

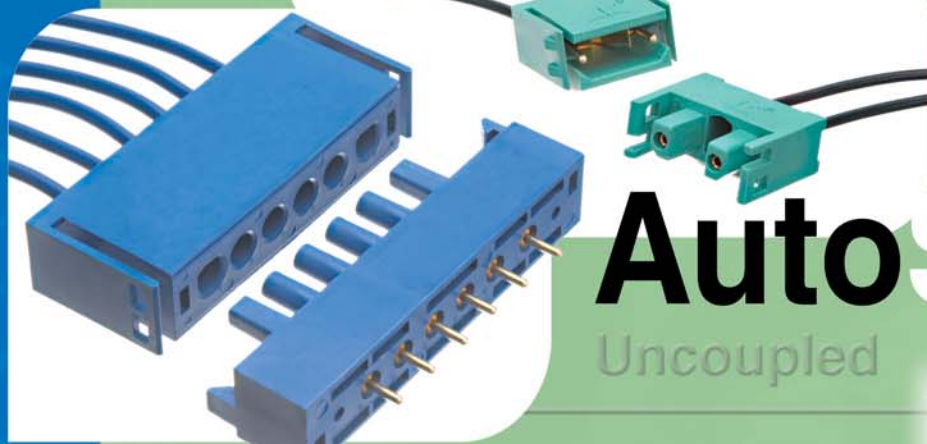
w w w . c o n n e c t p o s i t r o n i c . c o m



# Positronic Industries



*An alternative to CT shorting blocks*



# AutoShunt

Uncoupled

← To CT      To meter/relay →

**Look for our  
NEW!  
Products!**

## Features:

- Quick and easy alternative to commonly used CT shorting blocks
- Innovative design automatically shorts circuits together upon connector being uncoupled
- Selective load up to six contacts for use in six-line "Delta" configurations, or four-line "Y" configurations
- Two position connector is ideal for "Ground Fault Protection" configurations
- Accepts 10 (six pole version) and 12 AWG wire
- Reduces operating cost



**RoHS Compliant options available!**

Shorting device

Male contact

Female contact



Positronic Industries  
connectpositronic.com

# Six Pole AutoShunt

AutoShunt

SIX POLE

## TECHNICAL CHARACTERISTICS

### MATERIALS AND FINISHES:

<b>Insulator:</b>	Glass-filled polyester, UL 94V-0.
<b>Contacts:</b>	Precision machined copper alloy with gold flash over nickel. Other finishes available upon request.
<b>Shorting Clip:</b>	Copper alloy with gold plate.

### ELECTRICAL CHARACTERISTICS:

<b>Contact Current Rating:</b>	15 amperes, continuous.
<b>Initial Contact Resistance:</b>	0.003 ohms max. per IEC 512-2, Test 2b.
<b>Insulation Resistance:</b>	5 G ohms per IEC 512-2, Test 3a, Method A.
<b>Voltage Proof:</b>	2,000 V rms per IEC 512-2, Test 4a, Method C.
<b>Creepage Distance:</b>	4 mm [0.157 inch] minimum.
<b>Clearance Distance:</b>	3.2 mm [0.125 inch] minimum.
<b>Working Voltage:</b>	Designed to meet UL 600 VAC and CSA 600 VAC.
<b>Working Temperature:</b>	-55°C to +125°C

### MECHANICAL CHARACTERISTICS:

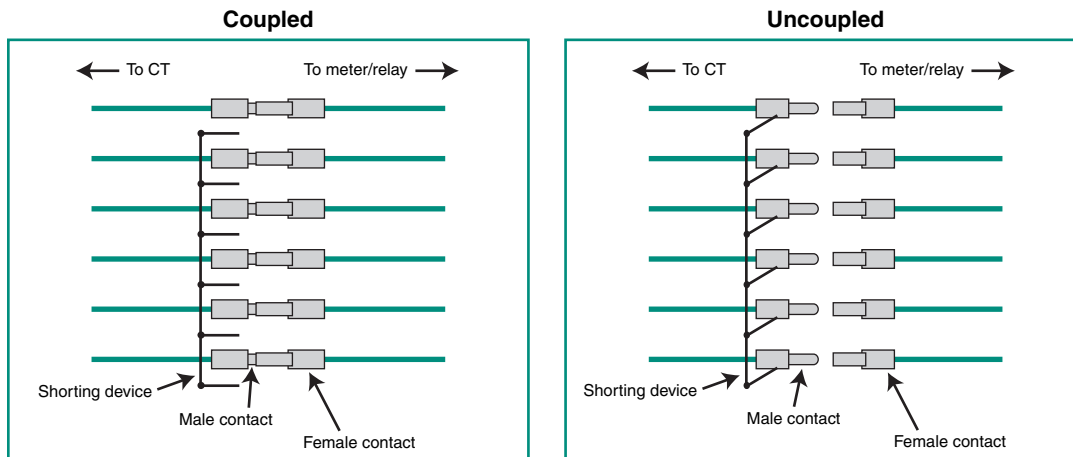
<b>Removable Contacts:</b>	Insert contact to rear face of insulator. Size 16, 1.57 mm [0.062 inch] diameter male contact. Female contact "closed entry" design for highest reliability.
<b>Removable Contact Retention in Insulator:</b>	67N [15 lbs.] per IEC 512-8 Test 15a.
<b>Contact Insertion and Withdrawal Forces:</b>	2.2 N [8 oz.] nominal per contact.
<b>Connection Systems:</b>	Connector provides cable to cable and cable to panel mount.
<b>Locking System:</b>	Insulators provide locking between cable to cable, cable to printed board and cable to panel mount applications.
<b>Polarization:</b>	Provided in insulator design.
<b>Mechanical Operations:</b>	50 operations per IEC 512-5.

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

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

## AUTOSHUNT ELECTRICAL SCHEMATIC

SIX POSITION CONNECTOR USED AS AN EXAMPLE



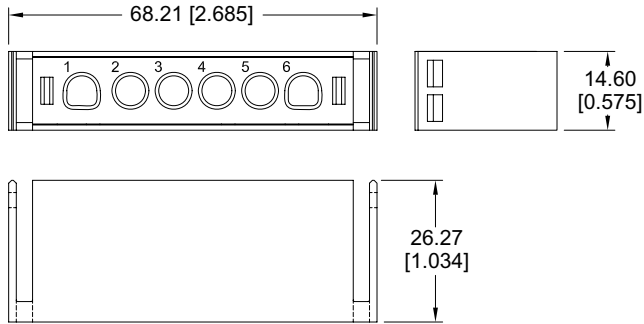
## CABLE TYPE CONNECTORS

CODE 0

REMOVABLE CRIMP CONTACTS MUST BE ORDERED SEPARATELY

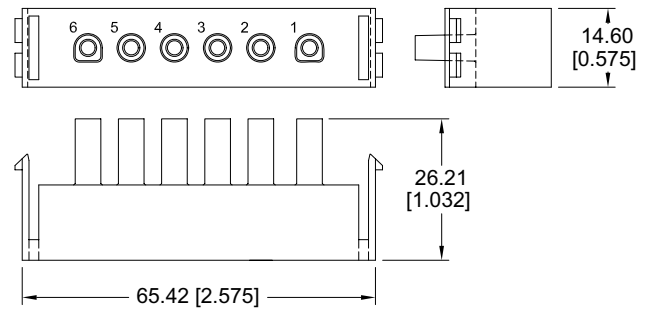
### MALE CONNECTOR

(CONTAINS SHORTING DEVICE)



TYPICAL PART NUMBER: PLZ6W6M0000

### FEMALE CONNECTOR



TYPICAL PART NUMBER: PLZ6W6F0000

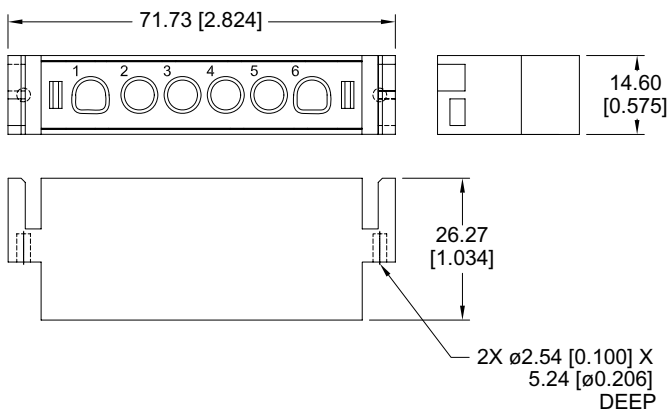
## PANEL MOUNT CONNECTORS

CODE 1

REMOVABLE CRIMP CONTACTS MUST BE ORDERED SEPARATELY

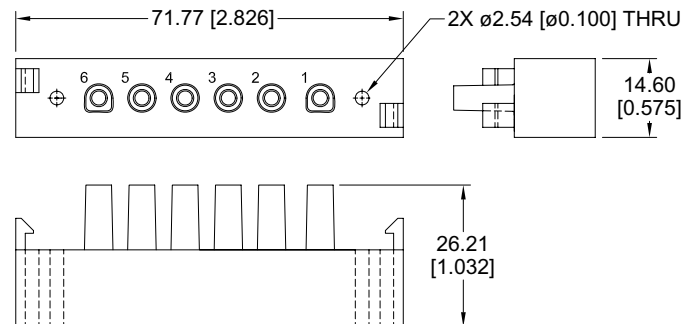
### MALE CONNECTOR

(CONTAINS SHORTING DEVICE)



TYPICAL PART NUMBER: PLZ6W6M1000

### FEMALE CONNECTOR



TYPICAL PART NUMBER: PLZ6W6F1000



Positronic Industries  
connectpositronic.com

# Six Pole AutoShunt

AutoShunt

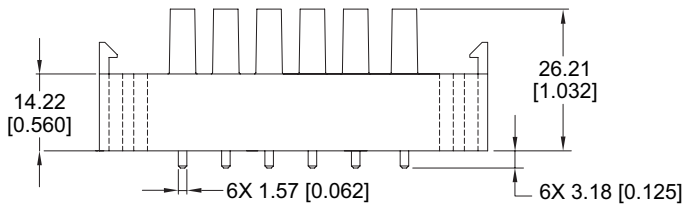
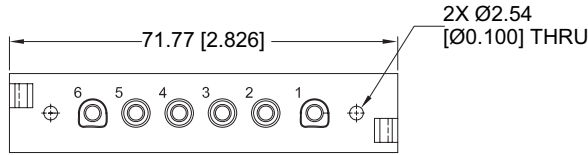


## STRAIGHT SOLDER PRINTED BOARD MOUNT

CODE 3, 3.18 [0.125] CONTACT EXTENSION

SIX POLE

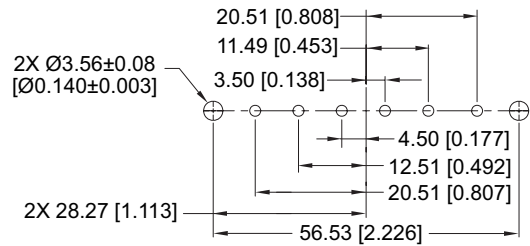
### FEMALE CONNECTOR



**TYPICAL PART NUMBER:**  
**PLZ6W6F3000\***

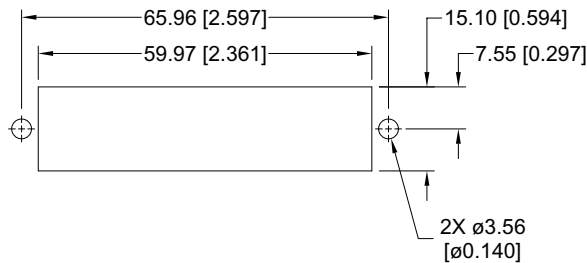
**NOTE:** \*Indicates contact plating options for connectors.  
See Step 7 of ordering information on page 6.

### CONTACT HOLE PATTERN

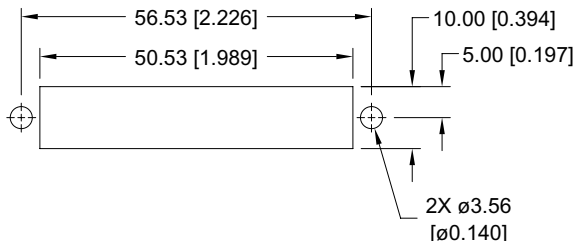


### PANEL CUTOUTS

#### MALE CONNECTOR



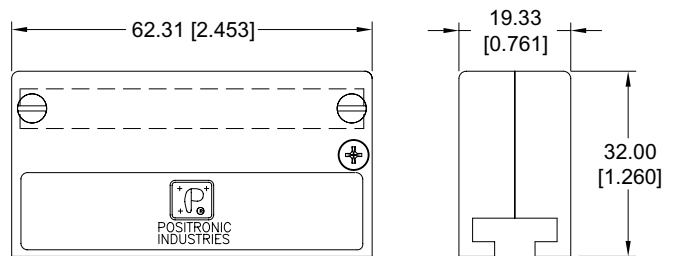
#### FEMALE CONNECTOR



### HOOD

#### CODE 5

FOR USE WITH CABLE TYPE CONNECTORS



**PART NUMBER: PLZ6W600050**

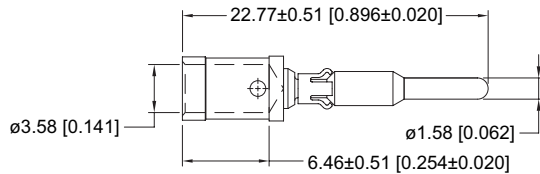
• To order hood with connector, use part numbers:  
PLZ6W6M0050 or PLZ6W6F0050

## REMOVABLE CRIMP CONTACTS SIZE 16

REMOVABLE CRIMP CONTACTS MUST BE ORDERED SEPARATELY

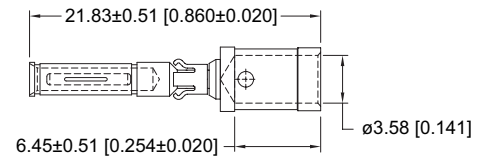
For 5.3 mm<sup>2</sup> [10 AWG] Wire

### MALE CONTACT



**PART NUMBER: MC110N**

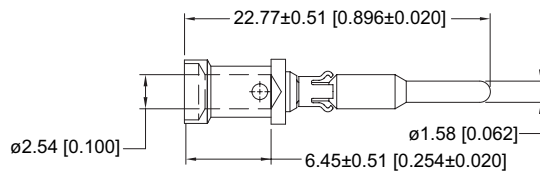
### FEMALE CONTACT



**PART NUMBER: FC110N2**

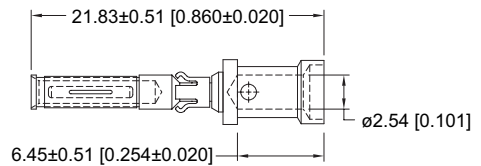
For 4.0 mm<sup>2</sup> [12 AWG] Wire

### MALE CONTACT



**PART NUMBER: MC112N-381.0**

### FEMALE CONTACT



**PART NUMBER: FC112N2-381.0**

**MATERIALS:**

Copper alloy

**PLATING:**

**STANDARD FINISH:** Gold flash over nickel plate.

**OPTIONAL FINISHES:** 0.76µ [0.000030] gold over nickel by adding -14 suffix onto part number. Example: FC110N2-14  
1.27µ [0.000050 inch] gold over nickel by adding -15 suffix onto part number. Example: MC112N-15-381.0

## RECOMMENDED TOOLS FOR CRIMP CONTACTS

**CONTACT EXTRACTION TOOL**  
SHOWN FOR REFERENCE ONLY



**CYCLE-CONTROLLED STEP  
ADJUSTABLE HAND CRIMP TOOL**  
SHOWN FOR REFERENCE ONLY



TOOL DESCRIPTION	MC110N	FC110N2	MC112N-381.0	FC112N2-381.0
Crimp Tool	9509-6-3-0	9509-6-3-0	9501-0-0-0 with 9502-19-0-0 Positioner	9501-0-0-0 with 9502-19-0-0 Positioner
Extraction Tool	9081-4-0-0	9081-4-0-0	9081-4-0-0	9081-4-0-0



Positronic Industries  
connectpositronic.com

# Six Pole AutoShunt

AutoShunt

## 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	PLZ	6W6	F	3	0	0	A1	/AA	-XXX.X

### STEP 1 - BASIC SERIES

PLZ - PLZ Series

### STEP 2 - CONNECTOR VARIANTS

6W6 - Six (6) size 16 contacts

### STEP 3 - CONNECTOR GENDER

M - Male  
F - Female

### STEP 4 - CONTACT TERMINATION TYPE

- 0 - Order contacts separately for cable connectors.
- 1 - Removable contact, panel mount connector.  
Order contacts separately.
- \*3 - Solder, Straight Printed Board Mount with 3.18 [0.125] tail extension.

### STEP 5 - MOUNTING STYLE

- 0 - None.
- ST2 - Self-tapping screws 2-28 x 6.35 [0.250] length for 2.36 [0.093] thick board or panel. Use with contact code 1 or 3.
- ST3 - Self-tapping screws 2-28 x 7.92 [0.312] length for 3.18 [0.125] thick board or panel. Use with contact code 1 or 3.

### STEP 6 - CABLE ADAPTER AND BLIND MATE SYSTEM

- 0 - None.
- 5 - Top Opening Hood.

\*Female only

### STEP 9 - SPECIAL OPTIONS

- 14 - 0.76 $\mu$  [0.000030] gold over nickel
- 15 - 1.27 $\mu$  [0.000050 inch] gold over nickel

**CONTACT TECHNICAL SALES FOR SPECIAL OPTIONS**

### STEP 8 - ENVIRONMENTAL COMPLIANCE OPTIONS

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

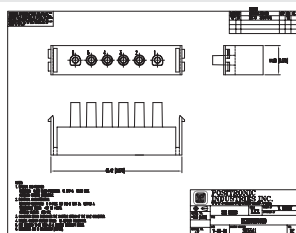


**NOTE:** If compliance to environmental legislation is not required, this step will not be used.  
Example: PLZ6W6F300A1

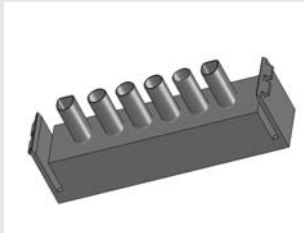
### STEP 7 - CONTACT PLATING FOR PRINTED BOARD CONNECTORS

- 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 5.00 $\mu$  [0.00020 inch] tin-lead solder coat on termination end.
- C1 - 0.76 $\mu$  [0.000030 inch] gold over nickel on mating end and termination end.
- C2 - 0.76 $\mu$  [0.000030 inch] gold over nickel on mating end and 5.00 $\mu$  [0.00020 inch] tin-lead solder coated termination end.
- D1 - 1.27 $\mu$  [0.000050 inch] gold over nickel on mating end and termination end.
- D2 - 1.27 $\mu$  [0.000050 inch] gold over nickel on mating end and 0.00020 inch [5.00 $\mu$ ] tin-lead solder coated termination end.

**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

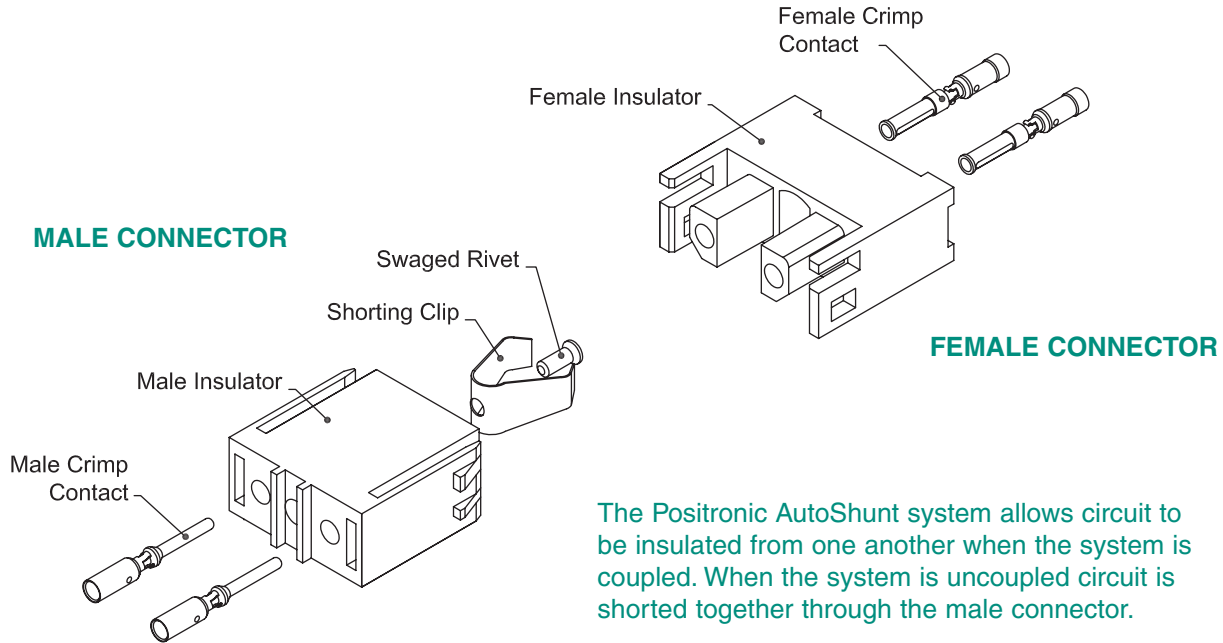


3-dimensional model

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

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

## TYPICAL CONNECTOR ASSEMBLY



The Positronic AutoShunt system allows circuit to be insulated from one another when the system is coupled. When the system is uncoupled circuit is shorted together through the male connector.

## TECHNICAL CHARACTERISTICS

## MATERIALS AND FINISHES:

<b>Insulator:</b>	Glass-filled nylon, UL 94V-0, green color.
<b>Contacts:</b>	Precision machined copper alloy with gold flash over nickel plate. Other finishes available upon request.
<b>Shorting Clip:</b>	Copper alloy with gold plate.
<b>Swaged Rivet:</b>	Copper alloy with gold plate.

## ELECTRICAL CHARACTERISTICS:

<b>Contact Current Rating:</b>	15 amperes, continuous.
<b>Initial Contact Resistance:</b>	0.003 ohms max. per IEC 512-2, Test 2b.
<b>Insulation Resistance:</b>	5 G ohms min. per IEC 512-2, Test 3a.
<b>Voltage Proof:</b>	2,400 V rms
<b>Creepage Distance:</b>	4 mm [0.157 inch] minimum.
<b>Working Voltage:</b>	600 V rms

## MECHANICAL CHARACTERISTICS:

<b>Removable Contacts:</b>	Insert contact to rear face of insulator, release from front face of insulator. Female contact feature "closed entry" design for highest reliability.
<b>Removable Contact Retention in Insulator:</b>	67N [15 lbs.] min. per IEC 512-8 Test 15a.
<b>Polarization:</b>	Provided in insulator design.
<b>Locking System:</b>	Insulators provide locking between cable to cable, cable to printed board and cable to panel mount applications.

## CLIMATIC CHARACTERISTICS:

<b>Working Temperature:</b>	-55° to +125° C
-----------------------------	-----------------

## RECOGNIZED:

UL and TÜV certification in process.



Positronic Industries  
connectpositronic.com

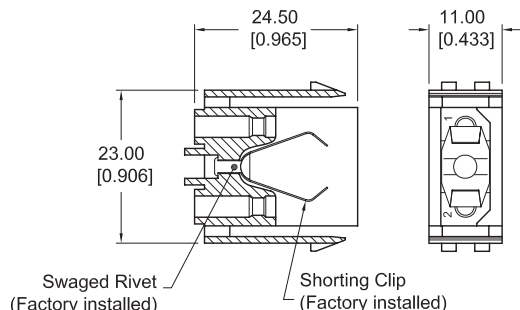
# Two Pole AutoShunt

AutoShunt



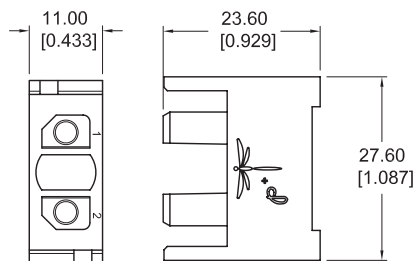
## CONNECTOR OUTLINE DIMENSIONS

### MALE CONNECTOR



TYPICAL PART NUMBER: DFS02M00

### FEMALE CONNECTOR



TYPICAL PART NUMBER: DFS02F00

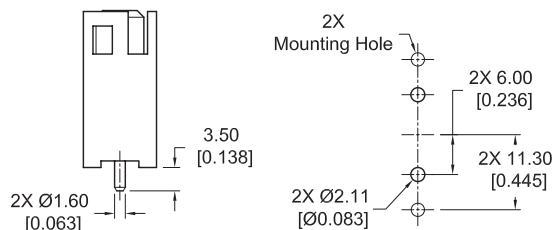
## CONTACT TERMINATION DIMENSIONS AND HOLE PATTERNS

### CODE F3 AND F4

FOR STRAIGHT SOLDER AND RIGHT ANGLE SOLDER (90°) PCB MOUNT FEMALE CONNECTORS

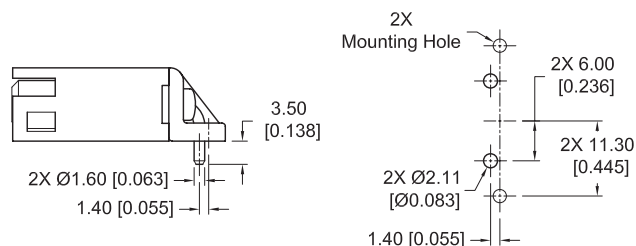
#### FEMALE, STRAIGHT PCB MOUNT

Specify Code F3 in Step 3



#### FEMALE, RIGHT ANGLE (90°) PCB MOUNT

Specify Code F4 in Step 3



### SUGGESTED PRINTED BOARD HOLE SIZES:

Suggest Ø2.00±0.08 [0.079±0.003] holes for connector mounting holes with push-on fasteners.

Suggest Ø2.54 [0.100] holes for connector mounting holes with screws.

## SCREW TERMINATION CONNECTOR

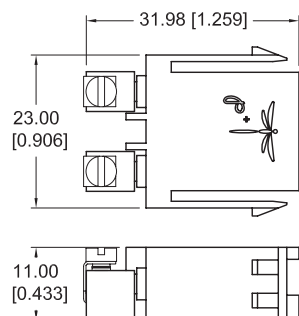
### CODE M7

FOR MALE CONNECTORS

Screw terminations allow for convenient field installation when required.

#### MALE CONNECTOR

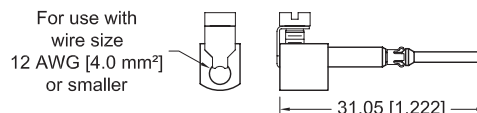
Specify Code M7 in Step 3



Supplied with two (2) contacts

TYPICAL PART NUMBER: DFS02M70

#### REPLACEMENT CONTACT



TYPICAL PART NUMBER: MST112N3

**MATERIAL:** Cooper alloy with gold plate.

**PLATING:**

**STANDARD FINISH:** Gold flash over nickel plate.

**OPTIONAL FINISHES:** 0.76µ [0.000030 inch] gold over nickel available by adding -14 suffix onto part number. Example: MST112N3-14.  
 1.27µ [0.000050 inch] gold over nickel available by adding -15 suffix onto part number. Example: MST112N3-15.





## PANEL MOUNT CONNECTOR

CODE PS

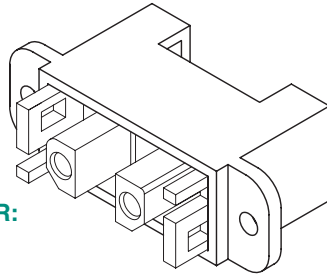
FOR FEMALE CONNECTORS

REMOVABLE CRIMP CONTACTS MUST BE ORDERED SEPARATELY

### FEMALE CONNECTOR

Specify Code PS in Step 4

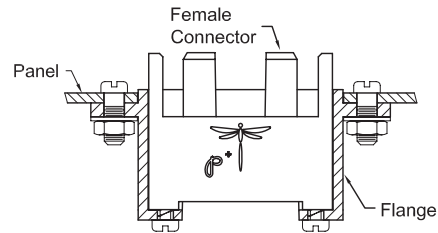
Female connector  
installed in flange



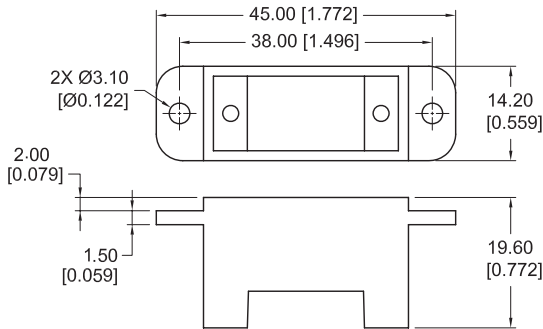
TYPICAL PART NUMBER:  
DFS02F0PS

### INSTALLATION TO PANEL

Suggested installation of DFS02F0PS to panel with screws and nuts. (Screws and nuts shown for reference only.)



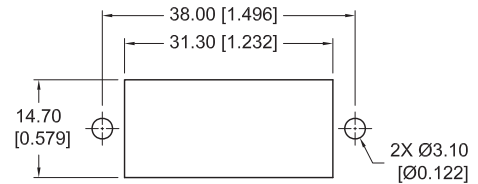
### FLANGE DIMENSIONS



### MATERIAL:

**Flange:**  
Glass-filled, nylon,  
UL94V-0, black color.

### PANEL CUTOUT

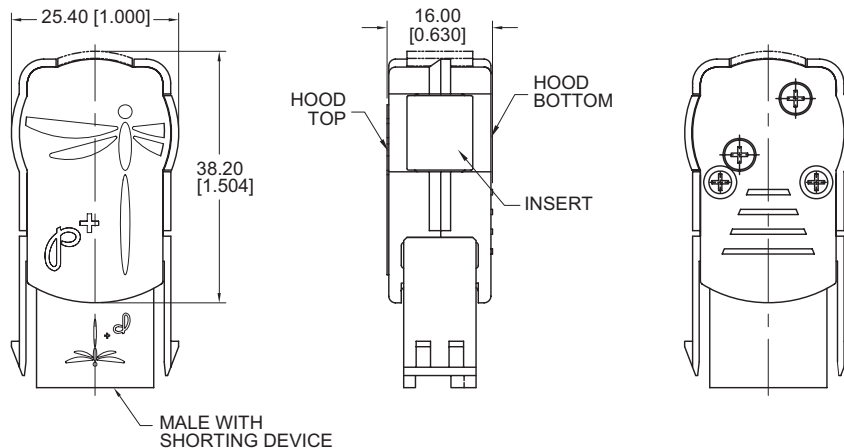


TWO POLE

## HOOD OUTLINE DIMENSIONS

CODE W

FOR MALE CONNECTORS



### MATERIALS:

**Hood top and bottom, insert:**  
Polypropylene, UL94 V-0. Color: black.

**Hood screws:**  
Steel with black oxide or  
Steel with zinc plate and  
chromate seal

**Cable clamp (not shown):**  
Steel, nickel plate.

**Cable clamp screws:**  
Steel with black oxide or  
Steel with zinc plate and  
chromate seal



Positronic Industries  
connectpositronic.com

# Two Pole AutoShunt

AutoShunt

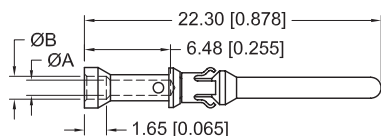


## REMOVABLE CRIMP CONTACTS

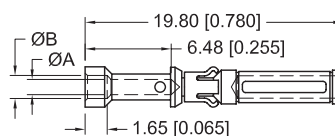
### SIZE 16

REMOVABLE CRIMP CONTACTS MUST BE ORDERED SEPARATELY

#### MALE CONTACT



#### FEMALE CONTACT



**MATERIAL:** Cooper alloy with gold plate.

**PLATING:**

**STANDARD FINISH:** Gold flash over nickel plate.

**OPTIONAL FINISHES:** 0.76µ [0.000030 inch] gold over nickel available by adding -14 suffix onto part number. Example: MC112N3-14.

1.27µ [0.000050 inch] gold over nickel available by adding -15 suffix onto part number. Example: FC112N2-15-1565.0.

MALE CONTACT	FEMALE CONTACT	WIRE SIZE AWG [MM <sup>2</sup> ]	ØA	ØB
MC112N3	FC112N2-1565.0	12 [4.0]	2.49 [0.098]	N/A
MC114N3	FC114N2-1565.0	14-16 [2.5-1.5]	2.06 [0.081]	2.64 [0.104]
MC116N3	FC116N2-1565.0	16-18 [1.5-1.0]	1.70 [0.067]	2.36 [0.093]
MC120N3	FC120N2-1565.0	20-22-24 [0.5-0.3-0.025]	1.14 [0.045]	1.73 [0.068]

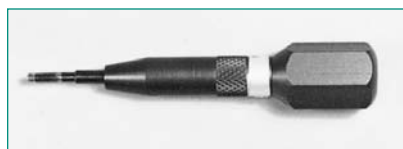
Please use correct wire size and it should be smaller than ØA of the contact.  
Connector body may not accommodate thick insulation AWG 12 wires.  
Customer review recommended.

TWO POLE

## RECOMMENDED TOOLS FOR CRIMP CONTACTS

#### CONTACT EXTRACTION TOOL

SHOWN FOR REFERENCE ONLY



#### CONTACT INSERTION TOOL

SHOWN FOR REFERENCE ONLY



#### CYCLE-CONTROLLED STEP ADJUSTABLE HAND CRIMP TOOL

SHOWN FOR REFERENCE ONLY



CONTACT SIZE	CONTACT EXTRACTION TOOL	CONTACT INSERTION TOOL	HAND CRIMP TOOL	SEMI-AUTOMATIC CRIMP MACHINE
SIZE 16	9081-8-0-0	9099-0	9501-0 with 9502-1 positioner	9550-0



# Two Pole AutoShunt



## ORDERING INFORMATION - CODE NUMBERING SYSTEM

Specify Complete Connector By Selecting An Option From Step 1 Through 4

STEP	1	2	3	4	5	6
EXAMPLE	DF	S02	F0	0	/AA	-XXX.X

### STEP 1 - BASIC SERIES

DF - DragonFly

### STEP 2 - CONNECTOR VARIANTS

S02 - AutoShunt Connector  
Two (2) size 16 power contacts

### STEP 3 - CONNECTOR GENDER AND TYPE OF CONTACTS

- F0 - Female, removable contact. Order contacts separately.
- F3 - Female, solder, straight PCB mount.
- F4 - Female, solder, right angle (90°) PCB mount.
- M0 - Male, removable contact. Order contacts separately.
- M7 - Male, screw termination contact. Supplied with 2 contacts.

CONSULT FACTORY FOR OTHER VERSIONS

\* For female connector only.

### STEP 6 - SPECIAL OPTIONS

CONTACT TECHNICAL SALES  
FOR SPECIAL OPTIONS

### STEP 5 - ENVIRONMENTAL COMPLIANCE OPTIONS

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

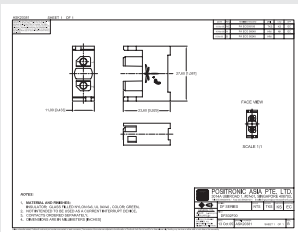
**NOTE:** If compliance to environmental legislation is not required, this step will not be used.  
Example: DFS02F00



### STEP 4 - MOUNTING STYLES

- 0 - None
- \*N - Push-on fastener.
- \*B - Plastic 90° mounting bracket.
- \*BN - Plastic 90° mounting bracket with push-on fastener.
- \*PS - Panel mount for female connector with removable contact only. Female connector installed to flange.
- W - Hood for male connector only.

**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

### Unless otherwise specified, dimensional tolerances are:

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