



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.

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 (90°). 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:	260°C [500°F] 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:	-55°C to +125°C.
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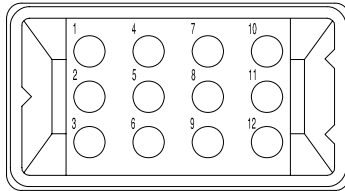


For RoHS options
see page 16.

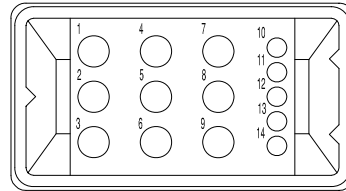
Recognized by various safety agencies.
Consult Technical Sales for updated list.

CONTACT VARIANTS

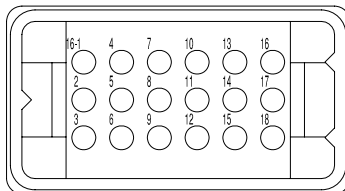
FACE VIEW OF MALE OR REAR VIEW OF FEMALE



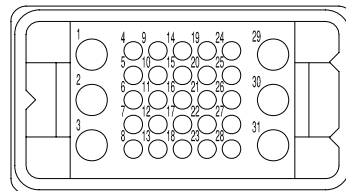
MMIP12W12 VARIANT
12 Size 12 Contacts



MMIP14W9 VARIANT
9 Size 12 and 5 Size 20 Contacts



MMIP18 VARIANT
18 Size 16 Contacts

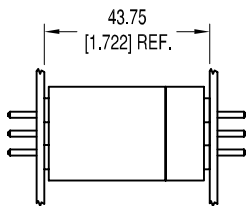


MMIP31W6 VARIANT
6 Size 12 and 25 Size 20 Contacts

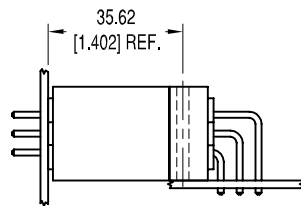
Refer to pages 7 & 8 for
Application Specific Arrangements

MMIP SERIES

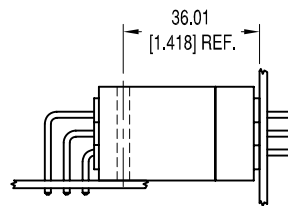
CONNECTOR MATING DIMENSIONS



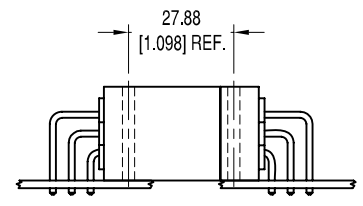
**Straight Board Mount or
Panel Mount Female to
Straight Board Mount or
Panel Mount Male**



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



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

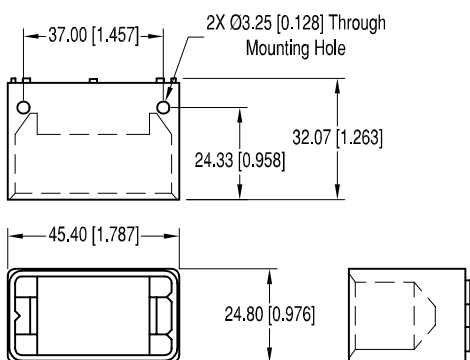


**Right Angle (90°)
Board Mount Female
to Right Angle (90°)
Board Mount Male.**

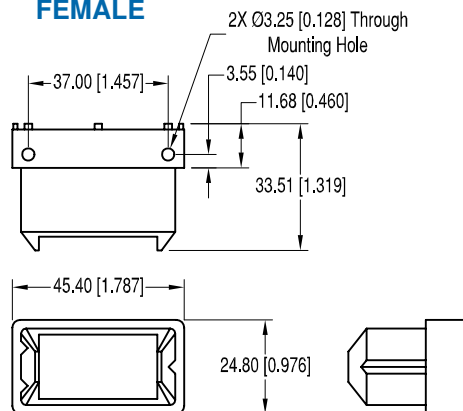


CONNECTOR OUTLINE DIMENSIONS FOR USE WITH CODE 0, 3, 32, 93, 4, 42, AND 63

MALE



FEMALE



MMIP SERIES



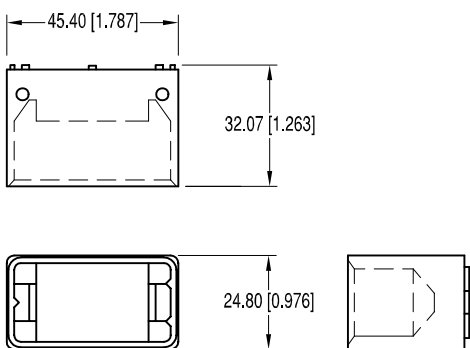
CABLE CONNECTOR

FOR USE WITH SIZE 12, 16 AND 20 REMOVABLE CONTACTS

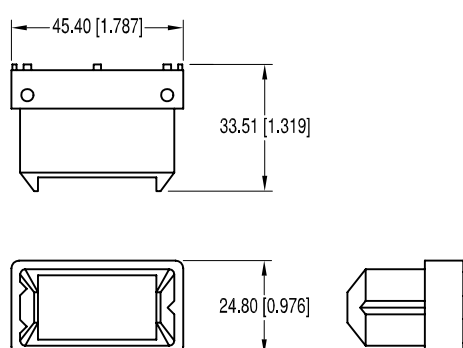
CODE 0

CONTACTS ARE NOT SUPPLIED WITH CONNECTOR AND MUST BE ORDERED SEPARATELY

MALE



FEMALE



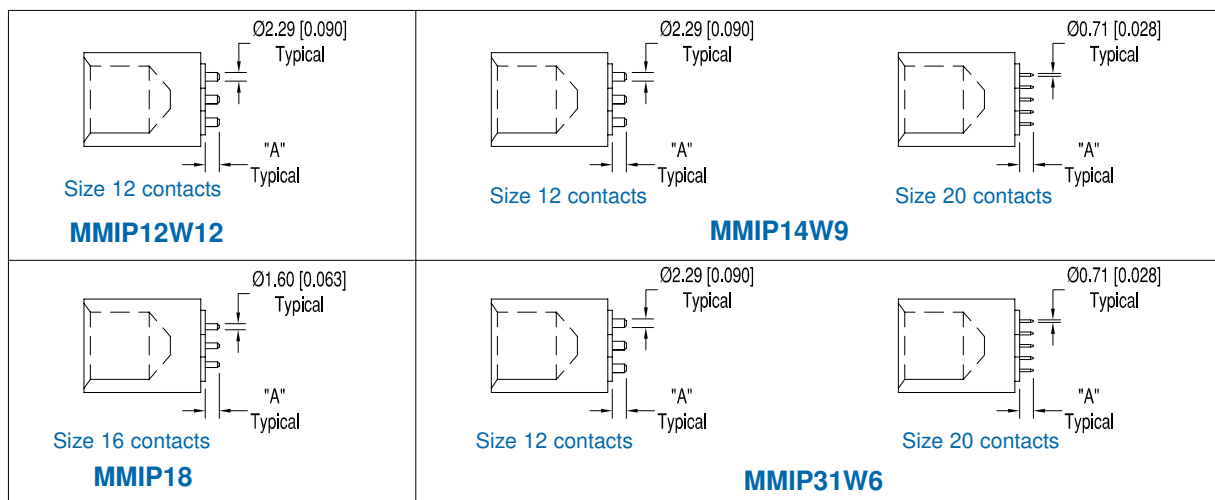
For information regarding size 12, 16 and 20 removable contacts, see Removable Contact section, pages 41-48.

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

STRAIGHT SOLDER BOARD MOUNT CONNECTORS

CODE 3 AND CODE 32

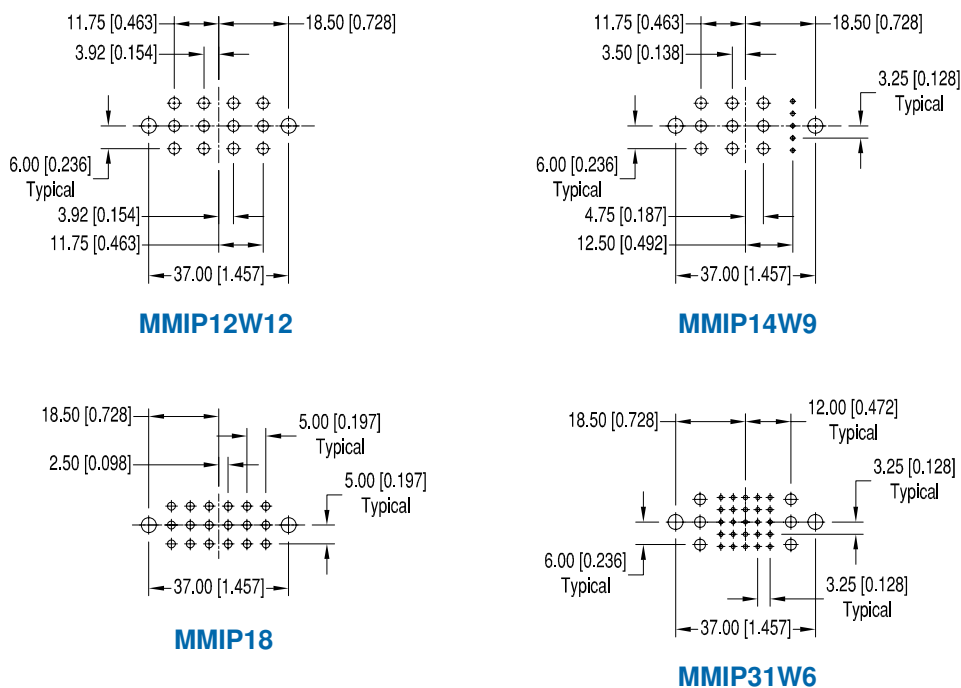
MALE CONNECTOR SHOWN FOR REFERENCE ONLY



MMIP SERIES

STRAIGHT SOLDER CONTACT HOLE PATTERNS

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



SUGGESTED PRINTED BOARD HOLE SIZES:

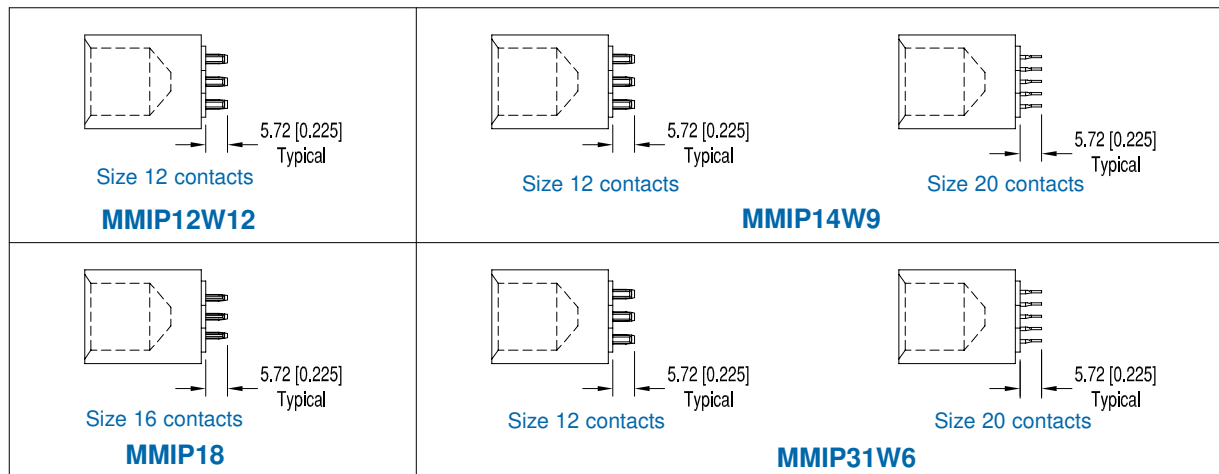
- Suggested $\text{Ø}1.14$ [0.045] holes for size 20 contact holes.
- Suggested $\text{Ø}2.11$ [0.083] holes for size 16 contact holes.
- Suggested $\text{Ø}2.90$ [0.114] holes for size 12 contact holes.
- Suggested $\text{Ø}3.96 \pm 0.08$ [0.156 \pm 0.003] holes for connector mounting holes.



STRAIGHT COMPLIANT PRESS-FIT CONNECTORS

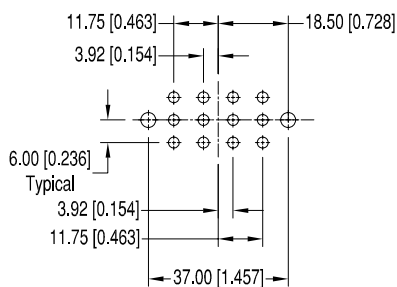
CODE 93

MALE CONNECTOR SHOWN FOR REFERENCE ONLY

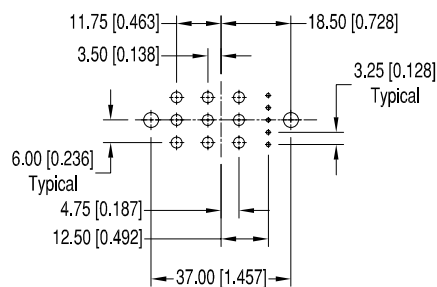


STRAIGHT COMPLIANT PRESS-FIT CONTACT HOLE PATTERNS

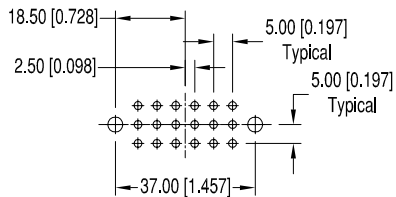
HOLE PATTERN SHOWN IS FOR MALE CONNECTOR
USE MIRROR IMAGE FOR FEMALE CONNECTOR



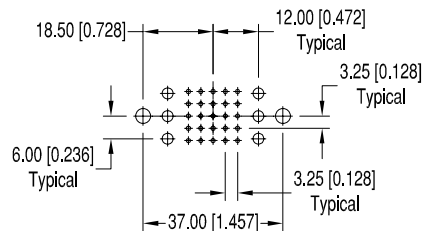
MMIP12W12



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.

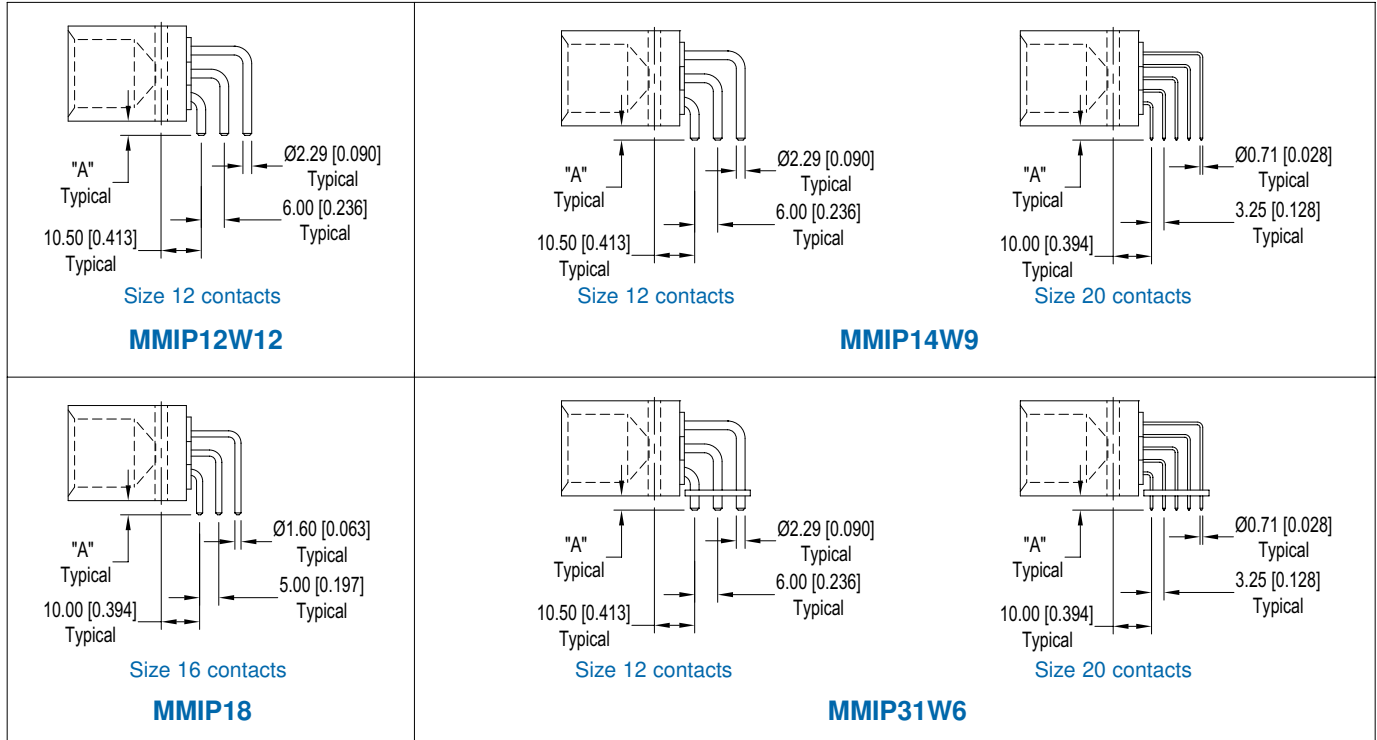
For mounting screw options, see page 55.

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

RIGHT ANGLE (90°) SOLDER BOARD MOUNT CONNECTORS

CODE 4 AND CODE 42

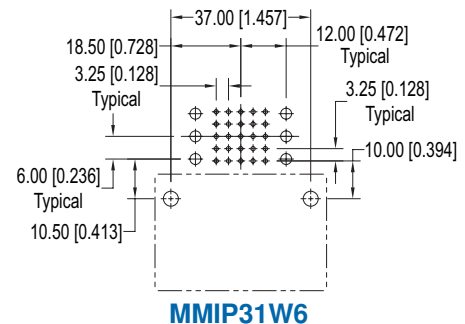
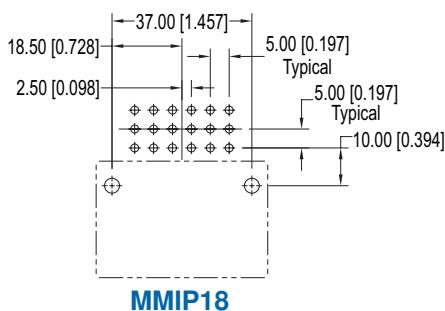
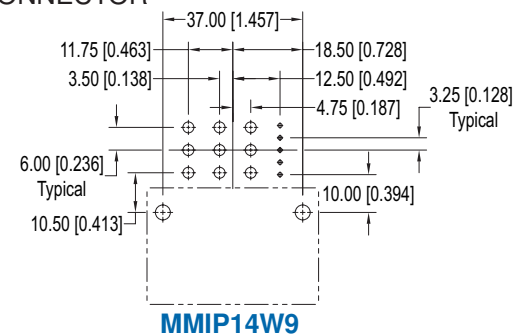
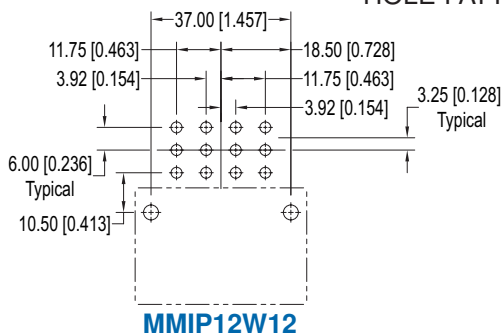
MALE CONNECTOR SHOWN FOR REFERENCE ONLY



RIGHT ANGLE (90°) SOLDER CONTACT HOLE PATTERNS

HOLE PATTERN SHOWN IS FOR MALE CONNECTOR

USE MIRROR IMAGE FOR FEMALE CONNECTOR



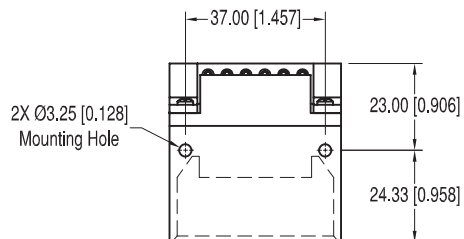
SUGGESTED PRINTED BOARD HOLE SIZES:

- Suggested $\phi 1.14$ [0.045] holes for size 20 contact holes.
- Suggested $\phi 2.11$ [0.083] holes for size 16 contact holes.
- Suggested $\phi 2.90$ [0.114] holes for size 12 contact holes.
- Suggested $\phi 3.96 \pm 0.08$ [0.156 \pm 0.003] holes for connector mounting holes.

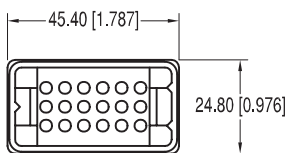
DIMENSIONS ARE IN MILLIMETERS [INCHES].
ALL DIMENSIONS ARE SUBJECT TO CHANGE.



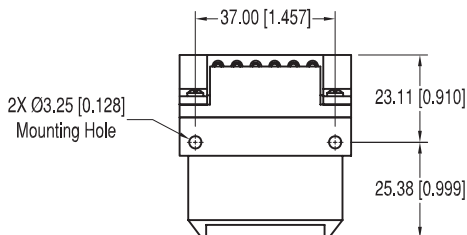
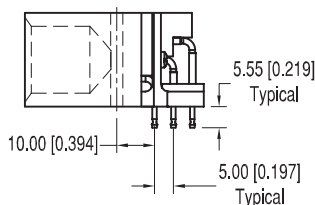
RIGHT ANGLE (90°) COMPLIANT PRESS-FIT BOARD MOUNT CONNECTORS CODE 63 MALE AND FEMALE



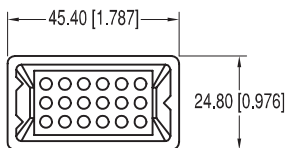
MALE



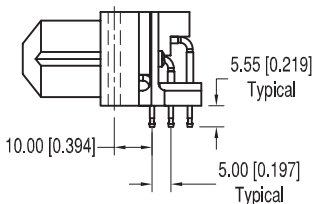
MMIP18



FEMALE



MMIP18



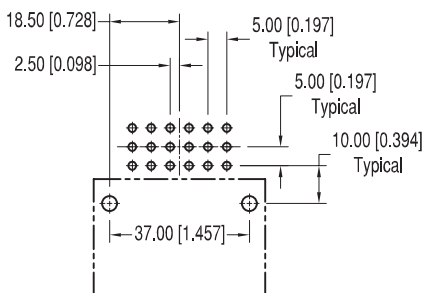
RIGHT ANGLE (90°) COMPLIANT PRESS-FIT CONTACT HOLE PATTERN MALE AND FEMALE

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

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

STEP 8 - ENVIRONMENTAL COMPLIANCE OPTIONS

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

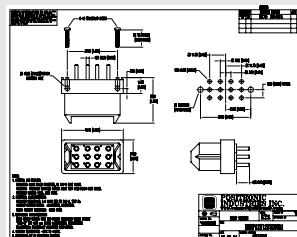


NOTE: If compliance to environmental legislation is not required, this step will not be used. Example: MMIP12W12F3200A1

STEP 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.

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