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**Introducing CeeLok FAS-T Connectors, Cable Assemblies, and Associated Products**

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TE's CeeLok FAS-T connector is **is one of the most rugged, small form factor, 10 Gigabit Ethernet, field terminable I/O connector** in the Aerospace, Defense and Marine marketplace. It has been designed to

perform in some of the most extreme environments in the industry, while providing substantial size and weight savings via its small shell size 8 form factor.

TE also offers associated products such as Band

Straps, Termination Devices, Molded Boots, Wire and Cable and complete harnessing capabilities that complement this exciting new connector.

## CeeLok FAS-T Connector

### Product Facts

- 1 Gbit-Ethernet and 10 Gbit-Ethernet when used with Cat 5e, Cat 6A or Cat 7 cables
- Crimp snap, 39029-style contacts for easy termination and field repairability
- Backshell integrated in plug body provides low profile, low cost, low weight strain relief and EMI protection
- T-shaped pin pattern improves SI through uniform crosstalk cancellation



- Compatible with multiple braid terminations, adaptor styles and seal boots
- Scoop-proof design
- Insert assembly mechanically retained for ≤ 25 lb. retention force
- Robust coupling ring mechanism
- Size 8 shell saves weight and space



### Applications

- 1 Gbit-Ethernet or 10 Gbit-Ethernet in extreme aerospace, defense and marine environments such as:

#### Military

- Rotary and Fixed Wing
- Ground Vehicles
- Soldier Systems
- Missiles and Smart Munitions
- Space
- Shipboard
- C4I

#### Commercial and Civilian Aircraft

- In Flight Entertainment & Connectivity
- Production Breaks (high speed signal)
- Avionics
- Communication Systems

### Electrical

- 1 Gbit-Ethernet and 10 Gbit-Ethernet when used with Cat5e, Cat6A or Cat7 cables
- Electrical performance specifications:
  - Insulation resistance: 5000 mega-ohms ambient, 1000 mega-ohms at 175°C

- Dielectric withstanding voltage: 500 VAC sea level, 100 VAC @ 70,000 ft.
- Shielding effectiveness per MIL-DTL-38999
- Shell to shell conductivity - 5mV initial, 10mV final

### Mechanical

- Performance specifications:
  - Vibration, Sine: MIL-DTL-38999 Series III (60G), 4 hrs per axis, no elevated temperature
  - Vibration, Random: EIA-364-28 Condition VI Letter J (43.92G)
  - Durability: 500 mating cycles
  - Contact Retention: 10 lb. min.
  - Coupling Torque: 8 in-lb. max.

### Environmental Properties

- Operating Temperature: -65°C to +175°C
- Sealing:
  - Altitude Immersion: 70,000 ft. (mated condition)
  - IP67: Mated condition
  - IPX6 (water jet): Receptacle, panel mounted (unmated condition)
- Corrosion Resistance: 500 hr. Salt Mist - Black Zinc Nickel per AMS-2417

### Materials

Shell: Shells available in Electroless Nickel or Black Zinc for DOD-Approved, RoHS compliant, corrosion resistance (500 hr Salt Mist)

Insert: High temperature thermoplastic for excellent temperature endurance. Low dielectric constant for superior signal integrity.

Contacts: BeCu alloy

### Standards and Specifications

Product Specification: 108-2482

Application Specification: 114-32025

Instruction Sheet: 408-32046

Test Report: 501-134002

### Application Tooling

Hand Crimp Tool: M22520/2-01

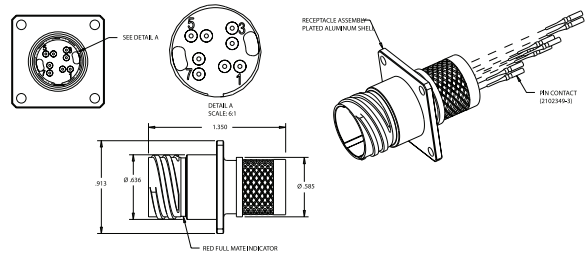
Crimp Positioner: TE PN 2217375-1

Insertion/Extraction Tool: TE PN 2217376-1

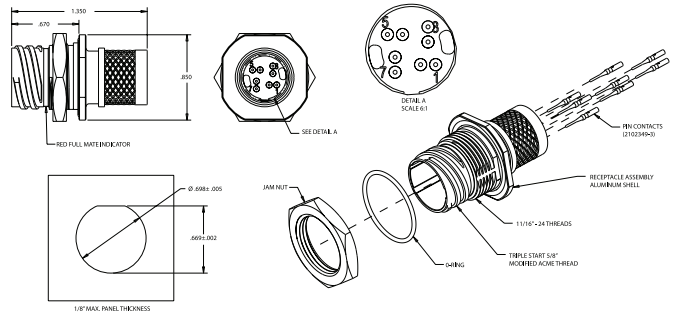
**CeeLok FAS-T Connector (Continued)**

**Product Dimensions**

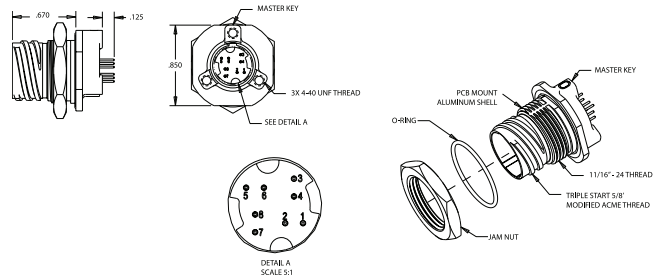
**Boxmount Receptacle Kit Assembly  
Part Number 2102343**



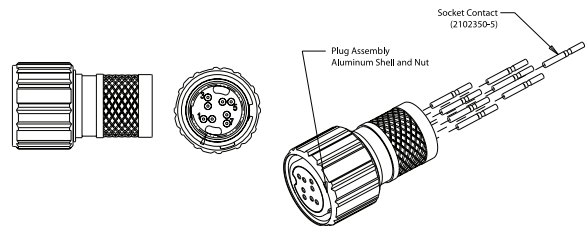
**Receptacle Kit Assembly  
Part Number 2102352**



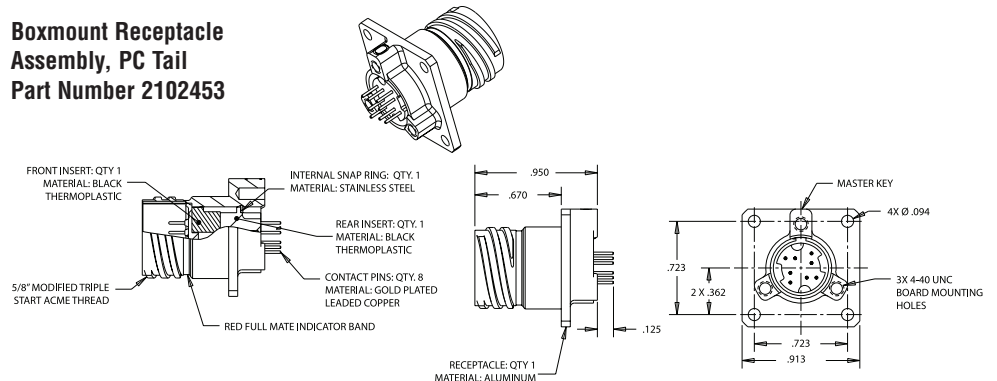
**Jam Nut Receptacle Assembly, PC Tail  
Part Number 2102351**



**Plug Kit Assembly  
Part Number 2102353**

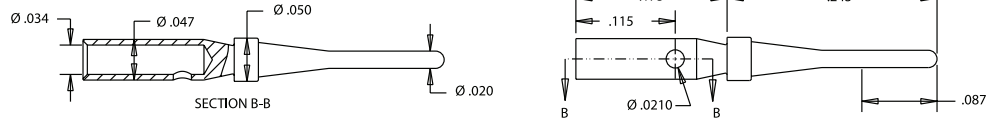


**Boxmount Receptacle Assembly, PC Tail  
Part Number 2102453**

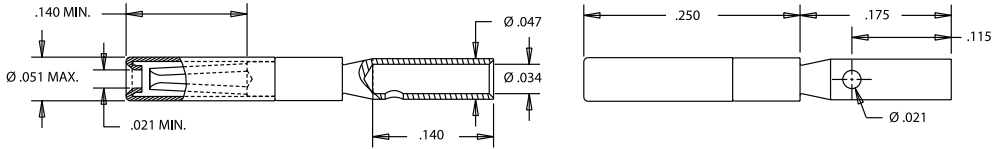


**CeeLok FAS-T Connector (Continued)**

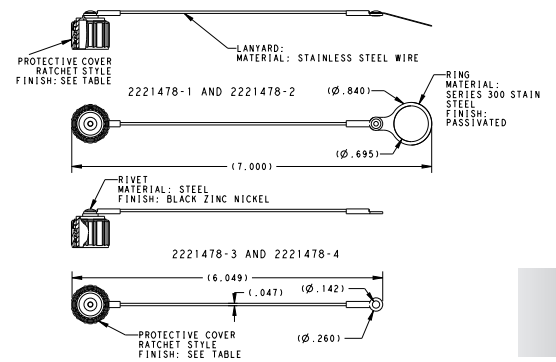
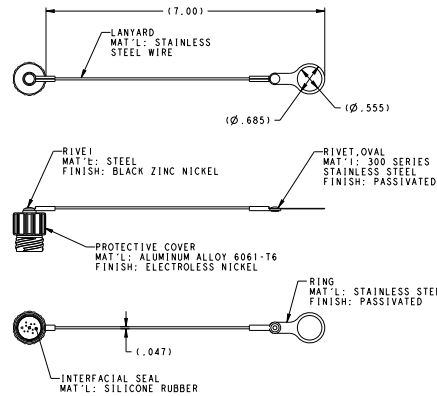
**Pin Contact**  
**24-26 AWG**  
**Part Number 2102349-3**



**Socket Contact**  
**24-26 AWG, Hooded**  
**Part Number 2102350-5**



**Protective Cover Cap, Plug**  
**Part Number 2221682-1**



**Protective Cover Cap, Receptacle**  
**Part Number 2221478-1**

**Product Offering**

TE Part Numbers	Description	Plating	Key
2102343-1	Receptacle Kit, Boxmount	EINi	N
2102343-2	Receptacle Kit, Boxmount	Black ZnNi	N
2102343-3	Receptacle Kit, Boxmount	EINi	A
2102343-4	Receptacle Kit, Boxmount	Black ZnNi	A
2102343-5	Receptacle Kit, Boxmount	EINi	B
2102343-6	Receptacle Kit, Boxmount	Black ZnNi	B
2102351-1	Jam Nut Receptacle, PC Tail	EINi	N
2102351-2	Jam Nut Receptacle, PC Tail	Black ZnNi	N
2102351-3	Jam Nut Receptacle, PC Tail	EINi	A
2102351-4	Jam Nut Receptacle, PC Tail	Black ZnNi	A
2102351-5	Jam Nut Receptacle, PC Tail	EINi	B
2102351-6	Jam Nut Receptacle, PC Tail	Black ZnNi	B
2102352-1	Receptacle Kit	EINi	N
2102352-2	Receptacle Kit	Black ZnNi	N
2102352-3	Receptacle Kit	EINi	A
2102352-4	Receptacle Kit	Black ZnNi	A
2102352-5	Receptacle Kit	EINi	B
2102352-6	Receptacle Kit	Black ZnNi	B
2102353-1	Plug Kit	EINi	N
2102353-2	Plug Kit	Black ZnNi	N
2102353-3	Plug Kit	EINi	A
2102353-4	Plug Kit	Black ZnNi	A
2102353-5	Plug Kit	EINi	B
2102353-6	Plug Kit	Black ZnNi	B
2102453-1	Boxmount Receptacle, PC Tail	EINi	N
2102453-2	Boxmount Receptacle, PC Tail	Black ZiNi	N
2102453-3	Boxmount Receptacle, PC Tail	EINi	A
2102453-4	Boxmount Receptacle, PC Tail	Black ZnNi	A
2102453-5	Boxmount Receptacle, PC Tail	EINi	B
2102453-6	Boxmount Receptacle, PC Tail	Black ZnNi	B

## Cable Assemblies

### Product Facts

- End-to-end systems solutions provider
- Quick design turnaround using in-house software
- Full electrical and environmental testing capability
- Certified test processes and equipment ensures optimal signal integrity
- Qualified assembly experts
- Complete lot traceability
- Reliability in harsh environments
- ISO 9001: AS 9100 certified



### Description

- TE supplies proven technology for high bandwidth data links to customers in the aerospace, ground systems and marine industries. Military cable requirements are designed, manufactured and tested to perform reliably in harsh environments.
- Proper cable assembly is critical to realizing the full potential of the cable and connector technologies. TE's lightweight military cables and connector solutions are designed to reduce size and remove weight from your application, leading to benefits that include reduced fuel consumption and increased payload capacity.

### Protocols

Data assemblies can be developed with the CeeLok FAS-T connector for the following high speed protocols:

- 100BASE-T Ethernet
- 1000BASE-T Ethernet
- 10GBASE-T Ethernet
- USB 2.0

### Electrical

Testing capabilities include:

- DWV/IR
- Characteristic Impedance
- Return Loss/VSWR
- Insertion Loss
- Crosstalk
- Attenuation
- Eye Diagrams, etc.

### Mechanical Tests Available:

- Vibration
- Mechanical Shock
- Mechanical Durability

### Environmental Tests Available:

- Salt Spray
- Thermal Shock / Temperature Life
- Humidity / Fluid Immersion

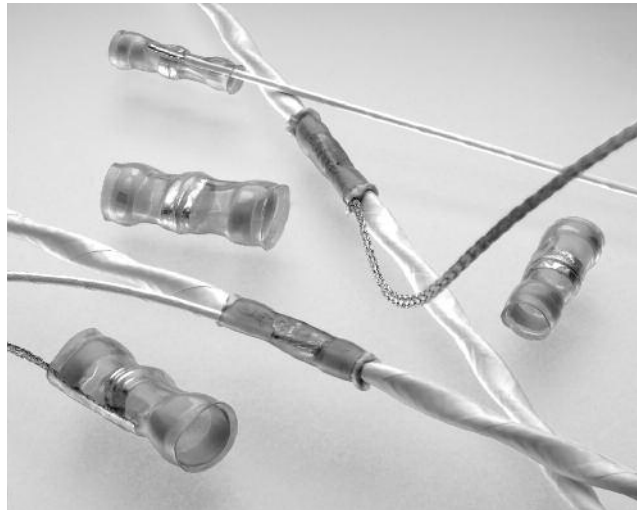
### Test Lab



**Termination Devices**

**Product Facts**

- Available with and without pigtails
- Simple, quick termination
- Center or end strip for ease of termination
- Handles wide range of high data rate cables and diameters



**Description**

- TE's SolderSleeve shield terminators attach a ground lead to cable shield for the purpose of grounding the EMI on the shield.

**Environmental**

- Operating Temperature: -55°C to +200°C
- Environmentally sealed
- Mechanically robust

**Physical or Other Properties**

- Terminates Tin, Silver and Nickel flat or round braids
- Provides 360° of shielding

**Product Offering**

**Contact TE for a complete listing of SolderSleeve Shield Terminators.**

**Band Straps**

**Product Facts**

- Quick, easy, cost-effective and reliable termination of braided metallic shielding
- Low profile, one-piece design eliminates EMI leakage paths
- Band should be double wrapped to provide effective shield termination



**Description**

- TE's CRES-Lock band strap provides a quick, easy, cost-effective and reliable termination of braided metallic shielding to the CeeLok FAS-T connector.
- Approved for aerospace and defense, the CRES-Lock band straps have successfully passed shock, vibration and environmental testing.

**Material**

- Passivated 304 stainless steel - 8" long x .125" wide

**Electrical**

- Operating Temperature: -65°C to +200°C
- Electrical Resistance: Meets ≤1.0 milliohm requirement of AS85049/128
- Corrosion Resistance: 500 hr. salt spray

**Mechanical**

- Tensile Strength: 200 lb.
- Braid Retention: Meets 100 lb. requirement of AS85049/128

**Application Tooling**

- Micro Tie-Dex II, A30199

**Product Offering**

TE Part Numbers	Description
BND-0812-S	Band Strap

**Molded Products**

**Product Facts**

- Only one boot needed for lower inventory cost
- Boots available in 3 configurations - conforms to the installation
- Boot materials of various temperature angles for ease of installation in different environments
- Epoxy sealing kits available



**Description**

- Backshell boots (molded parts) add sealing and strain relief to the wires and cables used with the CeeLok FAS-T connectors. When provided with pre-applied adhesives, these heat shrinkable boots install quickly with high reliability sealing to IP67 levels.
- Backshell boots can be either straight, 45 or 90 degrees in shape to fit a variety of installation needs.

**Application Tooling**

- HL1910E or the HG-501A ThermoGun heat gun and appropriate hot air reflectors

**Product Offering**

Part Number	Description - Straight Boot	Part Number	Description - 90° Boot	Operating Temperature
878182-000	202K132-12-0	878183-000	222K132-12-0	-55°C to 200°C
481350-000	202K132-25/225-0	131250-000	222K132-25/225-0	-75°C to 150°C
878495-000	202K132-25-0	878512-000	222K132-25-0	-75°C to 150°C
879222-000	202K132-25/86-0	879268-000	222K132-25/86-0	-55°C to 120°C
879514-000	202K132-4/42-0	879515-000	222K132-4/42-0	-20°C to 60°C
822542-000	202K132-4-0	822548-000	222K132-4-0	-55°C to 135°C
830903-000	202K121-4/42-0	273122-000	222K121-4/42-0	-20°C to 60°C

**High Data Rate Cables**

**CABLE PROTOCOLS**

- **ETHERNET:**
  - Quadrx (100BaseT, 100 Mbit/s)
  - Cat 5e (1000 BaseT or Gigabit Ethernet, 1 Gbit/s)
  - IEEE 1394
  - USB



**Description**

- Lightweight, ruggedized high speed copper cables complete the CeeLok FAS-T connector end-to-end solution. Designs are available to meet a number of common data protocols, and can be customized to meet mission critical needs such as EMI, fluid resistance, and flammability.
- These high data rate cables utilize specialized polymer formulations, developed by TE that allow better

mechanical and thermal performance in harsh environments. These polymer formulations enable the cables to be smaller and lighter weight because of TE's thin wall technology.

- For aerospace applications, TE has developed a state-of-the-art patented foaming process which affords better signal transmission through the dielectric. This lightweight material is rated to withstand temperatures up to 200°C, and is FAA approved.

- For marine applications, TE developed a ruggedized zero halogen jacket that passes the rigorous military standards for flammability while meeting stringent smoke and toxicity requirements.
- TE also offers solutions to couple with the CeeLok FAS-T connector in marine and ground system markets where fluid resistance and flexibility are paramount.

**Cable Protocol Details**

- Operating temperature range from -55°C to +200°C
- Size range: 22 AWG to 28 AWG
- FAA approval
- Electrical testing capability including skew and eye patterns
- Full range of EMI shielding options
- Customized and hybrid designs available