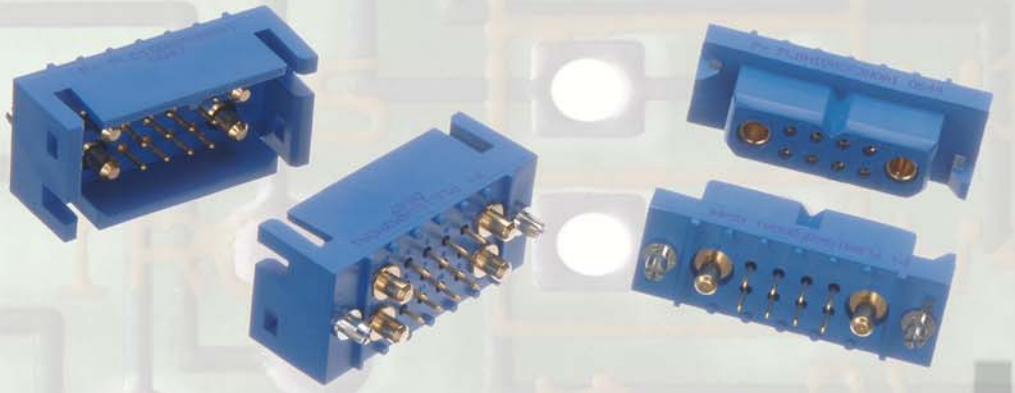
PCS Mixed Density

Power Connectors

NEW

POSITRONIC INDUSTRIES



PCS Series Power Connectors with Mixed Density Contacts.

For 20 years, the Positronic PCS series power connector has been an industry standard for applications requiring a versatile high current power connector.

The PCS series offers a wide variety of termination types, contact variants and accessories.

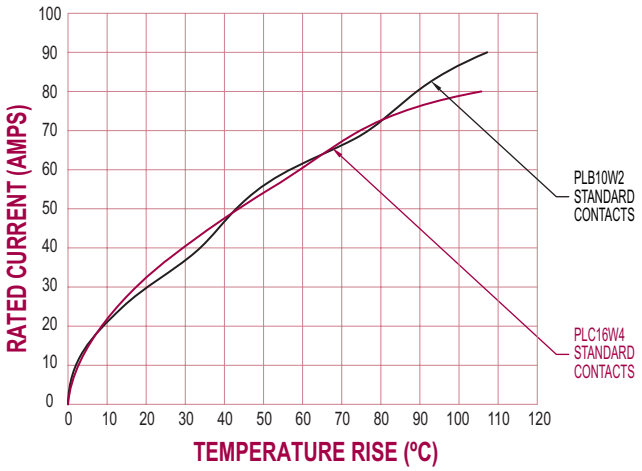
Positronic is once again expanding the PCS Series. Two new variants are offered which mix Size 8 power, shielded and high voltage contacts and Size 20 signal contacts in a single connector package.

Authentic Positronic Power Connectors

Catalog C-039 Rev. NC1

TEMPERATURE RISE CURVES

STANDARD CONTACT MATERIAL

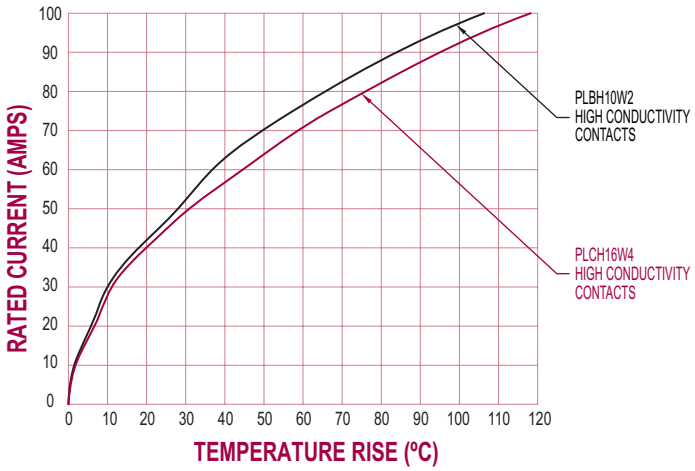


Test conducted in accordance with UL1977.
All power contacts under load.

10W2: Curve developed using PLB10W2F9300A1 and PLB10W2M0000 connectors with MC4008D contacts terminated to 8 AWG wire .

16W4: Curve developed using PLC16W4F9300A1 and PLC16W4M0000 connectors with MC4008D contacts terminated to 8 AWG wire.

HIGH CONDUCTIVITY CONTACT MATERIAL



Test conducted in accordance with UL1977.
All power contacts under load.

10W2: Curve developed using PLBH10W2F9300A1 and PLBH10W2M0000 connectors with MC4008DS contacts terminated to 8 AWG wire .

16W4: Curve developed using PLCH16W4F9300A1 and PLCH16W4M0000 connectors with MC4008DS contacts terminated to 8 AWG wire.

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.

Contact Technical Sales with your particular requirements.

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

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

TECHNICAL CHARACTERISTICS

MATERIALS AND FINISHES:

Insulator:	Glass-filled polyester, UL 94V-0. Contact technical sales for availability of high temperature insulator material.
Contacts:	Precision machined copper alloy with gold flash over nickel, or 0.000030 inch [0.76µ] gold over nickel, or 0.000050 [1.27µ] gold over nickel. Solder coated terminations optional.
Mounting Clip:	Beryllium copper with tin plate.
Hood:	Glass filled polyester, UL 94V-0.
Mounting Bracket:	Brass with tin plate.
Push-on Fastener:	Spring tempered copper alloy, tin plate

ELECTRICAL CHARACTERISTICS:

SIGNAL CONTACTS

Contact Current Rating:	7.5 amperes nominal.
Initial Contact Resistance:	0.007 ohms max. per IEC 512-2, Test 2b

POWER CONTACTS

Contact Current Rating:	See temperature rise curves on page 2. For additional information see page 7.
Initial Contact Resistance:	
Standard Conductivity:	0.0005 ohms max. per IEC 512-2, Test 2b.
High Conductivity:	0.0003 ohms max. per IEC 512-2, Test 2b.

SHIELDED CONTACTS

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

Above values measured using frequency domain techniques.

Proof Voltage:	1000 V r.m.s.

HIGH VOLTAGE CONTACTS

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

CONNECTOR

Insulation Resistance:	5 G ohms per IEC 512-2, Test 3a, Method A.
Working Voltage:	600 V rms.
Voltage Proof:	2200 V rms per IEC 512-2, Test 4a, Method C.
Clearance and Creepage Distance:	0.080 inch [2.03 mm]
Working Temperature:	-55°C to +125°C.

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

For RoHS options, see page 15.

MECHANICAL CHARACTERISTICS:

SIGNAL CONTACTS

Removable:	Insert contact to rear face of insulator, release from front face of insulator. Size 20 contacts, 0.040 inch [1.02 mm] diameter male contacts, closed entry design female contacts.
Fixed:	Straight solder, 90° solder and straight compliant press-fit printed board mount terminations. Size 20 contacts, 0.040 inch [1.02 mm] diameter male contacts, open entry design female contacts.

POWER CONTACTS:

Removable:	Insert contact to rear face of insulator, release from front face of insulator. Size 8 contacts, 0.142 inch [3.61 mm] diameter male contacts, closed entry design female contacts.
Printed Board Mount:	Straight solder, 90° solder and straight compliant press-fit printed board mount terminations. Size 8 contacts, 0.142 inch [3.61 mm] male contacts, closed entry design female contacts.

SHIELDED CONTACTS:

Removable:	Insert contact to rear face of insulator, release from front face of insulator. Size 8 contacts. See page 9 table of cable sizes for contact termination dimensions.

HIGH VOLTAGE CONTACTS:

Removable:	Insert contact to rear face of insulator, release from front face of insulator. Size 8 contacts. Straight and 90° terminations. 0.041 inch [1.04 mm] minimum hole diameter.
Contact Terminations:	20-24 AWG [0.5-0.25mm²] removable crimp signal, 0.028 inch [0.71 mm] diameter straight and 90° solder printed board mount, 8-16 AWG [10.0-1.0mm²] removable solder and crimp power, 0.125 inch [3.18 mm] diameter straight and 90° solder printed board mount, power, shielded, high voltage cable, and straight compliant press-fit terminations.
Contact Retention in Insulator:	Fixed signal - 9 lbs. [40 N]. Removable Signal - 10 lbs. [44N]. Power, shielded and high voltage - 22 lbs. [98 N].
Resistance to Solder Iron Heat:	500° F [260° C] for 10 second duration per IEC 512-6, test 12e, 25 watt soldering iron.
Connection Systems:	Connector provides cable to cable, cable to printed board, cable to panel mount and printed board to printed board application.
Locking System:	Insulators provide locking between cable to cable, cable to printed board and cable to panel mount applications.
Polarizations:	Provided in insulator design.
Mounting to Printed Board:	Rapid installation push-on fasteners. Self-tapping screws for compliant connectors.
Mechanical Operations:	500 operations per IEC 512-5.

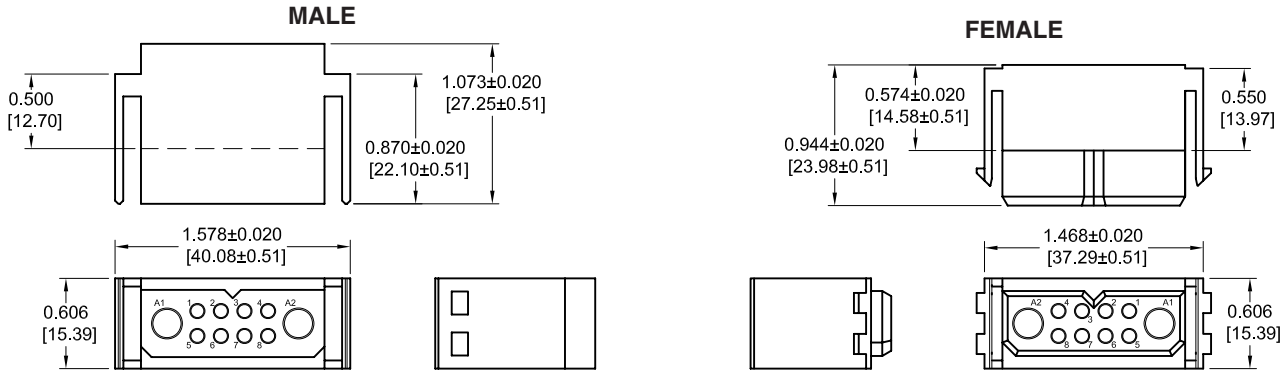
UL AND CSA RECOGNITION IS IN PROCESS.

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

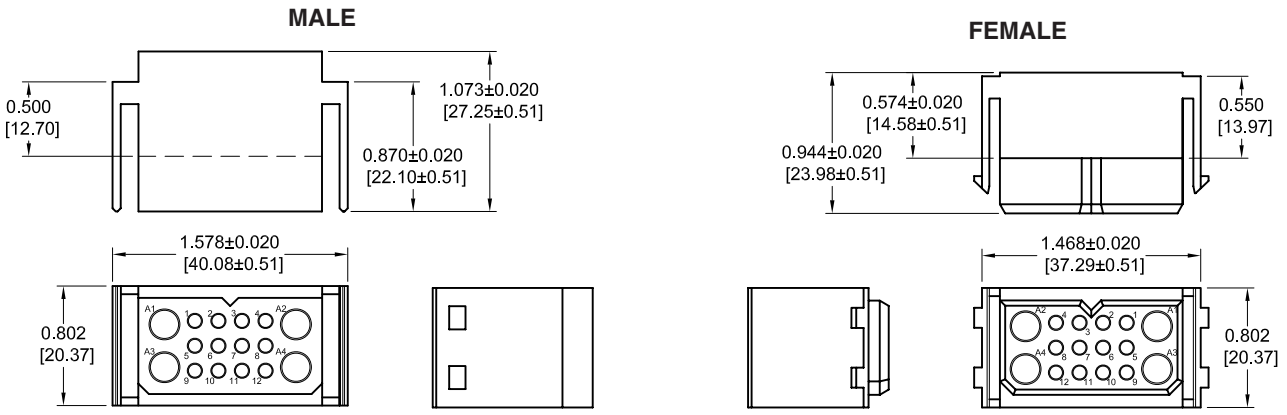
MALE AND FEMALE INSULATOR DIMENSIONS FOR CABLE CONNECTORS FEATURING INTEGRAL LOCKING SYSTEM AND REMOVABLE CONTACTS

CODE 0

PLB(H)10W2



PLC(H)16W4



For removable contact options, see page 6, 7, 8 and 9.
For panel cutout, see page 14.

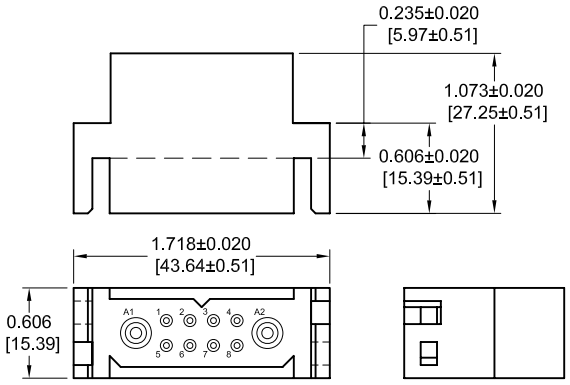
DIMENSIONS ARE IN INCHES [MILLIMETERS].
ALL DIMENSIONS ARE SUBJECT TO CHANGE.

MALE AND FEMALE INSULATOR DIMENSIONS FOR PANEL MOUNT CONNECTORS WITH REMOVABLE CONTACTS

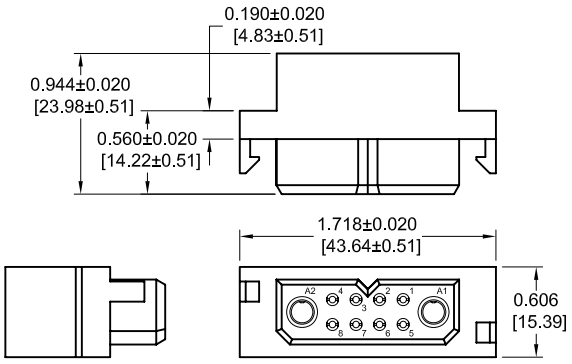
CODE 1

PLB(H)10W2

MALE

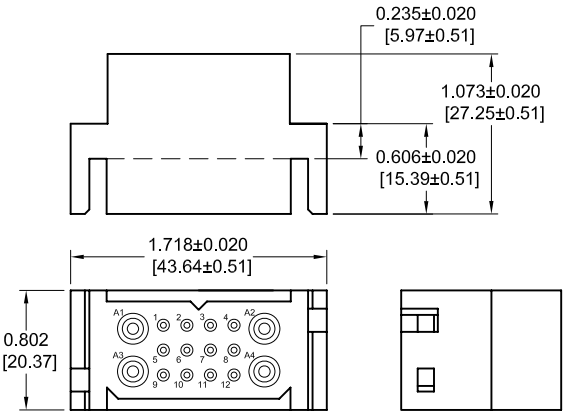


FEMALE

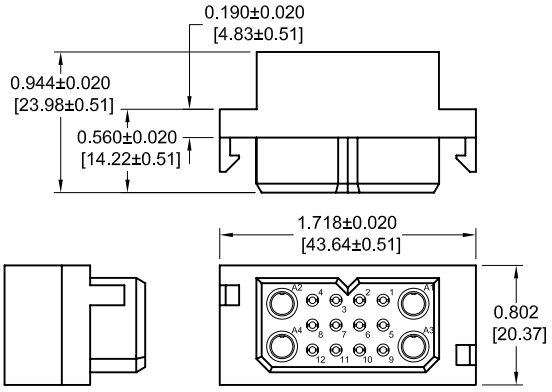


PLC(H)16W4

MALE



FEMALE

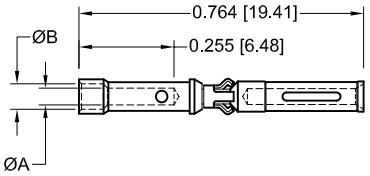


For removable contact options, see page 6, 7, 8 and 9.
For panel cutout, see page 14.

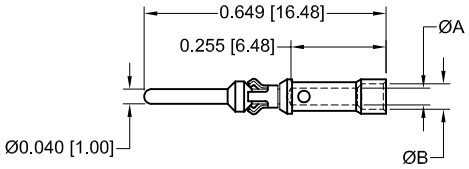
REMOVABLE CRIMP SIGNAL CONTACTS

CONTACTS MUST BE ORDERED SEPARATELY.

FEMALE CONTACT



MALE CONTACT



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

MALE CONTACT PART NUMBER	WIRE SIZE AWG [mm²]	ØA	ØB
MC720N3	20 / 22 / 24 [0.5 / 0.3 / 0.25]	0.045 [1.14]	0.068 [1.73]

MATERIAL: Copper alloy

PLATING:

STANDARD FINISH: 0.000010 [0.25 µ] gold over nickel or copper.

OPTIONAL FINISHES: 0.000030 [0.76 µ] gold over nickel by adding "-14" suffix onto part number. Example: FC720N2-14
0.000050 inch [1.27µ] gold over nickel by adding "-15" suffix onto part number. Example: MC720N3-15.

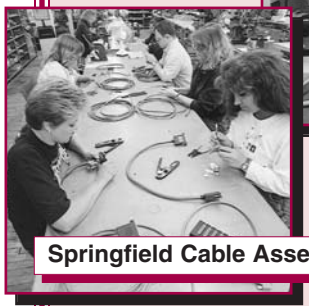
For information regarding crimp tool and crimping tool techniques, consult Technical Sales.

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:

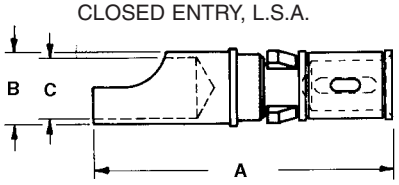
1. Works closely with customers.
2. Prepares component and cablized connector systems, hardware design, and performance specifications.
3. Designs each system in accordance with applicable customer, domestic, and international standards.
4. Defines and directs required performance and verification testing.

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

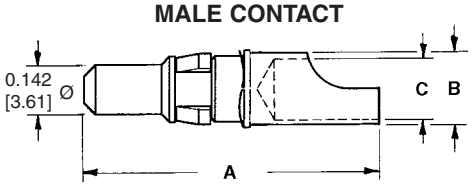
REMOVABLE SOLDER CUP POWER CONTACTS

CONTACTS MUST BE ORDERED SEPARATELY.

*** FEMALE CONTACT**
CLOSED ENTRY, L.S.A.



MALE CONTACT



PART NUMBER	CURRENT RATING	WIRE SIZE	A REF.	B Ø	C Ø
FS4008D	40 Amps	8	0.858 [21.79]	0.219 [5.56]	0.188 [4.78]
FS4012D	20 Amps	12	0.858 [21.79]	0.143 [3.63]	0.112 [2.84]
FS4016D	10 Amps	16	0.858 [21.79]	0.100 [2.54]	0.069 [1.75]

PART NUMBER	CURRENT RATING	WIRE SIZE	A REF.	B Ø	C Ø
MS4008D	40 Amps	8	0.868 [22.05]	0.219 [5.56]	0.188 [4.78]
MS4012D	20 Amps	12	0.868 [22.05]	0.143 [3.63]	0.112 [2.84]
MS4016D	10 Amps	16	0.868 [22.05]	0.100 [2.54]	0.069 [1.75]

MATERIAL: Copper alloy.

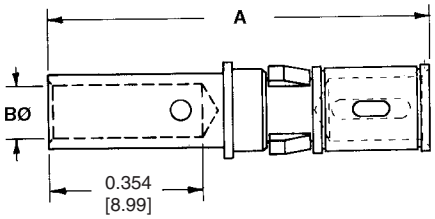
PLATING:
STANDARD FINISH: Gold flash over nickel plate.
OPTIONAL FINISHES: 0.000030 [0.76 µ] gold over nickel by adding "-14" suffix onto part number. Example: FS4008D-14
0.000050 inch [1.27µ] gold over nickel by adding "-15" suffix onto part number. Example: MS4012D-15.

***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.**

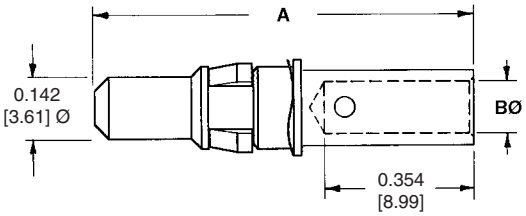
REMOVABLE CRIMP POWER CONTACTS

CONTACTS MUST BE ORDERED SEPARATELY.

*** FEMALE CONTACT**
CLOSED ENTRY, L.S.A.



MALE CONTACT



FEMALE CONTACT PART NUMBER	CURRENT RATING	WIRE SIZE	A	ØB
FC4008D	See Temp. Rise Curve, page 2.	8	0.858 [21.79]	0.181 [4.60]
FC4008DS	See Temp. Rise Curve, page 2.	8	0.858 [21.79]	0.181 [4.60]
FC4010D	30 Amps	10	0.858 [21.79]	0.122 [3.10]
FC4012D	20 Amps	12	0.858 [21.79]	0.101 [2.57]
FC4016D	10 Amps	16	0.858 [21.79]	0.067 [1.70]

"S" in part number indicates high conductivity material.

Compatible with PL*H PCB mount connectors. See ordering information.

MALE CONTACT PART NUMBER	CURRENT RATING	WIRE SIZE	A	ØB
MC4008D	See Temp. Rise Curve, page 2.	8	0.882 [22.40]	0.181 [4.60]
MC4008DS	See Temp. Rise Curve, page 2.	8	0.882 [22.40]	0.181 [4.60]
MC4010D	30 Amps	10	0.882 [22.40]	0.122 [3.10]
MC4012D	20 Amps	12	0.882 [22.40]	0.101 [2.57]
MC4016D	10 Amps	16	0.882 [22.40]	0.067 [1.70]

MATERIAL: Copper alloy.

For information regarding crimp tool and crimping tool techniques, consult Technical Sales.

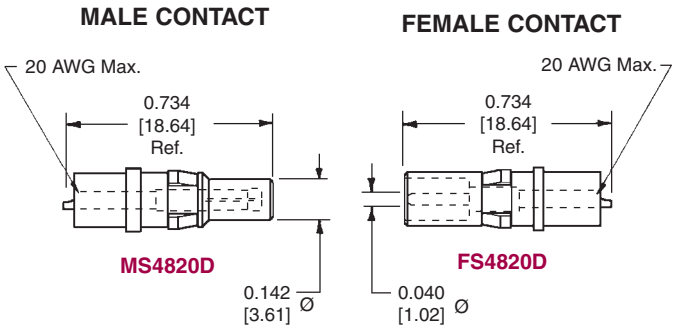
PLATING:
STANDARD FINISH: Gold flash over nickel plate.
OPTIONAL FINISHES: 0.000030 [0.76 µ] gold over nickel by adding "-14" suffix onto part number. Example: FC4008D-14
0.000050 inch [1.27µ] gold over nickel by adding "-15" suffix onto part number. Example: MC4012D-15.

***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.**

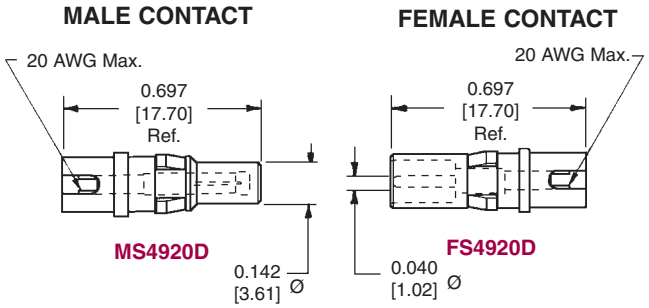
REMOVABLE HIGH VOLTAGE CONTACTS

CONTACTS MUST BE ORDERED SEPARATELY.

STRAIGHT SOLDER WIRE TERMINATION



90° SOLDER WIRE TERMINATION



TECHNICAL CHARACTERISTICS

MATERIALS AND FINISHES:

Insulators: Teflon, PTFE.

Contacts: Male contacts, brass. Female contacts, phosphor bronze.

Plating:

Standard Finish: 0.000030 [0.76µ] gold over nickel

Optional Finish: 0.000050 [1.27µ] gold over nickel available by adding -15 suffix on part number. Example: MS4920D-15.

ELECTRICAL CHARACTERISTICS:

HIGH VOLTAGE CONTACTS

Flash Over Voltage: 3600 V r.m.s.

Proof Voltage: 2700 V r.m.s.

Initial Contact Resistance: 0.008 ohms maximum.

MECHANICAL CHARACTERISTICS:

Size 8 Removable Contacts: Rear insertion, front release.

Durability: 500 cycles minimum.

Vibration: 20g from 10 Hz to 500 Hz.

Shock: 30g-11ms.

CLIMATIC CHARACTERISTICS:

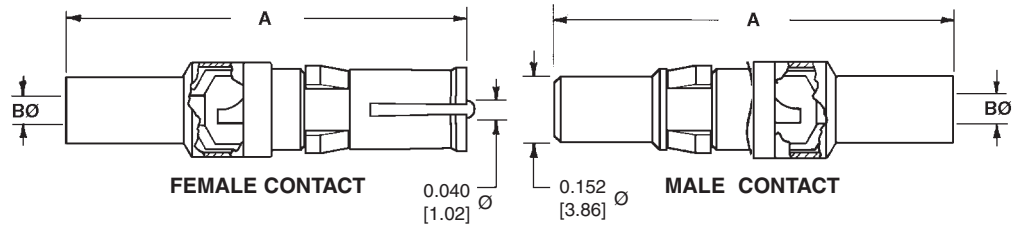
Temperature Range: -55˚C to +125˚C.

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

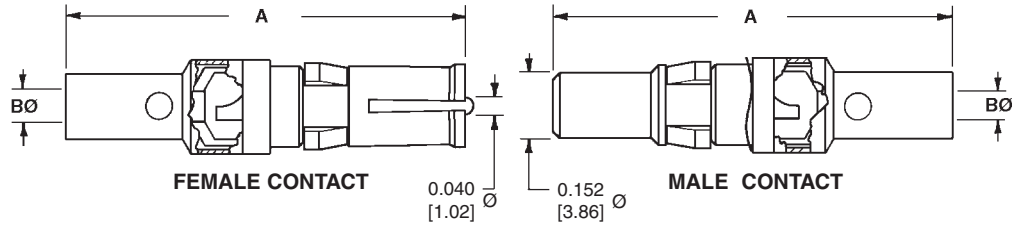
REMOVABLE SHIELDED CONTACTS

CONTACTS MUST BE ORDERED SEPARATELY.

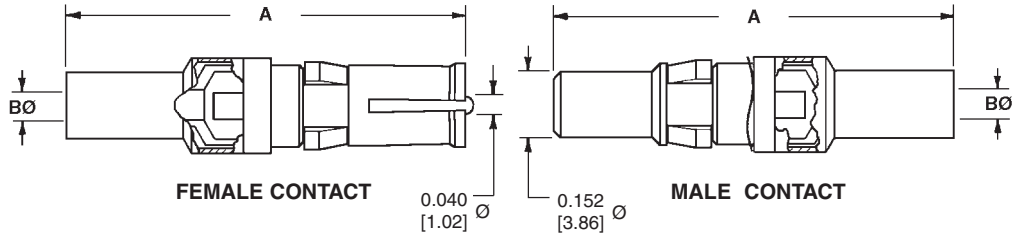
STRAIGHT SOLDER/CRIMP CONTACTS



STRAIGHT SOLDER/SOLDER CONTACTS



STRAIGHT CRIMP/CRIMP CONTACTS



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

MATERIAL:
Copper alloy with PTFE teflon insulator.

PLATING:

STANDARD FINISH:

SIGNAL CONTACT:
0.000030 [0.76 µ] gold over nickel

CONTACT BODY:
Gold flash over nickel.

OPTIONAL FINISHES:

SIGNAL CONTACT:
0.000050 inch [1.27µ] gold over nickel by adding "-15" suffix onto part number. Example: MS4102D-15.

CONTACT BODY:
0.000030 [0.76 µ] gold over nickel

Two-step crimping action for signal and shielding conductors.

For information regarding crimp tool and crimping tool techniques, consult Technical Sales.

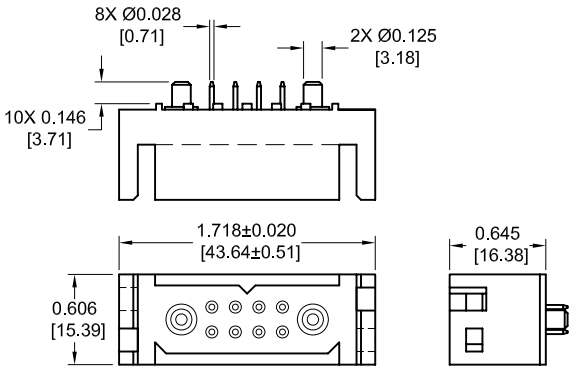
DIMENSIONS ARE IN INCHES [MILLIMETERS].
ALL DIMENSIONS ARE SUBJECT TO CHANGE.

STRAIGHT PRINTED BOARD MOUNT CONNECTORS

CODE 3, 0.146 [3.71] CONTACT EXTENSION

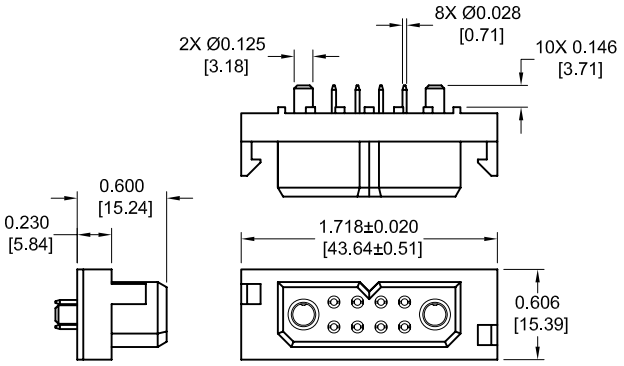
PLB(H)10W2

MALE



Typical part numbers:
PLB10W2M300A1
PLBH10W2M300A1

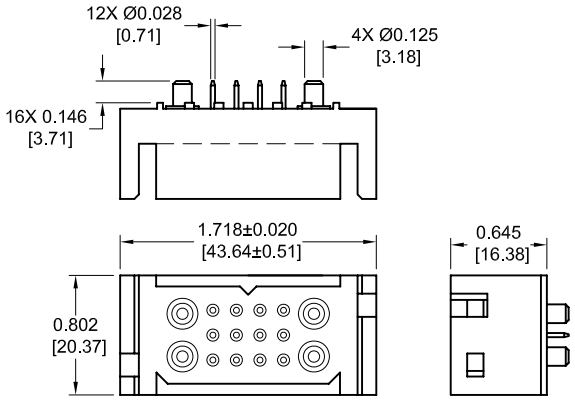
FEMALE



Typical part numbers:
PLB10W2F300A1
PLBH10W2F300A1

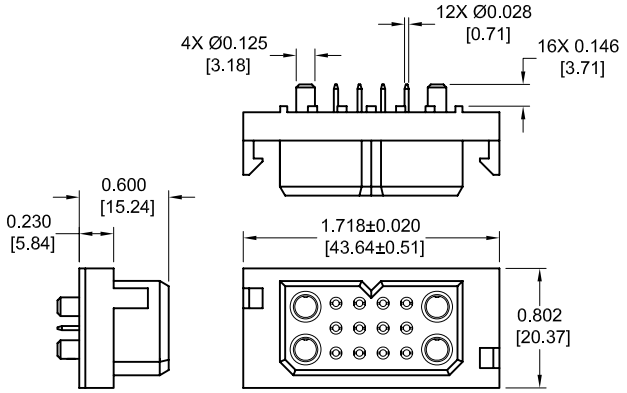
PLC(H)16W4

MALE



Typical part numbers:
PLC16W4M300A1
PLCH16W4M300A1

FEMALE



Typical part numbers:
PLC16W4F300A1
PLCH16W4F300A1

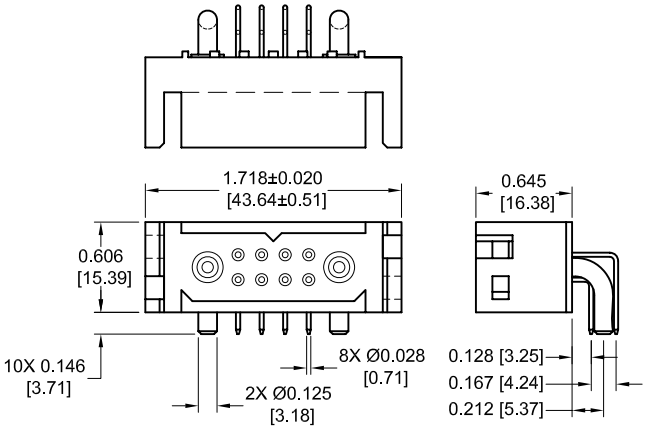
DIMENSIONS ARE IN INCHES [MILLIMETERS].
ALL DIMENSIONS ARE SUBJECT TO CHANGE.

90° PRINTED BOARD MOUNT CONNECTORS

CODE 4, 0.146 [3.71] CONTACT EXTENSION

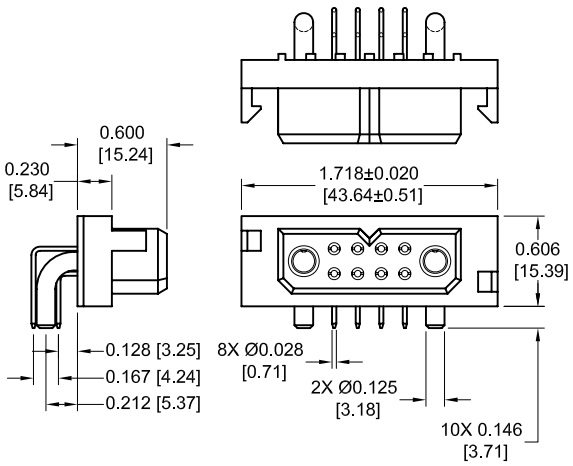
PLB(H)10W2

MALE



Typical part numbers:
PLB10W2M400A1
PLBH10W2M400A1

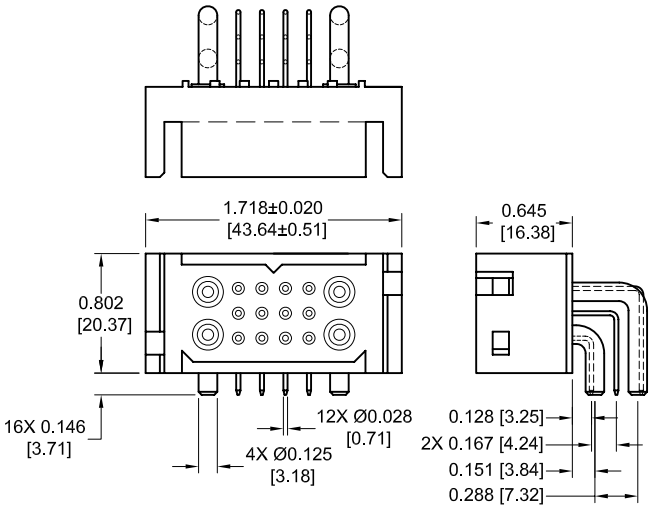
FEMALE



Typical part numbers:
PLB10W2F400A1
PLBH10W2F400A1

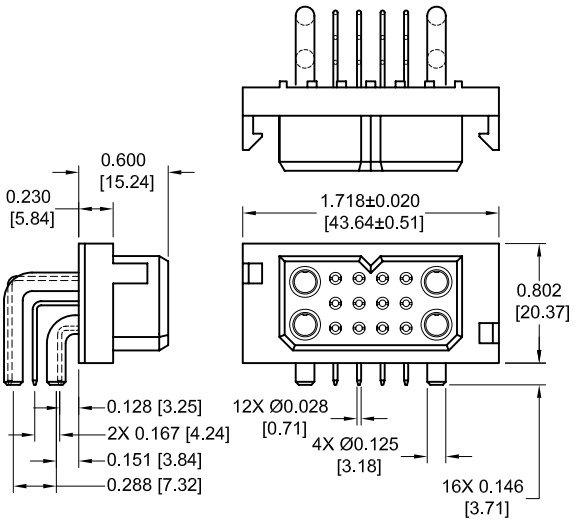
PLC(H)16W4

MALE



Typical part numbers:
PLC16W4M400A1
PLCH16W4M400A1

FEMALE

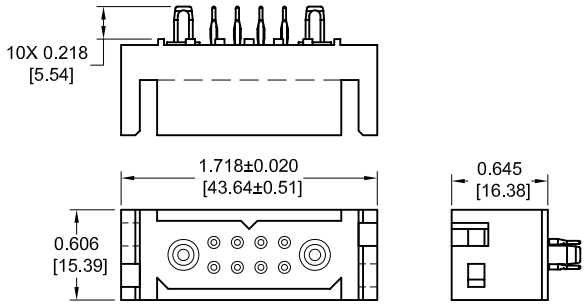


Typical part numbers:
PLC16W4F400A1
PLCH16W4F400A1

COMPLIANT PRESS-FIT CONNECTORS
CODE 93

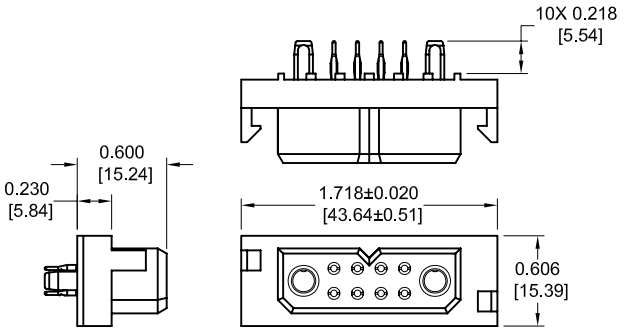
PLB(H)10W2

MALE



Typical part numbers:
PLB10W2M9300A1
PLBH10W2M9300A1

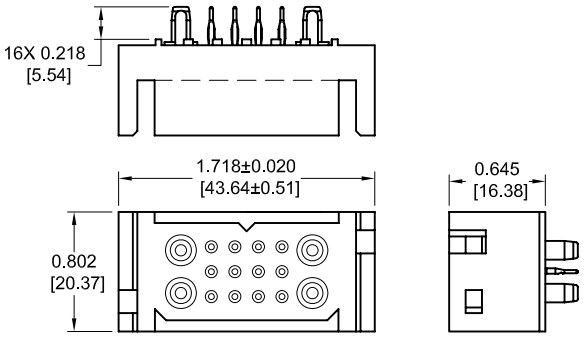
FEMALE



Typical part numbers:
PLB10W2F9300A1
PLBH10W2F9300A1

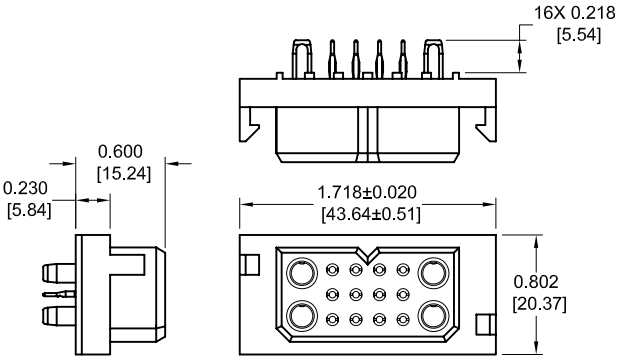
PLC(H)16W4

MALE



Typical part numbers:
PLC16W4M9300A1
PLCH16W4M9300A1

FEMALE

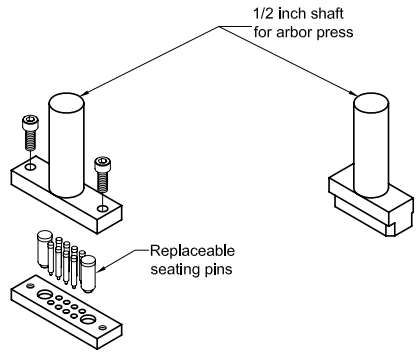


Typical part numbers:
PLC16W4F9300A1
PLCH16W4F9300A1

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

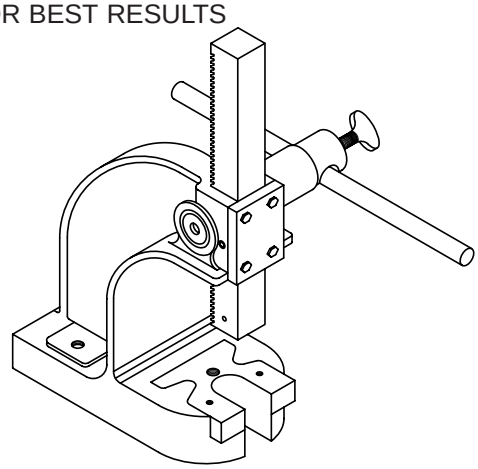
COMPLIANT PRESS-FIT CONNECTOR INSTALLATION TOOLS

USE INDICATED POSITRONIC TOOLS FOR BEST RESULTS



Female Connector

Male Connector



Arbor Press

POSITRONIC RECOMMENDED TOOLS FOR PLB & PLC SERIES CONNECTORS AND CONTACTS			
CONTACT VARIANT	CONNECTOR SEATING		
	MALE	FEMALE	
PLB10W2	9513-7-0-41	9513-30-0-41	
PLC16W4	9513-11-0-41	9513-31-0-41	
Arbor press for connector seating tools	9530-1-0	1 ton capacity	4 inch throat
Replacement pins for connector seating tools	Size 8 Power	855-347-19-41	
	Size 20 Signal	855-347-18-41	

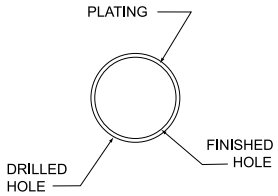
SUGGESTED PRINTED BOARD HOLE SIZES COMPLIANT PRESS-FIT CONNECTORS

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.

BI-SPRING COMPLIANT PRESS-FIT CONTACT HOLE				
BOARD TYPE	CONTACT SIZE	DRILL HOLE SIZE	RECOMMENDED PLATING	FINISHED HOLE SIZES
TIN-LEAD SOLDER PCB	8	ø0.125±0.001 [ø3.18±0.03]	0.0006 [15µ] minimum solder over 0.0010 [25µ] min. copper	ø0.119±0.002 [ø3.02±0.05]

OMEGA COMPLIANT PRESS-FIT CONTACT HOLE				
BOARD TYPE	CONTACT SIZE	DRILL HOLE SIZE	RECOMMENDED PLATING	FINISHED HOLE SIZES
TIN-LEAD SOLDER PCB	20	ø0.0453±0.0010 [ø1.150±0.025]	0.0006 [15µ] minimum solder over 0.0010 [25µ] min. copper	ø0.0394+0.0035-0.0024 [ø1.000+0.090-0.060]
RoHS PCB PLATING OPTIONS				
COPPER PCB	20	ø0.047±0.002 [ø1.19±0.05]	0.0010 [25µ] min. copper	ø0.043±0.002 [ø1.09±0.05]
IMMERSION TIN PCB	20	ø0.047±0.002 [ø1.19±0.05]	0.000033±0.000006 [0.85±0.15µ] immersion tin over 0.0010 [25µ] min. copper	ø0.043±0.002 [ø1.09±0.05]
IMMERSION SILVER PCB	20	ø0.047±0.002 [ø1.19±0.05]	0.000013±0.000007 [0.34±0.17µ] immersion silver over 0.0010 [25µ] min. copper	ø0.043±0.002 [ø1.09±0.05]
ELECTROLESS NICKEL/ IMMERSION GOLD PCB	20	ø0.047±0.002 [ø1.19±0.05]	0.000002 [0.05µ] min. immersion gold over 0.000177±0.000059 [4.5±1.5µ] electroless nickel per IPC-4552 over 0.0010 [25µ] min. copper	ø0.043±0.002 [ø1.09±0.05]

"Bi-Spring" Termination



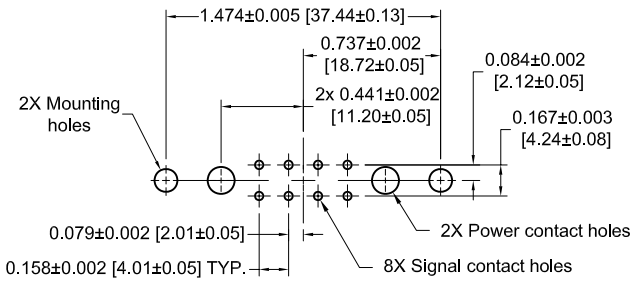
PRESS-FIT CONTACT HOLE

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

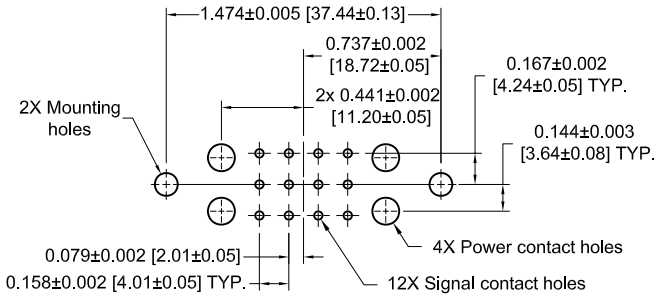
"Omega" Termination

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

STRAIGHT SOLDER AND COMPLIANT CONTACT HOLE PATTERN



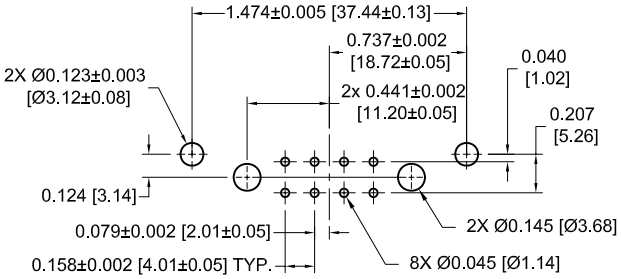
PLB10W2



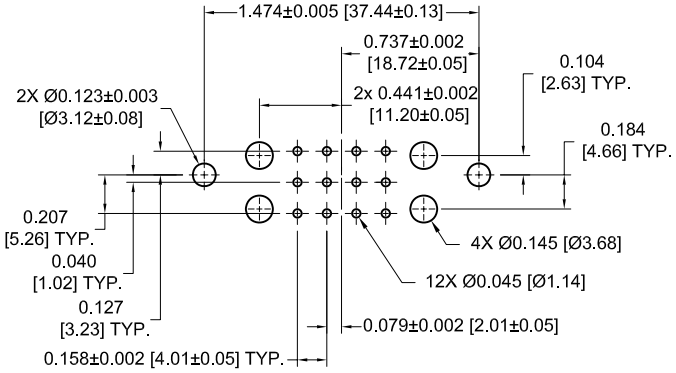
PLC16W4

Suggest 0.145 [3.68] Ø hole in printed board for power contact termination positions.
Suggest 0.045 [1.14] Ø hole for signal solder contact termination positions.
See previous page for hole details for compliant contact termination positions.
Suggest 0.100 [2.54] Ø hole in printed board when mounting connectors with #2 thread forming screws.
Suggest 0.123±0.003 [3.12±0.08] Ø hole in printed board for mounting connector with push-on fasteners.

90° PRINTED BOARD MOUNT CONTACT HOLE PATTERN

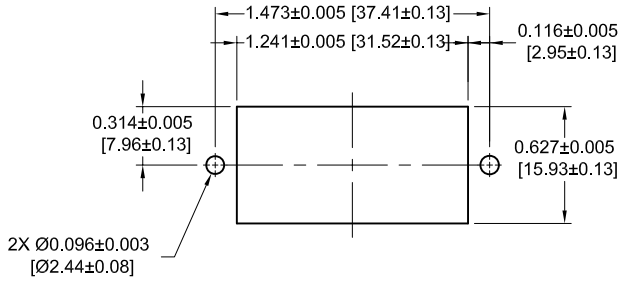


PLB10W2

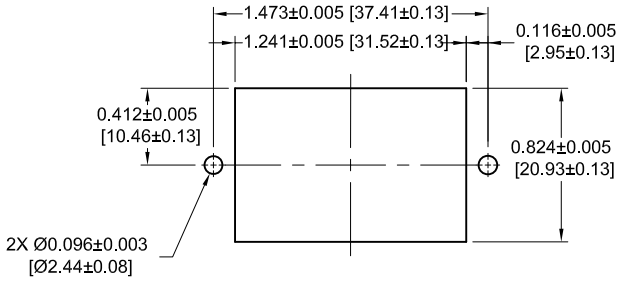


PLC16W4

PANEL CUTOUT



PLB10W2



PLC16W4

DIMENSIONS ARE IN INCHES [MILLIMETERS].
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	PLC	16W4	F	4	B3N	0	A1	/AA	—	

STEP 1 - BASIC SERIES

PLB - 2 Row
PLBH - 2 Row High conductivity contacts
PLC - 3 Row
PLCH - 3 Row High conductivity contacts

STEP 2 - CONNECTOR VARIANTS

2 Row – 10W2
3 Row – 16W4

STEP 3 - CONNECTOR GENDER

M - Male
F - Female

STEP 4 - CONTACT TERMINATION TYPE

0 – Order contacts separately for cable connectors.
1 – Removable contact, panel mounted connector. Order contacts separately.
3 – Solder, Straight Printed Board Mount with 0.146 [3.71] tail extension.
4 – Solder, 90° Printed Board Mount with 0.146 [3.71] tail extension.
93 – Straight PCB Mount, Press-Fit, length 0.218 [5.54] for 0.125 inch [3.18] thick board.

STEP 5 - MOUNTING STYLE

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

STEP 6 - HOODS AND PANEL MOUNT

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

STEP 7 - CONTACT PLATING FOR PRINTED BOARD CONNECTORS

0 - Crimp Contacts ordered separately.
A1 - Gold flash over nickel on mating end and termination end.
A2 - Gold flash over nickel on mating end and 0.00020 inch [5.00µ] tin-lead solder coat on termination end. Not available with code 93 in step 4.
C1 - 0.000030 inch [0.76µ] gold over nickel on mating end and termination end.
C2 - 0.000030 inch [0.76µ] gold over nickel on mating end and 0.00020 inch [5.00µ] tin-lead solder coated termination end. Not available with code 93 in step 4.
D1 - 0.000050 inch [1.27µ] gold over nickel on mating end and termination end.
D2 - 0.000050 inch [1.27µ] gold over nickel on mating end and 0.00020 inch [5.00µ] tin-lead solder coated termination end. Not available with code 93 in step 4.

STEP 8 - ENVIRONMENTAL COMPLIANCE OPTIONS

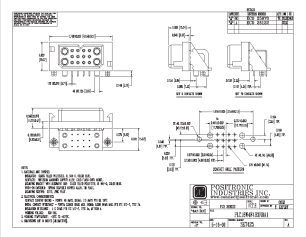
/AA - Compliant per EU Directive 2002/95/EC (RoHS)

NOTE: If compliance to environmental legislation is not required, this step will not be used.
Example: PLC16W4F4B3N0A1

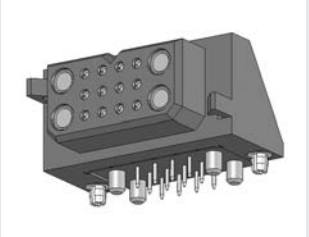
STEP 9 - SPECIAL OPTIONS

CONTACT TECHNICAL SALES FOR SPECIAL OPTIONS

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, STEP, or SOLIDWORKS file.



SK Drawing



3-dimensional model

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

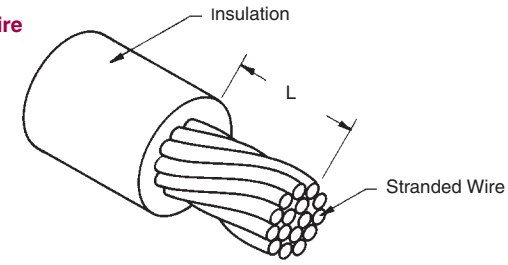
CRIMPING INFORMATION FOR REMOVABLE CRIMP CONTACTS

USE INDICATED POSITRONIC TOOLS FOR BEST RESULTS

STEP 1: STRIP WIRE TO INDICATED LENGTH.

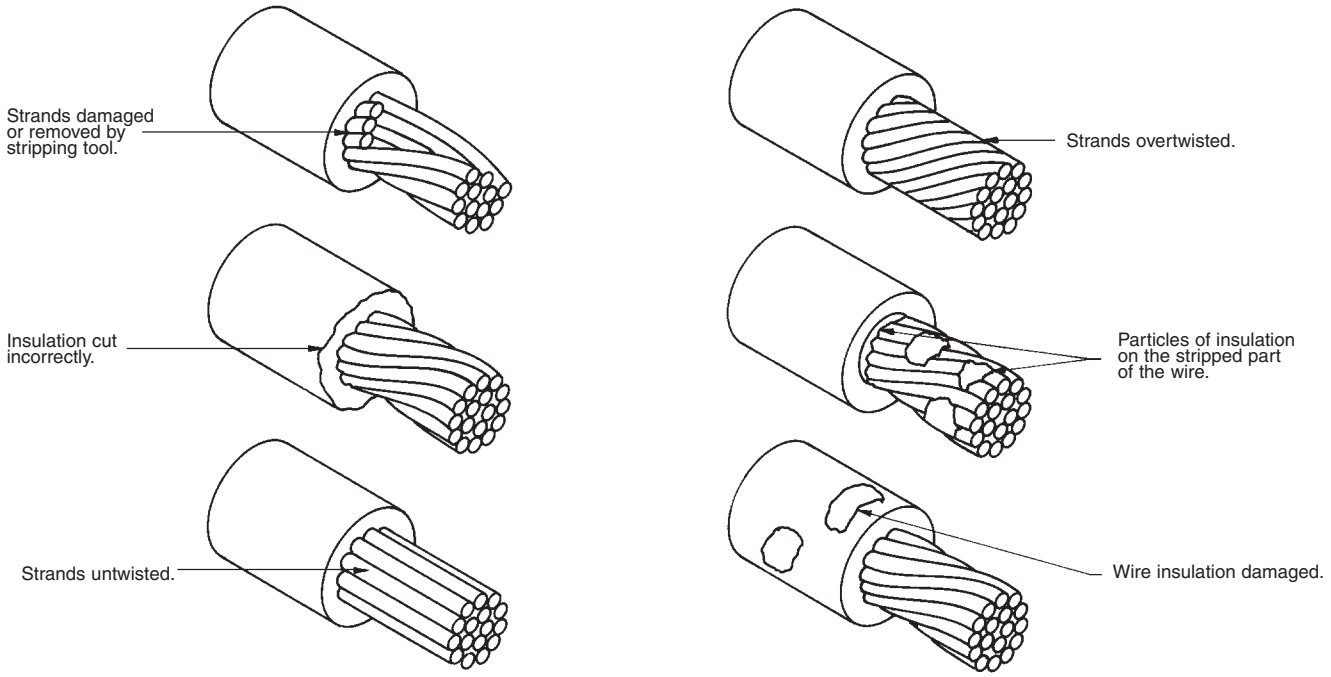
Take Care Not To:
- **Damage or remove strands.**
- **Untwist or overtwist strands.**
- **Leave insulation particles on strands.**
- **Damage insulation.**

Correctly Stripped Wire



CONNECTOR SERIES	CONTACT TYPE	L ±0.020 [±0.51]
PLB10W2 PLBH10W2 PLC16W4 PLCH16W4	SIGNAL	0.230 [5.84]
	POWER	0.350 [8.89]

Examples of Stripping Faults



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.**

DIMENSIONS ARE IN INCHES [MILLIMETERS].
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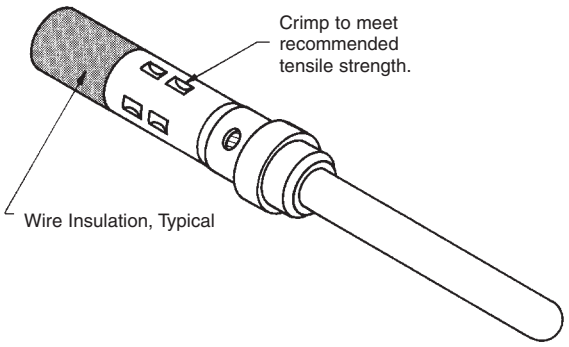
CRIMPING INFORMATION FOR REMOVABLE CRIMP CONTACTS

USE INDICATED POSITRONIC TOOLS FOR BEST RESULTS

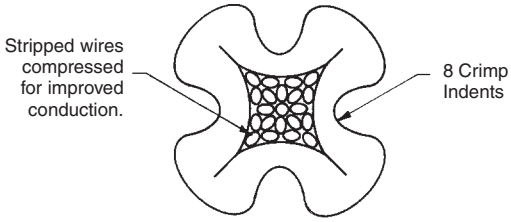
STEP 3: INSPECT THE CRIMP.

Correctly Crimped Contact

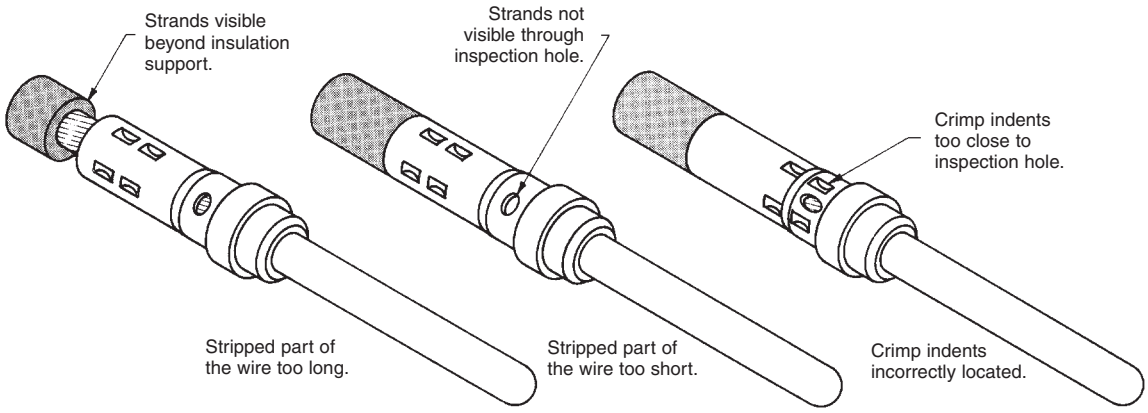


For All Tools:
- **Strands to be visible through the inspection hole.**
- **Strands not to be visible beyond the insulation support.**
- **Crimped contact to meet recommended conductor tensile force shown in chart.**
- **Check for peeled gold and bent contacts.**

Cross Section of Correctly Crimped Contact



Examples of Crimping Faults



Positronic Recommended Conductor Tensile Strength	
WIRE SIZE AWG/[mm²]	AXIAL LOAD POUNDS/[N]
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.

CONTACT APPLICATION TOOLS CROSS REFERENCE LIST

USE INDICATED POSITRONIC TOOLS FOR BEST RESULTS

PCS MIXED DENSITY REMOVABLE CONTACTS — POWER, HIGH VOLTAGE, AND SHIELDED SIZE 8 CONTACTS; SIGNAL SIZE 20

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
FC720N2		9507	AFMB	M22520/2-01	9502-22	K1196		9099-4-0-0	ITP1076		9081-2-0-0	RNG2103		9550-1
MC720N3		9507	AFMB	M22520/2-01	9502-27	K1506		9099-4-0-0	ITP1076		9081-2-0-0	RNG2103		9550-1
***C4008D**	9504-19-0-0	9509-1-0-0	M310		9504-19-1-0	Y524		N/A			4311-0	P+		9555-0-2
***C4008DS**	9504-19-0-0	9509-1-0-0	M310		9504-19-1-0	Y524		N/A			4311-0	P+		9555-0-2
***C4010D**	9509-0-0-0	9509-1-0-0	M310		9509-2-0-0	TP-974		N/A			4311-0	P+		9555-0-2
***C4012D**	9509-0-0-0	9509-1-0-0	M310		9509-2-0-0	TP-974		N/A			4311-0	P+		9555-0-2
***C4016D**	9509-0-0-0	9509-1-0-0	M310		9509-2-0-0	TP-974		N/A			4311-0	P+		9555-0-2
***S40**D**								N/A			4311-0	P+		
***S4*20D**								N/A			4311-0	P+		
***C4101D**	9504-0	9504-1-0-0	HX4	M22520/5-01	9504-2-0-0	Y322		N/A			4311-0	P+		
***C4102D**	9504-0	9504-1-0-0	HX4	M22520/5-01	9504-2-0-0	Y322		N/A			4311-0	P+		
***C4103D**	9504-0	9504-1-0-0	HX4	M22520/5-01	9504-2-0-0	Y322		N/A			4311-0	P+		
***C4104D**	9504-0	9504-1-0-0	HX4	M22520/5-01	9504-2-0-0	Y322		N/A			4311-0	P+		
***S410*D**								N/A			4311-0	P+		
***CC4101D**	9504-14-0-0	9504-1-0-0	HX4	M22520/5-01	9504-14-1-0	Y878		N/A			4311-0	P+		
***CC4102D**	9504-13-0-0	9504-1-0-0	HX4	M22520/5-01	9504-13-1-0	Y937		N/A			4311-0	P+		
***CC4103D**	9504-15-0-0	9504-1-0-0	HX4	M22520/5-01	9504-15-1-0	Y877		N/A			4311-0	P+		
***CC4104D**	9504-15-0-0	9504-1-0-0	HX4	M22520/5-01	9504-15-1-0	Y877		N/A			4311-0	P+		

AUTOMATIC CRIMP TOOLS, PNEUMATICALLY ACTUATED

Part No. 9550-1

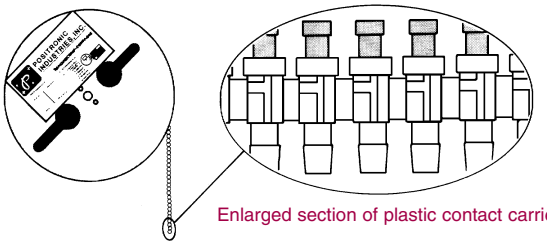
This fast cycling automatic feed strip and crimp tool produces an 8 indent crimp on wire sizes 20 AWG [0.5mm²] through 24 AWG [0.25mm²]. Contacts must be ordered on reels.

To order, specify part number 9550-1. Foot control valve is supplied as a standard accessory.

Part No. 9555-0-2

This fast cycling automatic feed strip and crimp tool produces an 8 indent crimp on wire sizes 8 AWG [10.0mm²] through 12 AWG [4.0mm²]. Contacts must be ordered on reels.

To order, specify part number 9555-0-2. Foot control valve is supplied as a standard accessory.



Enlarged section of plastic contact carriers

REELS FOR AUTOMATIC PNEUMATIC CRIMP TOOLS

Contacts may be supplied in plastic carriers, packaged in reels holding 2,000 contacts for use with the automatic pneumatic crimp tools, catalog part number 9550-1 and packaged in reels holding 1,000 contacts for use with the automatic pneumatic crimp tools, catalog part number 9555-0-2. The same type carrier is used for both male and female contacts.

All male and female crimp contacts can be ordered in reels by adding letter “R” after the contact part number, such as MC6020DR for a male contact and FC6026DR for a female contact.

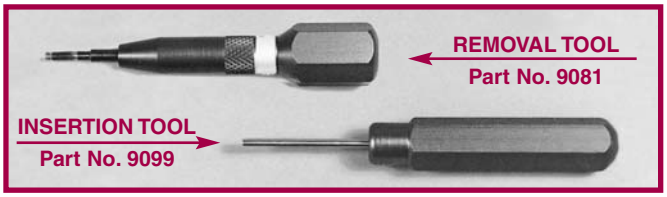
MINIATURE STEP ADJUSTABLE TOOL

M22520/2-01 Part No. 9507

This miniature 8 step adjustable hand crimping tool produces an 8 indent crimp configuration and will crimp wire sizes 20 AWG [.05mm²] through 24 AWG [0.25mm²].

Each positioner is equipped with a data plate which gives the correct crimp-depth setting for each wire size, and must be used with 9507 tool frame for best results when crimping contacts.

For complete crimp tool and positioner selection, see recommended tooling chart on page 4.



INSERTION AND REMOVAL TOOLS

(SHOWN FOR REFERENCE ONLY)

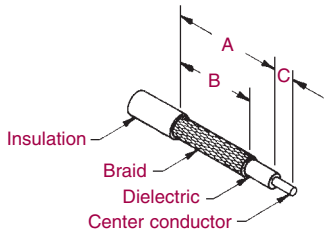
An easy-to-use contact insertion tool for 12 AWG [4.0 mm²] and smaller wires, part number 9099.

The contact removal tool is spring-loaded to simplify the extraction of removable contacts from the connector insulators, part number 9081. 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, see recommended tooling chart on page 4.

SOLDERING AND CRIMPING INFORMATION FOR PCS MIXED DENSITY SERIES 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

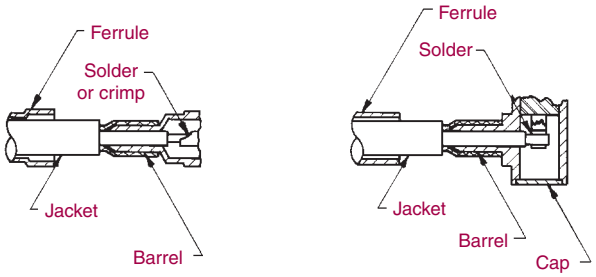
- **Trim cable. Tin center conductor.**
- **Slide ferrule over jacket. Insert dielectric and center conductor into barrel. Solder center conductor into contact.**
- **Butt ferrule against shoulder. Crimp ferrule over braid. Solder cap into body.**

Shielded Contact Hand Crimp Tool
For crimp tool part numbers, see Contact Application Tools Cross Reference Chart on page 4.

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

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

Typical Part Number: FC4101D



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

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 solder, straight press-fit and right angle press-fit
Configurations: Multiple variants in a variety of package sizes
Compliance: PICMG 2.11, PICMG 3.0, VITA 41

FEATURES: Hot swap capability • AC/DC operation in a single connector • Signal contacts for hardware management • Blind mating • Sequential mating • Large surface area contact mating system • Wide variety of accessories • Customer specified contact arrangements

D-Subminiature

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

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

Rectangular

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

FEATURES: Two performance levels available: industrial quality and military quality provide two performance to cost choices • Large surface area contact mating system • A wide variety of accessories • Broad selection of contact variants and package sizes

Circular

Contact Sizes: 12, 16, 20 and 22
Current Ratings: To 25 amperes nominal
Terminations: Crimp, wire solder, straight solder and right angle solder
Configurations: Multiple variants
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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