



**NOTE**

All numerical values are in metric units [with U.S. customary units in brackets]. Dimensions are in millimeters. Unless otherwise specified, dimensions have a tolerance of  $\pm 0.13$  and angles have a tolerance of  $\pm 2^\circ$ . Figures and illustrations are for identification only and are not drawn to scale.

### 1. INTRODUCTION

This specification covers the requirements for application M8 Screw assemblies CSCs for printed circuit (pc) board. The connectors are designed for use in industrial equipment and control, signal, and electrical appliances. The connectors have an ingress protection rating of IP67.

The connectors are available as field installable with screw termination. The connectors consist of a female (receptacle) and a male (plug) and are available in unshielded or shielded and straight or angled. The Screw assembly is available in single ended and double ended with straight and angle connectors.

xWhen corresponding with personnel, use the terminology provided in this specification to facilitate inquiries for information. Basic terms and features of this product are provided in Figure 1.



Figure 1 (End)

## 2. REFERENCE MATERIAL

### 2.1. Revision Summary

Initial release of application specification

### 2.2. Customer Assistance

Reference Product Base Part Numbers

T401XXXXXXXX-XXX (M8 filed installable connector) and

T403XXXXXXXX-XXX (M8 Panel Mount Solder wire) and

T404XXXXXXXX-XXX (M8 Panel Mount Solder PCB) and

T407XXXXXXXX-XXX (M8 Panel Mount Wire Assembly) and

T40811X200X000 (M8 Y Distributor connector) and

T40821X200X000 (M8 T Distributor connector) and

T405XXXXXXXX-XXX (M8 cable assembly, un-shielded type) and

T406XXXXXXXX-XXX (M8 cable assembly, shielded type)

Use of these numbers will identify the product line and help you to obtain product and tooling information. Such information can be obtained through a local Representative, by visiting our website at [www.te.com](http://www.te.com), or by calling PRODUCT INFORMATION or the TOOLING ASSISTANCE CENTER at the numbers at the bottom of page 1.

### 2.3. Drawings

Customer Drawings for product part numbers are available from the service network. If there is a conflict between the information contained in the Customer Drawings and this specification or with any other technical documentation supplied, the information contained in the Customer Drawings takes priority.

### 2.4. Specifications

Product Specification 108-106140 provides product performance and test requirements.

### 2.5. Instructional Material

Instruction Sheets (408-series) provide product assembly instructions.

### 2.6. Standards and Publications

Standards and publications developed by the International Electrotechnical Commission (IEC) provide industry test and performance requirements. Standards available that pertain to this product are:

IEC 61076-2-101, "Connectors for Electronic Equipment—Product Requirements—Part 2-101: Circular Connectors—Detail Specification for M12 Connectors with Screw Locking"

IEC 61076-2-104, "Connectors for Electronic Equipment—Product Requirements—Part 2-104: Circular Connectors—Detail Specification for Circular Connectors with M8 Screw Locking or Snap Locking"

IEC 61076-2-109, "Connectors for Electronic Equipment—Product Requirements—Part 2-109: Circular Connectors—Detail Specification for Connectors with M12×1 Screw Locking for Data Transmission Frequencies Up to 500 MHz"

## 3. REQUIREMENTS

### 3.1. Storage

#### A. Ultraviolet Light

Prolonged exposure to ultraviolet light may deteriorate the chemical composition used in the product material.

**B. Shelf Life**

The product should remain in the shipping containers until ready for use to prevent deformation to components. The product should be used on a first in, first out basis to avoid storage contamination that could adversely affect performance.

**C. Chemical Exposure**

Do not store product near any chemical listed below as they may cause stress corrosion cracking in the material.

Alkalies	Ammonia	Citrates	Phosphates	Citrates	Sulfur Compounds
Amines	Carbonates	Nitrites	Sulfur Nitrites		Tartrates

**3.2. Operating Temperature**

The cable assemblies and connectors must be used within the operating temperature given on the customer drawing for the specific connector.

**3.3. Cable Selection**

The connectors accept cable having the requirements given on the specific connector customer drawing. In this specification, when the connector assembly procedure depends on the cable shield outer diameter, that diameter is included in the assembly requirements of Paragraph 3.4.

**3.4. M8 Cable Preparation and Connector Assembly**

**A. M8 Field Installable Connectors**

These connectors must meet the cable preparation and connector assembly requirements given in table and Figure 2.

**B. Cable Assembly**

The cable of the cable assembly must remain perpendicular to the connector and avoid an excessively sharp bend radius. The minimum bend radius of a cable is  $\pm 10^\circ$ .

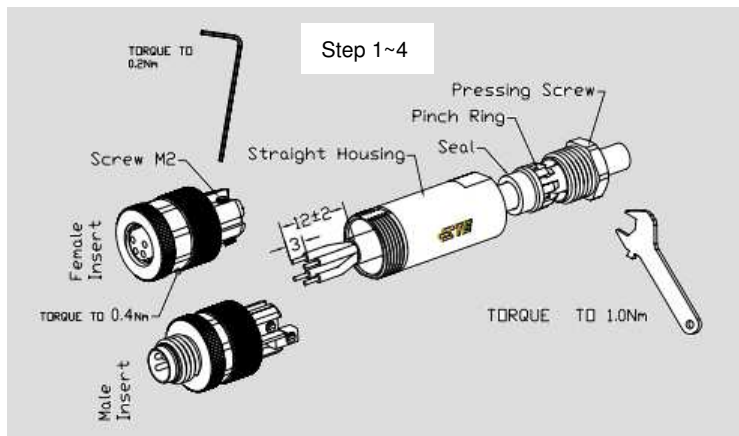
**3.4.1 Wire recommended**

All application cord is R/C (AVLV2/8) or R/C (AVLV2) and CN Certified. The cable's rating voltage and current should be greater than or equal to the real application. And the temperature rating is 60°C Minimum. Suggestion conductor size are shown as below.

Series	Number of live Poles	Voltage (V) Max.	Current (A) Max.	AWG
<b>M8 (Unshielded)</b>	<b>3</b>	<b>60</b>	<b>2</b>	<b>26</b>
			<b>3</b>	<b>24</b>
	<b>4</b>	<b>30</b>	<b>2</b>	<b>26</b>
			<b>3</b>	<b>24</b>
<b>M8 (Shielded)</b>	<b>3</b>	<b>60</b>	<b>2</b>	<b>26</b>
			<b>3</b>	<b>24</b>
	<b>4</b>	<b>30</b>	<b>2</b>	<b>26</b>
			<b>3</b>	<b>24</b>

### M8 Field Installable Connector

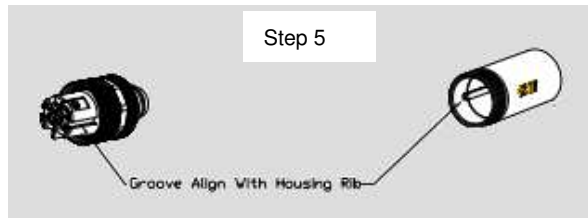
Unshielded Cable / 3-4-Position Connectors / Straight Connector



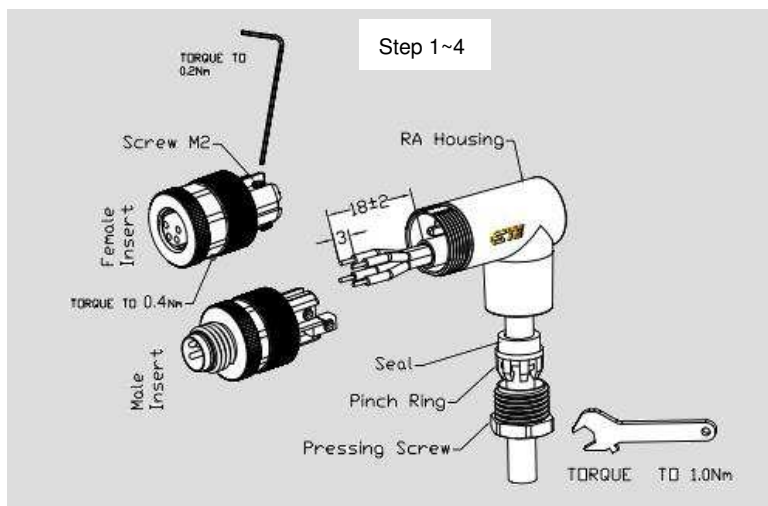
1. Connector components install on cable
2. Cable jacket should be stripped as shown
3. For 3-4-position, install wire to correct insert position
4. Turn the M2.0 screw with suitable tool, torque to 0.2Nm [1.77 in.-lb.]

Install straight housing: first the groove must align with the housing rib, then screw insert nut with torque 0.4 Nm.

5. Install seal, pinch ring, pressing screw
6. Pressing screw should be tightened with torque recommended as 1 Nm [8.85 in.-lb.]



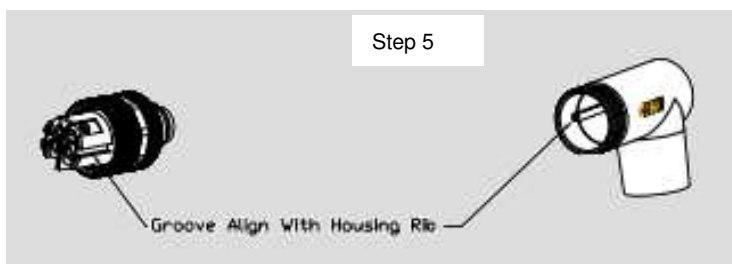
Unshielded Cable / 3-4-Position Connectors / Right Angle Connector



1. Connector components install on cable
2. Cable jacket should be stripped as shown.
3. For 3-4-position, install wire to correct insert position
4. Turn the M2.0 Screw with suitable tool, torque to 0.2Nm [1.77 in.-lb.]

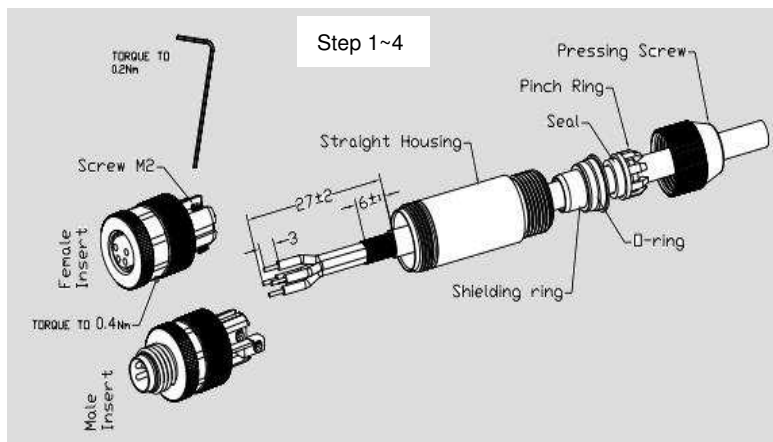
For 12-position, sold the wire

5. Install RA housing: first the groove must align with the housing rib, then screw insert nut with torque 0.4 Nm.
6. Install seal, pinch ring, pressing screw
7. Pressing screw should be tightened with torque recommended as 1 Nm [8.85 in.-lb.]

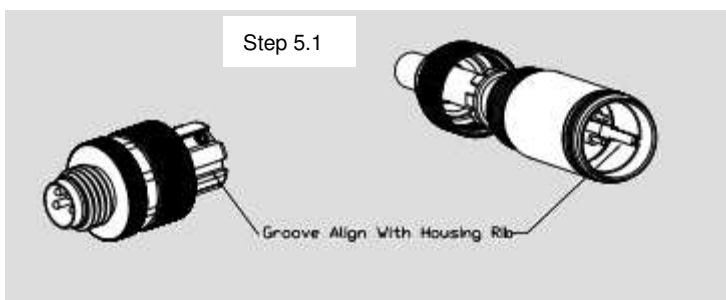


**M8 Field Installable Connector Shield type(straight & RA housing)**

**Straight Connector**

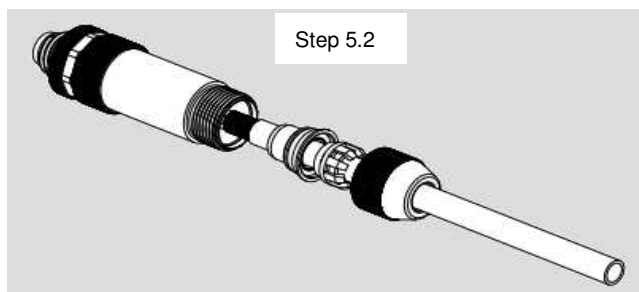


1. Housing, shielding ring, seal, pinch ring and screw must be installed over individual wires and on to cable as shown
2. Cable jacket must be stripped 27mm. Shielding braiding remain 6mm and conduct stripped 3mm
3. For 3-4-position, install wire to correct in
4. Turn the M2.0 Screw with suitable tool, torque to 0.2Nm [1.77 in.-lb.]

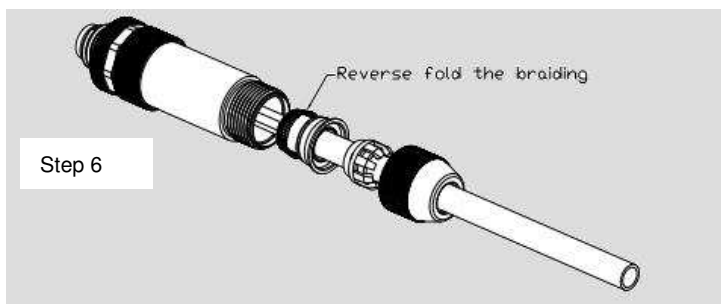


5. Install insert screw and straight housing:

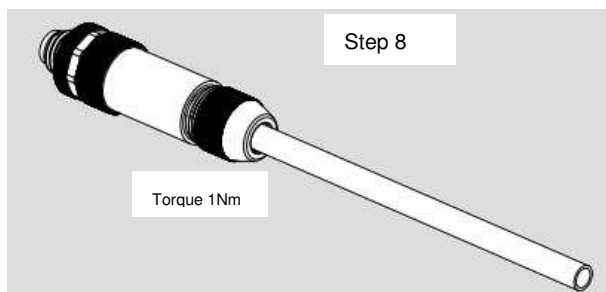
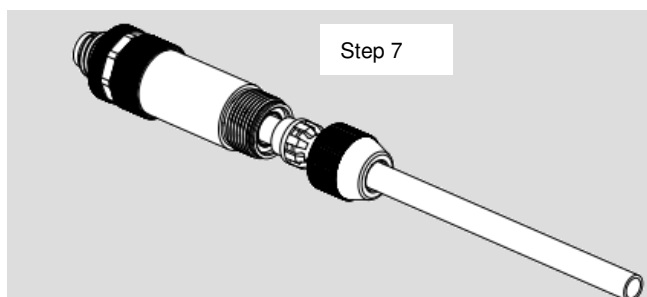
5.1 The groove must align with the housing rib

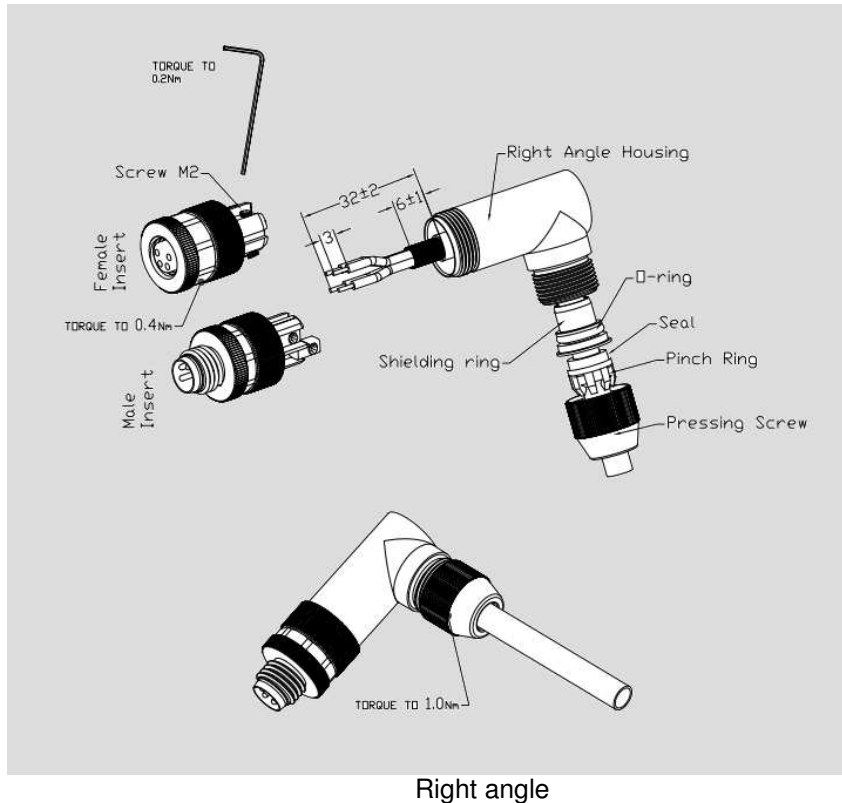


- 5.2 then screw insert nut with torque 0.4 Nm.



6. Reverse fold the shield braiding on the shielding ring
7. Press the shielding ring with cable into the housing
8. Install seal, pinch ring, pressing screw, pressing screw should be tightened with torque recommended as 1 Nm [8.85 in.-lb.]





### Right Angle Connector

*(Assembly step the same as straight type)*

1. Housing, shielding ring, seal, pinch ring and screw must be installed over individual wires and on to cable as shown
2. Cable jacket must be stripped 32mm. Shielding braiding remain 6mm and conduct stripped 3mm
3. For 3-4-position, install wire to correct in
4. Turn the M2.0 Screw with suitable tool, torque to 0.2Nm [1.77 in.-lb.]
5. Install insert screw and Right angle housing:
  - 5.1 The groove must align with the housing rib
  - 5.2 then screw insert nut with torque 0.4 Nm.
6. Reverse fold the shield braiding on the shielding ring
7. Press the shielding ring with cable into the housing
8. Install seal, pinch ring, pressing screw, pressing screw should be tightened with torque recommended as 1 Nm [8.85 in.-lb.]

Figure 2 (End)

## 3.5. Panel

### A. Recommended Thickness and Cutout refer to customer drawing

**B. There are two rotational orientations for mounting the connector to the panel: top/bottom and left/right. This orientation must be chosen before creating the cutout in the panel.**

### C. Mounting

The connector is designed to be front or rear panel mounted. The mounted connector must meet the following requirements:

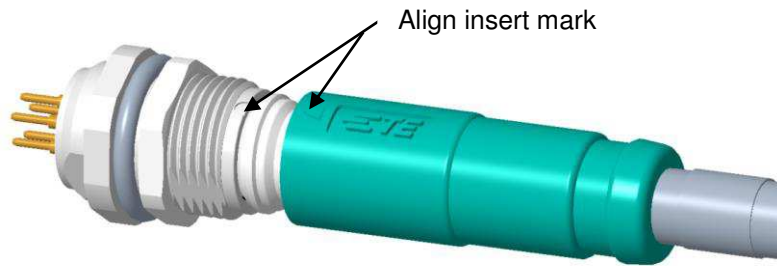
- the flat of the connector must be aligned with the flat edge cut in the panel
- the O-ring must be between the flange and the panel, beside the panel chamfer side
- the gasket must be flat against the panel
- the panel nut must be flat against the panel and tight to the torque is 1 Nm

### C1. Mounting

The Snap fit connector is designed to be rear panel mounted. The mounted connector must meet the following requirements:

- the flat of the connector must be aligned with the flat edge cut in the panel
- the O-ring must be between the flange and the panel, beside the panel chamfer side
- the gasket must be flat against the panel
- the panel nut must be flat against the panel and tight to the torque is 1 Nm

- the internal O-ring must be the slot of internal of metal shell
- meet IP65 as mated condition, see below illustration



### 3.6. Mating and Unmating



#### **DANGER**

*To avoid personal injury, these connectors and cable assemblies must not be mated or unmated under live conditions (electrical load).*

The recommended torque for mating the connectors is:

M8 connectors: 0.4 Nm [3.54 lb-ft]

### 3.7. Replacement and Repair

These cable assemblies and connectors are not repairable. Damaged or defective components must not be used. Connectors must not be re-used by removing the cable.

Fitting and servicing should only be performed by qualified personnel in accordance with all guidelines and standards.

## 4. QUALIFICATION

M8 cable assemblies are recognized by Underwriters Laboratories Inc. (UL) in File E XXXXXX. Agency evaluation for M8 circular series connectors was not defined at the time of publication of this application specification.

## 5. TOOLING

No tooling is required for assembly of M8 circular series connectors.