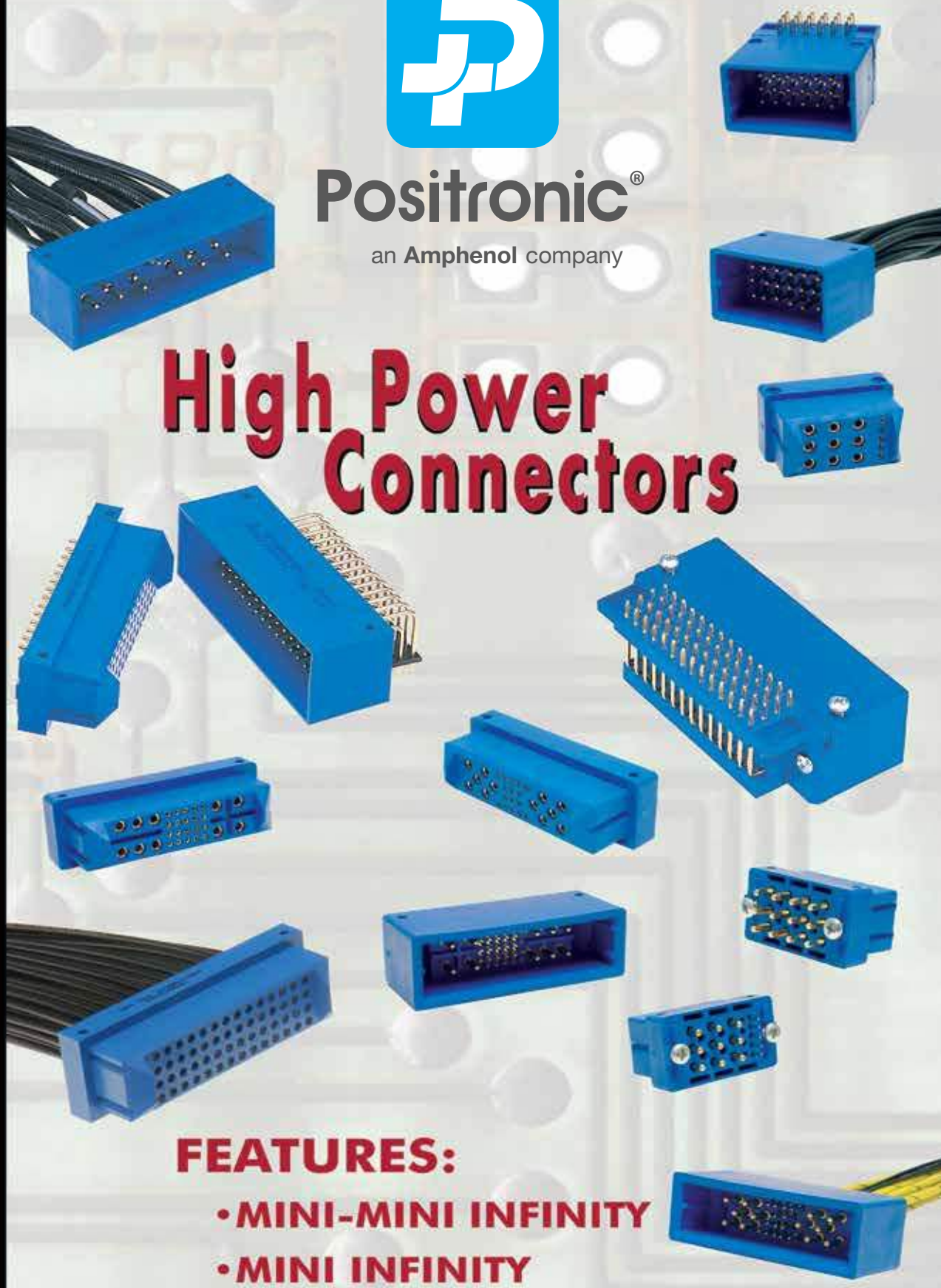
INFINITY

Power Connectors

Positronic®

an **Amphenol** company

High Power Connectors



FEATURES:

- MINI-MINI INFINITY
- MINI INFINITY
- INFINITY

Catalog C-012 Rev. D2

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

Machining

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

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. Soon certification to AS9100!
- 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

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
- Facilities located in USA, France, India, Puerto Rico, and Singapore.

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

#4,900,261 #5,255,580 #5,329,697
#6,260,268 #6,835,079 #7,115,002

Patented in Canada, 1992 Other Patents Pending

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

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

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

POSITRONIC IS AN ITAR REGISTERED COMPANY

Positronic Industries is proud to participate in the important work of the following organizations....

PICMG® and PICMG® logo are registered trademarks of the PCI Industrial Computers Manufacturers Group.

www.picmg.com

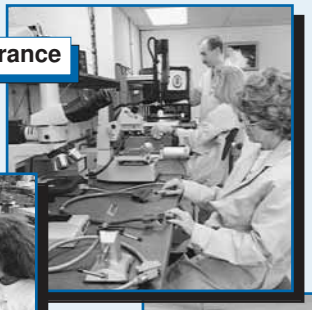
www.psma.com

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

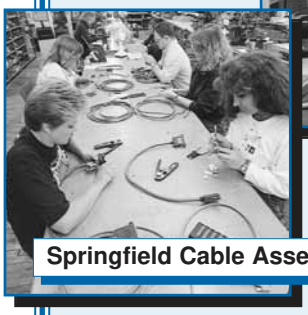
POSITRONIC CABLIZED CONNECTORS

SAVE TIME AND MONEY! *Let Positronic support your connector requirements by cablizing your* ***Power*** *connector selection. Positronic offers technical support and manufacturing capability for cablized connectors. Contact your factory direct sales representative for details!*

Engineering Management



Quality Assurance



Springfield Cable Assembly

Puerto Rico Cable Assembly

Design and Testing Service

Positronic Industries' Engineering Department:

1. Works closely with customers.
2. Prepares component and cablized connector systems, hardware design, and performance specifications.
3. Designs each system in accordance with applicable customer, domestic, and international standards.
4. Defines and directs required performance and verification testing.

Connectors Designed To Customer Specifications

Positronic connectors can be modified to customers specifications.

Examples: select loading of contacts for cost savings or to gain creepage and clearance distances; longer PCB terminations; customer specified hardware.

Positronic can develop and tool new connector designs with reasonable price and delivery.

Contact Technical Sales with your particular requirements.

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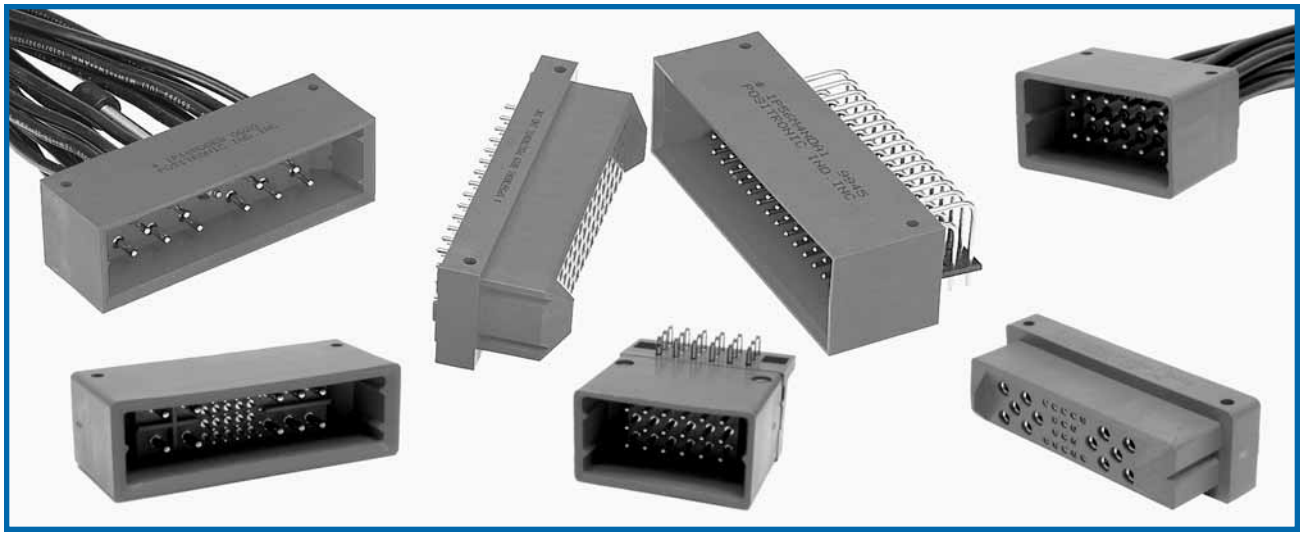
INFINITY



HIGH POWER CONNECTION SYSTEMS FEATURE:

The Infinity High Power Connector series is offered to the electronics industry as a high power interface with a wide variety of features. The exceptional features of this series provide solutions for system design challenges created by increasing power consumption. Notable features include:

- Solid machined true power contacts which provide superior power density
- Single contact ratings up to 40 amperes continuous for Infinity series and up to 100 amperes continuous for Mini Infinity series.
- Hot-plug capability
- Outstanding blind mating
- Sequential contact mating options
- A.C. or D.C. Input
- Recessed female contacts for safety considerations
- Multiple power contacts provide efficient current distribution for multi-voltage centralized power applications
- Multiple power contacts can be paralleled together for single voltage distributed power applications
- A wide variety of options, termination styles and contact variations
- U.L and C.S.A recognition

POSITRONIC INDUSTRIES RoHS Compliant per EU Directive 2002/95/EC

RoHS Compliant options available!

These outstanding features make the Infinity an excellent choice as a power interface for many power applications including telecom, datacom, and computing platforms.

Positronic Industries
connectpositronic.com

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Infinity
High Power
Connector

G E N E R A L I N F O R M A T I O N

M M I P S E R I E S

NEW!

M I P S E R I E S

NEW!

I P S E R I E S

DIMENSIONS ARE IN MILLIMETERS [INCHES].
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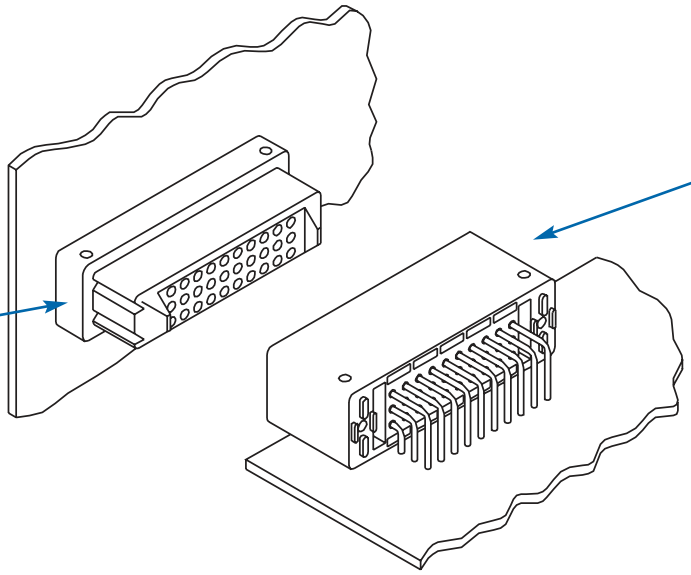
REMOVABLE CONTACTS

APPLICATION TOOLS

ACCESSORIES

✦ SYSTEM 1 ✦

MOTHER BOARD
DAUGHTER BOARD



MALE:
Right Angle (90º) Solder Contacts

Typical Part Numbers:
MIP30M400A1
IP56M400A1
Right Angle (90º) Press-Fit contacts available for MIP30, MMIP18, and IP56 variant connectors

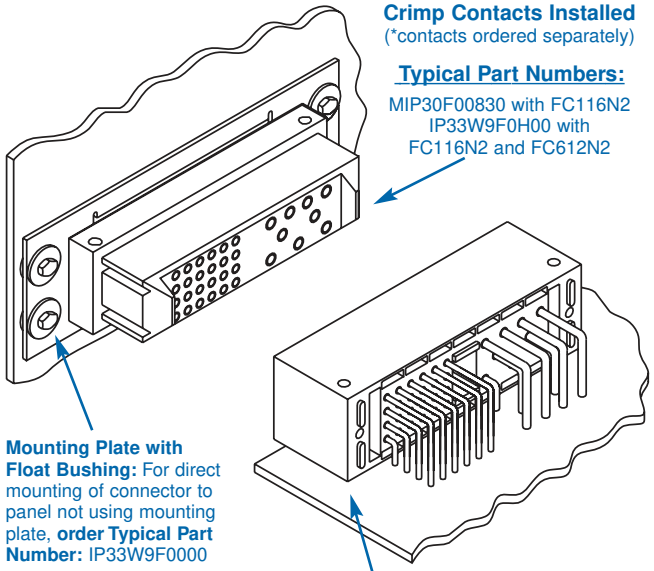
FEMALE:
Straight Solder or Press-Fit Contacts

Typical Part Numbers:
MIP30F300A1 - Straight Mount
IP56F300A1 - Straight Mount

✻ NOTE:
Crimp removable contacts must be ordered separately. See pages 41-48 of this catalog for ordering information.

✦ SYSTEM 2 ✦

PANEL MOUNT TO
RIGHT ANGLE (90º) BOARD MOUNT



✻ FEMALE:
Crimp Contacts Installed
(*contacts ordered separately)

Typical Part Numbers:
MIP30F00830 with FC116N2
IP33W9F0H00 with FC116N2 and FC612N2

Mounting Plate with Float Bushing: For direct mounting of connector to panel not using mounting plate, **order Typical Part Number:** IP33W9F0000

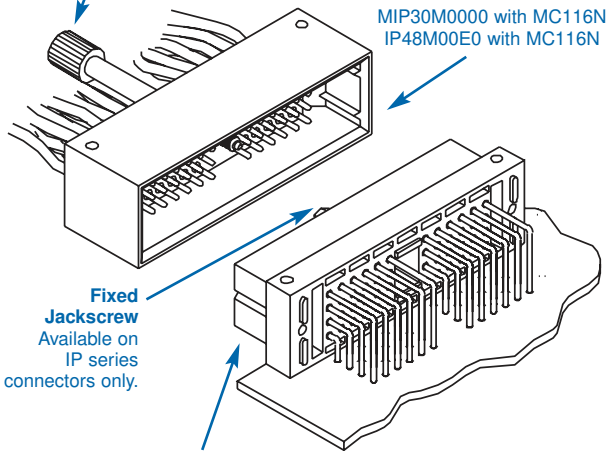
Float mount options available, see pages 58 & 59.

MALE:
Right Angle (90º) Solder Contacts

Typical Part Numbers:
MIP30M400A1
IP33W9M400A1
Right Angle (90º) Press-Fit contacts available for MIP30, MMIP18, IP48 and IP56 variant connectors

✦ SYSTEM 3 ✦

CABLE TO RIGHT ANGLE
(90º) BOARD MOUNT



Short Rotating Jackscrew Available on IP series connectors only.

✻ MALE:
Crimp Contacts Installed
(*contacts ordered separately)

Typical Part Numbers:
MIP30M0000 with MC116N
IP48M00E0 with MC116N

Fixed Jackscrew Available on IP series connectors only.

FEMALE:
Right Angle (90º) Solder Contacts

Typical Part Numbers:
MIP30F400A1
IP48F40TA1
Right Angle (90º) Press-Fit contacts available for MIP30, MMIP18, IP48, and IP56 variant connectors

DIMENSIONS ARE IN MILLIMETERS [INCHES].
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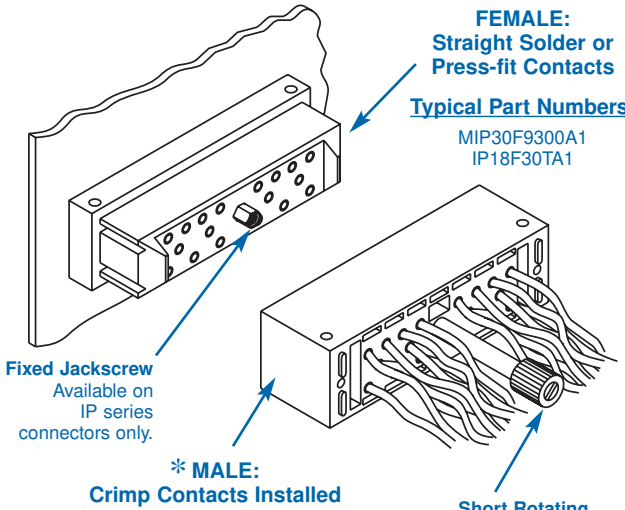
✦ SYSTEM 4 ✦

CABLE TO STRAIGHT BOARD MOUNT



FEMALE:
Straight Solder or Press-fit Contacts

Typical Part Numbers:
MIP30F9300A1
IP18F30TA1

Fixed Jackscrew
Available on IP series connectors only.

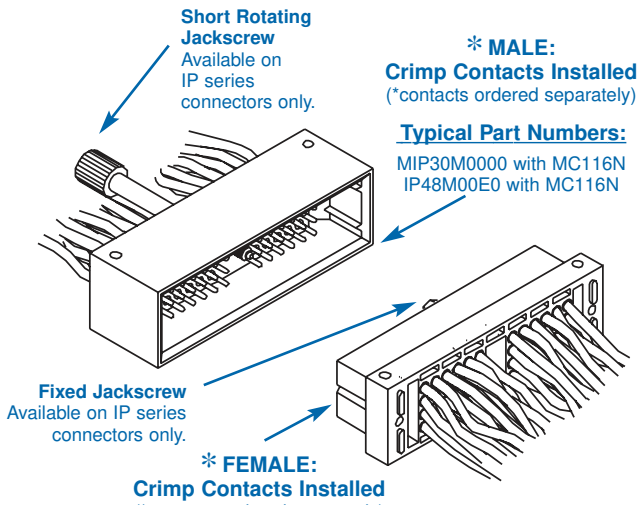
*** MALE:**
Crimp Contacts Installed
(*contacts ordered separately)

Typical Part Numbers:
MIP30M0000 with MC116N
IP18M00E0 with MC116N

Short Rotating Jackscrew
Available on IP series connectors only.

✦ SYSTEM 5 ✦

CABLE TO CABLE CRIMP CONTACTS



Short Rotating Jackscrew
Available on IP series connectors only.

*** MALE:**
Crimp Contacts Installed
(*contacts ordered separately)

Typical Part Numbers:
MIP30M0000 with MC116N
IP48M00E0 with MC116N

Fixed Jackscrew
Available on IP series connectors only.

*** FEMALE:**
Crimp Contacts Installed
(*contacts ordered separately)

Typical Part Numbers:
MIP30F0000 with FC116N2
IP48F00T0 with FC116N2

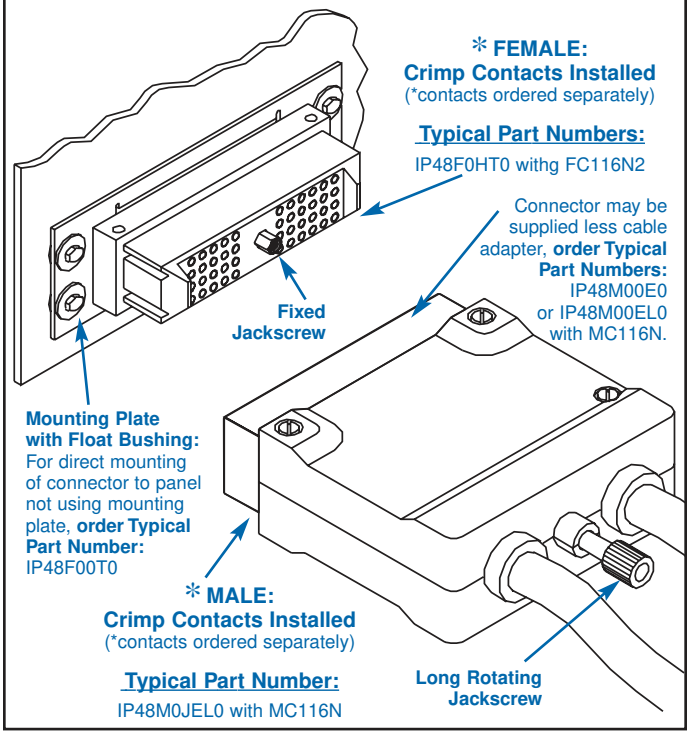
*** NOTE:**

Crimp removable contacts must be ordered separately. See pages 41-48 of this catalog for ordering information.

✦ SYSTEM 6 ✦

PANEL MOUNT TO CABLE CONNECTOR WITH CABLE ADAPTER AND LONG ROTATING JACKSCREW

AVAILABLE ON IP SERIES CONNECTORS ONLY



*** FEMALE:**
Crimp Contacts Installed
(*contacts ordered separately)

Typical Part Numbers:
IP48F0HT0 withg FC116N2

Connector may be supplied less cable adapter, **order Typical Part Numbers:** IP48M00E0 or IP48M00EL0 with MC116N.

Fixed Jackscrew

Mounting Plate with Float Bushing:
For direct mounting of connector to panel not using mounting plate, **order Typical Part Number:** IP48F00T0

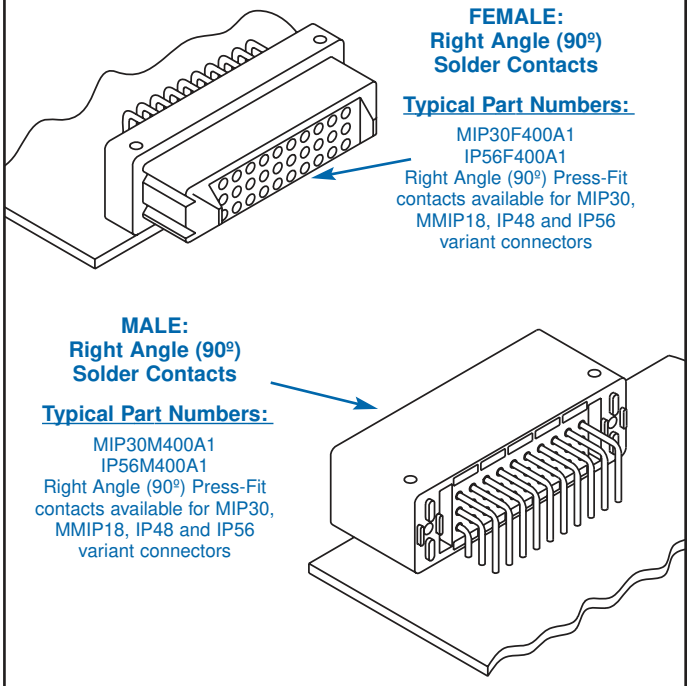
*** MALE:**
Crimp Contacts Installed
(*contacts ordered separately)

Typical Part Number:
IP48M0JEL0 with MC116N

Long Rotating Jackscrew

✦ SYSTEM 7 ✦

RIGHT ANGLE (90º) BOARD MOUNT TO RIGHT ANGLE (90º) BOARD MOUNT



FEMALE:
Right Angle (90º) Solder Contacts

Typical Part Numbers:
MIP30F400A1
IP56F400A1
Right Angle (90º) Press-Fit contacts available for MIP30, MMIP18, IP48 and IP56 variant connectors

MALE:
Right Angle (90º) Solder Contacts

Typical Part Numbers:
MIP30M400A1
IP56M400A1
Right Angle (90º) Press-Fit contacts available for MIP30, MMIP18, IP48 and IP56 variant connectors

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:

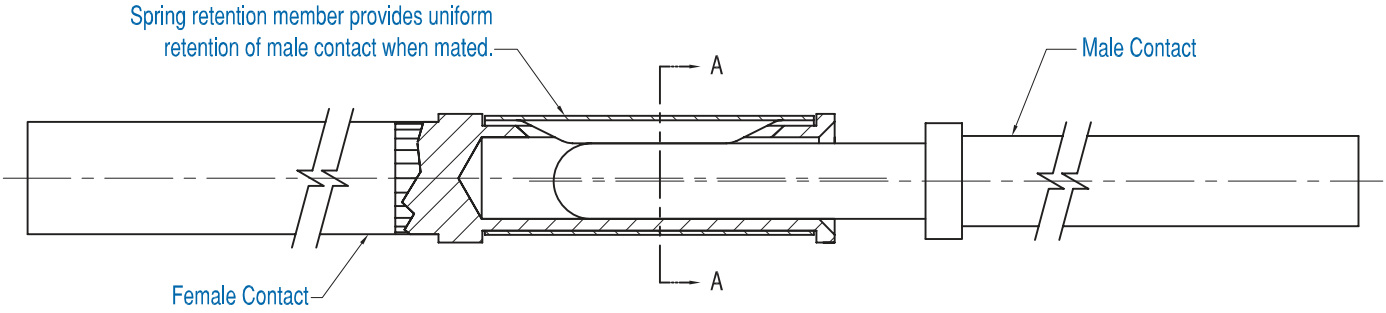
- Where is the temperature sensing probe placed? If placed on the contact in the mating area (the hottest spot), the results will be quite different than if placed on the outside of the connector body.
- Are the contacts being tested and rated in free air or are they contained within the connector housing? 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.

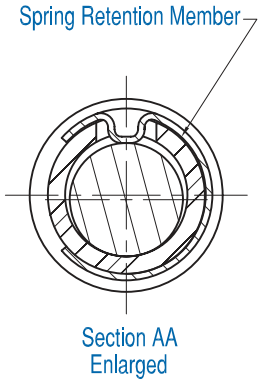
Clearly, a current rating value alone is not enough, and must be viewed in the context of the test used to develop the rating. When the test method is understood, evaluating and comparing power connectors for specific applications becomes much less of a mystery.

THE INFINITY HIGH POWER CONNECTOR SERIES
utilizes Positronic Industries'

LARGE SURFACE AREA CONTACT MATING SYSTEM

- Separates mechanical and electrical functions for superior performance
- "Closed Entry" design prevents damage to female contacts and will not allow misaligned or bent contacts to enter
- Precision machined from solid copper alloy
- Uniform insertion withdrawal forces through repeated mating cycles





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

The primary function of connector contacts 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 ratings.

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.

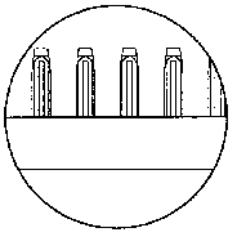
Positronic's Large Surface Area Contact System separates the mechanical and electrical functions. A spring retention member provides normal forces, while the electrical conductivity path is through highly conductive contact material. See above detail.

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.**



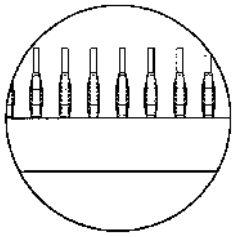
Bi-Spring Power Press-Fit Compliant Terminations

- The relatively low insertion and extraction forces of Bi-Spring Power Press-Fit contacts 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. Average insertion and extraction forces of size 16 contacts are 22 N [5 lbs.] per contact. Average insertion and extraction forces of size 12 contacts are 133 N [30 lbs.] per contact. Average insertions forces of size 8 contact are 133 N [30 lbs.] per contact.
- 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.
- Lower insertion and extraction forces eliminate the need for expensive pressing equipment.

OMEGA SIGNAL LEVEL PRESS-FIT TERMINATIONS

Today's power supplies feature communication options with the host system. The power interface must have reliable signal level connections.

Positronic Industries' Omega Press-Fit terminations are the perfect solderless connection companion to Bi-Spring Power Press-Fit terminations.



Omega Signal Level Press-Fit Compliant Terminations

DIMENSIONS ARE IN MILLIMETERS [INCHES].
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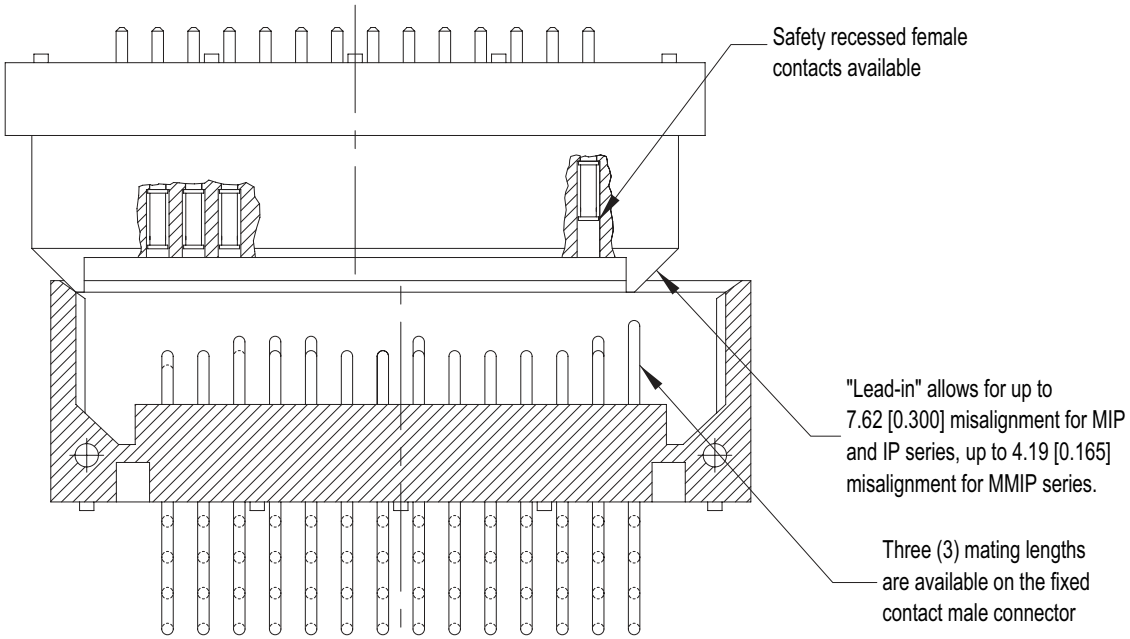
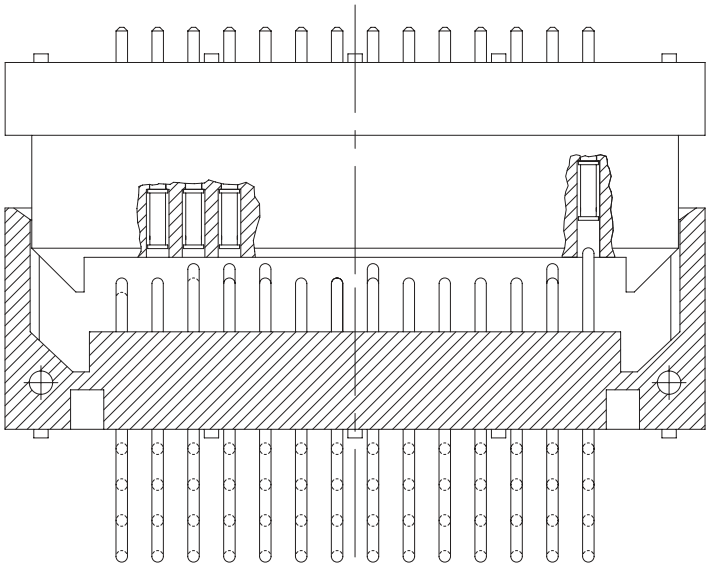
BLIND MATING SYSTEM AND SEQUENTIAL MATING SYSTEM

- **BLIND MATING SYSTEM** molded in guides allow for misalignment up to 4.19mm [0.165 inch] for MMIP series and 7.62 mm [0.300 inch] offset for MIP and IP series.

- **SEQUENTIAL MATING MALE AND FEMALE CONTACTS** may be specified to provide 3.00 mm [0.118 inch] nominal steps in mating length.



Consult Technical Sales for assistance when specifying **Sequential Mate Contacts.**



APPLICATION SPECIFIC ARRANGEMENTS

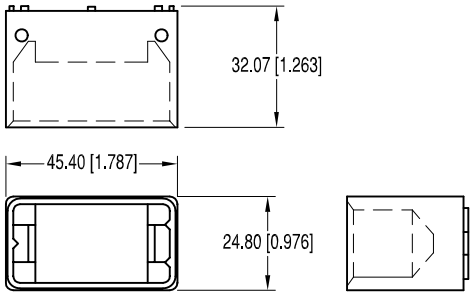
The Infinity High Power Connector design allows for the development of application specific contact arrangements in a timely manner and at a reasonable price. After reviewing the following basic information, contact Technical Sales with your current, voltage, and safety requirements. We look forward to working with you to develop a connector for your specific needs.

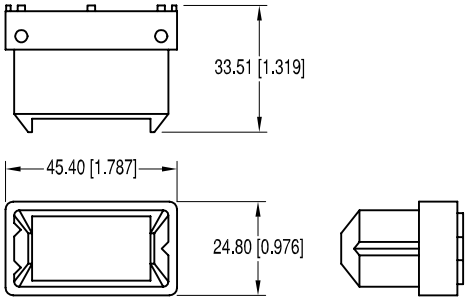
BASIC CONNECTOR DIMENSIONS

MALE CONNECTOR

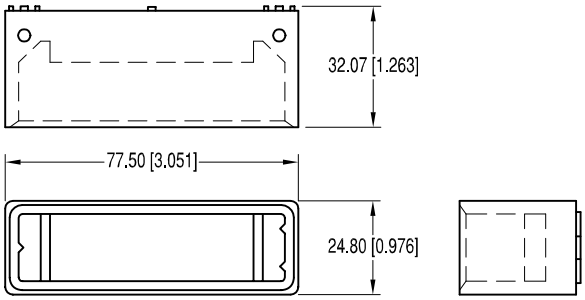
FEMALE CONNECTOR

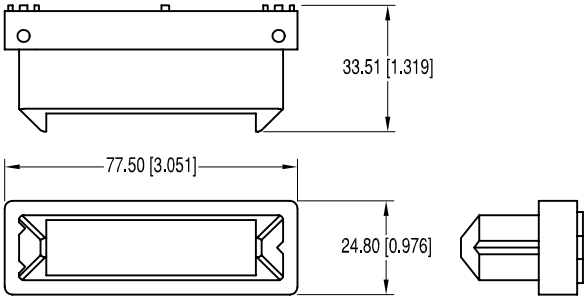
MMIP Series



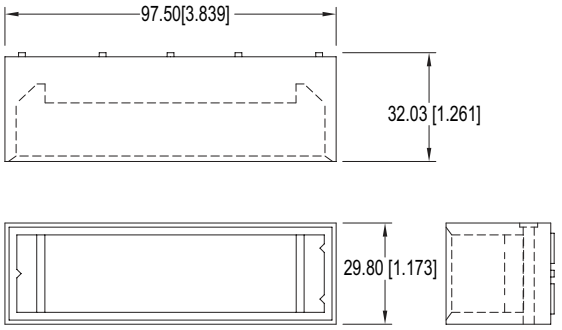


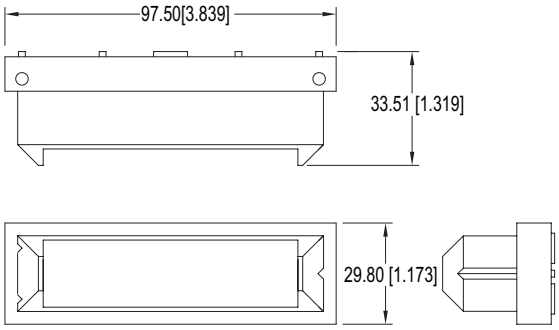
MMIP Series





IP Series





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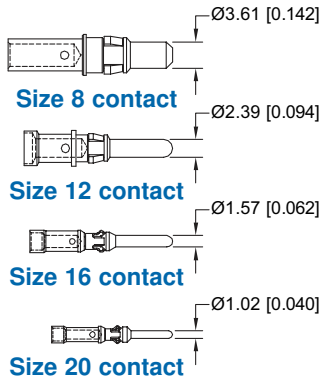
APPLICATION SPECIFIC ARRANGEMENTS

Four Contact Sizes to Choose From

A high performance size 8 contact rated at 100 Amps is available for use with 6 AWG wire.



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

Many Termination Types Can Be Supplied

Straight Solder or Press-Fit
Right Angle (90°) Solder or Press-Fit
Crimp Removable
Removable Solder Cup
Different Termination Types can be mixed within a single connector

Popular Options

Sequential Mating
Recessed Female Contacts
Selective Loading

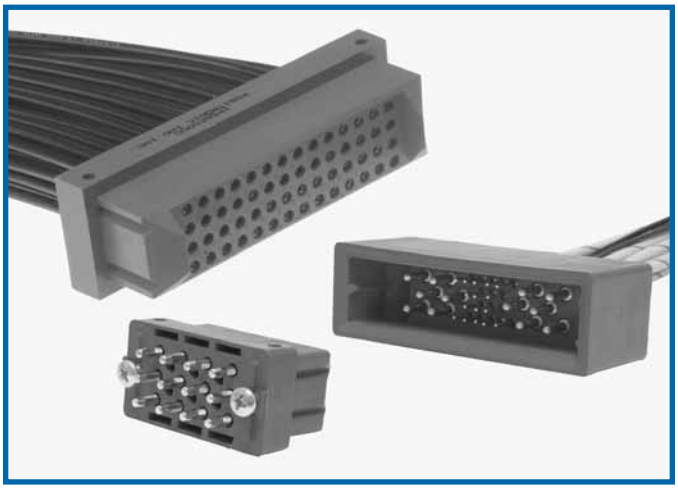
Let us know what your current, voltage and safety requirements are as well as contact termination and mounting needs. We look forward to developing a power connector for your specific application.

GENERAL PRODUCT INFORMATION

The Infinity Power Connector series was developed to supply the electronics industry a high power interface with features which allow the user flexibility in overcoming the design challenges created by the increasing power consumption of systems.

The availability of more computing capability in a given space, as well as reductions in the voltages that are required to drive modern electronic devices, facilitated a need for power interfaces with greater power density.

Along with higher power density, today's power interfaces are expected to provide features and options which simplify system designs. Much of the time, these must be packaged into a single connector and of course quality, reliability and value are a must. Infinity High Power Connectors use contacts which are machined from solid copper alloys and utilize Positronic Industries' Large Surface Area contact system. These features provide superior current carrying performance. A multitude of power contacts allow for efficient distribution of current in multi-voltage centralized power applications. Contacts can also be paralleled together to meet high current requirements of single voltage distributed power applications. This, coupled with many outstanding features and options, makes the connector an excellent choice as the power interface for telecom, datacom, and computing platforms, as well as other power applications.



TECHNICAL CHARACTERISTICS

MATERIALS AND FINISHES:

Insulator: Glass-filled polyester, UL 94V-0, blue color.

Contacts: Precision-machined copper alloy with gold flash over nickel, or 0.76 microns [0.000030 inch] gold over nickel, or 1.27 microns [0.000050 inch] gold over nickel. Solder-coated terminations optional.

Mounting Screws: Steel, zinc plated.

Push-on Fastener: Spring-temper copper alloy, tin plated.

Float Mount Bushing: Steel, zinc plated.

ELECTRICAL CHARACTERISTICS:

Contact Current Rating:
- **Size 12 Contact:** 40 amperes, continuous.
- **Size 16 Contact:** 20 amperes, continuous.
- **Size 20 Contact:** 5 amperes.

Initial Contact Resistance; maximum:
- **Size 12 Contact:** 0.001 ohms.
- **Size 16 Contact:** 0.0016 ohms.
- **Size 20 Contact:** 0.007 ohms.

Per IEC 512-2, Test 2b.

Insulator Resistance: 5 G ohms per IEC 512-2, Test 3a.

Voltage Proof: 2000 V rms per IEC 512-2, Test 4a, Method C.

Hot Pluggable (50 Couplings per U.L. 1977, Paragraph 15):
- **Size 12 Contact:** 250 VAC at 25 amperes.

Creepage Distances: Consult Technical Sales for information about your specific connector choice.

Clearance Distance: Consult Technical Sales for information about your specific connector choice.

Working Voltage: Consult Technical Sales for information about your specific connector choice.

For RoHS options see page 16.

Recognized by various safety agencies. Consult Technical Sales for updated list.

MECHANICAL CHARACTERISTICS:

Blind Mating System: Molded in guides allow for misalignment up to 4.19 mm [0.165 inch]

Polarization: Provided by connector body design.

Removable Contacts: Insert contact in rear face of insulator; release from front face of insulator. Female contacts feature “Closed Entry” design.

Removable Contact Retention in Connector Body:
- **Size 12 Contact:** 67N [15 lbs.] per IEC 512-8, Test 15a.
- **Size 16 Contact:** 67N [15 lbs.] per IEC 512-8, Test 15a.
- **Size 20 Contact:** 44N [10 lbs.] per IEC 512-8, Test 15a.

Fixed Contacts: Printed board terminations, both straight and right angle (90º). Size 12 and 16 female contacts feature “Closed Entry” design. Size 20 female contacts feature “Rugged Open Entry” design.

Fixed Contact Retention in Connector Body: 44N [10 lbs.], minimum.

Resistance to Solder Heat: 260ºC [500ºF] for 10 seconds duration per IEC 512-6, Test 12e, 25-watt soldering iron.

Sequential Contact Mating System: Two level and three level systems featured. Consult Technical Sales for application assistance with contact sequencing.

Safety “Recessed in Insulator” Contacts: Size 16 female contacts may be recessed 5.00 mm [0.197 inch] below the face of the female connector insulator per safety requirements. Consult Technical Sales for ordering information.

Compliant Press-Fit Terminations: Size 12, 16 and 20 contacts are available with Compliant Press-Fit Contact Terminations. Consult Technical Sales for electrical and mechanical characteristics.

Printed Board and Panel Mounting Holes: Mounting holes provided in connector body for both printed board and panel mounting. Self-tapping screws or push-on fastener options are available.

Float Mount Shoulder Screw: Provides up to 2.03 mm [0.080 inch] float.

Mechanical Operations:
- **Systems 1, 2 & 7:** 200 couplings.
- **Systems 3, 4 & 5:** 250 couplings.

CLIMATIC CHARACTERISTICS:

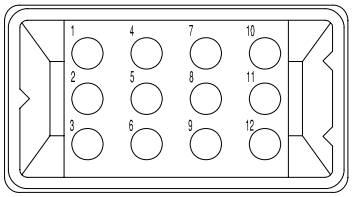
Working Temperature: -55ºC to +125ºC.

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

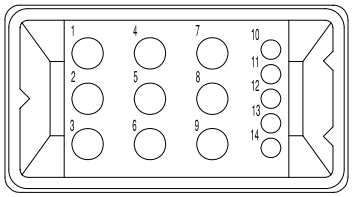
CONTACT VARIANTS AND CONNECTOR MATING DIMENSIONS

CONTACT VARIANTS

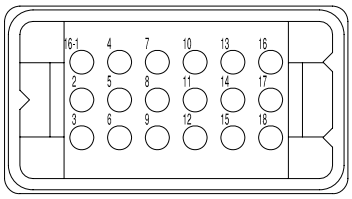
FACE VIEW OF MALE OR REAR VIEW OF FEMALE



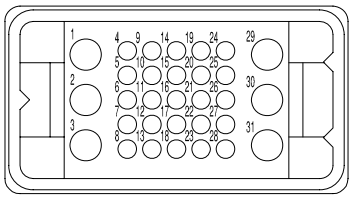
MMIP12W12 VARIANT
12 Size 12 Contacts



MMIP14W9 VARIANT
9 Size 12 and 5 Size 20 Contacts



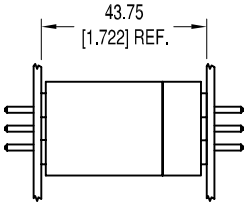
MMIP18 VARIANT
18 Size 16 Contacts



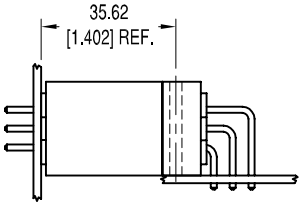
MMIP31W6 VARIANT
6 Size 12 and 25 Size 20 Contacts

Refer to pages 7 & 8 for Application Specific Arrangements

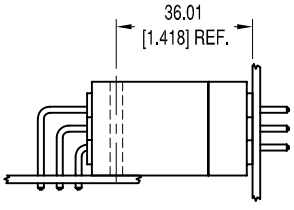
CONNECTOR MATING DIMENSIONS



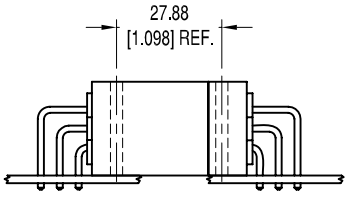
Straight Board Mount or Panel Mount Female to Straight Board Mount or Panel Mount Male



Right Angle (90º) Board Mount Female to Straight Board Mount or Panel Mount Male.



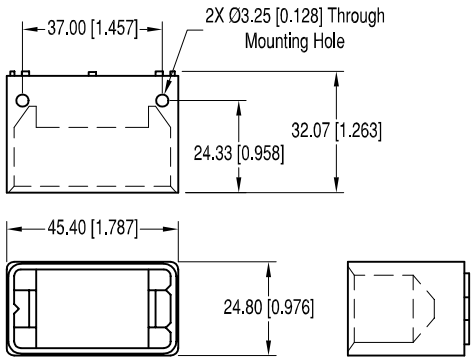
Straight Board Mount or Panel Mount Female to Right Angle (90º) Board Mount Male.



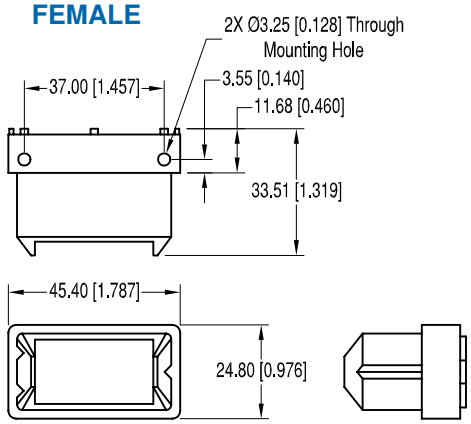
Right Angle (90º) Board Mount Female to Right Angle (90º) Board Mount Male.

CONNECTOR OUTLINE DIMENSIONS
FOR USE WITH CODE 0, 3, 32, 93, 4, 42, AND 63

MALE



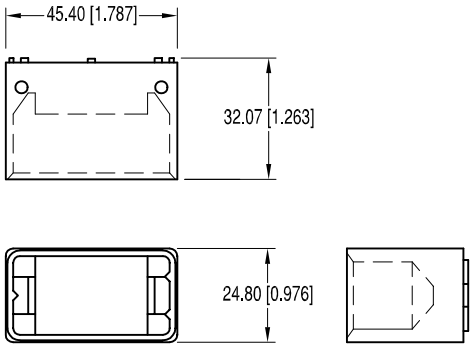
FEMALE



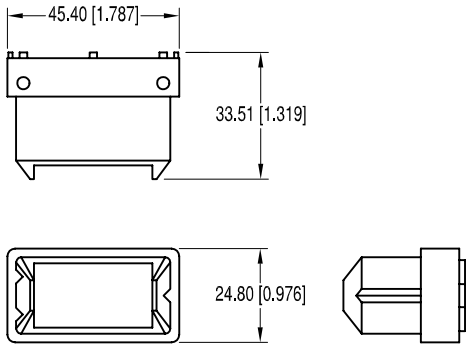
NEW!

CABLE CONNECTOR
FOR USE WITH SIZE 12, 16 AND 20 REMOVABLE CONTACTS
CODE 0
CONTACTS ARE NOT SUPPLIED WITH CONNECTOR AND MUST BE ORDERED SEPARATELY

MALE



FEMALE



For information regarding size 12, 16 and 20 removable contacts, see Removable Contact section, pages 41-48.

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

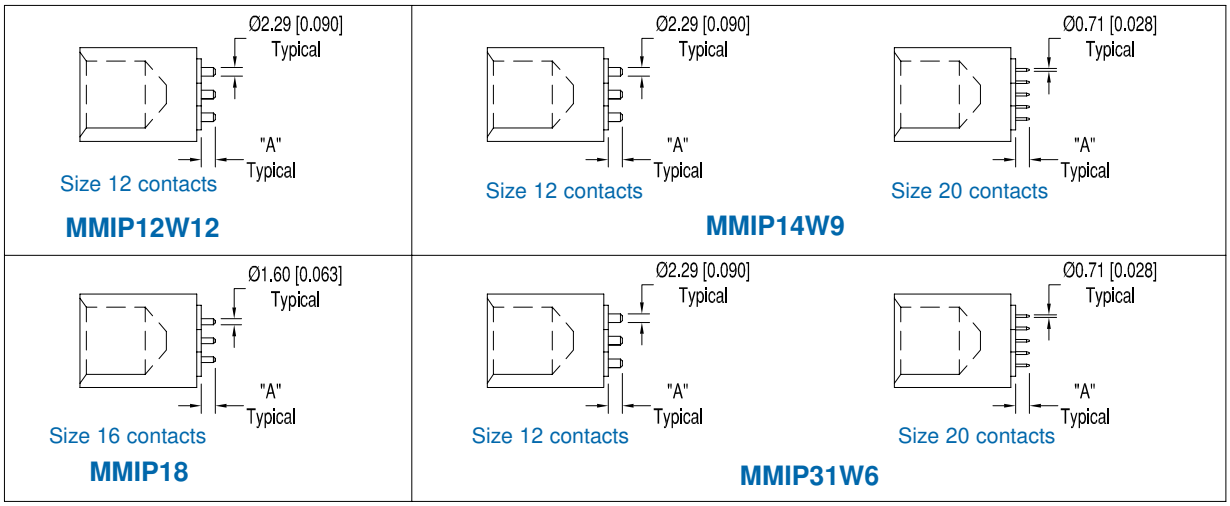
STRAIGHT SOLDER BOARD MOUNT CONNECTORS AND HOLE PATTERNS

CODE	"A" LENGTH
3	3.70 [0.146]
32	9.58 [0.377]

STRAIGHT SOLDER BOARD MOUNT CONNECTORS

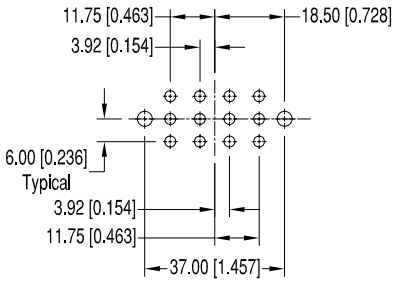
CODE 3 AND CODE 32

MALE CONNECTOR SHOWN FOR REFERENCE ONLY

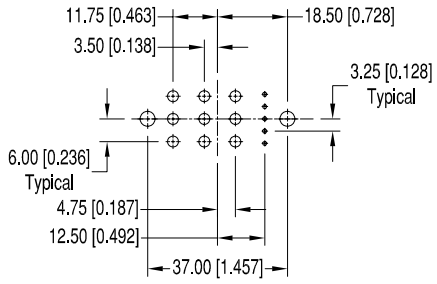


STRAIGHT SOLDER CONTACT HOLE PATTERNS

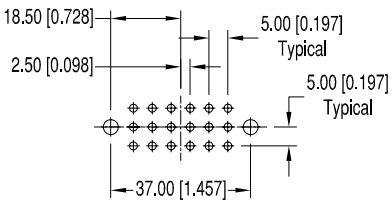
HOLE PATTERN SHOWN IS FOR MALE CONNECTOR
USE MIRROR IMAGE FOR FEMALE CONNECTOR



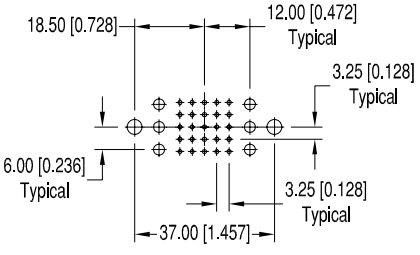
MMIP12W12



MMIP14W9



MMIP18



MMIP31W6

SUGGESTED PRINTED BOARD HOLE SIZES:

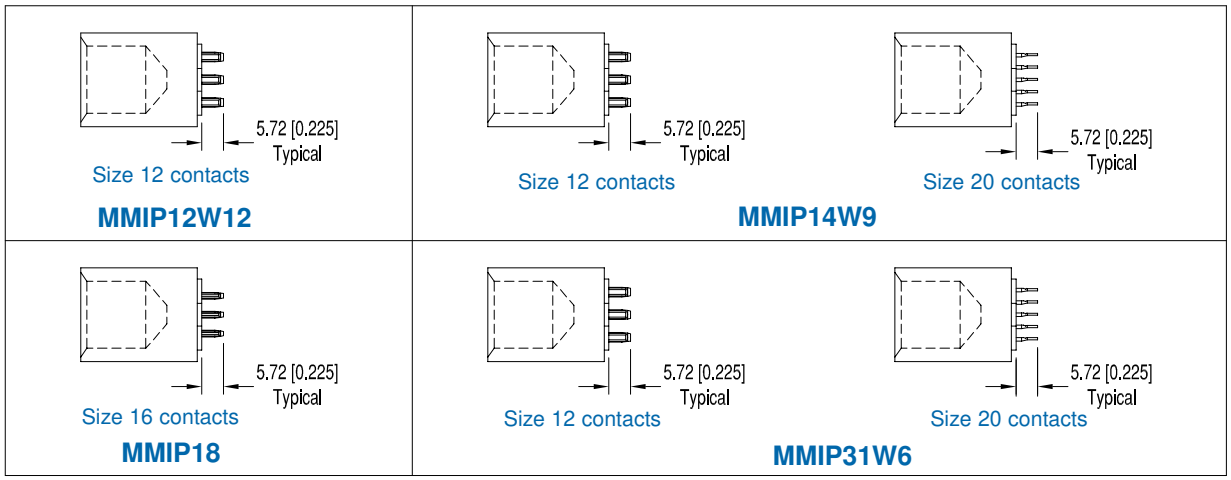
Suggested ø1.14 [0.045] holes for size 20 contact holes.
Suggested ø2.11 [0.083] holes for size 16 contact holes.
Suggested ø2.90 [0.114] holes for size 12 contact holes.
Suggested ø3.96±0.08 [0.156±0.003] holes for connector mounting holes.

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

STRAIGHT COMPLIANT PRESS-FIT CONNECTORS

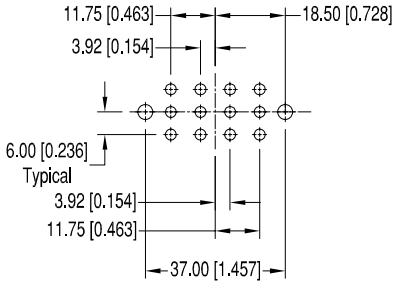
CODE 93

MALE CONNECTOR SHOWN FOR REFERENCE ONLY

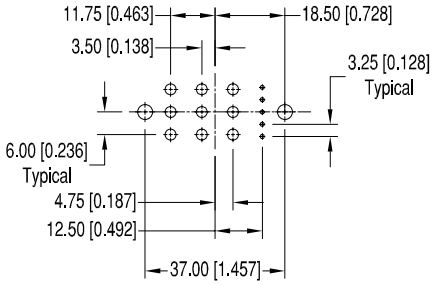


STRAIGHT COMPLIANT PRESS-FIT CONTACT HOLE PATTERNS

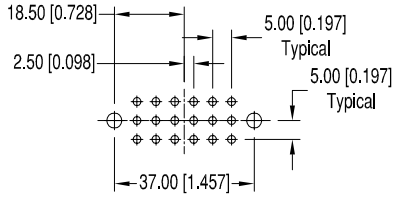
HOLE PATTERN SHOWN IS FOR MALE CONNECTOR
USE MIRROR IMAGE FOR FEMALE CONNECTOR



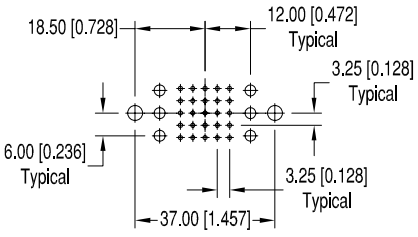
MMIP12W12



MMIP14W9



MMIP18



MMIP31W6

SUGGESTED PRINTED BOARD HOLE SIZES:

NOTE: See page 57 for suggested printed board drill hole sizes, recommended plating and finished hole sizes for compliant contact termination positions.

For press-fit connector installation tools, see pages 55-57.

For mounting screw options, see page 55.

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

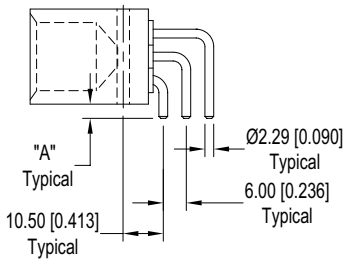
RIGHT ANGLE (90º) SOLDER BOARD MOUNT CONNECTORS AND HOLE PATTERNS

CODE	"A" LENGTH
4	3.70 [0.146]
42	9.58 [0.377]

RIGHT ANGLE (90º) SOLDER BOARD MOUNT CONNECTORS

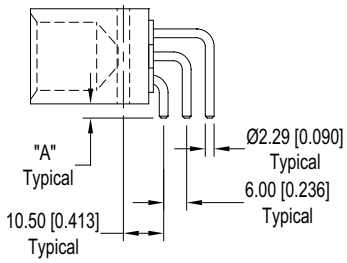
CODE 4 AND CODE 42

MALE CONNECTOR SHOWN FOR REFERENCE ONLY

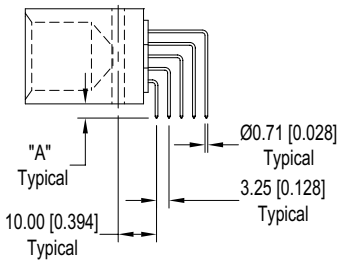


Size 12 contacts

MMIP12W12

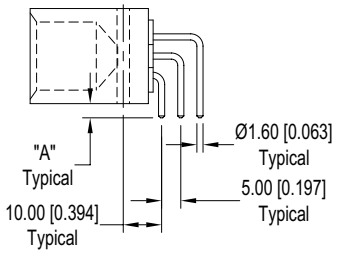


Size 12 contacts



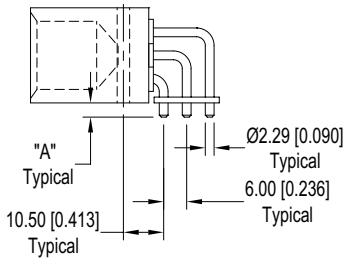
Size 20 contacts

MMIP14W9

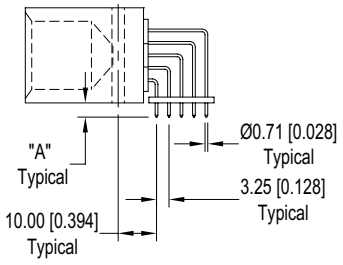


Size 16 contacts

MMIP18



Size 12 contacts

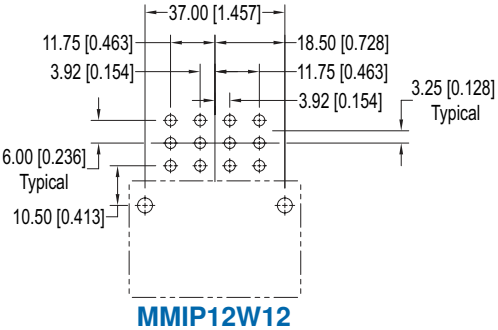


Size 20 contacts

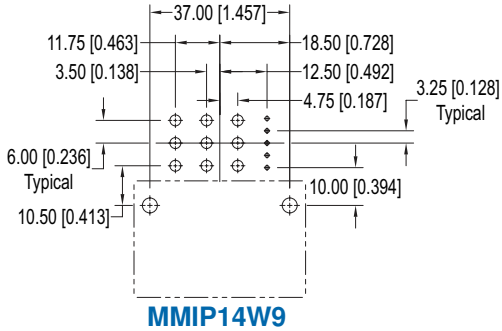
MMIP31W6

RIGHT ANGLE (90º) SOLDER CONTACT HOLE PATTERNS

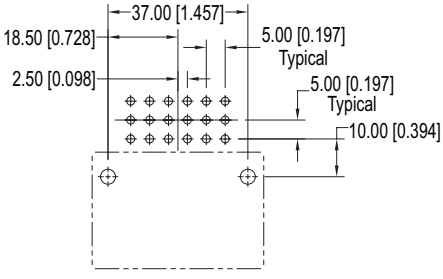
HOLE PATTERN SHOWN IS FOR MALE CONNECTOR
USE MIRROR IMAGE FOR
FEMALE CONNECTOR



MMIP12W12



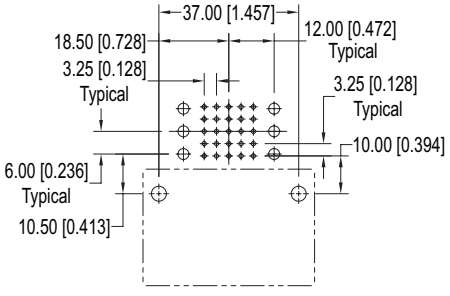
MMIP14W9



MMIP18

SUGGESTED PRINTED BOARD HOLE SIZES:

Suggested ø1.14 [0.045] holes for size 20 contact holes.
Suggested ø2.11 [0.083] holes for size 16 contact holes.
Suggested ø2.90 [0.114] holes for size 12 contact holes.
Suggested ø3.96±0.08 [0.156±0.003] holes for connector mounting holes.



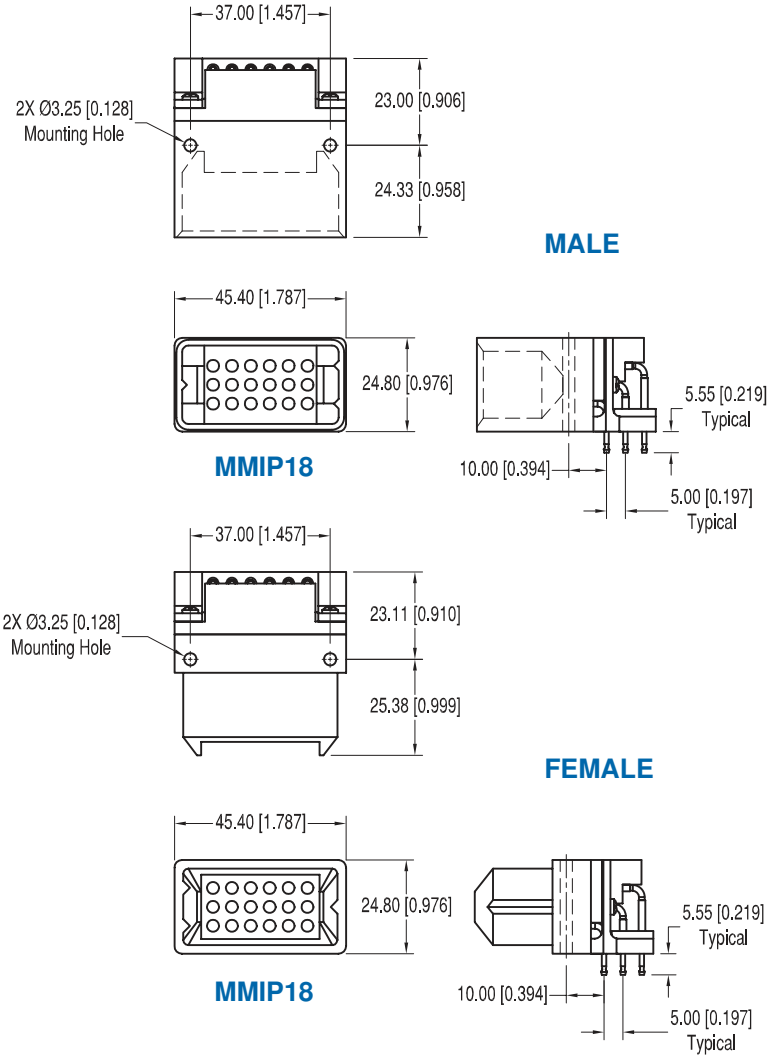
MMIP31W6

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

RIGHT ANGLE (90º) COMPLIANT PRESS-FIT BOARD MOUNT CONNECTORS

CODE 63

MALE AND FEMALE



RIGHT ANGLE (90º) COMPLIANT PRESS-FIT CONTACT HOLE PATTERN

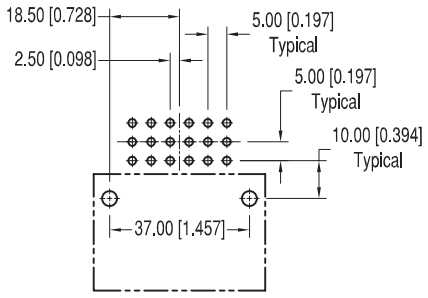
MALE AND FEMALE

SUGGESTED PRINTED BOARD HOLE SIZES:

NOTE: See page 57 for suggested printed board drill hole sizes, recommended plating and finished hole sizes for compliant contact termination positions.

For press-fit connector installation tools, see pages 55-57.

For mounting screw options, see page 55.



MMIP18

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

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	MMIP	12W12	F	32	0	0	A1	/AA	—	

STEP 1 - BASIC SERIES

MMIP - Mini-Mini-Infinity

STEP 2 - CONNECTOR VARIANTS

12W12- 12 size 12 contacts
14W9 - 9 size 12 and 5 size 20 contacts
18 - 18 size 16 contacts
31W6 - 6 size 12 and 25 size 20 contacts

STEP 3 - CONNECTOR GENDER

M - Male
F - Female

STEP 4 - CONTACT TERMINATION TYPE

0 - Order contacts separately for cable connectors for connection systems 2, 4 and 5. See pages 41-48.

3 - Solder, Straight Printed Board Mount with 3.70 [0.146] tail extension for connection systems 1 and 4.

32- Solder, Straight Printed Board Mount with 9.58 [0.377] tail extension for connection systems 1 and 4.

4 - Solder, Right Angle (90º) Printed Board Mount with 3.70 [0.146] tail extension for connection systems 1, 2, 3 and 7.

42- Solder, Right Angle (90º) Printed Board Mount with 9.58 [0.377] tail extension for connection systems 1, 2, 3 and 7.

63 - Press-Fit, Compliant Termination Right Angle (90º) Printed Board Mount, for use with board thicknesses of 2.29 to 4.45 [0.090 to 0.175]. With cross bar. Connection systems 1, 2, 3 and 7. Available on connector variant 18 only.

93 - Press-Fit, Compliant Termination Straight Printed Board Mount for use with board thicknesses of 2.29 to 4.45 [0.090 to 0.175]. Connection systems 1 and 4.

STEP 5 - MOUNTING STYLE

0 - None, mounting screws supplied with board mount connector.
N - Push-on fasteners supplied installed on board mount connector. Not recommended for code 63 and 93.

STEP 6 - PANEL MOUNT

0 - None.
82 - Panel Mount 1.52 [0.060] panel thickness
83 - Panel Mount 2.28 [0.090] panel thickness

***Hot Plug Note:** If UL approval is required for a Hot Plug connector, HP must be added to the part number. This is to be prior to any special plating or MOS requirements.

Example part numbers:
MMIP12W12M300A1-HP
MIP31W6M400A1-HP-294.0

STEP 7 - CONTACT PLATING

0 - Crimp contacts ordered separately. See pages 41-48.
A1 - Gold flash over nickel on mating end and termination end.
A2 - Gold flash over nickel on mating end and 5.00µ [0.00020 inch] tin-lead solder coat on termination end. Not available with code 63 and 93 in Step 4.
C1 - 0.76µ [0.000030 inch] gold over nickel on mating end and termination end.
C2 - 0.76µ [0.000030 inch] gold over nickel on mating end and 5.00µ [0.00020 inch] tin-lead solder coat on termination end. Not available with code types 63 and 93 in Step 4.
D1 - 1.27µ [0.000050 inch] gold over nickel on mating end and termination end.
D2 - 1.27µ [0.000050 inch] gold over nickel on mating end and 5.00µ [0.00020 inch] tin-lead solder coat on termination end. Not available with code types 63 and 93 in Step 4.

STEP 8 - ENVIRONMENTAL COMPLIANCE OPTIONS

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

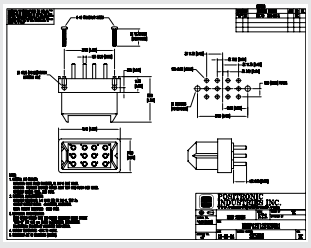
NOTE: If compliance to environmental legislation is not required, this step will not be used. Example: MMIP12W12F3200A1

STEP 9 - SPECIAL OPTIONS

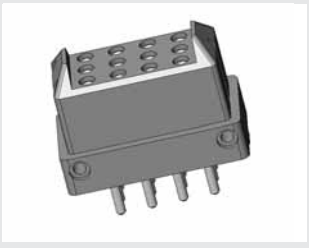
CONTACT TECHNICAL SALES FOR SPECIAL OPTIONS

* Sequential Mating
• Recessed Female Contacts
• Customer Specified Contact Arrangement
• Hot Plug (see below*)
• Other Customer Requirements

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

TECHNICAL CHARACTERISTICS

MATERIALS AND FINISHES:

Insulator: Glass-filled polyester, UL 94V-0, blue color.

Contacts: Precision-machined copper alloy with gold flash over nickel, or 0.76 microns [0.000030 inch] gold over nickel, or 1.27 microns [0.000050 inch] gold over nickel. Solder-coated terminations optional.

Mounting Screws: Steel, zinc plated.

Push-on Fastener: Spring-temper copper alloy, tin plated.

Float Mount Bushing: Steel, zinc plated.

ELECTRICAL CHARACTERISTICS:

Contact Current Rating:
- **Size 8 Contact:** 60 amperes, continuous.
- **Size 12 Contact:** 40 amperes, continuous.
- **Size 16 Contact:** 20 amperes, continuous.
- **Size 20 Contact:** 5 amperes.

Temperature Rise Curves per IEC 512-3, Test 5a. See page 19 of this catalog for performance curves.

Initial Contact Resistance; maximum:
- **Size 8 Contact:** 0.0005 ohms.
- **Size 12 Contact:** 0.001 ohms.
- **Size 16 Contact:** 0.0016 ohms.
- **Size 20 Contact:** 0.007 ohms.

Per IEC 512-2, Test 2b.

Insulator Resistance: 5 G ohms per IEC 512-2, Test 3a.

Voltage Proof: 2000 V rms per IEC 512-2, Test 4a, Method C.

Hot Pluggable (50 Couplings per U.L. 1977, Paragraph 15):
- **Size 8 Contact:** 250 VAC at 25 amperes.
- **Size 12 Contact:** 250 VAC at 25 amperes.

Creepage Distances: Consult Technical Sales for information about your specific connector choice.

Clearance Distance: Consult Technical Sales for information about your specific connector choice.

Working Voltage: Consult Technical Sales for information about your specific connector choice.

For RoHS options see page 28.

MECHANICAL CHARACTERISTICS:

Blind Mating System: Molded in guides allow for misalignment up to 7.62 mm [0.300 inch]

Polarization: Provided by connector body design.

Removable Contacts: Insert contact in rear face of insulator; release from front face of insulator. Female contacts feature “Closed Entry” design.

Removable Contact Retention in Connector Body:
- **Size 8 Contact:** 67N [15 lbs.] per IEC 512-8, Test 15a.
- **Size 12 Contact:** 67N [15 lbs.] per IEC 512-8, Test 15a.
- **Size 16 Contact:** 67N [15 lbs.] per IEC 512-8, Test 15a.
- **Size 20 Contact:** 44N [10 lbs.] per IEC 512-8, Test 15a.

Fixed Contacts: Printed board terminations, both straight and right angle (90º). Size 8, 12 and 16 female contacts feature “Closed Entry” design. Size 20 female contacts feature “Rugged Open Entry” design.

Fixed Contact Retention in Connector Body: 44N [10 lbs.], minimum.

Resistance to Solder Heat: 260ºC [500ºF] for 10 seconds duration per IEC 512-6, Test 12e, 25-watt soldering iron.

Sequential Contact Mating System: Two level and three level systems featured. Consult Technical Sales for application assistance with contact sequencing.

Safety “Recessed in Insulator” Contacts: Size 16 female contacts may be recessed 5.00 mm [0.197 inch] below the face of the female connector insulator per safety requirements. Consult Technical Sales for ordering information.

Compliant Press-Fit Terminations: Size 8, 12, 16 and 20 contacts are available with Compliant Press-Fit Contact Terminations. Consult Technical Sales for electrical and mechanical characteristics.

Printed Board and Panel Mounting Holes: Mounting holes provided in connector body for both printed board and panel mounting. Self-tapping screws or push-on fastener options are available.

Float Mount Shoulder Screw: Provides up to 2.03 mm [0.080 inch] float.

Mechanical Operations:
- **Systems 1, 2 & 7:** 200 couplings.
- **Systems 3, 4 & 5:** 250 couplings.

CLIMATIC CHARACTERISTICS:

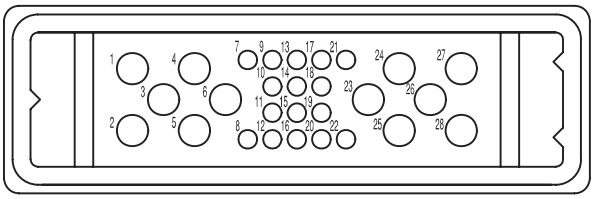
Working Temperature: -55ºC to +125ºC.

Recognized by various safety agencies. Consult Technical Sales for updated list.

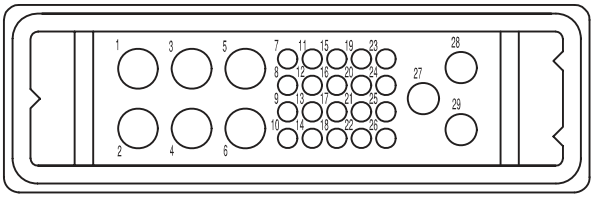
DIMENSIONS ARE IN MILLIMETERS [INCHES].
ALL DIMENSIONS ARE SUBJECT TO CHANGE.

CONNECTOR VARIANTS

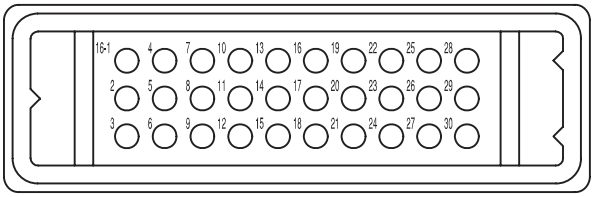
FACE VIEW OF MALE OR REAR VIEW OF FEMALE



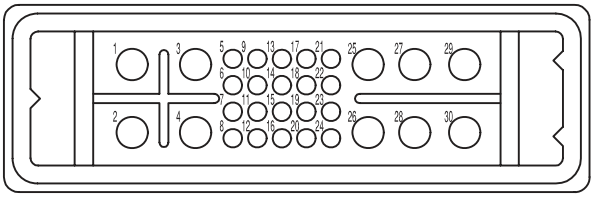
MIP28W12 VARIANT
12 Size 12 and 16 Size 20 Contacts



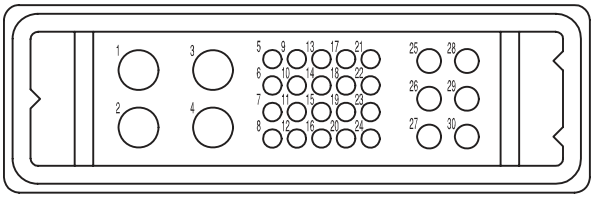
MIP29W9 VARIANT
6 Size 8, 3 Size 12, 20 Size 20 Contacts



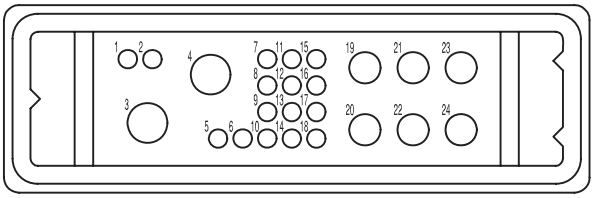
MIP30 VARIANT
30 Size 16 Contacts



MIP30WA10 VARIANT
10 Size 12 and 20 Size 20 Contacts



MIP30WB10 VARIANT
4 Size 8, 6 Size 16, 20 Size 20 Contacts



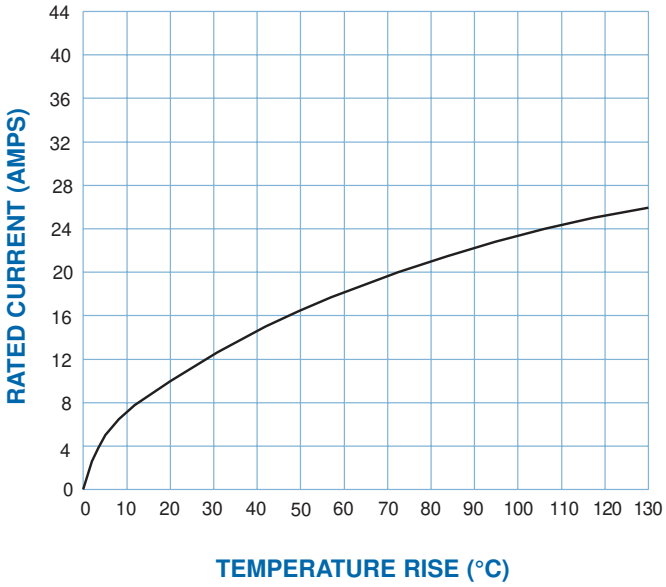
MIP24W8 VARIANT
2 Size 8
(See page 46 for high current or pages 45-48 for standard)
Size 12, 16 Size 20 Contacts
ONLY AVAILABLE FOR USE WITH CRIMP CONTACTS.

Refer to pages 7 & 8 for Application Specific Arrangements

CONNECTOR TEMPERATURE RISE CURVES

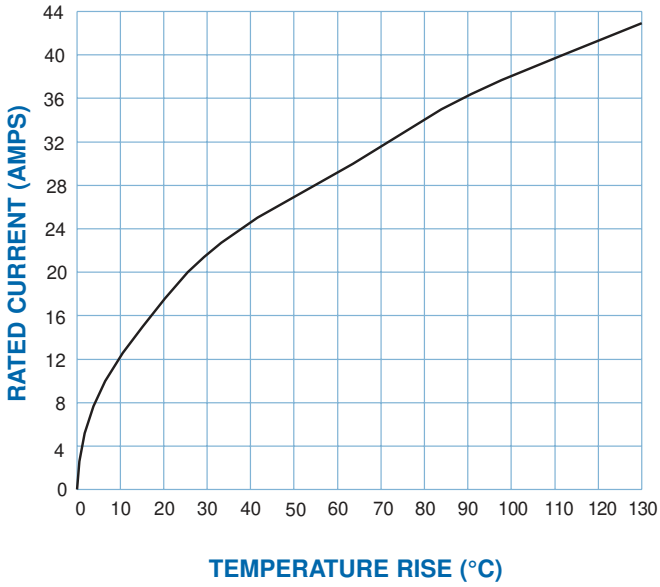
Tested per IEC Publication 512-3, Test 5a

SIZE 16 CONTACTS



Above curve developed using MIP30M0000 and MIP30F0000 connectors with MC112N and FC112N2 contacts and 12 AWG wire. All contacts under load.

SIZE 12 CONTACTS



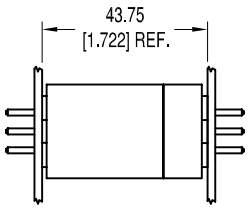
Above curve developed using MIP30WA10M0000 and MIP30WA10F0000 connectors and MC612N with FC612N2 contacts and 12 AWG wire. All contacts under load. Size 20 contact positions not filled and tested.

NOTE:

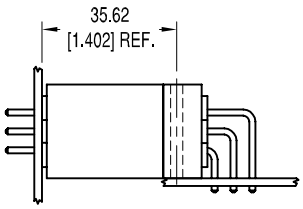
1) These temperature rise curves were developed using standard contact materials. High conductivity contact materials are available. These alternate materials allow for more favorable current carrying performance; consult Technical Sales for details.

2) Consult Technical Sales for Electrical and Mechanical characteristics of press-fit terminations.

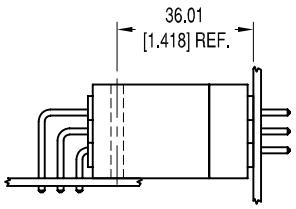
CONNECTOR MATING DIMENSIONS



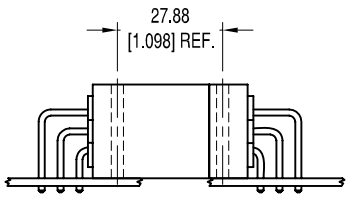
Straight Board Mount or Panel Mount Female to Straight Board Mount or Panel Mount Male.



Right Angle (90º) Board Mount Female to Straight Board Mount or Panel Mount Male.



Straight Board Mount or Panel Mount Female to Right Angle (90º) Board Mount Male.



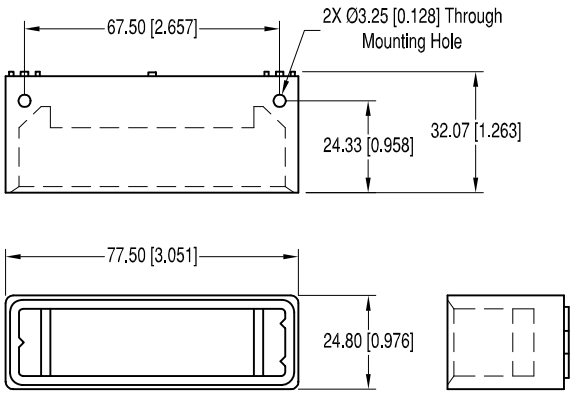
Right Angle (90º) Board Mount Female to Right Angle (90º) Board Mount Male.

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

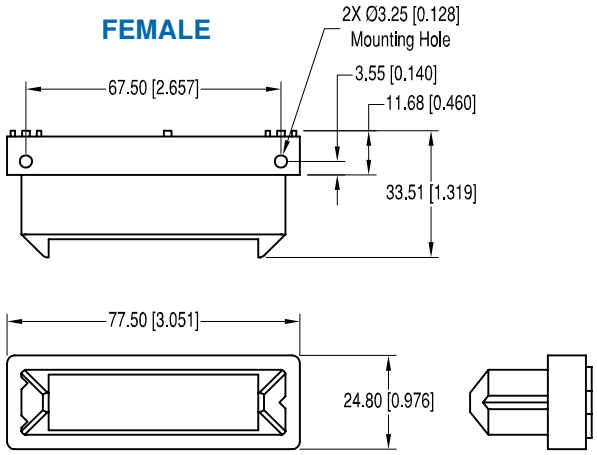
CONNECTOR OUTLINE DIMENSIONS AND CABLE CONNECTOR

CONNECTOR OUTLINE DIMENSIONS
FOR USE WITH CODE 0, 3, 32, 93, 4, 42, AND 63

MALE



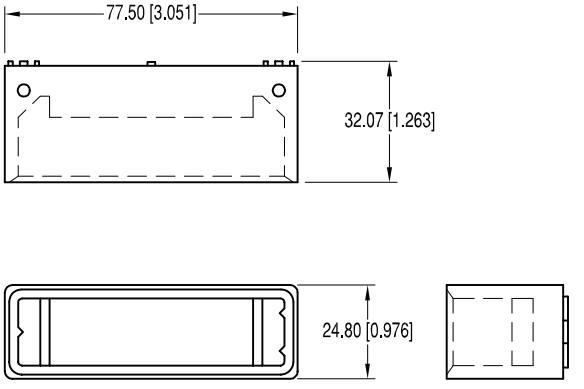
FEMALE



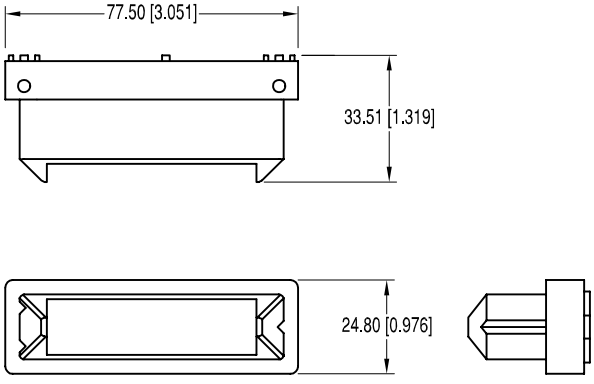
NEW!

CABLE CONNECTOR
FOR USE WITH SIZE 8, 12, 16 AND 20 REMOVABLE CONTACTS
CODE 0
CONTACTS ARE NOT SUPPLIED WITH CONNECTOR AND MUST BE ORDERED SEPARATELY

MALE



FEMALE



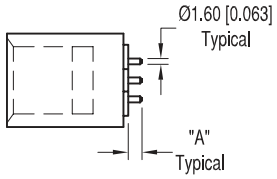
For information regarding size 8, 12, 16 and 20 removable contacts, see Removable Contact section, pages 41-48.

CODE	"A" LENGTH
3	3.70 [0.146]
32	9.58 [0.377]

STRAIGHT SOLDER BOARD MOUNT CONNECTORS

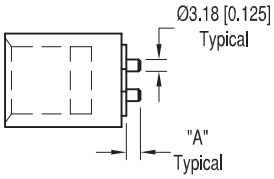
CODE 3 AND CODE 32

MALE CONNECTOR SHOWN FOR REFERENCE ONLY

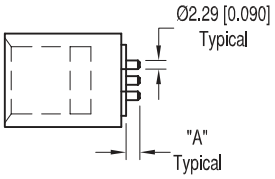


Size 16 contacts

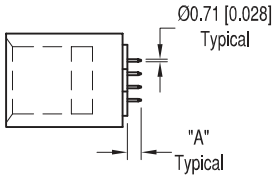
MIP30



Size 8 contacts

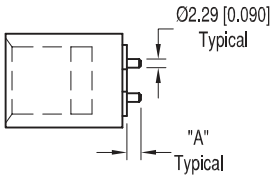


Size 12 contacts

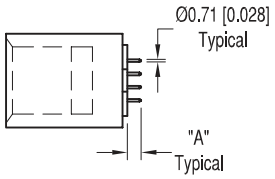


Size 20 contacts

MIP29W9

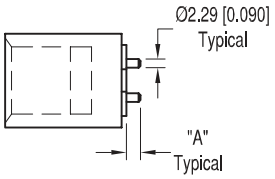


Size 12 contacts

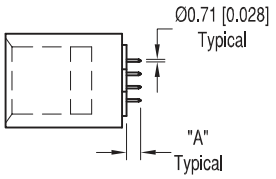


Size 20 contacts

MIP30WA10

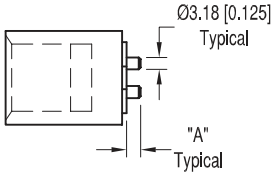


Size 12 contacts

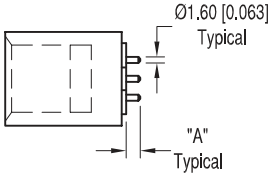


Size 20 contacts

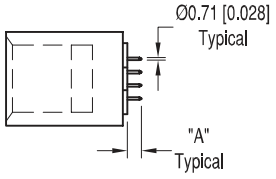
MIP28W12



Size 8 contacts



Size 16 contacts



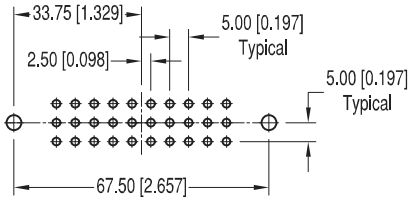
Size 20 contacts

MIP30WB10

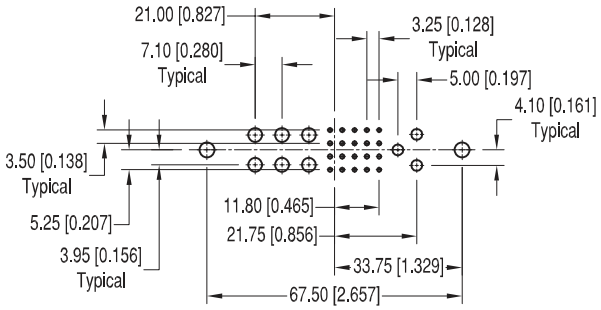
DIMENSIONS ARE IN MILLIMETERS [INCHES].
ALL DIMENSIONS ARE SUBJECT TO CHANGE.

STRAIGHT SOLDER CONTACT HOLE PATTERNS

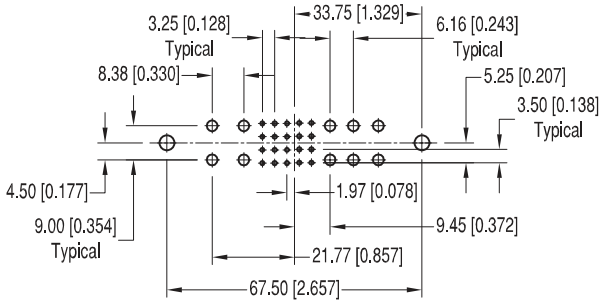
HOLE PATTERN SHOWN IS FOR MALE CONNECTOR
USE MIRROR IMAGE FOR FEMALE CONNECTOR



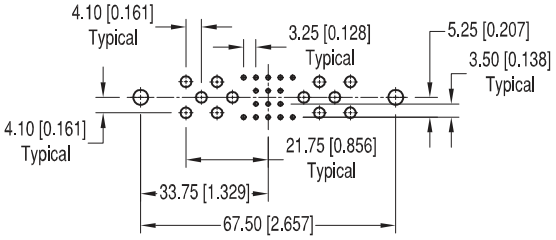
MIP30



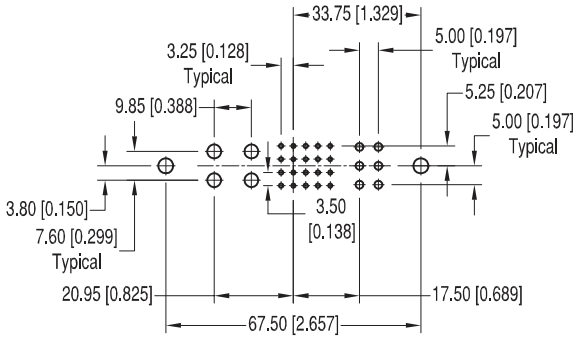
MIP29W9



MIP30WA10



MIP28W12



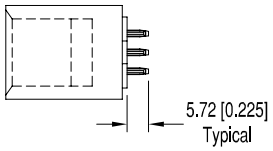
MIP30WB10

MIP SERIES

SUGGESTED PRINTED BOARD HOLE SIZES:

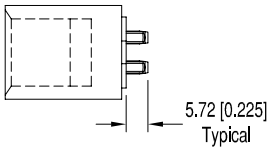
Suggested ø1.14 [0.045] holes for size 20 straight contact holes.
Suggested ø2.11 [0.083] holes for size 16 straight contact holes.
Suggested ø2.90 [0.114] holes for size 12 straight contact holes.
Suggested ø3.68 [0.145] holes for size 8 straight contact holes.
Suggested ø3.96±0.08 [0.156±0.003] holes for connector mounting holes.

STRAIGHT COMPLIANT PRESS-FIT CONNECTORS
CODE 93
MALE CONNECTOR SHOWN FOR REFERENCE ONLY

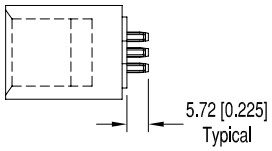


Size 16 contacts

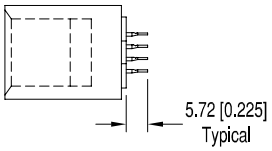
MIP30



Size 8 contacts

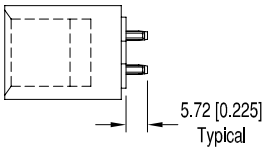


Size 12 contacts

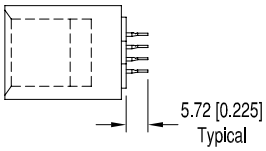


Size 20 contacts

MIP29W9

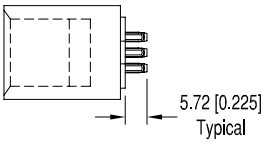


Size 12 contacts

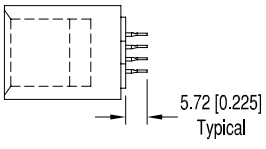


Size 20 contacts

MIP30WA10

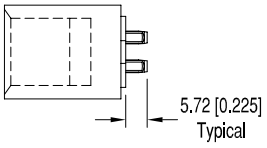


Size 12 contacts

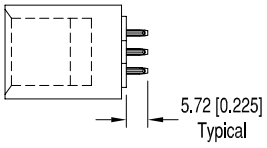


Size 20 contacts

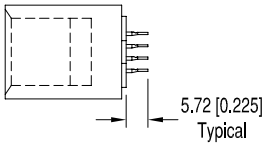
MIP28W12



Size 8 contacts



Size 16 contacts



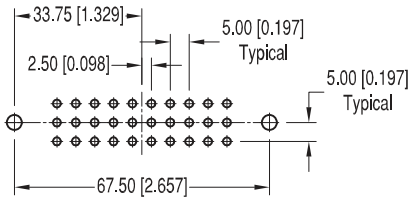
Size 20 contacts

MIP30WB10

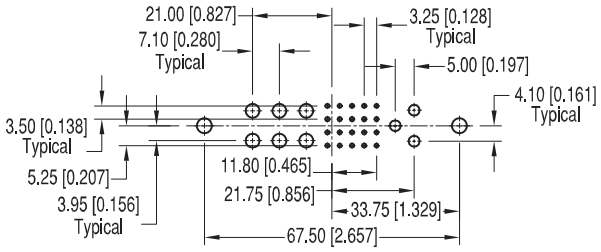
DIMENSIONS ARE IN MILLIMETERS [INCHES].
ALL DIMENSIONS ARE SUBJECT TO CHANGE.

STRAIGHT COMPLIANT PRESS-FIT CONTACT HOLE PATTERNS

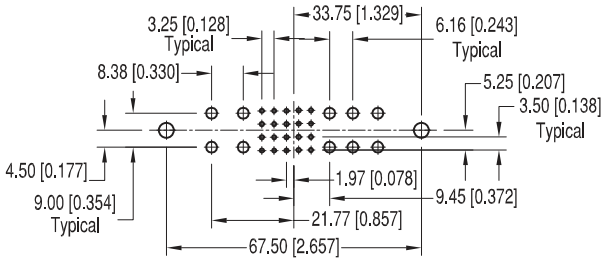
HOLE PATTERN SHOWN IS FOR MALE CONNECTOR; USE MIRROR IMAGE FOR FEMALE CONNECTOR



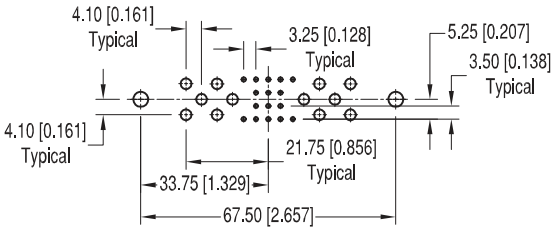
MIP30



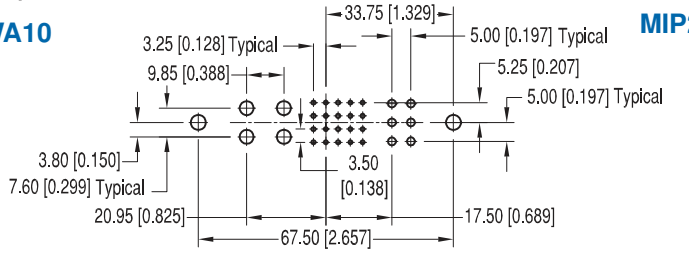
MIP29W9



MIP30WA10



MIP28W12



MIP30WB10

SUGGESTED PRINTED BOARD HOLE SIZES:

NOTE: See page 57 for suggested printed board drill hole sizes, recommended plating and finished hole sizes for compliant contact termination positions.

For press-fit connector installation tools, see pages 55-57.

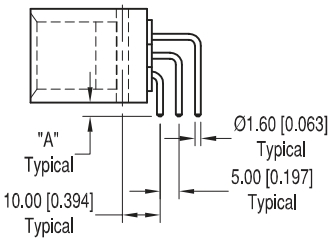
For mounting screw options, see page 55.

RIGHT ANGLE (90º) SOLDER BOARD MOUNT CONNECTORS

CODE 4 AND CODE 42

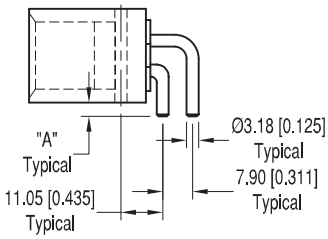
MALE CONNECTOR SHOWN FOR REFERENCE ONLY

CODE	"A" LENGTH
4	3.70 [0.146]
42	9.58 [0.377]

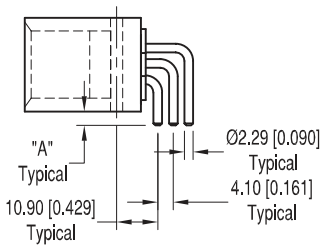


Size 16 contacts

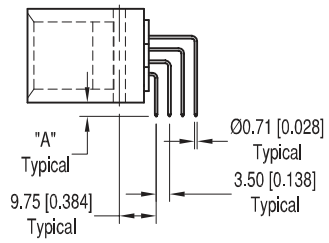
MIP30



Size 8 contacts

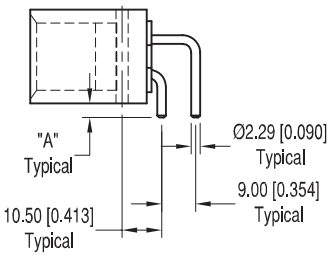


Size 12 contacts

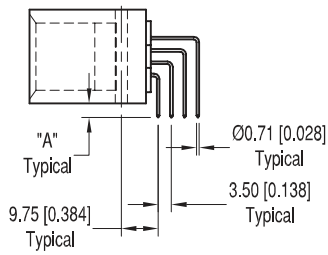


Size 20 contacts

MIP29W9

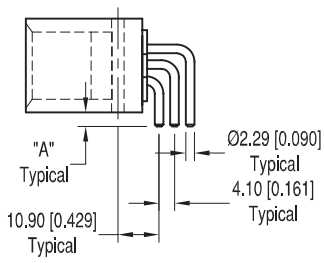


Size 12 contacts

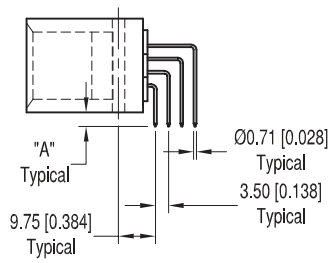


Size 20 contacts

MIP30WA10

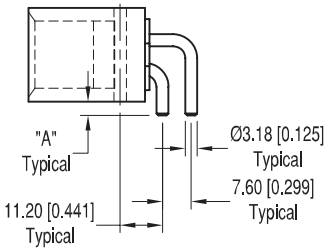


Size 12 contacts

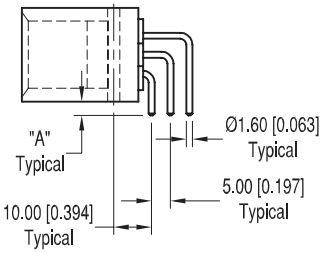


Size 20 contacts

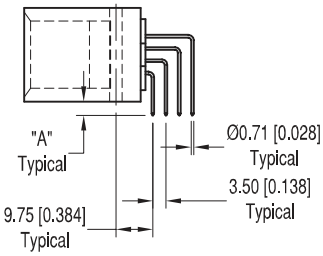
MIP28W12



Size 8 contacts



Size 16 contacts



Size 20 contacts

MIP30WB10

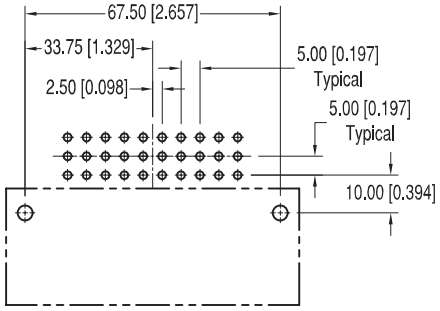
MIP SERIES

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

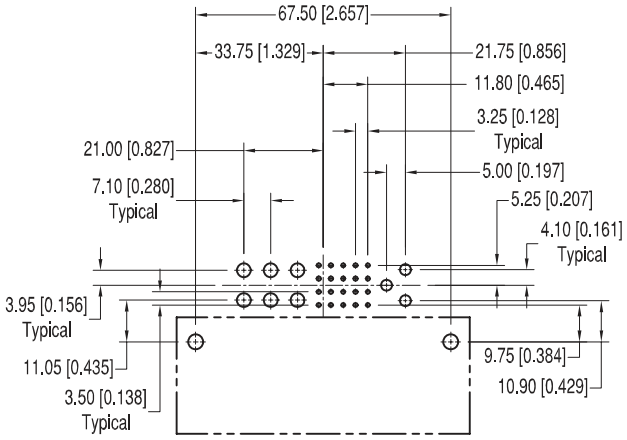
RIGHT ANGLE (90º) SOLDER HOLE PATTERNS

RIGHT ANGLE (90º) SOLDER CONTACT HOLE PATTERNS

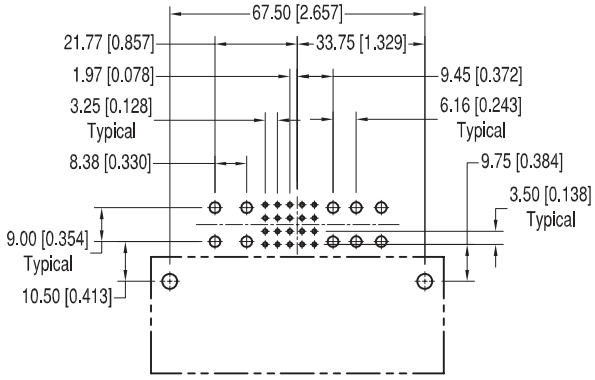
HOLE PATTERN SHOWN IS FOR MALE CONNECTOR
USE MIRROR IMAGE FOR FEMALE CONNECTOR



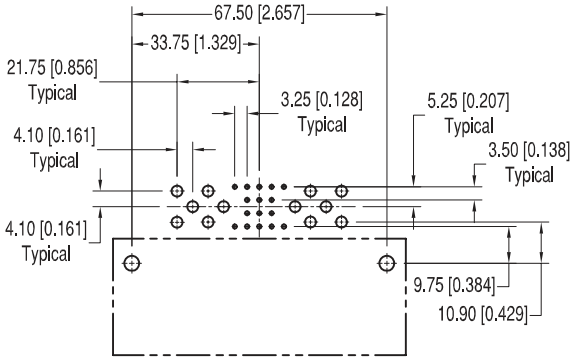
MIP30



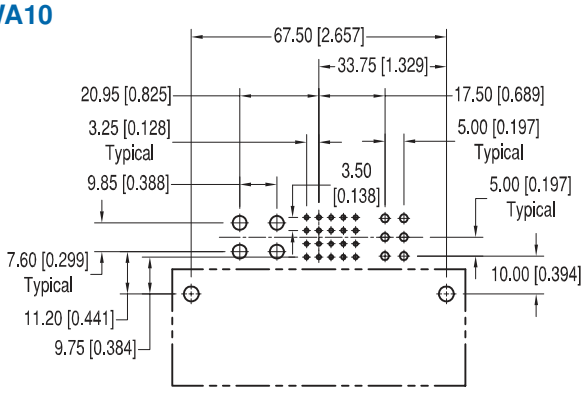
MIP29W9



MIP30WA10



MIP28W12



MIP30WB10

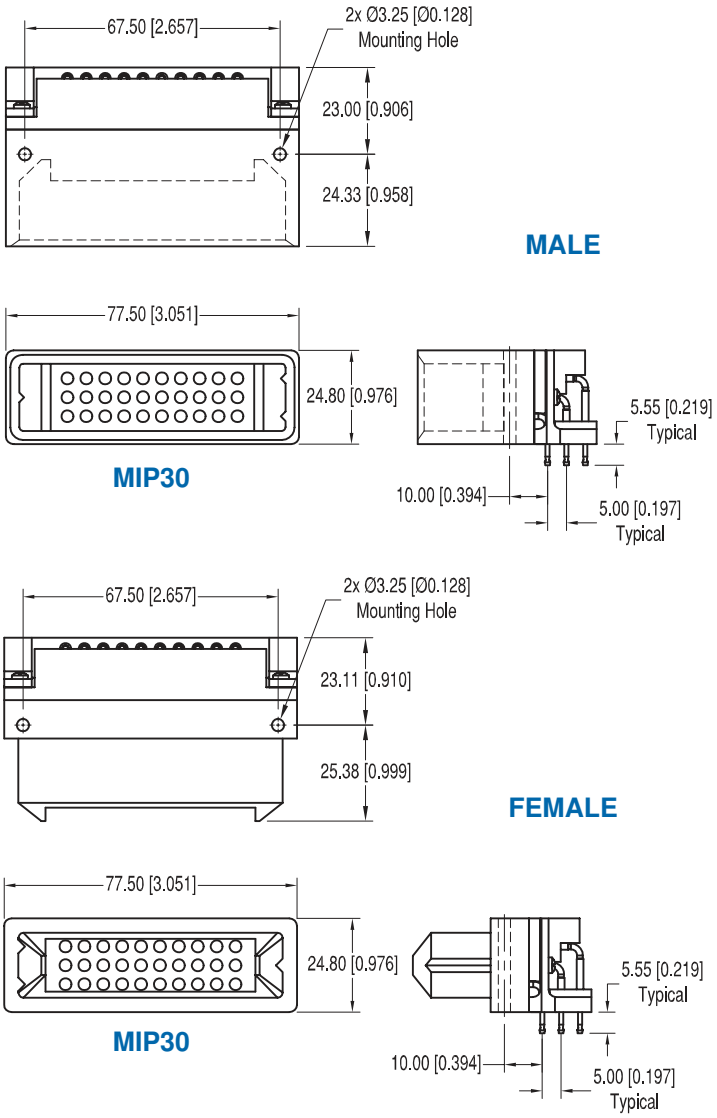
SUGGESTED PRINTED BOARD HOLE SIZES:

Suggested ø1.14 [0.045] holes for size 20 contact holes.
Suggested ø2.11 [0.083] holes for size 16 contact holes.
Suggested ø2.90 [0.114] holes for size 12 contact holes.
Suggested ø3.68 [0.145] holes for size 8 contact holes.
Suggested ø3.96±0.08 [0.156±0.003] holes for connector mounting holes.

RIGHT ANGLE (90º) COMPLIANT PRESS-FIT BOARD MOUNT CONNECTORS

CODE 63

MALE AND FEMALE



RIGHT ANGLE (90º) COMPLIANT PRESS-FIT CONTACT HOLE PATTERN

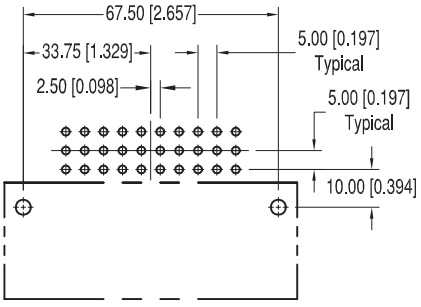
MALE AND FEMALE

SUGGESTED PRINTED BOARD HOLE SIZES:

NOTE: See page 57 for suggested printed board drill hole sizes, recommended plating and finished hole sizes for compliant contact termination positions.

For press-fit connector installation tools, see pages 55-57.

For mounting screw options, see page 55.



MIP30

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

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	MIP	29W9	F	32	0	0	A1	/AA	—	

STEP 1 - BASIC SERIES

MIP - Mini-Infinity

STEP 2 - CONNECTOR VARIANTS

24W8 - 2 high performance size 8, 6 size 12 and 16 size 20 contacts. Only available for use with crimp contacts.
28W12 - 12 size 12 and 16 size 20 contacts
29W9 - 6 size 8, 3 size 12, and 20 size 20 contacts
30 - 30 size 16 contacts
30WA10 - 10 size 12 and 20 size 20 contacts
30WB10 - 4 size 8, 6 size 16, and 20 size 20 contacts

STEP 3 - CONNECTOR GENDER

M - Male
F - Female

STEP 4 - CONTACT TERMINATION TYPE

0 - Order contacts separately for cable connectors for connection systems 2, 4 and 5. See pages 41-48.
3 - Solder, Straight Printed Board Mount with 3.70 [0.146] tail extension for connection systems 1 and 4.
32- Solder, Straight Printed Board Mount with 9.58 [0.377] tail extension for connection systems 1 and 4.
4 - Solder, Right Angle (90º) Printed Board Mount with 3.70 [0.146] tail extension for connection systems 1, 2, 3 and 7.
42- Solder, Right Angle (90º) Printed Board Mount with 9.58 [0.377] tail extension for connection systems 1, 2, 3 and 7.
63 - Press-Fit, Compliant Termination Right Angle (90º) Printed Board Mount for use with board thicknesses of 2.29 to 4.45 [0.090 to 0.175]. With cross bar. Connection systems 1, 2, 3 and 7. Available on connector variant 30 only.
93 - Press-Fit, Compliant Termination Straight Printed Board Mount for use with board thicknesses of 2.29 to 4.45 [0.090 to 0.175]. Connection systems 1 and 4.

STEP 5 - MOUNTING STYLE

0 - None, mounting screws supplied with board mount connector.
N - Push-on fasteners supplied installed on board mount connector. Not recommended for code 63 and 93.

STEP 6 - PANEL MOUNT

0 - None.
82 - Panel Mount 1.52 [0.060] panel thickness
83 - Panel Mount 2.28 [0.090] panel thickness

STEP 7 - CONTACT PLATING

0 - Crimp contacts ordered separately, see pages 41-48.
A1 - Gold flash over nickel on mating end and termination end.
A2 - Gold flash over nickel on mating end and 5.00µ [0.00020 inch] tin-lead solder coat on termination end. Not available with code 63 and 93 in Step 4.
C1 - 0.76µ [0.000030 inch] gold over nickel on mating end and termination end.
C2 - 0.76µ [0.000030 inch] gold over nickel on mating end and 5.00µ [0.00020 inch] tin-lead solder coat on termination end. Not available with code types 63 and 93 in Step 4.
D1 - 1.27µ [0.000050 inch] gold over nickel on mating end and termination end.
D2 - 1.27µ [0.000050 inch] gold over nickel on mating end and 5.00µ [0.00020 inch] tin-lead solder coat on termination end. Not available with code types 63 and 93 in Step 4.

STEP 8 - ENVIRONMENTAL COMPLIANCE OPTIONS

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

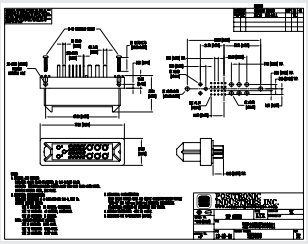
NOTE: If compliance to environmental legislation is not required, this step will not be used. Example:MIP29W9F3200A1

STEP 9 - SPECIAL OPTIONS

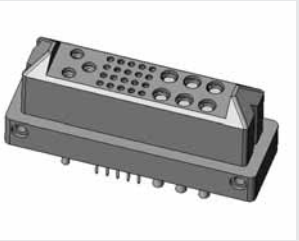
CONTACT TECHNICAL SALES FOR SPECIAL OPTIONS

- Sequential Mating Systems
- Recessed Female Contacts
- Customer Specified Contact Arrangement
- Hot Plug (see below*)
- Other Customer Requirements

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

***Hot Plug Note:** If UL approval is required for a Hot Plug connector, HP must be added to the part number. This is to be prior to any special plating or MOS requirements.

Example part numbers:
MIP28W12M300A1-HP
MIP30WA10M400A1-HP-294.0

TECHNICAL CHARACTERISTICS

MATERIALS AND FINISHES:

Insulator: Glass-filled polyester, UL 94V-0, blue color.

Contacts: Precision-machined copper alloy with gold flash over nickel, or 0.76 microns [0.000030 inch] gold over nickel, or 1.27 microns [0.000050 inch] gold over nickel. Solder-coated terminations optional.

Cable Adapter: Thermoplastic and metallided plastic.

Mounting Screws: Steel, zinc plated.

Jackscrews: Stainless steel, passivated. Knobs are aluminum with black anodized coating.

Push-on Fastener: Spring-temper copper alloy, tin plated.

Mounting Plate: Steel with zinc plate.

ELECTRICAL CHARACTERISTICS:

Contact Current Rating:
- **Size 12 Contact:** 40 amperes, continuous
- **Size 16 Contact:** 20 amperes, continuous.
- **Size 20 Contact:** 5 amperes

Temperature Rise Curves per IEC 512-3, Test 5a. See page 31 of this catalog for performance curves.

Initial Contact Resistance per IEC 512-2, Test 2b.:
- **Size 12 Contact:** 0.001 ohms, maximum.
- **Size 16 Contact:** 0.0016 ohms, maximum.
- **Size 20 Contact:** 0.007 ohms

Insulator Resistance: 5 G ohms per IEC 512-2, Test 3a.

Voltage Proof: 2000 V rms per IEC 512-2, Test 4a, Method C.

Hot Pluggable (50 Couplings per U.L. 1977, Paragraph 15):
- **Size 12 Contact:** 250 VAC at 25 amperes.

Primary Circuit Contact Positions: 12-2, 12-5, 12-9, 12-11, 12-14, and 12-18.

Secondary Circuit Contact Positions: 12-1, 12-3, 12-4, 12-6, 12-7, 12-8, 12-10, 12-12, 12-13, 12-15, 12-16, and 12-17.

Creepage Distances: Consult Technical Sales for information about your specific connector choice.

Clearance Distance: Consult Technical Sales for information about your specific connector choice.

Working Voltage: Consult Technical Sales for information about your specific connector choice.

For RoHS options see page 40.

UL Recognized: File #E49351
CSA Recognized: File #LR54219

MECHANICAL CHARACTERISTICS:

Blind Mating System: Male and female connector bodies provide “lead-in” for 7.62 mm [0.300 inch] diametral misalignment.

Polarization: Provided by connector body design.

Removable Contacts: Insert contact in rear face of insulator; release from front face of insulator. Female contacts feature “Closed Entry” design.

Removable Contact Retention in Connector Body:
- **Size 12 Contact:** 67N [15 lbs.] per IEC 512-8, Test 15a.
- **Size 16 Contact:** 67N [15 lbs.] per IEC 512-8, Test 15a.
- **Size 20 Contact:** 44N [10 lbs.] per IEC 512-8, Test 15a.

Fixed Contacts: Printed board terminations, both straight and right angle (90º). Size 12 and 16 female contacts feature “Closed Entry” design. Size 20 female contacts feature “Rugged Open Entry” design.

Fixed Contact Retention in Connector Body: 44N (10 lbs.), minimum.

Resistance to Solder Heat: 260ºC (500ºF) for 10 seconds duration per IEC 512-6, Test 12e, 25-watt soldering iron.

Sequential Contact Mating System: Two level and three level systems featured. Consult Technical Sales for application assistance with contact sequencing.

Safety “Recessed in Insulator” Contacts: Size 12 and 16 female contacts may be recessed 5.00 mm [0.197 inch] below the face of the female connector insulator per safety requirements. Consult Technical Sales for ordering information.

Compliant Press-Fit Terminations: Size 12, 16 and 20 contacts are available with Compliant Press-Fit Contact Terminations. Consult Technical Sales for electrical and mechanical characteristics.

Locking and Coupling System: Center jackscrew, M4X0.7 thread. Long jackscrews for use with cable adapter or short jackscrews for use without cable adapter.

Printed Board and Panel Mounting Holes: Mounting holes provided in connector body for both printed board and panel mounting. Self-tapping screws or push-on fastener options are available.

Mounting Plate with Float Bushings: Provides up to 2.54 X 4.88 mm [0.100 X 0.192 inch] float.

Mechanical Operations:
- **Systems 1 & 2:** 200 couplings.
- **Systems 3, 4, 5, & 6:** 500 couplings.

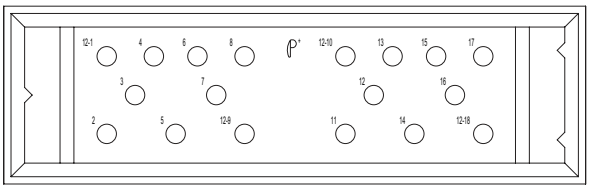
CLIMATIC CHARACTERISTICS:

Working Temperature: -55ºC to +125ºC.

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

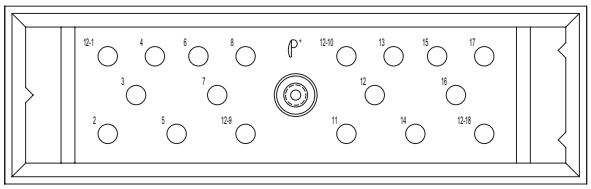
CONTACT VARIANTS

FACE VIEW OF MALE OR REAR VIEW OF FEMALE



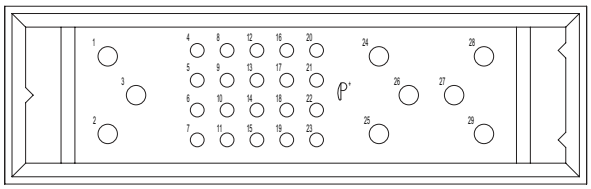
IP18 VARIANT

18 Size 12 Contacts



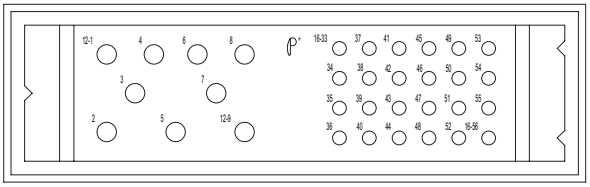
IP18 VARIANT

18 Size 12 Contacts with Jackscrew ✻



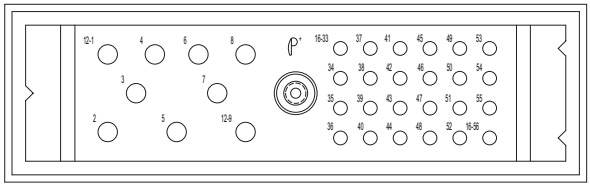
IP29W9 VARIANT

9 Size 12 and 20 Size 16 Contacts



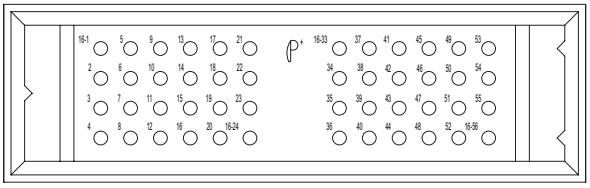
IP33W9 VARIANT

9 Size 12 and 24 Size 16 Contacts



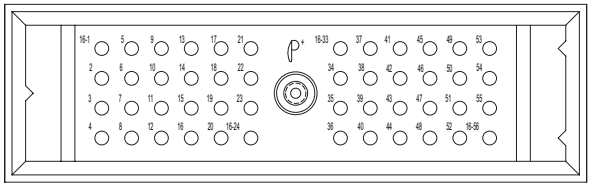
IP33W9 VARIANT

9 Size 12 and 24 Size 16 Contacts with Jackscrew ✻



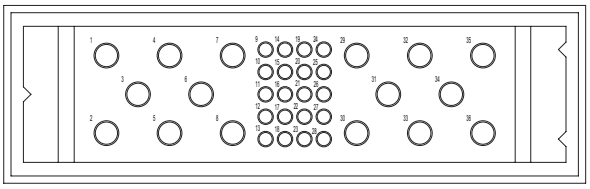
IP48 VARIANT

48 Size 16 Contacts



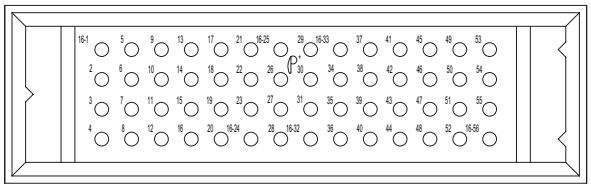
IP48 VARIANT

48 Size 16 Contacts with Jackscrew ✻



IP36W16 VARIANT

16 Size 12 and 20 Size 20 Contacts



IP56 VARIANT

56 Size 16 Contacts

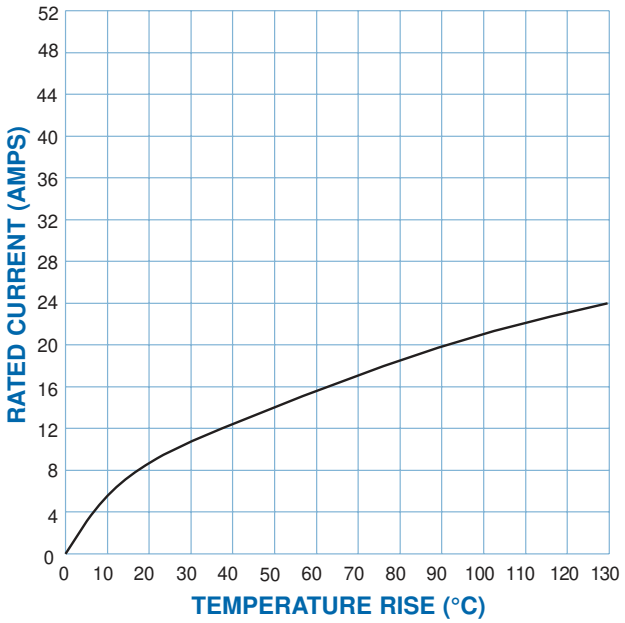
✻ **NOTE**:

Male connectors are offered with rotating jackscrews. Female connectors are offered with fixed jackscrews.

TEMPERATURE RISE CURVES

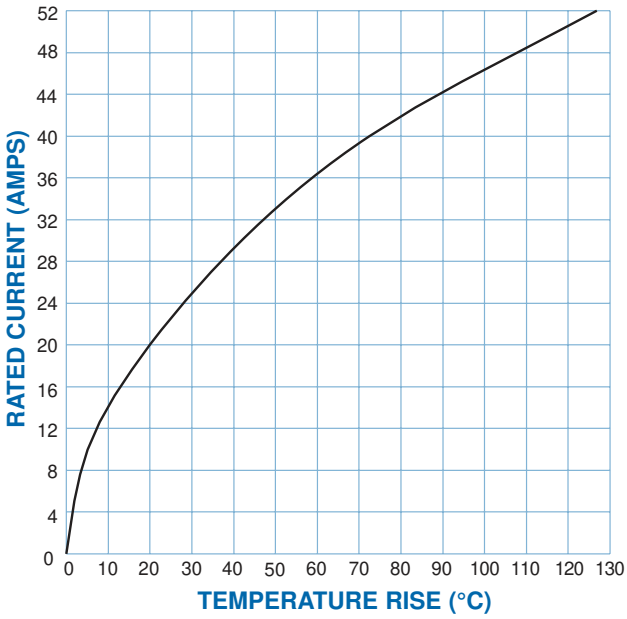
TESTED PER IEC PUBLICATION 512-3, TEST 5A

SIZE 16 CONTACTS



Above curve developed using IP56M400A1 and IP56F300A1 connectors and 12 AWG wire. All contacts under load.

SIZE 12 CONTACTS

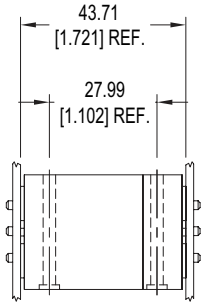


Above curve developed using a IP33W9M0000 connector with MC612N contacts and a IP33W9F0000 connector with FC612N2 contacts and 12 AWG wire on both. All contacts under load. Size 16 contact positions not filled and tested.

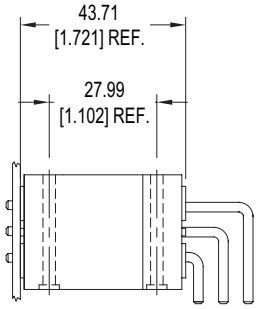
NOTE:

These temperature rise curves were developed using standard contact materials. High conductivity contact materials are available. These alternate materials allow for more favorable current carrying performance; consult Technical Sales for details.

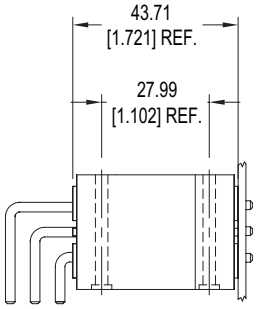
CONNECTOR MATING DIMENSIONS



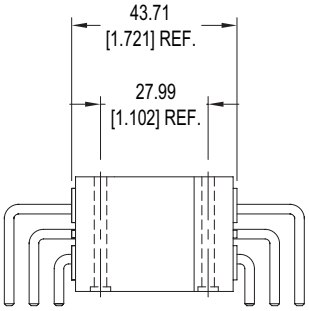
Straight Board Mount or Panel Mount Female to Straight Board Mount or Panel Mount Male.



Right Angle (90º) Board Mount Female to Straight Board Mount or Panel Mount Male.



Straight Board Mount or Panel Mount Female to Right Angle (90º) Board Mount Male.



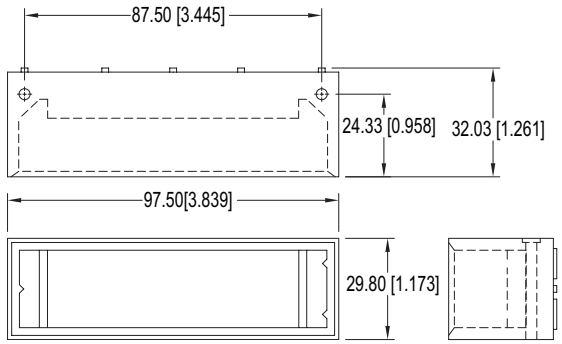
Right Angle (90º) Board Mount Female to Right Angle (90º) Board Mount Male.

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

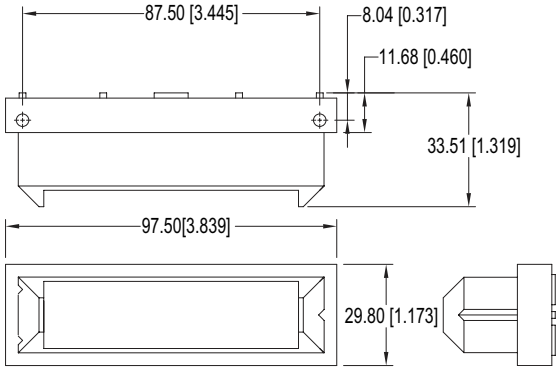
CONNECTOR OUTLINE DIMENSIONS AND CABLE CONNECTOR

CONNECTOR OUTLINE DIMENSIONS
FOR USE WITH CODE 0, 3, 32, 93, 4, 42, AND 63

MALE



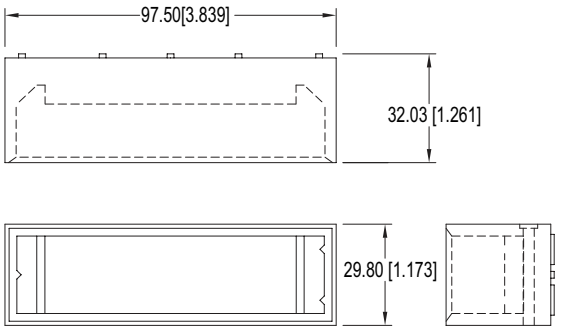
FEMALE



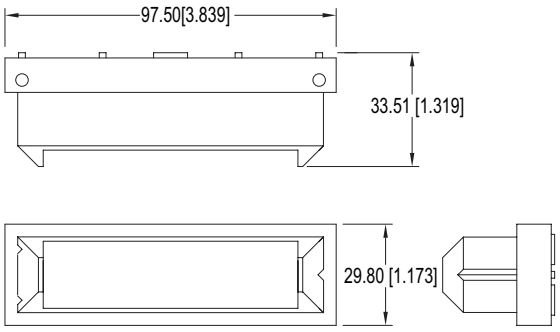
NEW!

CABLE CONNECTOR
FOR USE WITH SIZE 12, 16 AND 20 REMOVABLE CONTACTS
CODE 0
CONTACTS ARE NOT SUPPLIED WITH CONNECTOR AND MUST BE ORDERED SEPARATELY

MALE



FEMALE



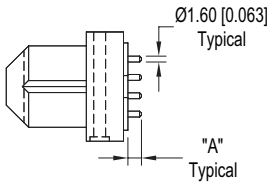
For information regarding size 12, 16 and 20 removable contacts, see Removable Contact section, pages 41-48.

STRAIGHT SOLDER BOARD MOUNT CONNECTORS

CODE 3 AND CODE 32

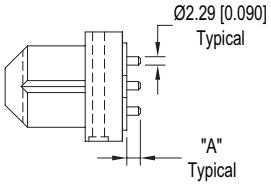
FEMALE CONNECTOR SHOWN FOR REFERENCE ONLY

CODE	"A" LENGTH
3	3.70 [0.146]
32	9.58 [0.377]

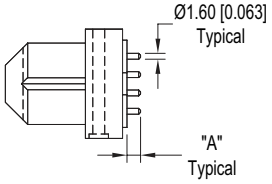


Size 16 contacts

IP56

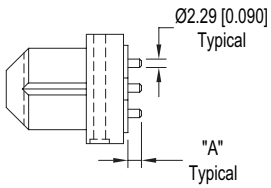


Size 12 contacts



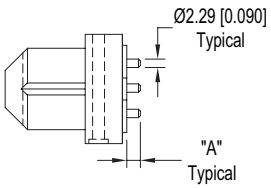
Size 16 contacts

IP33W9

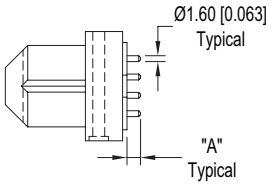


Size 12 contacts

IP18

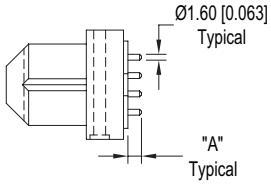


Size 12 contacts



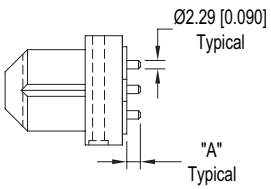
Size 16 contacts

IP29W9

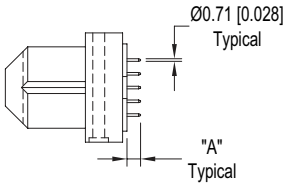


Size 16 contacts

IP48



Size 12 contacts



Size 20 contacts

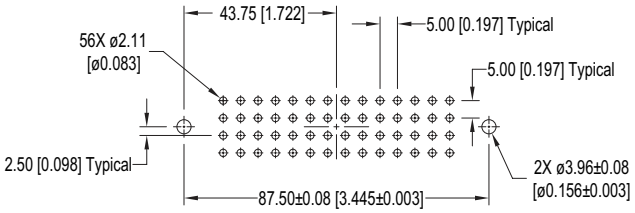
IP36W16

NOTE:
For customer specific contact extensions below the printed board, contact Technical Sales for ordering information.

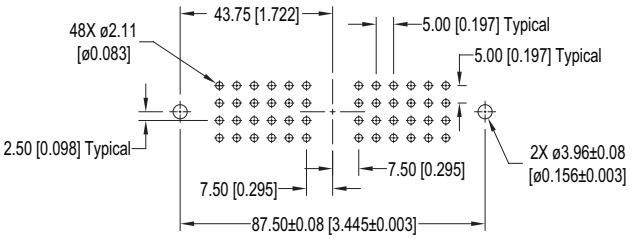
DIMENSIONS ARE IN MILLIMETERS [INCHES].
ALL DIMENSIONS ARE SUBJECT TO CHANGE.

STRAIGHT SOLDER CONTACT HOLE PATTERNS

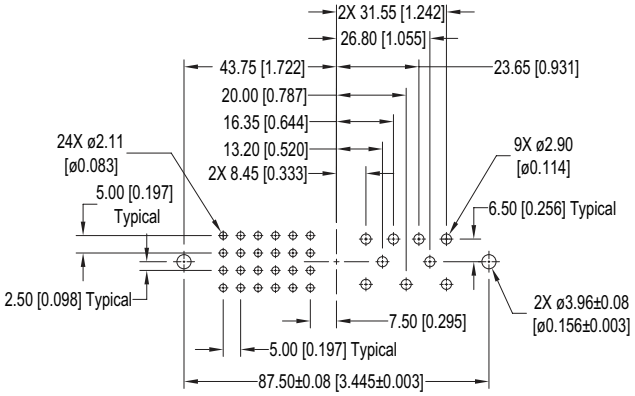
HOLE PATTERN SHOWN IS FOR FEMALE CONNECTOR
USE MIRROR IMAGE FOR MALE CONNECTOR



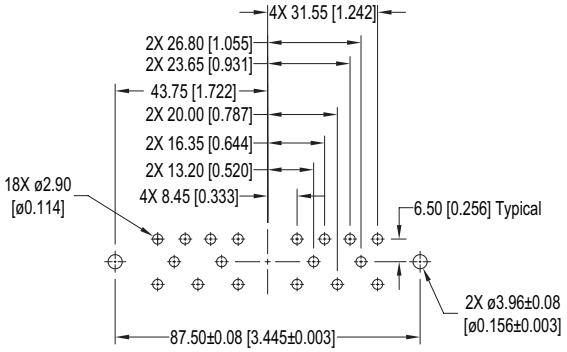
IP56F



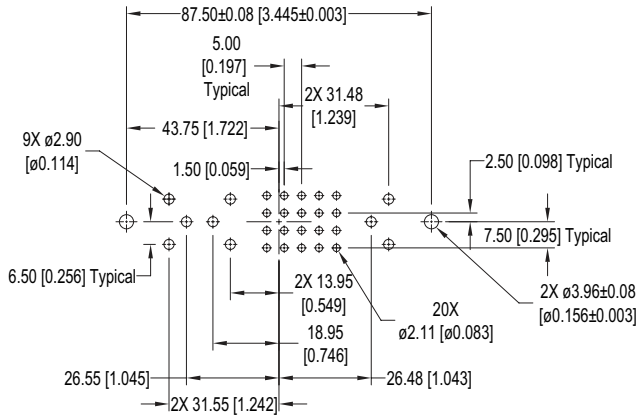
IP48F



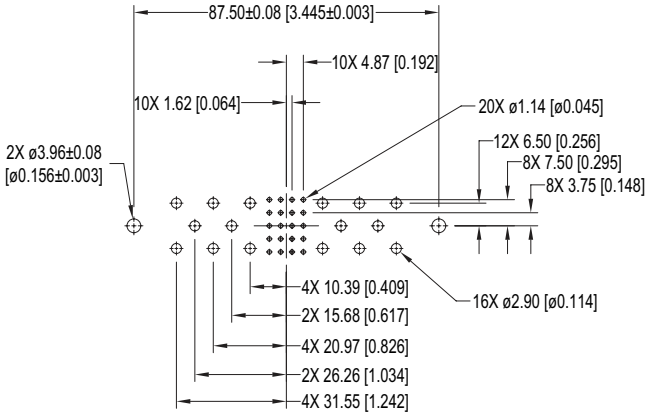
IP33W9F



IP18F



IP29W9F



IP36W16F

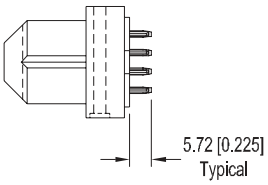
SUGGESTED PRINTED BOARD HOLE SIZES:

Suggested ø1.14 [0.045] holes for size 20 straight contact holes.
Suggested ø2.11 [0.083] holes for size 16 straight contact holes.
Suggested ø2.90 [0.114] holes for size 12 straight contact holes.
Suggested ø3.96±0.08 [0.156±0.003] holes for connector mounting holes.

STRAIGHT COMPLIANT PRESS-FIT CONNECTORS

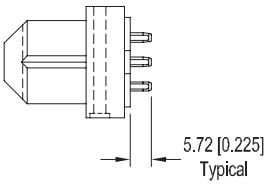
CODE 93

FEMALE CONNECTOR SHOWN FOR REFERENCE ONLY

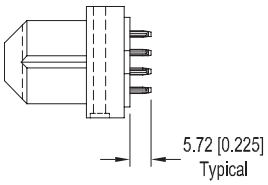


Size 16 contacts

IP56

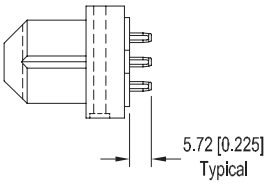


Size 12 contacts



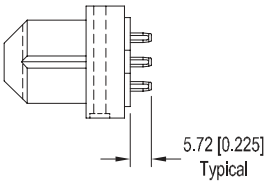
Size 16 contacts

IP33W9

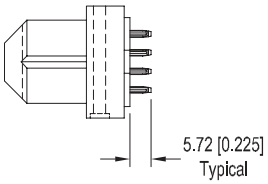


Size 12 contacts

IP18

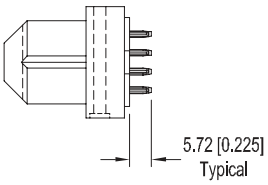


Size 12 contacts



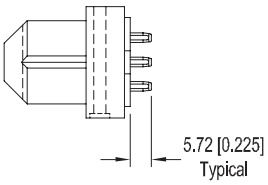
Size 16 contacts

IP29W9

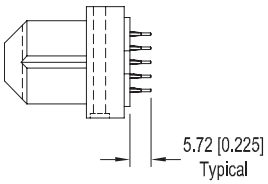


Size 16 contacts

IP48



Size 12 contacts



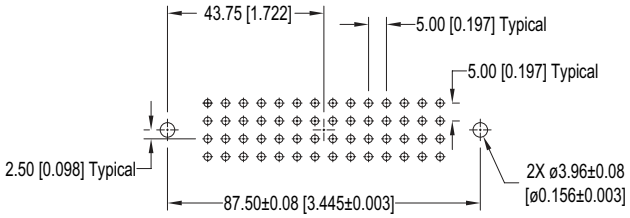
Size 20 contacts

IP36W16

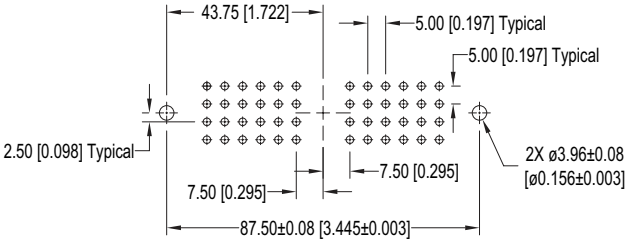
DIMENSIONS ARE IN MILLIMETERS [INCHES].
ALL DIMENSIONS ARE SUBJECT TO CHANGE.

STRAIGHT COMPLIANT PRESS-FIT CONTACT HOLE PATTERNS

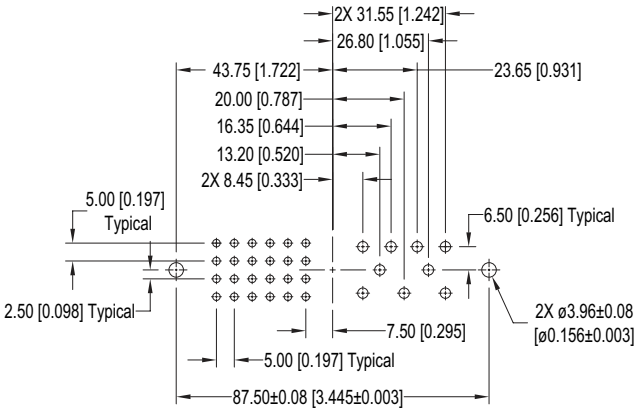
HOLE PATTERN SHOWN IS FOR FEMALE CONNECTOR; USE MIRROR IMAGE FOR MALE CONNECTOR



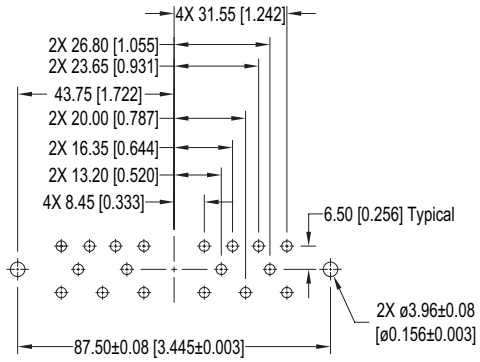
IP56F



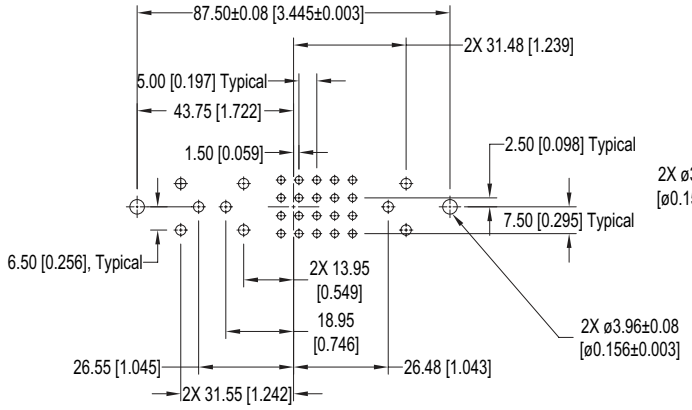
IP48F



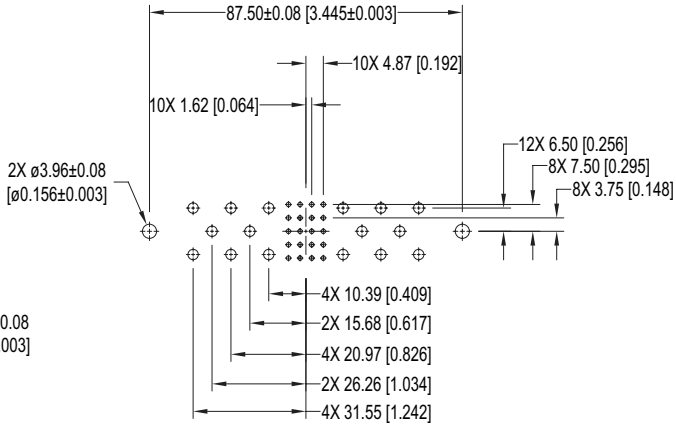
IP33W9F



IP18F



IP29W9F



IP36W16

SUGGESTED PRINTED BOARD HOLE SIZES:

NOTE: See page 57 for suggested printed board drill hole sizes, recommended plating and finished hole sizes for compliant contact termination positions.

For press-fit connector installation tools, see pages 55-57.

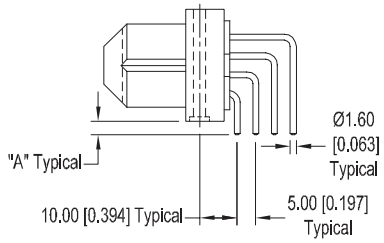
For mounting screw options, see page 55.

RIGHT ANGLE (90º) SOLDER BOARD MOUNT CONNECTORS

CODE 4 AND CODE 42

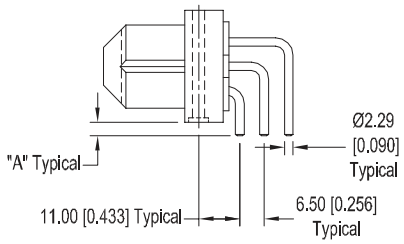
FEMALE CONNECTOR SHOWN FOR REFERENCE ONLY

CODE	"A" LENGTH
4	3.70 [0.146]
42	9.58 [0.377]

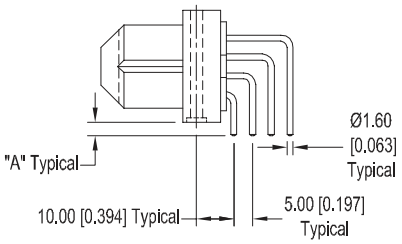


Size 16 contacts

IP56

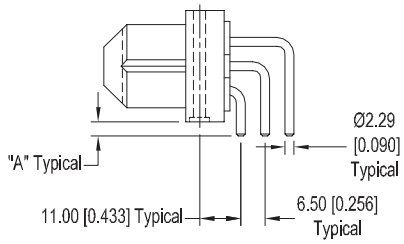


Size 12 contacts



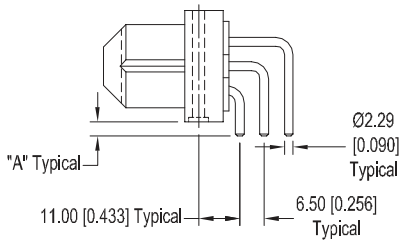
Size 16 contacts

IP33W9

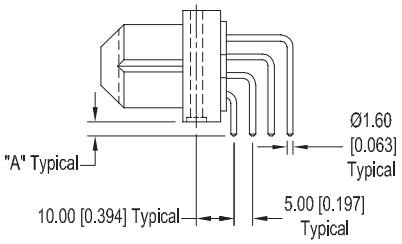


Size 12 contacts

IP18

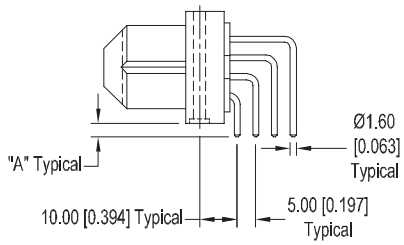


Size 12 contacts



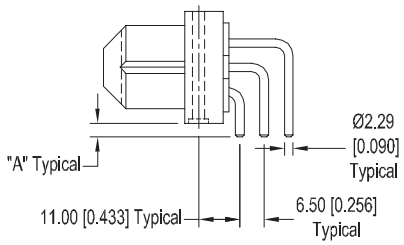
Size 16 contacts

IP29W9

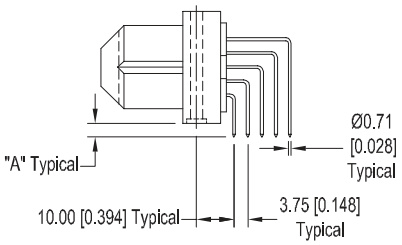


Size 16 contacts

IP48



Size 12 contacts



Size 20 contacts

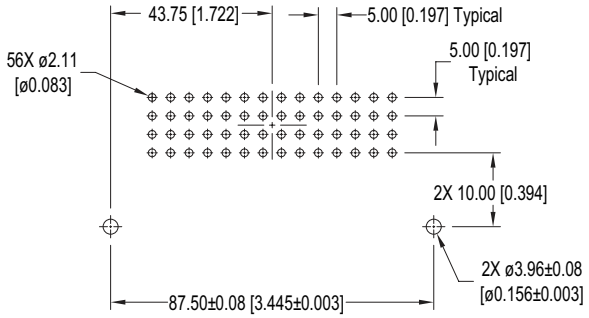
IP36W16

NOTE:
For customer specific contact extensions below the printed board, contact Technical Sales for ordering information.

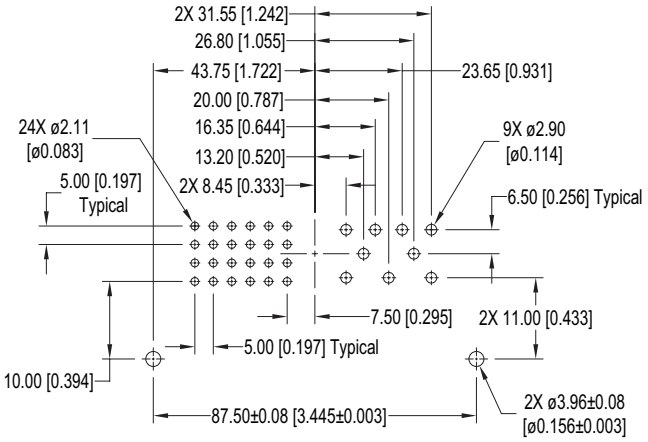
DIMENSIONS ARE IN MILLIMETERS [INCHES].
ALL DIMENSIONS ARE SUBJECT TO CHANGE.

RIGHT ANGLE (90º) SOLDER CONTACT HOLE PATTERNS

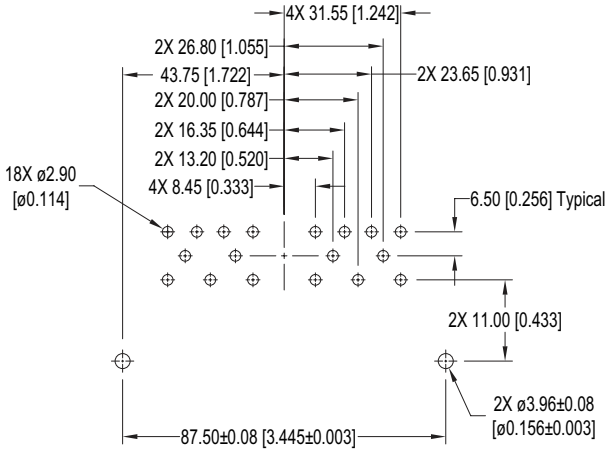
HOLE PATTERN SHOWN IS FOR FEMALE CONNECTOR
USE MIRROR IMAGE FOR MALE CONNECTOR



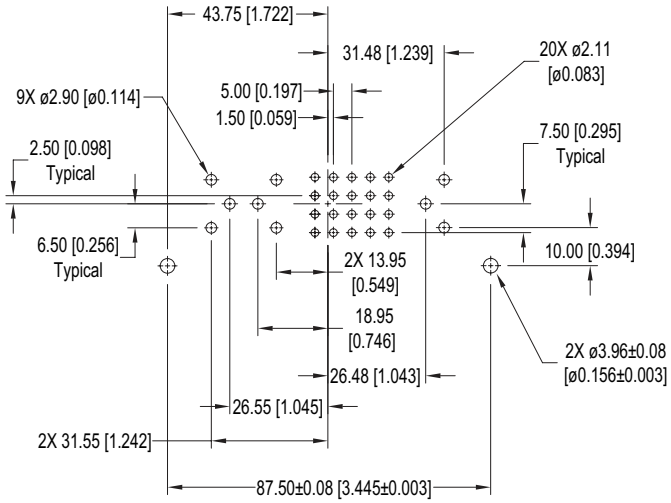
IP56F



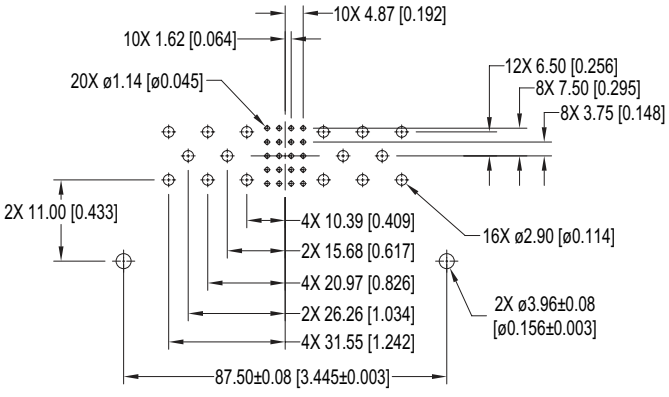
IP33W9F



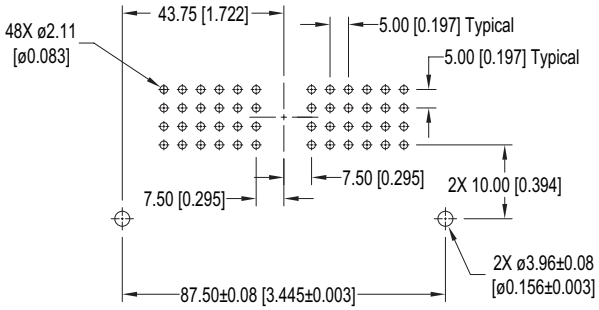
IP18F



IP29W9F



IP36W16F



IP48F

SUGGESTED PRINTED BOARD HOLE SIZES:

Suggested ø1.14 [0.045] holes for size 20 straight contact holes.
Suggested ø2.11 [0.083] holes for size 16 straight contact holes.
Suggested ø2.90 [0.114] holes for size 12 straight contact holes.
Suggested ø3.96±0.08 [0.156±0.003] holes for connector mounting holes.

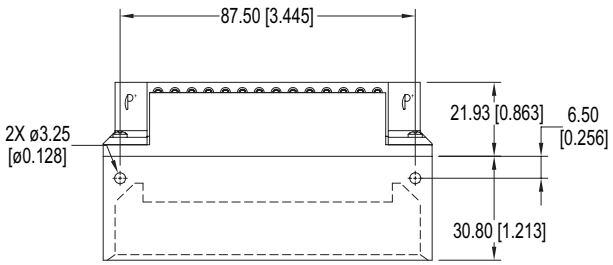
DIMENSIONS ARE IN MILLIMETERS [INCHES].
ALL DIMENSIONS ARE SUBJECT TO CHANGE.

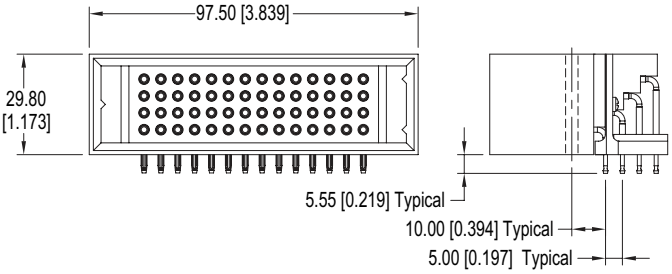
RIGHT ANGLE (90º) COMPLIANT PRESS-FIT BOARD MOUNT CONNECTORS

CODE 63

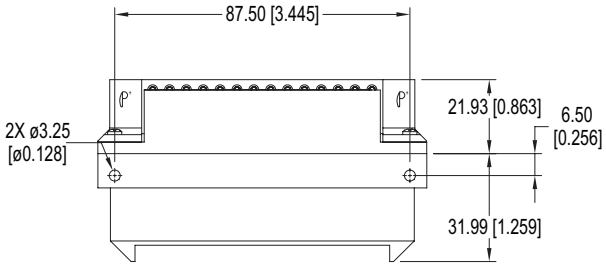
MALE AND FEMALE

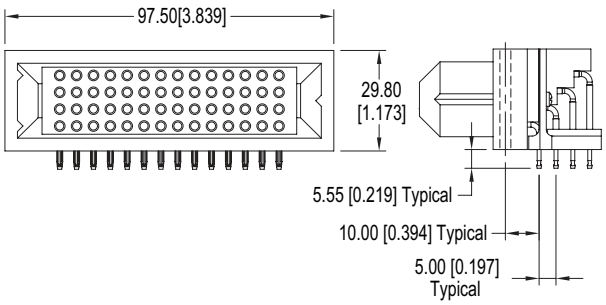
MALE





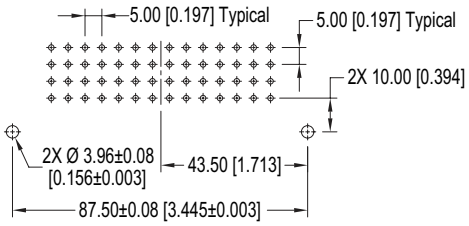
FEMALE





RIGHT ANGLE (90º) COMPLIANT PRESS-FIT CONTACT HOLE PATTERN

MALE AND FEMALE



SUGGESTED PRINTED BOARD HOLE SIZES:

NOTE: See page 57 for suggested printed board drill hole sizes, recommended plating and finished hole sizes for compliant contact termination positions.

For press-fit connector installation tools, see pages 55-57.

For mounting screw options, see page 55.

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

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	IP	48	M	0	J	EL	0	/AA	—	

STEP 1 - BASIC SERIES

IP - Infinity

STEP 2 - CONNECTOR VARIANTS

56 - 56 size 16 contacts
48 - 48 size 16 contacts
33W9 - 9 size 12 and 24 size 16 contacts
18 - 18 size 12 contacts
29W9 - 9 size 12 and 20 size 16 contacts
36W16 - 16 size 12 and 20 size 20 contacts

STEP 3 - CONNECTOR GENDER

M - Male
F - Female

STEP 4 - CONTACT TERMINATION TYPE

0 - Order contacts separately for cable connectors for connection systems 1, 2, 4, 5 and 6. See pages 41-48.

3 - Solder, Straight Printed Board Mount with 3.70 [0.146] tail extension for connection systems 1 and 4.

32 - Solder, Straight Printed Board Mount with 9.58 [0.377] tail extension for connection systems 1 and 4.

4 - Solder, Right Angle (90º) Printed Board Mount with 3.70 [0.146] tail extension for connection systems 1, 2 and 3.

42 - Solder, Right Angle (90º) Printed Board Mount with 9.58 [0.377] tail extension for connection systems 1, 2 and 3.

63 - Press-Fit, Compliant Termination Right Angle (90º) Printed Board Mount for use with board thicknesses of 2.29 to 4.45 [0.090 to 0.175]. With Cross Bar. Connection systems 1 and 2. Connector variant 48 and 56 connectors only.

93 - Press-Fit, Compliant Termination Straight Printed Board Mount for use with board thicknesses of 2.29 to 4.45 [0.090 to 0.175]. Connection systems 1 and 4.

STEP 5 - MOUNTING STYLE AND CABLE ADAPTER

0 - None, mounting screws supplied with board mount connector.

H - Mounting Plate with Floating Bushings.

J - Robust plastic cable adapter

N - Push-on fasteners supplied installed on connector.

STEP 6 - JACKSCREWS

0 - None.

*E - Rotating Male Jackscrew, for use with male connectors without cable adapter only.

*EL - Rotating Male Jackscrew, for use with male connectors with cable adapter only.

*T - Fixed Female Jackscrew, for use with female connectors only.

*Available on connector variants 48, 33W9, and 18 only.

STEP 9 - SPECIAL OPTIONS

CONTACT TECHNICAL SALES FOR SPECIAL OPTIONS

- Sequential Mating Systems
- Recessed Female Contacts
- Customer Specified Contact Arrangement
- Other Customer Requirements

STEP 8 - ENVIRONMENTAL COMPLIANCE OPTIONS

POSITRONIC INDUSTRIES • RoHS Compliant • per EU Directive 2002/95/EC

/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:IP48M0JEL0

STEP 7 - CONTACT PLATING FOR PRINTED BOARD TYPE CONNECTORS

0 - Crimp contacts ordered separately, see pages 41-48.

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

A2 - Gold flash over nickel on mating end and 5.00μ [0.00020 inch] tin-lead solder coat on termination end. Not available with code 63 and 93 in Step 4.

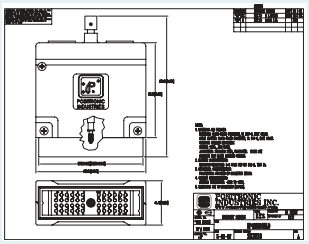
C1 - 0.76μ [0.000030 inch] gold over nickel on mating end and termination end.

C2 - 0.76μ [0.000030 inch] gold over nickel on mating end and 5.00μ [0.00020 inch] tin-lead solder coat on termination end. Not available with code types 63 and 93 in Step 4.

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

D2 - 1.27μ [0.000050 inch] gold over nickel on mating end and 5.00μ [0.00020 inch] tin-lead solder coat on termination end. Not available with code types 63 and 93 in Step 4.

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

REMOVABLE CONTACT TECHNICAL CHARACTERISTICS

SIZE 20 REMOVABLE CONTACT

MATERIALS AND FINISHES:

STANDARD: Precision machined copper alloy with gold flash over nickel. Other finishes are available, see optional plating finishes for -14 and -15.

MECHANICAL CHARACTERISTICS:

STANDARD: Insert contact to rear face of insulator, release from front face of insulator. Size 20 contacts, 1.02 mm [0.040 inch] diameter male contacts, closed entry design female contacts.

ELECTRICAL CHARACTERISTICS:

Contact Current Rating: 5 amperes.
Initial Contact Resistance: 0.007 ohms max. per IEC 512-2, test 2b.

SIZE 16 REMOVABLE CONTACT

MATERIALS AND FINISHES:

STANDARD: Precision machined copper alloy with gold flash over nickel. Other finishes are available, see optional plating finishes for -14 and -15.

HIGH CONDUCTIVITY: Tellurium copper, gold flash over nickel. Other finishes are available, see optional plating finishes for -14 and -15.

MECHANICAL CHARACTERISTICS:

STANDARD AND HIGH CONDUCTIVITY: Insert contact to rear face of insulator, release from front face of insulator. Size 16 contacts, 1.57 mm [0.062 inch] diameter male contacts. Female contact closed entry for highest reliability.

ELECTRICAL CHARACTERISTICS:

STANDARD:

Contact Current Rating: 20 amperes, continuous.
Initial Contact Resistance: 0.0016 ohms max. per IEC 512-2, test 2b.

HIGH CONDUCTIVITY:

Contact Current Rating: Consult Technical Sales for detail information.
Initial Contact Resistance: Consult Technical Sales for detail information.

SIZE 12 REMOVABLE CONTACT

MATERIALS AND FINISHES:

STANDARD: Precision machined copper alloy with gold flash over nickel. Other finishes are available, see optional plating finishes for -14 and -15.

HIGH CONDUCTIVITY: Tellurium copper, gold flash over nickel. Other finishes are available, see optional plating finishes for -14 and -15.

SHIELDED:

Dielectric Material: PTFE teflon
Inner Contacts: Brass & phosphor bronze, 0.000030 inch [0.76µ] gold over nickel. Other finishes are available, see optional plating finishes for -15.
Outer Contacts: Brass & phosphor bronze, gold flash over nickel. Other finishes are available, see optional finishes for -14

MECHANICAL CHARACTERISTICS:

STANDARD AND HIGH CONDUCTIVITY: Insert contact to rear face of insulator, release from front face of insulator. Size 12 contacts, 2.39 mm [0.094 inch] diameter male contacts. Female contact closed entry for highest reliability.

SHIELDED: Insert contact to rear face of insulator, release from front face of insulator. Size 12 contacts, 2.39 mm [0.094 inch] diameter male contacts.

Durability: 100 cycles minimum.
Vibration: 20g from 10 Hz to 500 Hz
Shock: 30g - 11 rms

ELECTRICAL CHARACTERISTICS:

STANDARD:

Contact Current Rating: 40 amperes, continuous.
Initial Contact Resistance: 0.001 ohms max. per IEC 512-2, test 2b.

HIGH CONDUCTIVITY:

Contact Current Rating: Consult Technical sales for detail information.
Initial Contact Resistance: Consult Technical sales for detail information.

SHIELDED:

Initial Contact Resistance: 0.010 ohms maximum
Nominal Impedance: 50 ohms
Insulator Resistance: 5 G ohms
***Insertion Loss:** 0.35 dB at 1 GHz
1.35 dB at 2 GHz
1.53 dB at 3 GHz
***VSWR:** 1.20 average at 1 GHz
1.45 average at 2 GHz
1.63 average at 3 GHz
***Proof Voltage:** 600 V r.m.s.

**Above values measured using frequency domain techniques.*

SIZE 8 REMOVABLE CONTACT

MATERIALS AND FINISHES:

STANDARD: Precision machined copper alloy with gold flash over nickel. Other finishes are available, see optional plating finishes for -14 and -15.

HIGH CONDUCTIVITY: Tellurium copper, gold flash over nickel. Other finishes are available, see optional plating finishes for -14 and -15.

HIGH VOLTAGE:

Insulator Material: PTFE teflon
Contacts: Male contacts, brass. Female contacts, phosphor bronze. 0.76µ [0.000030 inch] gold over nickel. Other finishes are available, see optional plating finishes for -15.

HIGH CURRENT: Tellurium copper, gold flash over nickel. Other finishes are available, see optional plating finishes for -14 and -15.

SHIELDED:

Dielectric Material: PTFE teflon
Inner Contacts: Brass and phosphor bronze, 0.76µ [0.000030 inch] gold over nickel. Other finishes are available, see optional finishes for -15.
Outer Contacts: Brass and phosphor bronze, gold flash over nickel. Other finishes are available, see optional finishes for -14.

. . . Continued on next page

For information regarding crimp tool and crimping tool techniques, see Application Tools section, pages 49-54.

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

REMOVABLE CONTACT TECHNICAL CHARACTERISTICS AND REMOVABLE CRIMP CONTACT, SIZE 20

REMOVABLE CONTACT TECHNICAL CHARACTERISTICS

Continued from previous page . . .

SIZE 8 REMOVABLE CONTACT

MECHANICAL CHARACTERISTICS:

STANDARD AND HIGH CONDUCTIVITY: Insert contact to rear face of insulator, release from front face of insulator. Size 8 contacts, 3.61 mm [0.142 inch] diameter male contacts, closed entry design female contacts.

HIGH VOLTAGE: Insert contact to rear face of insulator, release from front face of insulator. Size 8 contacts. Straight and right angle (90°) terminations. 1.04 mm [0.041 inch] minimum hole diameter.

Durability: 500 cycles minimum.
Vibration: 20g from 10 Hz to 500 Hz
Shock: 30g - 11 ms

HIGH CURRENT: Insert contact to rear face of insulator, release from front face of insulator. Size 8 contacts, 3.61 mm [0.142 inch] diameter male contacts, closed entry design female contacts.

Durability: 500 cycles minimum.
Vibration: 20g from 10 Hz to 500 Hz
Shock: 30g - 11 ms

SHIELDED: Insert contact to rear face of insulator, release from front face of insulator. Size 8 contacts, 3.86 mm [0.152 inch] diameter male contacts. See page 48 table of cable sizes for contact termination dimensions.

Durability: 500 cycles minimum.
Vibration: 20g from 10 Hz to 500 Hz
Shock: 30g - 11 ms

ELECTRICAL CHARACTERISTICS:

STANDARD:

Contact Current Rating: 60 amperes, continuous.
Initial Contact Resistance: 0.0005 ohms max. per IEC 512-2, test 2b.

HIGH CONDUCTIVITY:

Contact Current Rating: Consult Technical Sales for detail information.
Initial Contact Resistance: 0.00035 ohms max. per IEC 512-2, test 2b.

HIGH VOLTAGE:

Flash over Voltage: 3600 V r.m.s.
Proof Voltage: 2700 V r.m.s.
Initial Contact Resistance: 0.008 ohms maximum.

HIGH CURRENT:

Contact Current Rating: Consult Technical Sales for detail information.
Initial Contact Resistance: 0.0003 ohms max. per IEC 512-2, test 2b.

SHIELDED:

Initial Contact Resistance: 0.008 ohms maximum.
Nominal Impedance: 50 ohms.
***Insertion Loss:** -0.46 dB at 1 GHz
-1.5 dB at 2 GHz
***VSWR:** 1.15 average at 1 GHz
1.56 average at 2 GHz
***Proof Voltage:** 1000 V r.m.s.

**Above values measured using frequency domain techniques.*

OPTIONAL PLATING FINISHES

-14 0.76 µ [0.000030 inch] gold over nickel by adding "-14" suffix onto part number. *Example: FC720N2-14.*

-15 1.27µ [0.000050 inch] gold over nickel by adding "-15". *Example: FC720N2-15.*

RoHS OPTIONS:

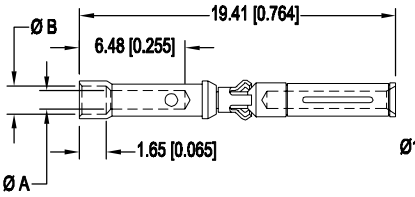
/AA Environmental Compliance Option (RoHS), compliant per EU Directive 2002/95/EC can be achieved by adding "/AA" suffix onto part number. *Examples: FC720N2/AA or for optional finishes use FC720N2/AA-14.*

REMOVABLE CRIMP CONTACT

FOR USE WITH MMIP, MIP AND IP SERIES CONNECTORS
CONTACTS MUST BE ORDERED SEPARATELY
SIZE 20

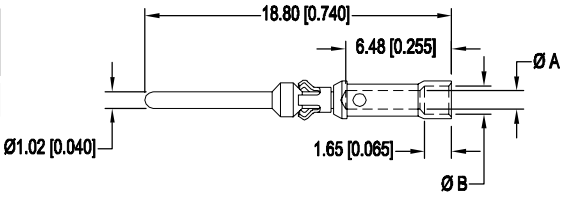
FEMALE CONTACT

"CLOSED ENTRY" DESIGN



PART NUMBER	WIRE SIZE AWG/[mm²]	ØA	ØB
FC720N2	20 / 22 / 24 [0.5 / 0.3 / 0.25]	1.14 [0.045]	1.73 [0.068]

MALE CONTACT



PART NUMBER	WIRE SIZE AWG/[mm²]	ØA	ØB
MC720N	20 / 22 / 24 [0.5 / 0.3 / 0.25]	1.14 [0.045]	1.73 [0.068]

For information regarding crimp tool and crimping tool techniques, see Application Tools section, pages 49-54.

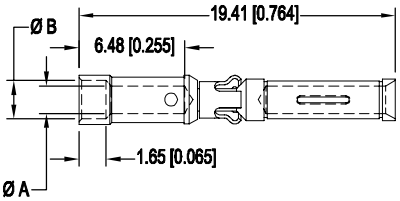
REMOVABLE CRIMP AND SOLDER CUP CONTACTS, SIZE 16

REMOVABLE CRIMP CONTACT

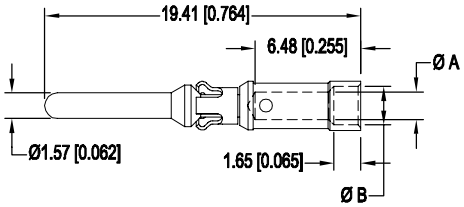
FOR USE WITH MMIP, MIP AND IP SERIES CONNECTORS
CONTACTS MUST BE ORDERED SEPARATELY
SIZE 16

*FEMALE CONTACT

"CLOSED ENTRY" DESIGN, L.S.A.



MALE CONTACT



PART NUMBERS	WIRE SIZE AWG/[mm²]	ØA	ØB
FC112N2	12 [4.0]	2.49 [0.098]	N/A
NEW! FC112N2S	12 [4.0]	2.49 [0.098]	N/A
FC114N2	14-16 [2.5-1.5]	2.06 [0.081]	2.67 [0.105]
FC116N2	16-18 [1.5-1.0]	1.70 [0.067]	2.36 [0.093]
FC120N2	20-22-24 [0.5-0.3-0.25]	1.14 [0.045]	1.65 [0.065]

"S" in part number indicates high conductivity material.

PART NUMBERS	WIRE SIZE AWG/[mm²]	ØA	ØB
MC112N	12 [4.0]	2.49 [0.098]	N/A
NEW! MC112NS	12 [4.0]	2.49 [0.098]	N/A
MC114N	14-16 [2.5-1.5]	2.06 [0.081]	2.67 [0.105]
MC116N	16-18 [1.5-1.0]	1.70 [0.067]	2.36 [0.093]
MC120N	20-22-24 [0.5-0.3-0.25]	1.14 [0.045]	1.65 [0.065]

***NOTE:** Female contacts feature Large Surface Area (L.S.A.) closed entry contact design which provides maximum mating surfaces between male and female contact and reduced contact resistance during operation.

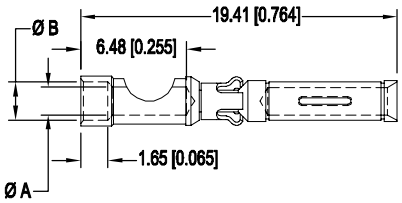
NEW!

REMOVABLE SOLDER CUP CONTACT

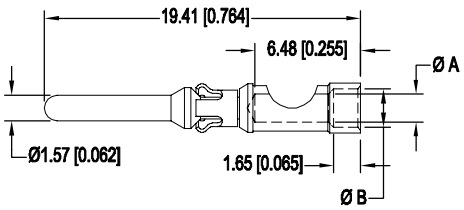
FOR USE WITH MMIP, MIP AND IP SERIES CONNECTORS
CONTACTS MUST BE ORDERED SEPARATELY
SIZE 16

*FEMALE CONTACT

"CLOSED ENTRY" DESIGN, L.S.A.



MALE CONTACT



PART NUMBERS	WIRE SIZE AWG/[mm²]	ØA	ØB
FS112N2	12 [4.0]	2.49 [0.098]	N/A
FS112N2S	12 [4.0]	2.49 [0.098]	N/A
FS114N2	14 [2.5]	2.06 [0.081]	2.67 [0.105]
FS116N2	16 [1.5]	1.70 [0.067]	2.36 [0.093]
FS120N2	20 [0.5]	1.14 [0.045]	1.65 [0.065]

"S" in part number indicates high conductivity material.

PART NUMBERS	WIRE SIZE AWG/[mm²]	ØA	ØB
MS112N	12 [4.0]	2.49 [0.098]	N/A
MS112NS	12 [4.0]	2.49 [0.098]	N/A
MS114N	14 [2.5]	2.06 [0.081]	2.67 [0.105]
MS116N	16 [1.5]	1.70 [0.067]	2.36 [0.093]
MS120N	20 [0.5]	1.14 [0.045]	1.65 [0.065]

***NOTE:** Female contacts feature Large Surface Area (L.S.A.) closed entry contact design which provides maximum mating surfaces between male and female contact and reduced contact resistance during operation.

For information regarding crimp tool and crimping tool techniques, see Application Tools section, pages 49-54.

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

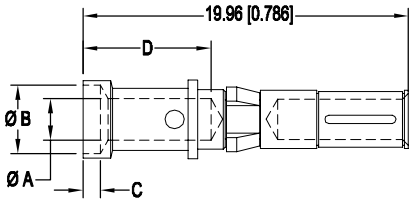
REMOVABLE CRIMP AND SOLDER CUP CONTACTS, SIZE 12

REMOVABLE CRIMP CONTACT

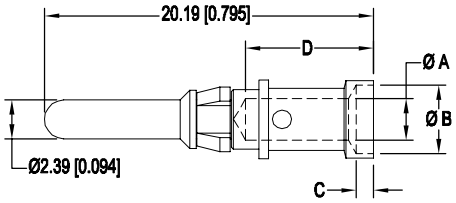
FOR USE WITH MMIP, MIP AND IP SERIES CONNECTORS
CONTACTS MUST BE ORDERED SEPARATELY
SIZE 12

*FEMALE CONTACT

"CLOSED ENTRY" DESIGN, L.S.A.



MALE CONTACT



PART NUMBER	WIRE SIZE AWG/[mm²]	ØA	ØB	C	D
FC610N2S	10 [6.0]	3.73 [0.147]	N/A	N/A	6.45 [0.254]
FC612N2	12 [4.0]	2.54 [0.100]	4.19 [0.165]	1.06 [0.042]	7.85 [0.309]

"S" in part number indicates high conductivity material.

PART NUMBER	WIRE SIZE AWG/[mm²]	ØA	ØB	C	D
MC610NS	10 [6.0]	3.73 [0.147]	N/A	N/A	6.45 [0.254]
MC612N	12 [4.0]	2.54 [0.100]	4.19 [0.165]	1.06 [0.042]	7.85 [0.309]

***NOTE:** Female contacts feature Large Surface Area (L.S.A.) closed entry contact design which provides maximum mating surfaces between male and female contact and reduced contact resistance during operation.

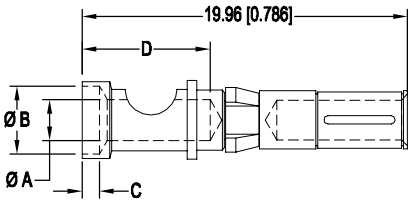
NEW!

REMOVABLE SOLDER CUP CONTACT

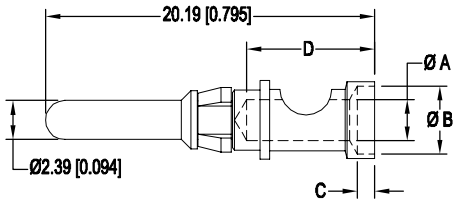
FOR USE WITH MMIP, MIP AND IP SERIES CONNECTORS
CONTACTS MUST BE ORDERED SEPARATELY
SIZE 12

*FEMALE CONTACT

"CLOSED ENTRY" DESIGN, L.S.A.



MALE CONTACT



PART NUMBER	WIRE SIZE AWG/[mm²]	ØA	ØB	C	D
FS610N2S	10 [6.0]	3.73 [0.147]	N/A	N/A	6.45 [0.254]
FS612N2	12 [4.0]	2.54 [0.100]	4.19 [0.165]	1.06 [0.042]	7.85 [0.309]

"S" in part number indicates high conductivity material.

PART NUMBER	WIRE SIZE AWG/[mm²]	ØA	ØB	C	D
MS610NS	10 [6.0]	3.73 [0.147]	N/A	N/A	6.45 [0.254]
MS612N	12 [4.0]	2.54 [0.100]	4.19 [0.165]	1.06 [0.042]	7.85 [0.309]

***NOTE:** Female contacts feature Large Surface Area (L.S.A.) closed entry contact design which provides maximum mating surfaces between male and female contact and reduced contact resistance during operation.

For information regarding crimp tool and crimping tool techniques, see Application Tools section, pages 49-54.

REMOVABLE CRIMP CONTACT

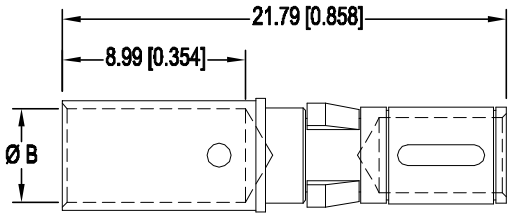
FOR USE WITH MIP SERIES CONNECTORS

CONTACTS MUST BE ORDERED SEPARATELY

SIZE 8

*FEMALE CONTACT

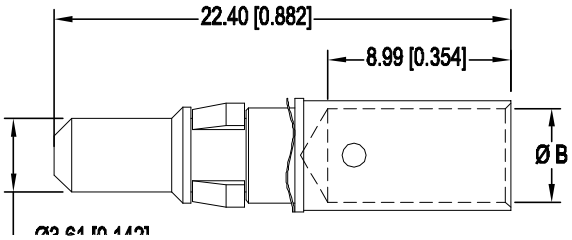
"CLOSED ENTRY" DESIGN, L.S.A.



PART NUMBER	WIRE SIZE AWG/[mm²]	ØB
FC4008D	8 / [10.0]	4.60 [0.181]
FC4008DS	8 / [10.0]	4.60 [0.181]
FC4010D	10 / [6.0]	3.10 [0.122]
FC4012D	12 / [4.0]	2.57 [0.101]
FC4016D	16 / [1.5]	1.70 [0.067]

"S" in part number indicates high conductivity material.

MALE CONTACT



PART NUMBER	WIRE SIZE AWG/[mm²]	ØB
MC4008D	8 / [10.0]	4.60 [0.181]
MC4008DS	8 / [10.0]	4.60 [0.181]
MC4010D	10 / [6.0]	3.10 [0.122]
MC4012D	12 / [4.0]	2.57 [0.101]
MC4016D	16 / [1.5]	1.70 [0.067]

***NOTE: Female contacts feature Large Surface Area (L.S.A.) closed entry contact design which provides maximum mating surfaces between male and female contact and reduced contact resistance during operation.**

For information regarding crimp tool and crimping tool techniques, see Application Tools section, pages 49-54.

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

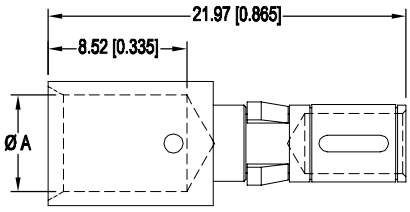
REMOVABLE HIGH CURRENT AND SOLDER CUP CONTACTS, SIZE 8

REMOVABLE SUPER HIGH CURRENT CRIMP CONTACT

FOR USE WITH MIP24W8 CONNECTORS ONLY
CONTACTS USED WITH 6 AWG WIRE
6 AWG [16.0mm²] max.
CONTACTS MUST BE ORDERED SEPARATELY
SIZE 8

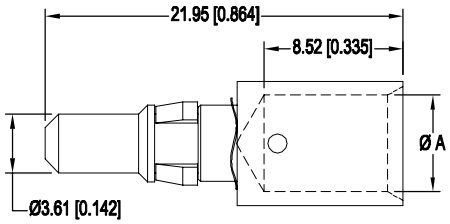
*FEMALE CONTACT

"CLOSED ENTRY" DESIGN, L.S.A.



PART NUMBER	WIRE SIZE AWG [mm²]	Ø "A"
FC4006D	6 [16.0]	5.92 [0.233]

MALE CONTACT



PART NUMBER	WIRE SIZE AWG [mm²]	Ø "A"
MC4006D	6 [16.0]	5.92 [0.233]

***NOTE:** Female contacts feature Large Surface Area (L.S.A.) closed entry contact design which provides maximum mating surfaces between male and female contact and reduced contact resistance during operation.

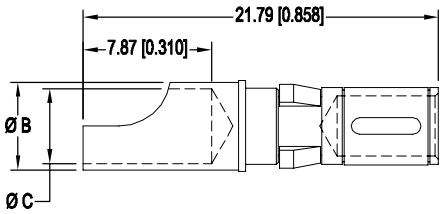
NEW!

REMOVABLE SOLDER CUP CONTACT

FOR USE WITH MIP SERIES CONNECTORS
CONTACTS MUST BE ORDERED SEPARATELY
SIZE 8

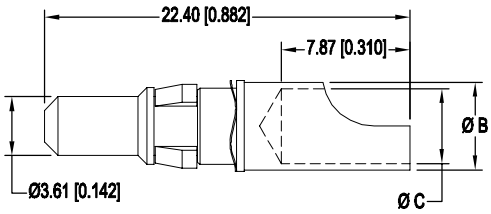
*FEMALE CONTACT

"CLOSED ENTRY" DESIGN, L.S.A.



PART NUMBER	WIRE SIZE AWG/[mm²]	ØB	ØC
FS4008D	8 / [10.0]	5.56 [0.219]	4.78 [0.188]
FS4012D	12 / [4.0]	3.63 [0.143]	2.84 [0.112]
FS4016D	16 / [1.5]	2.54 [0.100]	1.75 [0.069]

MALE CONTACT



PART NUMBER	WIRE SIZE AWG/[mm²]	ØB	ØC
MS4008D	8 / [10.0]	5.56 [0.219]	4.78 [0.188]
MS4012D	12 / [4.0]	3.63 [0.143]	2.84 [0.112]
MS4016D	16 / [1.5]	2.54 [0.100]	1.75 [0.069]

***NOTE:** Female contacts feature Large Surface Area (L.S.A.) closed entry contact design which provides maximum mating surfaces between male and female contact and reduced contact resistance during operation.

For information regarding crimp tool and crimping tool techniques, see Application Tools section, pages 49-54.

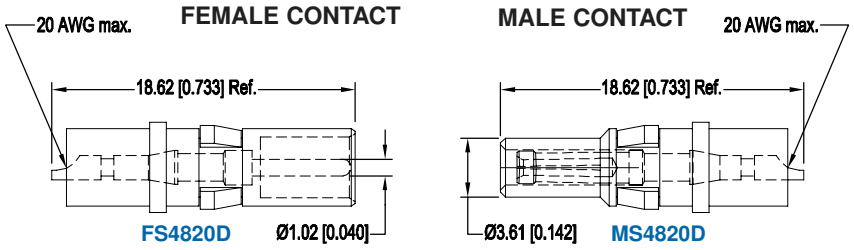
REMOVABLE HIGH VOLTAGE CRIMP CONTACT, SIZE 8

NEW!

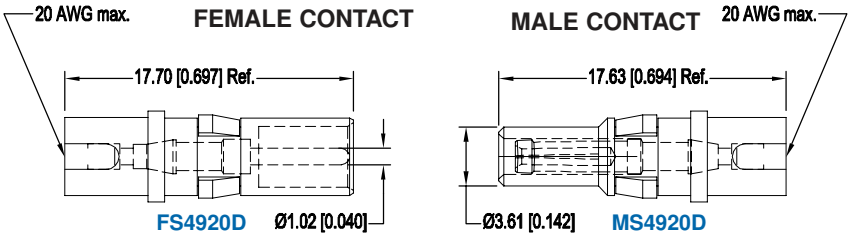
REMOVABLE HIGH VOLTAGE CONTACT

FOR USE WITH MIP SERIES CONNECTORS
CONTACTS MUST BE ORDERED SEPARATELY
SIZE 8

STRAIGHT SOLDER WIRE TERMINATION



RIGHT ANGLE (90°) SOLDER WIRE TERMINATION



Connectors Designed To Customer Specifications

Positronic connectors can be modified to customers specifications.

Examples: select loading of contacts for cost savings or to gain creepage and clearance distances; longer PCB terminations; customer specified hardware.

Positronic can develop and tool new connector designs with reasonable price and delivery.

Contact Technical Sales with your particular requirements.

For information regarding crimp tool and crimping tool techniques, see Application Tools section, pages 49-54.

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

REMOVABLE SHIELDED CONTACT, SIZE 8

NEW!

REMOVABLE SHIELDED CONTACT

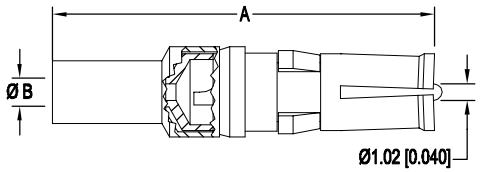
FOR USE WITH MIP SERIES CONNECTORS

CONTACTS MUST BE ORDERED SEPARATELY

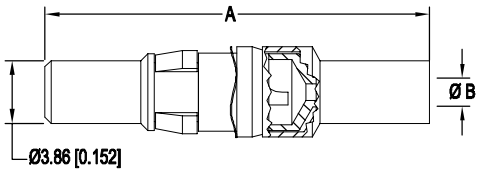
SIZE 8

STRAIGHT SOLDER/CRIMP CONTACTS

FEMALE CONTACT

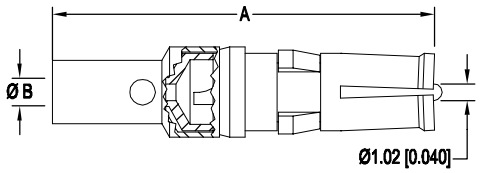


MALE CONTACT

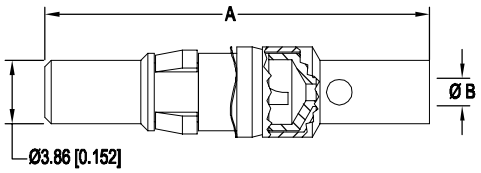


STRAIGHT SOLDER/SOLDER CONTACTS

FEMALE CONTACT

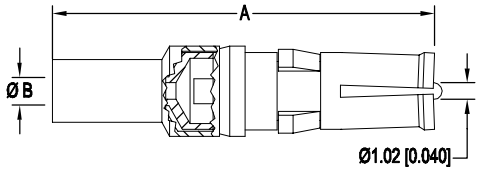


MALE CONTACT

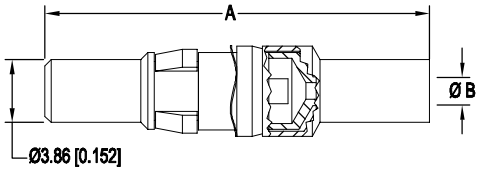


STRAIGHT CRIMP/CRIMP CONTACTS

FEMALE CONTACT



MALE CONTACT



TYPE OF CONTACT	PART NUMBER		A	ØB	RG CABLE NUMBER
	FEMALE	MALE			
SOLDER/CRIMP	**FC4101D**	**MC4101D**	23.60 [0.929]	1.02 [0.040]	178 B/U 196 B/U
SOLDER/CRIMP	**FC4102D**	**MC4102D**	23.60 [0.929]	1.70 [0.067]	179 B/U 316 /U
SOLDER/CRIMP	**FC4103D**	**MC4103D**	26.34 [1.037]	2.74 [0.108]	180 B/U
SOLDER/CRIMP	**FC4104D**	**MC4104D**	26.34 [1.037]	3.05 [0.120]	58 B/U
SOLDER/SOLDER	**FS4101D**	**MS4101D**	23.60 [0.929]	1.02 [0.040]	178 B/U 196 B/U
SOLDER/SOLDER	**FS4102D**	**MS4102D**	23.60 [0.929]	1.70 [0.067]	179 B/U 316 /U
SOLDER/SOLDER	**FS4103D**	**MS4103D**	26.34 [1.037]	2.74 [0.108]	180 B/U
SOLDER/SOLDER	**FS4104D**	**MS4104D**	26.34 [1.037]	3.05 [0.120]	58 B/U
CRIMP/CRIMP	**FCC4101D**	**MCC4101D**	23.60 [0.929]	1.02 [0.040]	178 B/U 196 B/U
CRIMP/CRIMP	**FCC4102D**	**MCC4102D**	23.60 [0.929]	1.70 [0.067]	179 B/U 316 /U
CRIMP/CRIMP	**FCC4103D**	**MCC4103D**	26.34 [1.037]	2.74 [0.108]	180 B/U
CRIMP/CRIMP	**FCC4104D**	**MCC4104D**	26.34 [1.037]	3.05 [0.120]	58 B/U

Two-step crimping action for signal and shielding conductors.

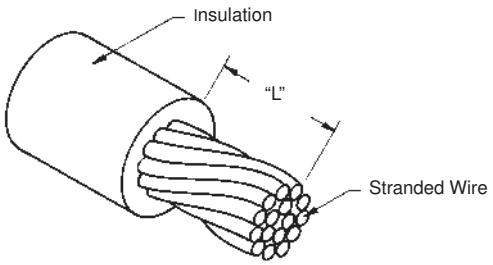
For information regarding crimp tool and crimping tool techniques, see Application Tools section, pages 49-54.

CRIMPING INFORMATION FOR REMOVABLE CRIMP CONTACTS

USE INDICATED POSITRONIC TOOLS FOR BEST RESULTS

STEP 1: STRIP WIRE TO INDICATED LENGTH.

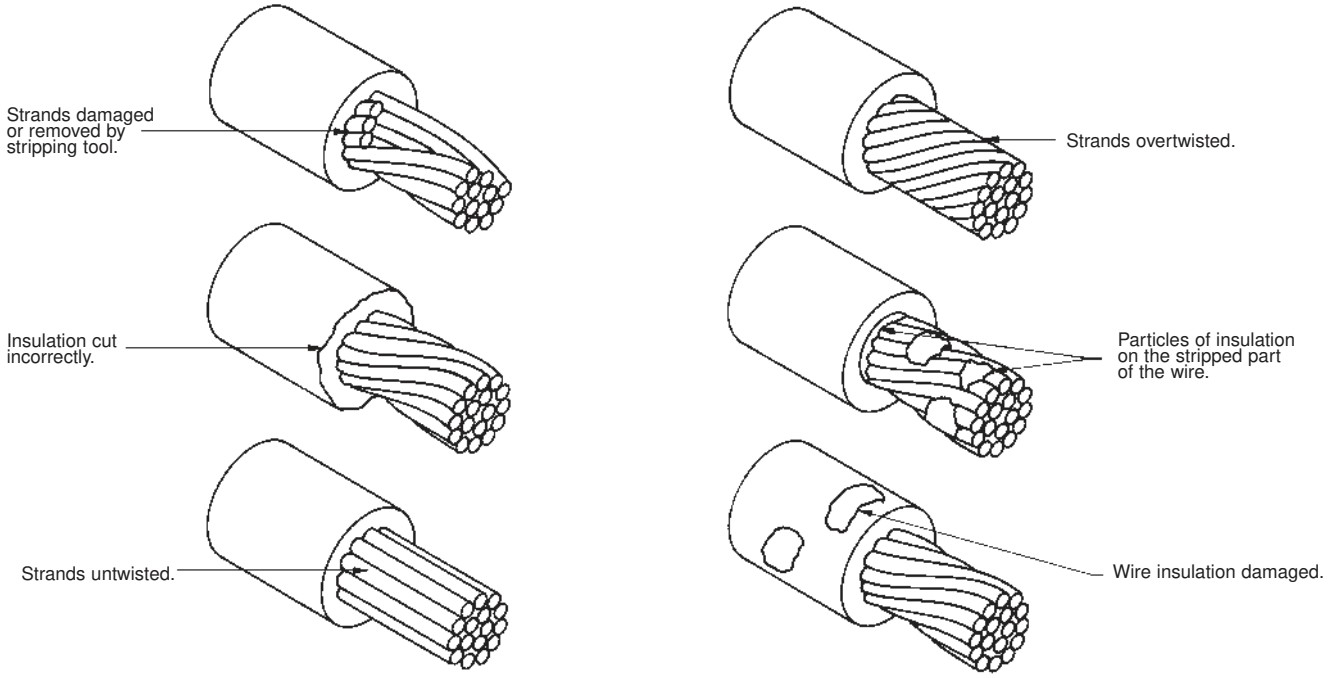
Correctly Stripped Wire



Take Care Not To:
- **Damage or remove strands.**
- **Untwist or overtwist strands.**
- **Leave insulation particles on strands.**
- **Damage insulation.**

CONTACT SIZE	CONTACT PART NUMBER		"L" ±0.020 [±0.51]
	FEMALE	MALE	
20	FC720N2	MC720N	5.84 [0.230]
16	FC1**N2	MC1**N	5.84 [0.230]
NEW! 16	FS1**N2	MS1**N	5.84 [0.230]
NEW! 16	F*112N2S	M*112NS	5.84 [0.230]
12	FC610N2S	MC610NS	5.84 [0.230]
12	FC612N2	MC612N	7.37 [0.290]
NEW! 12	FS610N2S	MS610NS	5.84 [0.230]
NEW! 12	FS612N2	MS612N	7.37 [0.290]
8	FC40**D	MC40**D	8.89 [0.350]
NEW! 8	FS40**D	MS40**D	8.89 [0.350]
NEW! 8	FC4008DS	MC4008DS	8.89 [0.350]
NEW! 8	FS4*20D	MS4*20D	2.54 [0.100]

Examples of Stripping Faults



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

CRIMPING INFORMATION FOR REMOVABLE CRIMP CONTACTS

USE INDICATED POSITRONIC TOOLS FOR BEST RESULTS

STEP 2: CRIMP WIRE TO CONTACT.

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

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

Positronic Recommended Conductor Tensile Strength	
WIRE SIZE AWG/[mm²]	AXIAL LOAD POUNDS/[N]
6 [16.0]	110 [489]
8 [10.0]	110 [489]
10 [5.3]	110 [489]
12 [4.0]	110 [489]
14 [2.5]	70 [311]
16 [1.5]	50 [222]
18 [1.0]	28 [125]
20 [0.5]	20 [89]
22 [0.3]	12 [53]
24 [0.25]	8 [36]

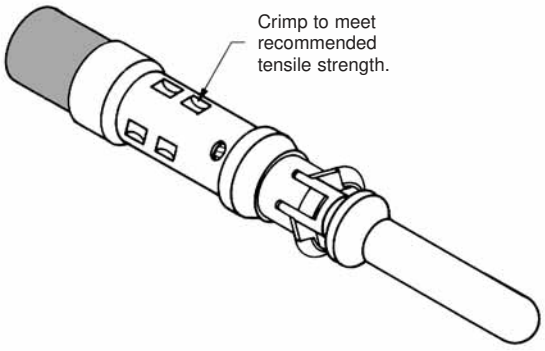
Conductor tensile strength values are derived using silver-tin plated copper wires.

Values may change depending upon what type of wire is used.

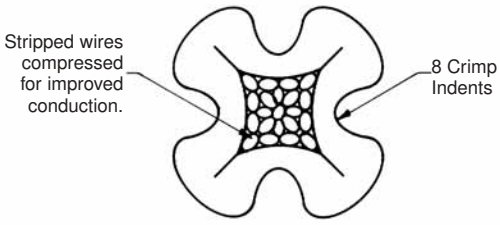
STEP 3: INSPECT THE CRIMP.

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 contacts.

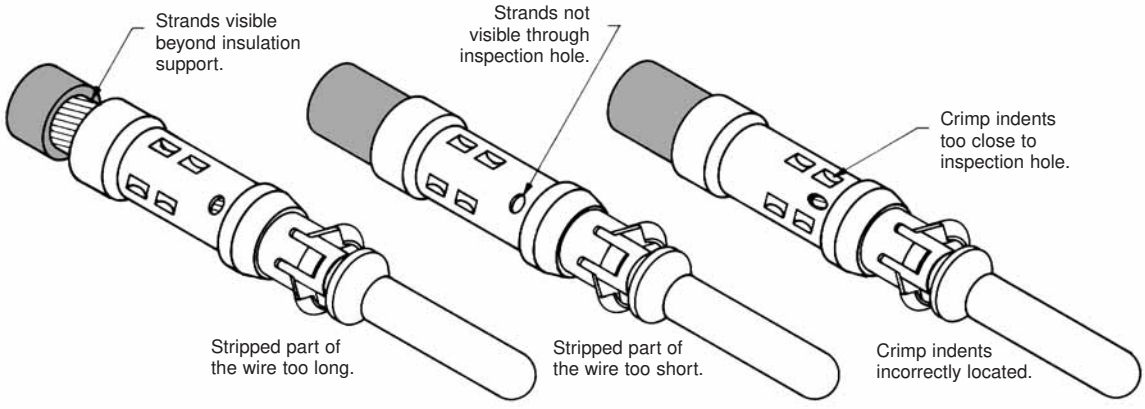
Correctly Crimped Contact



Cross Section of Correctly Crimped Contact



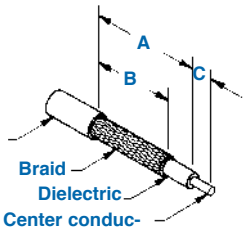
Examples of Crimping Faults



APPLICATION TOOLS

SOLDERING AND CRIMPING INFORMATION FOR SHIELDED CONTACTS

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.

STEP 2: CRIMP WIRE TO CONTACT

- Trim cable.
- Slide ferrule over jacket. Insert dielectric and center conductor into barrel. Crimp center conductor into contact.
- Butt ferrule against shoulder. Crimp ferrule over braid.

STEP 2: SOLDER WIRE TO CONTACT

- Trim cable. Tin center conductor.
- Slide ferrule over jacket. Insert dielectric and center conductor into barrel. Solder center conductor into contact.
- Butt ferrule against shoulder. Solder cable to barrel through hole in ferrule. Solder cap into body.

STEP 2: SOLDER/CRIMP WIRE TO CONTACT

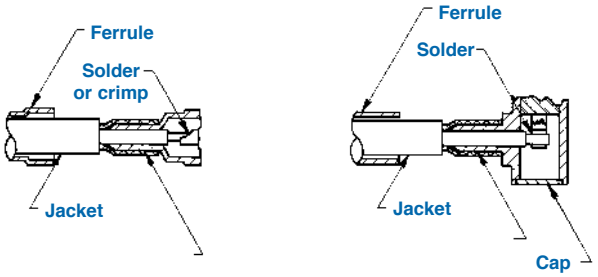
- Trim cable. Tin center conductor.
- Slide ferrule over jacket. Insert dielectric and center conductor into barrel. Solder center conductor into contact.
- Butt ferrule against shoulder. Crimp ferrule over braid. Solder cap into body.

Shielded Contact Hand Crimp Tool
For crimp tool part numbers, see Contact Application Tools Cross Reference Chart on pages 53 & 54.

	CONTACT SIZE	PART NUMBER	RG CABLE NUMBER	A	B	C
MMIP, MIP & IP SERIES	8	*C4101D	178 B/U	7.14 [0.281]	6.35 [0.250]	1.98 [0.078]
		*S4101D				
		*C4102D	179 B/U 316 /U	7.14 [0.281]	6.35 [0.250]	1.98 [0.078]
		*S4102D				
		*C4103D	180 B/U	9.53 [0.375]	7.92 [0.312]	1.98 [0.078]
		*S4103D				
		*C4104D	58 B/U	9.53 [0.375]	7.92 [0.312]	1.98 [0.078]
		*S4104D				
MIP SERIES		*CC4101D	178 B/U	7.14 [0.281]	6.35 [0.250]	3.05 [0.120]
		*CC4102D	179 B/U 316 /U			
		*CC4103D	180 B/U	9.53 [0.375]	7.92 [0.312]	3.05 [0.120]
		*CC4104D	58 B/U			

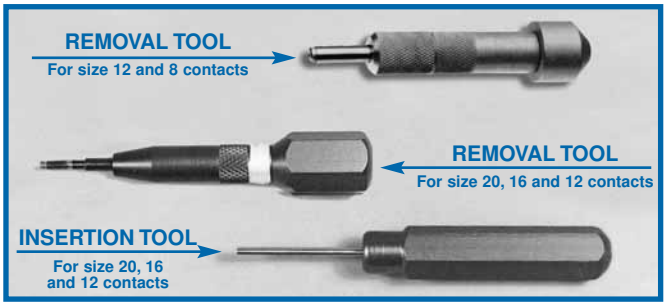
***Contact gender is designated by M for male contacts and F for female contacts.**

Typical Part Number: FC4101D



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

CRIMPING TOOLS AND ACCESSORIES

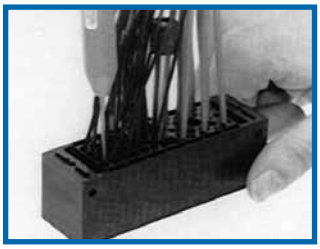


INSERTION AND REMOVAL TOOLS
(SHOWN FOR REFERENCE ONLY)

An easy-to-use contact insertion tool used for rear insertion of contacts into connector, see illustration below.
The contact removal tool is spring-loaded to simplify the extraction of removable contacts from the connector insulators. For contact removal, 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.

For insertion and removal tool selection part numbers, see Contact Application Tools Cross Reference Chart on pages 53 & 54.

CONTACT INSERTION



CONTACT REMOVAL

CYCLE-CONTROLLED HAND CRIMP TOOLS
(SHOWN FOR REFERENCE ONLY)

The hand crimp tool, pictured at the top of the image uses 8 AWG wire with produces a hex shaped crimp.
All other wire are eight step adjustable hand crimping tool produces a four double-indent crimp configuration. Each positioner is equipped with a data plate which gives the correct crimp-depth setting for each wire size.

For complete crimp tool and positioner selection part numbers, see Contact Application Tools Cross Reference Chart on pages 53 & 54.

CONTACT APPLICATION TOOLS CROSS REFERENCE LIST

USE INDICATED POSITRONIC TOOLS FOR BEST RESULTS

MIP SERIES														
Contact Size	Positronic Contact P/N	Handle & Positioner P/N	Hand Crimp Tool P/N	Mfg. Cross	Mil Equiv	Positioner	Mfg. Cross	Mil Equiv	Insertion Tool	Mfg. Cross	Mil Equiv	Removal Tool	Mfg. Cross	Mil Equiv
8	FC4006D	9504-20-0-0	9504-1-0-0	HX4	M22520/5-01	9504-20-1-0	Y530		N/A			4311-0-0-0	P+	
8	FC4008D	9504-19-0-0	9504-1-0-0	HX4		9504-19-1-0	Y524		N/A			4311-0-0-0	P+	
8	FC4008DS	9504-19-0-0	9504-1-0-0	HX4		9504-19-1-0	Y524		N/A			4311-0-0-0	P+	
8	FC401*D	9509-0-0-0	9509-1-0-0	M310		9509-2-0-0	TP-974		N/A			4311-0-0-0	P+	
8	FC410*D	9504-0-0-0	9504-1-0-0	HX4	M22520/5-01	9504-2-0-0	Y322		N/A			4311-0-0-0	P+	
8	FC4101D	9504-14-0-0	9504-1-0-0	HX4	M22520/5-01	9504-14-1-0	Y878		N/A			4311-0-0-0	P+	
8	FC4102D	9504-13-0-0	9504-1-0-0	HX4	M22520/5-01	9504-13-1-0	Y937		N/A			4311-0-0-0	P+	
8	FC4103D	9504-15-0-0	9504-1-0-0	HX4	M22520/5-01	9504-15-1-0	Y877		N/A			4311-0-0-0	P+	
8	FC4104D	9504-15-0-0	9504-1-0-0	HX4	M22520/5-01	9504-15-1-0	Y877		N/A			4311-0-0-0	P+	
8	FS4008D													
8	FS401*D													
8	FS410*D													
8	FS4820D													
8	FS4920D													
8	MC4006D	9504-20-0-0	9504-1-0-0	HX4	M22520/5-01	9504-20-1-0	Y530		N/A			4311-0-0-0	P+	
8	MC4008D	9504-19-0-0	9504-1-0-0	HX4		9504-19-1-0	Y524		N/A			4311-0-0-0	P+	
8	MC4008DS	9504-19-0-0	9504-1-0-0	HX4		9504-19-1-0	Y524		N/A			4311-0-0-0	P+	
8	MC401*D	9509-0-0-0	9509-1-0-0	M310		9509-2-0-0	TP-974		N/A			4311-0-0-0	P+	
8	MC410*D	9504-0-0-0	9504-1-0-0	HX4	M22520/5-01	9504-2-0-0	Y322		N/A			4311-0-0-0	P+	
8	MCC4101D	9504-14-0-0	9504-1-0-0	HX4	M22520/5-01	9504-14-1-0	Y878		N/A			4311-0-0-0	P+	
8	MCC4102D	9504-13-0-0	9504-1-0-0	HX4	M22520/5-01	9504-13-1-0	Y937		N/A			4311-0-0-0	P+	
8	MCC4103D	9504-15-0-0	9504-1-0-0	HX4	M22520/5-01	9504-15-1-0	Y877		N/A			4311-0-0-0	P+	
8	MCC4104D	9504-15-0-0	9504-1-0-0	HX4	M22520/5-01	9504-15-1-0	Y877		N/A			4311-0-0-0	P+	
8	MS4008D											4311-0-0-0	P+	
8	MS401*D											4311-0-0-0	P+	
8	MS410*D											4311-0-0-0	P+	
8	MS4820D											4311-0-0-0	P+	
8	MS4920D											4311-0-0-0	P+	

DIMENSIONS ARE IN MILLIMETERS [INCHES].
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CONTACT APPLICATION TOOLS CROSS REFERENCE LIST

USE INDICATED POSITRONIC TOOLS FOR BEST RESULTS

Contact Size	Positronic Contact P/N	Handle & Positioner P/N	Hand Crimp Tool P/N	Mfg. Cross	Mil Equiv	Positioner	Mfg. Cross	Mil Equiv	Insertion Tool	Mfg. Cross	Mil Equiv	Removal Tool	Mfg. Cross	Mil Equiv	Automatic Crimp Tool
20	FC720N2		9507-0-0-0	AFM8	M22520/2-01	9502-22-0-0	K1196		9099-4-0-0	ITP 1076		9081-2-0-0	RNG2103		9550-1-0-0
20	MC720N		9507-0-0-0	AFM8	M22520/2-01	9502-21-0-0	K1195		9099-4-0-0	ITP 1076		9081-2-0-0	RNG2103		9550-1-0-0
16	FC11*N2		9501-0-0-0	AF8	M22520/1-01	9502-1-0-0	TH4	M22520/1-03	9099-0-0-0	ITH 1094	M81969/18-01	9081-0-0-0	RTG 2103	M81969/20-01	9550-0-0-0
16	FC112N2S	9509-3-0-0	9509-4-0-0	GS222		9509-5-0-0	TP-1366		9099-0-0-0	ITH 1094	M81969/18-01	9081-0-0-0	RTG 2103	M81969/20-01	9550-0-0-0
16	FC120N2		9501-0-0-0	AF8	M22520/1-01	9502-1-0-0	TH4	M22520/1-03	9099-0-0-0	ITH 1094	M81969/18-01	9081-0-0-0	RTG 2103	M81969/20-01	9550-0-0-0
16	FS11*N2								9099-0-0-0	ITH 1094	M81969/18-01	9081-0-0-0	RTG 2103	M81969/20-01	
16	FS112N2S								9099-0-0-0	ITH 1094	M81969/18-01	9081-0-0-0	RTG 2103	M81969/20-01	
16	FS120N2								9099-0-0-0	ITH 1094	M81969/18-01	9081-0-0-0	RTG 2103	M81969/20-01	
16	MC11*N		9501-0-0-0	AF8	M22520/1-01	9502-1-0-0	TH4	M22520/1-03	9099-0-0-0	ITH 1094	M81969/18-01	9081-0-0-0	RTG 2103	M81969/20-01	9550-0-0-0
16	MC112NS	9509-3-0-0	9509-4-0-0	GS222		9509-5-0-0	TP-1366		9099-0-0-0	ITH 1094	M81969/18-01	9081-0-0-0	RTG 2103	M81969/20-01	9550-0-0-0
16	MC120N		9501-0-0-0	AF8	M22520/1-01	9502-1-0-0	TH4	M22520/1-03	9099-0-0-0	ITH 1094	M81969/18-01	9081-0-0-0	RTG 2103	M81969/20-01	9550-0-0-0
16	MS11*N								9099-0-0-0	ITH 1094	M81969/18-01	9081-0-0-0	RTG 2103	M81969/20-01	
16	MS112NS								9099-0-0-0	ITH 1094	M81969/18-01	9081-0-0-0	RTG 2103	M81969/20-01	
16	MS120N								9099-0-0-0	ITH 1094	M81969/18-01	9081-0-0-0	RTG 2103	M81969/20-01	
12	FC610N2S	9509-6-0-0	9509-6-1-0	GS223		9509-6-2-0	TP-1386		9099-3-0-0	ITP 1168		2711-0-0-0	P+		9555-0-2-0
12	FC612N2		9501-0-0-0	AF8	M22520/1-01	9502-19-0-0	TP1199		9099-3-0-0	ITP 1168		2711-0-0-0	P+		9555-0-2-0
12	FS610N2S								9099-3-0-0	ITP 1168		2711-0-0-0	P+		
12	FS612N2								9099-3-0-0	ITP 1168		2711-0-0-0	P+		
12	MC610NS	9509-6-0-0	9509-6-1-0	GS223		9509-6-2-0	TP-1386		9099-3-0-0	ITP 1168		2711-0-0-0	P+		9550-0-0-0
12	MC612N		9501-0-0-0	AF8	M22520/1-01	9502-19-0-0	TP1199		9099-3-0-0	ITP 1168		2711-0-0-0	P+		9550-0-0-0
12	MS610NS								9099-3-0-0	ITP 1168		2711-0-0-0	P+		
12	MS612N								9099-3-0-0	ITP 1168		2711-0-0-0	P+		

PRESS-FIT USER INFORMATION

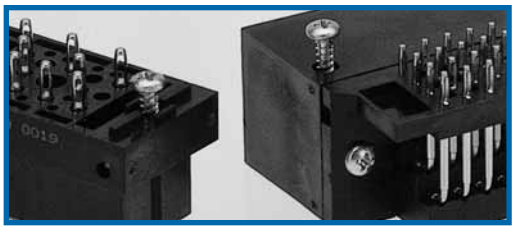
When properly used, Positronic Industries' Bi-Spring Power Press-Fit terminations provide reliable service even under severe conditions.

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 #6 self-tapping screws for plastic.

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.



* Mounting screws supplied with board mount connectors

SCREWS ARE #6 SELF-TAPPING FOR PLASTIC.

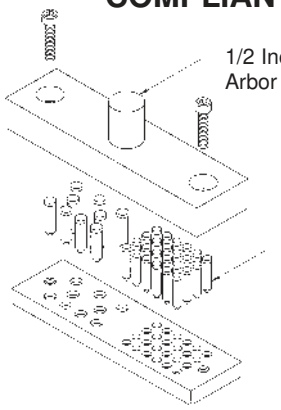
Additional Mounting Screw Ordering Information *			
SCREW PART NUMBER	**FOR USE WITH CONTACT CODE**	**THREAD LENGTH**	**P.C. BOARD THICKNESS**
2076-12-0-16	**3, 93**	9.53±0.76 [0.375±0.030]	1.52-2.36 [0.060-0.093] Straight mount connectors
2076-12-1-16	**32, 4, 42, 63**	12.70±0.76 [0.500±0.030]	All right angle (90º) mount connectors
2076-12-5-16		11.10±0.76 [0.437±0.030]	3.18 [0.125] Straight mount connectors

CONSULT TECHNICAL SALES IF AN ALTERNATE SCREW IS REQUIRED.

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

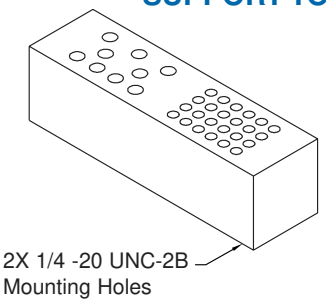
COMPLIANT PRESS-FIT TERMINATION CONNECTOR INSTALLATION TOOLS

COMPLIANT PRESS-FIT TERMINATION CONNECTOR INSTALLATION TOOLS



NOTE: Straight mount female connector seating tool shown. Right angle (90º) male and female seating tool not shown. Seating pins are not required for right angle (90º) connector seating tools.

SUPPORT TOOL



SERIES	CONNECTOR VARIANT	CONNECTOR SEATING TOOL WITH ARBOR PRESS SHAFT		CONNECTOR SEATING TOOL WITHOUT ARBOR PRESS SHAFT		REPLACEMENT PINS	CONNECTOR SUPPORT TOOL
		MALE	FEMALE	MALE	FEMALE	FEMALE	
MINI-MINI INFINITY	MMIP12W12 (CODE 93)	9513-307-2	9513-306-4	9513-307-12	9513-306-14	855-347-11	-
	MMIP14W9 (CODE 93)	9513-307-1	9513-306-1	9513-307-11	9513-306-11	Positions 1-9: 855-347-11 Positions 10-14: 855-347-18	9513-403-1
	MMIP18M (CODE 63)	9513-307-2		9513-307-12		-	9513-403-2
	MMIP18M (CODE 93)	9513-307-2	9513-306-2	9513-307-12	9513-306-12	855-347-3	9513-403-2
	MMIP31W6 (CODE 93)	9513-307-3	9513-306-3	9513-307-13	9513-306-13	Positions 1-3 through 29-31: 855-347-11 Positions 4-28: 855-347-18	9513-403-3
MINI INFINITY	MIP28W12 (CODE 93)	9513-305-4	9513-304-4	9513-305-14	9513-304-14	Positions 1-6 through 23-28: 855-347-11 Positions 7-22: 855-347-18	9513-402-4
	MIP29W9 (CODE 93)	9513-305-5	9513-304-5	9513-305-15	9513-304-15	Positions 1-6: 855-347-17 Positions 7-26: 855-347-18 Positions 27-29: 855-347-11	9513-402-5
	MIP30 (CODE 63)	9513-305-1		9513-305-11		-	9513-402-1
	MIP30 (CODE 93)	9513-305-1	9513-304-1	9513-305-11	9513-304-11	855-347-3	9513-402-1
	MIP30WA10 (CODE 93)	9513-305-2	9513-304-2	9513-305-12	9513-304-12	Positions 1-4 through 25-30: 855-347-11 Positions 5-24: 855-347-18	9513-402-2
	MIP30WB10 (CODE 93)	9513-305-3	9513-304-3	9513-305-13	9513-304-13	Positions 1-4: 855-347-17 Positions 5-24: 855-347-18 Positions 25-30: 855-347-11	9513-402-3
INFINITY	IP18 (CODE 93)	9513-303-1	9513-302-4	913-303-11	9513-302-14	855-347-11	9513-401-3
	IP29W9 (CODE 93)	9513-303-3	9513-302-5	9513-303-3	9513-302-15	Positions 1 through 3 and 24 through 29: 855-347-11 Positions 4 through 23: 855-347-3	9513-401-4
	IP33W9 (CODE 93)	9513-303-2	9513-302-3	9513-303-12	9513-302-13	Positions 12-1 through 12-9: 855-347-11 Positions 16-33 through 16-56: 855-347-3	9513-401-6 - for Male 9513-401-2 - for Female
	IP36W6 (CODE 93)	9513-303-4	9513-302-7	9513-303-14	9513-302-17	Positions 1 through 8 and 29 through 36: 855-347-11 Positions 9 through 28: 855-347-18	9513-401-7
	IP48 (CODE 93)	9513-303-1	9513-302-2	9513-303-11	9513-302-12	855-347-3	9513-401-1
	IP56 (CODE 63)	9513-302-6		9513-302-16		-	9513-401-5
	IP56 (CODE 93)	9513-303-1	9513-302-1	9513-303-11	9513-302-11	855-347-3	9513-401-1

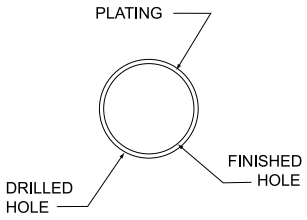
SUGGESTED PRINTED BOARD HOLE SIZES FOR COMPLIANT PRESS-FIT CONNECTORS

Traditionally, tin-lead has been a popular plating for PBC holes. However, many PCB hole platings must now be RoHS Compliant. Positronic is pleased to offer **PCB HOLE SIZE FOR RoHS** PCB plating as shown below.

OMEGA & BI-SPRING COMPLIANT PRESS-FIT CONTACT HOLE				
BOARD TYPE	**CONTACT SIZE / TYPE**	**RECOMMENDED DRILL HOLE SIZE**	**RECOMMENDED PLATING**	**FINISHED HOLE SIZES**
TIN-LEAD SOLDER PCB	20 OMEGA	ø1.150±0.025 [ø0.0453±0.0010]	15µ [0.0006] minimum solder over 25µ [0.0010] min. copper	ø1.000+0.090-0.060 [ø0.0394+0.0035-0.0024]
	16 BI-SPRING	ø0.069±0.001 [ø1.750±0.025]		ø0.0630+0.0035-0.0024 [ø1.600+0.090-0.060]
	12 BI-SPRING	ø0.102±0.001 [ø2.59±0.025]		ø0.096±0.002 [ø2.44±0.05]
	8 BI-SPRING	ø0.125±0.001 [ø3.180±0.025]		ø0.119±0.002 [ø3.02±0.05]
RoHS PCB PLATING OPTIONS				
COPPER PCB	20 OMEGA	ø1.19±0.025 [ø0.047±0.001]	25µ [0.0010] min. copper	ø1.09±0.05 [ø0.043±0.002]
	16 BI-SPRING	ø1.750±0.025 [ø0.069±0.001]		ø1.600+0.090-0.060 [ø0.0630+0.0035-0.0024]
	12 BI-SPRING	ø2.59±0.025 [ø0.102±0.001]		ø2.44±0.05 ø0.096±0.002
	8 BI-SPRING	ø3.180±0.025 [ø0.125±0.001]		ø3.02±0.05 [ø0.119±0.002]
IMMERSION TIN PCB	20 OMEGA	ø1.19±0.025 [ø0.047±0.001]	0.85±0.15µ [0.000033±0.000006] immersion tin over 25µ [0.0010] min. copper	ø1.09±0.05 [ø0.043±0.002]
	16 BI-SPRING	ø1.750±0.025 [ø0.069±0.001]		ø1.600+0.090-0.060 [ø0.0630+0.0035-0.0024]
	12 BI-SPRING	ø2.59±0.025 [ø0.102±0.001]		ø2.44±0.05 ø0.096±0.002
	8 BI-SPRING	ø3.180±0.025 [ø0.125±0.001]		ø3.02±0.05 [ø0.119±0.002]
IMMERSION SILVER PCB	20 OMEGA	ø1.19±0.025 [ø0.047±0.001]	0.34±0.17µ [0.000013±0.000007] immersion silver over 25µ [0.0010] min. copper	ø1.09±0.05 [ø0.043±0.002]
	16 BI-SPRING	ø1.750±0.025 [ø0.069±0.001]		ø1.600+0.090-0.060 [ø0.0630+0.0035-0.0024]
	12 BI-SPRING	ø2.59±0.025 [ø0.102±0.001]		ø2.44±0.05 ø0.096±0.002
	8 BI-SPRING	ø3.180±0.025 [ø0.125±0.001]		ø3.02±0.05 [ø0.119±0.002]
ELECTROLESS NICKEL / IMMERSION GOLD PCB	20 OMEGA	ø1.19±0.025 [ø0.047±0.001]	0.05µ [0.000002] min. immersion gold over 4.5±1.5µ [0.000177±0.000059] electroless nickel per IPC-4552 over 25µ [0.0010] min. copper	ø1.09±0.05 [ø0.043±0.002]
	16 BI-SPRING	ø1.750±0.025 [ø0.069±0.001]		ø1.600+0.090-0.060 [ø0.0630+0.0035-0.0024]
	12 BI-SPRING	ø2.59±0.025 [ø0.102±0.001]		ø2.44±0.05 ø0.096±0.002
	8 BI-SPRING	ø3.180±0.025 [ø0.125±0.001]		ø3.02±0.05 [ø0.119±0.002]

"Omega" Termination

"Bi-Spring" Termination



COMPLIANT PRESS-FIT TERMINATION CONTACT HOLE

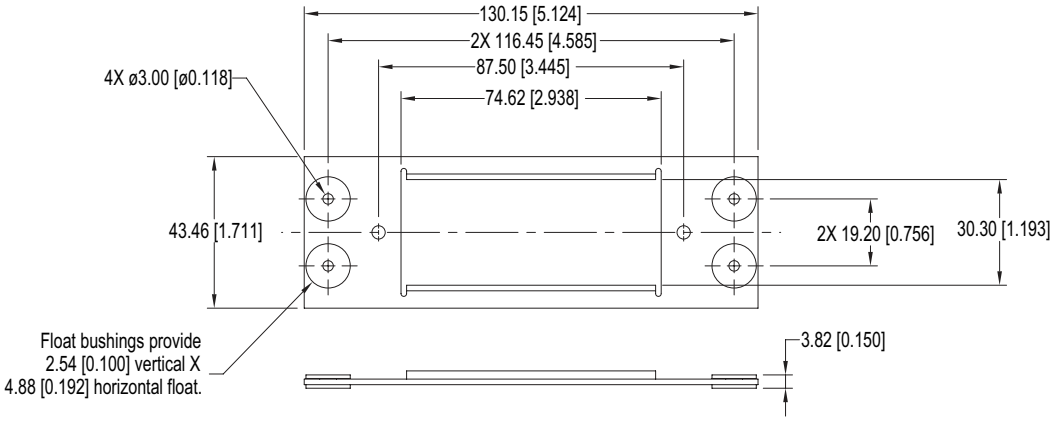
NOTE: For PCB plating compositions not shown, consult Technical Sales.

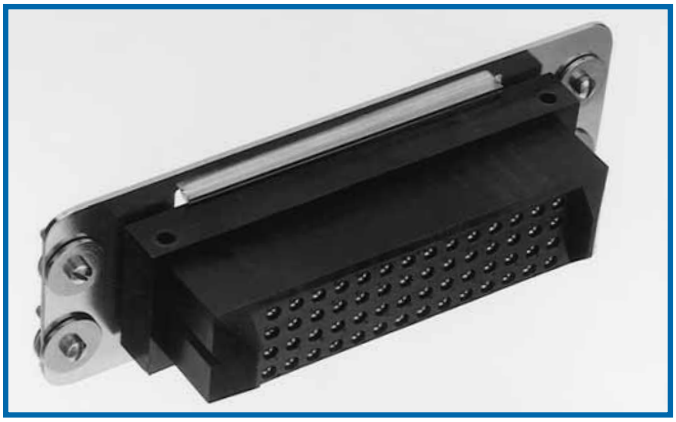
**DIMENSIONS ARE IN MILLIMETERS [INCHES].
ALL DIMENSIONS ARE SUBJECT TO CHANGE.**

PANEL MOUNTING PLATE AND PANEL CUTOUTS

PANEL MOUNTING PLATE WITH FLOATING BUSHINGS

CODE H ON STEP 5 OF ORDERING INFORMATION PAGE





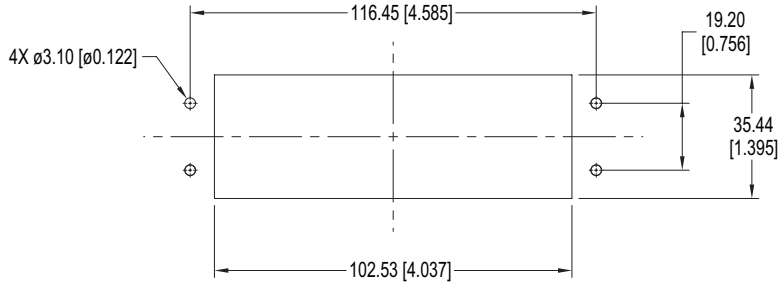
RECOMMENDED PANEL THICKNESS:
1.52 [0.060] - 2.36 [0.093].

MOUNTING SCREWS ARE SUPPLIED WITH CONNECTOR.

MATERIALS AND FINISHES:
Mounting Plate: Steel with zinc plate and chromate seal.
Floating Bushings: Brass with zinc plate and chromate seal.

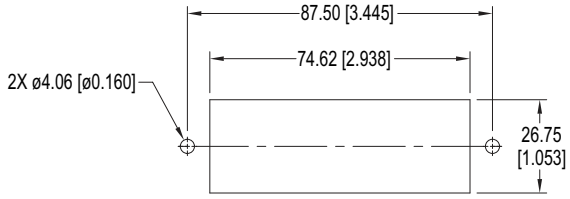
FLOATING BUSHING PANEL MOUNTING CUTOUT

CONNECTOR MOUNTED TO THE PANEL USING THE FLOATING BUSHING MOUNTING PLATE (SHOWN ABOVE).



DIRECT MOUNTING PANEL CUTOUT

CONNECTOR MOUNTED DIRECTLY TO THE PANEL



RECOMMENDED PANEL THICKNESS:
1.52 [0.060] - 2.36 [0.093].

SELF-TAPPING MOUNTING SCREWS ARE SUPPLIED WITH CONNECTOR.

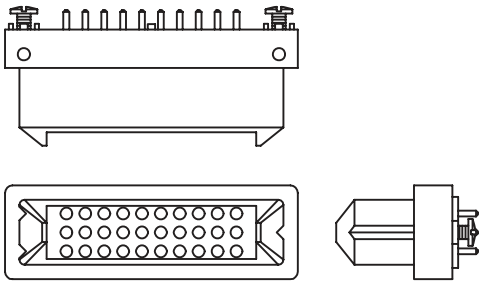
CONNECTOR MOUNTING STYLE OPTIONS AND PANEL FLOAT MOUNT AND CUTOUT

CONNECTOR MOUNTING STYLE OPTIONS

CODE 0 AND CODE N ON STEP 5 OF ORDERING INFORMATION PAGE

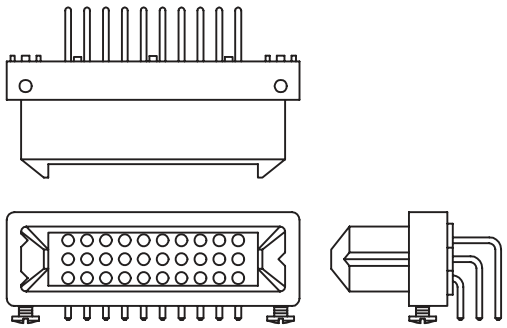
CODE 0

SELF-TAPPING MOUNTING SCREWS



MIP30F300A1

SHOWN FOR REFERENCE

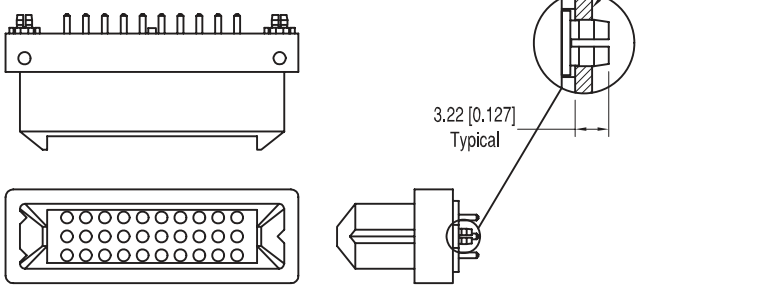


MIP30F400A1

SHOWN FOR REFERENCE

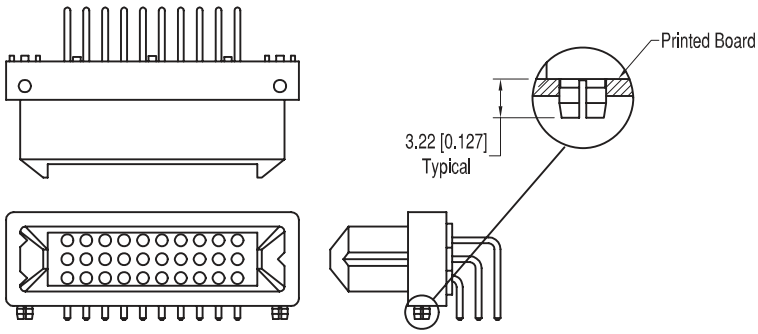
CODE N

PUSH-ON FASTENER



MIP30F3N0A1

SHOWN FOR REFERENCE

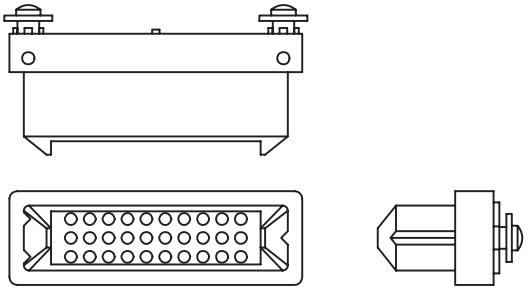


MIP30F4N0A1

SHOWN FOR REFERENCE

PANEL FLOAT MOUNT

CODE 82 AND CODE 83 ON STEP 6 OF ORDERING INFORMATION PAGE



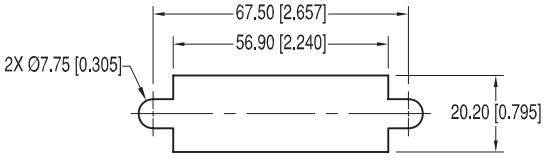
MIP30F00820

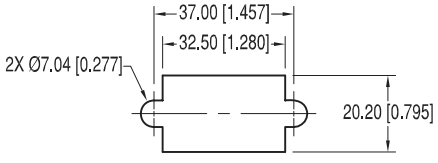
SHOWN FOR REFERENCE

PART NUMBER	PANEL THICKNESS
*IP****82*	1.52 [0.060]
*IP****83*	2.28 [0.090]

Panel float mount system provides lead-in for 2.03 [0.080] axial misalignment. Additional panel thickness may be available. Consult Technical Sales for availability.

FLOAT MOUNT PANEL CUTOUT





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

CABLE ADAPTERS AND MOUNTING STYLE OPTIONS

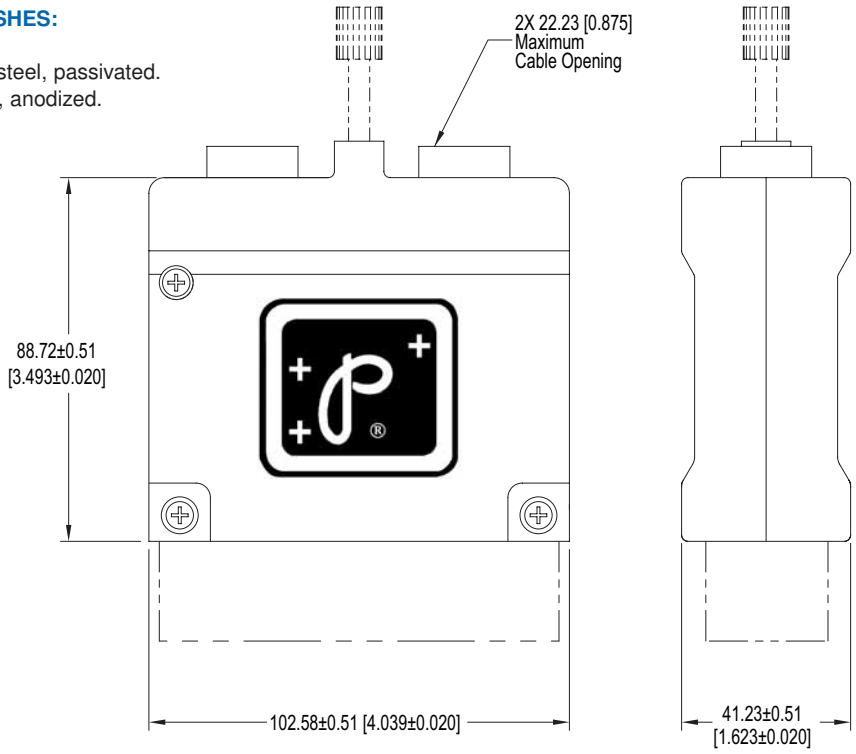
CABLE ADAPTERS

CODE J ON STEP 5 OF ORDERING INFORMATION PAGE

SUPPLIED WITH OR WITHOUT JACKSCREW

MATERIALS AND FINISHES:

Hood: Polyester.
Jackscrew: Stainless steel, passivated.
Knob: Aluminum, anodized.



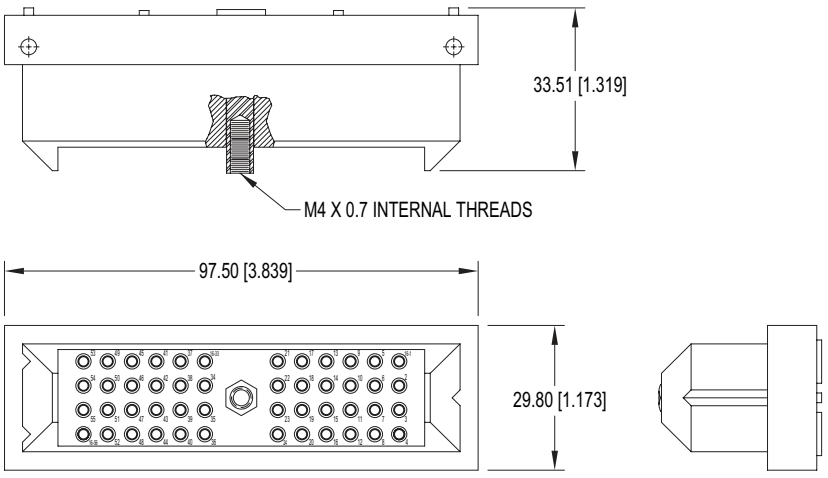
CABLE ADAPTER WITHOUT JACKSCREW EXAMPLE PART NUMBER:
IP48M0J00

FOR CABLE ADAPTER WITH JACKSCREW EXAMPLE PART NUMBER:
IP48M0JEL0

FIXED FEMALE JACKSCREW

CODE T ON STEP 6 OF ORDERING INFORMATION PAGE

PANEL MOUNT AND CABLE CONNECTORS SUPPLIED WITH OR WITHOUT FIXED JACKSCREWS



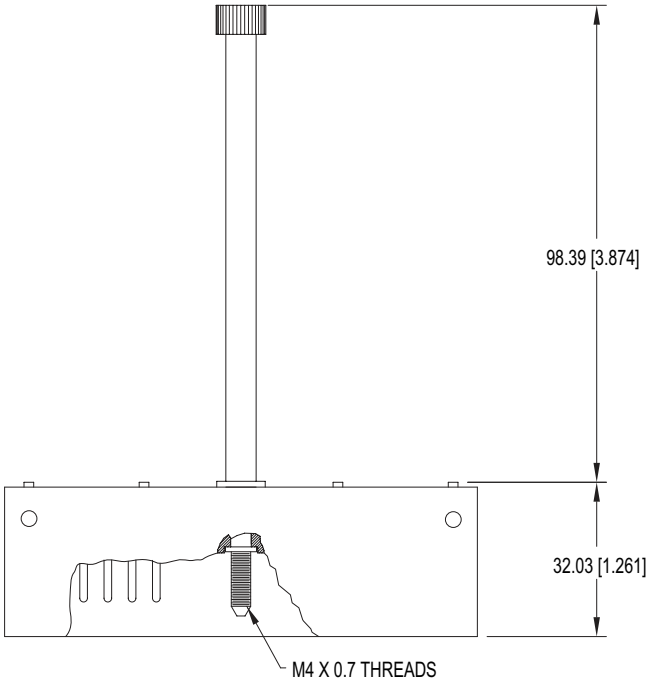
IP56F0000

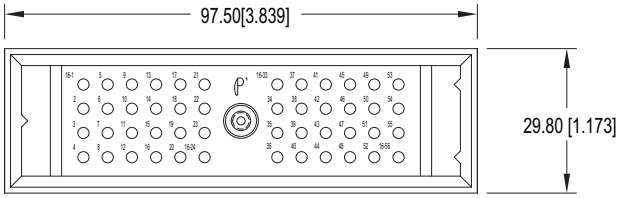
For information regarding size 12, 16 and 20 removable contacts, see Removable Contact section, pages 41-48.

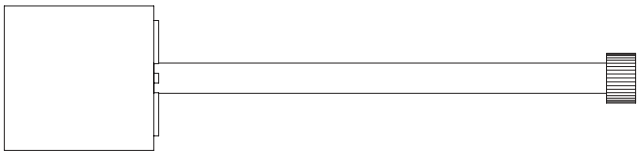
ACCESSORIES

ROTATING MALE JACKSCREW

CODE EL AND CODE E ON STEP 6 OF ORDERING INFORMATION PAGE



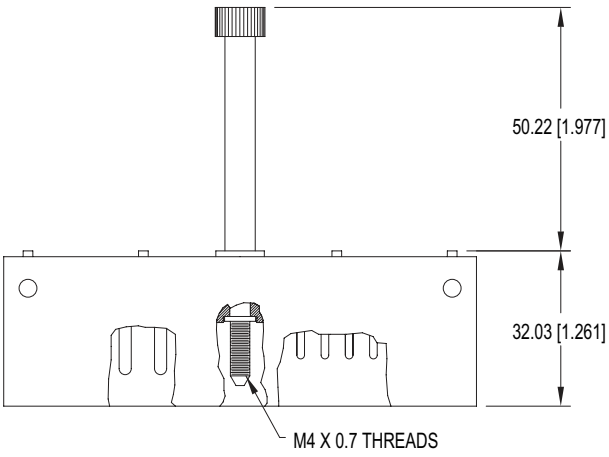


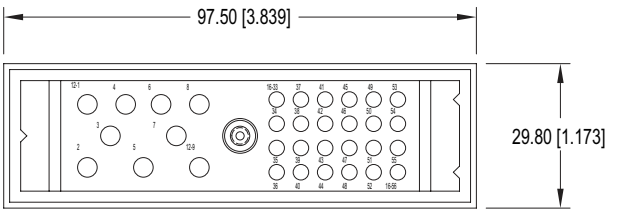


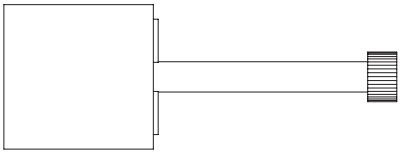
CABLE CONNECTORS
WITH ROTATING JACKSCREWS

EL

PART NUMBER: IP48M00EL0
with Long Rotating Jackscrew (Shown)







OTHER CONNECTOR VARIANTS ARE AVAILABLE WITH THE ROTATING JACKSCREW OPTION, SEE ORDERING INFORMATION ON PAGE 40.

FOR INFORMATION REGARDING SIZE 12, 16 AND 20 REMOVABLE CONTACTS, SEE REMOVABLE CONTACT SECTION, PAGES 41-48.

E

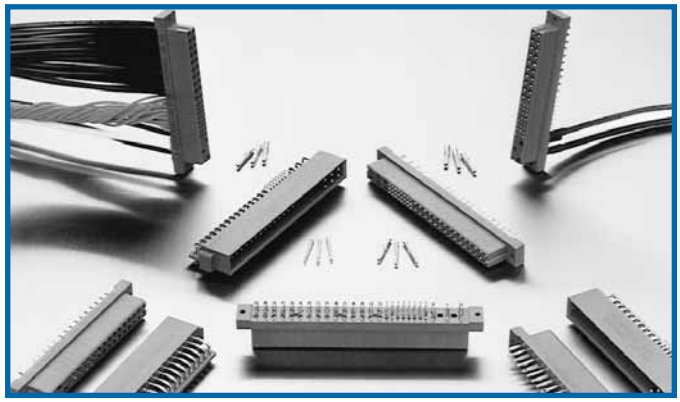
PART NUMBER: IP33W9M00E0
with Short Rotating Jackscrew (Shown)

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

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

Positronic Industries
has the widest variety of
Power Connector Solutions

COMPACT POWER CONNECTOR

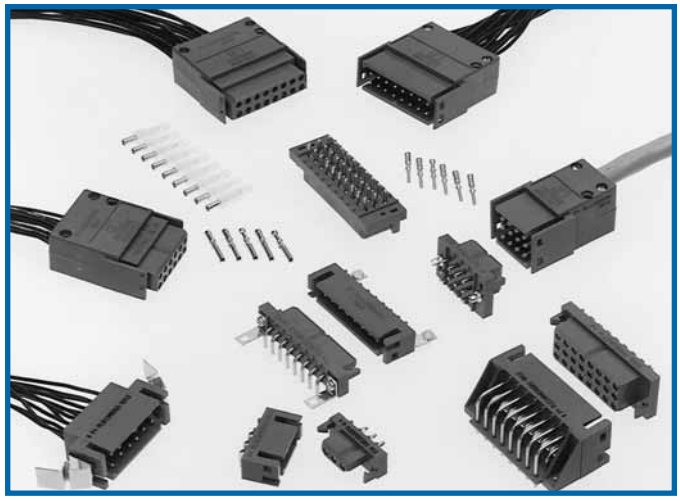


The Power interface for platforms utilizing Eurocard form factors including CompactPCI®. PICMG® 2.11 compliant. Multiple package sizes available.

INFINITY

Ideal for low, mid, and high power applications which demand outstanding blind mating capability.

POWER CONNECTION SYSTEMS



The industry standard for low and mid range power applications. Multiple package sizes available.

COMBO-D

Power, signal, coaxial, high voltage, and thermocouple contacts in an EMI/RFI shielded package.

FRONT RUNNER CIRCULAR

Power, signal, and thermocouple contacts in an environmental and/ or EMI/RFI shielded package.

EACH OF THESE SERIES HAVE ONE OR MORE OF THE FOLLOWING FEATURES:

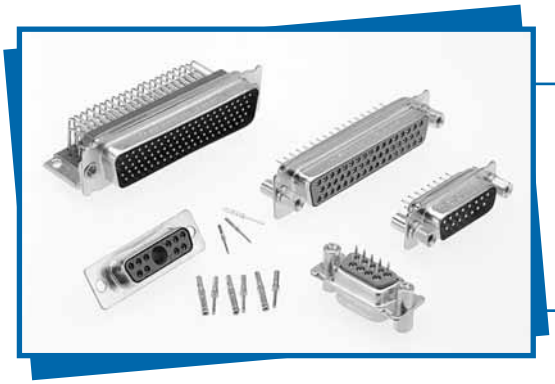
- Hot swap capability
- A.C./ D.C. operation in a single connector
- Meets safety agency requirements
- Signal contacts for communication with host system
- Superior blind mating capability
- Cable and panel mount options
- Large surface area contact system
- Bi-Spring power press-fit terminations
- Single contact ratings up to 100 amperes
- Wide variety of variants & accessories

D-subminiature Products

Positronic Industries offers full line of D-subminiature connectors in a wide variety of contact variants and package sizes with press-fit, solder and cable terminations. All Positronic connector products provide quality, reliability, and flexibility.

DSUBMINATURE CONNECTORS

Standard and high density connectors with straight and right angle PCB mount, and cable terminations available. Multiple performance options for best economy/performance ratio.



HIGH PERFORMANCE D-SUBMINIATURE CONNECTORS

Standard and high density connectors manufactured to MIL-PRF-24308, Class M; Goddard Space Flight Center S-311-P-4 and Goddard Space Flight Center S-311-P-10.

ENVIRONMENTAL-D CONNECTORS

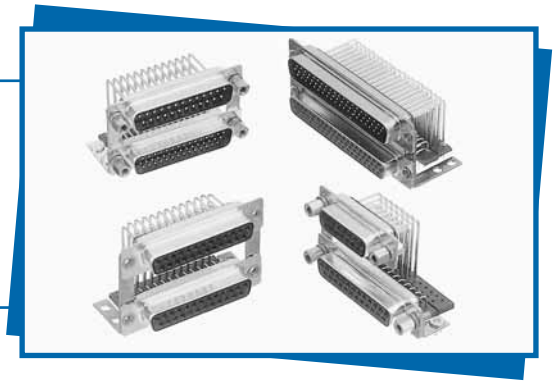
Standard and high density connectors with environmental protection features to IP67. Straight and right angle, and cable terminations available.

COMBO-D CONNECTORS

Connectors with signal, shielded, power, thermocouple or high voltage contacts in a single package. Power press-fit terminations now available.

DUAL PORT CONNECTORS

Right angle p.c. board mount connectors assembled stacked to maximize real estate; contact variants 9 through 62; available in standard density, high density, and mixed density.



Positronic Products

Power

Contact Sizes: 0, 8, 12, 16, 20 and 22
Current Ratings: To 100 amperes
Terminations: Crimp, wire solder, straight solder, right angle (90°) solder, straight press-fit and right angle (90°) 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 (90°) solder and straight press-fit
Configurations: Multiple variants in both standard and high densities
Qualifications: MIL-DTL-24308, Goddard Space Flight S-311-P, 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, air coupling, 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 (90°) 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 (90°) solder
Configurations: Multiple variants
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: Feedthrough 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 x 10-9 mbar.l/s @ vacuum 1.5 x 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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an **Amphenol** company

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