# Table of Contents

## Introduction
- Introduction to ruggedized fiber optic connectors

## Expanded Beam Products
- MIL Qualified Connectors (MIL-DTL-83526)
- Pro Beam Mini Connectors
- Pro Beam Jr. Connectors
- Pro Beam Sr. Connectors
- 38999 Series III Style Connectors
- Expanded Beam Contact (Size 16)

## Cable Assemblies and Accessories
- Cables
- Reels
- Backpacks
- Tactical Optical Cable
- Commercial Fiber Optic Mechanical Splice Kits
- Optical Test Set for Fiber Optic Cables
- Hand Held Fault Locator
- Expanded Beam Avionics-Related Standards and Specifications

## Physical Contact & Technology
- ARINC 600 and 404
- ARINC 801 Optical Termini
- F12 ARINC 801 Insert Assemblies
- ARINC 801 Optical Termini Adapter Dimensions
- ARINC 801 Optical Termini Termination Kit
- MIL-T-29504
- Optical Inserts for EN4165 and ARINC 809
- Fiber Optic Insert for DMC-M
- RSC-v

## Rugged Circular Connectors
- 38999 Style Connectors
- MC3
- MC4
- MC5
- MC6
- MC801
- Ruggedized Singleway Connector (RSC)
- Sealed Circular LC ODVA
- Empire

## Rugged Board Level Connectors
- Ruggedized Optical Backplane Interconnect for VITA 66.1

## Navy CID Approved - Epoxy Applied
- Tight Jacketed LC Connectors
- Tight Jacketed SC Connectors

## LightCrimp Plus Navy Approved
- LC, SC and LightCrimp Plus ST Approved by US Navy
- Combination LightCrimp Plus Termination Kit
- LightCrimp Splice

## Offshore Optical Connectors and Cable Assemblies
TE Connectivity (TE) is proud to offer a full rugged fiberoptic product family. With TE's complete selection that includes world class Physical Contact and Expanded Beam technologies that include MC series of high density contact, a Rugged Single Channel and MT ribbon fiber as well as global industry standards of EN 4165 and ARINC 801 along with our M83526/20 and /21 qualified products and wide variety of Expanded Beam technologies the end user is guaranteed a complete choice that meets their cost and optical performance needs in multiple industries.

For specific information, please contact your local TE Sales Representative.
Expanded Beam Products

Product Facts
- PRO BEAM Sr., PRO BEAM Jr. and PRO BEAM Mini Connector field deployable interconnects
- ARINC 600 connectors, with inserts/holder blocks designed for Mini Expanded Beam — up to 128 channels on size 3 ARINC 600
- MIL-C-38999 Series III shell size 11 and 15 style circular connectors — Cable assemblies up to 8 fibers
- Unique Modular Design, for use with multimode and singlemode fiber
- Tactical cables, cable reels, backpacks
- Cable assembly and termination services
- Ball lens expands cross-sectional area of light over 200 times for multimode and over 2000 times for singlemode
- Rugged hermaphroditic construction (i.e., same insert mates to each other)
- Physically non-contacting mating conditions; no wear, installed fiber ferrule protected by ball lens

Key Features
Fiber Optic Interconnect/Cable System using Expanded Beam technology, which physically expands and collimates the transmission signal into an optical beam over 14 times its original diameter (the cross-sectional area of the light beam increases over 2,000 times). It is then refocused back down onto the core of the receiving fiber. This approach provides ease of alignment and low sensitivity to thermal changes and contamination. High strength, precision connector housings enhance a durable connection, optimizing low loss and repeatable performance.

Applications
Suitable for field-deployable communications, marine ship-to-shore applications, security systems, mobile diagnostic units, oil and gas exploration and other harsh environment applications demanding strength, durability and reliable performance in conditions of multiple coupling/decouplings, blindmate situations, and high vibration.

Product Facts
- No wear on fiber optic interface; Very vibration resistant
- Easy to handle, easy to clean. Durable connection that is highly resistant to dirt/debris
- Singlemode or multimode
- Common 850/1300 Dual Wavelength, 1310, or 1550 nm wavelengths
- Easy alignment for low-loss, repeatable performance
- Consistent overall optical “link budget” assured
- Low sensitivity to thermal fluctuations and interface contamination
- Repeatable low-loss performance in harsh environments

EB termini
- Durable non-contacting interface assures ease of use/cleaning
- Termini designed to replace existing M29504/4 and /5 physical contact termini that fits the Size 16 AWG cavity of a D389999 III connector
- MM and SM termini designs

Expanded Beam Inserts
- PRO BEAM Sr. Insert — the original, larger format, Field Tactical, hermaphroditic Connector System
- PRO BEAM Jr. Insert — the second generation, reduced size, Field Tactical Connector System — a TE Connectivity original design
- Mini Expanded Beam Insert for multi-channel small form factor — the smallest expanded beam multi-channel insert in the industry, another TE Connectivity original design
MIL-Qualified Connectors M83526/20 and M83526/21

The original now has a MIL-qualified version. The benchmark PRO BEAM Jr. connector series was the model for the MIL-DTL-83526/20 and /21 specifications. TE is now the first to gain full qualification to these specifications with TE’s M83526/20 and M83526/21 connectors.

Product Facts

- MIL-qualified to MIL-DTL-83526/20B and MIL-DTL-83526/21B
- QPD- (Qualified Products Database) listed on http://qldocs.dla.mil/
- VG-approval to VG 95319-100 and -101
- Fully intermateable and interoperable with the benchmark PRO BEAM Jr. connector series
- TE’s patented Interference-Fit expanded beam design technology yields unmatched high performance and high reliability

TECHNICAL DOCUMENTS

498-32093 M83526/20 Plug
498-32107 M83526/21 Bulkhead
http://te.com/documents

MIL-DTL-83526/20B
MIL-DTL-83526/21B
http://quicksearch.dla.mil

MIL-DTL-83526 Connector Assembly Part Numbers

<table>
<thead>
<tr>
<th>P/N</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>M83526/20-01</td>
<td>2064556-1</td>
<td>4 x 850/1300 MM Plug</td>
</tr>
<tr>
<td>M83526/20-02</td>
<td>2064557-1</td>
<td>4 x 1310 SM Plug</td>
</tr>
<tr>
<td>M83526/20-03</td>
<td>2064558-1</td>
<td>4 x 1550 SM Plug</td>
</tr>
<tr>
<td>M83526/20-04</td>
<td>2064559-1</td>
<td>2 x 850/1300 MM Plug</td>
</tr>
<tr>
<td>M83526/20-05</td>
<td>2064560-1</td>
<td>2 x 1310 SM Plug</td>
</tr>
<tr>
<td>M83526/20-06</td>
<td>2064561-1</td>
<td>2 x 1550 SM Plug</td>
</tr>
<tr>
<td>M83526/21-01</td>
<td>2064562-1</td>
<td>4 x 850/1300 MM Bulkhead</td>
</tr>
<tr>
<td>M83526/21-02</td>
<td>2064563-1</td>
<td>4 x 1310 SM Bulkhead</td>
</tr>
<tr>
<td>M83526/21-03</td>
<td>2064564-1</td>
<td>4 x 1550 SM Bulkhead</td>
</tr>
<tr>
<td>M83526/21-04</td>
<td>2064565-1</td>
<td>2 x 850/1300 MM Bulkhead</td>
</tr>
<tr>
<td>M83526/21-05</td>
<td>2064566-1</td>
<td>2 x 1310 SM Bulkhead</td>
</tr>
<tr>
<td>M83526/21-06</td>
<td>2064567-1</td>
<td>2 x 1550 SM Bulkhead</td>
</tr>
</tbody>
</table>

MFOCA - Mixed Mode

<table>
<thead>
<tr>
<th>P/N</th>
<th>DLA P/N</th>
<th>Type</th>
<th>Channels</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>1516546-1</td>
<td>10023-03</td>
<td>Plug</td>
<td>2 MM + 2 SM</td>
<td>Brown</td>
</tr>
<tr>
<td>1516547-1</td>
<td>10023-01</td>
<td>Plug</td>
<td>2 SM</td>
<td>Green</td>
</tr>
<tr>
<td>1516548-1</td>
<td>10023-02</td>
<td>Plug</td>
<td>2 MM</td>
<td>Black</td>
</tr>
<tr>
<td>1516702-1</td>
<td>10024-03</td>
<td>Bulkhead</td>
<td>2 MM + 2 SM</td>
<td>Brown</td>
</tr>
<tr>
<td>1516703-1</td>
<td>10024-01</td>
<td>Bulkhead</td>
<td>2 SM</td>
<td>Green</td>
</tr>
<tr>
<td>1516704-1</td>
<td>10024-02</td>
<td>Bulkhead</td>
<td>2 MM</td>
<td>Black</td>
</tr>
</tbody>
</table>

* for cable assembly applications please contact your local TE representative
Ruggedized Fiber Optic Connectors

PRO BEAM Mini Connectors

TE Connectivity is pleased to announce the natural extension from our PRO BEAM Sr. and Jr. Connector product lines.

The PRO BEAM Mini Connector saves space and weight and is perfect for high density applications. The product offers the same durability as its larger counterparts.

**PRO BEAM Mini Connector Shell Kits**

<table>
<thead>
<tr>
<th>Type</th>
<th>Mount Style</th>
<th>Attribute Difference</th>
<th>Part Number (HA Aluminum)</th>
<th>Part Number (OD Aluminum)</th>
<th>Part Number (NiAlBronze) (Black Aluminum)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plug</td>
<td>EPDM Grip</td>
<td>D-Hole</td>
<td>1828699-1</td>
<td>N/A</td>
<td>1828698-2</td>
</tr>
<tr>
<td>D-Hole</td>
<td></td>
<td>Low Profile - Buffered Fiber</td>
<td>1828699-2</td>
<td>1828699-3</td>
<td>1828699-4</td>
</tr>
<tr>
<td>D-Hole</td>
<td></td>
<td>Low Profile - 1.8 Jacketed</td>
<td>1985140-1</td>
<td>1985140-2</td>
<td>1985140-3</td>
</tr>
<tr>
<td>D-Hole</td>
<td></td>
<td>Sealed</td>
<td>1918185-1</td>
<td>1918185-3</td>
<td>1918185-4</td>
</tr>
<tr>
<td>bulkhead</td>
<td></td>
<td>Square Flange - Buffered Fiber</td>
<td>1828826-1</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>bulkhead</td>
<td></td>
<td>Neutrik Cutout-Drop-In</td>
<td>1918603-1</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

* Contact TE for availability.

**PRO BEAM Mini Insert Kits**

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 x 850 / 1300 nm Dual Multimode</td>
<td>1374759-4</td>
</tr>
<tr>
<td>2 x 1310 nm Singlemode</td>
<td>1588129-2</td>
</tr>
<tr>
<td>2 x 1550 nm Singlemode</td>
<td>1588129-3</td>
</tr>
<tr>
<td>4 x 850 / 1300 nm Dual Multimode</td>
<td>1374759-2</td>
</tr>
<tr>
<td>4 x 1310 nm Singlemode</td>
<td>1588129-3</td>
</tr>
<tr>
<td>4 x 1550 nm Singlemode</td>
<td>1588128-3</td>
</tr>
</tbody>
</table>

**PRO BEAM Mini Ferrule Kits**

<table>
<thead>
<tr>
<th>Fiber Hole Size</th>
<th>Mode</th>
<th>PRO BEAM Connector</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>125 μm</td>
<td>SM</td>
<td>Mini</td>
<td>1754700-1</td>
</tr>
<tr>
<td>126 μm</td>
<td>SM</td>
<td>Mini</td>
<td>1754700-2</td>
</tr>
<tr>
<td>126 μm</td>
<td>MM</td>
<td>Mini</td>
<td>1754699-1</td>
</tr>
</tbody>
</table>

**PRO BEAM Mini Cable Adapter Kits For Plug**

<table>
<thead>
<tr>
<th>Cable Diameter</th>
<th>Aluminum</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1 mm</td>
<td>1828700-1</td>
<td>1828700-5</td>
</tr>
<tr>
<td>5.6 mm</td>
<td>1828700-2</td>
<td>1828700-6</td>
</tr>
<tr>
<td>6.2 mm</td>
<td>1828700-3</td>
<td>1828700-7</td>
</tr>
<tr>
<td>6.7 mm</td>
<td>1828700-4</td>
<td>1828700-8</td>
</tr>
</tbody>
</table>

**PRO BEAM Mini Cable Adapter Kits For Sealed Bulkhead**

<table>
<thead>
<tr>
<th>Cable Diameter</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1 mm</td>
<td>1516228-1</td>
</tr>
<tr>
<td>5.6 mm</td>
<td>1516228-2</td>
</tr>
<tr>
<td>6.2 mm</td>
<td>1516228-3</td>
</tr>
</tbody>
</table>

Note: Part Numbers are RoHS compliant except: * Indicates non-RoHS compliant.

ASSEMBLY CAPABILITIES
TE Connectivity has extensive Rugged Optic Harness capabilities. Please consult your local TE Sales representative for assistance.

Standard color black for Polymer Grip Rings, Cap and Boots. Alternate colors available upon request.
PRO BEAM Mini Connectors

Performance Specifications

Optical, Multimode Version
Insertion Loss, Typical* — 0.7 dB @ 1300 nm and 850 nm dual wavelength

Optical, Singlemode Version
Insertion Loss, Typical* — 0.8 dB @ 1310 nm or 1550 nm optimized wavelength

Return Loss** — > 34 dB @ 1310 nm or 1550 nm optimized wavelength

*When tested with reference quality launch/receive cable assemblies

**RL Tested Open Ended

Mechanical

Vibration, Sinusoidal — 10 - 500 Hz, 3 directions, 0.75 mm amplitude @ 10g acceleration
Bump — 4,000 Bumps, 3 directions @ 40g acceleration
Free Fall — 500 falls on concrete, Severity 1.2 m

Coupling Endurance — 3,000 couplings

Weight —
Plug — 50 grams, typical
D-Hole bulkhead — 39 grams, typical

Temperature

Operational Temperature — -40°C/+85°C
Storage Temperature — -55°C/+85°C
Temperature, Cyclic — -55°C/+85°C
Humidity (Damp Heat) — 95% RH

Immersion

Water — 5 m depth (plug) - 2 m (Bulkhead)

Pressure

Low Pressure — 25 kPa @ -55°C

Material and Finish

Shell Alloy — Aluminum; or nickel aluminum bronze (high saline environment)

Plating (For Aluminum Shells Only) — clear hard anodized; or green chromate conversion zinc or black zinc - nickel alloy (PRO BEAM Mini Bulkheads only)

Technical Documents

408-10065 Plug
408-10067 Square Flange Bulkhead
408-10069 Low Profile D-Hole Bulkhead
408-10076 Sealed D-Hole Bulkhead
http://www.te.com/documents
Expanded Beam Products (Continued)

PRO BEAM Mini Connectors
(Continued)

Recommended Panel Cutout

PRO BEAM Mini Low Profile,
Alternate Square Flange Mount Bulkhead Connector

Recommended Panel Cutout

PRO BEAM Mini D-Hole Bulkhead Connector,
Sealed, Mil-Tactical Cable
**PRO BEAM Jr. Connectors**

**Performance Specifications**

**Optical, Multimode Version**
- **Insertion Loss, Typical*** — 0.7 dB @ 1300 nm and 850 nm dual wavelength

**Optical, Singlemode Version**
- **Insertion Loss, Typical*** — 0.8 dB @ 1310 nm or 1550 nm optimized wavelength

**Return Loss** ** — > 34 dB @ 1310 nm or 1550 nm optimized wavelength

*When tested with reference quality launch/receive cable assemblies

**Mechanical**

- **Vibration, Sinusoidal** — 10 - 500 Hz, 3 directions; 0.75 mm amplitude @ 10g acceleration
- **Bump** — 4,000 Bumps, 6 directions @ 50g acceleration
- **Free Fall** — 500 falls on concrete; Severity 1.2 m
- **Coupling Endurance** — 3,000 couplings
- **Weight**
  - Plug — 123 grams, typical
  - D-Hole bulkhead — 102 grams, typical

**Temperature**

- **Operational Temperature** — -40°C/+85°C
- **Storage Temperature** — -55°C/+85°C
- **Temperature, Cyclic** — -55°C/+85°C
- **Humidity (Damp Heat)** — 95% RH

**Immersion**

- **Water** — 15 m depth (plug) - 15 m (Bulkhead)

**Material and Finish**

- **Shell Alloy** — Aluminum; or nickel aluminum bronze (high saline environment)
- **Plating (For Aluminum Shells Only)** — clear hard anodized; or green chromate conversion zinc or black zinc-nickel alloy (PRO BEAM Jr. Bulkheads only)

**Bulkhead Connector Panel Thicknesses**

- **PRO BEAM Jr. Bulkedhead Connector**
  - D-Hole — 4 mm max.
  - Square Flange — 6 mm max.

- **Recommended D-hole Panel Cutout**

- **PRO BEAM Jr. Low Profile D-Hole Bulkhead Connector**

- **PRO BEAM Jr. Right Angle Plug**

---

Standard color black for Polymer Grip Rings, Cap and Boots. Alternate colors available upon request.
Expanded Beam Products (Continued)

PRO BEAM Jr. Connectors

PRO BEAM Jr. Standard Bulkhead Connector, with Boot

PRO BEAM Jr. Sealed Bulkhead Connector
Ruggedized Fiber Optic Connectors

Expanded Beam Products  (Continued)

PRO BEAM Jr. Connectors  (Continued)

Connector Assembly
1 Shell Kit
1 Insert Kit
1 Cable Adapter Kit*
X Ferrule Kits (X = No. of optical channels)

Part Numbers listed are Shell alloy = aluminum Plating = hard anodized. Consult TE Connectivity for other plating/material options such as non-cadmium olive drab or RoHS-compliant black Zn/Ni.

Technical Documents
Product Specification
108-2177  Design Objectives
Application Specification
114-13099
Instruction Sheets
408-10250  Grounding and Standard D-Hole Bulkhead
408-10222  Plug
408-10249  Sealed D-Hole Bulkhead
408-8834  Low Profile Square Flange Bulkhead
408-8840  Low Profile D-Hole Bulkhead
408-10251  Standard Square Flange Bulkhead
408-10018  Low Profile D-Hole Simplex Cable Bulkhead
408-10252  7.5 Cable Adapter
http://www.te.com/documents

PRO BEAM Jr. Connector Shell Kits

<table>
<thead>
<tr>
<th>Description</th>
<th>Hard Anodized</th>
<th>NIAIBz</th>
<th>Black Zinc</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Aluminum Part Number</td>
<td>Part Number</td>
<td>Part Number</td>
</tr>
<tr>
<td>PRO BEAM Jr. Plug w/EPDM rubber</td>
<td>1918937-1</td>
<td>1918937-2</td>
<td>---</td>
</tr>
<tr>
<td>PRO BEAM Jr. Right-Angle Plug Kit</td>
<td>1985915-1</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>PRO BEAM Jr. D-Hole Low Profile, Buffered Fiber Bulkhead</td>
<td>1693741-1</td>
<td>1693741-2</td>
<td>1754446-3</td>
</tr>
<tr>
<td>PRO BEAM Jr. D-Hole Low Profile, Simplex Cable Bulkhead</td>
<td>6828413-1</td>
<td>---</td>
<td>6828413-2</td>
</tr>
<tr>
<td>PRO BEAM Jr. D-Hole Standard Bulkhead</td>
<td>1918939-1</td>
<td>1918939-2</td>
<td>1918941-2</td>
</tr>
<tr>
<td>PRO BEAM Jr. D-Hole Sealed Bulkhead</td>
<td>1918940-1</td>
<td>1918940-2</td>
<td>1918940-4</td>
</tr>
<tr>
<td>PRO BEAM Jr. Square Flange Low Profile Buffered Fiber Bulkhead</td>
<td>1754439-1</td>
<td>1754439-2</td>
<td>1754447-3</td>
</tr>
<tr>
<td>PRO BEAM Jr. Square Flange Standard Bulkhead</td>
<td>1918943-1</td>
<td>1918943-2</td>
<td>---</td>
</tr>
</tbody>
</table>

PRO BEAM Jr. Loopback Plug Assembly

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 x 850 / 1300nm Multimode, 62.5/125 µm fiber</td>
<td>1516506-1</td>
</tr>
<tr>
<td>4 x 850 / 1300nm Multimode, OM3 50/125 µm fiber</td>
<td>1516506-2</td>
</tr>
<tr>
<td>4 x 1310nm Singlemode</td>
<td>1516506-3</td>
</tr>
<tr>
<td>4 x 1550nm Singlemode</td>
<td>1516506-4</td>
</tr>
</tbody>
</table>

PRO BEAM Jr. Insert Kits

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 x 850 / 1300nm Multimode</td>
<td>1515743-1</td>
</tr>
<tr>
<td>2 x 1310nm Singlemode</td>
<td>1515739-1</td>
</tr>
<tr>
<td>2 x 1550nm Singlemode</td>
<td>1516040-1</td>
</tr>
<tr>
<td>4 x 850 / 1300nm Multimode</td>
<td>1515747-1</td>
</tr>
<tr>
<td>4 x 1310nm Singlemode</td>
<td>1515740-1</td>
</tr>
<tr>
<td>4 x 1550nm Singlemode</td>
<td>1516041-1</td>
</tr>
</tbody>
</table>

Ferrule Kits

<table>
<thead>
<tr>
<th>Fiber Hole Size</th>
<th>Mode</th>
<th>PRO BEAM Jr.</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>125 m</td>
<td>SM</td>
<td>Jr.</td>
<td>1588908-2</td>
</tr>
<tr>
<td>126 m</td>
<td>SM</td>
<td>Jr.</td>
<td>1588908-1</td>
</tr>
<tr>
<td>126 m</td>
<td>MM</td>
<td>Jr.</td>
<td>1588700-1</td>
</tr>
</tbody>
</table>

PRO BEAM Jr. Connector Plug & Sealed Bulkhead Cable Adapter Kits

<table>
<thead>
<tr>
<th>Cable Dia. Max.</th>
<th>Aluminum Plug Part Number</th>
<th>NIAIBz Plug Part Number</th>
<th>Black Zn-Ni Part Number</th>
<th>Aluminum Sealed Bulkhead Part Number</th>
<th>NIAIBz Sealed Bulkhead Part Number</th>
<th>Black Zn-Ni Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.2</td>
<td>1918931-1</td>
<td>1918933-9</td>
<td>1918932-1</td>
<td>1918932-9</td>
<td>2-1918932-5</td>
<td></td>
</tr>
<tr>
<td>3.6</td>
<td>1918931-2</td>
<td>1-1918931-0</td>
<td>1918932-2</td>
<td>1-1918932-0</td>
<td>2-1918932-6</td>
<td></td>
</tr>
<tr>
<td>4.2</td>
<td>1918933-1</td>
<td>1-1918931-1</td>
<td>1918932-3</td>
<td>1-1918932-3</td>
<td>2-1918932-7</td>
<td></td>
</tr>
<tr>
<td>5.2</td>
<td>1918931-4</td>
<td>1-1918931-2</td>
<td>1918932-4</td>
<td>1-1918932-4</td>
<td>2-1918932-8</td>
<td></td>
</tr>
<tr>
<td>5.7</td>
<td>1918939-5</td>
<td>1-1918931-3</td>
<td>1918932-5</td>
<td>1-1918932-3</td>
<td>2-1918932-9</td>
<td></td>
</tr>
<tr>
<td>6.2</td>
<td>1918931-6</td>
<td>1-1918931-4</td>
<td>1918932-6</td>
<td>1-1918932-4</td>
<td>3-1918932-0</td>
<td></td>
</tr>
<tr>
<td>6.7</td>
<td>1918931-7</td>
<td>1-1918931-5</td>
<td>1918932-7</td>
<td>1-1918932-5</td>
<td>3-1918932-1</td>
<td></td>
</tr>
<tr>
<td>7.5</td>
<td>1918931-8</td>
<td>1-1918931-6</td>
<td>1918932-8</td>
<td>1-1918932-6</td>
<td>3-1918932-2</td>
<td></td>
</tr>
</tbody>
</table>

PRO BEAM Jr. Connector Standard Bulkhead Cable Adapter Kits *

<table>
<thead>
<tr>
<th>Cable Dia. Max.</th>
<th>Aluminum with Boot Part Number</th>
<th>NIAIBz with Boot Part Number</th>
<th>Black Zn-Ni Part Number</th>
<th>Aluminum without Boot Part Number</th>
<th>NIAIBz without Boot Part Number</th>
<th>Black Zn-Ni Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.2</td>
<td>1918933-1</td>
<td>2-1918933-5</td>
<td>1918934-1</td>
<td>1918934-8</td>
<td>2-1918934-2</td>
<td></td>
</tr>
<tr>
<td>4.1</td>
<td>1918933-2</td>
<td>2-1918933-6</td>
<td>1918934-2</td>
<td>1918934-9</td>
<td>2-1918934-3</td>
<td></td>
</tr>
<tr>
<td>5.1</td>
<td>1918933-3</td>
<td>2-1918933-7</td>
<td>1918934-3</td>
<td>1-1918934-0</td>
<td>2-1918934-4</td>
<td></td>
</tr>
<tr>
<td>5.5</td>
<td>1918933-4</td>
<td>2-1918933-8</td>
<td>1918934-4</td>
<td>1-1918934-1</td>
<td>2-1918934-5</td>
<td></td>
</tr>
<tr>
<td>6.0</td>
<td>1918933-5</td>
<td>2-1918933-9</td>
<td>1918934-5</td>
<td>1-1918934-2</td>
<td>2-1918934-6</td>
<td></td>
</tr>
<tr>
<td>4 x 3.00</td>
<td>1918933-8</td>
<td>3-1918933-3</td>
<td>1918934-7</td>
<td>1-1918934-4</td>
<td>2-1918934-8</td>
<td></td>
</tr>
</tbody>
</table>

* Standard Cable Adapter. Not applicable for Low Profile.

Note: Part Numbers are RoHS compliant except: ◆ Indicates non-RoHS compliant.

Catalog 1308940
Revised 9-14
www.te.com
Dimensions are shown for reference purposes only. Specifications subject to change.
USA: +1 800 522 6752
Asia Pacific: +86 0 400 820 6015
UK: +44 800 267 666
For additional support numbers please visit www.te.com
Ruggedized Fiber Optic Connectors

**Expanded Beam Products (Continued)**

**Pro BEAM Jr. Connectors**

(Continued)

**Spare Parts & Tools**

**Technical Documents**

- **Product Specifications**
  - 408-8857 Curing Fixtures for Pro BEAM Jr. and Sr. Connectors
  - 408-8828 Cleaning Procedure for EB C/A's

- **Tooling Specifications**
  - 408-8795 Crimp Tool with Die Set for Pro BEAM Jr. and Sr. Connectors
  - 408-10022 Die Assembly for Mini and Jr. Circular Crimps

**http://www.te.com/documents**

**Curing Fixtures**

<table>
<thead>
<tr>
<th>Connector</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRO BEAM Jr. Cable Plug (having cable with KEVLAR strength member fiber)</td>
<td>1693797-1</td>
</tr>
<tr>
<td>PRO BEAM Jr. Sealed D-Hole Bulkhead</td>
<td></td>
</tr>
<tr>
<td>PRO BEAM Jr. Standard D-Hole and Square Flange Bulkhead</td>
<td>1693800-1</td>
</tr>
<tr>
<td>PRO BEAM Jr. Low Profile Buffered Fiber Bulkhead</td>
<td>1754122-1</td>
</tr>
</tbody>
</table>

Instruction Sheet 408-8857. Available at www.te.com

**Cable Crimp Components**

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crimp Sleeve (use with all Pro BEAM Jr. Connector Crimp Support sizes)</td>
<td>1918497-1</td>
</tr>
<tr>
<td>3.2 mm Crimp Support</td>
<td>1918498-1</td>
</tr>
<tr>
<td>4.2 mm Crimp Support</td>
<td>1918498-2</td>
</tr>
<tr>
<td>5.2 mm Crimp Support</td>
<td>1918498-3</td>
</tr>
<tr>
<td>5.7 mm Crimp Support</td>
<td>1918498-4</td>
</tr>
<tr>
<td>6.2 mm Crimp Support</td>
<td>1918498-5</td>
</tr>
<tr>
<td>6.7 mm Crimp Support</td>
<td>1918498-6</td>
</tr>
<tr>
<td>Square Crimp Support for (4) 3 mm Cables</td>
<td>1985319-1</td>
</tr>
</tbody>
</table>

**Ferrule Kits**

<table>
<thead>
<tr>
<th>Fiber Hole Size</th>
<th>Mode</th>
<th>PRO BEAM</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>125 µm</td>
<td>SM</td>
<td>Jr.</td>
<td>1588908-2</td>
</tr>
<tr>
<td>126 µm</td>
<td>SM</td>
<td>Jr.</td>
<td>1588908-1</td>
</tr>
<tr>
<td>126 µm</td>
<td>MM</td>
<td>Jr.</td>
<td>1588700-1</td>
</tr>
</tbody>
</table>

**Protective Caps**

<table>
<thead>
<tr>
<th>Description</th>
<th>PRO BEAM</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard cap, for D-Hole Bulkhead</td>
<td>Jr.</td>
<td>1515868-1</td>
</tr>
<tr>
<td>Standard cap, for Flange Mount Bulkhead</td>
<td>Jr.</td>
<td>1515787-2</td>
</tr>
<tr>
<td>Standard cap, for connector plug</td>
<td>Jr.</td>
<td>1515867-1</td>
</tr>
</tbody>
</table>

**Termination Kit**

<table>
<thead>
<tr>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1828650-1</td>
</tr>
</tbody>
</table>

KEVLAR is a trademark of E. I. du Pont de Nemours and Company.

**Note:** All part numbers are RoHS compliant.
PRO BEAM Sr. Connectors

Performance Specifications

Optical, Multimode Version
Insertion Loss, Typical* — 0.7 dB @ 1300 nm and 850 nm dual wavelength

Optical, Singlemode Version
Insertion Loss, Typical* — 0.8 dB @ 1310 nm or 1550 nm optimized wavelength

Return Loss** — > 34 dB @ 1310 nm or 1550 nm optimized wavelength

*When tested with reference quality launch/receive cable assemblies

**RL Tested Open Ended

Mechanical

Vibration, Sinusoidal — 10 - 500 Hz, 3 directions; 0.75 mm amplitude @ 10g acceleration
Bump — 4,000 Bumps, 6 directions, @ 50g acceleration
Free Fall — 500 falls on concrete; Severity 1.2 m

Coupling Endurance — 3,000 couplings

Weight — Plug — 290 grams, typical
Chassis bulkhead — 150 grams, typical

Temperature

Operational Temperature — -40°C/+85°C
Storage Temperature — -55°C/+85°C
Temperature, Cyclic — -55°C/+85°C
Humidity (Damp Heat) — 95% RH

Immersion

Water — 5 m depth (plug), 2 m (Bulkhead)

Material and Finish

Shell Alloy — Aluminum; or nickel aluminum bronze (high saline environment)
Plating (For Aluminum Shells Only) — clear hard anodized or black zinc - nickel alloy (PRO BEAM Sr. bulkheads only)

Bulkhead Connector Panel Thicknesses
PRO BEAM Sr. D-Hole Connector — 6.5 mm max.
PRO BEAM Sr. Square Flange Connector — 8.5 mm max.

Technical Documents

Product Specifications
408-8799 Plug
408-8800 D-Hole Bulkhead
408-8877 Square Flange Bulkhead

Application Specification
114-1312

http://www.te.com/documents

Standard color black for Polymer Grip Rings, Cap and Boots. Alternate colors available upon request.
Ruggedized Fiber Optic Connectors

Expanded Beam Products (Continued)

PRO BEAM Sr. Connectors

(Continued)

Connector Assembly
1 Shell Kit
1 Insert Kit
1 Cable Adapter Kit*
X Ferrule Kits (X = No. of optical channels)

*Not applicable for Low Profile

Part numbers listed are
Shell alloy = aluminum
Plating = hard anodized.
Consult TE Connectivity
for other plating/material
options such as NIAI Bz for
Naval applications, or other
plating options such as RoHS-
compliant black Zn-Ni.

Technical Documents
Product Specifications
408-8857  Curing Fixtures for
PRO BEAM Jr. and Sr.
Connectors
408-8828  Cleaning Procedure for
EB C/A’s
Tooling Specifications
408-8795  Crimp Tool with Die Set for
PRO BEAM Jr. and Sr.
Connectors
http://www.te.com/documents

ASSEMBLY CAPABILITIES
TE Connectivity has
extensive Rugged Optic Harness
capabilities. Please consult
your local TE
Sales representative
for assistance.

Table: PRO BEAM Sr. Connector Shell Kits

<table>
<thead>
<tr>
<th>PRO BEAM Sr. Connector Shell Kits</th>
<th>Alloy</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRO BEAM Sr. Plug w/EPDM rubber</td>
<td>Aluminum</td>
</tr>
<tr>
<td></td>
<td>Part Number</td>
</tr>
<tr>
<td>PRO BEAM Sr. D-Hole Standard Bulkhead</td>
<td>NIAI Bz</td>
</tr>
<tr>
<td></td>
<td>Part Number</td>
</tr>
<tr>
<td>PRO BEAM Sr. Square Flange Standard Bulkhead</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Part Number</td>
</tr>
</tbody>
</table>

Table: PRO BEAM Sr. Insert Kits

<table>
<thead>
<tr>
<th>PRO BEAM Sr. Insert Kits</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 x 850 / 1300 nm Multimode</td>
<td>1693001-1</td>
</tr>
<tr>
<td>2 x 1310 nm Singlemode</td>
<td>1515734-2</td>
</tr>
<tr>
<td>4 x 850 / 1300 nm Multimode</td>
<td>1693001-2</td>
</tr>
<tr>
<td>4 x 1310 nm Singlemode</td>
<td>1515735-1</td>
</tr>
<tr>
<td>8 x 850/1300 nm Multimode</td>
<td>1516256-1</td>
</tr>
<tr>
<td>8 x 1310 nm Singlemode</td>
<td>1516258-1</td>
</tr>
<tr>
<td>8 x 1550 nm Singlemode</td>
<td>1516258-2</td>
</tr>
</tbody>
</table>

Table: PRO BEAM Sr. Connector Plug Adapter Kits

<table>
<thead>
<tr>
<th>PRO BEAM Sr. Connector Plug Adapter Kits</th>
<th>Alloy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable Dia. (Max.)</td>
<td>Aluminum</td>
</tr>
<tr>
<td></td>
<td>Part Number</td>
</tr>
<tr>
<td></td>
<td>NIAI Bz</td>
</tr>
<tr>
<td></td>
<td>Part Number</td>
</tr>
<tr>
<td>5.10</td>
<td>1515940-1</td>
</tr>
<tr>
<td>.201</td>
<td>1515940-2</td>
</tr>
<tr>
<td>5.65</td>
<td>1515940-3</td>
</tr>
<tr>
<td>.222</td>
<td>1515940-4</td>
</tr>
<tr>
<td>6.20</td>
<td>1515940-5</td>
</tr>
<tr>
<td>.244</td>
<td>1515940-6</td>
</tr>
<tr>
<td>6.70</td>
<td>1515940-7</td>
</tr>
<tr>
<td>.264</td>
<td>1515940-8</td>
</tr>
</tbody>
</table>

Table: PRO BEAM Sr. Connector Standard Bulkhead Cable Adapter Kits

<table>
<thead>
<tr>
<th>PRO BEAM Sr. Connector Standard Bulkhead Cable Adapter Kits</th>
<th>Alloy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable Dia. (Max.)</td>
<td>Aluminum</td>
</tr>
<tr>
<td></td>
<td>Part Number</td>
</tr>
<tr>
<td></td>
<td>NIAI Bz</td>
</tr>
<tr>
<td></td>
<td>Part Number</td>
</tr>
<tr>
<td>5.20</td>
<td>1516229-3</td>
</tr>
<tr>
<td>.205</td>
<td>1516229-7</td>
</tr>
<tr>
<td>5.70</td>
<td>1516229-2</td>
</tr>
<tr>
<td>.224</td>
<td>1516229-6</td>
</tr>
<tr>
<td>Buffered Fiber</td>
<td>Low Profile Adapter</td>
</tr>
<tr>
<td></td>
<td>1516229-4</td>
</tr>
<tr>
<td>6.70</td>
<td>1516229-3</td>
</tr>
<tr>
<td>.264</td>
<td>1516229-4</td>
</tr>
<tr>
<td>4 x 3 mm</td>
<td>Standard Cable Adapter</td>
</tr>
<tr>
<td></td>
<td>1516229-1</td>
</tr>
<tr>
<td></td>
<td>1516229-5</td>
</tr>
</tbody>
</table>

Note: All part numbers are RoHS compliant.
38999 Style EB for Harsh Environments

Product Facts

- Available in shell size 11, housed on D38999 Series III style shells for harness applications
- Multiple options available for backshells. Consult your local TE Connectivity Sales Representative
- Shell polarizations A through E available upon request

Standard Material and Finish

Shell Alloy — Aluminum
Plating — Nickel or green chromated zinc or RoHS-compliant black chromated zinc-nickel alloy

*Refer to customer drawing for dash number designation

For part number details and plating options, contact your local TE Connectivity Sales Representative.

Note: All part numbers are RoHS compliant.
Expanded Beam Products (Continued)

38999-style EB for Harsh Environments (Continued)

38999 Plug Shell Kit for Ø 1.8 mm Avionics Cable

38999 Jam-Nut Receptacle for Ø 1.8 mm Avionics Cable

38999 Square Flange Receptacle Shell Kit for Ø 1.8 mm Avionics Cable
38999-style EB for Harsh Environments (Continued)

Size 11 Shield Kit

<table>
<thead>
<tr>
<th>Use with:</th>
<th>Mini EB 38999 Connector Shell Kits (N-Key)</th>
<th>O1.8 mm Max Avionics Cable</th>
<th>MIL-Tactical Distribution Cable</th>
<th>Buffered Fiber Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finish:</td>
<td></td>
<td>Electroless Ni Plate</td>
<td>Black Zn-Ni</td>
<td>Electroless Ni Plate</td>
</tr>
<tr>
<td>Plug:</td>
<td></td>
<td>OD Zn</td>
<td>Electroless Ni Plate</td>
<td>OD Zn</td>
</tr>
<tr>
<td>Jam-Nut Receptacle:</td>
<td>6754518-1</td>
<td>1754518-7</td>
<td>1985021-1</td>
<td>1985021-7</td>
</tr>
<tr>
<td>Flange-Mount Receptacle:</td>
<td>6754520-1</td>
<td>1754520-7</td>
<td>2064166-1</td>
<td>2064166-7</td>
</tr>
<tr>
<td>Finish:</td>
<td></td>
<td>Electroless Ni Plate</td>
<td>Black Zn-Ni</td>
<td>Electroless Ni Plate</td>
</tr>
<tr>
<td>Plug:</td>
<td></td>
<td>OD Zn</td>
<td>Electroless Ni Plate</td>
<td>OD Zn</td>
</tr>
<tr>
<td>Jam-Nut Receptacle:</td>
<td>6754519-1</td>
<td>1754519-7</td>
<td>2064163-1</td>
<td>2064163-7</td>
</tr>
<tr>
<td>Flange-Mount Receptacle:</td>
<td>6754520-1</td>
<td>1754520-7</td>
<td>2064166-1</td>
<td>2064166-7</td>
</tr>
</tbody>
</table>

* Contact TE Connectivity for availability.

Size 15 Shield Kit

<table>
<thead>
<tr>
<th>Use with:</th>
<th>2.2 mm Ø Max Avionics Cable</th>
<th>End Nut Backshell for Non-Jacketed Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finish:</td>
<td>Electroless Nickel Plate</td>
<td>Black Zinc Nickel</td>
</tr>
<tr>
<td>Plug:</td>
<td>OD Zn</td>
<td>Black Zn-Ni</td>
</tr>
<tr>
<td>Jam-Nut Receptacle:</td>
<td>1516342-1</td>
<td>1516342-7</td>
</tr>
<tr>
<td>Flange-Mount Receptacle:</td>
<td>1516344-1</td>
<td>1516344-7</td>
</tr>
</tbody>
</table>

Cable Adapter Kits For 38999 Mini EB Mil-Tactical

<table>
<thead>
<tr>
<th>Cable Diameter</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1 mm</td>
<td>1516228-1</td>
</tr>
<tr>
<td>5.6 mm</td>
<td>1516228-2</td>
</tr>
<tr>
<td>6.2 mm</td>
<td>1516228-3</td>
</tr>
</tbody>
</table>

Insert Kits

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mini 2 x 850 / 1300 nm Dual Multimode</td>
<td>1374759-4</td>
</tr>
<tr>
<td>Mini 2 x 1310 nm Singlemode</td>
<td>1588129-2</td>
</tr>
<tr>
<td>Mini 2 x 1550 nm Singlemode</td>
<td>1588128-2</td>
</tr>
<tr>
<td>Mini 4 x 850 / 1300 nm Dual Multimode</td>
<td>1374759-2</td>
</tr>
<tr>
<td>Mini 4 x 1310 nm Singlemode</td>
<td>1588129-3</td>
</tr>
<tr>
<td>Mini 4 x 1550 nm Singlemode</td>
<td>1588128-3</td>
</tr>
<tr>
<td>8 x 850/1300 nm Multimode</td>
<td>1516256-1</td>
</tr>
<tr>
<td>8 x 1310 nm Singlemode</td>
<td>1516258-1</td>
</tr>
<tr>
<td>8 x 1550 nm Singlemode</td>
<td>1516258-2</td>
</tr>
</tbody>
</table>

Ferrule Kits

<table>
<thead>
<tr>
<th>Fiber Hole Size</th>
<th>Mode</th>
<th>Insert Type</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>125 µm</td>
<td>SM</td>
<td>Mini</td>
<td>1754700-1</td>
</tr>
<tr>
<td>126 µm</td>
<td>SM</td>
<td>Mini</td>
<td>1754700-2</td>
</tr>
<tr>
<td>126 µm</td>
<td>MM</td>
<td>Mini</td>
<td>1754699-1</td>
</tr>
<tr>
<td>125 µm</td>
<td>SM</td>
<td>8 Channel</td>
<td>1985635-1</td>
</tr>
<tr>
<td>126 µm</td>
<td>SM</td>
<td>8 Channel</td>
<td>1985635-2</td>
</tr>
<tr>
<td>126 µm</td>
<td>MM</td>
<td>8 Channel</td>
<td>1985107-1</td>
</tr>
</tbody>
</table>

Note: Part Numbers are RoHS compliant except. Indicates non-RoHS compliant.
Expanded Beam Products (Continued)

EB termini are combination of inserts (containing the lens) and EB termini (for terminating the fiber.

**EB termini**

**Product Facts**

- Durable non-contacting interface assures ease of use/cleaning
- Termini designed to replace existing M29504/4 and /5 physical contact termini that fits the Size 16 AWG cavity of a D38999 III connector
- MM and SM termini designs
Ruggedized Fiber Optic Connectors

Product Facts
- Ruggedized cable assemblies custom tailored for field use in harsh environments
- Heavy-duty light-weight cable reel organizes and protects connectors and cable for easy pay-out and safe storage
- Options for 500 meter reels include special backpack harnesses, a separate reel stand, or a combination reel and reel stand

Cable Assemblies and Accessories

Featured Cable Assemblies

TFOCA to PRO BEAM Jr. Plug Cable Assembly
1828536-1

LP D-Hole Bulkhead to 4 ST 62.5/125 on 1.8 mm cable
6828454-1

Plug to Plug (100 meters)
6754475-2

Typical Reels and Reel Stands for Field-Deployable Cable Assemblies

PRO BEAM Jr. Kits

PRO BEAM Jr. Termination Kit
1828650-1

Cleaning Kit
1828335-2

Cable Reels

Reel Capacity (Random Lay)

<table>
<thead>
<tr>
<th>Cable Diameter</th>
<th>Notes/Description</th>
<th>Flange Diameter</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.8 mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>186 M</td>
<td>Reel &amp; Reel Stand Combination</td>
<td>310 mm</td>
<td>1918930-1</td>
</tr>
<tr>
<td>247 M</td>
<td>Reel*</td>
<td>310 mm</td>
<td>1754515-1</td>
</tr>
<tr>
<td>462 M</td>
<td>Reel*</td>
<td>370 mm</td>
<td>1754515-2</td>
</tr>
<tr>
<td>816 M</td>
<td>Reel*</td>
<td>460 mm</td>
<td>1754515-3</td>
</tr>
<tr>
<td>1052 M</td>
<td>Reel*</td>
<td>510 mm</td>
<td>1754515-4</td>
</tr>
</tbody>
</table>

* See Accessories options below

TFOCA-II is a trademark of Amphenol Fiber Systems International.

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.
### Cable Assemblies and Accessories (Continued)

![Backpack with Reel](image1)  
![Reel with Stand “Static Frame”](image2)  
![Backpack Harness](image3)

#### Accessories

<table>
<thead>
<tr>
<th>Description</th>
<th>Reel Diameter</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backpack</td>
<td>370 mm Dia. Reel</td>
<td>1754516-1*</td>
</tr>
<tr>
<td>Backpack</td>
<td>460 mm Dia. Reel</td>
<td>1754516-2*</td>
</tr>
<tr>
<td>Backpack</td>
<td>510 mm Dia. Reel</td>
<td>1754516-3*</td>
</tr>
<tr>
<td>Static Frame</td>
<td>500 mm Dia. Max</td>
<td>1754517-1*</td>
</tr>
<tr>
<td>Static Frame</td>
<td>700 mm Dia. Max</td>
<td>1754517-2*</td>
</tr>
</tbody>
</table>

* Reel must be ordered separately.

**Note:** For lower cost alternative options, please contact your local TE Connectivity Sales Representative or TE Product Information Center at 1-800-522-6752.
Ruggedized Fiber Optic Connectors

Tactical Optical Cable

Non-Metallic Tactical Field Deployable Fiber Optic Cable

Product Facts
- All terrain field deployable cable, up to 4 fibers, singlemode or multimode
- Developed for deployment under the most demanding conditions
- Tight buffered fibers are protected by Aramid yarns and a tough ruggedized polyurethane sheath
- Tested in accordance with MIL-PRF-85045
- Flexible, water resistant, high crush resistant, and lightweight,
- Designs available to be resilient against radiation exposure

Technical Data

<table>
<thead>
<tr>
<th>Mil-Standard Distribution Cable — 2 Fiber Singlemode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attenuation — ≤ 0.5 dB/km @ 1310 nm / ≤ 0.5 dB/km @ 1550 nm</td>
</tr>
<tr>
<td>Diameter — 5.8 mm</td>
</tr>
<tr>
<td>Weight — 25 kg/km</td>
</tr>
<tr>
<td>Minimum Bending Radius — 29 mm</td>
</tr>
<tr>
<td>Crush Resistance — 2000 N/cm</td>
</tr>
<tr>
<td>Operating Temperature — -55° C to +85° C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mil-Standard Distribution Cable — 4 Fiber Singlemode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attenuation — ≤ 0.5 dB/km @ 1310 nm / ≤ 0.5 dB/km @ 1550 nm</td>
</tr>
<tr>
<td>Diameter — 5.8 mm</td>
</tr>
<tr>
<td>Weight — 27 kg/km</td>
</tr>
<tr>
<td>Minimum Bending Radius — 28 mm</td>
</tr>
<tr>
<td>Crush Resistance — 2000 N/cm</td>
</tr>
<tr>
<td>Operating Temperature — -55° C to +85° C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mil-Standard Distribution Cable — 2 Fiber Multimode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiber Type — 50 µm/125 µm and 62.5/125</td>
</tr>
<tr>
<td>Attenuation — ≤ 3.5 dB/km @ 850 nm / ≤ 1.0 dB/km @ 1300 (62.5/125)</td>
</tr>
<tr>
<td>≤ 3.5 dB/km @ 850 nm / ≤ 1.5 dB/km @ 1300 (62.5/125)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mil-Standard Distribution Cable — 4 Fiber Multimode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiber Type — 50 µm/125 µm and 62.5/125</td>
</tr>
<tr>
<td>Attenuation — ≤ 3.5 dB/km @ 850 nm / ≤ 1.0 dB/km @ 1300 (62.5/125)</td>
</tr>
<tr>
<td>≤ 3.5 dB/km @ 850 nm / ≤ 1.5 dB/km @ 1300 (80/125)</td>
</tr>
</tbody>
</table>

4-Color Optical Fiber Cable Specification for Armored Cable for Ruggedized Applications

Construction:
- 4-color coded fibers
- Fiber types 50/125/250 µm, 62.5/125/250 µm and 9/125/250 µm
- Stainless steel gel filled tube
- Stainless steel wire
- Jacket — Nylon, black

<table>
<thead>
<tr>
<th>Fiber Type</th>
<th>Part Number</th>
<th>Outside Dia. (mm)</th>
<th>Weight (kg/km)</th>
<th>Max. Attenuation (dB/km)</th>
<th>Bandwidth (MHz-km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>62.5/125</td>
<td>1588957-1</td>
<td>3.8</td>
<td>24</td>
<td>3.5</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.0</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>160</td>
<td>500</td>
</tr>
<tr>
<td>50/125</td>
<td>1588957-2</td>
<td>3.8</td>
<td>24</td>
<td>2.7</td>
<td>0.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>400</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1200</td>
</tr>
<tr>
<td>SM</td>
<td>1588957-4</td>
<td>3.8</td>
<td>24</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.40</td>
<td>0.25</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Notes: 35 mm recommended bend radius. 3.1 kN breaking strength.

2-Color Optical Fiber Cable Specification for Armored Cable for Ruggedized Applications

Construction:
- 2-color coded fibers
- Fiber types 50/125/250 µm, 62.5/125/250 µm and 9/125/250 µm
- Stainless steel gel filled tube
- Stainless steel wire
- Jacket — Nylon, black

<table>
<thead>
<tr>
<th>Fiber Type</th>
<th>Part Number</th>
<th>Outside Dia. (mm)</th>
<th>Weight (kg/km)</th>
<th>Max. Attenuation (dB/km)</th>
<th>Bandwidth (MHz-km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>62.5/125</td>
<td>1693808-1</td>
<td>3.8</td>
<td>24</td>
<td>3.5</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.0</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>160</td>
<td>500</td>
</tr>
<tr>
<td>50/125</td>
<td>1693808-2</td>
<td>3.8</td>
<td>24</td>
<td>2.7</td>
<td>0.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>400</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1200</td>
</tr>
<tr>
<td>SM</td>
<td>1693808-4</td>
<td>3.8</td>
<td>24</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.40</td>
<td>0.25</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Notes: 35 mm recommended bend radius. 3.1 kN breaking strength.

Note: All part numbers are RoHS compliant.

Note:

Dimensions are shown for reference purposes only. Specifications subject to change.
Dimensions are in millimeters unless otherwise specified.
USA: +1 800 522 6752
Asia Pacific: +86 0 400 820 6015
UK: +44 800 267 666
For additional support numbers please visit www.te.com
Ruggedized Fiber Optic Connectors

**Commercial Fiber Optic Mechanical Splicing Kit**

**Light Crimp Splice**

**Part Number:** 1985368-1

**Product Facts**

- Terminates 250 micron coated, 900 micron tight-buffered fibers and 2.0 mm jacketed cable
- Attenuation (typical): ≤0.1dB
- Return Loss (at ambient; 18° to 28° C): ≥20 dB multimode, ≥35 dB single-mode
- Operating Temperature: -25° to 70° C
- Storage Temperature: -40° to 85° C
- Tensile retention: 250 micron coated: 2.0 N, 900 micron buffered: 3.0 N, Jacketed: 50.0 N

**JPS Splice Enclosure**

**Part Number:** 1516516-1

The JPS 400 Splice Enclosure is designed to protect TFOCA cable that has been repaired with any mechanical splice or fusion splicer. Designed & evaluated by the United States Marine Corps, this product works in all field applications, even in severe or harsh battlefield environments. Simple to install and easy to re-enter, yet flexible enough to conform to the diameter of a reel when re-wound. The JPS 400 is ideal for both TFOCA AND TFOCA Second Generation applications.

There are two high-grade brass retention assemblies that use both the jacket and the Aramid yarn found in TFOCA cable to provide strain relief & secure the fiber inside the waterproof housing. A waterproof compression gasket prevents water and other contaminants from entering the housing.

**JPS 400 Mechanical Properties & Performance Specifications:**

- High-grade formulated polyamide conduit & threaded adapters
- Self-extinguishing, low smoke, halogen & cadmium free
- Temperature Range: -50°C to +105°C continuous, 150°C short term
- Chemical resistance to fuels, mineral oils, fats, and alkalis

**JPS Splice Protection Sleeve**

**Part Number:** 1516625-1

The KITCO 0831-8238 Kit provides a low cost, highly reliable, solution for the repair of Tactical Fiber Optic Cables featuring the TE Connectivity Mechanical Splice. The Kit contains all of the tools and materials required to make (3) three four channel cable repairs, including the JPS-400 Splice Protection Sleeve. An Ideal solution in a tactical environment when system reliability is essential, not an option!

**JPS 400 Mechanical Properties & Performance Specifications:**

- High-grade formulated polyamide conduit & threaded adapters
- Self-extinguishing, low smoke, halogen & cadmium free
- Temperature Range: -50°C to +105°C continuous, 150°C short term
- Chemical resistance to fuels, mineral oils, fats, and alkalis

**The TFOCA Military/Commercial Fiber Optic Mechanical Splicing Kit contains the following items:**

- 2 JPS-400 Splice Protection Sleeves
- 12 Mechanical Splices
- Light Crimp Splice
- Precision Cleaver
- Crimp Tool with Crimp Die
- Splice Holder with Strip Template
- Cleaning Materials
- Tool Roll with all Required Tools
- Support for LC/SC Light Crimp Connectors
- Lightweight, rugged Case

<table>
<thead>
<tr>
<th>Ser Number</th>
<th>RFP Specification</th>
<th>Compliance to RFP specification</th>
<th>In case of non-compliance deviation from RFP to be specified in unambiguous terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>Splicing Capability</td>
<td>For up to 4 splices SM &amp; MM</td>
<td>Y</td>
</tr>
<tr>
<td>(b)</td>
<td>Water Proofing Standard</td>
<td>IP64 class for the hard cover case</td>
<td>Y</td>
</tr>
<tr>
<td>(c)</td>
<td>Tube Protection class</td>
<td>Better than IP67 (24 h @ 5000 mm)</td>
<td>IP68</td>
</tr>
<tr>
<td>(d)</td>
<td>Time taken to repair a cable</td>
<td>Fast &amp; reliable cable repair within 10 min to 30 min (1F, 4F)</td>
<td>Y</td>
</tr>
<tr>
<td>(e)</td>
<td>Maximum Attenuation for Mechanical splices</td>
<td>Typical value &lt; 0.2 db @ 1300 nm</td>
<td>Y</td>
</tr>
<tr>
<td>(f)</td>
<td>Should be able to splice Armored/ Ruggedized cable (as offered by the vendor)</td>
<td>Yes</td>
<td>Y</td>
</tr>
<tr>
<td>(g)</td>
<td>Reusable components</td>
<td>100% reusable components (except mechanical splice protector)</td>
<td>Y</td>
</tr>
<tr>
<td>(h)</td>
<td>Temperature range</td>
<td>Operating Temp: -10°C to 50°C Non-Operating Temp: 40°C to 71°C</td>
<td></td>
</tr>
<tr>
<td>(i)</td>
<td>Weight</td>
<td>&lt; 4.2 kg</td>
<td>Do not have kit. TE has kit in India.</td>
</tr>
<tr>
<td>(k)</td>
<td>Dimensions (max)</td>
<td>410x33x202mm</td>
<td>Do not have kit. TE has kit in India.</td>
</tr>
<tr>
<td>(l)</td>
<td>Tensile load of cable after repair</td>
<td>No Change</td>
<td>250 lbs</td>
</tr>
</tbody>
</table>

Catalog 1308940
Revised 9-14
www.te.com

Dimensions are shown for reference purposes only. Specifications subject to change.

Dimensions are in millimeters unless otherwise specified.

USA: +1 800 522 6752
Asia Pacific: +86 0 400 820 6015
UK: +44 800 267 666
For additional support numbers please visit www.te.com

3-21
Optical Test Set for Fiber Optic Cables

Designed for harsh environments

Product Facts

- Especially designed to support the installation of optical links in the field
- Able to test both cable drums and entire links
- Powered by batteries with high autonomy
- Suitable for diagnostics and construction teams
- Easy to use, ergonomic, rugged design
- Suitable for cable length up to 10 km
- Supports up to 4 fibers per cable with various types of connectors

Diagnostic Features

**Power Meter**
The optical power from any source can easily be measured with the power meter function.

**Optical Source**
A continuous optical signal is generated and transmitted with selectable output power.

**Drum Test / Cable Test**
Test of an entire cable drum with automatic good/bad indication. The test of an entire cable is realized with a 2nd KPG-opt or a loop connector.

**Test Frames (optional)**
The KPG-opt can generate specific test frames as used in optical networks and LOS systems.

### Optical Tester

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>850 nm 38999 III Size 11 Optical Test Kit</td>
<td>1918016-1</td>
</tr>
<tr>
<td>850/1300 nm PRO BEAM Jr. Optical Test Kit</td>
<td>1918016-2</td>
</tr>
<tr>
<td>1310 nm PRO BEAM Jr. Optical Test Kit</td>
<td>1985006-1</td>
</tr>
</tbody>
</table>

For additional wavelength testers, contact your local TE Connectivity Sales Representative.

### Protective Case

1918082-1

**Note:** All part numbers are RoHS compliant.
Fiber Optic Accessories

Hand Held Visual Fault Locator (VFL)

Product Facts
- 650 nm (visible) Class 2
- Continuous and flashing (2-3 Hz pulsed) modes
- Rugged rubber shell and body design modeled after a popular military connector
- Lanyard attached dust cover
- Standard 2.5 mm adapter for SC, ST, and FC connectors
- Optional 1.25 mm adapter for LC and MU connectors.
- Unique design allows adapter to permanently reside on VFL so it is not misplaced allowing user to choose 1.25 mm or 2.5 mm
- Uses 1 “AA” style battery for >30 hours of continuous use
- Soft-sided belt case for convenience and storage

The TE Connectivity Hand Held Visual Fault Locator (VFL) is a rugged and affordable solution for identifying breaks and bending in optical fibers and cabling. Its powerful, red (650 nm) laser provides the ability to locate damaged, broken, or tightly bent fibers that cause undesirable attenuation in your system.

The jacket of the cable will glow red at the location of the fault. The FLASH button allows the user to toggle between continuous or pulsed mode. The compact, rugged, and balanced design is based upon a popular harsh environment fiber optic connector. The single “AA” style battery is good for >30 hours of continuous use and the soft-sided protective case with belt loop provides a convenient and protective means of storage.

Applications
- Affordable VFL Solution for:
  - Identifying breaks, bends, and other damage in optical fibers
  - Tracing fiber paths
  - Identifying termination errors
  - Continuity testing

Product Dimensions
- Length — 18.5 cm (7.283 in)
- Width — 2.2 cm (0.866 in)
- Thickness — 2.2 cm (0.866 in)
- Weight (w/battery) — 150 g (0.33 lb)

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand Held Visual Fault Locator</td>
<td>1828352-1</td>
</tr>
<tr>
<td>1.25 mm Adapter for Hand Held VFL</td>
<td>1828353-1</td>
</tr>
<tr>
<td>Includes Part Numbers 1828352-1 and 1828353-1</td>
<td>1828352-2</td>
</tr>
</tbody>
</table>
Ruggedized Fiber Optic Connectors

Expanded Beam Avionics-Related Standards and Specifications

**ARINC 600, 664, 763 and 801**

**ARINC 664 — Aircraft Data Network**
TE Connectivity's ARINC Connectors with Mini Expanded Beam inserts will meet/exceed all 100 Base-FX Ethernet LAN applications.

**ARINC 763 — Avionics Network Server System**
TE's ARINC 600 Connectors are designed to meet/exceed 100 Base-FX Ethernet LAN applications.

Network Server Unit (NSU) — can use ARINC 600 Size 1 connector with up to 8 Expanded Beam fiber optic channels (two Mini Expanded Beam inserts in cavity C)

Server Interface Unit (SIU) — can use ARINC 600 Size 3 connector with up to 16 Expanded Beam fiber optic channels (four Mini Expanded Beam inserts in cavity F)

Integrated Network Server Unit (INSU) — can use ARINC 600 Size 3 connector with up to 16 Expanded Beam fiber optic channels (four Mini Expanded Beam inserts in cavity F)

**ARINC 801 — Fiber Optics Working Group**
TE provides a single reference point for Flight Level Optics that are multi-sourced.

Typical Assemblies for In-Flight Network Applications

**ARINC EB Connector-to-ARINC EB Connector Cable Assembly**

**ARINC EB Connector-to-Circular Metal Connector Cable Assembly**

**ARINC EB Connector-to-ST-Style Cable Assembly**

**Typical Assemblies**
Product Facts
- For Mini Expanded Beam Inserts
- For use in 100 base-FX Ethernet LAN applications per ARINC 664 and ARINC 763
- Insert holders designed to ARINC 600, Supplement 13 or to specific customer needs for Mini Expanded Beam inserts
- Drop-In Insert Holders utilize Standard ARINC 600 Retainers
  - Hard Stop on Plug Side
  - Spring-Loaded Stop on Receptacle Side
  - Captive Hardware
- Facial Sealing — Optional
  - Bonded to Receptacle Block Mating Face
  - Raised Collar Seal around Optics Insert compresses against Chamfer on Plug Block Mating Face

ARINC 600 Insert Holders for Mini-Expanded Beam Contacts

Size 1 Power Cavities

ARINC 600, 1 Position
1MP

ARINC 600, 2 Position
2MP

Size 1 Signal Cavities

ARINC 600, 1 Position
1MS

ARINC 600, 2 Position
2MS

ARINC 600, 3 Position
3MS

See next page for Size 2/3 Power and Signal Cavities
ARINC 600 and 404 (Continued)

Size 2 / 3
Power and Signal Cavities

Rack and Panel Mini Insert Kits

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 x 850 / 1300 nm Dual Multimode</td>
<td>1374759-3</td>
</tr>
<tr>
<td>2 x 1310 nm Singlemode</td>
<td>1588839-3</td>
</tr>
<tr>
<td>2 x 1550 nm Singlemode</td>
<td>1754622-3</td>
</tr>
<tr>
<td>4 x 850 / 1300 nm Dual Multimode</td>
<td>1374759-1</td>
</tr>
<tr>
<td>4 x 1310 nm Singlemode</td>
<td>1588839-1</td>
</tr>
<tr>
<td>4 x 1550 nm Singlemode</td>
<td>1754622-4</td>
</tr>
</tbody>
</table>

Ferrule Kits

<table>
<thead>
<tr>
<th>Fiber Hole Size</th>
<th>Mode</th>
<th>PRO BEAM Connector</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>125 µm</td>
<td>SM</td>
<td>Mini</td>
<td>1754700-1</td>
</tr>
<tr>
<td>126 µm</td>
<td>SM</td>
<td>Mini</td>
<td>1754700-2</td>
</tr>
<tr>
<td>126 µm</td>
<td>MM</td>
<td>Mini</td>
<td>1754699-1</td>
</tr>
</tbody>
</table>

ARINC 600 Insert Holders for Mini-Expanded Beam Contacts

Typical Layout for Plug

Typical Layout for Receptacle
Ruggedized Fiber Optic Connectors

ARINC 600 and 404 (Continued)

M2 Mini-Expanded Beam
Insert Holders for GPRB

Holder Kit, Pin (Spring-Loaded), Mini-Expanded Beam
Key A – GPRB – 1445152-1
Key B – GPRB – 2000169-1

Holder Kit, Socket (Fixed), Mini-Expanded Beam,
Key A – GPRB – 1445163-1
Key B – GPRB – 2000190-1

Dimensions are shown for reference purposes only. Specifications subject to change.
Dimensions are in millimeters unless otherwise specified.
USA: +1 800 522 6752
Asia Pacific: +86 0 400 820 6015
UK: +44 800 267 666
For additional support numbers please visit www.te.com
ARINC 600 and 404 (Continued)

Insert Kits for GPRB Holders

Comparative on Expanded Beam Inserts

<table>
<thead>
<tr>
<th>Specification</th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARINC 600 connector mated pair size 2 = 440 grams (without copper contacts)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARINC style Mini and Junior size Expanded Beam inserts = 5 pounds insertion force each when applied to the Rack and Panel ARINC Connector inserts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Signal Cavity Optical Holder insert (i.e.: holds up to six mini inserts with four fiber ball lenses each or up to 24 fibers each insert set) = ( \leq 30 ) grams</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Cavity Optical Holder insert (i.e.: holds up to four mini inserts with four fiber ball lenses each or up to 16 fibers each insert set) = ( \leq 20 ) grams</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insert mated pair PRO BEAM Jr. Connector insert set = ( \leq 41.79 ) grams</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insert mated pair Connector insert set = ( \leq 16.17 ) grams</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fiber = single fiber ( \leq 4 ) kg / km</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fiber = four fiber jacketed with a support member ( \leq 24 ) kg / km</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Static spring force per mated Expanded Beam insert pair = 5 lbs.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Ferrule Kits

<table>
<thead>
<tr>
<th>Fiber Hole Size</th>
<th>Mode</th>
<th>PRO BEAM Connector</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>125 µm SM</td>
<td>Mini</td>
<td></td>
<td>1754700-1</td>
</tr>
<tr>
<td>126 µm SM</td>
<td>Mini</td>
<td></td>
<td>1754700-2</td>
</tr>
<tr>
<td>126 µm MM</td>
<td>Mini</td>
<td></td>
<td>1754699-1</td>
</tr>
</tbody>
</table>

Rack and Panel Mini Insert Kits

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 x 850 / 1300 nm Dual Multimode</td>
<td>1374759-3</td>
</tr>
<tr>
<td>2 x 1310 nm Singlemode</td>
<td>1588839-3</td>
</tr>
<tr>
<td>2 x 1550 nm Singlemode</td>
<td>1754622-3</td>
</tr>
<tr>
<td>4 x 850 / 1300 nm Dual Multimode</td>
<td>1374759-1</td>
</tr>
<tr>
<td>4 x 1310 nm Singlemode</td>
<td>1588839-1</td>
</tr>
<tr>
<td>4 x 1550 nm Singlemode</td>
<td>1754622-4</td>
</tr>
</tbody>
</table>

Comparative on Expanded Beam Inserts’ weight and Insertion Forces when applied to an ARINC housing

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 x 850 / 1300 nm Dual Multimode</td>
<td>1374759-3</td>
</tr>
<tr>
<td>2 x 1310 nm Singlemode</td>
<td>1588839-3</td>
</tr>
<tr>
<td>2 x 1550 nm Singlemode</td>
<td>1754622-3</td>
</tr>
<tr>
<td>4 x 850 / 1300 nm Dual Multimode</td>
<td>1374759-1</td>
</tr>
<tr>
<td>4 x 1310 nm Singlemode</td>
<td>1588839-1</td>
</tr>
<tr>
<td>4 x 1550 nm Singlemode</td>
<td>1754622-4</td>
</tr>
</tbody>
</table>

Rack and Panel Mini Insert Kits

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 x 850 / 1300 nm Dual Multimode</td>
<td>1374759-3</td>
</tr>
<tr>
<td>2 x 1310 nm Singlemode</td>
<td>1588839-3</td>
</tr>
<tr>
<td>2 x 1550 nm Singlemode</td>
<td>1754622-3</td>
</tr>
<tr>
<td>4 x 850 / 1300 nm Dual Multimode</td>
<td>1374759-1</td>
</tr>
<tr>
<td>4 x 1310 nm Singlemode</td>
<td>1588839-1</td>
</tr>
<tr>
<td>4 x 1550 nm Singlemode</td>
<td>1754622-4</td>
</tr>
</tbody>
</table>

Ferrule Kits

<table>
<thead>
<tr>
<th>Fiber Hole Size</th>
<th>Mode</th>
<th>PRO BEAM Connector</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>125 µm SM</td>
<td>Mini</td>
<td></td>
<td>1754700-1</td>
</tr>
<tr>
<td>126 µm SM</td>
<td>Mini</td>
<td></td>
<td>1754700-2</td>
</tr>
<tr>
<td>126 µm MM</td>
<td>Mini</td>
<td></td>
<td>1754699-1</td>
</tr>
</tbody>
</table>
Ruggedized Fiber Optic Connectors

**ARINC 801 Optical Termini**

**Product Facts**
- Optical termini for use with GPR, ARINC 600, circular MIL-DTL-38999 connectors.
- Industry Standard 1.25 mm ceramic ferrule
- Compatible with 1.5-2.2 mm Tight jacket and loose tube cable construction:
  - MT - Tight jacket cable
  - ML - Loose tube cable
- SM / MM versions

**Materials**
- Housings — Nickel Plated Copper
- Ferrule — Zirconia
- Spring — Stainless Steel
- Crimp Sleeve — Nickel Plated Copper
- Protective Cover — Silicone

**Optical Performance**
- Singlemode, 1310 nm/1550 nm (UPC):
  - Attenuation, Mean — 0.15dB
  - Return Loss — > 50dB
- Multimode, 850 nm/1310 nm:
  - Attenuation, Mean — 0.10dB
  - Return Loss — > 20dB

**Mechanical / Environmental Performance**

<table>
<thead>
<tr>
<th>Test Description</th>
<th>Standard</th>
<th>ARINC 801 Optical Termini in GPR A &amp; B Connector</th>
<th>ARINC 801 Optical Termini in 38999 Connector</th>
<th>ARINC 801 Optical Termini in ARINC 600 Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal Shock</td>
<td>SAE-AS-13441</td>
<td>-55°C/+100°C</td>
<td>-55°C/+100°C</td>
<td>-55°C/+100°C</td>
</tr>
<tr>
<td></td>
<td>met 1003.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature Life</td>
<td>TIA/EIA 455-20A</td>
<td>500h @ +100°C</td>
<td>500h @ +100°C</td>
<td>500h @ +100°C</td>
</tr>
<tr>
<td>Vibration</td>
<td>TIA/EIA 455-11</td>
<td>8h/axis 3.8g/Hz 43 G rms</td>
<td>8h/axis 3.8g/Hz 43 G rms</td>
<td>8h/axis 0.2g/Hz 16.4 G rms</td>
</tr>
<tr>
<td>Shock</td>
<td>TIA/EIA 455-14A</td>
<td>300 G - 3ms</td>
<td>300 G - 3ms</td>
<td>50G - 11ms</td>
</tr>
<tr>
<td>Mate/Unmate (38999)</td>
<td>SAE-AS-13441</td>
<td>100 Cycles</td>
<td>N/A</td>
<td>100 Cycles</td>
</tr>
<tr>
<td></td>
<td>met 2016</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salt Spray</td>
<td>SAE-AS-13441</td>
<td>96 hr</td>
<td>500 hr</td>
<td>48 hr</td>
</tr>
<tr>
<td></td>
<td>met 1001.1 cond C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cable Ret. (1.8 mm)</td>
<td>SAE-AS-13441</td>
<td>68N</td>
<td>68N</td>
<td>68N</td>
</tr>
<tr>
<td></td>
<td>met 2009-1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humidity (GPR/ARINC 600)</td>
<td>TIA/EIA 455-5</td>
<td>10 cycles / 24h 90% RH -25°C/+65°C</td>
<td>10 cycles / 24h 90% RH -25°C/+65°C</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>met B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humidity (ARINC 600)</td>
<td>TIA/EIA 455-15</td>
<td>10,000 ft (69.6kPa)</td>
<td>10,000 ft (69.6kPa)</td>
<td>10,000 ft (69.6kPa)</td>
</tr>
<tr>
<td>Altitude Imm.</td>
<td>TIA/EIA 455-15</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Ruggedized Fiber Optic Connectors

ARINC 801 Optical Termin (Continued)

There are three types of ARINC 801 Optical Termin available dependent upon cable structure.

TE Connectivity has multiple connector types/families available for the ARINC 801 Optical Termin System. These are:
- General Purpose Rectangular Connectors
- F5 & F12 Inserts
- MIL-DTL-38999 connectors
- 13-04, 15-06, 21-16
- ARINC 600
- F12 combinations and F36
- Motherboard & Daughtercard Solutions

ARINC 801 Optical Termin Part Numbers

<table>
<thead>
<tr>
<th>Cable Dia.</th>
<th>Cable Structure</th>
<th>S/M Fiber 125.3 µm</th>
<th>S/M Fiber 125.3 µm</th>
<th>M/M Fiber 128 µm</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.9mm Buffer</td>
<td>__</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>1.5 - 2.2 mm ML</td>
<td>1918614-1</td>
<td>1918616-1</td>
<td>1828199-1</td>
<td></td>
</tr>
<tr>
<td>1.5 - 2.2 mm MT</td>
<td>1918615-1</td>
<td>1918617-1</td>
<td>1828200-1</td>
<td></td>
</tr>
</tbody>
</table>

Consult your local TE Sales Representative for additional options.

* Contact TE for availability.

ARINC 801 Cavity Reducers

<table>
<thead>
<tr>
<th>Size 8 Quadrax</th>
<th>Part Number</th>
<th>ARINC 801 Cavity Reducer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin Quadrax adapter for ARINC 801 Optical Termini in Quadrax FR type cavity</td>
<td>1757727-1</td>
<td>Quadrax cavity reducer (FR/FR) for receptacle shell</td>
</tr>
<tr>
<td>Pin Quadrax adapter for ARINC 801 Optical Termini in Quadrax RR type cavity</td>
<td>1757710-1</td>
<td>Quadrax cavity reducer (RR/RR) for receptacle shell</td>
</tr>
<tr>
<td>Socket Quadrax adapter for ARINC 801 Optical Termini in Quadrax RR type cavity</td>
<td>1757711-1</td>
<td>Quadrax cavity reducer (RR/RR) for plug shell</td>
</tr>
</tbody>
</table>

Consult your local TE Sales Representative for additional options.

Cable Structure

<table>
<thead>
<tr>
<th>Movement between fiber &amp; 900 µm buffer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>Movement between 900 µm &amp; cable jacket</td>
</tr>
<tr>
<td>Yes</td>
</tr>
</tbody>
</table>

Adapters

<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>Alignment Sleeve</th>
<th>Part Number</th>
<th>Dim. (page 3-32)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARINC 801 Optical Termini to ARINC 801 Optical Termini</td>
<td>Simplex Bulbhead Feedthrough Type</td>
<td>Ceramic Zirconia</td>
<td>1828996-1</td>
<td>Fig. 1</td>
</tr>
<tr>
<td>ARINC 801 Optical Termini to ARINC 801 Optical Termini</td>
<td>Simplex Straight</td>
<td>Ceramic Zirconia</td>
<td>1828997-1</td>
<td>Fig. 2</td>
</tr>
<tr>
<td>ARINC 801 Optical Termini to LC</td>
<td>Simplex</td>
<td>Ceramic Zirconia</td>
<td>1828979-1</td>
<td>Fig. 3</td>
</tr>
<tr>
<td>ARINC 801 Optical Termini to LC</td>
<td>Duplex</td>
<td>Ceramic Zirconia</td>
<td>1828960-1</td>
<td>Fig. 4</td>
</tr>
<tr>
<td>ARINC 801 Optical Termini to LC</td>
<td>Duplex MIL-DTL-38999 Panel Cutout</td>
<td>Ceramic Zirconia</td>
<td>1828995-1</td>
<td>Fig. 5</td>
</tr>
</tbody>
</table>

Tools

<table>
<thead>
<tr>
<th>Description/Function</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metal Extraction Tool (M81 969/1-03)</td>
<td>91066-3</td>
</tr>
<tr>
<td>Plastic Extraction Tool (M81 969/1403)</td>
<td>M81969/14-03</td>
</tr>
<tr>
<td>Daniels Right Angle Insertion Tool</td>
<td>DAK83-16*</td>
</tr>
<tr>
<td>Daniels Right Angle Removal Tool</td>
<td>DRAK83-16*</td>
</tr>
</tbody>
</table>

* Contact Daniels Manufacturing Corporation

Note: All part numbers are RoHS compliant.
F12 ARINC 801 Insert Assemblies

Physical Contact & Technology (Continued)

Product Facts
- ARINC 801 approved
- Optical termini for use with GPR, ARINC 600, circular MIL-DTL-38999 connectors
- Industry Standard 1.25 mm ceramic ferrule
- Compatible with 1.5-2.2 mm tight jacket and loose tube cable construction:
  - MT - Tight jacket cable
  - ML – Loose tube cable
- Singlemode (SM) and Multimode (MM) versions
- ARINC 801 Optical Termini part numbers:
  - 1828199-1 MM/ML Version
  - 1828200-1 MM/MT Version
  - 1918614-1 SM/ML Version
  - 1918616-1 SM/ML Version-APC
  - 1918615-1 SM/MT Version
  - 1918617-1 SM/MT Version-APC

Materials:
- Housings – Nickel Plated Copper
- Ferrule – Zirconia
- Spring – Stainless Steel
- Crimp Sleeve – Nickel Plated Copper
- Protective Cover – Silicone

Optical Performance
- Singlemode, 1310 nm/1550 nm (UPC)
  - Attenuation, Mean – 0.15dB
  - Return Loss – >50dB
- Multimode, 850 nm, 1310 nm
  - Attenuation, Mean – 0.10dB
  - Return Loss – >20dB

Assembly Capabilities
- TE Connectivity has extensive Rugged Optic Harness capabilities. Please consult your local TE Sales Representative for assistance.

ARINC 801 Inserts
- 17F12Q2
- 36F36
- 12F5C2
- 20F12Q8

ARINC 801 Inserts and Cavity Reducers accept ARINC 801 Optical Terminis.

Note: All part numbers are RoHS compliant.
Physical Contact & Technology (Continued)

ARINC 801 Optical Termini Adapter Dimensions

Terminus to Terminus Bulkhead Feedthrough
Figure 1

Terminus to Terminus Straight
Figure 2

Terminus to LC Simplex
Figure 3

Terminus to LC Duplex, LC Panel
Figure 4

Terminus to LC Duplex, MIL-DTL-38999 Panel Cutout
Figure 5
Ruggedized Fiber Optic Connectors

Physical Contact & Technology (Continued)

Most of the tools included in the Termination Kit are commonly used in the fiberoptic industry (strippers, cutting pliers and all accessories for fiber and cable preparation). The items in the table below are specially made for the ARINC 801 Optical Termin System. Their use is highly recommended to achieve mechanical and optical performances.

<table>
<thead>
<tr>
<th>Qty</th>
<th>Description</th>
<th>Part Number</th>
<th>Item #</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Label, Termination Kit</td>
<td>1918887-1</td>
<td>28</td>
</tr>
<tr>
<td>1</td>
<td>Insertion and Extraction Tool</td>
<td>91066-3</td>
<td>27</td>
</tr>
<tr>
<td>2</td>
<td>1.25 mm Swab</td>
<td>1828355-1</td>
<td>26</td>
</tr>
<tr>
<td>1</td>
<td>LC Polishing Bushing</td>
<td>1754074-1</td>
<td>25</td>
</tr>
<tr>
<td>1</td>
<td>Polishing Plate</td>
<td>501197-1</td>
<td>24</td>
</tr>
<tr>
<td>1</td>
<td>Polishing Pad</td>
<td>501523-1</td>
<td>23</td>
</tr>
<tr>
<td>10</td>
<td>0.3 µm Polishing Film</td>
<td>228433-5</td>
<td>22</td>
</tr>
<tr>
<td>5</td>
<td>Fine Diamond Polishing Film</td>
<td>503887-1</td>
<td>21</td>
</tr>
<tr>
<td>10</td>
<td>5 µm Polishing Film</td>
<td>228433-8</td>
<td>20</td>
</tr>
<tr>
<td>15</td>
<td>9 µm Polishing Film</td>
<td>1374484-1</td>
<td>19</td>
</tr>
<tr>
<td>1</td>
<td>Cleave Tool</td>
<td>504064-1</td>
<td>18</td>
</tr>
<tr>
<td>1</td>
<td>Curing oven</td>
<td>502130-1</td>
<td>17</td>
</tr>
<tr>
<td>1</td>
<td>Resin injector tips</td>
<td>1918509-2</td>
<td>15</td>
</tr>
<tr>
<td>1</td>
<td>Resin injector</td>
<td>1918509-1</td>
<td>14</td>
</tr>
<tr>
<td>10</td>
<td>Epoxy, 353ND</td>
<td>504035-1</td>
<td>13</td>
</tr>
<tr>
<td>5</td>
<td>0.5 µm Polishing Film</td>
<td>228433-8</td>
<td>12</td>
</tr>
<tr>
<td>1</td>
<td>Inner Ferrule Shaping Tool</td>
<td>1918511-1</td>
<td>11</td>
</tr>
<tr>
<td>1</td>
<td>Hexagonal key</td>
<td>19840-5</td>
<td>10</td>
</tr>
<tr>
<td>1</td>
<td>Fiber Stripping tool (125 µm)</td>
<td>1754708-1</td>
<td>9</td>
</tr>
<tr>
<td>1</td>
<td>Handtool</td>
<td>58532-1</td>
<td>8</td>
</tr>
<tr>
<td>1</td>
<td>Die-set, ARINC 801 Optical Termini</td>
<td>1828889-1</td>
<td>7</td>
</tr>
<tr>
<td>1</td>
<td>KEVLAR Shears</td>
<td>1278637-1</td>
<td>6</td>
</tr>
<tr>
<td>1</td>
<td>Cable Jacket Strip Tool</td>
<td>1278531-5</td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>1.25 mm Microscope Adapter</td>
<td>1754765-1</td>
<td>4</td>
</tr>
<tr>
<td>1</td>
<td>200x Microscope</td>
<td>1754767-1</td>
<td>3</td>
</tr>
<tr>
<td>1</td>
<td>Carrying case, Weekender</td>
<td>1918881-1</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td>Carrying case, Attache</td>
<td>1918834-1</td>
<td>1</td>
</tr>
</tbody>
</table>

The following tools are necessary for product termination but are not included in the kit:
- Alcohol, canned air, and clean cloth.
- Other accessories available include ruler, tweezers, cleaning tip, roller adhesive tape, moss cable support and permanent ink markers.

ARINC 801 Optical Termini Service Tool Kit (Cleaning only)
Part Number 1828335-2

ARINC 801 Optical Termini Service Tool Kit (Testing only)
Part Number 1828335-3

ARINC 801 Optical Termini Service Tool Kit (Hand Held Digital Probe Kit)
Part Number 1828335-4

The following tools are necessary for product termination but are not included in the kit:
- Alcohol, canned air, and clean cloth.
- Other accessories available include ruler, tweezers, cleaning tip, roller adhesive tape, moss cable support and permanent ink markers.

ARINC 801 Optical Termini Service Tool Kit (Inspection, testing & cleaning)
Part Number 1828335-1

ARINC 801 Optical Termini Service Tool Kit (Hand Held Digital Probe Kit)
Part Number 1828335-4

Note: All part numbers are RoHS compliant.

Catalog 1308940
Revised 9-14
www.te.com

Dimensions are shown for reference purposes only. Specifications subject to change.
Dimensions are in millimeters unless otherwise specified.
USA: +1 800 522 6752
Asia Pacific: +86 0 400 820 6015
UK: +44 800 267 666
For additional support numbers please visit www.te.com

KEVLAR is a trademark of E.I. du Pont de Nemours and Company.
OPTIPOP is a trademark of NTT Advanced Technology Corporation.
Ruggedized Fiber Optic Connectors

MIL-T-29504 Style Optical Connector Range

Product Facts

- Manufactured to meet the requirements of MIL-T-29504/4 and 5
- Proven in both rotary and fixed-wing aerospace applications
- Sprung loaded socket contacts ensure consistent pressure and performance levels

Optical Inserts for EN4165 and ARINC 809

Product Facts

- Interchangeable modular inserts
- Easy use insertion / extraction tool
- Easy access to optical contacts for cleaning maintenance
- Compliments DMC-M multiway modular connector range

TE has designed a comprehensive range of Fiber optic inserts to further enhance our EN4165 connector range. To date the modular inserts can accommodate MC5, MC6 ribbon, Arinc 801 and EN4531 optical contacts.

Fiber Optical Insert for DMC-M

Product Facts

- Light weight composite
- Colour coded
- Modularity
- Screw coupling

An optical insert is available for the popular DMC-M connector which enables six standard MC5 contact to be incorporated into a single insert package or 12 way MC6 or 4 way Arinc 801 contacts.

RSC-v

Product Facts

- Suitable for singlemode applications
- Good return loss measurements
- Tuneable PC variant for optimum performance

APC version of the ever popular RSC connector range. The RSC-V is available with either an angled polish (APC) or a tuneable physical contact (PC) variant.
Ruggedized Circular Connectors

Military circular connector qualified to MIL-DTL-38999, Series III for fiber optic MIL-T-29504 style termini. Rugged design offers maximum performance for shock and vibration, environmental, moisture and corrosion resistance and provides effective EMI shielding.

38999

Product Facts

- 100% Scoop Proof
- High strength Aluminium shells
- Superior fluoro silicone seals provide maximum tear resistance and sealing memory
- Threaded coupling with self locking for anti-vibration integrity
MC3 MKII Fiber Optic Multiway Connectors

**Product Facts**
- Insert-to-insert keying assists precision alignment
- Individually rear insertable/removable optical contacts enable easy assembly
- Backshells and adaptors available for most single and multifiber cable types

**General Specifications**
- **Fiber type** – Multi and Singlemode fiber
  Ranging from 5 to 200um core diameters
- **Channels** – 5, 8 and 12 Optical channels
- **Cable size** – 1.5 mm to 3.0 mm outer jacket

**Materials**
- **Shell** – Aluminium; nickel plated
  Aluminium; cadmium plate olive drab
  Aluminium bronze (special order)
- **Contact body**
  Arcap – Titanium
  Ferrule – Zirconia
- **Alignment sleeve** – Zirconia
- **Seals** – Fluorosilicone or nitrile
  Plating – Aluminium, nickel plated
  Aluminium; cadmium plate olive drab
  Aluminium bronze (special order)

**Optical Performance**
- **Insertion loss** - 0.25dB typical*
- **Return loss** - 40dB typical*
- **Repeatability** - Typically better than 0.1db with 50/125µm fiber

**Environmental Specification**
- **Temperature**
  - High temperature endurance - +155°C*
  - Low temperature endurance - 65°C*
- **Durability** - Greater than 500 mating cycles

**Vibration**
- **Sinusoidal** - 5-3000Hz, 30g
- **Bump** - 4000 bumps, 40g

**Key Features**
- Precision Zirconia ceramic ferrules and alignment sleeves ensure superior, repeatable optical performance with physical contact polishing techniques
- Insert-to-insert keying assists precision alignment
- Individually rear insertable/removable optical contacts enable easy assembly
- Easily removable alignment sleeve insert facilitates simple cleaning and maintenance
- Colored band indicates full mating
- Identical optical contacts are spring loaded in both plug and receptacle to maintain physical contact even under severe shock or vibration conditions (rigid contact option available for receptacle)
- Simple termination process and tooling
- Backshells and adaptors available for most single and multifiber cable types
- MIL-C-38999 Series III anti-vibration coupling mechanism and tri-start thread
- Alternative shell keyway orientations provide protection from inadvertent mis-mating
- Dynamic ‘O’ ring seal between mating shells provides water submersion capability

---

*Rfiber and polishing process dependent
MC3 MKII Fiber Optic Multiway Connectors (Continued)

Insert Arrangement

<table>
<thead>
<tr>
<th>Size - Arrangement</th>
<th>A</th>
<th>B1</th>
<th>B2</th>
<th>C1</th>
<th>C2</th>
<th>D</th>
<th>Thread E</th>
<th>ØG</th>
<th>ØH</th>
<th>ØJ</th>
<th>ØK</th>
<th>ØL</th>
</tr>
</thead>
<tbody>
<tr>
<td>19-5</td>
<td>36.58</td>
<td>29.35</td>
<td>26.98</td>
<td>5</td>
<td>3.5</td>
<td>27.84</td>
<td>M28 x 1.0</td>
<td>1.250</td>
<td>37.92</td>
<td>27.7</td>
<td>35.4</td>
<td>36.92</td>
</tr>
<tr>
<td>23-8</td>
<td>42.98</td>
<td>34.92</td>
<td>31.75</td>
<td>6.23</td>
<td>4</td>
<td>33.84</td>
<td>M34 x 1.0</td>
<td>1.500</td>
<td>44.12</td>
<td>33.7</td>
<td>41.75</td>
<td>43.12</td>
</tr>
<tr>
<td>25-12</td>
<td>46.02</td>
<td>38.11</td>
<td>34.92</td>
<td>6.23</td>
<td>4</td>
<td>36.84</td>
<td>M37 x 1.0</td>
<td>1.625</td>
<td>47.35</td>
<td>36.7</td>
<td>44.93</td>
<td>46.35</td>
</tr>
</tbody>
</table>

Dimensional Information

All dimensions in inches (except threads). To complete part number for ordering see 'ordering information'.

Plug

Receptacle

Dummy Receptacle
### Optical Contacts (ordered separately)

Optical contacts are supplied with a profile formed optical end face and are available for singlemode or multimode fibers. Contacts are available in either sprung or rigid versions, depending upon application (rigid contacts should be used in bulkhead receptacles only).

**Optical Contacts (ordered separately)**

**Options are as follows:**

- **1** Optical hole Ø 'A' fiber size (see table 1)
- **2** Cable type (see table 2)

Please note: for type 00 (**2**) the cable crimp sleeve is not supplied i.e. for terminating buffered fiber.

### Table 1 (**1)**

<table>
<thead>
<tr>
<th>Part number (multimode)</th>
<th>Part number (singlemode)</th>
<th>Rigid Type</th>
<th>Sprung Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>455494-128-<strong>2</strong></td>
<td>455617-126-<strong>2</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>455494-145-<strong>2</strong></td>
<td>455617-127-<strong>2</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>455494-162-<strong>2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>455494-176-<strong>2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>455494-232-<strong>2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>455494-283-<strong>2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>455737-232-<strong>2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>455738-232-<strong>2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 2 (**2)**

<table>
<thead>
<tr>
<th>Contact Type</th>
<th>Cable Type</th>
<th>Crimp Dies (see note)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rigid</strong></td>
<td><strong>Sprung</strong></td>
<td><strong>Cable Type</strong></td>
</tr>
<tr>
<td>455494-<strong>1</strong>-00</td>
<td>455500-<strong>1</strong>-00</td>
<td>900µm</td>
</tr>
<tr>
<td>455517-<strong>1</strong>-00</td>
<td>455517-<strong>1</strong>-00</td>
<td>900µm</td>
</tr>
<tr>
<td>455494-<strong>1</strong>-01</td>
<td>455500-<strong>1</strong>-01</td>
<td>-</td>
</tr>
<tr>
<td>455517-<strong>1</strong>-01</td>
<td>455517-<strong>1</strong>-01</td>
<td>-</td>
</tr>
<tr>
<td>455494-<strong>1</strong>-02</td>
<td>455500-<strong>1</strong>-02</td>
<td>-</td>
</tr>
<tr>
<td>455517-<strong>1</strong>-02</td>
<td>455517-<strong>1</strong>-02</td>
<td>-</td>
</tr>
<tr>
<td>455494-<strong>1</strong>-03</td>
<td>455500-<strong>1</strong>-03</td>
<td>-</td>
</tr>
<tr>
<td>455517-<strong>1</strong>-03</td>
<td>455517-<strong>1</strong>-03</td>
<td>-</td>
</tr>
<tr>
<td>455494-<strong>1</strong>-04</td>
<td>455500-<strong>1</strong>-04</td>
<td>-</td>
</tr>
<tr>
<td>455517-<strong>1</strong>-04</td>
<td>455517-<strong>1</strong>-04</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>455500-<strong>1</strong>-05</td>
<td>-</td>
</tr>
<tr>
<td>455737-<strong>1</strong>-00</td>
<td>455738-<strong>1</strong>-00</td>
<td>-</td>
</tr>
</tbody>
</table>

Please note: for alternative sizes, please consult technical sales.
### Ordering Information

<table>
<thead>
<tr>
<th>Series:</th>
<th>MC3</th>
<th><strong>E</strong></th>
<th><strong>-</strong></th>
<th><strong>-</strong></th>
<th><strong>-</strong></th>
<th><strong>-</strong></th>
<th><strong>-</strong></th>
<th><strong>-F</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Style:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>00</td>
<td>Bulkhead receptacle</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>06</td>
<td>Plug</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>07</td>
<td>Jam nut receptacle</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Protective plug</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>Dummy receptacle</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>Protective cap receptacle</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MkII:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>for 00 Bulkhead receptacle, 06 plug and 07 Jam nut Receptacle only. Otherwise omitted</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shell finish:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>Nickel plated</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Cadmium plated olive drab</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shell size - no. of channels:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23-8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insert type</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P, S</td>
<td>(S type includes the removable alignment insert)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shell orientation:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N, B, C, E, F and 'U' Universal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modification code:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Example part numbers:
- Connector MC300E2-N-19-SSN
- Protective cap MC340E-N-19
- Dummy receptacle MC330E-N-19

### Accessories / Essential Tooling Information
For comprehensive tooling and consumable listing refer to technical sales.

### Quality Approvals
- Civil Aviation Authority AB-1
- BS EN ISO 9001
- Military Spec Approvals 38999
- BS9000 and CECC
- Underwriters Laboratories
- BS EN ISO9001:2000 (BSI)
- BS/EN 9100:2003 (BSI)
- AS9100 Rev B (BSI)
- AS9120:2002 (BSI)
- EASA Part 21 Subpart G (CAA)
- BS9000 (BSI)
- Underwriters Laboratories (UL)
- Military Spec Approvals 38999 (DSCC)
MC4 Series - Duplex Fiber Optic Connectors

Product Facts
- Insert-to-insert keying assists precision alignment
- Individually rear insertable/removable optical contacts enable easy assembly
- Backshells and adaptors available for most single and multifiber cable types

General Specifications

Optical
- Attenuation – Less than 0.4 dB (50/125µm)
- Repeatability – Better than 0.2 dB
- Fiber types – 50, 62.5, 85/125µm, 100/140µm, 200/280µm

Cable types
- Tight jacket 2.5mm dia
- Duplex 4.5mm OD
- For other cable sizes consult Technical Sales

Materials
- Shell - Aluminium alloy, Nickel plated
- Ferrule - Zirconia
- Alignment sleeve: Zirconia
- Seals - Fluorosilicone
- Backshells - Aluminium alloy, Nickel plated Mechanical
- Temperature range –65°C to +155°C

Quality Approvals
- Civil Aviation Authority A8-1
- BS EN ISO 9001
- Military Spec Approvals 38999
- Underwriters Laboratories (UL)

The MC4 Duplex optical fiber connector is based upon shell size 9 Mil-C 38999 Series III making this an extremely compact environmentally sealed 2-way connector. The MC4 is suitable for use with most multimode and singlemode fibers with core diameters of 9 to 200µm. Simplex and duplex constructions can be accommodated with suitable connector backshells. Precision ceramic ferrules and alignment sleeves ensure optical performance and reliability over an extended service life. The optical ferrules are sprung loaded in both the plug and receptacle shells.

This provides an axial load equalization ensuring that butt joint contact is maintained even when the connector is subjected to vibration levels in excess of 30g.

This coupling nut is built in antivibration clicker mechanism to prevent inadvertent uncoupling under adverse vibration conditions.

Backplane Module - PN 2000973-1
Daughtercard Module - PN 2000974-1

*Cable and epoxy dependant
Mechanical endurance: Not less than 500 matings
### MC4 Series - Duplex Fiber Optic Connectors (Continued)

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description and Use</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Connector Assembly Tooling</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>454335</td>
<td>Fiber stripping tool</td>
<td>Hozan</td>
</tr>
<tr>
<td>453228</td>
<td>Fiber cleaving tool</td>
<td></td>
</tr>
<tr>
<td>454342</td>
<td>Crimp tool</td>
<td></td>
</tr>
<tr>
<td><strong>Polishing Tools and Materials</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>454899</td>
<td>Polishing jig</td>
<td></td>
</tr>
<tr>
<td>454539</td>
<td>Rubber pads</td>
<td>2 required</td>
</tr>
<tr>
<td>454539</td>
<td>Lapping film set comprises:</td>
<td></td>
</tr>
<tr>
<td>454481</td>
<td>Coarse disk (10 off)</td>
<td>available separately</td>
</tr>
<tr>
<td>454482</td>
<td>DR diamond disc</td>
<td>available separately</td>
</tr>
<tr>
<td>454483</td>
<td>DM diamond disc</td>
<td>available separately</td>
</tr>
<tr>
<td>454484</td>
<td>Polishing disc (10 off)</td>
<td></td>
</tr>
<tr>
<td><strong>Consumable Materials</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>454257</td>
<td>Epoxy kit (353ND)</td>
<td></td>
</tr>
<tr>
<td>450490</td>
<td>Spatula</td>
<td></td>
</tr>
<tr>
<td>454297</td>
<td>Syringe (x6)</td>
<td></td>
</tr>
<tr>
<td><strong>Ferrules</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>454900-126</td>
<td>Fiber size 125pm</td>
<td>not supplied with connector</td>
</tr>
<tr>
<td>454900-141</td>
<td>Fiber size 140pm</td>
<td>not supplied with connector</td>
</tr>
<tr>
<td>454900-145</td>
<td>Fiber size 140pm</td>
<td>not supplied with connector</td>
</tr>
<tr>
<td>454900-283</td>
<td>Fiber size 280pm</td>
<td>not supplied with connector</td>
</tr>
</tbody>
</table>

Example part number: Bulkhead Receptacle MC400E-C-09-2SN, Plug MC406E-C-09-2PN

Note: Additional tooling may be required specific to cable types (consult technical sales)
For comprehensive tooling and consumable listing refer to technical sales.
MC4 Series - Duplex Fiber Optic Connectors

Product Facts
- Insert-to-insert keying assists precision alignment
- Individually rear insertable/removable optical contacts enable easy assembly
- Backshells and adaptors available for most single and multifiber cable types

General Specifications

Optical Specifications
- Attenuation: Less than 0.4 dB (50/125 pm)
- Repeatability: Better than 0.2 dB
- Fiber Types: 50, 62.5, 85/125 pm, 100/140 pm, 200/280 pm

Cable types
- Tight jacket 2.5 mm dia
- Duplex 4.5 mm OD
- For other cable sizes consult Technical Sales

Materials
- Shell: Aluminum alloy, nickel plated
- Ferrule: Zirconia
- Alignment sleeve: Zirconia
- Seals: Fluorosilicone
- Backshells: Aluminum alloy, nickel plated

Temperature range: +65°C to +155°C*

Quality Approvals
- Civil Aviation Authority A8-1
- BS EN ISO 9001
- Military Spec Approvals 38999
- Underwriters Laboratories (UL)

Backplane Module - PN 2000973-1

Daughtercard Module - PN 2000974-1

The MC4 Duplex optical fiber connector is based upon shell size 9 Mil-C 38999 Series III making this an extremely compact environmentally sealed 2-way connector. The MC4 is suitable for use with most multimode and singlemode fibers with core diameters of 9 to 200µm. Simplex and duplex constructions can be accommodated with suitable connector backshells.

This provides an axial load equalization ensuring that butt joint contact is maintained even when the connector is subjected to vibration levels in excess of 30g.

Precision ceramic ferrules and alignment sleeves ensure optical performance and reliability over an extended service life.

The optical ferrules are sprung loaded in both the plug and receptacle shells.
### MC4 Essential Tooling

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description and Use</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Connector Assembly Tooling</strong></td>
<td></td>
</tr>
<tr>
<td>454335</td>
<td>Fiber stripping tool</td>
<td>Hozan</td>
</tr>
<tr>
<td>453228</td>
<td>Fiber cleaving tool</td>
<td></td>
</tr>
<tr>
<td>454342</td>
<td>Crimp tool</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Polishing Tools and Materials</strong></td>
<td></td>
</tr>
<tr>
<td>454899</td>
<td>Polishing jig</td>
<td></td>
</tr>
<tr>
<td>454539</td>
<td>Rubber pads</td>
<td>2 required</td>
</tr>
<tr>
<td>454539</td>
<td>Lapping film set comprises:</td>
<td></td>
</tr>
<tr>
<td>454481</td>
<td>Coarse disk (10 off)</td>
<td>available separately</td>
</tr>
<tr>
<td>454482</td>
<td>DR diamond disc</td>
<td>available separately</td>
</tr>
<tr>
<td>454483</td>
<td>DM diamond disc</td>
<td>available separately</td>
</tr>
<tr>
<td>454484</td>
<td>Polishing disc (10 off)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Consumable Materials</strong></td>
<td></td>
</tr>
<tr>
<td>454257</td>
<td>Epoxy kit (353ND)</td>
<td></td>
</tr>
<tr>
<td>450490</td>
<td>Spatula</td>
<td></td>
</tr>
<tr>
<td>454297</td>
<td>Syringe (x6)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Ferrules</strong></td>
<td></td>
</tr>
<tr>
<td>454900-126</td>
<td>Fiber size 125pm</td>
<td>not supplied with connector</td>
</tr>
<tr>
<td>454900-141</td>
<td>Fiber size 140pm</td>
<td>not supplied with connector</td>
</tr>
<tr>
<td>454900-145</td>
<td>Fiber size 140pm</td>
<td>not supplied with connector</td>
</tr>
<tr>
<td>454900-283</td>
<td>Fiber size 280pm</td>
<td>not supplied with connector</td>
</tr>
</tbody>
</table>

Note: Additional tooling may be required specific to cable types (consult technical sales)

For comprehensive tooling and consumable listing refer to technical sales

Example part number: Bulkhead Receptacle MC400E-C-09-2SN, Plug MC406E-C-09-2PN

### Ordering Information

<table>
<thead>
<tr>
<th>Series:</th>
<th><strong>MC4</strong></th>
<th><strong>E</strong>-</th>
<th><strong>09-2</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Style:</td>
<td>00 = Bulkhead receptacle</td>
<td>06 = Plug</td>
<td>07 = Jam nut</td>
</tr>
<tr>
<td>Shell finish:</td>
<td>N = Nickel plated</td>
<td>C = Cadmium plated olive drab</td>
<td></td>
</tr>
<tr>
<td>Shell size - no. of channels</td>
<td>- 09-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insert type</td>
<td>- P Pin, S Socket</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shell orientation</td>
<td>- N, A, B, C, D, E</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modification code</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For additional support numbers please visit www.te.com
The MC5 high density range is the very latest advance in high performance multi-channel fiber optic connectors, capable of sustained performance over a wide range of environmental conditions. The MC5 uses the most recent developments in precision ceramic ferrules and lightweight MIL-C-38999 Series III connector shell materials, combined with purpose designed inserts to ensure the optical performance meets the requirements of high reliability optical systems. Compact sprung loaded, precision optical contacts are individually insertable / removable for ease of assembly. Extensive testing has confirmed excellent performance under the most demanding environmental conditions with the MC5 chosen as the standard multiway fiber optic connector for the European Fighter Aircraft, Typhoon.

**Key Features**

- Compact 1.25mm precision zirconia ceramic ferrules
- Alignment sleeves ensure superior, repeatable optical performance with physical contact polishing techniques
- Purpose designed inserts, and insert-to-insert keying assist precision alignment
- Individually rear insertable / removable optical contacts enable easy assembly and maintenance
- Easily removable alignment sleeve insert facilitates simple cleaning and maintenance
- Color band indicates full mate condition
- Identical optical contacts are spring loaded in both plug and receptacle to maintain physical contact even under severe shock or vibration conditions (rigid contact option available for receptacle)
- Simple termination process and tooling
- Composite lightweight, high strength, corrosion resistant connector shells
- MIL-C-38999 Series III anti-vibration coupling mechanism, and tri-start thread

**Environmental Specification**

- High temperature endurance - +150°C, 760 hours
- Low temperature endurance - 65°C, 500 hours
- Durability - >1500 mating cycles
- Vibration
  - Sinusoidal - 5-3000Hz, 40g, 10 hours
  - Random - 25-2000Hz, 5g/Hz (50g rms), 16 hrs

**General Specifications**

- Fiber type – Suitable for fibres with core diameters 5-200um
- Channels – 2, 4, 6, 8, 10, 18, and 30 channels
- Cable size – 1.8 mm, 2.1 mm and 2.5 mm jacket
- Shell – Composite (qualified to MIL-C-38999)
- Contact body – Arcap
- Ferrule – Zirconia
- Alignment sleeve – Zirconia
- Seals – Fluorosilicone
- Plating – Nickel plate

**Optical Performance**

- Insertion loss - 0.25dB typical*
- Return loss -40 dB typical
- Repeatability - Typically better than 0.1dB (with 50/125µm fiber)

*fiber and polishing process dependent
### MC5 - High Density Fiber Optic Multiway (Continued)

#### Dimensional Information

All dimensions in inches (except threads). To complete part number for ordering see ‘ordering information’.

#### Plug

![Plug Diagram]

#### Receptacle

![Receptacle Diagram]

#### Dummy Receptacle

![Dummy Receptacle Diagram]

#### Dimensional Information (cont)

<table>
<thead>
<tr>
<th>Size - Arrangement</th>
<th>A Max</th>
<th>B1</th>
<th>B2</th>
<th>C1 Min</th>
<th>C2 Min</th>
<th>Thread D</th>
<th>Thread E tri-start dimensions (inches)</th>
<th>ØF Max</th>
<th>G Max</th>
<th>H Max</th>
<th>M Max</th>
<th>ØJ Max</th>
<th>ØK Max</th>
<th>ØL Min</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-2</td>
<td>26.4</td>
<td>20.62</td>
<td>18.26</td>
<td>4.84</td>
<td>3.16</td>
<td>M15 X 1.0</td>
<td>0.75000</td>
<td>24.94</td>
<td>3.52</td>
<td>19.9</td>
<td>40.86</td>
<td>N/D</td>
<td>N/D</td>
<td>16.51</td>
</tr>
<tr>
<td>13-4</td>
<td>28.81</td>
<td>23.01</td>
<td>20.62</td>
<td>4.84</td>
<td>3.16</td>
<td>M18 X 1.0</td>
<td>0.87500</td>
<td>29.34</td>
<td>3.52</td>
<td>19.9</td>
<td>40.86</td>
<td>26.06</td>
<td>27.56</td>
<td>19.56</td>
</tr>
<tr>
<td>15-6</td>
<td>31.2</td>
<td>24.61</td>
<td>23.01</td>
<td>4.31</td>
<td>3.16</td>
<td>M22 X 1.0</td>
<td>1.00000</td>
<td>32.46</td>
<td>3.52</td>
<td>19.9</td>
<td>40.86</td>
<td>N/D</td>
<td>N/D</td>
<td>22.86</td>
</tr>
<tr>
<td>17-8</td>
<td>33.51</td>
<td>26.97</td>
<td>24.61</td>
<td>4.84</td>
<td>3.16</td>
<td>M25 X 1.0</td>
<td>1.18750</td>
<td>35.66</td>
<td>3.52</td>
<td>19.9</td>
<td>40.86</td>
<td>34.16</td>
<td>35.46</td>
<td>26.04</td>
</tr>
<tr>
<td>19-10</td>
<td>36.71</td>
<td>29.36</td>
<td>26.97</td>
<td>4.84</td>
<td>3.16</td>
<td>M28 X 1.0</td>
<td>1.25000</td>
<td>38.46</td>
<td>3.52</td>
<td>19.7</td>
<td>40.86</td>
<td>35.66</td>
<td>37.16</td>
<td>29.21</td>
</tr>
<tr>
<td>21-18</td>
<td>39.91</td>
<td>31.75</td>
<td>29.36</td>
<td>4.84</td>
<td>3.16</td>
<td>M31 X 1.0</td>
<td>1.37500</td>
<td>41.66</td>
<td>4.33</td>
<td>19.7</td>
<td>40.86</td>
<td>N/D</td>
<td>N/D</td>
<td>32.39</td>
</tr>
<tr>
<td>23-24</td>
<td>43.11</td>
<td>34.93</td>
<td>31.75</td>
<td>6.06</td>
<td>3.83</td>
<td>M34 X 1.0</td>
<td>1.50000</td>
<td>44.86</td>
<td>4.33</td>
<td>19.7</td>
<td>40.86</td>
<td>42.06</td>
<td>43.36</td>
<td>35.56</td>
</tr>
<tr>
<td>25-30</td>
<td>46.21</td>
<td>38.1</td>
<td>34.93</td>
<td>6.06</td>
<td>3.83</td>
<td>M37 X 1.0</td>
<td>1.62500</td>
<td>47.98</td>
<td>4.33</td>
<td>19.7</td>
<td>40.86</td>
<td>45.16</td>
<td>46.6</td>
<td>38.74</td>
</tr>
</tbody>
</table>
Ruggedized Fiber Optic Connectors

MC5 - High Density Fiber Optic Multiway

Optical contacts are supplied with a profile formed optical end face and are available for singlemode or multimode fibers. Contacts are available in either sprung or rigid versions, depending upon application (rigid contacts should be used in bulkhead receptacles only).

Options are as follows:

**1 = Optical hole Ø 'A' (fiber size) (see table 1)  **2 = Cable type (see table 2)

Please note: for type 00 (**2) the cable crimp sleeve is not supplied i.e. for terminating buffered fiber.

Table 1 (**1)

<table>
<thead>
<tr>
<th>Sprung contact</th>
<th>Rigid contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>part number</td>
<td>part number</td>
</tr>
<tr>
<td>455335-****-**2</td>
<td>455360-****-**2</td>
</tr>
<tr>
<td>455335-125-**2</td>
<td>455360-125-**2</td>
</tr>
<tr>
<td>455335-126-**2</td>
<td>455360-126-**2</td>
</tr>
<tr>
<td>455335-127-**2</td>
<td>455360-127-**2</td>
</tr>
<tr>
<td>455335-128-**2</td>
<td>455360-128-**2</td>
</tr>
<tr>
<td>455335-144-**2</td>
<td>455360-144-**2</td>
</tr>
<tr>
<td>455335-159-**2</td>
<td>455360-159-**2</td>
</tr>
<tr>
<td>455335-172-**2</td>
<td>455360-172-**2</td>
</tr>
<tr>
<td>455335-175-**2</td>
<td>455360-175-**2</td>
</tr>
</tbody>
</table>

Table 2 (**2)

<table>
<thead>
<tr>
<th>Contact</th>
<th>Contact</th>
<th>Crimp Dies (see note)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sprung</td>
<td>Rigid</td>
<td>Plain buffer</td>
</tr>
<tr>
<td>455335-****-00</td>
<td>455360-****-00</td>
<td>900μm - 457440 1.25 / 1.35</td>
</tr>
<tr>
<td>455335-****-01</td>
<td>455360-****-01</td>
<td>- O2.1 OD 457440 2.27 / 2.37</td>
</tr>
<tr>
<td>455335-****-02</td>
<td>455360-****-02</td>
<td>- O1.8 OD 457440 2.62 / 5.52 and 2.37 / 2.27</td>
</tr>
<tr>
<td>455335-****-03</td>
<td>455360-****-03</td>
<td>- O2.5 OD 457440 2.74 / 2.84</td>
</tr>
</tbody>
</table>

Please note: for alternative sizes, consult technical sales.

MC5 Backshells for Multiway Cables (ordered separately)

<table>
<thead>
<tr>
<th>Cable Type / Description</th>
<th>Cable Ø O/D mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiway cable, with 900μm buffered fiber and peripheral strain relief</td>
<td>3.5</td>
</tr>
<tr>
<td>4.5</td>
<td></td>
</tr>
<tr>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>5.5</td>
<td></td>
</tr>
<tr>
<td>6.0</td>
<td></td>
</tr>
<tr>
<td>7.0</td>
<td></td>
</tr>
<tr>
<td>Multiway cable, various constructions - e.g. central strain relief</td>
<td>Backshells are available for a range of multiway cables, please consult technical sales</td>
</tr>
</tbody>
</table>

Please note: Crimp dies are used with crimp tool 451716 (Erma 29020).
### MC5 - High Density Fiber Optic Multiway (Continued)

#### Ordering Information

<table>
<thead>
<tr>
<th>Series:</th>
<th>MC5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>E</strong>-</td>
<td>*-</td>
</tr>
<tr>
<td>**<strong>-</strong></td>
<td>*</td>
</tr>
<tr>
<td><strong>-</strong></td>
<td>*</td>
</tr>
<tr>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td><strong>F</strong>-**</td>
<td></td>
</tr>
</tbody>
</table>

#### Specifications

- **Series:**
  - **00** = Bulkhead receptacle
  - **06** = Plug
  - **07** = Jam nut
  - **20** = Protective cap plug
  - **30** = Dummy receptacle
  - **40** = Protective receptacle

- **Shell finish:**
  - N Nickel plated

- **Shell size - no. of channels:**
  - 11-2, 13-4, 15-6, 17-8, 19-10, 21-18, 23-24, 25-30

- **Insert type**
  - P, S (S type includes the removable alignment insert)

- **Shell orientation:**
  - N, A, B, C

- **Modification code:**

#### Example part numbers:

- Connector MC500E-N-17-8SN
- Protective cap MC540E-N-17
- Dummy receptacle MC530E-N-17

#### Accessories / Essential Tooling Information

**MC5 Fiber Optic Module for DMC-M Connectors**

The MC5 DM-C-M high performance fiber optic modules are manufactured from a high performance material for corrosion resistance and features a rugged construction. The common MC5 optical contact is rigid or sprung loaded and common to both plug and receptacle to maintain physical contact even under severe shock or vibration.

#### Quality Approvals

- Civil Aviation Authority A8-1
- BS EN ISO 9001
- Military Spec Approvals 38999
- BS9000 and CECC
- Underwriters Laboratories
- BS EN ISO9001:2000 (BSI)
- BS/EN 9100:2003 (BSI)
- AS9100 Rev B (BSI)
- AS9120:2002 (BSI)
- EASA Part 21 Subpart G (CAA)
- BS9000 (BSI)
- Underwriters Laboratories (UL)
- Military Spec Approvals 38999 (DSCC)
Ruggedized Fiber Optic Connectors

MC6 - Fiber Optic Ribbon Cable Connector

Key Features

- Common contact single or multimode MT ferrules
- MIL-C-38999 Series III anti-vibration coupling with tri-start thread
- Easily accessible Angled Physical Contact (APC) and Physical Contact (PC) faces for cleaning and maintenance
- Rear release contact using size 8 extraction tools Retrofit triple rear seal available
- Color band indicating full mating
- The use of industry standard MT interface and a variety of housing options ensures integration into new and existing systems
- Interchangeable with MIL-C-38999 Series III

The MC6 high density, fiber optic connector series is now further enhanced with the option for industry standard MT Ferrule inserts. The insert accommodates 2 to 72 channels and can be supplied pre-terminated if required. The MC6 uses the compact MIL-C-38999 Series III, shell size 11 body, also used on the proven MC5 connector. It has a lightweight, corrosion resistant, metal-plated composite shell which provides high strength and durability, combined with EMC shielding.

The result is a very compact, rugged, environmentally sealed solution for a wide range of applications, such as avionics, data bus and in-flight entertainment systems.

Fiber Type:
- Channels – 2 to 72
- Cable size – Telecom grade cable
- Aerospace grade cable

Materials:
- Shell – Composite (MIL-C-38999)
- Contact body – Nickel/cadmium plated composite polymer
- Ferrule – Thermoplastic
- Alignment Pin:
- Seals – Fluorosilicone
- Plating – Nickel

Product Facts

- Insert-to-insert keying assists precision alignment
- Individually rear insertable/ removable optical contacts enable easy assembly
- Backshells and adaptors available for most single and multifiber cable types

Insert-to-insert keying assists precision alignment. Individually rear insertable/removable optical contacts enable easy assembly. Backshells and adaptors available for most single and multifiber cable types.
Ruggedized Fiber Optic Connectors

**MC6 - Fiber Optic Ribbon Cable Connector (Continued)**

**Optical Performance**
For more information contact technical sales on +44 (0) 1424 858358 or fiber@deutsch.net

**Dimensional Information**
All dimensions in millimeters unless otherwise stated. To complete part number for ordering see Ordering Information.

---

**MC6 Receptacle**

**MC6 Plug**

**Jam Nut**

**Dummy Receptacle MC630E-N-11**

---

**Protective Cap Receptacle MC640E-N-11**

**Procap Plug MC620E-N-11**

**Protective Cap Receptacle**
Ruggedized Fiber Optic Connectors

MC6 - Fiber Optic Ribbon Cable Connector (Continued)

Contact and Tooling Information

<table>
<thead>
<tr>
<th>A Max</th>
<th>B Nom</th>
<th>C Nom</th>
<th>D1 Min</th>
<th>D2 Min</th>
<th>ØE Max</th>
<th>Tri-start (inches)</th>
<th>G Max</th>
<th>H Max</th>
<th>ØJ Max</th>
<th>K Max</th>
<th>L Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>26.40</td>
<td>20.62</td>
<td>18.26</td>
<td>4.84</td>
<td>3.16</td>
<td>17.10</td>
<td>0.7500&quot;</td>
<td>23.20</td>
<td>46.50</td>
<td>24.85</td>
<td>46.00</td>
<td>47.50</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>M A/F</th>
<th>N Max</th>
<th>P Max</th>
<th>R Max</th>
<th>ØS Min</th>
<th>ØT Max</th>
<th>U Max</th>
<th>ØV Max</th>
<th>ØW Min</th>
<th>ØX Max</th>
<th>Y Max</th>
<th>Z Max</th>
<th>AA Max</th>
<th>AB Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>32.00</td>
<td>22.30</td>
<td>2.96</td>
<td>19.55</td>
<td>23.46</td>
<td>16.16</td>
<td>22.96</td>
<td>22.86</td>
<td>8.01</td>
<td>2.76</td>
<td>23.76</td>
<td>7.80</td>
<td>4.81</td>
</tr>
</tbody>
</table>

Ordering Information

Series: MC6 **E** -** -11- ** -F**

Style: 00 = Bulkhead receptacle
06 = Plug
07 = Jam nut

Shell finish:
N = Nickel plated
C = Cadmium plated

Optical Termini

MC6 MT contact

Ferrule Type
SM - Singlemode
MM - Multimode

Cable Types Ref. Table

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>SM - ** - ** - ** - ** - 01</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ruggedized Aerospace Oval Multi Fiber Cable</td>
<td>Ø3.95mm x 1.60mm Max.</td>
</tr>
<tr>
<td></td>
<td>Round Multi Fiber Cable</td>
<td>Ø3.96mm Max.</td>
</tr>
</tbody>
</table>

Accessories / Essential Tooling Information

MC6 Fiber Optic Module for DMC-M Connectors

The MC6 DMC-M high performance fiber optic modules are manufactured from a high performance material for corrosion resistance and features a rugged construction. The common MC6 optical contact is rigid or sprung loaded and common to both plug and receptacle to maintain physical contact even under severe shock or vibration.

Quality Approvals

- Civil Aviation Authority A8-1
- BS EN ISO 9001
- Military Spec Approvals 38999
- BS9000 and CECC
- Underwriters Laboratories
- BS EN ISO9001:2000 (BSI)
- BS/EN 9100:2003 (BSI)
- AS9100 Rev B (BSI)
- AS9120:2002 (BSI)
- EASA Part 21 Subpart G (CAA)
- BS9000 (BSI)
- Underwriters Laboratories (UL)
- Military Spec Approvals 38999 (DSCC).
**MC801 Connector**

**Product Facts**
- Uses precision ARINC 801 fiber optic termini (typical multi-mode insertion loss is less than 0.15 dB).
- Removable alignment sleeve insert for easy cleaning of fiber optic termini
- Three stages of alignment: shell-to-shell keys, guide pins and ceramic alignment sleeves
- Includes all of the features of standard D38999 straight plug and panel mount receptacle shells
- Scoop-proof connector design
- Option for alternate keys and keyways

**Insert Arrangements**
11-02 13-04 15-06 17-08
19-12 21-16 23-24 25-32

**Materials**
Composite and Aluminium

**Finishes**
Electroless Nickel and Olive drab cadmium

**A801 Termini**
- Genderless termini allows for use on both sides of a connector
- The Alignment sleeves are contained in a separate carrier which is removable for easier end-face maintenance
- Ultra Precision ceramic ferrules and sleeves ensure accurate fiber-to-fiber alignment
- Termini are keyed to provide anti-rotation
- Termini body is crimped to the cable providing a Pull-Proof solution

**Performance expected**
- Insertion Loss at 850 Nm 0.30 dB max, 0.15 dB typical for multi-mode
- Return Loss 850 Nm –20 dB max – 40 dB typical multi-mode
Ruggedized Singleway Connector (RSC)

Product Facts
- Insert-to-insert keying assists precision alignment
- Individually rear insertable/removable optical contacts enable easy assembly
- Backshells and adaptors available for most single and multifiber cable types

Fiber Type
- 8, 50, 62.5, 85/125µm
  - 100/140µm
  - 200/230µm
  - 200/280µm
  - 200/300µm

Cable size
- 1.6mm to 5mm
  - Simplex tight jacket Kevlar reinforced secondary buffered fiber

Materials
- Shell – Arcap
- Contact body – Arcap
- Ferrule – Zirconia
- Alignment sleeve – Zirconia
- Seals – Fluorosilicone
- Plating – Nickel

Optical Performance
- Insertion loss – 0.25dB typical
- Return loss – 40dB typical*
- Repeatability – Better than 0.2dB

Temperature
- High temperature endurance – +155°C*
- Low temperature endurance – -65°C*

Durability
- not less than 500 matings

Key Features
- Precision Zirconia ceramic ferrule and alignment sleeve to ensure superior repeatable optical performance with physical contact polishing techniques
- Manufactured from Arcap for corrosion resistance
- Easy access to ferrule to facilitate simple cleaning and maintenance
- Common ferrule carriers for the plug and receptacle
- Optical contact is sprung loaded in both the plug and receptacle to maintain physical contact even under severe shock or vibration
- Simple termination process and tooling
- Anti-vibration coupling mechanism
- Six alternative shell keyway orientations provide protection from inadvertent mis-mating
- Able to accommodate various sizes of multimode and singlemode applications - (8/125, 50/125, 62.5/125, 100/140, 200/280mm)
- Able to accommodate various sizes of simplex cable (1.6mm - 5mm)
- Compatible with HA Connector series
Ruggedized Singleway Connector (RSC) (Continued)

Dimensional Information
All dimensions in inches (except threads). To complete part number for ordering see ‘ordering information’

Plug

Free Receptacle

Receptacles

Jam Nut Receptacle

Dummy Receptacle

Dummy Receptacles and Mounting

Procap
Ruggedized Singleway Connector (RSC) (Continued)

**Ordering Information**

**Series:**

**Shell style:**
- 00 = Bulkhead receptacle
- 06 = Plug
- 07 = Jam nut
- 20 = Protective cap plug
- 30 = Dummy receptacle
- 40 = Protective receptacle

**Shell orientation:**
- A, B, C, D, E

*Special glass braid
For other cable types, please consult the sales office.
Example part number: RSC06E-N-100
RSC plug, 'N' orientation, 2.5mm cable

**Optical Contacts**
(Must be ordered separately)

<table>
<thead>
<tr>
<th>Mode</th>
<th>Fiber size</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Singlemode</td>
<td>8/125µm</td>
<td>456099SM-128</td>
</tr>
<tr>
<td></td>
<td>50/125µm</td>
<td>456099-126</td>
</tr>
<tr>
<td></td>
<td>100/140µm</td>
<td>456099-145</td>
</tr>
<tr>
<td></td>
<td>100/172µm</td>
<td>456099-176</td>
</tr>
<tr>
<td>Multimode</td>
<td>200/220µm</td>
<td>456099-224</td>
</tr>
<tr>
<td></td>
<td>200/230µm</td>
<td>456099-232</td>
</tr>
<tr>
<td></td>
<td>200/280µm (flat faced)</td>
<td>454103-283</td>
</tr>
<tr>
<td></td>
<td>200/300µm</td>
<td>453800-305</td>
</tr>
</tbody>
</table>

*Please contact technical support for termination tools and consumables.*

**Accessories**

**Hermetic Receptacle**
(RSC07HE)

**Key Features**
- Compatible with the RSC plug connector
- Leak rate < 1x10-6 cc/s
- 125°C temperature rating

**Dimensional Information**
All dimensions in inches (except threads). To complete part number for ordering see 'ordering information'

**Ordering Information**

**Series:**

**Shell orientation - N, A, B, C, D, E**

**Fiber size - 125, 140, 280µm**

**Pigtail length - cms**
Example part number: (pigtail cable 900µm buffer only)
RSC07HE-N-283-100 receptacle, pigtail, 'N' orientation, 280µm fiber, 100cm cable

**Quality Approvals**
- Civil Aviation Authority A8-1
- BS EN ISO 9001
- Military Spec Approvals 38999
- BS9000 and CECC
- Underwriters Laboratories
- BS EN ISO9001:2000 (BSI)
- BS/EN 9100:2003 (BSI)
- AS9100 Rev B (BSI)
- AS9120:2002 (BSI)
- EASA Part 21 Subpart G (CAA)
- BS9000 (BSI)
- Underwriters Laboratories (UL)
- Military Spec Approvals 38999 (DSCC)
Sealed Circular LC ODVA Conforming Connector

**Product Facts**
- IP67 rated to ensure protection from dust and water immersion
- LC connector qualified to Telcordia GR-326 and TIA/EIA 568B.3
- Temperature range of –40°C to 85°C
- Bayonet-style mechanical lock
- Flame retardant materials per UL 94 V-0
- Dual mounting bulkhead design
- Singlemode and multimode fiber
- Can be used with cable types 9/125, 50/125 and 62.5/125
- LC to LC internal to the box Jumpers
- LC connector accepts tactical cable with 4.5 mm – 7.5 mm OD
- ODVA Conforming Plug to X interface on tactical with break out
- ODVA Conforming Plug to Plug on tactical cable
- Build to customer need

**Applications**
The LC ODVA Conforming Connector is ideal for:
- Harsh environments where chemicals, corrosive gases and liquids are commonplace
- Inside and outside industrial plant and equipment that interface with industrial Ethernet networks
- Remote interface applications such as towers and antennae as well as FTTX in PON and at the home applications
- Mobile routers and internet hardware

**Plug Part Numbers:**
- 1828618-1 (Multimode)
- 1828618-2 (Singlemode)

**Receptacle Part Numbers:**
- 1828619-1 (Multimode)
- 1828619-2 (Singlemode)

**Plug & Receptacle Cap Part Numbers:**
- Plug Cap 1828740-1
- Receptacle Cap 1918177-1

**Standard Cable Assemblies**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1828935-X</td>
<td>ODVA LC Interface, 62.5, 2 Fiber</td>
</tr>
<tr>
<td>1828936-X</td>
<td>ODVA LC Interface, Singlemode, 2 Fiber</td>
</tr>
</tbody>
</table>

**Note:** All part numbers are RoHS compliant.
Rugged Circular Connectors

A unique, patent pending Fiber Optic connector technology that allows designers to reliably connect embedded optical fibers to external monitoring equipment, eliminating the problems of fixed ‘flying lead’ connections to the structure. See TE.com for additional information.

Fiber Optic Cable Assemblies and Harnesses

TE also has dedicated design and manufacturing resources available to provide rugged and reliable Fiber optic harnesses for Aerospace, Military communications, Railways, Autosport and Industrial equipment.
Rugged Optical Backplane Interconnect for VITA 66

Product Facts
- Receptacle designed to maximize optical performance
- Connectors accommodate up to two MT ferrules
- Locating post features help ensure proper position on the backplane and module boards
- Common protective cover is made of anti-static material
- Plug (daughtercard) connector housing contains a slot feature to facilitate cleaning the MT interfaces
- Receptacle (backplane) connector includes two robust guide pins for blind-mating
- Receptacle connector insert floats relative to the shell, providing ±0.25mm planar floating alignment capability
- Connector mounting screws contain pre-applied Nylon patch to withstand vibration

Mechanical
- Mating Force (per 12-fiber MT ferrule) - Min: 7.8N [1.75 lb] Max: 11.8N [2.65 lb]
- Durability - 100 cycles, tested per EIA-455-21
- Shock - 50G, sawtooth, 11 m/sec pulse duration, tested per TIA/EIA-455-14, condition E
- Random Vibration - 11.95 G (rms), 50-2000 Hz, 2 hrs per plane - tested per TIA/EIA-455-11, test condition V1-D

Materials
- Connector shell & housing - Aluminum alloy 6061, clear-chromate conversion-coated (RoHS compliant)
- Alignment posts & screws - Stainless Steel 300 series, passivated (RoHS-compliant)

Key Features
- Receptacle designed to maximize optical performance
- Connectors accommodate up to two MT ferrules
- Locating post features help ensure proper position on the backplane and module boards
- Common protective cover is made of anti-static material
- Plug (daughtercard) connector housing contains a slot feature to facilitate cleaning the MT interfaces
- Receptacle (backplane) connector includes two robust guide pins for blind-mating
- Receptacle connector insert floats relative to the shell, providing ±0.25mm planar floating alignment capability
- Connector mounting screws contain pre-applied Nylon patch to withstand vibration

Backplane Module - PN 2000973-1

Daughtercard Module - PN 2000974-1

Rugged Board Level Connector

TE Connectivity’s (TE) Ruggedized Optical Backplane interconnect system provides a high-density, blind-mate optical interconnect in a backplane/daughtercard configuration. The fiber optic (ribbon) cable interconnect is fed through the backplane to removable system modules using MT ferrules. TE offers the optical system in both a receptacle (backplane) and matingplug (daughtercard) connectors which interconnect up to two MT ferrules, each accommodating up to 24 fiber paths. Other options are available using industry standard ARINC 801 fiber terminus and TE’s Expanded Beam, Pro Beam interface in a four-fiber configuration.

Rugged Board Level Connector

Ruggedized Optical Backplane Interconnect for VITA 66

Product Facts
- Receptacle designed to maximize optical performance
- Connectors accommodate up to two MT ferrules
- Locating post features help ensure proper position on the backplane and module boards
- Common protective cover is made of anti-static material
- Plug (daughtercard) connector housing contains a slot feature to facilitate cleaning the MT interfaces
- Receptacle (backplane) connector includes two robust guide pins for blind-mating
- Receptacle connector insert floats relative to the shell, providing ±0.25mm planar floating alignment capability
- Connector mounting screws contain pre-applied Nylon patch to withstand vibration

Mechanical
- Mating Force (per 12-fiber MT ferrule) - Min: 7.8N [1.75 lb] Max: 11.8N [2.65 lb]
- Durability - 100 cycles, tested per EIA-455-21
- Shock - 50G, sawtooth, 11 m/sec pulse duration, tested per TIA/EIA-455-14, condition E
- Random Vibration - 11.95 G (rms), 50-2000 Hz, 2 hrs per plane - tested per TIA/EIA-455-11, test condition V1-D

Materials
- Connector shell & housing - Aluminum alloy 6061, clear-chromate conversion-coated (RoHS compliant)
- Alignment posts & screws - Stainless Steel 300 series, passivated (RoHS-compliant)
Ruggedized Fiber Optic Connectors

Navy CID Approved Epoxy Applied

Tight Jacketed LC Connectors

Product Facts
- Multimode or singlemode
- Simplex or duplex
- Tested using MIL-PRF-85045/16 2.0 mm cable
- LC Commercial Item Description (CID) interim approval by the Naval Surface Warfare Center, Dahlgren Division

Application
- In Flight Networks
- Shipboard Applications
- Aero Market

The Tight Jacket LC Connector is a robust design for rugged applications including but not limited to:
- Extreme temperatures -55°C to +110°C
- Excessive vibration or physical shock

Test reports available upon request.

Fiber Type Kit Part Number Description

<table>
<thead>
<tr>
<th>Fiber Type</th>
<th>Kit Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Singlemode (blue body &amp; straight boot)</td>
<td>6828095-X</td>
<td>Simplex, 1.6–2.0 mm</td>
</tr>
<tr>
<td></td>
<td>6828130-X</td>
<td>Duplex, 1.6–2.0 mm</td>
</tr>
<tr>
<td></td>
<td>1918228-X</td>
<td>Simplex, 2.4 mm</td>
</tr>
<tr>
<td></td>
<td>2123524-X</td>
<td>Duplex, 1.6–2.0 mm, transceiver optimized</td>
</tr>
<tr>
<td>Multimode (beige body &amp; straight boot)</td>
<td>6828094-X</td>
<td>Simplex, 1.6–2.0 mm</td>
</tr>
<tr>
<td></td>
<td>6828129-X</td>
<td>Duplex, 1.6–2.0 mm</td>
</tr>
<tr>
<td></td>
<td>1918153-X</td>
<td>Simplex, 2.4 mm</td>
</tr>
<tr>
<td></td>
<td>2123265-X</td>
<td>Simplex, 2.4 mm, transceiver optimized</td>
</tr>
</tbody>
</table>

Note: X = -1 for individual package, -2 for bulk package.
Duplex Clip Available (Part Number 1754371-1).

Note: All part numbers are RoHS compliant.
Ruggedized Fiber Optic Connectors

Tight Jacketed SC Connectors

Product Facts
- Multimode or singlemode
- Simplex or duplex
- Tested using MIL-PRF-85045/16 2.0 mm cable
- SC Commercial Item Description (CID) interim approval by Naval Surface Warfare Center, Dahlgren Division

Application
- In Flight Networks
- Shipboard Applications
- Aero Market

The tight jacketed SC Connectors are non pull-proof versions of the standard connectors that are designed for use with tight construction cable. Unlike standard connectors, this design allows the jacket and buffer to move together, reducing the chances of micro-bends and fiber breakage.

### Tight Jacketed SC Connector Kits

<table>
<thead>
<tr>
<th>Fiber Type</th>
<th>Kit Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Singlemode (blue body &amp; straight boot)</td>
<td>6828100-X</td>
<td>Simplex, 1.6–2.0 mm</td>
</tr>
<tr>
<td></td>
<td>1828573-X</td>
<td>Duplex, 1.6–2.0 mm</td>
</tr>
<tr>
<td></td>
<td>1918227-X</td>
<td>Simplex, 2.4 mm</td>
</tr>
<tr>
<td>Multimode (beige body &amp; straight boot)</td>
<td>6828099-X</td>
<td>Simplex, 1.6–2.0 mm</td>
</tr>
<tr>
<td></td>
<td>1828574-X</td>
<td>Duplex, 1.6–2.0 mm</td>
</tr>
<tr>
<td></td>
<td>1918154-X</td>
<td>Simplex, 2.4 mm</td>
</tr>
</tbody>
</table>

Note: X = -1 for individual package, -2 for bulk package.

Note: All part numbers are RoHS compliant.
LC Plus — Navy Approved

LC, SC and LightCrimp Plus
ST Approved by U.S. Navy
for Use On Board Ships

LightCrimp Plus ST Fiber
Optic Connector Features and Benefits:

- LightCrimp Plus technology
delivers the ability to
terminate the fiber optic ST
connector with mechanical
tools by the ferrule being
factory polished and
terminated to the connector
body
- The mechanical process
enables a simple strip,
clean, cleave, crimph process
that improves process time
and eases the complexity of
the installation

Termination Kits:

- The LightCrimp Plus MM ST
part 2064757-1 has a
dedicated termination kit,
part number 2064764-1,
suggested for its imple-
mentation. TE provides a
wide variety of tools
required to prepare and
terminate LightCrimp Plus
ST connectors.

Whether you’re designing
local area networks, com-
munications systems or
equipment, innovative fiber
optic applications begin
with innovative fiber optic
products. TE Connectivity
offers a complete line of
fiber optic products to help
your designs make light
work for you.

TE’s comprehensive fiber
connector line delivers
virtually all industry-standard
connections, including
LightCrimp Plus ST-Style
and epoxy applied Tight
Jacketed LC and SC and
many others. They bring
fiber to the desk at a cost
that is competitive with
copper.

LightCrimp Plus ST Fiber Optic
Connectors

TE LightCrimp Plus ST-Style
connectors are available
in single or multimode
configurations and can be
crimped to the fiber. Any,
they can install in under two
minutes, without epoxy.

TE recently obtained
approval from the U.S. Navy
for its Multimode LightCrimp
Plus ST Connector. This
connector has been added
to the “Navy Recommended
Fiber Optic Components
Parts List” located at
https://fiberoptics.nswc.navy.mil/

and is currently listed under
the TE part number
(2064757-1). In addition,
it is listed under the CID
number A-A-59917. This
approval is the latest in this
series and joins the
approved status of the LC
and SC tight construction
epoxy optic connectors
listed on the components
parts list.

LightCrimp Plus ST

* Commercial Item Description
LC Plus — Navy Approved (Continued)

Combination LIGHTCRIMP PLUS SC/ST/LC Termination Kit Part Number 1985162-1

Note: All part numbers are RoHS compliant.
Ruggedized Fiber Optic Connectors

LightCrimp Splice

Description Part Number
LightCrimp Splice for 250 µm, 900 µm and 2.0 mm Jacketed Cable 1985368-1
LightCrimp Splice Termination Tool Kit 2064764-1

LightCrimp splices provide rugged, miniaturized form-factor that assures consistent crimpl quality, dependability, and performance that rivals fusion splices. LightCrimp splices have been tested in accordance with IEC 61300 procedures, with an operating temperature range extending from -25°C to +70°C.

LightCrimp splices have been designed to meet TIA 568-C.3, IEC 61753 Cat U, and EN optical requirements.

LightCrimp splices provide the proven performance based on technology used to install more than one million LightCrimp Plus connectors.

Product Facts

- Terminates 250 µm coated, 900 µm tight-buffered fibers and 2.0 mm jacketed cable
- Attenuation (typical): ≤ 0.1 dB
- Return Loss (at ambient; 18°–28° C): ≥ 20 dB multimode
- ≥ 35 dB single-mode
- Operating Temperature: -25 to 70°C
- Storage Temperature: -40 to 85°C
- Tensile retention:
  - 250 µm coated: 2.0 N
  - 900 µm buffered: 3.0 N
  - Jacketed: 50.0 N
- Fast, easy fiber splicing
- No epoxy required
- No set-up required
- No workstation required
- Ideal for low-fiber count cables
- Same LightCrimp Splice for single-mode and multimode 125 µm diameter fibers
- Kit includes rugged case

LightCrimp PLUS Kit
Part Number 1985801-1
Capable of terminating:
In Line Mechanical Splice Part Number 1985368-1 and LightCrimp PLUS LC/SC

Part Numbers:
2123277-1 & -2 Simplex MM LC
2123278-1 & -2 Duplex MM LC
2123279-1 Simplex SM
2123280-1 Duplex SM

Navy approved CID commercial item.
Description #A-A59917

Specifications subject to change.
**Ruggedized Fiber Optic Connectors**

---

**Offshore Optical Connectors and Cable Assembly**

**9316 Optic**

**Product Facts**
- Dry Male connection
- Explosion proof area
- Multiway up to 12 FO
- Operating pressure up to 40 bar
- Single or Multimode fibers can be combined
- Backshell custom design available

9316 series has been designed to withstand the most severe environments in marine and offshore applications.

A special care was taken concerning:
- Easy handling
- Mechanical stress
- Use in polluted environments
- Use in hazardous areas

**Showet**

**Product Facts**
- Hybrid product 4 FO and 4 copper contacts
- SplashZone connector
- Operating pressure up to 80 bar
- Single or Multimode fibers can be combined

Combines optical and copper connectivity in a single shell. Supporting both signals and control copper cabling and single-mode and multimode optical fibers to allow the replacement of multiple connectors by one.

**MOD**

**Product Facts**
- Explosion proof area
- SplashZone connector
- Multiway up to 8 FO
- Operating pressure up to 40 bar
- Single or Multimode fibers can be combined

MOD is an explosion-proof connector suited to topside application, quick connect/disconnect coupling for reliable operation in hazardous environments such as FPSO turrets.

**DO3000**

**Product Facts**
- Optical Subsea Wet Mateable
- ROV, Bulkhead, Stab plate and Diver versions
- Custom design available
- Back Reflection <-45dB
- Insertion loss <0.5dB
- 100 matings
- Single or Multimode fibers can be combined

DO3000 is a high performing choice for optical applications requiring up to 12 channels and the ability to withstand operational water depths to 4500 m.

Optimized for Subsea Fiber Optic Distribution systems and connections to Subsea Trees.