NOTE

All numerical values are in metric units. Dimensions are in millimeters. Unless otherwise specified, dimensions have a tolerance of ±0.13 and angles have a tolerance of ±2°. Figures and illustrations are for identification only and are not drawn to scale.

1. INTRODUCTION

This specification covers the requirements for application of the FullAXS connector system, which is designed to perform optical or electrical connections using a variety of cables and connectors.

A bulkhead panel mount device enables mechanical connection of the plug against a panel or a cabinet by means of bayonet coupling. A shielded cable plug provides an electrical grounding structure to connect the braid of a shielded cable to the panel or cabinet. The ground connection is achieved by multiple contact springs in the plugs, pressing against the inside surface of the panel hole. The optical and electrical connections, as well as the environmental sealing of the FullAXS connector, are established as soon as the circular outer shell is locked to the bulkhead.

Connector performance characteristics are provided in the product specification for the applied connection type.

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

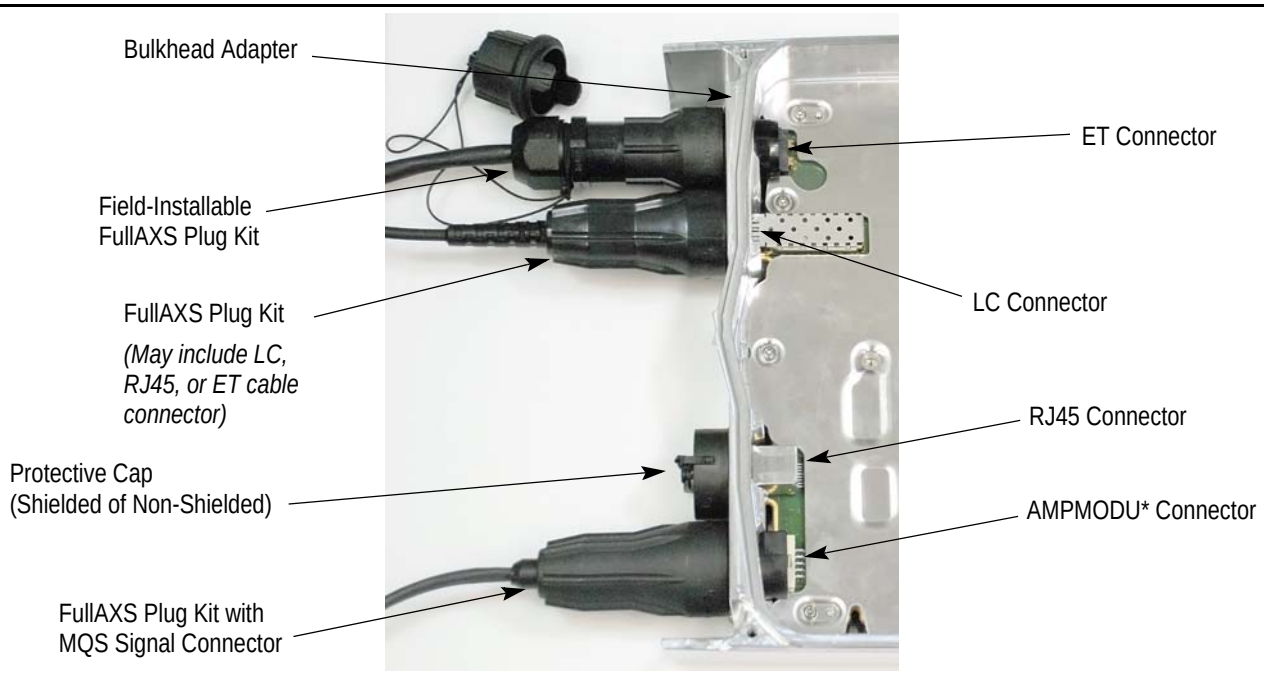


Figure 1

2. REFERENCE MATERIAL

2.1. Revision Summary

- Changed “primary connection” to “ground connection” in Section 1.
- Added new alignment information and diagram (new Figure 7) and updated succeeding figure numbers.
- Changed Figures 1, 9, (was Figure 8), and 14 (was Figure 13).
- Added reference part number to Paragraph 2.2.
- Added documents to lists in Paragraphs 2.4 and 2.5.
- Added new connector information to Paragraph 3.4.

2.2. Customer Assistance

Reference Product Base Part Numbers 1551679, 2061436, and 2173230 are representative of the assemblies. 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*, 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 Specifications (108-series) provide product performance and test information. Application Specifications (114-series) provide mounting and assembly information. Documents available that pertain to this product are:

108-1163	Modular Plugs, Thru-Hole and Surface Mount Jacks, Data and Telephone, PCB Mounted
108-1163-2	High Performance Modular Plugs & Jacks, PCB Mounted
108-18025	Standard Power Timer Kontakt (German language)
108-19346	2 Pos Cable-to-Board Power Connector System (Right Angle / Straight) with Coding Contacts
108-19436	FullAXS Cable Plug Shielded and Unshielded Connections
108-19446	Micro Quadlock System (MQS) Cable Connector (German language)
114- 2048	Modular Jacks
114- 6053	High-Performance Modular Plug Connectors
114-18037	Standard Power Timer Kontakt (German language)
114-19110	Standard Timer Cable to Board Connector System

NOTE

Information on LC connectors can be found in standards TIA/EIA 568B.3 and GR-326-CORE, as well as in the specification for Small Form-Factor Pluggable (SFP) Transceivers developed by the Multi Source Agreement (MSA) group. Copies of these documents can be obtained commercially.

2.5. Instructional Material

Instruction Sheets (408-series and 411- series) provide product assembly instructions or tool setup and operation procedures. Documents available which pertain to this product are:

408-32062	Field Installation of Cable Plug 2173230
411-19476	Application Instruction Sheet FTTA Sealed Connector System

3. REQUIREMENTS.

3.1. Storage

The cage assemblies should remain in the shipping containers until ready for use, to prevent deformation of the contacts and housings. The cage assemblies should be used on a first-in, first-out basis to avoid storage contamination that could adversely affect performance.

3.2. Chemical Exposure

Do not store cage assemblies or accessories near any chemical listed below as they may cause stress corrosion cracking in the contacts and terminals.

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

3.3. Host Printed Circuit Boards (PCB)

A. Material and Thickness

The host PCB material shall be glass epoxy (FR-4 or G-10). The PCB thickness can be found in the customer drawings of the board connectors (see Paragraph 3.4).

B. Tolerance

PCB's should be meet the guidelines of IPC-2122, as well as the requirements stated on the customer drawings of the board connectors.

C. Circuit Pads

The circuit pads on the PCB must be solderable in accordance with the EIA-364-52 standard.

D. PCB Layout

All holes and circuit pads must be precisely located on the PCB to ensure proper placement and optimum performance of the connector. Recommended circuit pad pattern, dimensions, and tolerances are provided on the customer drawings.

3.4. Mating Parts - Board Connectors

A. ET Power connector

2-position, right-angle header, part number 1982295-1, product specification 108-19346, application specification 114-19110

B. LC connector:

See the Small Form-Factor Pluggable (SFP) Transceivers Multi Source Agreement (MSA).

C. RJ45 Connector

Right angle, board-mounted connector, part number 1-5406299-1, product specification 108-1163-2, application specification 114-2048

D. AMPMODU Right-Angle Board Connector

10-position header assembly, part number 103166-3

3.5. Dust, protection and shielded Cover

A protection cap must be placed on the bulkhead when a connector plug is not mated with the bulkhead.

3.6. Mounting and Panel Thickness

The board connectors must be correctly positioned to be sure of optimal alignment with the bulkhead and plug.

A. Wall Panel

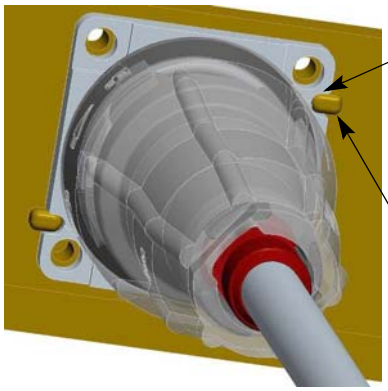
To be sure of good connection of the bulkhead to the wall panel for the shielded version, a minimum thickness for the wall panel of 3 mm is required.

B. Mounting of Bulkhead onto Frontplate.

The shielded fixed version of the FullAXS connector includes polarization keys to avoid a 90° false-positioning of the connector assembly when the bulkhead is wrongly mounted onto the frontplate. When mounting the bulkhead onto the frontplate, be sure that the cut-outs in the bulkhead are positioned over the keys on the frontplate. Refer to Figure 2.

NOTE

The surface of the wall panel needs to be clean and flat to ensure IP performance. The O-ring supplied with the bulkhead must be correctly positioned.



Screw Dimensions
Length: 6 mm min
Head height: 2.5 mm max
Head diameter: 5.5 mm max
OR
5.9 mm max with rounded head

Screw Mounting and Tightening Sequence: Diagonal

Figure 2

The customer is free to use any design of polarization key. The mounting positions of the polarization keys can be determined from Figure 3.

Polarization Key Placement

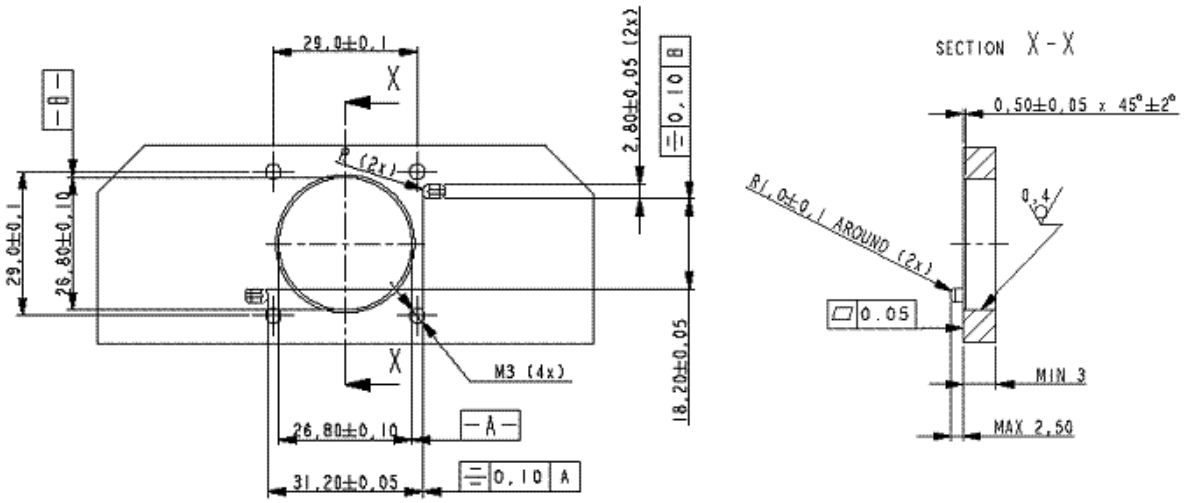


Figure 3

C. RJ45 Board Connector Alignment

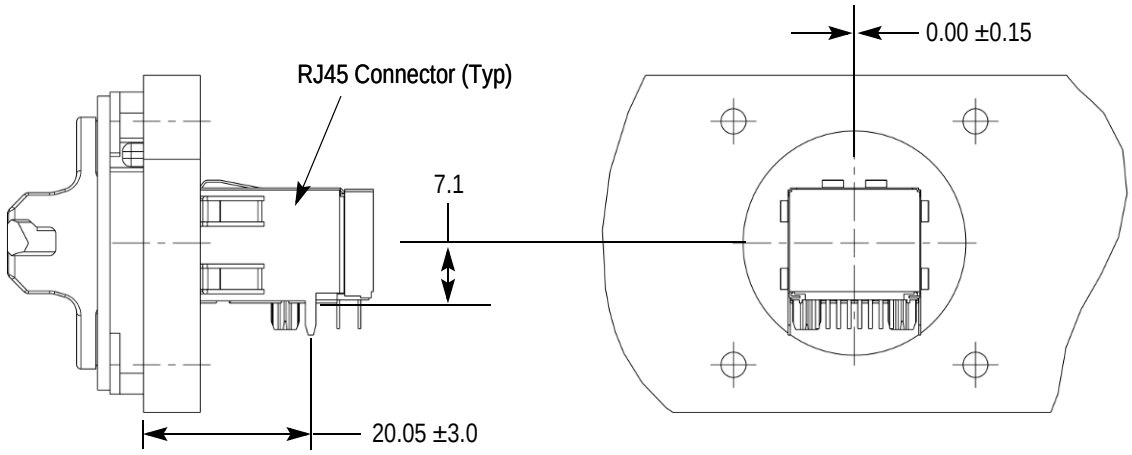


Figure 4

D. ET Power Board Connector Alignment

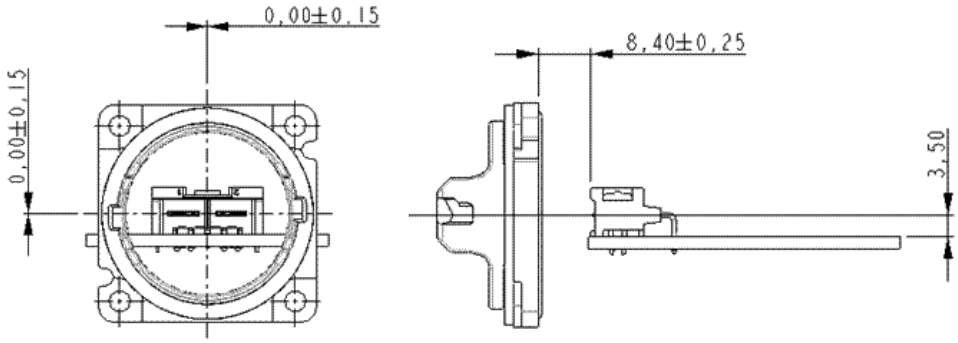


Figure 5

E. LC to Board Connector Alignment

A number of transceivers are used in customer applications. This specification, refers to the front side of the shield as specified in the MSA document.

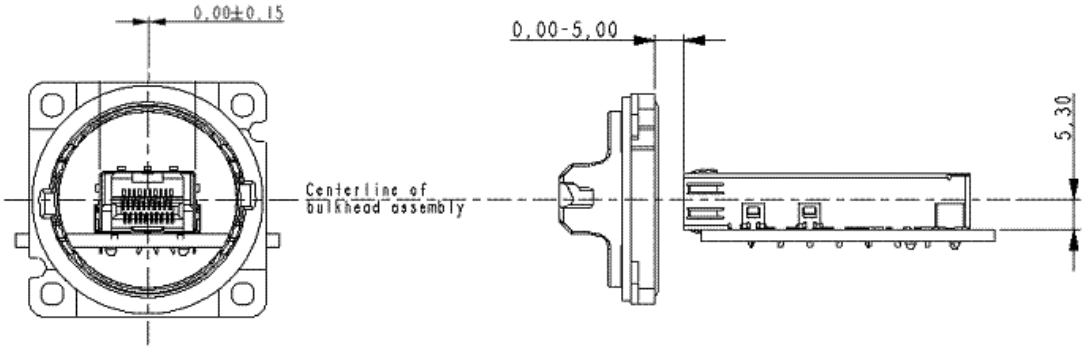


Figure 6

F. AMPMODU Board Connector Alignment

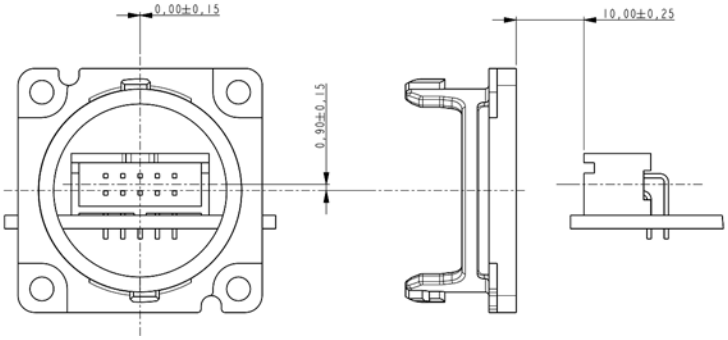


Figure 7

4. QUALIFICATION

Detailed qualification information for the FullAXS connector system can be found in the product specifications listed in Paragraph 2.4 of this document.

5. TOOLING

For mounting instructions of the board connectors onto the PCB, refer to the following application specifications:

114- 6053	High-Performance Modular Plug Connectors
114-19110	Standard Timer Cable to Board Connector System

6. PROCEDURE

This section describes the procedure used to mate the cable connector with the bulkhead panel connector. The procedure is similar, regardless of the style of cable connector used. Typical cable connectors are shown in Figure 8.

Floating Shielded with ET Power Connector

Fixed Shielded with ET Power Connector

Floating Unshielded with LC Connector

Floating Unshielded with RJ45 Connector

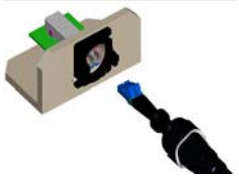
Figure 8

Proceed as follows:

1. Remove the protection caps from the bulkhead connector and cable connector.
2. Mate the cable connector onto the board connector. Refer to Figure 9.

Mating the Connectors

LC Connector



ET Floating Shield

ET Fixed Shield†

RJ45

MQS Connector

†The Fixed-Shield FullAXS Power Connector must be installed with the white dot on the inner body of the connector facing upward.

Figure 9

3. Make sure that the locking latch on the cable connector is engaged on the board connector.
4. Slide the inner housing and ground shield (if present) over the cable and overmolding. Refer to Figure 10.

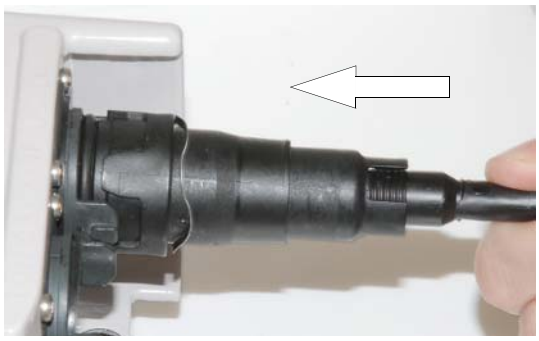


Figure 10

5. Make sure that no gap is present between the inner housing and mounting flange. See Figure 11.

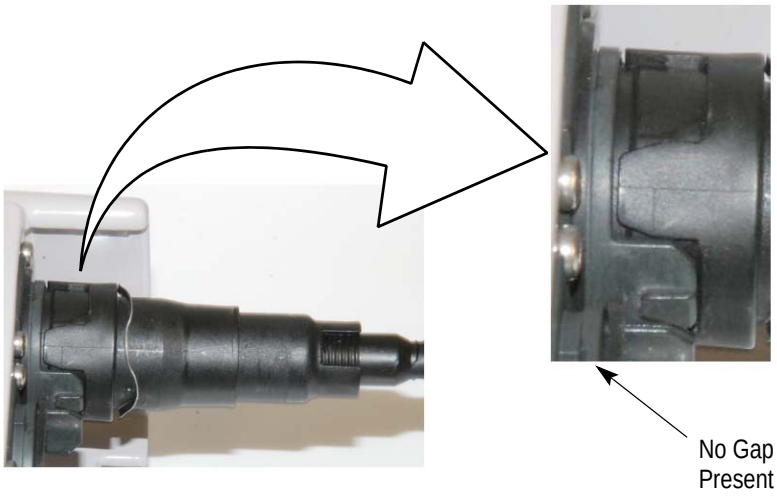


Figure 11

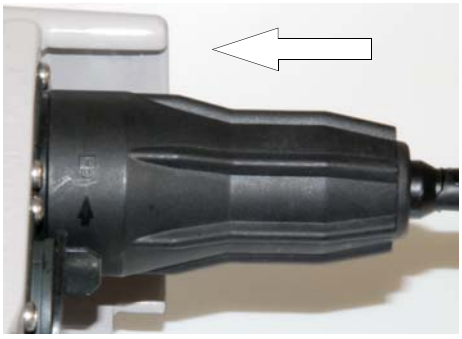
6. Examine the grooves on the inner area of the bayonet shell and remove any debris that may be present.

7. Slide the outer bayonet shell over the inner housing and turn the outer bayonet shell 1/4 turn clockwise, until it clicks into place. See Figure 12.

CAUTION

The shell should be hand tightened only. Do NOT use tools to tighten the shell.

Slide Shell Forward



Rotate Shell 1/4 Turn Clockwise

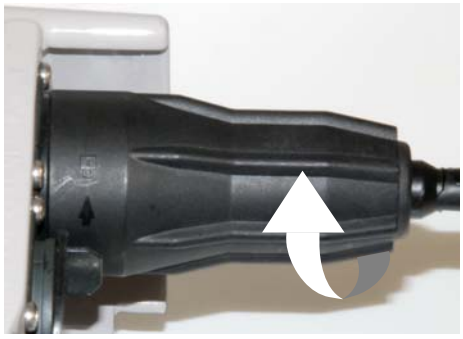


Figure 12

8. Attach the bulkhead connector protection cap to the cable connector protection cap. This will secure both caps in the event that they are required at a later time. See Figure 13.

CAUTION

Do NOT use the strap on the cable protection cap as a cable assembly "pull" attachment.

Figure 13

NOTE

Once the FullAXS connector is properly installed, the cable should be positioned and secured to the mounting infrastructure to minimize stress on the cable and connector.

7. VISUAL AID

The illustration below shows a typical application of this product. This illustration should be used by production personnel to ensure a correctly applied product. Applications which DO NOT appear correct should be inspected using the information in the preceding pages of this specification and in the instructional material shipped with the product or tooling.

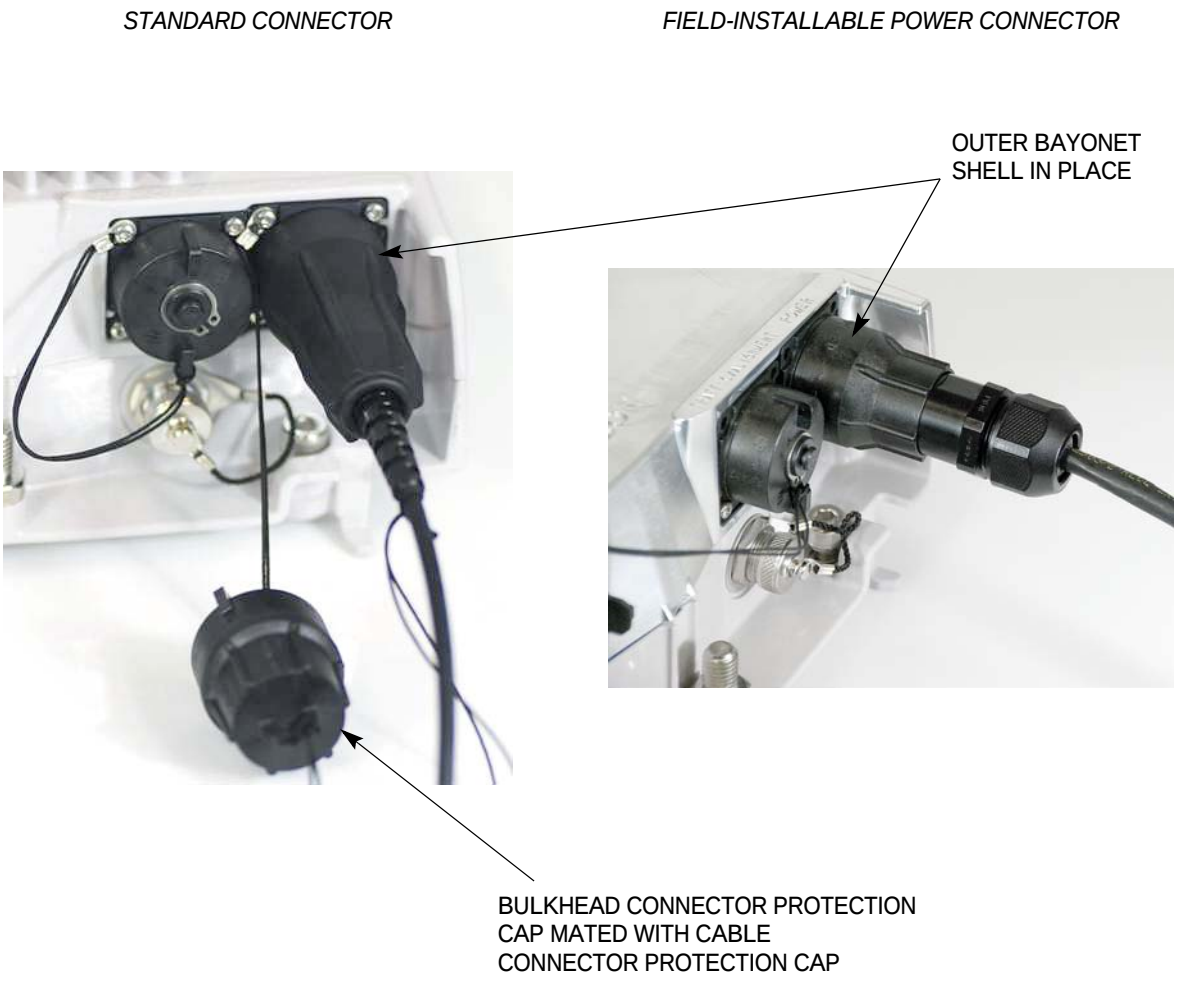


FIGURE 14. VISUAL AID