gold over nickel on mating end and termination end.

C2 - 0.000030 inch [0.75μ] gold over nickel on mating end and 0.00020 inch [5.00μ] tin-lead solder coated termination end.

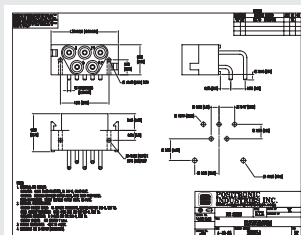
D1 - 0.000050 inch [1.27μ] gold over nickel on mating end and termination end.

D2 - 0.000050 inch [1.27μ] gold over nickel on mating end and 0.00020 inch [5.00μ] tin-lead solder coated termination end.

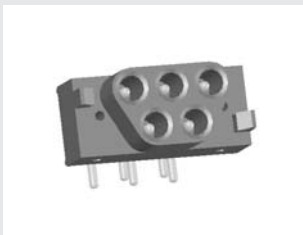
STEP 6 - CABLE ADAPTER

5 - Top Opening Hood

NOTE: Once you have made a connector selection, contact Technical Sales if you would like to receive a drawing in DXF, PDF format or a 3-dimensional IGES file.



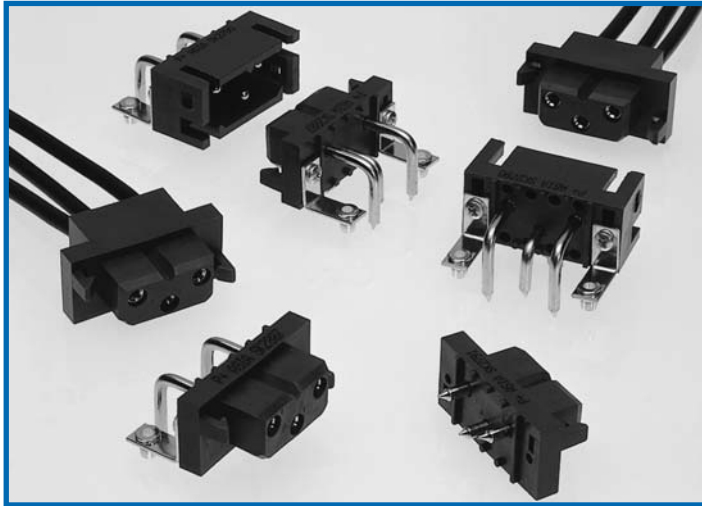
SK Drawing



3-dimensional model

** Consult technical sales for availability of male version of contact type 0.

*** Consult factory for availability of female version of contact type 3 and 4.



A.C. / D.C. INPUT CONNECTOR

- * Hot Plug Capability
- * Screw Termination Contacts
- * Size 12 Power Contacts
- * Large Surface Area Mating System
- * Contact Current Rating to 40 Amperes
- * Sequential Mating Options
- * Discriminating Locking System

TECHNICAL CHARACTERISTICS

MATERIALS AND FINISHES:

Insulator:	Glass-filled polyester, UL 94V-0. Contact technical sales for availability of high temperature insulator material.
Contacts:	Precision machined copper alloy with gold flash over nickel, or 0.000030 inch [0.75µ] gold over nickel, or 0.000050 [1.27µ] gold over nickel. Solder coated terminations optional.
Hood:	Glass-filled polyester, UL 94V-0.
Mounting Bracket:	Brass, tin plate.
Push-on Fastener:	Spring tempered copper alloy, tin plate.
Mounting Screw:	Steel, zinc plate.

ELECTRICAL CHARACTERISTICS:

CONTACT CURRENT RATING:

Standard Contact Material: 40 amperes. See page 47 for details.

High Conductivity

Contact Material: 55 amperes. See page 47 for details.

INITIAL CONTACT RESISTANCE:

Standard Contact Material: 0.001 ohms max. per IEC 512-2, Test 2b.

High Conductivity

Contact Material: 0.00037 ohms max. per IEC 512-2, Test 2b.

Insulation Resistance: 5 G ohms per IEC 512-2, test 3a.

Voltage Proof: 3,750 V r.m.s. per IEC 512-2, test 4a, method A.

Clearance and

Creepage Distance: 0.125 [3.18] minimum

Working Voltage: 1,250 V. r.m.s.

Hot Pluggable [50 couplings per UL 1977 paragraph 15]:

Working Temperature:

Contact technical sales

-55°C to +125°C

Contact technical sales for availability of high temperature insulator material.

MECHANICAL CHARACTERISTICS (continued):

Removable Contact

Retention in Insulator: 20 lbs. [89N] per IEC 512-8, test 15a.
Fixed Contacts: Printed board terminations, both straight and right angle. Female contact features "Closed Entry" design for highest reliability. 0.094 [2.39] diameter male contact.

Fixed Contact

Retention in Insulator: 10 lbs. [44N], minimum.

Resistance to Soldering

Iron Heat: 260°C [500°F] for 10 seconds duration per IEC 512-6, test 12e, 25 watt soldering iron.

Contact Terminations:

Crimp removable contacts and solder cup removable contacts for wire size 12 AWG [4.0 mm²]. Straight and right angle solder printed board mount, 0.090 [2.29] tail diameter. Compliant termination press-fit.

Connection Systems:

Cable to cable, cable to printed board, cable to panel mount, and printed board to printed board.

Sequential Mating

Systems:

Male contacts can provide two mating lengths.

Locking System:

Insulators provide locking between cable to cable, cable to printed board, and cable to panel mount applications. Provided in insulator design.

Polarization:

Mounting to P.C. Board:

Rapid installation push-on fasteners.

Mechanical Operations:

500 operations

MECHANICAL CHARACTERISTICS:

Removable Contacts: Rear insertion/ front release. Female contact features "Closed Entry" design for highest reliability. 0.094 [2.39] diameter male contact.



For RoHS options
see page 60.



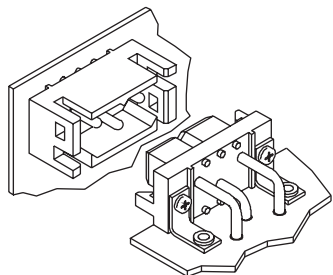
Positronic Industries
connectpositronic.com

TEMPERATURE RISE CURVE

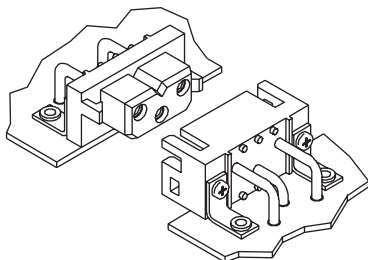
Power
Connection
Systems

CONNECTION SYSTEMS

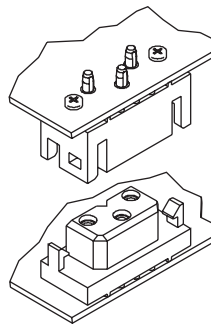
System 1
Mother Board -
Daughter Board



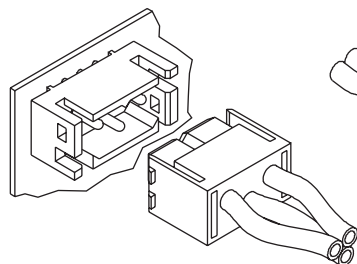
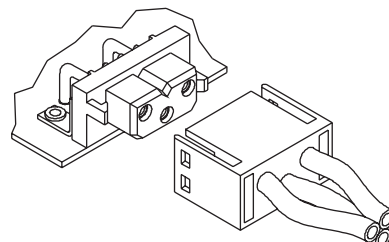
System 2
Side to Side
Board Mounting



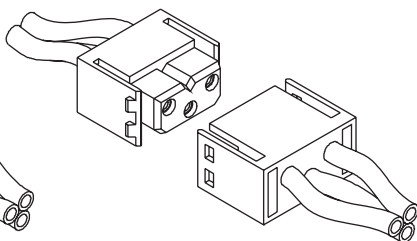
System 4
Sandwich Board
Mounting



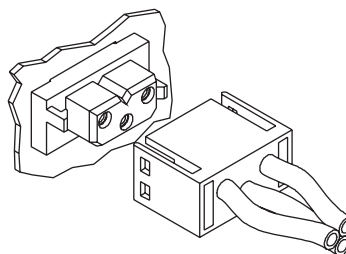
System 5
Cable to Right
Angle Board
Mount



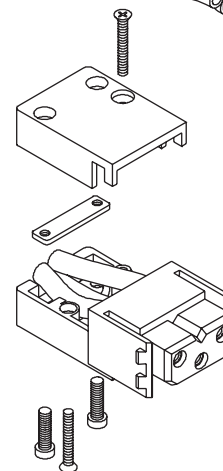
System 6
Cable to Straight
Board Mount



System 7
Cable to Cable



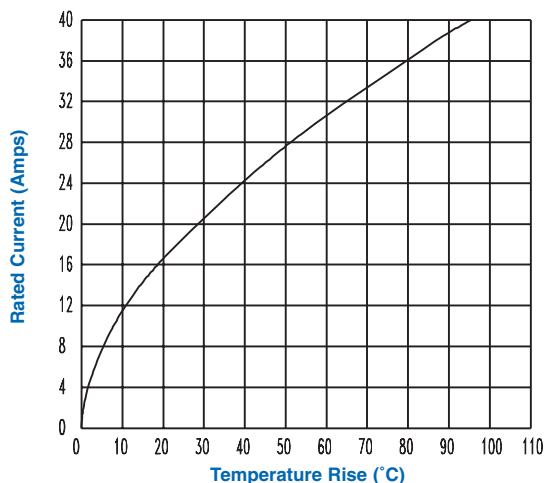
System 8
Panel Mounting
to Cable



System 9
Cable Connector with
Cable Adapter

TEMPERATURE RISE CURVE

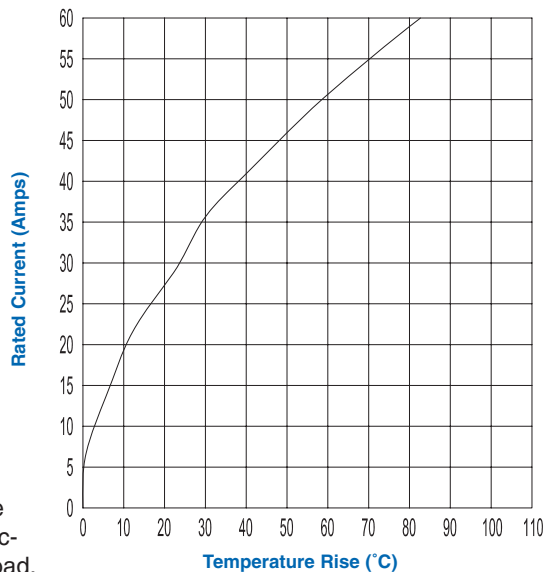
STANDARD CONTACT MATERIALS
CONNECTORS WITH PLB PREFIX



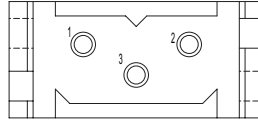
Standard contact material curve was developed using PLB3W3M4BN0A1 and PLB3W3F300A1 connectors. High conductivity contact material curve was developed using PLBH3W3M9300A1 and PLBH3W3F9300A1 connectors. Both tests were conducted using 12 AWG wire. All contacts under load. Tested per IEC Publication 512-3, Test 5a.

TEMPERATURE RISE CURVE

HIGH CONDUCTIVITY CONTACT MATERIALS
CONNECTORS WITH PLBH PREFIX
OR "S" SUFFIX ON CRIMP CONTACTS



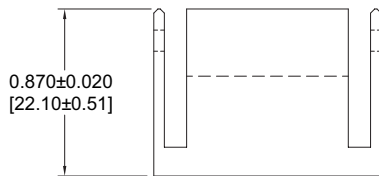
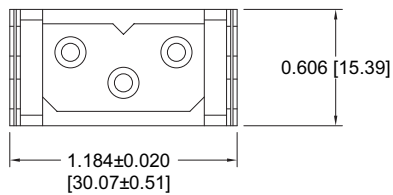
CONNECTOR VARIANT FACE VIEW OF MALE CONNECTOR



PLB3W3

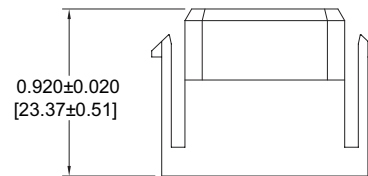
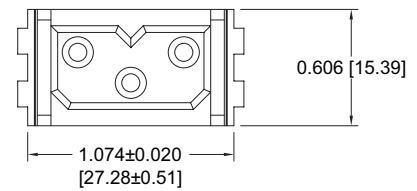
CABLE CONNECTORS CODE 0, ORDER CONTACTS SEPARATELY

MALE



**Part Number:
PLB3W3M0000**

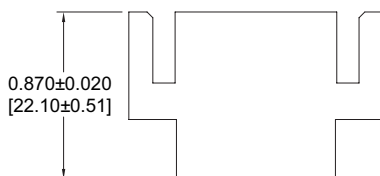
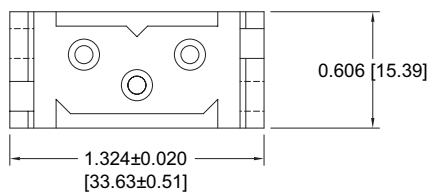
FEMALE



**Part Number:
PLB3W3F0000**

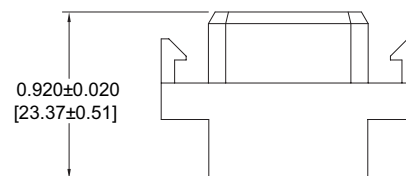
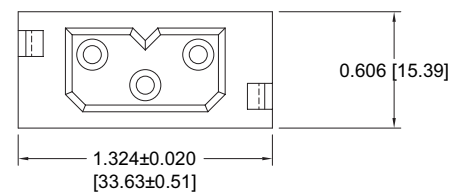
PANEL MOUNT CONNECTORS CODE 1, ORDER CONTACTS SEPARATELY

MALE



**Part Number:
PLB3W3M1000**

FEMALE



**Part Number:
PLB3W3F1000**

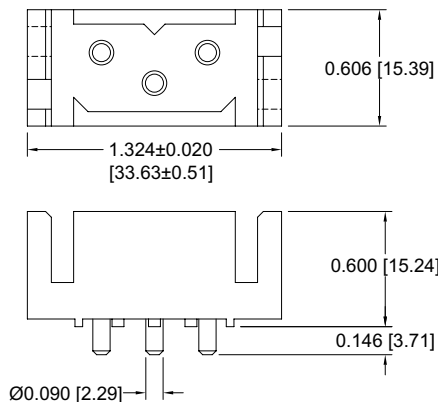


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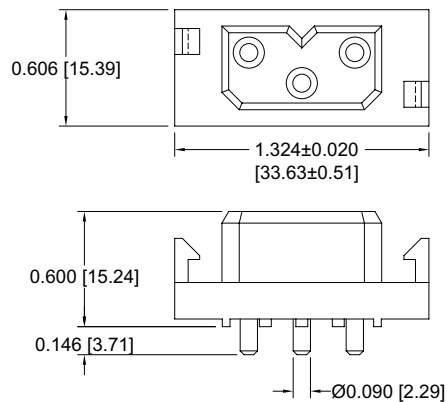
SOLDER PRINTED BOARD CONNECTORS

Power
Connection
Systems

STRAIGHT PRINTED BOARD MOUNT CONNECTORS CODE 3, 0.146 [3.71] CONTACT EXTENSION

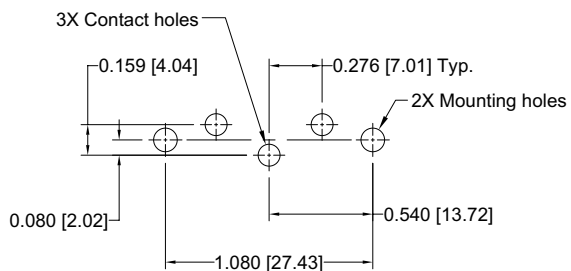


Part Number:
PLB3W3M300*



Part Number:
PLB3W3F300*

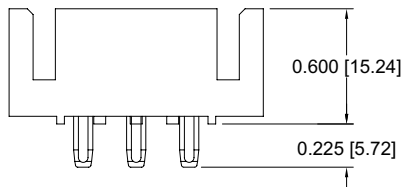
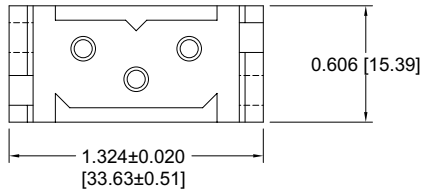
CONTACT HOLE PATTERN STRAIGHT PRINTED BOARD MOUNT



Suggest $\varnothing 0.114$ [2.90] finished holes in printed board for straight solder printed board mount contacts.

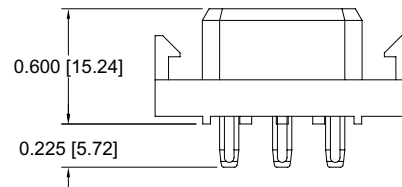
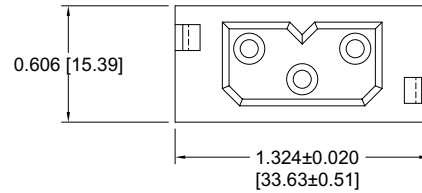
Suggest $\varnothing 0.123 \pm 0.003$ [3.15 $\pm$ 0.08] holes in printed board for mounting connector with push-on fasteners or 0.100 [2.54] for mounting connector with #2 screws.

COMPLIANT TERMINATION CONNECTORS CODE 93, 0.225 [5.72] CONTACT EXTENSION



Part Number:
PLB3W3M93ST30*

See page 57
for Installation
Tooling.

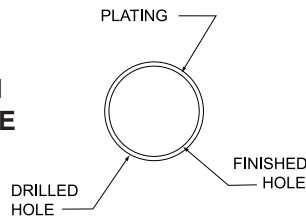


Part Number:
PLB3W3F93ST30*

SUGGESTED PRINTED BOARD HOLE SIZES FOR COMPLIANT TERMINATION CONNECTORS

COMPLIANT TERMINATION CONTACT HOLE				
BOARD TYPE	CONTACT SIZE	DRILL HOLE SIZE	RECOMMENDED PLATING	FINISHED HOLE SIZES
TIN-LEAD SOLDER PCB	12	$\varnothing 0.100 \pm 0.001$ [$\varnothing 2.54 \pm 0.03$]	0.0006 [15 μ] minimum solder over 0.0010 [25 μ] min. copper	$\varnothing 0.094 \pm 0.002$ [$\varnothing 2.39 \pm 0.05$]

COMPLIANT TERMINATION CONTACT HOLE



Note: For PCB plating
compositions not shown,
consult Technical Sales.

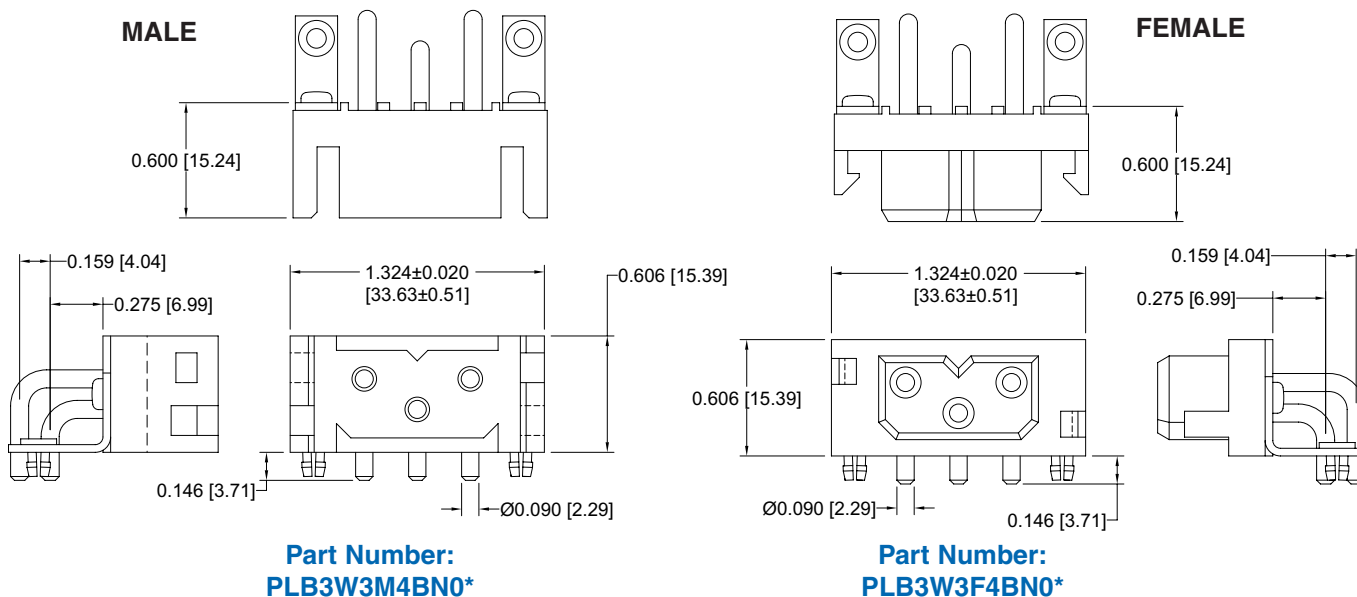


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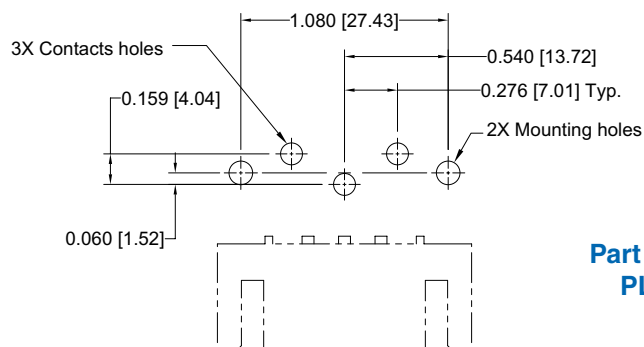
90° SOLDER PRINTED BOARD CONNECTORS

Power
Connection
Systems

RIGHT ANGLE PRINTED BOARD MOUNT CONNECTORS CODE 4, 0.146 [3.71] CONTACT EXTENSION

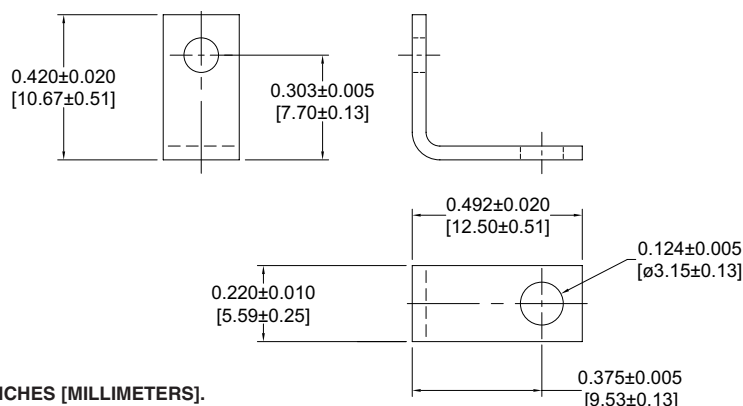


CONTACT HOLE PATTERN RIGHT ANGLE PRINTED BOARD MOUNT CONNECTORS



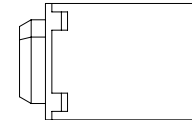
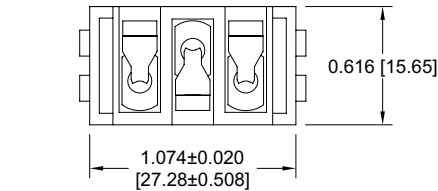
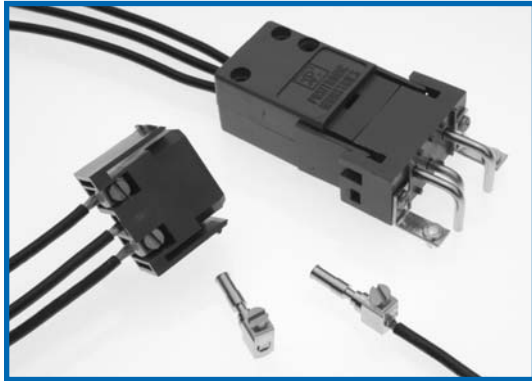
Suggest Ø 0.114 [2.90] finished holes in printed board for 90 solder printed board mount contacts.
Suggest Ø 0.123±0.003 [3.15±0.08] holes in printed board for mounting connector with push-on fasteners.

RIGHT ANGLE METAL ANGLE BRACKET CODE B OR BN ON STEP 5 OF ORDERING INFORMATION PAGE

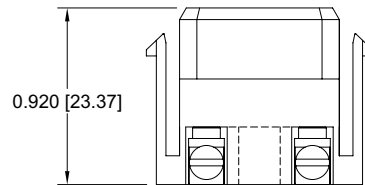


CODE 71 SCREW TERMINATION CONNECTOR

Screw terminations allows for convenient field installation when required.



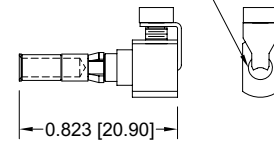
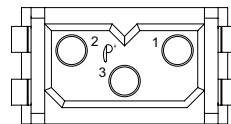
Typical Part Number:
PLB3W3F7100A1
supplied with 3 contacts



Replacement Contact

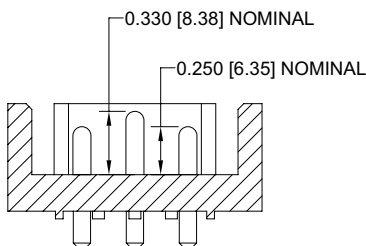
For use with wire
size 12 awg [4.0mm²]
or smaller

**Typical
Part Number:**
FST612N2



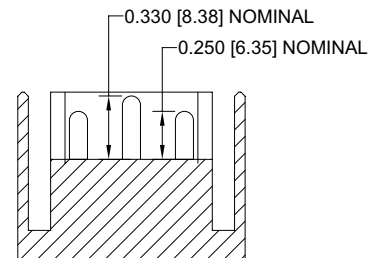
SEQUENTIAL MATING CONTACTS

BOARD MOUNT CONNECTORS



Modification number 338.0 (see step 8 of the ordering information) allows for board mount connector to have position 3 loaded with a 0.330 [8.38] nominal mating length contact and positions 1 and 2 loaded with 0.250 [6.35] nominal mating length contacts. Contact technical sales for additional sequencing options.

CRIMP AND PANEL MOUNT CONNECTORS



MC610NS and MC612N crimp contacts and MS610NS and MS612N solder cup contacts to be used for 0.330 [8.38] nominal mating length. MC610NS-228.2 and MC612N-228.2 crimp contacts and MS610NS-228.2 and MS612N-228.2 solder cup contacts to be used for 0.250 [6.35] nominal mating length.

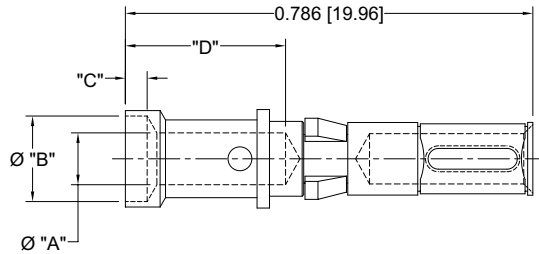


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CRIMP CONTACT

Power
Connection
Systems

REMOVABLE CRIMP CONTACTS SIZE 12



FEMALE CONTACTS

PART NUMBER	WIRE SIZE AWG/[mm ²]	Ø A	Ø B	C	D
FC610N2S*	10/[6.0]	0.147 [3.73]	N/A	N/A	0.254 [6.45]
FC612N2	12/[4.0]	0.100 [2.54]	0.165 [4.19]	0.042 [1.06]	0.309 [7.85]

See page 54 for Application Details.

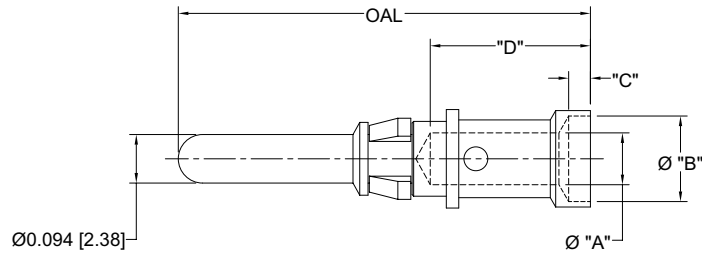
* "S" in part number indicates high conductivity material.
See page 47 for current ratings.

Material: Copper alloy.

Finish: Gold flash over nickel.

0.000030 [0.75µ] gold over nickel available by adding -14 suffix onto part number. Example: FC612N2-14.

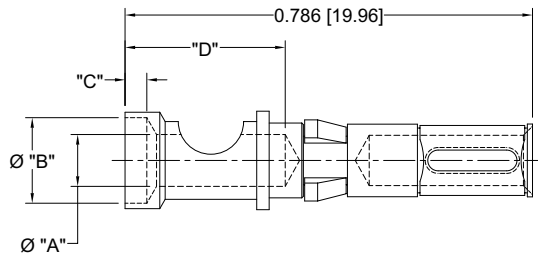
0.000050 [1.27µ] gold over nickel available by adding -15 suffix onto part number. Example: MC112N-15.



MALE CONTACTS

PART NUMBER	WIRE SIZE AWG/[mm ²]	Ø A	Ø B	C	D	OAL
MC610NS*	10/[6.0]	0.147 [3.73]	N/A	N/A	0.254 [6.45]	0.795 [20.19]
MC612N	12/[4.0]	0.100 [2.54]	0.165 [4.19]	0.042 [1.06]	0.309 [7.85]	0.795 [20.19]
MC610NS-228.2*	10/[6.0]	0.147 [3.73]	N/A	N/A	0.254 [6.45]	0.714 [18.14]
MC612N-228.2	12/[4.0]	0.100 [2.54]	0.165 [4.19]	0.042 [1.06]	0.309 [7.85]	0.714 [18.14]

REMOVABLE SOLDER CUP CONTACTS SIZE 12



FEMALE CONTACTS

PART NUMBER	WIRE SIZE AWG/[mm ²]	Ø A	Ø B	C	D
FS610N2S*	10/[6.0]	0.147 [3.73]	N/A	N/A	0.254 [6.45]
FS612N2	12/[4.0]	0.100 [2.54]	0.165 [4.19]	0.042 [1.06]	0.309 [7.85]

See page 54 for Application Details.

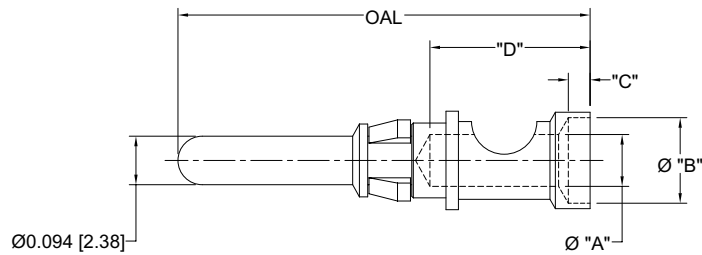
* "S" in part number indicates high conductivity material.
See page 47 for current ratings.

Material: Copper alloy.

Finish: Gold flash over nickel.

0.000030 [0.75µ] gold over nickel available by adding -14 suffix onto part number. Example: FC612N2-14.

0.000050 [1.27µ] gold over nickel available by adding -15 suffix onto part number. Example: MC112N-15.



MALE CONTACTS

PART NUMBER	WIRE SIZE AWG/[mm ²]	Ø A	Ø B	C	D	OAL
MS610NS*	10/[6.0]	0.147 [3.73]	N/A	N/A	0.254 [6.45]	0.795 [20.19]
MS612N	12/[4.0]	0.100 [2.54]	0.165 [4.19]	0.042 [1.06]	0.309 [7.85]	0.795 [20.19]
MS610NS-228.2*	10/[6.0]	0.147 [3.73]	N/A	N/A	0.254 [6.45]	0.714 [18.14]
MS612N-228.2	12/[4.0]	0.100 [2.54]	0.165 [4.19]	0.042 [1.06]	0.309 [7.85]	0.714 [18.14]

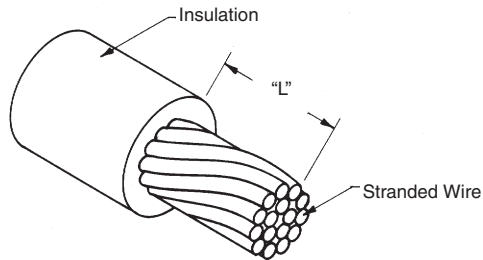
CRIMPING INFORMATION FOR HOT PLUG A.C. / D.C. INPUT POWER CRIMP CONTACTS

USE INDICATED POSITRONIC TOOLS FOR BEST RESULTS

Step 1: Strip wire to indicated length.

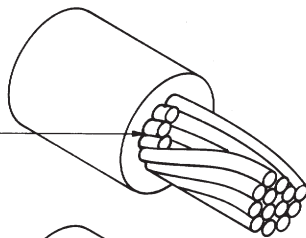
- Take care not to:
- Damage or remove strands.
 - Untwist or overtwist strands.
 - Leave insulation particles on strands.
 - Damage insulation.

Correctly
Stripped Wire:

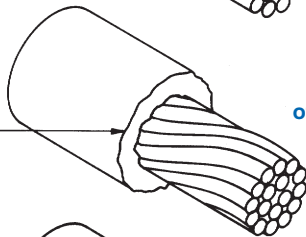


CONTACT	"L" ±0.020 [0.51]
MC/FC610	0.235 [5.97]
MC/FC612	0.290 [7.37]

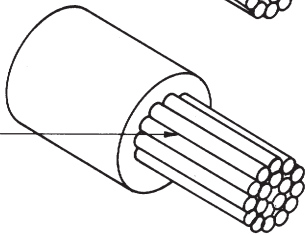
Strands damaged
or removed
by stripping tool.



Insulation cut
incorrectly.

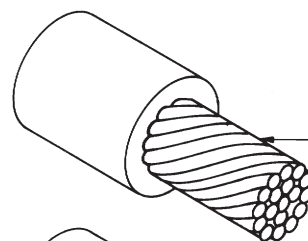


Strands
untwisted

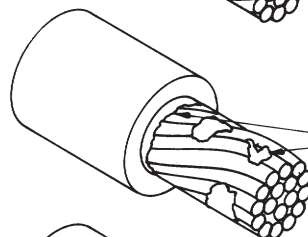


Examples
of Stripping Faults

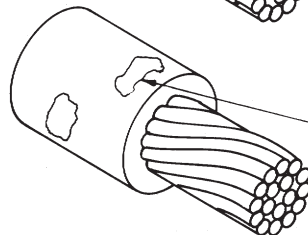
Strands
overtwisted



Particles of insulation
left on the stripped
part of the wire.



Wire insulation
damaged



Step 2: Crimp wire to contact.

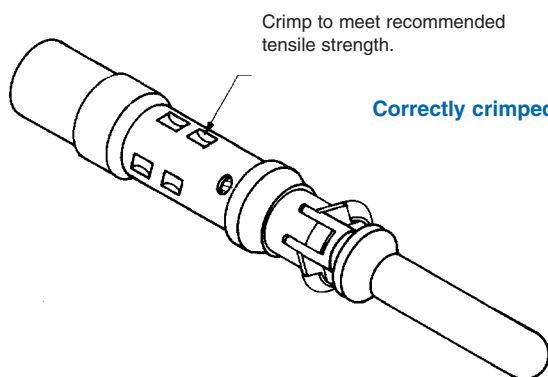
- For Hand Crimp Tool:**
- Place contact into crimping tool.
 - Insert wire into contact.
 - Center contact by slowly closing crimping tool until crimp indenters make contact with crimp barrel.
 - Complete the cycle of the crimping tool in one smooth motion.
 - Remove the crimped contact.



CRIMPING INFORMATION FOR HOT PLUG A.C. / D.C. INPUT POWER CRIMP CONTACTS

Step 3: Inspect crimp.

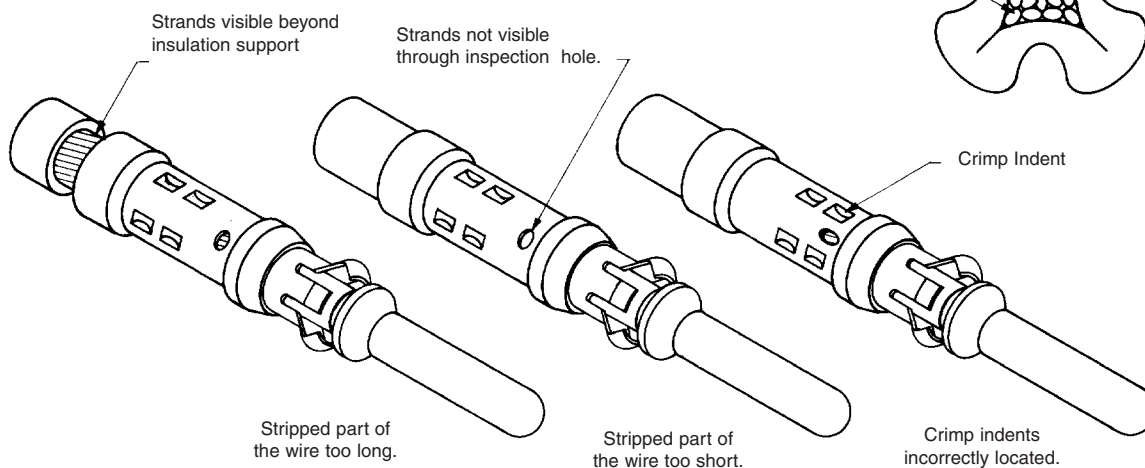
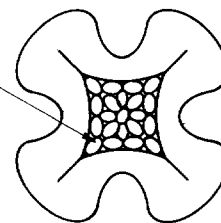
- For All Tools:**
- Strands to be visible through the inspection hole.
 - Strands not to be visible beyond the insulation support.
 - Crimped contact to meet recommended conductor tensile force shown in chart (below, left).
 - Check for peeled gold and bent contact.



**Cross section of
correctly crimped contact**

Detail shown
is for MC/FC612 Contact

Stripped wires compressed
for improved conduction



Examples of Crimping Faults

Positronic Recommended Conductor Tensile Strength	
WIRE SIZE	AXIAL LOAD
10 AWG [5.3mm ²]	150 lbs. [667 N]
12 AWG [4.0mm ²]	110 lbs. [489 N]

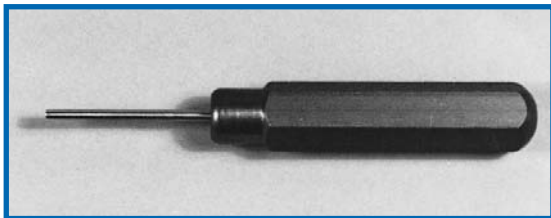
POSITRONIC RECOMMENDED TOOLS		
TOOL DESCRIPTION	MC/FC610	MC/FC612
Hand Crimp Tool	9509-6-0-0	9501-0-0-0 with 9502-19-0-0 Positioner
Contact Insertion Tool	9099-3-0-0	9099-3-0-0
Contact Extraction Tool	2711-0-0-0	2711-0-0-0

CONTACT CRIMPING TOOLS AND ACCESSORIES

CONTACT INSERTION TOOLS

PART NO. 9099-3-0-0

An easy-to-use contact insertion tool. Reference the photo below for recommended insertion procedure.



CONTACT EXTRACTION TOOLS

PART NO. 2711-0-0-0

These contact extraction tools simplify the extraction of removable contacts from the connector insulators. Simply insert the hollow tool tip over the male or female contact from the front face of the insulator, rotate the tool slightly while increasing the pushing force against the butt of the extraction tool. The contact will be released from the insulator retention system and will "pop out" of the rear face of the insulator.



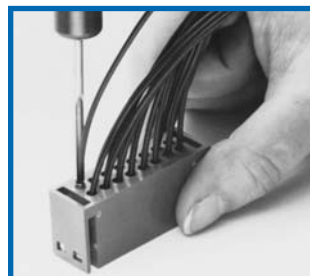
CYCLE-CONTROLLED STEP ADJUSTABLE HAND CRIMP TOOLS

PART NO. 9501-0-0-0
SHOWN FOR REFERENCE ONLY

Features of this positive ratchet action tool includes eight (8) impression crimp on wires and contacts of various compositions. A positioner is required for use with this basic tool.



CONTACT INSERTION



CONTACT EXTRACTION





PRESS-FIT USER INFORMATION

When properly used, Positronic Industries' Bi-Spring Power Press-Fit Terminations provide reliable service even under severe conditions.

Connectors utilizing this leading technology press-fit contact are easy to install:

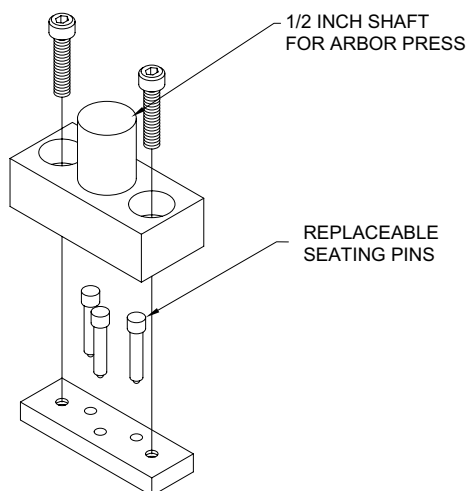
1. Choose the proper tooling. Inexpensive insertion tooling and single contact repair tooling are available from Positronic.
2. Insert the connector into the P.C. board or backplane and seat connector fully.
3. Secure the connector to the P.C. board or backplane using two self-tapping screws. The screws should be #2 self-tapping screws for plastic.

Need to repair a single contact because of damage in manufacturing, testing, or field use?

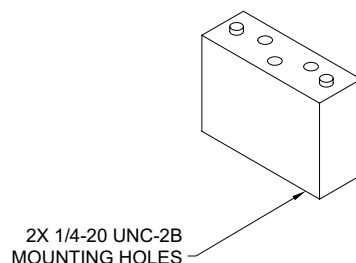
1. Choose the proper contact extraction tool.
2. Push the contact out with a firm, steady force. Remember, excessive force is not required.
3. Install a new contact with the proper contact insertion tool. You are finished. Replacing a single contact instead of an entire connector can allow considerable cost savings. This is particularly true when considering the risk of damage to P.C. boards and backplanes that can occur if the entire connector must be replaced.

COMPLIANT TERMINATION PRESS-FIT CONNECTOR INSTALLATION TOOLS

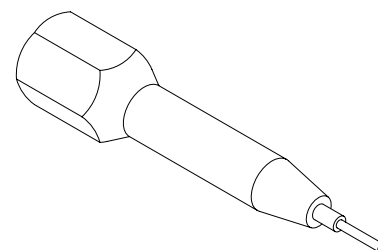
Seating Tool



Support Tool



Single Contact Insertion or Extraction Tool

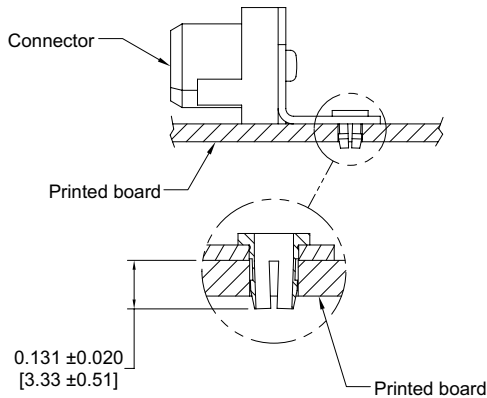


Female connector seating tool
Male connector tool not shown

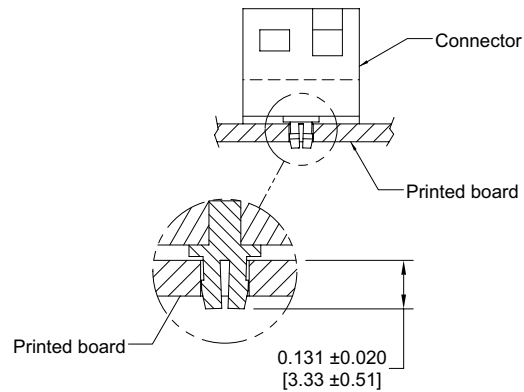
CONNECTOR VARIANT	CONNECTOR SEATING TOOL WITH ARBOR PRESS SHAFT	CONNECTOR SEATING TOOL WITHOUT ARBOR PRESS SHAFT	SEATING TOOL REPLACEMENT PINS	SUPPORT TOOL	CONTACT INSERTION TOOL	CONTACT EXTRACTION TOOL
PLB3W3M	9513-6-0-41	9513-6-10-41	—	9513-401-6-41	9513-104-0-41	9513-106-0-0
PLB3W3F	9513-18-1-41	9513-18-11-41	855-347-11-41		9513-105-0-41	

PUSH-ON FASTENERS

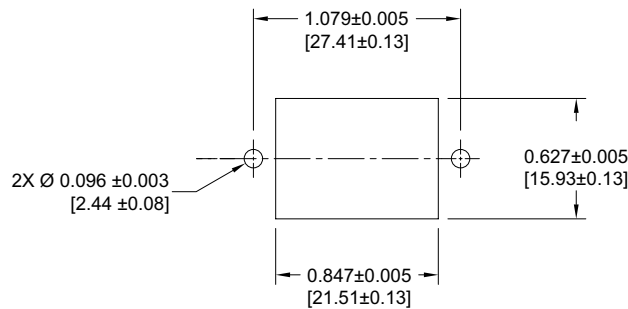
RIGHT ANGLE CONNECTORS CODE B OR BN ON STEP 5 OF ORDERING INFORMATION PAGE



STRAIGHT SOLDER CONNECTORS CODE N ON STEP 5 OF ORDERING INFORMATION PAGE

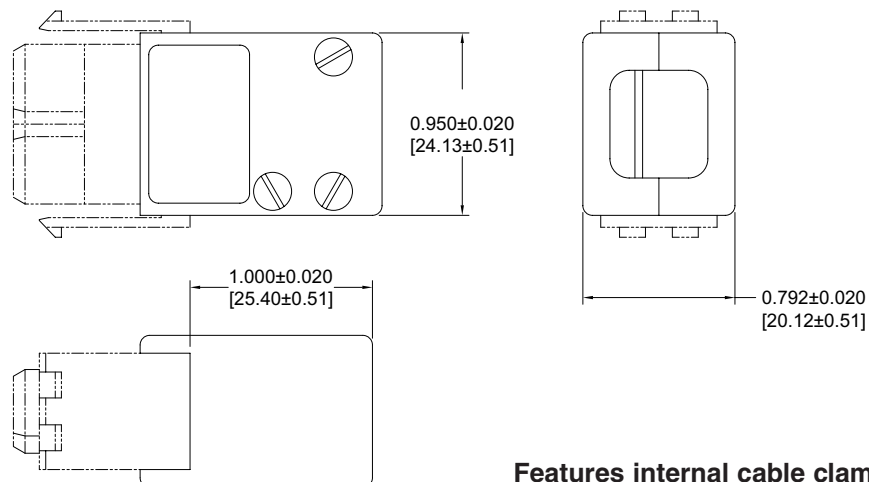


PANEL CUTOUT



HOOD

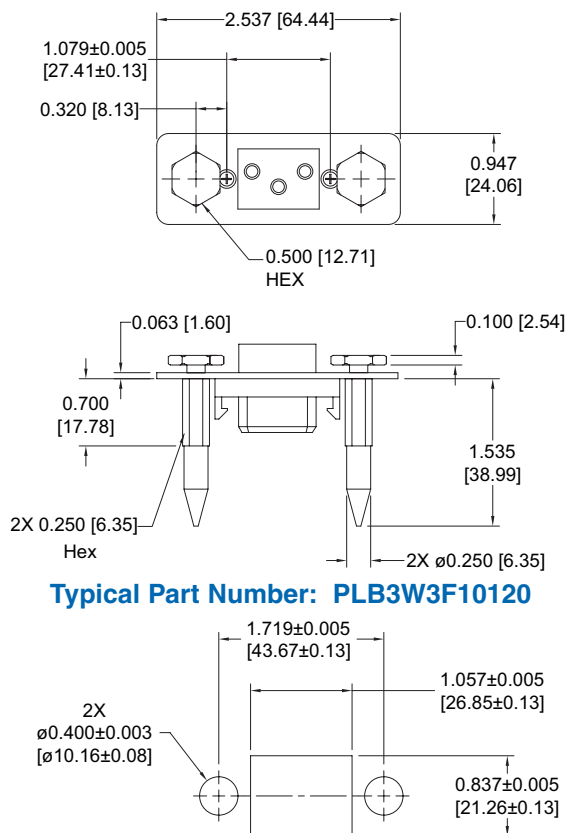
CODE 5 OF STEP 6 OF ORDERING INFORMATION PAGE



Features internal cable clamp.

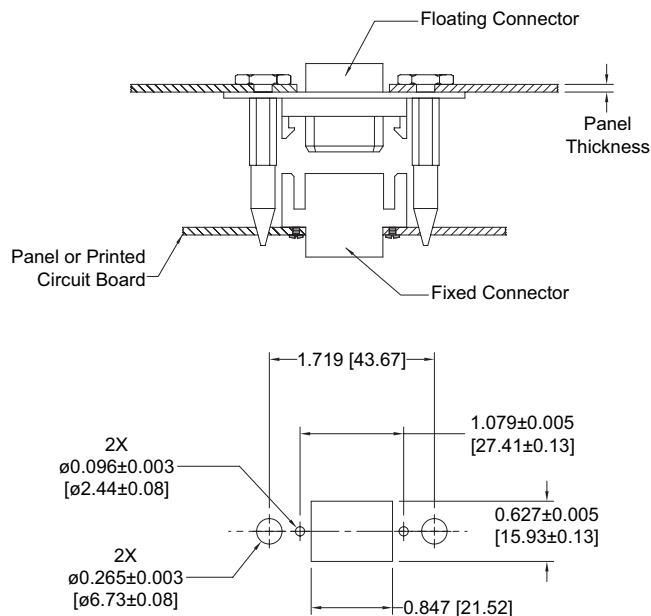


BLIND MATE SYSTEM



Typical Part Number: **PLB3W3F10120**

PANEL CUTOUT FOR FLOATING CONNECTOR



PANEL CUTOUT FOR FIXED CONNECTOR

PART NUMBER	PANEL THICKNESS
PLB3W3*10110	0.040 [1.02]
PLB3W3*10120	0.060 [1.52]
PLB3W3*10130	0.090 [2.28]
PLB3W3*10140	0.120 [3.05]

MATERIALS AND FINISHES:

- Blind mating plate - Steel, zinc plate with chromate seal.
- Blind mating guide - Stainless steel, passivated.
- Float screw - Steel, zinc plate with chromate seal.
- Blind mating system provides lead-in for 0.100 [2.54] axial misalignment.
- Blind mating system sold in a kit containing a connector-plate assembly, blind mate guides, and float screws.

NOTE: Panel thickness may impact the orientation of mating end of blind mate pin. Shimming between the panel and the head of the blind mate pin may be necessary to minimize tilt of the blind mate system. Contact technical sales for additional information.

MOUNTING SCREWS

Stresses that occur during coupling and uncoupling of connectors or through shock and vibration of systems can be transferred to backplanes or P.C. boards through press-fit connector terminations. Avoid concern over electrical integrity of the connector to board interface by using mounting screws. Bellcore GR1217 details a preference for the use of mounting hardware and we recommend this practice.

Screws are #2 self-tapping for plastic.
Consult Technical Sales if an alternate screw is required.

MOUNTING STYLE OPTION	PART NUMBER	THREAD LENGTH	P.C. BOARED THICKNESS
ST2	4546-7-1-16	0.250±0.030 [6.35±0.76]	0.093 [2.36]
ST3	4546-7-2-16	0.312±0.030 [7.93±0.76]	0.125 [3.18]

ORDERING INFORMATION - CODE NUMBERING SYSTEM

Specify Complete Connector By Selecting An Option From Step 1 Through 7

STEP	1	2	3	4	5	6	7	8	9
EXAMPLE	PLB	3W3	F	3	0	0	A1	/AA	—

STEP 1 - BASIC SERIES

PLB - PLB Series
PLBH - High conductivity contacts.

STEP 2 - CONNECTOR VARIANTS

3W3 - Three size 12 contacts

STEP 3 - CONNECTOR GENDER

M - Male
F - Female

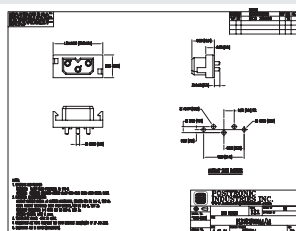
STEP 4 - CONTACT TERMINATION TYPE

- 0 - Order contacts separately for cable connectors for connection systems 5, 6, 7, 8 and 9.
- 1 - Removable contact, panel mount connector for connection system 8. Order contacts separately.
- 3 - Solder, Straight Printed Board Mount with 0.146 [3.71] tail extension for connection systems 1, 4, and 6.
- 4 - Solder, Right Angle Printed Board Mount with 0.146 [3.71] tail extension for connection systems 1, 2 and 5.
- 71 - Screw termination cable connector. Supplied with 3 contacts.
- 93 - Press-Fit, Compliant Termination for 0.090 [2.29] to 0.175 [4.45] thick P.C. board, for connector systems 1, 4, and 6.

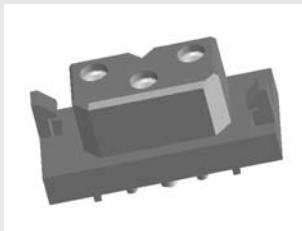
STEP 5 - MOUNTING STYLE

- 0 - None.
- B - Metal Right Angle Mounting Bracket
- BN - Metal Right Angle Mounting Bracket, with Push-on Fastener.
- N - Push-on Fastener for Straight Printed Board Mount Connectors.
- ST2 - Self-tapping screws 2-28 x 0.250 [6.35] length for 0.093 [2.36] thick board. Use with contact code 3 or 93.
- ST3 - Self-tapping screws 2-28 x 0.312 [7.92] length for 0.125 [3.18] thick board. Use with contact code 3 or 93.

NOTE: Once you have made a connector selection, contact Technical Sales if you would like to receive a drawing in DXF, PDF format or a 3-dimensional IGES file.



SK Drawing



3-dimensional model

STEP 9 - SPECIAL OPTIONS

338.0 - Sequential mating. Position 3 first mate last break. Available on 3, 4, and 93 only.

CONTACT TECHNICAL SALES
FOR SPECIAL OPTIONS

STEP 8 - ENVIRONMENTAL COMPLIANCE OPTIONS

/AA - Compliant per EU Directive 2002/95/EC (RoHS)



NOTE: If compliance to environmental legislation is not required, this step will not be used. Example: PLB3W3F300A1

STEP 7 - CONTACT PLATING FOR PRINTED BOARD CONNECTORS

- 0 - Crimp Contacts ordered separately.
- A1 - Gold flash over nickel on mating end and termination end.
- A2 - Gold flash over nickel on mating end and 0.00020 inch [5.00μ] tin-lead solder coat on termination end. Not available with contact code 71 or 93.
- C1 - 0.000030 inch [0.75μ] gold over nickel on mating end and termination end.
- C2 - 0.000030 inch [0.75μ] gold over nickel on mating end and 0.00020 inch [5.00μ] tin-lead solder coated termination end. Not available with contact code 71 or 93.
- D1 - 0.000050 inch [1.27μ] gold over nickel on mating end and termination end.
- D2 - 0.000050 inch [1.27μ] gold over nickel on mating end and 0.00020 inch [5.00μ] tin-lead solder coated termination end. Not available with contact code 71 or 93.

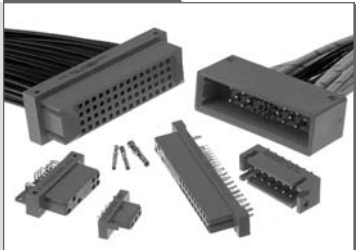
STEP 6 - CABLE ADAPTER AND BLIND MATE SYSTEM

- 0 - None.
- 5 - Top Opening Hood.
- 11 - Blind Mating System for 0.040 [1.02] thick panel.
- 12 - Blind Mating System for 0.060 [1.52] thick panel.
- 13 - Blind Mating System for 0.090 [2.29] thick panel.
- 14 - Blind Mating System for 0.120 [3.05] thick panel.

POSITRONIC PRODUCTS

Power

Contact Sizes: 0, 8, 12, 16, 20 and 22
Current Ratings: To 150 amperes
Terminations: Crimp, wire solder, straight solder, right angle solder, straight press-fit and right angle press-fit
Configurations: Multiple variants in a variety of package sizes
Compliance: PICMG 2.11, PICMG 3.0, VITA 41



FEATURES: Hot swap capability • AC/DC operation in a single connector • Signal contacts for hardware management • Blind mating • Sequential mating • Large Surface Area Contact Mating System • Wide variety of accessories • Customer specified contact arrangements

D-Subminiature

Contact Sizes: 8, 20 and 22
Current Ratings: To 40 amperes nominal
Terminations: Crimp, wire solder, straight solder, right angle solder and straight press-fit
Configurations: Multiple variants in both standard and high densities
Qualifications: MIL-DTL-24308, Goddard Space Flight 311P, SAE AS 39029, IP65, IP67



FEATURES: Three performance levels available: professional quality, military quality and space-flight quality provide multiple performance to cost choices • Options include thermocouple contacts, filtered, environmentally sealed and dual port package including mixed density • Broad selection of accessories

Rectangular

Contact Sizes: 16, 20 and 22
Current Ratings: To 13 amperes
Terminations: Crimp, wire solder, straight solder and right angle solder
Configurations: Multiple variants in both standard and high densities
Qualifications: MIL-DTL-28748, SAE AS 39029, CCITT V.35



FEATURES: Two performance levels available: industrial quality and military quality provide two performance to cost choices • Large Surface Area Contact Mating System • A wide variety of accessories • Broad selection of contact variants and package sizes

Circular

Contact Sizes: 12, 16, 20 and 22
Current Ratings: To 25 amperes nominal
Terminations: Crimp, wire solder, straight solder and right angle solder
Configurations: Multiple variants in two package sizes
Qualifications: Environmental protection to IP67



FEATURES: Non-corrodible / lightweight composite construction • EMI/RFI shielded versions • Thermocouple contacts • Environmentally sealed versions • Rear insertion/front release of removable contacts • Two level sequential mating • Overmolding available on full assemblies

Cable

All Positronic connector products can be supplied as part of cable assemblies whose technical characteristics would reflect those of the connectors being used within the assembly.



FEATURES: Shorten the supply chain and reduce additional costs and delays by "cablizing" • Overmolding available • Shielded and environmentally sealed versions available • Power cables and access boxes which meet the SAE J2496 specification

Hermetic

Contact Sizes: 8, 12, 16, 20 and 22
Current Ratings: To 40 amperes nominal
Terminations: Feed through is standard; flying leads and board mount available upon request
Configurations: See D-Subminiature and Circular Configurations above
Qualifications: Space-D32



FEATURES: Intended for use as an electrical feedthrough in high vacuum applications • Leakage rate: 5×10^{-9} mbar.l/s @ vacuum 1.5×10^{-5} atm • Signal, power, coax and high voltage versions available • Connectors can be mounted on flange assembly per customer specification

For more information, visit www.connectpositronic.com or call your nearest Positronic sales office as given on the back of this catalog.



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Factory Sales and Engineering Offices (800) 641-4054

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CANADA
Factory Sales and Engineering Offices (800) 327-8272

ASIA/PACIFIC LOCATIONS

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Factory Sales and Engineering Offices (65) 6842-1419

ASIA, Direct Sales Offices
Taiwan Sales Office (88) 62-2937-8775
China Sales Office (86) 755-2643-7578
Korea Sales Office (82) 31-909-8047/8

JAPAN
Sales and Engineering Offices (81) 3-5812-7720

INDIA
Factory Sales and Engineering Offices (91) 20-2439-4810

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Technical Agents in Malaysia, Australia, New Zealand, Philippines,
Hong Kong, Vietnam, Thailand

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EUROPE, Direct Sales Offices
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Southern France Sales Office 33 (0)4 67 72 80 28
Italy Sales Office 39 (0)2 54 116 106
Northern Germany Sales Office 49 (0)30 34 504 307
Southern Germany Sales Office 49 (0)2351 63 47 39

EUROPE, Technical Agents
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