

# ZIPport STD Series Multi-Wire Connectors

## Conductor Termination

### Overview

Two types of conductor termination are available for ZIPport inserts:

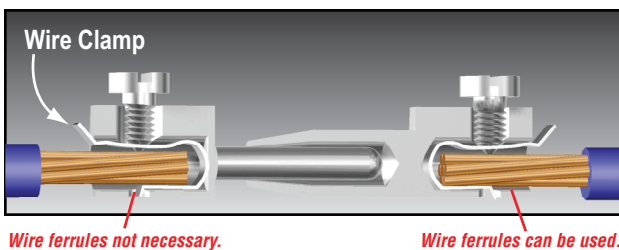
- Screw terminations
- Crimp terminations

### Screw Terminations

Screw terminations consist of contacts made of silver-plated copper alloy and are incorporated with a wire clamp (with the exception of the size 3A inserts and size 24B with 80A contacts) for firmly securing the conductors. The screw terminals use stainless steel captive screws and meet VDE 0609 / EN 60999 standards.

Proper conductor installation requires no special preparation when using inserts with the wire clamp terminals (no wire ferrules). The table below lists the current rating, maximum wire gauge and stripping lengths.

Current Rating	Max Wire Gauge		Stripping Length mm (in)
	(mm <sup>2</sup> )	AWG	
<b>10A</b>	2.5	14	4.5 (0.18)
<b>16A</b>	2.5	14	7 (0.28)
<b>35A</b>	6.0	10	11.5 (0.45)
<b>16/80A</b>	25/16	14/5	7 (0.28)/14 (0.55)



### Screw Terminals with Wire Clamps

The value of tensile strength of conductors in accordance with the dimensions of the screws and the wires are shown in the following table:

Wire Gauge mm <sup>2</sup> (AWG)	1.5 (16)	2.5 (14)	4 (12)	6 (10)	10 (8)	16 (6)
Size of Screw	M3	M3	M3.5	M4	M4	M6
Tensile Strength of Stranded Wire (N)	40	50	60	80	90	100

Increasing the tightening torque does not necessarily improve the contact resistance. The screw torques are selected according to standard EN 60999-1, to provide excellent mechanical, thermal and electrical behaviour. The conductor or terminal may be damaged if the recommended values are significantly exceeded.

### Insert Screw Specifications

Insert Size	Screw Type	Screw Size	Tightening Torque (Nm)	Tightening Torque (in-lbs)	Recommended Screwdriver Size	Recommended Screwdriver Part		
<b>3A</b>	10 Amp Terminal	M3	0.25	2.2	0.4 x 2.5	DN-SS3		
	Installation	M3						
	Ground	M3.5						
<b>10A, 16A</b>	16 Amp Terminal	M3	0.50	4.4	0.5 x 3.0	TW-SD-SL-1		
	Installation	M3						
	Ground	M4						
<b>6B, 10B</b>	16 Amp Terminal	M3	0.50	4.4	Ph 0-0.8 x 4	DN-SS4		
	Installation	M3			Ph 2 1.0 x 5.5	DN-SS5		
<b>16B</b>	35 Amp Terminal	M4	1.2	10.6	Ph 1 - 0.8 x 4	DN-SS4		
	16 Amp Terminal	M3			Ph 0-0.8 x 4			
	Installation	M3			Ph 2 1.0 x 5.5	DN-SS5		
<b>24B</b>	Ground	M4	1.2	10.6	Ph 2 1.0 x 5.5	DN-SS5		
	80 Amp Terminal	M6			2.5	22.1	1.0 x 5.5	
	16 Amp Terminal	M3			0.50	4.4	Ph 0-0.8 x 4	DN-SS4
Installation	M3	Ph 2 1.0 x 5.5	DN-SS5					
<b>32B*</b>	Ground	M4	1.2	10.6	Ph 2 1.0 x 5.5	DN-SS4		
	16 Amp Terminal	M3			0.50		4.4	Ph 0-0.8 x 4
	Installation	M3						Ph 2 1.0 x 5.5

\*Note: Size 32B requires 2 size 16B inserts

### Crimp Terminations

Crimp terminations consist of contacts made of silver or gold-plated copper alloy. Crimp terminations are accomplished by applying a crimp contact to the conductor by means of a crimping tool. Crimp contacts are available in several sizes:

10 amp, 26-14 AWG

16 amp, 26-12 AWG

A perfect crimp connection is gastight, corrosion free and is equal to a cold weld of the parts being connected. Wires to be connected must be carefully matched with the correct wire size of crimp contacts.

The requirements for crimp connectors are depicted in IEC 60352, part 2.

Note: Low currents and voltages:

ZIPport standard contacts (screw and crimp) have a silver plated surface. This metal has excellent conductive properties. During the contact's lifetime, the silver surface generates a black oxide layer due to its affinity to sulphur (always present in the atmosphere). This layer is conductive smooth and very thin and is partly interrupted when the contacts are mated and unmated, thus guaranteeing very low contact resistances. In the case of very low current or voltage, small changes to the transmitted signal may be encountered.

In applications where voltage and current are lower than 5V and 5mA, and in extremely aggressive environments, ZIPport gold plated contacts are recommended. See ZIPport spare parts and accessories pages.

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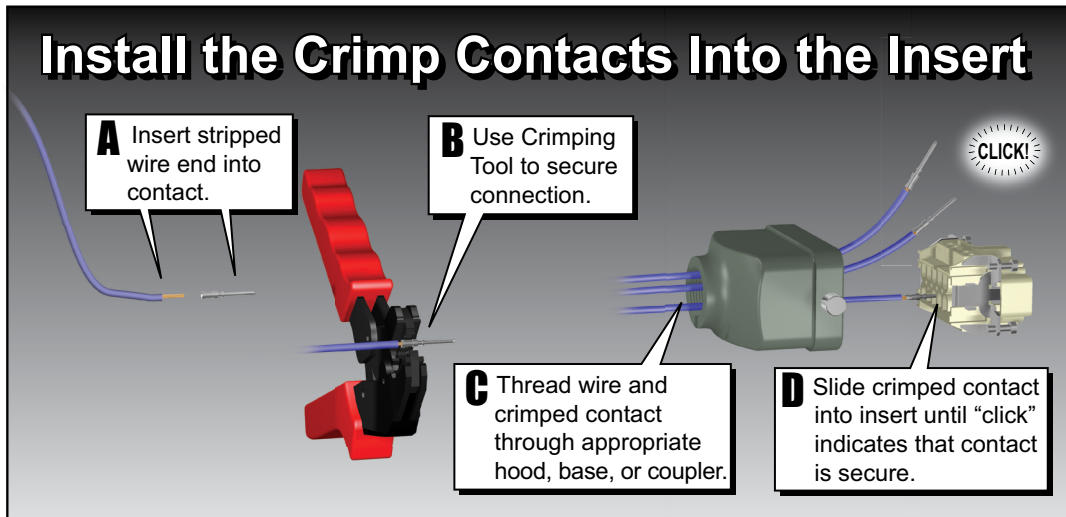
## Crimp Contact to Insert Installation

Proper installation of the crimp contacts is important for a good electrical and mechanical connection. The following steps will ensure correct installation.

### Step 1: Select the Crimp Contacts

Select a crimp contact based on the rating of the Insert you are using - 10 or 16 amps; the gender - male or female; and gauge of wire being used.

### Step 2:

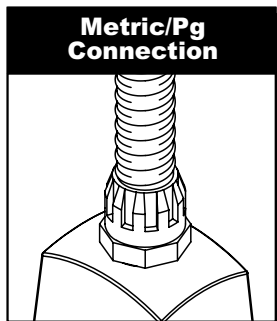


### Step 3: Install the Insert into the Housing.

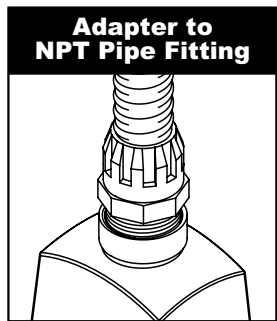
Now that the crimp contacts are installed, the insert can be placed into the housing by aligning the corner installation screws of the insert with the screw holes located in the corners of the housing. Tighten the screws according to the tightening torques listed in the Insert Screw Specifications table in this document.

## Wire Entry Connection

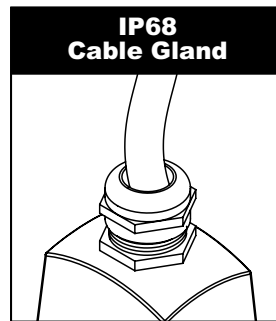
ZIPports offer four types of connection for wire entry into the housings. Two entries accommodate flex conduit and two accept cable.



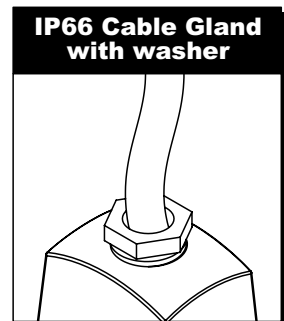
This is standard on all housings that offer a threaded wire entry. Sizes range from Pg 11 to Pg 36. This is for using fittings with a male Pg thread connection.



This adapter converts the Pg thread to an NPT thread. Sizes range from 3/8" to 1-1/4" in relation to the Pg threaded opening in the housing.



For securing a cable to the housing. This is an all inclusive fitting that can be tightened without using separate washers.



For securing a cable to the housing. This gland is available in plastic or metal in relation to housing material. Includes two washers and four gaskets to accommodate a wide range of cable diameters.