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#### LC SECURE Connectors

*(See Connectors, Adapters, Tooling & Accessories Section 1, pages 8-10)*

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#### MT-RJ SECURE Connectors

*(See Connectors, Adapters, Tooling & Accessories Section 1, pages 8, 13)*

|                                                                        |        |
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#### MPO SECURE Connectors

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#### LIGHTPLANE Connector System

*(See Cable Assemblies & Backplane Interconnects Section 2, pages 136, 137)*

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## Expanded SECURE Connector Product Line Includes MPO and LC Interfaces

Ten variants in ten colors  
offered in two new  
interfaces



Tyco Electronics has expanded its SECURE connector product offering to include both MPO and LC interfaces. Through the use of ten different color/key variations, customers operating multiple networks in common areas can physically segregate their network throughout the system, from the backbone to the equipment panel.

Primary colors and keys are available in red, blue, yellow and green, with additional, secondary options for up to ten different color/keying configurations. Only connectors and adapters of the same color will intermate, and no standard product can plug into a secure adapter.

The LC SECURE product is compatible with both jack-

eted and buffered fiber. It is available in both LIGHTCRIMP PLUS and standard epoxy/polish styles for singlemode and multimode fibers. Each connector features a color-coded key that will only mate with like-colored adapters to minimize connection to the wrong networks. Standard colors include red, blue, green and yellow. An additional six colors are available as needed.

The MPO SECURE products are available in the same colors and are compatible with color-coded MPO SECURE cassettes. Standard MPO SECURE trunk cables are available in fiber counts to 72 fibers. MPO SECURE cassettes are available as twelve or

twenty-four fiber assemblies. Cables and cassettes are available with 50  $\mu$ m, Laser Optimized (10 Gig) and 62.5  $\mu$ m multimode fiber.

The success of the MT-RJ SECURE product line has fostered growing interest in the SECURE product concept. The addition of the LC and MPO interfaces to the AMP NETCONNECT SECURE product portfolio will allow a wider adoption of the concept and allow more customers to take advantage of the benefits the system offers.

A complete line of connectivity, cable assemblies, and cables are available for MT-RJ SECURE, LC SECURE and MPO SECURE. See pages 9-13 for details.



**LC SECURE Product Offering**

**LIGHTCRIMP PLUS and Epoxy Style LC Product Facts**

- **LIGHTCRIMP PLUS—No Epoxy/No Polish**
- **Strip, Cleave and Crimp**
- **LC small form factor design is half the size of SC**
- **10 exclusive connector variants**
- **Color coded plugs & adapters match MT-RJ & MPO SECURE offerings**
- **LIGHTCRIMP PLUS—Termination to 250 or 900 μm tight-buffered fiber, 1.6–2.0 mm jacketed fiber using standard tooling**
- **Epoxy Style—Termination to 250 or 900 μm tight-buffered fiber 1.6 – 2.0 mm jacketed fiber**
- **Epoxy Style—Suitable for use with heat-cured or anaerobic (quick cure) adhesives (See instruction sheet for recommended anaerobic adhesives)**
- **Product qualification to TIA/EIA 568-B.3**
- **Field installable duplex clip (black) for polarity correction if needed**
- **Plug nose features can provide up to 70 mutually exclusive keying combinations**
- **Distinct keyway geometry on plug nose & color coding assures identifiable key-type**
- **Extended lugs on plug side-walls prevent SECURE connectors from mating with non-secure adapters**
- **Molded internal geometry produces tamper resistant system**
- **Key placement allows SECURE plugs to interface with standard 1.25 mm test equipment, inspection microscopes and application tooling**
- **Termination kits — same as standard product**



**LIGHTCRIMP PLUS LC SECURE Kits**

| Color  | Simplex 50/125 MM SECURE | Simplex 50/125 Laser Optimized (10 Gig) MM SECURE | Simplex 62.5/125 MM SECURE | Simplex SM SECURE | Notes   |
|--------|--------------------------|---------------------------------------------------|----------------------------|-------------------|---------|
| Red    | 1828853-1                | 1828854-1                                         | 1828855-1                  | 1828856-1         | Primary |
| Yellow | 1828853-2                | 1828854-2                                         | 1828855-2                  | 1828856-2         | Primary |
| Green  | 1828853-3                | 1828854-3                                         | 1828855-3                  | 1828856-3         | Primary |
| Blue   | 1828853-4                | 1828854-4                                         | 1828855-4                  | 1828856-4         | Primary |
| Rose   | 1828853-5                | 1828854-5                                         | 1828855-5                  | 1828856-5         |         |
| Aqua   | 1828853-6                | 1828854-6                                         | 1828855-6                  | 1828856-6         |         |
| Brown  | 1828853-7                | 1828854-7                                         | 1828855-7                  | 1828856-7         |         |
| Violet | 1828853-8                | 1828854-8                                         | 1828855-8                  | 1828856-8         |         |
| Orange | 1828853-9                | 1828854-9                                         | 1828855-9                  | 1828856-9         |         |
| Slate  | 1-1828853-0              | 1-1828854-0                                       | 1-1828855-0                | 1-1828856-0       |         |

Highlighted Part Numbers are routinely stocked for shortest lead times.

**Epoxy Style LC Kits**

| Color  | Simplex Jumper Multimode | Simplex Buffer Multimode | Simplex Jumper Singlemode | Simplex Buffer Singlemode | Notes   |
|--------|--------------------------|--------------------------|---------------------------|---------------------------|---------|
| Red    | 1828078-1                | 1828861-1                | 1828079-1                 | 1828862-1                 | Primary |
| Yellow | 1828078-2                | 1828861-2                | 1828079-2                 | 1828862-2                 | Primary |
| Green  | 1828078-3                | 1828861-3                | 1828079-3                 | 1828862-3                 | Primary |
| Blue   | 1828078-4                | 1828861-4                | 1828079-4                 | 1828862-4                 | Primary |
| Rose   | 1828078-5                | 1828861-5                | 1828079-5                 | 1828862-5                 |         |
| Aqua   | 1828078-6                | 1828861-6                | 1828079-6                 | 1828862-6                 |         |
| Brown  | 1828078-7                | 1828861-7                | 1828079-7                 | 1828862-7                 |         |
| Violet | 1828078-8                | 1828861-8                | 1828079-8                 | 1828862-8                 |         |
| Orange | 1828078-9                | 1828861-9                | 1828079-9                 | 1828862-9                 |         |
| Slate  | 1-1828078-0              | 1-1828861-0              | 1-1828079-0               | 1-1828862-0               |         |

Highlighted Part Numbers are routinely stocked for shortest lead times.

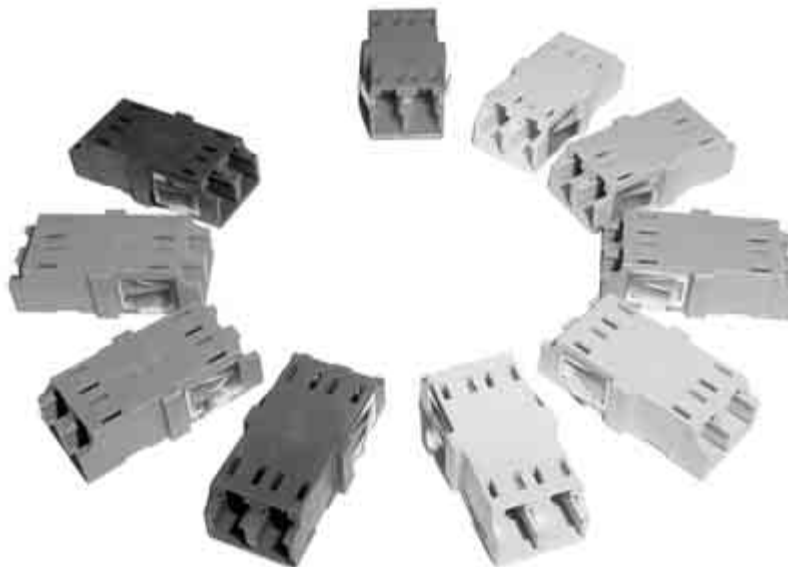
**Duplex Clip:  
Part Number 1754371-1**

**Note:** All part numbers are RoHS compliant.

**LC SECURE Product Offering** (Continued)

**LC Duplex Adapters**  
**Product Facts**

- Flange mount, flangeless, and SL Series for use with AMP NETCONNECT SL panels
- High quality ceramic sleeves
- Suitable for singlemode and multimode
- Key and color compatible to Epoxy Style and LIGHTCRIMP PLUS Product



**LC Duplex Adapters**

| Color  | SECURE Adapter Flanged | SECURE Adapter Flangeless | SECURE Adapter SL | Notes   |
|--------|------------------------|---------------------------|-------------------|---------|
| Red    | 1828073-1              | 1828074-1                 | 1828075-1         | Primary |
| Yellow | 1828073-2              | 1828074-2                 | 1828075-2         | Primary |
| Green  | 1828073-3              | 1828074-3                 | 1828075-3         | Primary |
| Blue   | 1828073-4              | 1828074-4                 | 1828075-4         | Primary |
| Rose   | 1828073-5              | 1828074-5                 | 1828075-5         |         |
| Aqua   | 1828073-6              | 1828074-6                 | 1828075-6         |         |
| Brown  | 1828073-7              | 1828074-7                 | 1828075-7         |         |
| Violet | 1828073-8              | 1828074-8                 | 1828075-8         |         |
| Orange | 1828073-9              | 1828074-9                 | 1828075-9         |         |
| Slate  | 1-1828073-0            | 1-1828074-0               | 1-1828075-0       |         |

Highlighted Part Numbers are routinely stocked for shortest lead times.

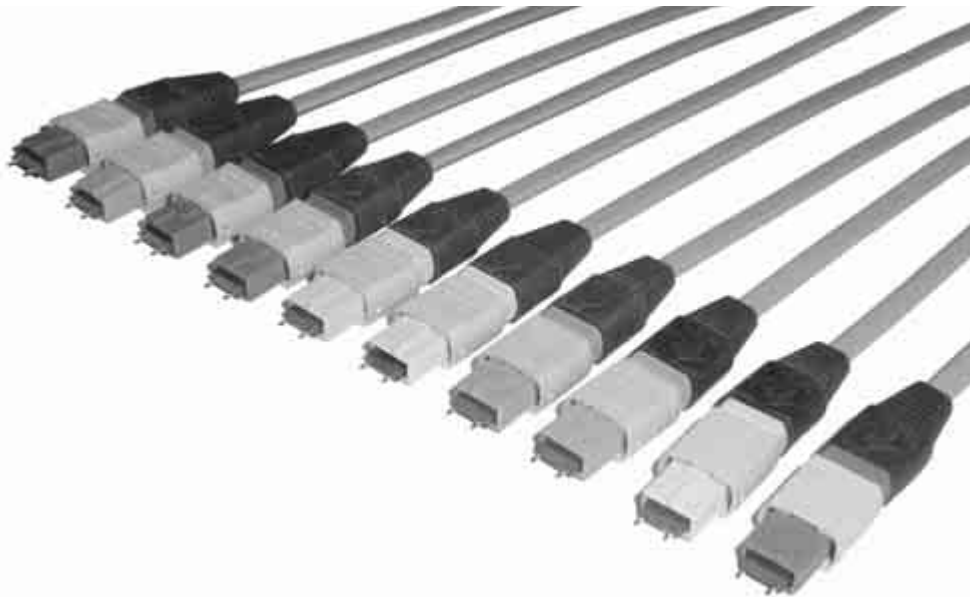
**Note:** All part numbers are RoHS compliant.

**MPO SECURE Fiber Optic Products**

**MPO SECURE Trunk Cable Assemblies**

**Product Facts**

- Feature color-coded, keyed designs to limit improper connections in segregated or SECURE networks
  - MPO SECURE plug only mates with same color MPO SECURE port
- Trunk cable fiber polarity is pair-flipped (AB/BA)
  - Trunk cables with straight-through polarity (AB/BA) are available
- Pulling socks protect MPO terminations during installation
- Twelve (12) fibers per MPO SECURE plug
- Additional counts and lengths are available
- Trunk cables come pre-tested and ready for immediate use
- MPO SECURE trunk cables are plenum cables
  - Plenum cables can be used in riser spaces
- For use with MPO SECURE Cassettes listed on page 12



| Description                                              | Fiber Type                                               | SECURE Color/Keying | Part Number |
|----------------------------------------------------------|----------------------------------------------------------|---------------------|-------------|
| 12-Fiber                                                 | 50/125 μm Multimode                                      | Red                 | 6754273-X   |
|                                                          |                                                          | Yellow              | 6754276-X   |
|                                                          |                                                          | Green               | 6754274-X   |
|                                                          |                                                          | Blue                | 6754275-X   |
|                                                          | Laser Optimized (10 Gig) (850 nm LO 50/125 μm) Multimode | Red                 | 6754420-X   |
|                                                          |                                                          | Yellow              | 6754421-X   |
|                                                          |                                                          | Green               | 6754422-X   |
|                                                          |                                                          | Blue                | 6754423-X   |
|                                                          | 62.5/125 μm Multimode                                    | Red                 | 6754269-X   |
|                                                          |                                                          | Yellow              | 6754272-X   |
|                                                          |                                                          | Green               | 6754270-X   |
|                                                          | 24-Fiber                                                 | 50/125 μm Multimode | Blue        |
| Red                                                      |                                                          |                     | 6754281-X   |
| Yellow                                                   |                                                          |                     | 6754284-X   |
| Laser Optimized (10 Gig) (850 nm LO 50/125 μm) Multimode |                                                          | Green               | 6754282-X   |
|                                                          |                                                          | Blue                | 6754283-X   |
|                                                          |                                                          | Red                 | 6754424-X   |
| 62.5/125 μm Multimode                                    |                                                          | Yellow              | 6754425-X   |
|                                                          |                                                          | Green               | 6754426-X   |
|                                                          |                                                          | Blue                | 6754427-X   |
| 62.5/125 μm Multimode                                    |                                                          | Red                 | 6754277-X   |
|                                                          |                                                          | Yellow              | 6754280-X   |
|                                                          |                                                          | Green               | 6754278-X   |
|                                                          |                                                          | Blue                | 6754279-X   |

X denotes length in feet: -1 = 10, -2 = 20, -3 = 30, -4 = 40, -5 = 50, -6 = 60, -7 = 70, -8 = 80, -9 = 90, 1- -0 = 100, 1- -1 = 110, 1- -2 = 120, 1- -3 = 130, 1- -4 = 140, 1- -5 = 150, 1- -6 = 160, 1- -7 = 170, 1- -8 = 180, 1- -9 = 190, 2- -0 = 200, 2- -1 = 210, 2- -2 = 220, 2- -3 = 230, 2- -4 = 240, 2- -5 = 250, 2- -6 = 260, 2- -7 = 270, 2- -8 = 280, 2- -9 = 290, 3- -0 = 300

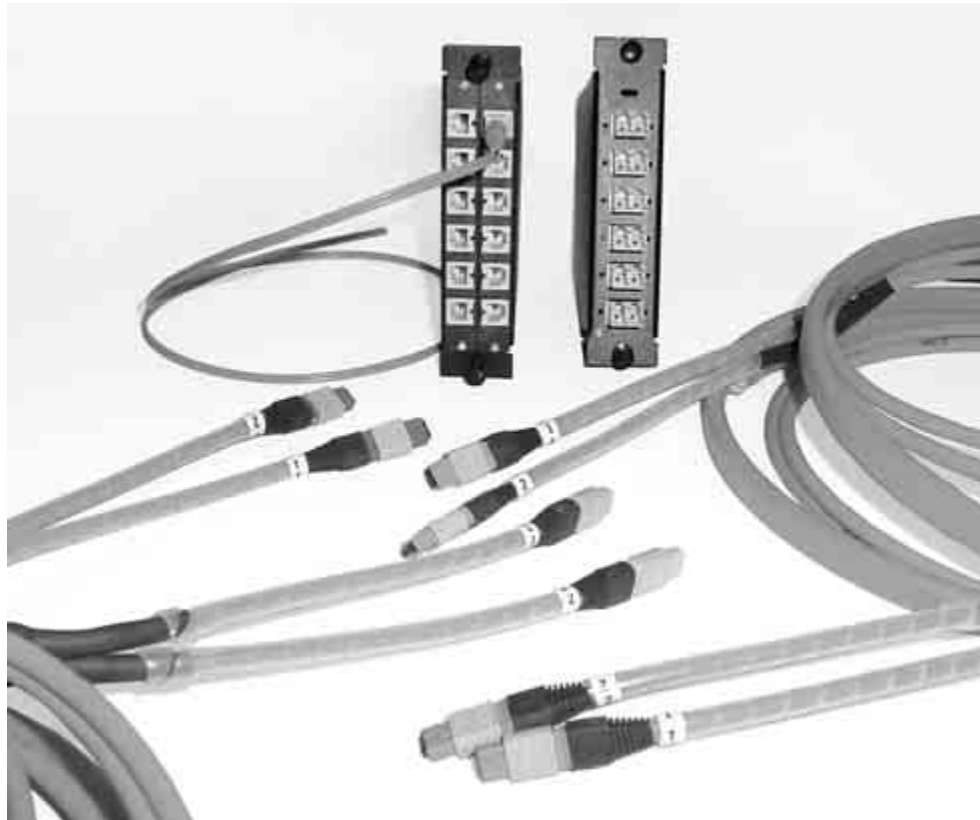
**Note:** All part numbers are RoHS compliant.

**MPO SECURE Fiber Optic Products** (Continued)

**MPO SECURE Optical Fiber Cassettes**

**Product Facts**

- **Cassette fiber polarity is pair-flipped (AB/BA)**
  - **Cassettes with straight-through polarity (AB/AB) are available**
- **Cassettes have one MPO connection (12-Fiber) or two MPO connections (24-Fiber) on the back of each cassette**
- **Cassettes house MPO one or two 12-fiber break-out assemblies**
- **Cassettes have same footprint as Snap-in Adapter Plates**
  - **Mount in all AMP NETCONNECT enclosures that accept Snap-in Adapter Plates**
- **Cassettes come pre-tested and ready for immediate use**
- **MPO SECURE cassettes accept one or two MPO SECURE connectors and transition to the same color MT-RJ SECURE connectors**
- **MPO SECURE plug only mates with same color MPO SECURE port**
- **For use only with MPO SECURE Trunk Cable Assemblies on this page**



| Description              | Fiber Count | Duplex Port Count | Part Number |           |
|--------------------------|-------------|-------------------|-------------|-----------|
|                          |             |                   | MT-RJ       | LC        |
| 50/125 μm Multimode      | 12          | 6                 | 6754286-X   | 1918779-X |
|                          | 24          | 12                | 6754288-X   | 1918780-X |
| 62.5/125 μm Multimode    | 12          | 6                 | 6754285-X   | 1918781-X |
|                          | 24          | 12                | 6754287-X   | 1918782-X |
| Laser Optimized (10 Gig) | 12          | 6                 | 1918777-X   | 1918783-X |
|                          | 24          | 12                | 1918778-X   | 1918784-X |

X denotes color: -1 = Standard; -2 = Red; -3 = Green; -4 = Blue; -5 = Yellow; -6 = Orange; -7 = Brown; -8 = Violet; -9 = Rose; 1- -0 = Slate; 1- -1 = Aqua.

**Note:** All part numbers are RoHS compliant.

**MT-RJ SECURE Product Expansion —  
Now 10 Variants of the MT-RJ SECURE Products**



In response to several customers, the MT-RJ SECURE product line has been expanded with an additional six color/key versions. In addition to the original four colors (blue, green, red and yellow), the six new colors (brown, rose, aqua, violet, slate and orange) now make for ten variations. In keeping with the MT-RJ SECURE products features, only plugs and jacks of the same color will mate, and none of the MT-RJ SECURE products will mate with the standard versions. A complete line of jacks, cable assemblies and colored cables are available. For more information see pages 73, 74 and 121.



**Rugged Fiber Optic Products**

**Product Facts**

- Expanded Beam
  - PRO BEAM Sr.Connectors
  - PRO BEAM Jr.Connectors
  - PRO BEAM Mini Connectors
  - Mini 38999
  - Mini ARINC
  - Mini GPRC
- LuxCis Optical Termini
  - One common terminus for GPRC, 38999, ARINC, Quadrax Cavity Reducers
- Sealed Circular LC ODVA Conforming Connector



Expanded Beam Products



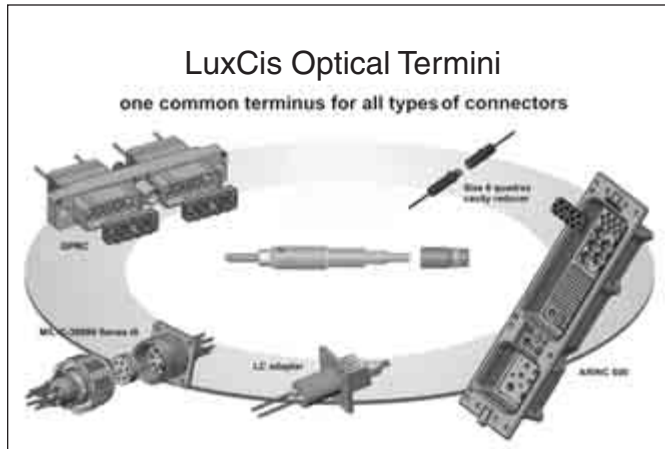
PRO BEAM Sr., Jr. & Mini Connectors

Tyco Electronics is proud to offer a full rugged fiberoptic product family.

With Tyco Electronics' Expanded Beam, LuxCis Optical Termini, and the

Sealed Circular LC ODVA Conforming Connector, 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 Tyco Electronics Sales Representative.



LuxCis Optical Termini

LuxCis is a trademark of Radiall, S.A. Product is manufactured under license from Radiall, S.A.

**ASSEMBLY CAPABILITIES**  
Tyco Electronics has extensive Rugged Optic Harness capabilities. Please consult your local Tyco Electronics Sales Representative for assistance.



Sealed Circular LC ODVA Conforming Connector



## Rugged Fiber Optic Products (Continued)

### Expanded Beam Products

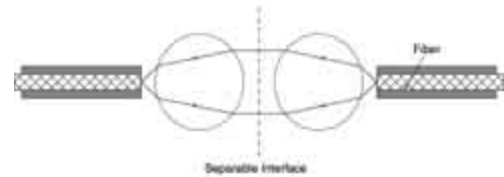
#### Product Facts

- **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 style circular connectors — Cable assemblies up to 4 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**



From left to right: PRO BEAM Sr., PRO BEAM Jr. & Mini Expanded Beam inserts.

### Expanded Beam Technology



Expanded Beam Principle

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 200 times for multimode optical signals). For singlemode signals, the collimated beam is over 45 times its original diameter (the cross-

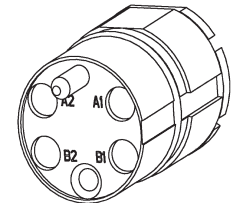
sectional area of the light beam increases over 2,000 times.). It is then refocused back down onto the core of the receiving fiber. This approach provides ease of alignment and low sensitivity to thermal changes and contamination. High strength, precision connector housings enhance a durable connection, optimizing low loss and repeatable performance.

Suitable for aerospace, avionics, 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**

#### 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**
- **Mini Expanded Beam Insert for multi-channel small form factor — the smallest expanded beam multi-channel insert in the industry, a Tyco Electronics exclusive**

#### ASSEMBLY CAPABILITIES

Tyco Electronics has extensive Rugged Optic Harness capabilities. Please consult your local Tyco Electronics Sales Representative for assistance.

**Rugged Fiber Optic Products (Continued)**

**PRO BEAM Jr. Connectors**

**Performance Specifications**

**Optical, Multimode Version**

**Insertion Loss, Typical** —  
0.7 dB @ 1300 nm\*

**Optical, Singlemode Version**

**Insertion Loss, Typical** —  
0.7 dB @ 1310 nm or 1500 nm\*

**Return Loss** — > 34 dB @ 1310 nm or 1500 nm\*\*

\*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 — 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**

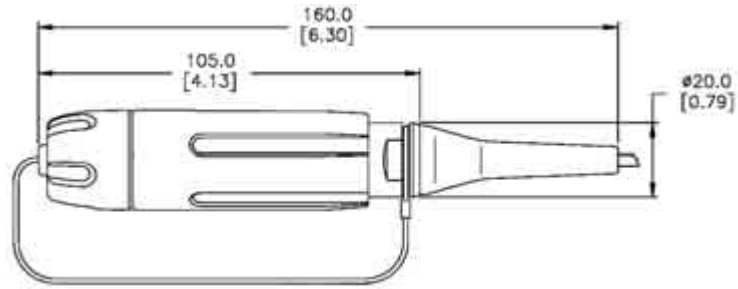
**Shell Alloy** — Aluminum; or nickel aluminum bronze (high saline environment)

**Plating (For Aluminum Shells Only)** — clear hard anodized; or green chromate conversion zinc (PRO BEAM Jr. Bulkheads only)

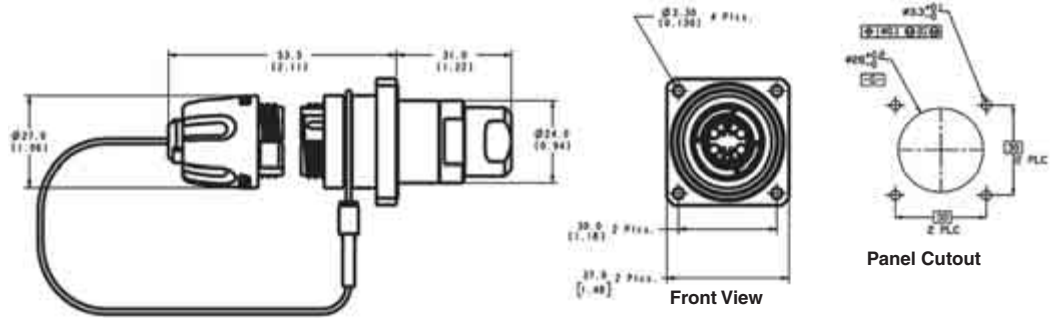
**Bulkhead Connector Panel Thicknesses**

**PRO BEAM Jr. Bulkhead Connector D-Hole** — 4 mm max.

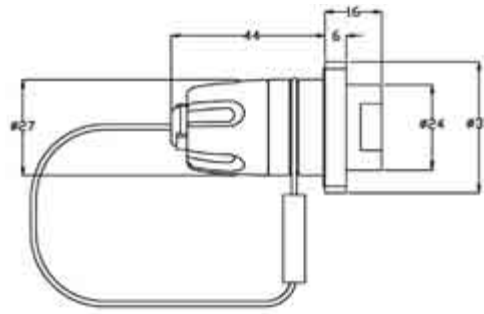
**PRO BEAM Jr. Bulkhead Connector Square Flange** — 6 mm max.



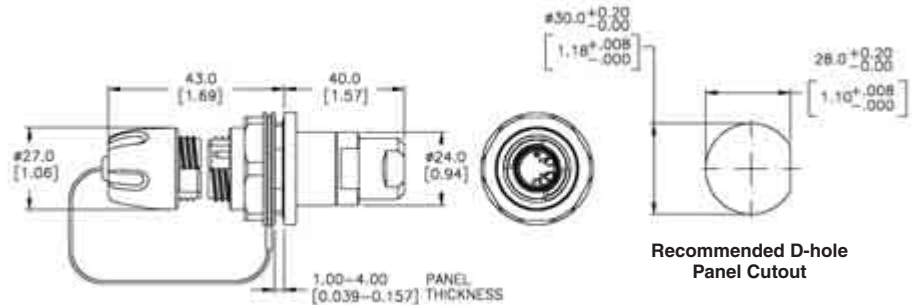
PRO BEAM Jr. Cable Connector, Plug



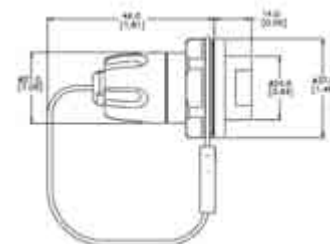
PRO BEAM Jr. Square Flange Mount Bulkhead



PRO BEAM Jr., Low Profile, Square Flange Mount Bulkhead



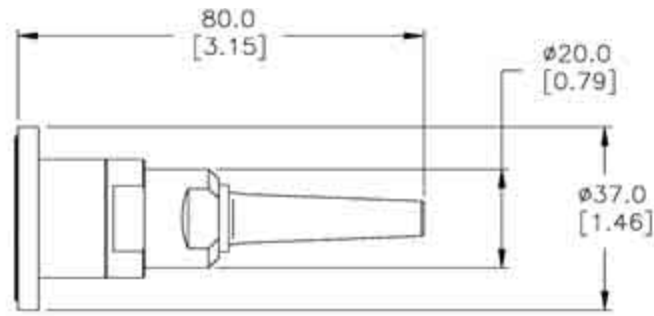
PRO BEAM Jr. D-Hole Bulkhead, Standard Cable Adapter



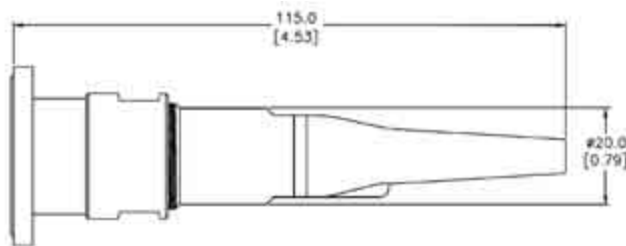
PRO BEAM Jr. Low Profile D-Hole Bulkhead

**Rugged Fiber Optic Products (Continued)**

**PRO BEAM Jr. Connectors**  
(Continued)



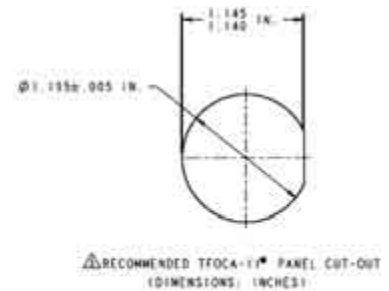
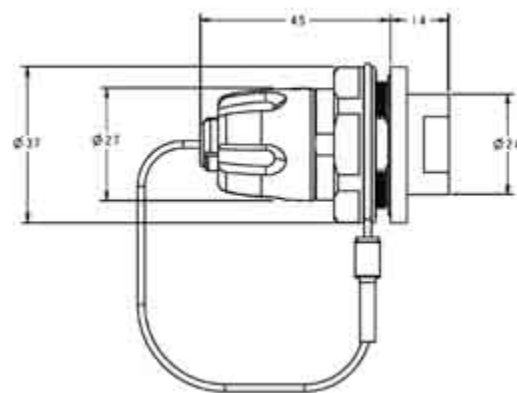
Standard Bulkhead Cable Adapter, with Boot



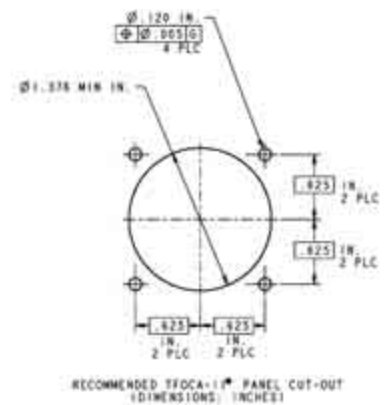
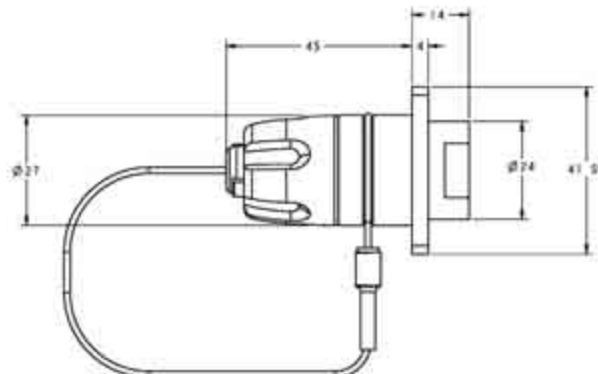
Environmentally Sealed Bulkhead Cable Adapter, with Boot

**PRO BEAM Jr. Replacement Receptacles for TFOCA-II Panel Mount Connector Applications**  
(see page 18 for Part Numbers)

**Panel Cutout Dimensions**



PRO BEAM Jr. D-Hole Low Profile Buffered Fiber Bulkhead Replacement Connector for TFOCA-II Product



PRO BEAM Jr. Square Flange, Low Profile, Buffered Fiber Bulkhead Replacement for TFOCA-II Product

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

## Rugged Fiber Optic 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 Tyco Electronics for other plating/material options such as NiAlBz for Naval applications.

### PRO BEAM Jr. Connector Shell Kits

| Description                                                    | Part Number |
|----------------------------------------------------------------|-------------|
| PRO BEAM Jr. Plug w/EPDM rubber                                | 1754436-1   |
| PRO BEAM Jr. Plug w/Fluorosilicone rubber                      | 1754436-2   |
| PRO BEAM Jr. D-Hole Low Profile, Buffered Fiber Bulkhead       | 1693741-1   |
| PRO BEAM Jr. D-Hole Standard Bulkhead                          | 1754437-1   |
| PRO BEAM Jr. D-Hole Sealed Bulkhead                            | 1754438-1   |
| PRO BEAM Jr. Square Flange Low Profile Buffered Fiber Bulkhead | 1754439-1   |
| PRO BEAM Jr. Square Flange Standard Bulkhead                   | 1754440-1   |
| PRO BEAM Jr. Square Flange Sealed Bulkhead                     | 1754441-1   |

### PRO BEAM Jr. Replacement Receptacles for TFOCA-II Panel Mount Connector Applications

| Description                                                                         | Part Number |
|-------------------------------------------------------------------------------------|-------------|
| PRO BEAM Jr. TFOCA-II Replacement D-Hole Low-Profile Buffered Fiber Bulkhead        | 1754445-1 ♦ |
| PRO BEAM Jr. TFOCA-II Replacement D-Hole Sealed Bulkhead                            | 1754446-1 ♦ |
| PRO BEAM Jr. TFOCA-II Replacement Square Flange Low-Profile Buffered Fiber Bulkhead | 1754447-1 ♦ |
| PRO BEAM Jr. TFOCA-II Replacement Square Flange Sealed Bulkhead                     | 1754448-1 ♦ |

### PRO BEAM Jr. Insert Kits

| Description                 | Part Number |
|-----------------------------|-------------|
| 2 x 850 / 1300 nm Multimode | 1515743-1   |
| 2 x 1310 nm Singlemode      | 1515739-1   |
| 2 x 1550 nm Singlemode      | 1516040-1   |
| 4 x 850 / 1300 nm Multimode | 1515747-1   |
| 4 x 1310 nm Singlemode      | 1515740-1   |
| 4 x 1550 nm Singlemode      | 1516041-1   |

### Ferrule Kits

| Fiber Hole Size | Mode | PRO BEAM Connector | Part Number |
|-----------------|------|--------------------|-------------|
| 125 µm          | SM   | Jr.                | 1588908-2   |
| 126 µm          | SM   | Jr.                | 1588908-1   |
| 126 µm          | MM   | Jr.                | 1588700-1   |

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

| Cable Dia. (Max.)                  | Part Number                 |
|------------------------------------|-----------------------------|
| 3.10<br>.122                       | 1515814-1                   |
| 3.60<br>.142                       | 1515781-3                   |
| 4.10<br>.161                       | 1515848-2                   |
| 4.60<br>.181                       | 1516147-1                   |
| 5.10<br>.201                       | 1515834-2                   |
| 5.65<br>.222                       | 1515827-2                   |
| 6.10<br>.240                       | 1515859-3                   |
| 6.70<br>.264                       | 1588116-1                   |
| 7.50<br>.295 (Breakout Cable Only) | 1828168-1 (Plug)            |
| 7.50<br>.295                       | 1754719-3 (Sealed Bulkhead) |

### PRO BEAM Jr. Connector Standard Bulkhead Cable Adapter Kits\*

| Cable Dia. (Max.)    | Part Number |
|----------------------|-------------|
| 3.10 [.122]          | 1515791-2   |
| 3.60 [.142]          | 1515808-1   |
| 5.10 [.201]          | 1515835-2   |
| 5.65 [.222]          | 1515829-1   |
| 6.10 [.240]          | 1515796-2   |
| 4 x 3.00 [ 4 x .118] | 1515749-1   |

\*Standard Cable Adapter — Not applicable for Low Profile.

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



### Technical Documents

#### Product Specification

108-2177 Design Objectives

#### Application Specification

114-13099

#### Instruction Sheets

408-8791 Grounding D-Hole Bulkhead

408-8797 Plug

408-8798 Standard D-Hole Bulkhead

408-8811 Sealed D-Hole Bulkhead

408-8834 Low Profile Square Flange Bulkhead

408-8840 Low Profile D-Hole Bulkhead

408-8841 Standard Square Flange Bulkhead

<http://www.tycoelectronics.com/documents>

Dimensions are in millimeters and inches unless otherwise specified. Values in brackets are standard equivalents.

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

USA: 1-800-522-6752  
Canada: 1-905-470-4425  
Mexico: 01-800-733-8926  
C. America: 52-55-1106-0803

South America: 55-11-2103-6000  
Hong Kong: 852-2735-1628  
Japan: 81-44-844-8013  
UK: 31-73-624-6639

## Rugged Fiber Optic 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

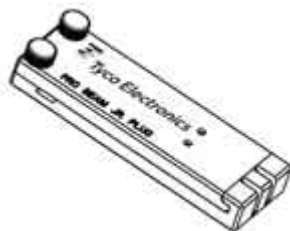
408-8828 Cleaning Procedure for EB C/A's

##### 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.tycoelectronics.com/documents>



#### Curing Fixtures

| Connector                                                                | Part Number |
|--------------------------------------------------------------------------|-------------|
| PRO BEAM Jr. Cable Plug (having cable with KEVLAR strength member fiber) | 1693797-1   |
| PRO BEAM Jr. Sealed D-Hole Bulkhead                                      |             |
| PRO BEAM Jr. Standard D-Hole and Square Flange Bulkhead                  | 1693800-1   |
| PRO BEAM Jr. Low Profile Buffered Fiber Bulkhead                         | 1754122-1   |

Instruction Sheet 408-8857. Available at [www.tycoelectronics.com](http://www.tycoelectronics.com)

#### Cable Crimp Components

| Description                                                            | Part Number |
|------------------------------------------------------------------------|-------------|
| Crimp Sleeve (use with all PRO BEAM Jr. Connector Crimp Support sizes) | 1515269-2   |
| 2.2 mm Crimp Support                                                   | 1515567-1   |
| 3.1 mm Crimp Support                                                   | 1515568-1   |
| 3.6 mm Crimp Support                                                   | 1515569-1   |
| 3.8 mm Crimp Support                                                   | 1515570-1   |
| 4.1 mm Crimp Support                                                   | 2-1515270-0 |
| 4.6 mm Crimp Support                                                   | 1516142-1   |
| 5.1 mm Crimp Support                                                   | 1515571-1   |
| 5.65 mm Crimp Support                                                  | 1515572-1   |
| 6.1 mm Crimp Support                                                   | 1515573-1   |
| 6.5 mm Crimp Support                                                   | 1515574-1   |
| 6.7 mm Crimp Support                                                   | 1515575-1   |
| Square Crimp Support for (4) 3 mm Cables                               | 1515632-1   |

#### Ferrule Kits

| Fiber Hole Size | Mode | PRO BEAM | Part Number |
|-----------------|------|----------|-------------|
| 125 μm          | SM   | Jr.      | 1588908-2   |
| 126 μm          | SM   | Jr.      | 1588908-1   |
| 126 μm          | MM   | Jr.      | 1588700-1   |

#### Protective Caps

| Description                             | PRO BEAM | Part Number |
|-----------------------------------------|----------|-------------|
| Standard cap, for D-Hole Bulkhead       | Jr.      | 1515868-1   |
| Standard cap, for Flange Mount Bulkhead | Jr.      | 1515787-2   |
| Standard cap, for connector plug        | Jr.      | 1515867-1   |

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

**Note:** All part numbers are RoHS compliant.

**Rugged Fiber Optic Products (Continued)**

**PRO BEAM Mini Connectors**

Tyco Electronics 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 Sr., Jr. & Mini Connectors



PRO BEAM Mini Plug Connector

**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

**PRO BEAM Mini Connector Shell Kits**

| Type     | Mount Style   | Attribute Difference         | Part Number   |               |              |
|----------|---------------|------------------------------|---------------|---------------|--------------|
|          |               |                              | (HA Aluminum) | (OD Aluminum) | (NiAlBronze) |
| Plug     |               | EPDM Grip                    | 1828698-1     | N/A           | 1828698-2    |
| Bulkhead | D-Hole        | Low Profile - Buffered Fiber | 1828699-1     | 1828699-2 ♦   | 1828699-3    |
|          |               | Low Profile - 1.8 Jacketed   | 1985140-1     | 1985140-2     | 1985140-3    |
|          | Square Flange | Sealed                       | 1918185-1     | *             | 1918185-2    |
|          |               | Low Profile - Buffered Fiber | 1828826-1     | *             | *            |
|          |               | Neutrik Cutout-Drop-In       | 1918603-1     | *             | *            |

\* Contact Tyco Electronics for availability.

**PRO BEAM Mini Insert Kits**

| Description                      | Part Number |
|----------------------------------|-------------|
| 2 x 850 / 1300 nm Dual Multimode | 1374759-4   |
| 2 x 1310 nm Singlemode           | 1588129-2   |
| 2 x 1550 nm Singlemode           | 1588128-2   |
| 4 x 850 / 1300 nm Dual Multimode | 1374759-2   |
| 4 x 1310 nm Singlemode           | 1588129-3   |
| 4 x 1550 nm Singlemode           | 1588128-3   |

**Ferrule Kits**

| Fiber Hole Size | Mode | PRO BEAM Connector | Part Number |
|-----------------|------|--------------------|-------------|
| 125 µm          | SM   | Mini               | 1754700-1   |
| 126 µm          | SM   | Mini               | 1754700-2   |
| 126 µm          | MM   | Mini               | 1754699-1   |

**ASSEMBLY CAPABILITIES**

Tyco Electronics has extensive Rugged Optic Harness capabilities. Please consult your local Tyco Electronics Sales Representative for assistance.

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

| Cable Diameter | Part Number |
|----------------|-------------|
| 5 mm           | 1828700-1   |
| 5.5 mm         | 1828700-2   |
| 6 mm           | 1828700-3   |

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

**Rugged Fiber Optic Products (Continued)**

**PRO BEAM Mini Connectors**

(Continued)

**Performance Specifications**

**Optical, Multimode Version**

**Insertion Loss, Typical** —  
0.7 dB @ 1300 nm\*

**Optical, Singlemode Version**

**Insertion Loss, Typical** —  
0.8 dB @ 1310 nm\*

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

\*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 environ-  
ment)

**Plating (For Aluminum Shells  
Only)** — clear hard anodized; or green  
chromate conversion zinc (PRO BEAM  
Jr. Bulkheads only)

**Technical Documents**

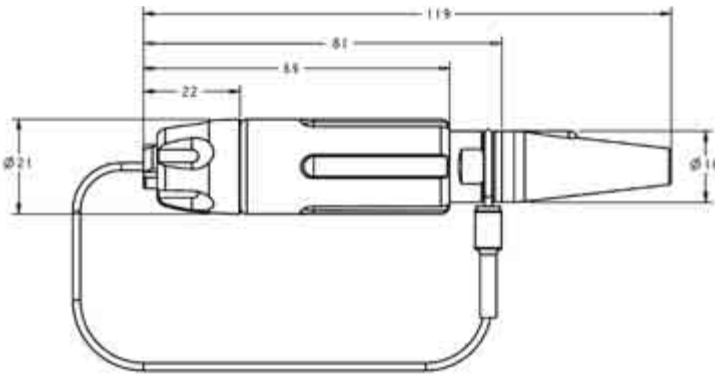
408-10065 Plug

408-10067 Square Flange Bulkhead

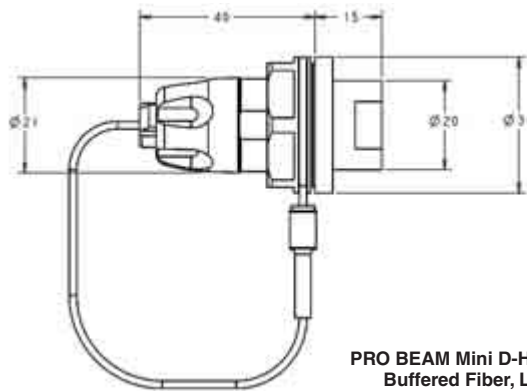
408-10069 Low Profile D-Hole Bulkhead

408-10076 Sealed D-Hole Bulkhead

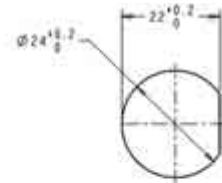
<http://www.tycoelectronics.com/documents>



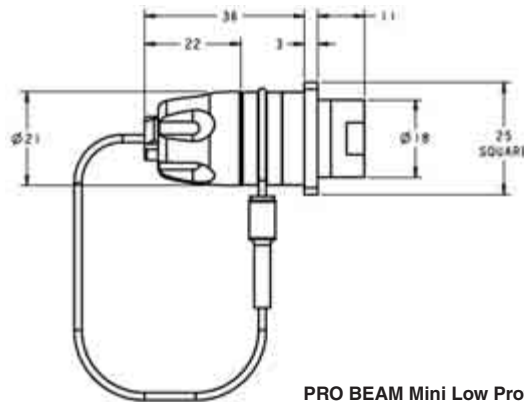
PRO BEAM Mini Cable Connector, Plug



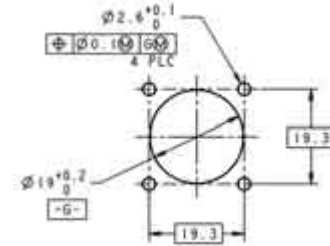
PRO BEAM Mini D-Hole Bulkhead,  
Buffered Fiber, Low Profile



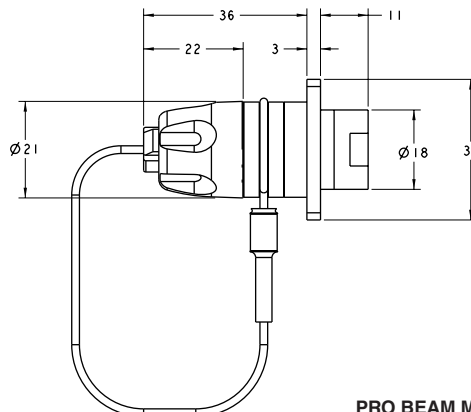
Recommended Panel Cutout



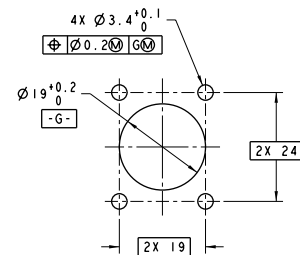
PRO BEAM Mini Low Profile, Square Flange Mount Bulkhead



Recommended Panel Cutout



PRO BEAM Mini Bulkhead with XLR Flange

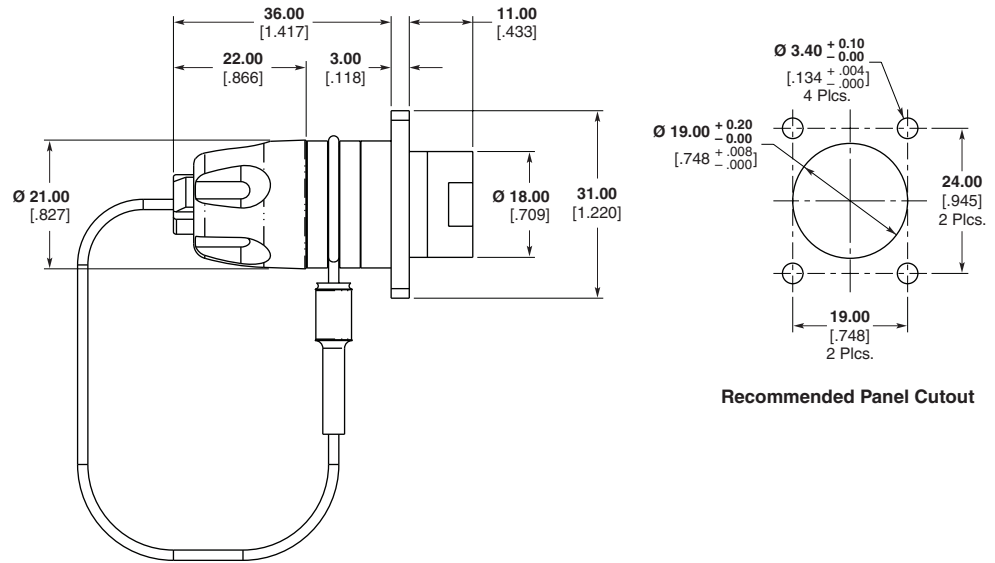


Recommended Panel Cutout

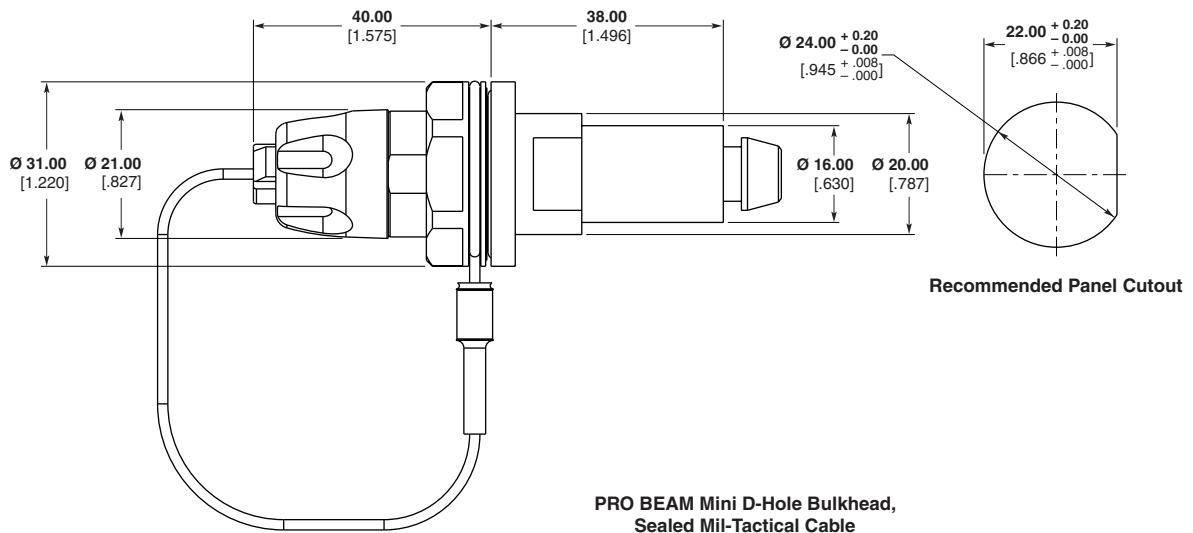
**Rugged Fiber Optic Products (Continued)**

**PRO BEAM Mini Connectors**

(Continued)



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



**PRO BEAM Mini D-Hole Bulkhead,  
Sealed Mil-Tactical Cable**





**Rugged Fiber Optic Products (Continued)**

**PRO BEAM Sr. Connectors**

**Performance Specifications**

**Optical, Multimode Version**  
Insertion Loss, Typical —  
0.7 dB @ 1300 nm\*

**Optical, Singlemode Version**  
Insertion Loss, Typical —  
0.7 dB @ 1310 nm\*

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

\*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 environ-  
ment)

**Plating (For Aluminum Shells  
Only)** — clear hard anodized

**Bulkhead Connector Panel  
Thicknesses**

**PRO BEAM Sr. D-Hole Connector** —  
6.5 mm max.

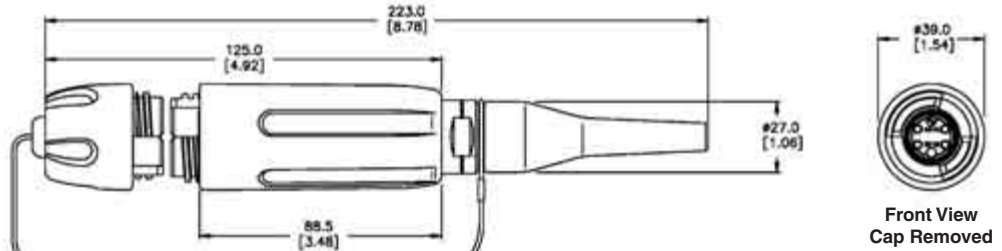
**PRO BEAM Sr. Square Flange  
Connector** — 8.5 mm max.

**Technical Documents**

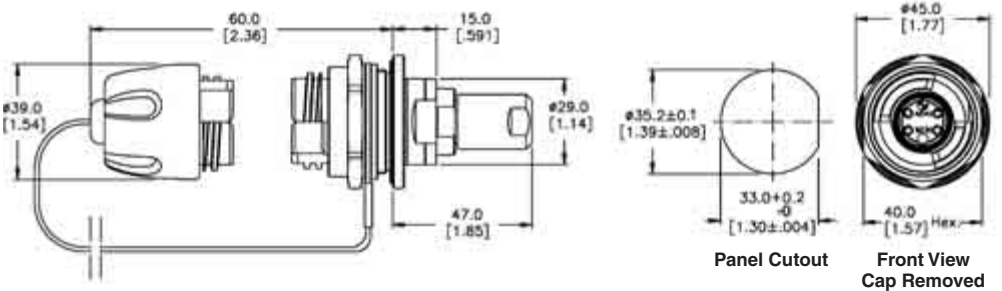
**Product Specifications**  
408-8799 Plug  
408-8800 D-Hole Bulkhead  
408-8877 Square Flange Bulkhead

**Application Specification**

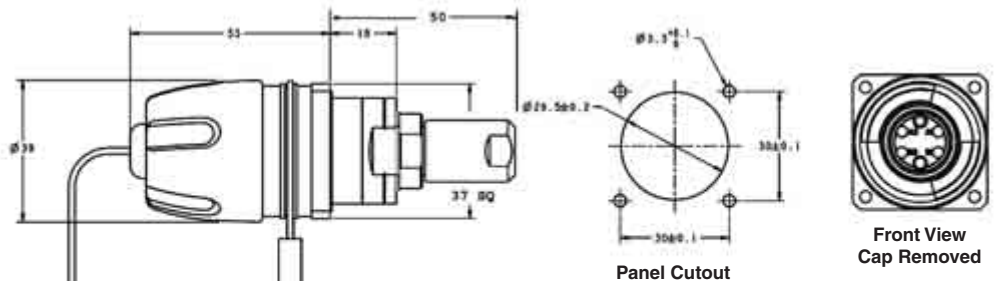
114-13122  
<http://www.tycoelectronics.com/documents>



PRO BEAM Sr. Cable Connector, Plug



PRO BEAM Sr. D-Hole Bulkhead with Standard Cable Adapter



PRO BEAM Sr. Square Flange Mount Bulkhead with Standard Cable Adapter

**Please contact your local  
Tyco Electronics  
Sales Representative  
for Part Numbers and  
availability.**

**Rugged Fiber Optic 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 Tyco Electronics for other plating/material options such as NiAlBz for Naval applications.**

| PRO BEAM Sr. Connector Shell Kits            | Part Number |
|----------------------------------------------|-------------|
| PRO BEAM Sr. Plug w/EPDM rubber              | 1754842-1   |
| PRO BEAM Sr. D-Hole Standard Bulkhead        | 1754843-1   |
| PRO BEAM Sr. Square Flange Standard Bulkhead | 1754844-1   |

| PRO BEAM Sr. Insert Kits    | Part Number |
|-----------------------------|-------------|
| 2 x 850 / 1300 nm Multimode | 1693001-1   |
| 2 x 1310 nm Singlemode      | 1515734-2   |
| 4 x 850 / 1300 nm Multimode | 1693001-2   |
| 4 x 1310 nm Singlemode      | 1515735-1   |

**Ferrule Kits**

| Fiber Hole Size | Mode | PRO BEAM Connector | Part Number |
|-----------------|------|--------------------|-------------|
| 125 µm          | SM   | Sr.                | 1515941-1   |
| 126 µm          | SM   | Sr.                | 1515941-2   |
| 126 µm          | MM   | Sr.                | 1588801-1   |



**PRO BEAM Sr. Connector Plug Adapter Kits**

| Cable Dia. (Max.) | Part Number |
|-------------------|-------------|
| 5.10<br>.201      | 1515940-1   |
| 5.65<br>.222      | 1515940-3   |
| 6.20<br>.244      | 1515940-5   |

**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.tycoelectronics.com/documents>

**PRO BEAM Sr. Connector Standard Bulkhead Cable Adapter Kits**

| Cable Dia. (Max.) | Style                  | Part Number |
|-------------------|------------------------|-------------|
| 5.10<br>.201      | Standard Cable Adapter | 1515847-1   |
| 5.65<br>.222      | Standard Cable Adapter | 1515724-2   |
| Buffered Fiber    | Low Profile Adapter    | 1515299-2   |

**Note:** All part numbers are RoHS compliant.

**Rugged Fiber Optic Products (Continued)**

**Cable Assemblies and Accessories**

**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

**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**



1918930-1



Tactical Reel/Drum Options

**PRO BEAM Jr. Kits**

**PRO BEAM Jr. Termination Kit**  
1828650-1

**Cleaning Kit**  
1828335-2

**Cable Reels**

**Reel Capacity (Random Lay)**

| Cable Diameter |        | Notes/Description                                                              | Flange Diameter | Part Number |
|----------------|--------|--------------------------------------------------------------------------------|-----------------|-------------|
| 5.0 mm         | 5.5 mm |                                                                                |                 |             |
| 225 M          | 186 M  | Reel & Reel Stand Combination<br>Reel can be detached from stand without tools | 310 mm          | 1918930-1   |
| 297 M          | 247 M  | Reel*                                                                          | 310 mm          | 1754515-1   |
| 570 M          | 462 M  | Reel*                                                                          | 370 mm          | 1754515-2   |
| 998 M          | 816 M  | Reel*                                                                          | 460 mm          | 1754515-3   |
| 1271 M         | 1052 M | Reel*                                                                          | 510 mm          | 1754515-4   |

\* See Accessories options below

**ASSEMBLY CAPABILITIES**

Tyco Electronics has extensive Rugged Optic Harness capabilities. Please consult your local Tyco Electronics Sales Representative for assistance.



Backpack with Reel



Reel with Stand "Static Frame"



Backpack Harness

**Accessories**

| Description  | Reel Diameter    | Part Number |
|--------------|------------------|-------------|
| Backpack     | 370 mm Dia. Reel | 1754516-1*  |
| Backpack     | 460 mm Dia. Reel | 1754516-2*  |
| Backpack     | 510 mm Dia. Reel | 1754516-3*  |
| Static Frame | 500 mm Dia. Max  | 1754517-1*  |
| Static Frame | 700 mm Dia. Max  | 1754517-2*  |

\* Reel must be ordered separately.

**Note:** For lower cost alternative options. Please contact your local Tyco Electronics' Sales Representative or Tyco Electronics Product Information Center at 1-800-522-6752.

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

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

**Rugged Fiber Optic Products** (Continued)

**Tactical Field  
Splice Repair Kit  
Part Number 1985212-1**



**Materials List**

| Quantity | Description                                                                                                                                                                                                |
|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4        | Flexible Splice Housings                                                                                                                                                                                   |
| 10       | Mechanical Splices                                                                                                                                                                                         |
| 1        | Cleaver                                                                                                                                                                                                    |
| 1        | Cable Stripper                                                                                                                                                                                             |
| 2        | Buffer Stripper (sizes): 126 micron, 200 micron                                                                                                                                                            |
| 1        | Utility Knife with 3 Spare Blades                                                                                                                                                                          |
| 1        | KEVLAR Shears                                                                                                                                                                                              |
| 1        | 6 inch Metal Ruler, (units in metric)                                                                                                                                                                      |
| 1        | Illuminated Microscope with Batteries                                                                                                                                                                      |
| 40       | Alcohol (at least 70%) Pads                                                                                                                                                                                |
| 1        | Wipes, 5 x 8 inch, 280 count box                                                                                                                                                                           |
| 1        | Plastic Frame Safety Glasses (ANSI approved lenses)                                                                                                                                                        |
| 1        | Tweezers                                                                                                                                                                                                   |
| 1        | Roll Tape                                                                                                                                                                                                  |
| 1        | Fine Tip Marking Pen                                                                                                                                                                                       |
| 1        | Set of Instructions (illustrated) — Waterproof                                                                                                                                                             |
| 1        | Portable Field Storage Case.<br>This case shall be ruggedized and house all components necessary to repair broken cable.<br>Dimensions of the case shall not exceed 7.5" H x 20" W x 14" — Black in color. |

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

**Note:** All part numbers are RoHS compliant.



**Rugged Fiber Optic Products** (Continued)

**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**

| Description                               | Part Number |
|-------------------------------------------|-------------|
| 850 nm 38999 III Size 11 Optical Test Kit | 1918016-1   |
| 850/1300 nm PRO BEAM Jr. Optical Test Kit | 1918016-2   |
| 1310 nm PRO BEAM Jr. Optical Test Kit     | 1985006-1   |

For additional wavelength testers, contact your local Tyco Electronics Sales Representative.

|                        |
|------------------------|
| <b>Protective Case</b> |
| 1918082-1              |

**Note:** All part numbers are RoHS compliant.

**Rugged Fiber Optic Products (Continued)**

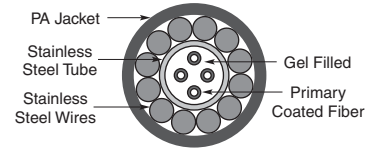
**ARMOR-LIGHT Tactical Field Deployable Fiber Optic Cable for Extreme Environments (Metallic for Rodent Proof)**



**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



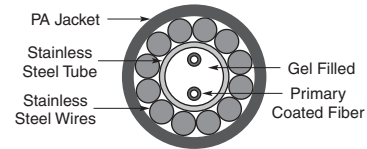
| Fiber Type | Part Number | Outside Dia. (mm) | Weight kg/km | Max. Attenuation dB/km |         |         |         | Bandwidth MHz-km |         |
|------------|-------------|-------------------|--------------|------------------------|---------|---------|---------|------------------|---------|
|            |             |                   |              | 850 nm                 | 1300 nm | 1310 nm | 1550 nm | 850 nm           | 1300 nm |
| 62.5/125   | 1588957-1   | 3.8               | 24           | 3.5                    | 1.0     | X       | X       | 160              | 500     |
| 50/125     | 1588957-2   | 3.8               | 24           | 2.7                    | 0.9     | X       | X       | 400              | 1200    |
| SM         | 1588957-4   | 3.8               | 24           | X                      | X       | 0.40    | 0.25    | X                | X       |

**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



| Fiber Type | Part Number | Outside Dia. (mm) | Weight kg/km | Max. Attenuation dB/km |         |         |         | Bandwidth MHz-km |         |
|------------|-------------|-------------------|--------------|------------------------|---------|---------|---------|------------------|---------|
|            |             |                   |              | 850 nm                 | 1300 nm | 1310 nm | 1550 nm | 850 nm           | 1300 nm |
| 62.5/125   | 1693808-1   | 3.8               | 24           | 3.5                    | 1.0     | X       | X       | 160              | 500     |
| 50/125     | 1693808-2   | 3.8               | 24           | 2.7                    | 0.9     | X       | X       | 400              | 1200    |
| SM         | 1693808-4   | 3.8               | 24           | X                      | X       | 0.40    | 0.25    | X                | X       |

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

**Note:** All part numbers are RoHS compliant.

**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**

**Mil-Standard Distribution Cable — 2 Fiber Singlemode**

**Attenuation** — ≤ 0.5 dB/km @ 1310 nm / ≤ 0.5 dB/km @ 1550 nm  
**Diameter** — 5.8 mm  
**Weight** — 25 kg/km  
**Minimum Bending Radius** — 29 mm  
**Crush Resistance** — 2000 N/cm  
**Operating Temperature** — -55° C to +85° C

**Mil-Standard Distribution Cable — 4 Fiber Singlemode**

**Attenuation** — ≤ 0.5 dB/km @ 1310 nm / ≤ 0.5 dB/km @ 1550 nm  
**Diameter** — 5.8 mm  
**Weight** — 27 kg/km  
**Minimum Bending Radius** — 28 mm  
**Crush Resistance** — 2000 N/cm  
**Operating Temperature** — -55° C to +85° C

**Mil-Standard Distribution Cable — 2 Fiber Multimode**

**Fiber Type** — 50 μm/125 μm and 62.5/125  
**Attenuation** — ≤ 3.5 dB/km @ 850 nm / ≤ 1.0 dB/km @ 1300 (62.5/125); ≤ 3.5 dB/km @ 850 nm / ≤ 1.5 dB/km @ 1300 (50/125)

**Mil-Standard Distribution Cable — 4 Fiber Multimode**

**Fiber Type** — 50 μm/125 μm and 62.5/125  
**Attenuation** — ≤ 3.5 dB/km @ 850 nm / ≤ 1.0 dB/km @ 1300 (62.5/125); ≤ 3.5 dB/km @ 850 nm / ≤ 1.5 dB/km @ 1300 (80/125)

Other fibers (i.e. Polyimide, Silicon buffer, Carbon coated, radiation hardened, etc.) are available upon request.

Contact Tyco Electronics or your local Tyco Electronics Sales Representative for part numbers, pricing, and availability.



## Rugged Fiber Optic Products (Continued)

### “Mini” Expanded Beam for Harsh Environments

(Continued)

| Use with:                | Mini EB 38999 Connector Shell Kits (N-Key) |             |                                 |             |                      |             |
|--------------------------|--------------------------------------------|-------------|---------------------------------|-------------|----------------------|-------------|
|                          | Ø1.8 mm Max Simplex Cable                  |             | MIL-Tactical Distribution Cable |             | Buffered Fiber Only  |             |
|                          | Electroless Ni Plate                       | OD Zn/Ni    | Electroless Ni Plate            | OD Zn/Ni    | Electroless Ni Plate | OD Zn/Ni    |
| Finish:                  |                                            |             |                                 |             |                      |             |
| Plug:                    | 6754518-1                                  | 1754518-7 ♦ | 6828045-1                       | 1828045-7 ♦ | 1918883-1            | 1918883-7 ♦ |
| Jam-Nut Receptacle:      | 6754519-1                                  | 1754519-7 ♦ | 6828046-1                       | 1828046-7 ♦ | 1918884-1            | 1918884-7 ♦ |
| Flange-Mount Receptacle: | 6754520-1                                  | 1754520-7 ♦ | 6828047-1                       | 1828047-7 ♦ | 1918885-1            | 1918885-7 ♦ |

### PRO BEAM Mini Insert Kits

| Description                      | Part Number |
|----------------------------------|-------------|
| 2 x 850 / 1300 nm Dual Multimode | 1374759-4   |
| 2 x 1310 nm Singlemode           | 1588129-2   |
| 2 x 1550 nm Singlemode           | 1588128-2   |
| 4 x 850 / 1300 nm Dual Multimode | 1374759-2   |
| 4 x 1310 nm Singlemode           | 1588129-3   |
| 4 x 1550 nm Singlemode           | 1588128-3   |

### Ferrule Kits

| Fiber Hole Size | Mode | PRO BEAM Connector | Part Number |
|-----------------|------|--------------------|-------------|
| 125 µm          | SM   | Mini               | 1754700-1   |
| 126 µm          | SM   | Mini               | 1754700-2   |
| 126 µm          | MM   | Mini               | 1754699-1   |

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



**Expanded Beam Avionics-Related Standards and Specifications for ARINC 600, 664, 763 and 801**

**ARINC 664 — Aircraft Data Network**

Tyco Electronics' ARINC Connectors with Mini Expanded Beam inserts will meet/exceed all 100 Base-FX Ethernet LAN applications

**ARINC 763 — Avionics Network Server System —**

Tyco Electronics' 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)

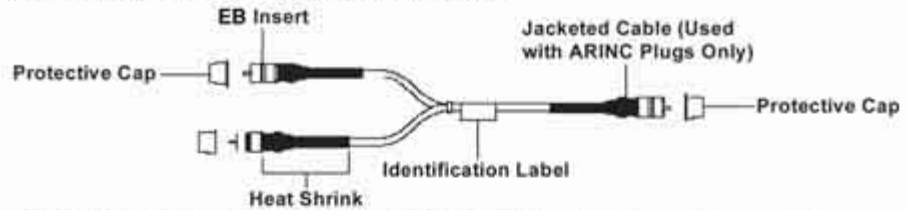
**ARINC 801 — Fiber Optics Working Group**

Tyco Electronics provides a single reference point for Flight Level Optics that are multi-sourced.

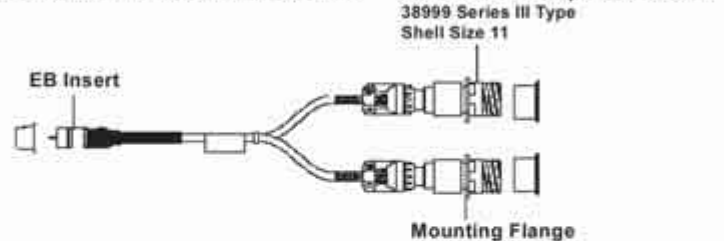
**Rugged Fiber Optic Products (Continued)**

**Typical Assemblies for In-Flight Network Applications**

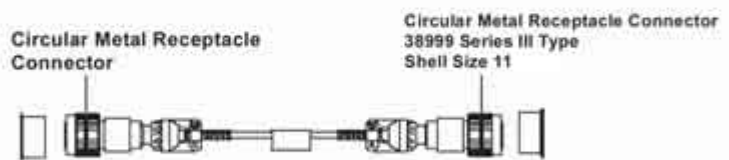
*ARINC EB Connector-to-ARINC EB Connector Cable Assembly*



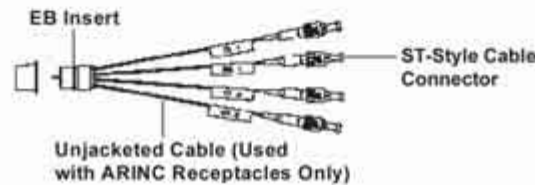
*ARINC EB Connector-to-Circular Metal Connector Cable Assembly*



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



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



**Typical Assemblies**



**ASSEMBLY CAPABILITIES**

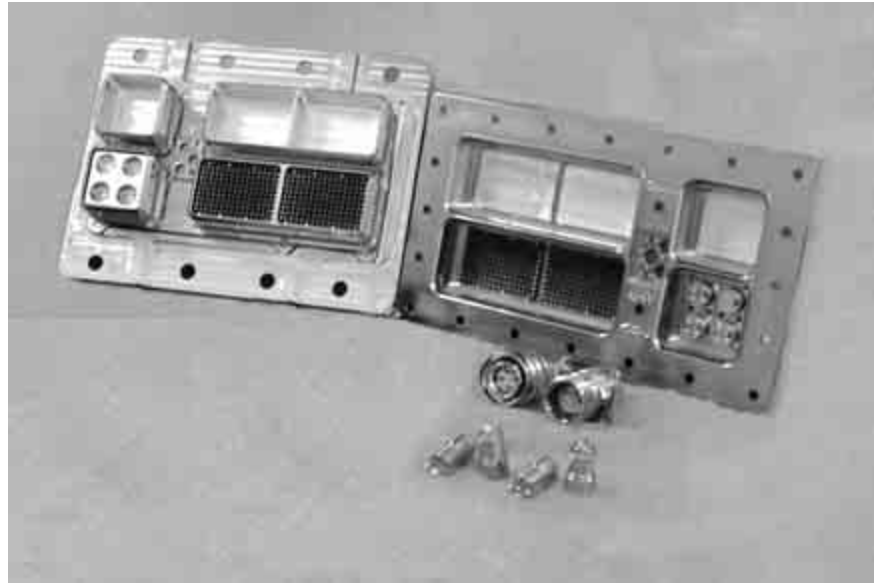
Tyco Electronics has extensive Rugged Optic Harness capabilities. Please consult your local Tyco Electronics Sales Representative for assistance.

**Rugged Fiber Optic Products (Continued)**

**ARINC 600 and 404**

**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

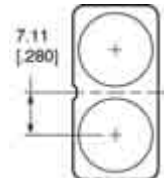


**ARINC 600 Insert Holders for Mini-Expanded Beam Contacts**

**Size 1 Power Cavities**



ARINC 600, 1 Position  
1MP

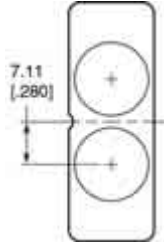


ARINC 600, 2 Position  
2MP

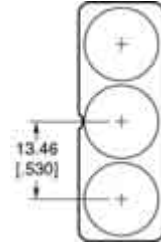
**Size 1 Signal Cavities**



ARINC 600, 1 Position  
1MS



ARINC 600, 2 Position  
2MS



ARINC 600, 3 Position  
3MS

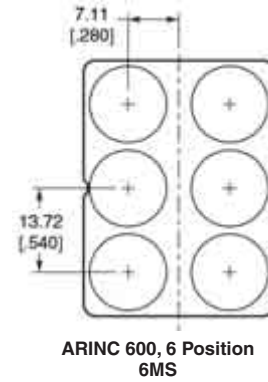
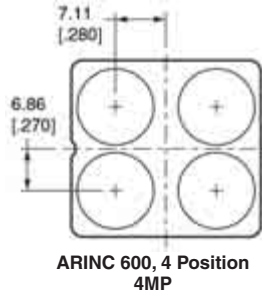
**ASSEMBLY CAPABILITIES**  
Tyco Electronics has extensive Rugged Optic Harness capabilities. Please consult your local Tyco Electronics Sales Representative for assistance.

See next page (33) for Size 2 / 3 Power and Signal Cavities

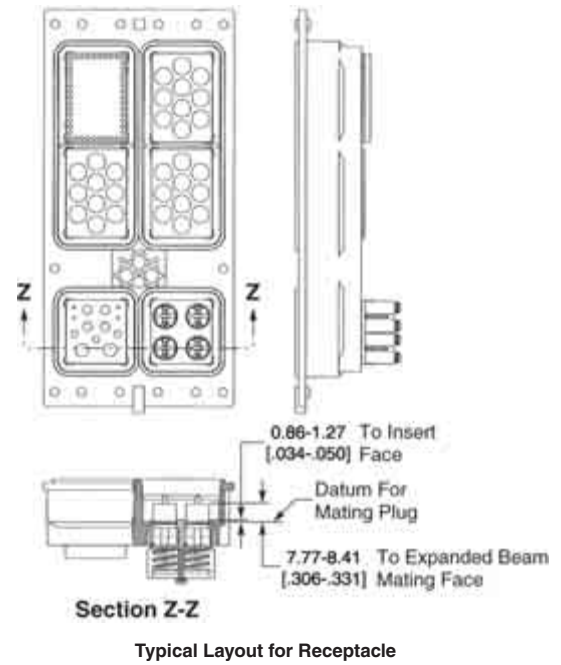
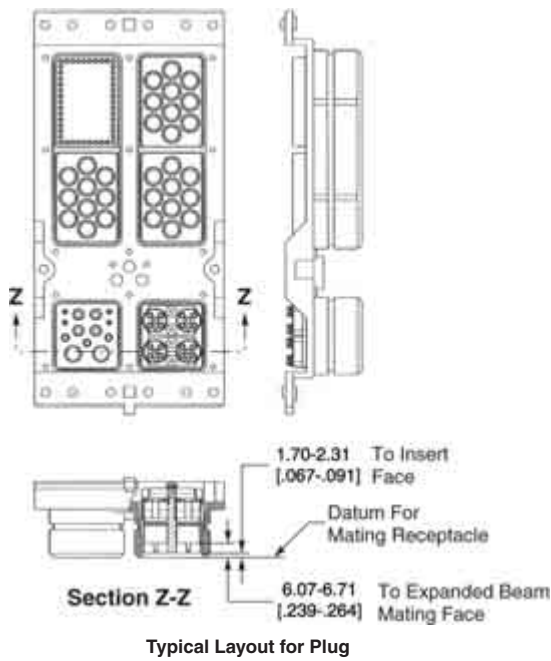


**Rugged Fiber Optic Products** (Continued)

Size 2 / 3  
Power and Signal Cavities

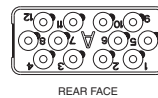
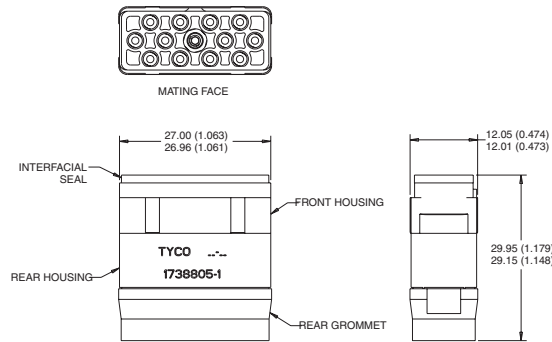


**ARINC 600 Insert Holders  
for Mini-Expanded Beam  
Contacts**

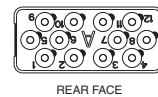
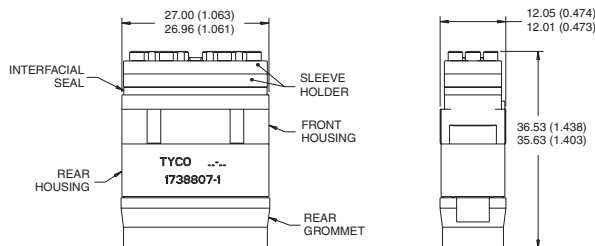
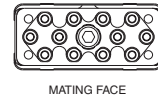


**Rugged Fiber Optic Products (Continued)**

**F12 LuxCis Insert Assemblies**



Insert Assembly, without Sleeve Holder, Environmental, F12  
Key A 1738805-1  
Key B 1738806-1



Insert Assembly, with Sleeve Holder, Environmental, F12, Key A  
GPRB  
Key A 1738807-1  
Key B 1738808-1

**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
- LuxCis 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

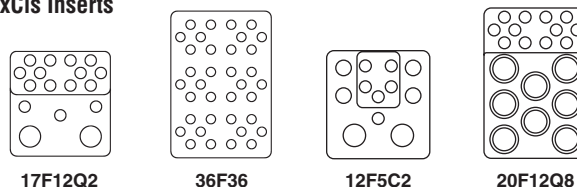
**Optical Performance**

- 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**

Tyco Electronics has extensive Rugged Optic Harness capabilities. Please consult your local Tyco Electronics Sales Representative for assistance.

**LuxCis Inserts**



LuxCis Inserts and Cavity Reducers accept LuxCis Optical Termini.

LuxCis is a trademark of Radiall, S.A. Product is manufactured under license from Radiall, S.A.

**Note:** All part numbers are RoHS compliant.



**Rugged Fiber Optic Products** (Continued)

**Comparative on Expanded Beam Inserts**

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

- ARINC 600 connector mated pair size 2 = 440 grams (without copper contacts)
- ARINC style Mini and Junior size Expanded Beam inserts = 5 pounds insertion force each when applied to the Rack and Panel ARINC Connector inserts
- 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) = @ 30 grams
- 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) = @ 20 grams
- Insert mated pair PRO BEAM Jr. Connector insert set = @ 41.79 grams
- Insert mated pair PRO BEAM mini Connector insert set = @ 16.17 grams
- Fiber = single fiber ≤ 4 kg / km
- Fiber = four fiber jacketed with a support member ≤ 24 kg / km
- Static spring force per mated Expanded Beam insert pair = 5 lbs.

**LuxCis Optical Termini Notes**

LuxCis is a trademark of Radiall, S.A.  
Product is manufactured under license from Radiall, S.A.

**Sealed Circular LC ODVA Conforming Notes**

**Rugged Fiber Optic Products (Continued)**

**LuxCis 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):

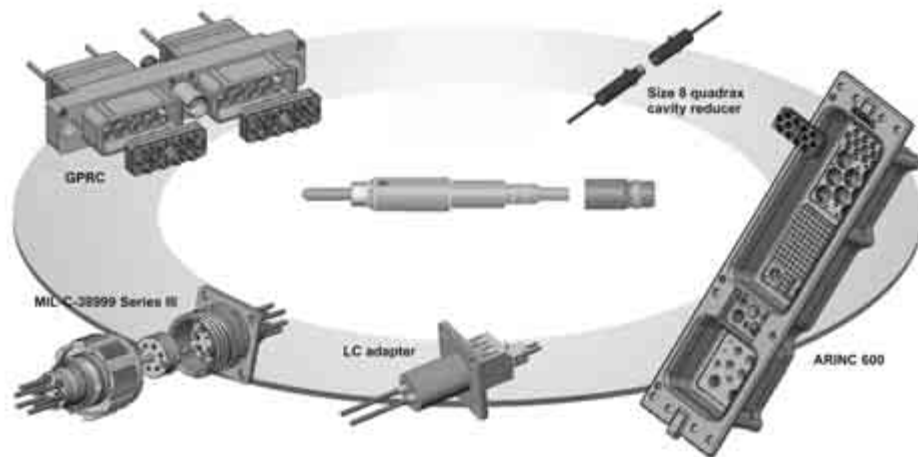
- Attenuation, Mean** — 0.15dB
- Return Loss** — > 50dB

Multimode, 850 nm/1310 nm:

- Attenuation, Mean** — 0.10dB
- Return Loss** — > 20dB

**LuxCis Optical Termini**

one common terminus for all types of connectors



**Mechanical / Environmental Performance**

| Test Description            | Standard                       | LuxCis Optical Termini in GPR A & B Connector | LuxCis Optical Termini in 38999 Connector    | LuxCis Optical Termini in ARINC 600 Connector  |
|-----------------------------|--------------------------------|-----------------------------------------------|----------------------------------------------|------------------------------------------------|
| Thermal Shock               | SAE-AS-13441 met 1003.1        | -55C /+100C                                   | -55C /+100C                                  | -55C /+100C                                    |
| Temperature Life            | TIA/EIA 455-20A                | 500h @ +100C                                  | 500h @ +100C                                 | 500h @ +100C                                   |
| Vibration                   | TIA/EIA 455-11                 | 8h/axis<br>3.8g <sup>2</sup> /Hz<br>43 G rms  | 8h/axis<br>3.8g <sup>2</sup> /Hz<br>43 G rms | 8h/axis<br>0.2g <sup>2</sup> /Hz<br>16.4 G rms |
| Shock                       | TIA/EIA 455-14A                | 300 G - 3ms                                   | 300 G - 3ms                                  | 50G - 11ms                                     |
| Mate/Unmate (GPR/ARINC 600) | SAE-AS-13441 met 2016          | 100 Cycles                                    | N/A                                          | 100 Cycles                                     |
| Mate/Unmate (38999)         | TIA/EIA 455-21A                | N/A                                           | 500 Cycles                                   | N/A                                            |
| Maint. Aging                | SAE-AS-13441 met 2002-1        | 10 Cycles                                     | 10 Cycles                                    | 10 Cycles                                      |
| Salt Spray                  | SAE-AS-13441 met 1001.1 cond C | 96 hr                                         | 500 hr                                       | 48 hr                                          |
| Cable Ret. (1.8 mm)         | SAE-AS-13441 met 2009-1        | 68N                                           | 68N                                          | 68N                                            |
| Humidity (GPR/38999)        | TIA/EIA 455-5 met B7A          | 10 cycles / 24h<br>90% RH<br>-25C/+65C        | 10 cycles / 24h<br>90% RH<br>-25C/+65C       | N/A                                            |
| Humidity (ARINC 600)        | TIA/EIA 455-5 met B            | N/A                                           | N/A                                          | 10 cycles / 24h<br>90% RH<br>-25C/+65C         |
| Altitude Imm.               | TIA/EIA 455-15                 | 10,000 ft (69.6kPa)                           | 10,000 ft (69.6kPa)                          | 10,000 ft (69.6kPa)                            |



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**Rugged Fiber Optic Products (Continued)**

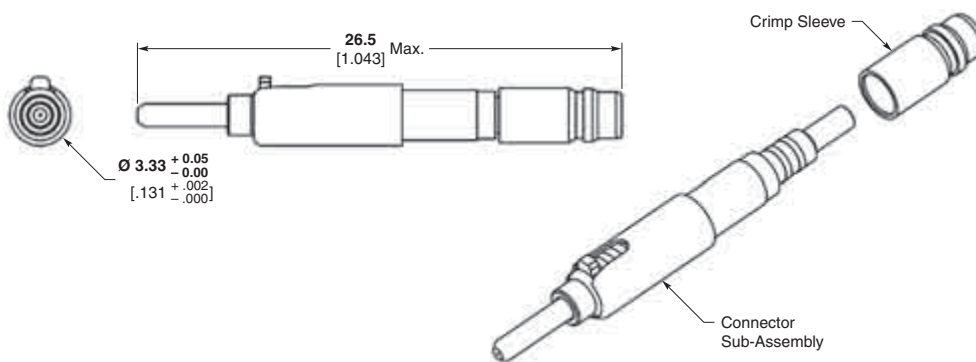
**LuxCis Optical Termini**  
(Continued)

There are three types of LuxCis Optical Termini available dependent upon cable structure.

Tyco Electronics has multiple connector types/families available for the LuxCis Optical Termini 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
- **Quadrax Cavity Reducers**
- **Motherboard & Daughtercard Solutions**



**LuxCis Optical Termini Part Numbers**

| Cable Dia.   | Cable Structure<br>ML (loose & tight)<br>MT (ultra tight) | S/M Fiber<br>125.3 µm<br>PC/UPC | S/M Fiber<br>125.3 µm<br>APC | M/M Fiber<br>128 µm<br>PC |
|--------------|-----------------------------------------------------------|---------------------------------|------------------------------|---------------------------|
| 0.9mm Buffer | —                                                         | *                               | *                            | *                         |
| 1.5 - 2.2 mm | ML                                                        | *                               | *                            | 1828199-1                 |
| 1.5 - 2.2 mm | MT                                                        | *                               | *                            | 1828200-1                 |

Consult your local Tyco Electronics Sales Representative for additional options.

\* Contact Tyco Electronics for availability.

| Accessories          | Part Number |
|----------------------|-------------|
| Dust Cap (bag of 10) | 1828221-1   |

**LuxCis Cavity Reducers**

| Size 8 Quadrax                                                              | Part Number | LuxCis Cavity Reducer                               |
|-----------------------------------------------------------------------------|-------------|-----------------------------------------------------|
| Pin Quadrax adapter for LuxCis Optical Termini in Quadrax FR type cavity    | 1757727-1   | Quadrax cavity reducer (FR/FR) for receptacle shell |
| Pin Quadrax adapter for LuxCis Optical Termini in Quadrax RR type cavity    | 1757710-1   | Quadrax cavity reducer (RR/RR) for receptacle shell |
| Socket Quadrax adapter for LuxCis Optical Termini in Quadrax RR type cavity | 1757711-1   | Quadrax cavity reducer (RR/RR) for plug shell       |

**Connector Options:**  
For part numbers, details, and / or additional connector types and arrangements, contact your local Tyco Electronics Sales Representative.

**ASSEMBLY CAPABILITIES**  
Tyco Electronics has extensive Rugged Optic Harness capabilities. Please consult your local Tyco Electronics Sales Representative for assistance.

**Cable Structure**

|                                        | Loose Structure | Tight Structure | Ultra Tight Structure |
|----------------------------------------|-----------------|-----------------|-----------------------|
| Movement between fiber & 900 µm buffer | Yes             | No              | No                    |
| Movement between 900 µm & cable jacket | Yes             | Yes             | No                    |

**Adapters**

| Type                                             | Version                           | Alignment Sleeve | Part Number | Dim.   |
|--------------------------------------------------|-----------------------------------|------------------|-------------|--------|
| LuxCis Optical Termini to LuxCis Optical Termini | Simplex Bulkhead Feedthrough Type | Ceramic Zirconia | 1828996-1   | Fig. 1 |
| LuxCis Optical Termini to LuxCis Optical Termini | Simplex Straight                  | Ceramic Zirconia | 1828997-1   | Fig. 2 |
| LuxCis Optical Termini to LC                     | Simplex LC Panel Cutout           | Ceramic Zirconia | 1828979-1   | Fig. 3 |
| LuxCis Optical Termini to LC                     | Duplex LC Panel Cutout            | Ceramic Zirconia | 1828980-1   | Fig. 4 |
| LuxCis Optical Termini to LC                     | Duplex MIL-DTL-38999 Panel Cutout | Ceramic Zirconia | 1828995-1   | Fig. 5 |

**Tools**

| Description/Function                   | Part Number  |
|----------------------------------------|--------------|
| Metal Extraction Tool (M81 969/1-03)   | 91066-3      |
| Plastic Extraction Tool (M81 969/1403) | M81969/14-03 |
| Daniels Right Angle Insertion Tool     | DAK83-16*    |
| Daniels Right Angle Removal Tool       | DRK83-16*    |

\* Contact Daniels Manufacturing

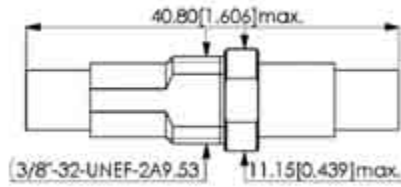
**Note:** All part numbers are RoHS compliant.

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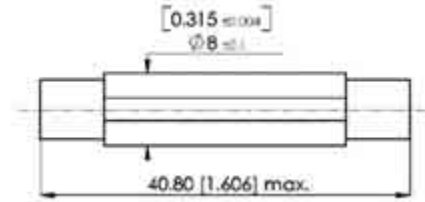
**Rugged Fiber Optic Products (Continued)**



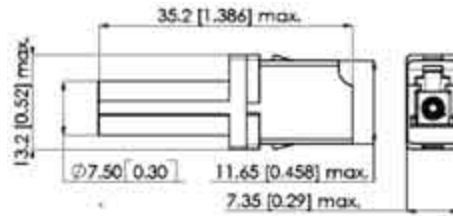
**LuxCis Optical Termini Adapter Dimensions**



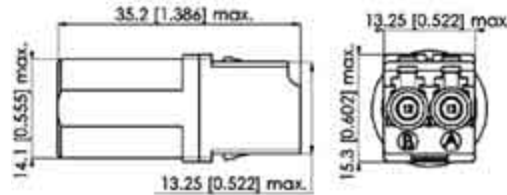
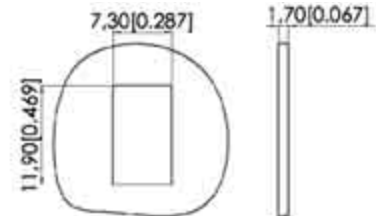
Terminus to Terminus Bulkhead Feedthrough



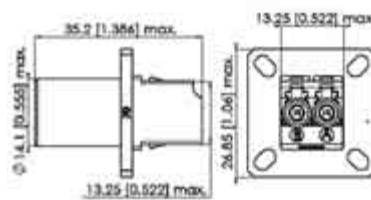
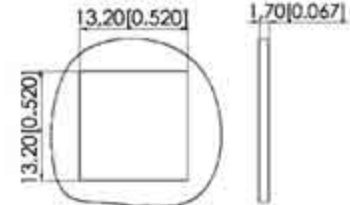
Terminus to Terminus Straight



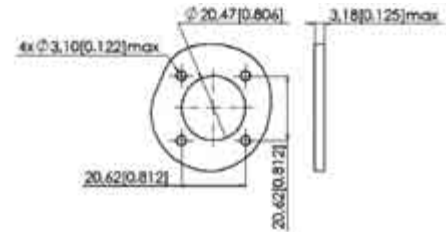
Terminus to LC Simplex



Terminus to LC Duplex, LC Panel



Terminus to LC Duplex, MIL-DTL-38999 Panel Cutout



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**LuxCis Optical Termini  
Termination Kit  
Part Number 1828644-X**



**Rugged Fiber Optic Products (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 LuxCis Optical Termini System. Their use is highly recommended to achieve mechanical and optical performances.

| Qty -2 | Qty -1 | Description                     | Part Number | Item # |
|--------|--------|---------------------------------|-------------|--------|
| 1      | 1      | Label, Termination Kit          | 1918887-1   | 28     |
| 1      | 1      | Insertion and Extraction Tool   | 91066-3     | 27     |
| 2      | 2      | 1.25 mm Swab                    | 1828355-1   | 26     |
| 1      | 1      | LC Polishing Bushing            | 1754074-1   | 25     |
| 1      | 1      | Polishing Plate                 | 501197-1    | 24     |
| 1      | 1      | Polishing Pad                   | 501523-1    | 23     |
| 10     | 10     | 0.3 µm Polishing Film           | 228433-5    | 22     |
| 5      | 5      | Fine Diamond Polishing Film     | 503887-1    | 21     |
| 10     | 10     | 5 µm Polishing Film             | 228433-8    | 20     |
| 15     | 15     | 9 µm Polishing Film             | 1374484-1   | 19     |
| 1      | 1      | Cleave Tool                     | 504064-1    | 18     |
| 1      | —      | Curing Oven Block               | 1918510-1   | 17     |
| 1      | —      | Curing oven                     | 502130-1    | 16     |
| 1      | 1      | Resin injector tips             | 1918509-2   | 15     |
| 1      | 1      | Resin injector                  | 1918509-1   | 14     |
| 5      | 5      | Epoxy, 353ND                    | 504035-1    | 13     |
| 10     | 10     | Alcohol Fiber Wipe              | 501857-2    | 12     |
| 1      | 1      | Inner Ferrule Shaping Tool      | 1918511-1   | 11     |
| 1      | 1      | Hexagonal key                   | 19840-5     | 10     |
| 1      | 1      | Fiber Stripping tool (125 µm)   | 1754708-1   | 9      |
| 1      | 1      | Handtool                        | 58532-1     | 8      |
| 1      | 1      | Die-set, LuxCis Optical Termini | 1828889-1   | 7      |
| 1      | 1      | KEVLAR Shears                   | 1278637-1   | 6      |
| 1      | 1      | Cable Jacket Strip Tool         | 1278531-1   | 5      |
| 1      | —      | 1.25 mm Microscope Adapter      | 1754765-1   | 4      |
| 1      | —      | 200x Microscope                 | 1754767-1   | 3      |
| 1      | —      | Carrying case, Weekender        | 1918881-1   | 2      |
| —      | 1      | Carrying case, Attache          | 1918834-1   | 1      |

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.



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

**LuxCis Optical Termini  
Service Tool Kit  
(Cleaning only)  
Part Number 1828335-2**

**LuxCis Optical Termini  
Service Tool Kit  
(Testing only)  
Part Number 1828335-3**

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

**Tool Kit Contents**

| Item # | Comp Part Number | Description                             | -1 | -2 | -3 | -4 |
|--------|------------------|-----------------------------------------|----|----|----|----|
| 1      | 1278540-1        | Soft Carry Bag                          | 1  | —  | —  | —  |
| 2      | 1754767-1        | 200x Microscope                         | 1  | —  | —  | —  |
| 3      | 1754765-1        | LC Microscope adapter                   | 1  | —  | —  | —  |
| 4      | 6374613-5        | LC - SC 50/125 cable assembly           | 2  | —  | —  | —  |
| 5      | 6374615-5        | LC - SC 62.5/125 cable assembly         | 2  | —  | —  | —  |
| 6      | 1918808-1        | 1.25 mm swab                            | 2  | 2  | —  | —  |
| 7      | 1918810-1        | OPTIPOP C Card Cleaner                  | 2  | 5  | —  | —  |
| 8      | 1828349-1        | Optical Loss Test Set                   | 1  | —  | 1  | —  |
| 9      | 1828350-1        | OLTS 1.25 mm detector cap               | 1  | —  | 1  | —  |
| 10     | 1828352-1        | Visual Fault Locator                    | 1  | —  | 1  | —  |
| 11     | 1828353-1        | VFL 1.25 mm Adapter                     | 1  | —  | 1  | —  |
| 12     | 1828465-1        | Label, Service Kit                      | 1  | —  | 1  | —  |
| 13     | 1918222-1        | Inspection, Hand Held Digital Probe Kit | —  | —  | —  | 1  |
| 14     | 1918223-1        | 1.25 mm Adapter, Digital Probe          | —  | —  | —  | 1  |

- 1 inspection, cleaning & testing
- 2 cleaning
- 3 testing
- 4 Hand Held Digital Probe Kit

**Note:** All part numbers are RoHS compliant.

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

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OPTIPOP is a trademark of NTT Advanced Technology Corporation.

**Rugged Fiber Optic Products** (Continued)

**Hand Held Visual Fault Locator (VFL)**

**Product Facts**

- 650 nm (visible) Class 2 1.0 mW max Diode Laser
- 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 Tyco Electronics 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]

| Description                                   | Part Number |
|-----------------------------------------------|-------------|
| Hand Held Visual Fault Locator                | 1828352-1   |
| 1.25 mm Adapter for Hand Held VFL             | 1828353-1   |
| Includes Part Numbers 1828352-1 and 1828353-1 | 1828352-2   |

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



**Note:** All part numbers are RoHS compliant.



**Rugged Fiber Optic Products (Continued)**

**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

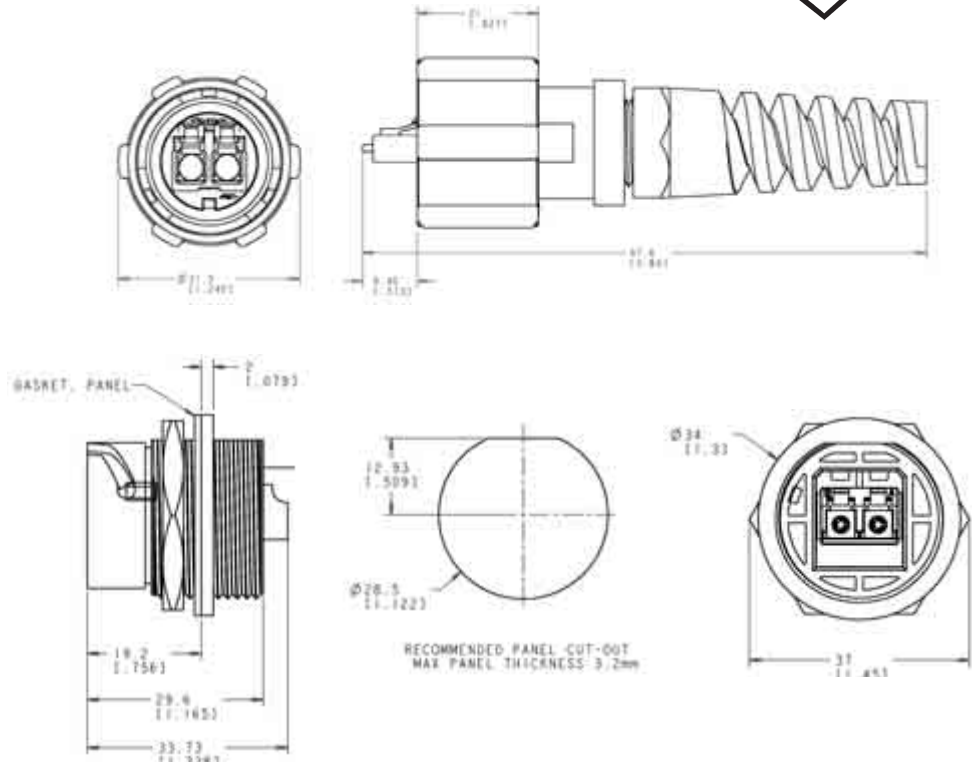


**Plug Part Numbers:**  
1828618-1 (Multimode)  
1828618-2 (Singlemode)

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

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

**ASSEMBLY CAPABILITIES**  
Tyco Electronics has extensive Rugged Optic Harness capabilities. Please consult your local Tyco Electronics Sales Representative for assistance.



**Standard Cable Assemblies**

| Part Number | Description                            |
|-------------|----------------------------------------|
| 1828935-X   | ODVA LC Interface, 62.5, 2 Fiber       |
| 1828936-X   | ODVA LC Interface, Singlemode, 2 Fiber |

**Note:** X = length in meters

**Contact your local Tyco Electronics Sales Representative for information on upcoming product.**

**Note:** All part numbers are RoHS compliant.

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**Rugged Fiber Optic Products** (Continued)

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**Coming Soon —  
Sealed Circular LC  
Shielded EMI Connector**

**EMI Shielded Receptacle  
Assembly**

- Components are thin film coated using a four-step SS/Cu/Cu/SS vacuum deposition process
- This coating results in an approximate 99% shielding effectiveness over uncoated assemblies



**Rugged Fiber Optic Products** (Continued)

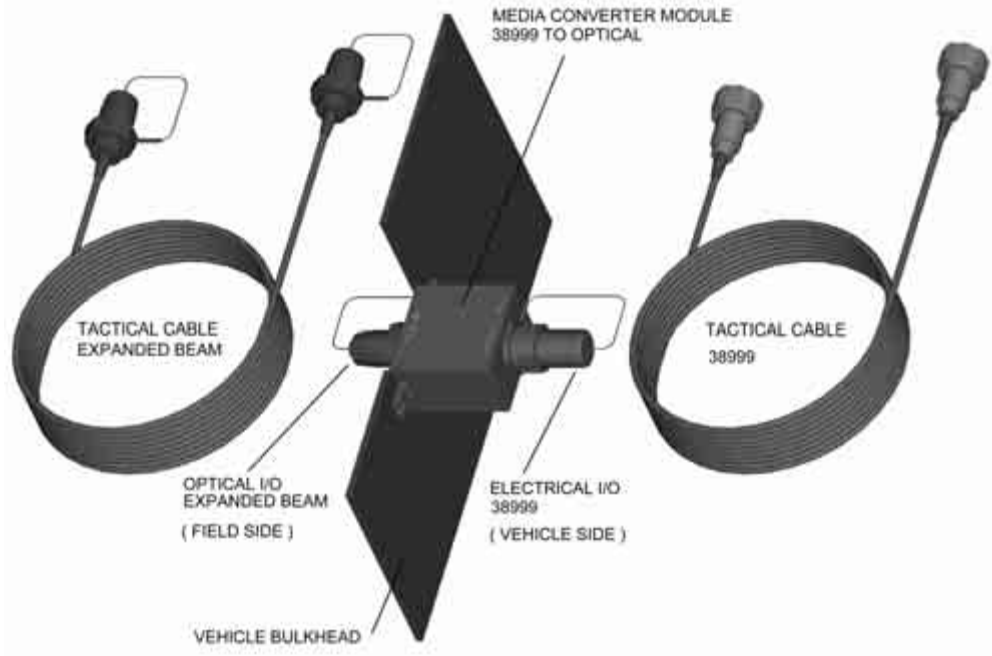
**Rugged Media Converter & Ethernet Link Extender Solutions**

**Harsh Environment Optical Media Converter Assemblies allowing blind mate field applications over one, two, or four fibers**

Tyco Electronics offers solutions for Harsh Environment applications of Ethernet Media Converters.

This page demonstrates Tyco Electronics' capabilities for Advanced Optical Modules. These include Fast, Gigabit, and Ethernet Link Extenders.

For additional Advanced Optical Modules, see Fiber Management & Packaged Solutions, Catalog 1307895, Section 3.



Contact your local Tyco Electronics Sales Representative with your specific design needs.



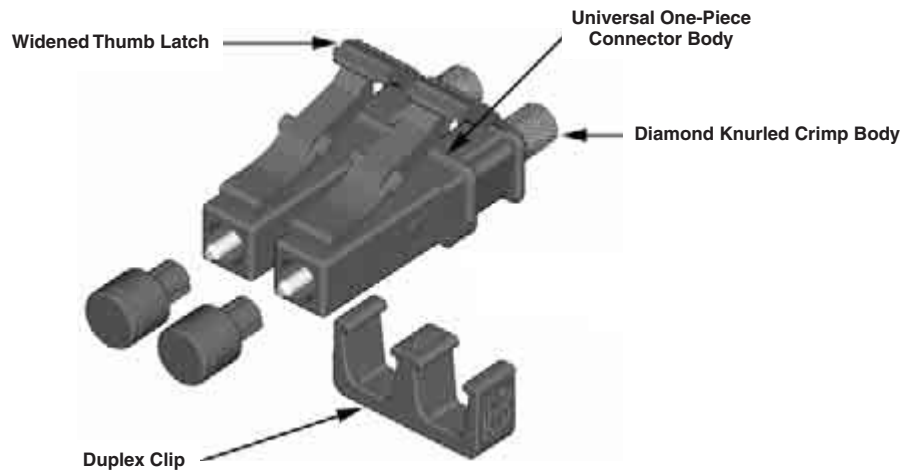
**Design Objectives**

| Specifications      | Results                                                                                                          |
|---------------------|------------------------------------------------------------------------------------------------------------------|
| Standard            | IEEE802.3, IEEE802.3u Ethernet @ 10/100 Mb/s                                                                     |
| Data Rates          | 10 and 100 Mb/s auto negotiation (option to force 10 Mb/s for legacy systems)                                    |
| Duplex Mode         | Full or half-duplex auto-negotiation and N-Way support                                                           |
| Max. Forward Rate   | 14,880 packets per second (pps) @ 10 Mb/s, 148,800 pps @ 100 Mb/s                                                |
| Fiber Connector     | Multimode                                                                                                        |
| Fiber Working Range | TBD                                                                                                              |
| Optical Budget      | TBD                                                                                                              |
| Optical Wavelength  | Multimode                                                                                                        |
| Emissions           | Complies with FCC Class A and CE Class A                                                                         |
| Safety              | UL, CE                                                                                                           |
| Temperature Range   | -40° - 85°C with humidity 10% to 90% non-condensing                                                              |
| Dimensions          | Ø 2.0" (51 mm) X 7.7" (195 mm) from cap to cap<br>Ø 2.0" (51 mm) X 6.6" (168 mm) X 7.6" (194 mm) for 90 assembly |
| Power Consumption   | TBD                                                                                                              |
| Power               | 5VDC                                                                                                             |
| Qualification       | Complies with MIL-STD-810D environmental requirements                                                            |

## LC Connectors

### One-Piece LC Connector Product Facts

- Singlemode Telecordia GR-326 tested (Report #501-652)
- Multimode TIA/EIA 568-B.3 tested
- Singlemode and Multimode are compatible with both anaerobic adhesives and heat cure epoxy adhesives
- Universal Connector Body
  - Common body for simplex or duplex
  - Common body for jumper or buffer applications
  - Fewer parts to inventory
- Duplex Clip
  - Field installable
  - Makes simplex assemblies duplex
  - Correct polarity errors
  - Used for both jumpers and buffered fiber applications
- One-Piece Body
  - Improved rigidity
  - Improved side-load strength



- Color coded to comply with 568 C
    - Aqua for 50/125 laser optimized
    - Black for standard 50/125
    - Beige for 62.5/125
    - Blue for singlemode
  - Widened Thumb Latch
    - Increased hit area
    - Increased bend strength
    - Ramped front latch for snag resistance
  - Diamond Knurled Crimp Body
    - Increased tensile proof strength
    - Identical to Tyco Electronics' SC/FC design
- Performance Characteristics**  
 Insertion Loss — 0.2 dB Typical  
 Reflectance — -55 dB Typical  
 Operating Temperature — -40°C to +75°C  
 Durability — 500 Cycles

### LC Connector Kits

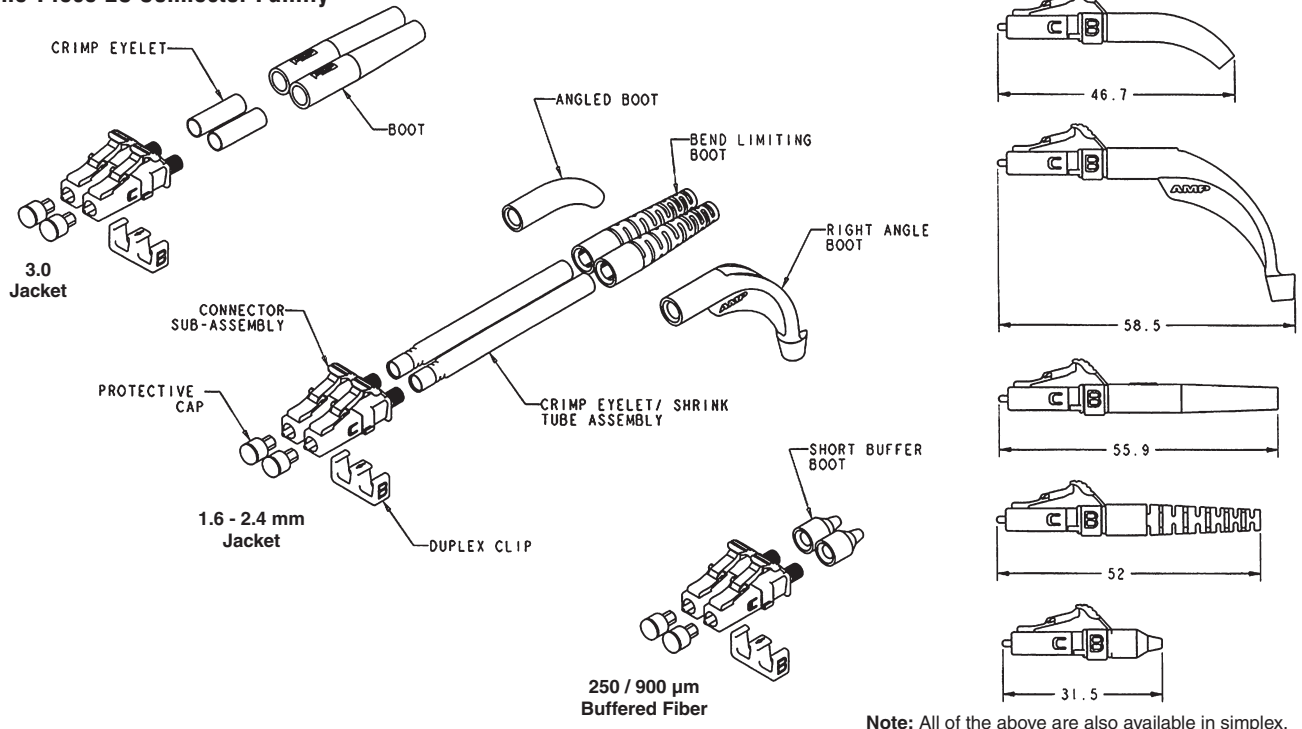
| Description | Fiber Type                | Housing Color | Boot Color | Used with           | Individual Pack Part Number | Bulk Pack Part Number |
|-------------|---------------------------|---------------|------------|---------------------|-----------------------------|-----------------------|
| Simplex     | Singlemode                | Blue          | Blue       | 900 µm Buffered     | 1918384-1                   | 1918384-2             |
|             |                           |               |            | 1.6-2.0 mm Jacketed | 1918266-1                   | 1918266-2             |
|             |                           |               |            | 3.0 mm Jacketed     | 1918374-1                   | 1918374-2             |
|             |                           |               |            | 900 µm Buffered     | 1918385-3                   | 1918385-5             |
|             |                           |               |            | 1.6-2.0 mm Jacketed | 1918267-3                   | 1918267-5             |
|             |                           |               |            | 3.0 mm Jacketed     | 1918375-3                   | 1918375-5             |
|             | Multimode                 | Beige         | Black      | 900 µm Buffered     | 1918385-4                   | 1918385-6             |
|             |                           |               |            | 1.6-2.0 mm Jacketed | 1918267-4                   | 1918267-6             |
|             |                           |               |            | 3.0 mm Jacketed     | 1918375-4                   | 1918375-6             |
|             |                           |               |            | 900 µm Buffered     | 1918385-1                   | 1918385-2             |
|             |                           |               |            | 1.6-2.0 mm Jacketed | 1918267-1                   | 1918267-2             |
|             |                           |               |            | 3.0 mm Jacketed     | 1918375-1                   | 1918375-2             |
| Duplex      | Singlemode                | Blue          | Blue       | 900 µm Buffered     | 1918387-1                   | 1918387-2             |
|             |                           |               |            | 1.6-2.0 mm Jacketed | 1918372-1                   | 1918372-2             |
|             |                           |               |            | 3.0 mm Jacketed     | 1918376-1                   | 1918376-2             |
|             |                           |               |            | 900 µm Buffered     | 1918388-3                   | 1918388-5             |
|             |                           |               |            | 1.6-2.0 mm Jacketed | 1918373-3                   | 1918373-5             |
|             |                           |               |            | 3.0 mm Jacketed     | 1918377-3                   | 1918377-5             |
|             | Multimode                 | Beige         | Black      | 900 µm Buffered     | 1918388-4                   | 1918388-6             |
|             |                           |               |            | 1.6-2.0 mm Jacketed | 1918373-4                   | 1918373-6             |
|             |                           |               |            | 3.0 mm Jacketed     | 1918377-4                   | 1918377-6             |
|             |                           |               |            | 900 µm Buffered     | 1918388-1                   | 1918388-2             |
|             |                           |               |            | 1.6-2.0 mm Jacketed | 1918373-1                   | 1918373-2             |
|             |                           |               |            | 3.0 mm Jacketed     | 1918377-1                   | 1918377-2             |
| Duplex Clip | For use with Simplex Kits | Black         | —          | —                   | 1754371-1                   | —                     |

Note: All part numbers are RoHS compliant.



**LC Connectors (Continued)**

**One-Piece LC Connector Family**



Note: All of the above are also available in simplex.

**LC Connector Component Selection Chart (bulk packaged)**

| Fiber Type             | Simplex Connector Assembly & Dust Cap | Duplex Clip | Cable Size             | Crimp Eyelet with Heat Shrink | Crimp Eyelet | Strain Relief Description | Strain Relief Part Number (see chart below) |
|------------------------|---------------------------------------|-------------|------------------------|-------------------------------|--------------|---------------------------|---------------------------------------------|
| Singlemode (blue hsg.) | 1828456-1                             | 1754371-1   | 1.6-2.0 mm             | 6374150-1                     | —            | Straight/Bend Limiting    | 1588153-X                                   |
|                        |                                       |             | 1.6-2.0 mm             | 6374150-1                     | —            | Angled                    | 1374737-X                                   |
|                        |                                       |             | 1.6-2.0 mm             | 6374150-1                     | —            | 50 Degree Angle           | 6457543-X                                   |
|                        |                                       |             | 2.4 mm                 | 6588189-1                     | —            | Straight/Bend Limiting    | 1588153-X                                   |
|                        |                                       |             | 2.4 mm                 | 6588189-1                     | —            | Angled                    | 1374737-X                                   |
|                        |                                       |             | 2.4 mm                 | 6588189-1                     | —            | 50 Degree Angle           | 6457543-X                                   |
|                        |                                       |             | 3.0 mm                 | —                             | 5504118-3    | Straight                  | 502716-X                                    |
|                        |                                       |             | 900 µm                 | —                             | —            | 900 µm Buffer, 10 mm      | 6588612-X                                   |
|                        |                                       |             | Multimode (beige hsg.) | 1754625-1                     | 1754371-1    | 1.6-2.0 mm                | 6374150-1                                   |
| 1.6-2.0 mm             | 6374150-1                             | —           |                        |                               |              | Angled                    | 1374737-X                                   |
| 1.6-2.0 mm             | 6374150-1                             | —           |                        |                               |              | 50 Degree Angle           | 6457543-X                                   |
| 2.4 mm                 | 6588189-1                             | —           |                        |                               |              | Straight/Bend Limiting    | 1588153-X                                   |
| 2.4 mm                 | 6588189-1                             | —           |                        |                               |              | Angled                    | 1374737-X                                   |
| 2.4 mm                 | 6588189-1                             | —           |                        |                               |              | 50 Degree Angle           | 6457543-X                                   |
| 3.0 mm                 | —                                     | 5504118-3   |                        |                               |              | Straight                  | 502716-X                                    |
| 900 µm                 | —                                     | —           |                        |                               |              | 900 µm Buffer, 10 mm      | 6588612-X                                   |



**Crimp Tool Dieset only - 1588175-1**  
**Crimp Tool with Dieset - 1588176-1**  
**Instruction Sheet: 408-8675**  
<http://www.tycoelectronics.com/documents>

**Termination Kit - 1754462-1**  
**Upgrade Kit for Anaerobic terminations - 1754603-1**

**Strain Relief Color**

| Base Part Number | Beige | Blue | Black | Red | Aqua |
|------------------|-------|------|-------|-----|------|
| 1588153          | -5    | -2   | -3    | —   | -8   |
| 1374737          | -2    | -1   | -3    | —   | —    |
| 6457543          | -1    | -2   | -4    | —   | —    |
| 502716           | -3    | -4   | -1    | -5  | -11  |
| 6588612          | -1    | -2   | -5    | -4  | -8   |

Note: All part numbers are RoHS compliant.

**LC Connectors** (Continued)

**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

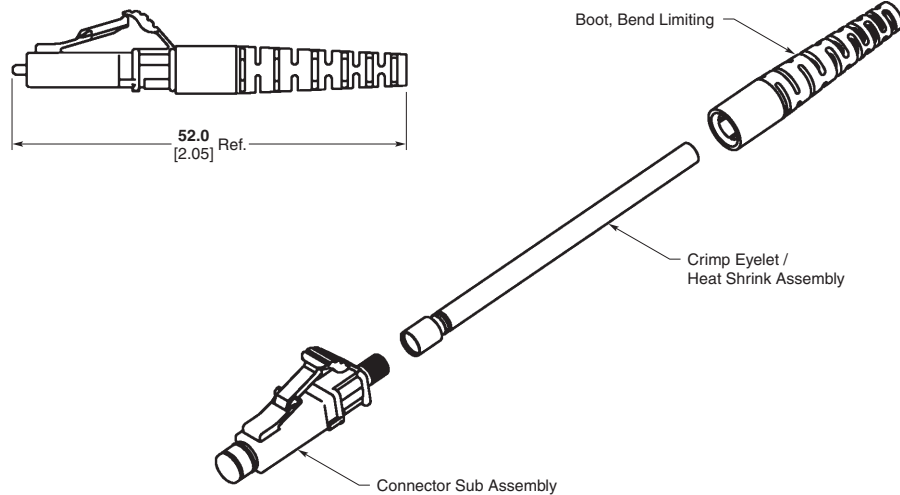
**Application**

- In Flight Networks
- Shipboard Applications
- Aero Market



The tight jacketed LC 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.



| Fiber Type                                | Kit Part Number | Description         |
|-------------------------------------------|-----------------|---------------------|
| Singlemode<br>(blue body & straight boot) | 6828095-X       | Simplex, 1.6–2.0 mm |
|                                           | 6828130-X       | Duplex, 1.6–2.0 mm  |
|                                           | 1918228-X       | Simplex, 2.4 mm     |
| Multimode<br>(beige body & straight boot) | 6828094-X       | Simplex, 1.6–2.0 mm |
|                                           | 6828129-X       | Duplex, 1.6–2.0 mm  |
|                                           | 1918153-X       | Simplex, 2.4 mm     |

**Note:** X = -1 for individual package, -2 for bulk package.  
Instruction Sheet 408-10014. See <http://www.tycoelectronics.com/documents>.  
Duplex Clip Available (Part Number 1754371-1).

**Note:** All part numbers are RoHS compliant.

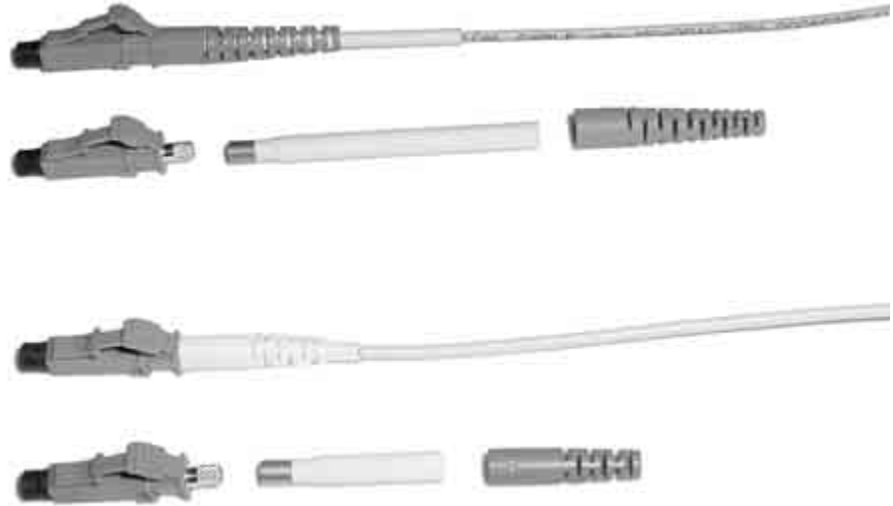




**Short Boot LC Connector**

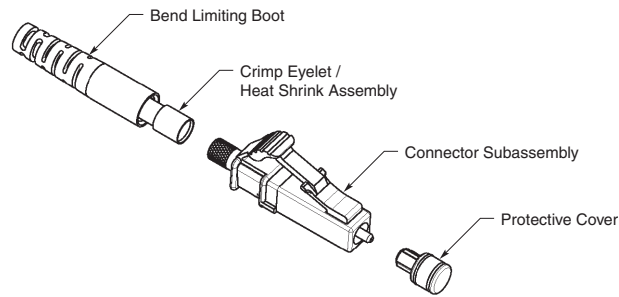
**Product Facts**

- Overall LC connector length 42.5 mm (compares to 52 mm standard product)
- Multimode or singlemode
- Simplex or duplex
- Anti-snag rear connector latch
- For 1.6 mm to 2.4 mm cable
- GR-326 Small Form-Factor Performance Requirements



The short boot LC connector provides GR-326 level performance while reducing ferrule tip to boot length to 42.5 mm. The 20% reduction in length is ideal for

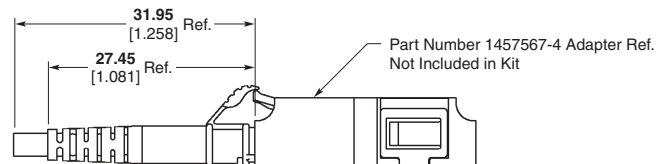
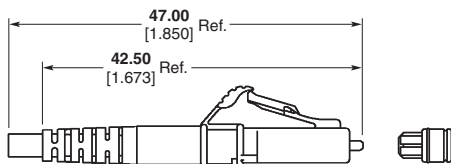
installing in cabinets or other enclosed spaces, protecting against potential mechanical damage from closed cabinet doors.



| Fiber Type                                   | Kit Part Number | Description         |
|----------------------------------------------|-----------------|---------------------|
| Singlemode (blue body & straight blue boot)  | 1918407-X       | Simplex, 1.6-2.0 mm |
|                                              | 1918406-X       | Duplex, 1.6-2.0 mm  |
| Multimode (beige body & straight beige boot) | 1918405-X       | Simplex, 1.6-2.0 mm |
|                                              | 1918404-X       | Duplex, 1.6-2.0 mm  |

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

The boot (1918403-X) is also sold separately, for use with any Tyco Electronics LC connector.



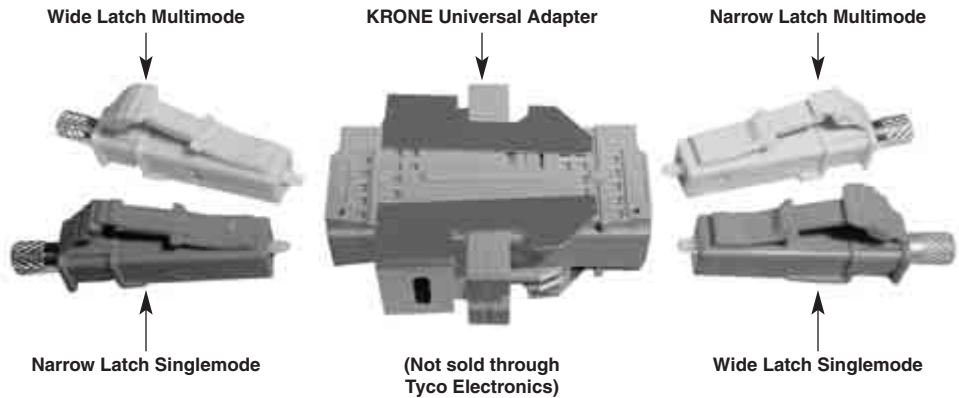
**Note:** All part numbers are RoHS compliant.

**LC Connectors** (Continued)

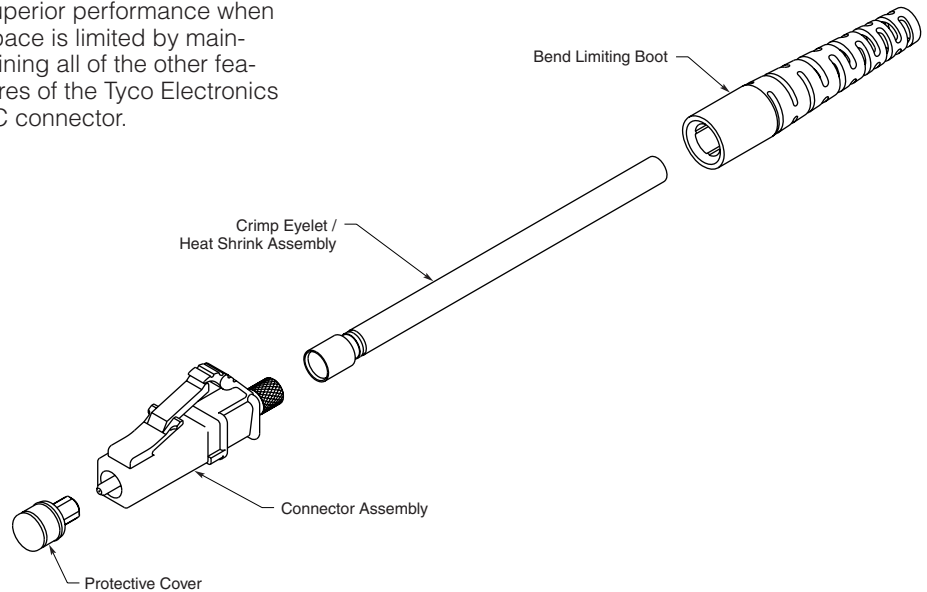


**Narrow Latch LC Connector**  
**Product Facts**

- One-piece housing
- Reduced thumb latch for tight interconnections
- Mates with Krone universal 1.25 mm adapter
- Multimode or singlemode
- Duplex through use of clip (Part Number 1754371-1)
- Anti-snap rear connector latch
- Subassembly can be used with 900 μm to 3.0 mm cable
- GR-326 Small Form Factor Performance

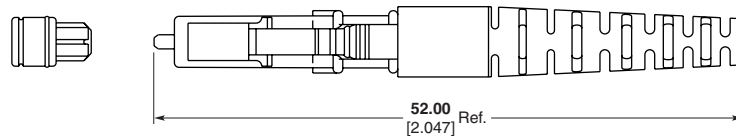


The reduced thumb latch on this connector provides superior performance when space is limited by maintaining all of the other features of the Tyco Electronics LC connector.



| Fiber Type                                   | Kit Part Number | Description         |
|----------------------------------------------|-----------------|---------------------|
| Singlemode (Blue Body & Straight Blue Boot)  | 1918538-X       | Simplex, 1.6-2.0 mm |
| Multimode (Beige Body & Straight Beige Boot) | 1918539-X       | Simplex, 1.6-2.0 mm |

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



KRONE is a trademark of KRONE Optical Systems, Inc.

**Note:** All part numbers are RoHS compliant.

**LC Connectors** (Continued)



**LC/SC Flexible Boot**

**Product Facts**

- Compatible with any Tyco Electronics LC Connector
- Compatible with Tyco Electronics SC Part Numbers 6588714-3 and 6588715-5
- Controls cable radius in limited space environments
- For use with 1.6 to 2.4 mm multimode or singlemode cable
- Requires crimp eyelet with heat shrink (Part Number 6374150-X or 6588189-1)



| Base Part Number | Beige | Blue | Black | Red |
|------------------|-------|------|-------|-----|
| 1918003          | -5    | -2   | -3    | —   |



**LC/SC 900 μm GR-326 Style Boot**

**Product Facts**

- Compatible with any Tyco Electronics LC Connector
- Compatible with Tyco Electronics SC parts 6588714-3 and 6588715-5
- Provides bend limiting support
- For use with 900 μm multimode or singlemode fiber



| Base Part Number | Beige | Blue | Black | Green |
|------------------|-------|------|-------|-------|
| 1828184          | -4    | -1   | -2    | -3    |

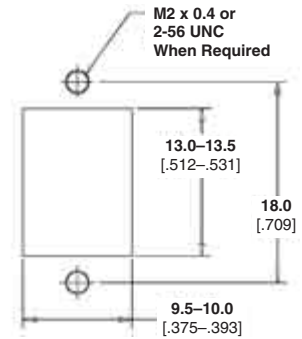
**Note:** All part numbers are RoHS compliant.

## LC Adapters

### LC Duplex Adapter for SC Cutout — Plastic



| Alignment Sleeve Material | Description | Housing Color | Part Numbers |
|---------------------------|-------------|---------------|--------------|
| Metal                     | Flanged     | Beige         | 6457567-8    |
|                           |             | Black         | 2-6457567-1  |
|                           |             | Aqua          | 2-6457567-0  |
|                           | Flangeless  | Blue          | 1-6457567-3  |
|                           |             | Beige         | 6457567-7    |
|                           |             | Black         | 1-6457567-9  |
| Ceramic                   | Flanged     | Aqua          | 1-6457567-8  |
|                           |             | Beige         | 6457567-5    |
|                           |             | Black         | 1-6457567-7  |
|                           | Flangeless  | Aqua          | 1-6457567-6  |
|                           |             | Blue          | 6457567-4    |
|                           |             | Green         | 6457567-6    |
|                           | Flangeless  | Beige         | 6457567-2    |
|                           |             | Black         | 1-6457567-5  |
|                           |             | Blue          | 6457567-1    |
|                           |             | Green         | 6457567-3    |

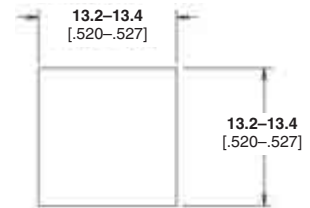


Recommended Panel Cutout  
Max. Panel Thk. 1.70 [.067]



### LC Duplex Adapter for LC Cutout — Plastic

| Alignment Sleeve Material | Description  | Housing Color | Part Numbers |
|---------------------------|--------------|---------------|--------------|
| Metal                     | Duplex Sr-Jr | Beige         | 1985150-4    |
|                           |              | Blue          | 1985150-3    |
|                           | Duplex Sr-Sr | Beige         | 1985149-4    |
|                           |              | Blue          | 1985149-3    |
| Ceramic                   | Duplex Sr-Jr | Beige         | 1985150-2    |
|                           |              | Blue          | 1985150-1    |
|                           | Duplex Sr-Sr | Beige         | 1985149-2    |
|                           |              | Blue          | 1985149-1    |

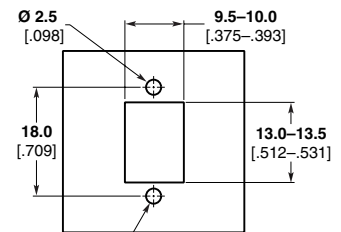


Recommended Panel Cutout  
Panel Thk. 1.2/1.7 [.047/.067]



### LC Adapter for SC Cutout — Metal

| Alignment Sleeve Material | Description                 | Housing Color      | Part Numbers |
|---------------------------|-----------------------------|--------------------|--------------|
| Ceramic                   | Flanged                     | Electroless Nickel | 1754683-1    |
|                           | Flangeless                  |                    | 1754682-1    |
|                           | Flangeless w/ EMI Shielding |                    | 1754727-1    |

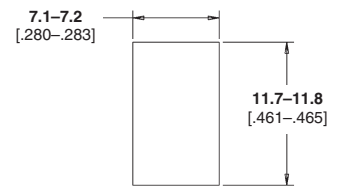


M2 x 0.4 or 2-56 UNC When Required  
Recommended Panel Cutout  
Panel Thk. 1.2/1.7 [.047/.067]



### LC Simplex Adapter — Plastic

| Alignment Sleeve Material | Description     | Housing Color | Part Numbers |
|---------------------------|-----------------|---------------|--------------|
| Ceramic                   | Simplex Adapter | Beige         | 1457062-2    |
|                           |                 | Blue          | 1457062-1    |



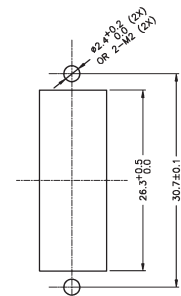
Recommended Panel Cutout  
Panel Thk. 1.2/1.7 [.047/.067]



### LC Quad Adapter — Plastic Flanged

| Alignment Sleeve Material | Description | Housing Color | Part Numbers |
|---------------------------|-------------|---------------|--------------|
| Metal                     | Flanged     | Beige         | 1695790-5    |
| Ceramic                   | Flanged     | Blue          | 1695790-4    |

Note: All part numbers are RoHS compliant.



Recommended Panel Cutout  
Max. Panel Thk. 1.7 [.067]

## MU High Density Connectors

### Product Facts

- Singlemode and multimode product range
- For digital network applications PC end face available on both singlemode and multimode connectors
- For analog network applications, APC end face available on singlemode connectors (8°)
- Connector design uses 1.25 mm ceramic ferrule technology
- Polarized for precise insertion
- Factory terminated cable assemblies
- LSZH sheathed cable available
- High optical performance (low insertion, high return loss)
- High density (up to 8 lines per module)

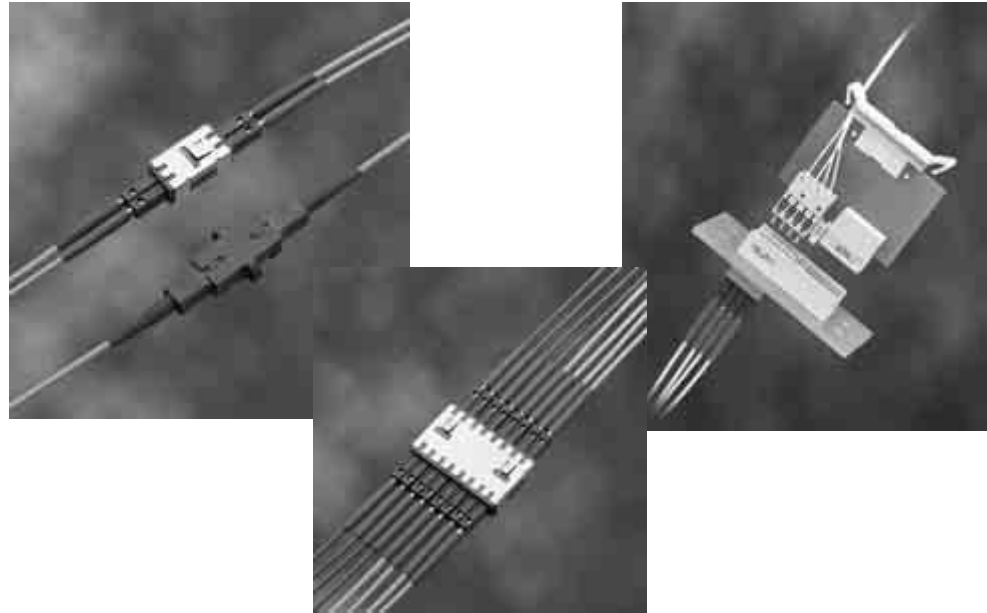
### Performance Characteristics

- Insertion Loss** — 0.1 dB Typical
- Reflectance** — -55 dB Typical
- Operating Temperature** — -25°C to +75°C
- Durability** — 500 Cycles

### Key Applications

Front Panel I/O and High Density Patch Panels for Optical Transmission Equipment, Optical Distribution Frames and Optical Network Units.

- Full range of simplex, duplex and 8 position bulkhead adapters
- Color coded adapters for ease of identification
- Tuneable versions available to achieve lower insertion losses
- “Push-pull” type latching mechanism



Tyco Electronics' MU high density fiber optic interconnection system offers a solution for high performance telecommunications networking.

The system centers around the fully standardized MU connector, which is also sometimes known as the Mini SC. The MU connector is at least half the size of the standard SC connector. It can offer twice the port density but all the optical performance of traditional fiber optic connectors.

Featuring a similar latching mechanism to the SC connector, the MU is just as easy to connect and disconnect.

The MU system includes a complete range of multimode and singlemode pre-terminated cable assemblies; bulkhead adapters; backplane housings; system card housings; connector kits; termination tooling and customer polishing processes.

- Fully compliant with relevant IEC standards (IEC 60874-1, CECC 86 305 801)
- Exceeds ETSI performance requirements (ETSI Grade P)

### Back Panel I/O in Optical Transmission and Switching Equipment

- 8 position Type L optical modules available
- 2.0 mm misalignment pickup tolerance during mating
- Zero force on backplane when fully mated

| Description                   | Part Number |
|-------------------------------|-------------|
| FOKIT MU SM PC 0.9 125/1.0    | 1348982-1 ♦ |
| FOKIT MU SM PC 0.9 126/1.0    | 1348982-2 ♦ |
| FOKIT MU SM PC 125 μm, 2.0 mm | 106875-1 ♦  |
| FOKIT MU SM PC 126 μm, 2.0 mm | 106875-2 ♦  |

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

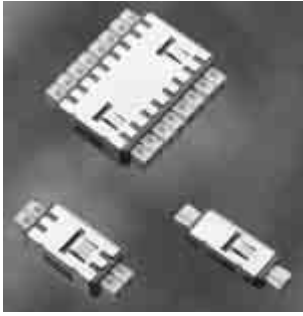
- Zero tensile load on daughter card when fully mated
- Constant mating force during 2.5 mm free float
- Fully compliant with IEC 60917 and IEC 61076-4-101

### MU Standards Compliance

**Product range** — MU cable assembly  
**Applicable standards** — IEC 60874-1  
 CECC 86 305 801 (MU-APC)  
 I-ETS 300 671  
 IEC 61300

**Product range** — Z-PACK 2 mm HM Product  
**Applicable standards** — IEC 60917  
 IEC 61076-4-101

## MU High Density Connectors (Continued)



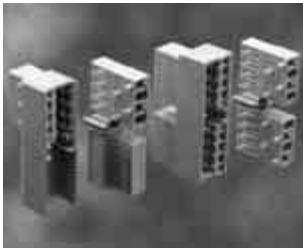
### MU Bulkhead Adapter

The MU bulkhead adapter is designed to help save valuable panel space in high density applications. The adapter enables the interconnection of two MU connectors and features a 1.25 mm ceramic alignment sleeve to ensure precise fiber alignment and low insertion loss, both during and after the interconnection process.

The MU bulkhead adapter is available in PC and APC versions for both digital and ana-

log network applications. It is also available in a choice of simplex, duplex and 8 position versions.

| Description                       | Part Number |
|-----------------------------------|-------------|
| <b>PC finish</b>                  |             |
| Simplex MU Adapter                | 233263-1 ♦  |
| Duplex MU Adapter                 | 233263-3 ♦  |
| Duplex MU Adapter with SC cut-out | 1348840-2   |
| <b>APC finish</b>                 |             |
| Duplex MU Adapter with SC cut-out | 1348840-1   |



### Z-PACK 2 mm HM<sup>1</sup> Type L and M Connector Housings

Z-PACK 2 mm HM connector housings offer a solution to the demand for discrete fiber lines, allowing single disconnects and routing on the backplane.

The 8 position Type L connector housing is fully optical and can accommodate up to 8 fiber lines. These connector housings are available in female configurations and are designed for use on the system card.

The hybrid Type M connector housing combines optical and electrical contacts in one housing, with 55 signal contact positions and 4 fiber optic lines. It allows easy migration from combined optical / electrical to full optical backplane

inter-connections. Female Type M connector housings are suitable for use on the system card while male Type M connector housings are designed for back panel application.

Tyco Electronics also designs and manufactures a range of MT based fiber optic backplane connectors, LIGHTRAY MPX fiber optic backplane connectors. For further information, see Cable Assemblies & Backplane Interconnects Section 2, pages 137-151.

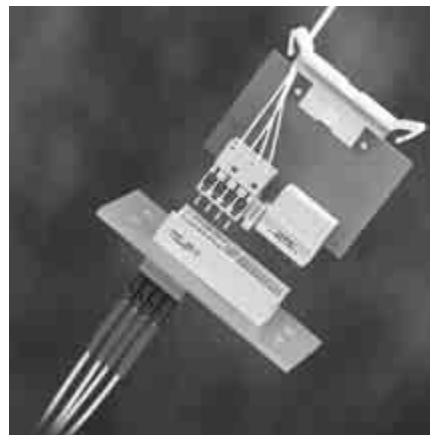
| Description   | Part Number |
|---------------|-------------|
| <b>Type L</b> |             |
| Male          | 106743-1 ♦  |
| Female        | 106744-1    |

<sup>1</sup>HM : Hard Metric

## MU Backplanes

### Product Facts

- Complies to IEC 60917 and IEC 61076-4-101
- Constant mating force during 2.5 mm free float
- Zero tensile load on system card and backplane when fully mated
- Low insertion / extraction forces
- Scalable system allows easy implementation of future upgrades
- Low loss
- High return loss
- APC versions available
- Float in all directions (including x and y)
- Misalignment pick up tolerances 2.0 horizontal, 2.5 mm vertical, and 2 degrees angular



| Description                                   | Part Number |
|-----------------------------------------------|-------------|
| <b>2 Position</b>                             |             |
| Backplane Housing (includes mounting bracket) | 1391160-1 ♦ |
| Systemcard Housing                            | 1391095-1   |
| <b>4 Position</b>                             |             |
| Backplane Housing (includes mounting bracket) | 1391161-1 ♦ |
| Systemcard Housing                            | 1391094-1   |

**Note:** Future product extensions planned: 6 position and 8 position versions. Please contact your local Sales Engineer for additional information.

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

**Product Facts**

- One-piece connector body:
  - Fastest assembly
  - Field installable
  - Anaerobic adhesive compatible
- Compliant with
  - JIS C-5973
  - Fibre Channel
  - TIA FOCIS-3
- Pre-radiused ceramic ferrules
- For 125 µm cladding diameter
- Instruction Sheet 408-8674  
<http://www.tycoelectronics.com/documents>
- Color coded to comply with 568C
  - Aqua for 50/125 laser optimized
  - Black for standard 50/125
  - Beige for 62.5/125
  - Blue for singlemode

**Performance Characteristics for Singlemode SC Connector Kits — Polymer Crimp Body**

- Insertion Loss — <0.2 dB Typical
- Return Loss — <-55 dB Typical
- Durability — 200 Cycles

**Performance Characteristics for GR-326 Style Product**

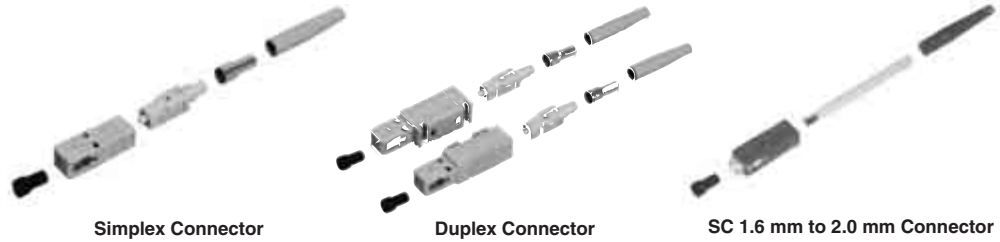
- Insertion Loss — <0.2 dB Typical
- Return Loss — <-59 dB Typical
- Durability — 200 Cycles
- Tested to GR-326 (Test Report 501-584)
- Tunable — 6 positions

**Performance Characteristics for Multimode SC Connector Kits**

- Insertion Loss — <0.2 dB Typical
- Durability — 500 Cycles
- TIA 586B Compliant

**Note:** All part numbers are RoHS compliant.

**SC Connectors**



**Singlemode SC Connector Kits — Polymer Crimp Body**

| Description | Housing Color | Boot Color | Used With                        | Part Numbers    |           |            |
|-------------|---------------|------------|----------------------------------|-----------------|-----------|------------|
|             |               |            |                                  | Individual Pack | Bulk Pack | Crimp Tool |
| Simplex     | Blue          | Blue       | 900 µm Buffered, 3.0 mm Jacketed | 5504646-7       | —         | 503911-1   |
|             |               |            | 3.0 mm Jacketed                  | 5504646-1       | 5504646-2 | 503911-1   |
|             |               |            | 2.4 mm Jacketed                  | 5504933-2       | 5504933-4 | 492026-1   |
|             |               |            | 2.0 mm Jacketed                  | 5503934-2       | 5503934-3 | 492026-1   |
| Duplex      | Blue          | Blue       | 900 µm Buffer                    | 5492123-1       | 5492123-2 | N/A        |
|             |               |            | 3.0 mm Jacketed                  | 5504655-1       | 5504655-2 | 503911-1   |
|             |               |            | 2.0 mm Jacketed                  | 5504936-2       | —         | 492026-1   |

**GR-326 Style Singlemode SC Connector Kits — Metal Crimp Body**

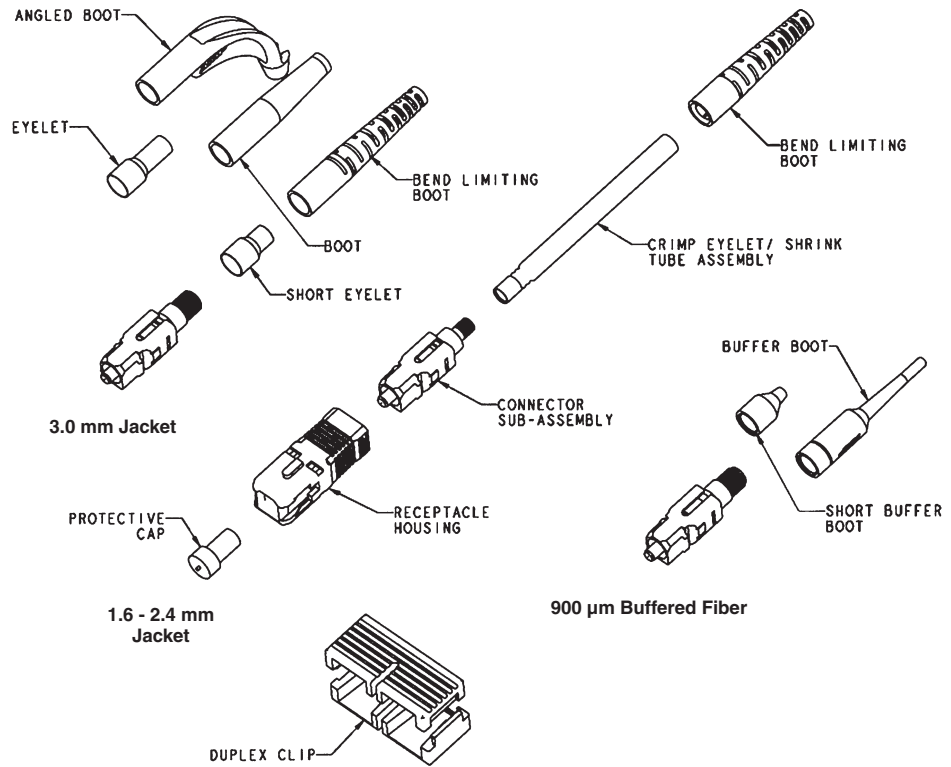
| Description | Housing Color | Boot Color | Used With       | Part Numbers    |           |                             |
|-------------|---------------|------------|-----------------|-----------------|-----------|-----------------------------|
|             |               |            |                 | Individual Pack | Bulk Pack | Crimp Tool                  |
| Simplex     | Blue          | Blue       | 3.0 mm Jacketed | 4-1918861-5     | —         | (1) 492131-1<br>(1) 58532-1 |
|             |               |            | 2.4 mm Jacketed | 6588714-5       | 6588714-6 | 1588176-1                   |
|             |               |            | 2.0 mm Jacketed | 6588714-1       | 6588714-4 | 1588176-1                   |
| Duplex      | Blue          | Blue       | 2.4 mm Jacketed | 6693776-5       | 6693776-6 | 1588176-1                   |
|             |               |            | 2.0 mm Jacketed | 6693776-1       | 6693776-2 | 1588176-1                   |

**Multimode SC Connector Kits**

| Description | Housing Color | Boot Color | Used With                        | Part Numbers    |           |            |
|-------------|---------------|------------|----------------------------------|-----------------|-----------|------------|
|             |               |            |                                  | Individual Pack | Bulk Pack | Crimp Tool |
| Simplex     | Beige         | Aqua       | 900 µm Buffered, 3.0 mm Jacketed | 1-5503948-1     | —         | 503911-1   |
|             |               |            | 3.0 mm Jacketed                  | 1-5503948-0     | —         | 503911-1   |
|             |               |            | 2.0 mm Jacketed                  | 5504931-5       | —         | 492026-1   |
|             |               |            | 900 µm Buffer                    | 5504932-5       | —         | N/A        |
|             |               |            | 900 µm Buffered, 3.0 mm Jacketed | 1-5503948-2     | —         | 503911-1   |
|             | Beige         | Black      | 3.0 mm Jacketed                  | 1-5503948-3     | 5503948-8 | 503911-1   |
|             |               |            | 2.0 mm Jacketed                  | 5504931-6       | 5504931-3 | 492026-1   |
|             |               |            | 900 µm Buffer                    | 5504932-1       | 5504932-2 | N/A        |
|             |               |            | 900 µm Buffered, 3.0 mm Jacketed | 5503948-5       | —         | 503911-1   |
|             |               |            | 3.0 mm Jacketed                  | 5503948-1       | 5503948-2 | 503911-1   |
| Duplex      | Beige         | Beige      | 2.4 mm Jacketed                  | 5504930-1       | 5504930-2 | 492026-1   |
|             |               |            | 2.0 mm Jacketed                  | 5504931-1       | —         | 492026-1   |
|             |               |            | 900 µm Buffer                    | 5504932-6       | —         | N/A        |
|             |               |            | 3.0 mm Jacketed                  | 5504657-8       | —         | 503911-1   |
|             |               |            | 2.0 mm Jacketed                  | 5504928-3       | —         | 492026-1   |
|             | Beige         | Aqua       | 3.0 mm Jacketed                  | 5504657-9       | —         | 503911-1   |
|             |               |            | 2.0 mm Jacketed                  | 5504928-4       | —         | 492026-1   |
|             |               |            | 3.0 mm Jacketed                  | 5504657-1       | 5504657-2 | 503911-1   |
|             |               |            | 2.4 mm Jacketed                  | 5504927-1       | 5504927-2 | 492026-1   |
|             |               |            | 2.0 mm Jacketed                  | 5504928-1       | —         | 492026-1   |

**SC Connectors (Continued)**

**SC Connector Components**



**SC Duplex Clip (Black)  
Part Number 6348522-1**

Use 2 pieces to duplex  
simplex housings



**SC Connector Component Selection Chart (bulk packaged)**

| Fiber Type                                       | Simplex Connector Sub-Assembly | Duplex Clip*  | Cable Size | Crimp Eyelet w/ Heat Shrink | Crimp Eyelet | Strain Relief Part Number**           |
|--------------------------------------------------|--------------------------------|---------------|------------|-----------------------------|--------------|---------------------------------------|
| Singlemode - GR-326 Style                        | 6457215-5                      | (2) 6348522-1 | 3.0 mm     | —                           | 504973-3     | 1588491-X                             |
|                                                  |                                |               | 2.4 mm     | 6588189-1                   | —            | 1588153-X                             |
|                                                  | 6588714-3                      | (2) 6348522-1 | 1.6-2.0 mm | 6374150-2                   | —            | 1588153-X                             |
| Singlemode - Polymer Crimp Body                  | 5492123-7                      | (2) 6348522-1 | 900 µm     | —                           | —            | 1828184-X                             |
|                                                  |                                |               | 3.0 mm     | —                           | 503970-3     | 5503971-X                             |
|                                                  |                                |               | 2.4 mm     | —                           | 503970-6     | 5503971-X                             |
|                                                  |                                |               | 2.0 mm     | —                           | 503970-9     | 5503971-X                             |
|                                                  |                                |               | 900 µm     | —                           | —            | 6457493-X (long)<br>6278309-X (short) |
| Multimode - Metal Crimp Body (Ceramic Ferrule)   | 6588715-5                      | (2) 6348522-1 | 2.4 mm     | 6588189-1                   | —            | 1588153-X                             |
|                                                  |                                |               | 1.6-2.0 mm | 6374150-2                   | —            | 1588153-X                             |
|                                                  |                                |               | 900 µm     | —                           | —            | 1828184-X                             |
| Multimode - Polymer Crimp Body (Ceramic Ferrule) | 5503948-7                      | (2) 6348522-1 | 3.0 mm     | —                           | 503970-3     | 5503971-X                             |
|                                                  |                                |               | 2.4 mm     | —                           | 503970-6     | 5503971-X                             |
|                                                  |                                |               | 2.0 mm     | —                           | 503970-9     | 5503971-X                             |
|                                                  |                                |               | 900 µm     | —                           | —            | 6457493-X (long)<br>6278309-X (short) |
|                                                  |                                |               | 900 µm     | —                           | —            | 6457493-X (long)<br>6278309-X (short) |

\* For Fibre Channel compliant assemblies, use one (1) piece each of Part Number 503487-Y and 503488-Y. (Dash refers to color — refer to customer drawing for details).

\*\* Strain relief dash number indicates color - see page 55 for details.

**Note:** All part numbers are RoHS compliant.



**SC Connectors** (Continued)



3.0 mm - GR-326 Style



3.0 mm Angled



900 µm Short



900 µm



GR-326 Style 900 µm

**SC Strain Reliefs — Jacketed Cable**

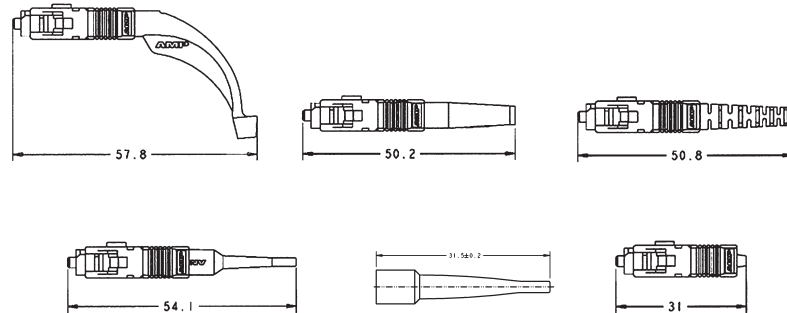
| Description     | GR-326 Style | Part Number |             |           |           |
|-----------------|--------------|-------------|-------------|-----------|-----------|
|                 |              | Color       |             |           |           |
|                 |              | Black       | Red         | Beige     | Blue      |
| 3.0 mm          | No           | 1-5503971-0 | 1-5503971-1 | 5503971-1 | 5503971-2 |
| 2.4 mm          | No           | 1-5503971-2 | 1-5503971-3 | 5503971-3 | 5503971-4 |
| 2.0 mm          | No           | 2-5503971-3 | 2-5503971-7 | 5503971-5 | 5503971-6 |
| 3.0 mm          | Yes          | —           | —           | —         | 1588491-2 |
| 1.6 mm - 2.4 mm | Yes          | 1588153-3   | —           | 1588153-5 | 1588153-2 |

**SC Strain Reliefs — Angled**

| Description |             | Part Number |           |           |
|-------------|-------------|-------------|-----------|-----------|
|             |             | Color       |           |           |
|             |             | Black       | Beige     | Blue      |
| 3.0 mm      | Simplex     | 1278705-3   | 1278705-2 | 1278705-1 |
| 2.0 mm      | Simplex     | 1374737-3   | 1374737-2 | 1374737-1 |
| 2.0 mm      | 45° Simplex | 6457543-4   | 6457543-1 | 6457543-2 |

**SC Strain Reliefs — 900 micron**

| Description          | Part Number |           |           |
|----------------------|-------------|-----------|-----------|
|                      | Color       |           |           |
|                      | Black       | Beige     | Blue      |
| Long (33 mm) 900 µm  | 6457493-3   | 6457493-9 | 6457493-1 |
| Short (10 mm) 900 µm | 6278309-1   | —         | 6278309-2 |
| GR-326 Style 900 µm  | 1828184-2   | 1828184-4 | 1828184-1 |



**SC Low Loss Loopback Connector**

**Part Number 5503141-1**

**Product Facts**

- 62.5/125 Multimode
- Use for Equipment Testing
- 0.6 dB Insertion Loss
- 0.5" Ferrule Centerline

**Part Number 5503141-2**

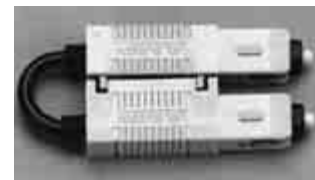
**Product Facts**

- 50/125 Multimode
- Use for Equipment Testing
- 0.8 dB Insertion Loss
- 0.5" Ferrule Centerline

**Part Number 5504883-1**

**Product Facts**

- Singlemode
- Use for Equipment Testing
- 1.5 dB Insertion Loss
- 0.5" Ferrule Centerline



**Note:** All part numbers are RoHS compliant.

**SC Connectors** (Continued)

**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

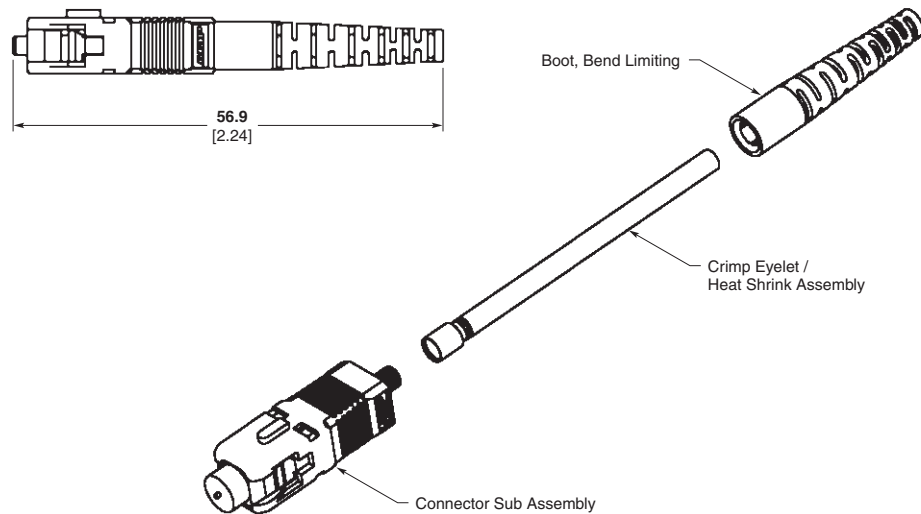
**Application**

- 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**

| Fiber Type                                | Kit Part Number | Description         |
|-------------------------------------------|-----------------|---------------------|
| Singlemode<br>(blue body & straight boot) | 6828100-X       | Simplex, 1.6–2.0 mm |
|                                           | 1828573-X       | Duplex, 1.6–2.0 mm  |
|                                           | 1918227-X       | Simplex, 2.4 mm     |
| Multimode<br>(beige body & straight boot) | 6828099-X       | Simplex, 1.6–2.0 mm |
|                                           | 1828574-X       | Duplex, 1.6–2.0 mm  |
|                                           | 1918154-X       | Simplex, 2.4 mm     |

**Note:** X = -1 for individual package, -2 for bulk package. Instruction Sheet 408-10015. See <http://www.tycoelectronics.com/documents>.

**Note:** All part numbers are RoHS compliant.

**SC Connectors** (Continued)

**SC Adapters**

**Product Facts**

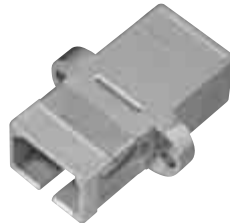
- Suitable for any SC connector
- Available with metal or ceramic alignment sleeves
- Choice of housing materials and colors
- Color coded to comply with 568C
  - Aqua for 50/125 laser optimized
  - Black for standard 50/125
  - Beige for 62.5/125
  - Blue for singlemode
- Duplex adapters accept two simplex connectors or one duplex connector
- Assortment of hybrid configurations available
- Mounting screws available  
Part Number 503663-1
- Slide-on cover available
- EMI gasketed parts available



SC Simplex Adapter - Plastic



Flangeless SC Simplex Adapter - Plastic



SC Simplex Adapter - Metal



Flangeless SC Simplex Adapter - Metal



SC Duplex Adapter - Plastic

**Note:** All part numbers are RoHS compliant.

**SC Simplex Adapter - Plastic**

| Alignment Sleeve Material/Application | Housing Color | Part Numbers |
|---------------------------------------|---------------|--------------|
| Metal/MM only                         | Beige         | 5504614-1    |
|                                       | Black         | 5504614-3    |
|                                       | Aqua          | 5504614-4    |
| Metal                                 | Beige         | 5502632-9    |
|                                       | Black         | 5502632-7    |
|                                       | Aqua          | 2-5502632-3  |
|                                       | Blue          | 5502632-8    |
| Ceramic                               | Beige         | 1-5502632-2  |
|                                       | Black         | 1-5502632-0  |
|                                       | Aqua          | 2-5502632-4  |
|                                       | Blue          | 1-5502632-1  |
| Ceramic/APC                           | Green         | 1828028-2    |

**Flangeless SC Simplex Adapter - Plastic**

| Alignment Sleeve Material | Housing Color | Part Numbers |
|---------------------------|---------------|--------------|
| Metal                     | Black         | 5504632-1    |
|                           | Blue          | 5504632-3    |
| Ceramic                   | Black         | 5504632-2    |
|                           | Aqua          | 5504632-6    |
|                           | Blue          | 5504632-4    |
|                           | Green         | 5504632-5    |

**SC Simplex Adapter - Metal**

| Alignment Sleeve Material | Housing Color      | Part Numbers |
|---------------------------|--------------------|--------------|
| Metal                     | Electroless Nickel | 6278348-1    |
| Ceramic                   | Electroless Nickel | 6278348-3    |

**Flangeless SC Simplex Adapter - Metal**

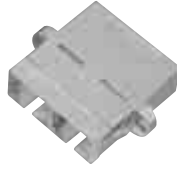
| Alignment Sleeve Material | Housing Color      | Part Numbers |
|---------------------------|--------------------|--------------|
| Metal                     | Electroless Nickel | 6278348-5    |
| Ceramic                   | Electroless Nickel | 6278348-7    |

**SC Duplex Adapter - Plastic**

| Alignment Sleeve Material/Application | Housing Color | Part Numbers |
|---------------------------------------|---------------|--------------|
| Metal/MM only                         | Beige         | 5504640-1    |
|                                       | Black         | 5504640-4    |
|                                       | Aqua          | 5504640-6    |
| Metal                                 | Beige         | 5502776-9    |
|                                       | Black         | 5502776-7    |
|                                       | Aqua          | 2-5502776-5  |
|                                       | Blue          | 5502776-8    |
| Ceramic                               | Beige         | 1-5502776-2  |
|                                       | Black         | 1-5502776-0  |
|                                       | Aqua          | 2-5502776-6  |
|                                       | Blue          | 1-5502776-1  |
| Ceramic/APC                           | Green         | 2-5502776-3  |

**SC Connectors** (Continued)

**SC Adapters** (Continued)



SC Duplex Adapter

**SC Duplex Adapter - Metal**

| Alignment Sleeve Material | Housing Color      | Part Numbers |
|---------------------------|--------------------|--------------|
| Metal                     | Electroless Nickel | 6278049-1    |
| Ceramic                   | Electroless Nickel | 6278049-3    |



SC Duplex Metal Adapter w/ EMI Shielding

**Shielded SC Duplex Adapter - Metal**

| Alignment Sleeve Material | Housing Color      | Part Numbers |
|---------------------------|--------------------|--------------|
| Metal                     | Electroless Nickel | 6374223-1    |
| Ceramic                   | Electroless Nickel | 6374223-3    |

- Designed to help prevent EMI leak
- Ideal for high-speed applications

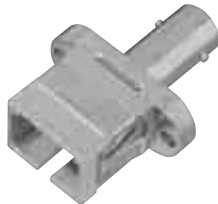
**SC to ST Hybrid Adapters**



SC to ST Simplex Adapter - Plastic

**SC to ST Simplex Adapter - Plastic**

| Alignment Sleeve Material | Housing Color | Part Numbers |
|---------------------------|---------------|--------------|
| Metal                     | Beige         | 5502780-3    |
|                           | Black         | 5502780-1    |
|                           | Aqua          | 2-5502780-0  |
|                           | Blue          | 5502780-2    |
| Ceramic                   | Beige         | 5502780-6    |
|                           | Black         | 5502780-4    |
|                           | Aqua          | 2-5502780-1  |
|                           | Blue          | 5502780-5    |



SC to ST Simplex Adapter - Metal

**SC to ST Simplex Adapter - Metal**

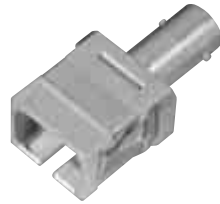
| Alignment Sleeve Material | Housing Color      | Part Numbers |
|---------------------------|--------------------|--------------|
| Metal                     | Electroless Nickel | 6278350-1    |
| Ceramic                   | Electroless Nickel | 6278350-3    |

**Note:** All part numbers are RoHS compliant.



**SC Connectors** (Continued)

**SC to ST Hybrid Adapters**  
(Continued)



**Flangeless SC to ST Simplex Adapter - Metal**

**Flangeless SC to ST Simplex Adapter - Metal**

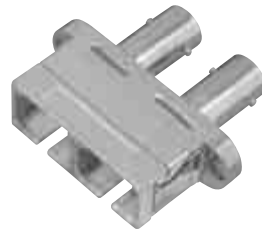
| Alignment Sleeve Material | Housing Color      | Part Numbers |
|---------------------------|--------------------|--------------|
| Metal                     | Electroless Nickel | 6278350-5    |
| Ceramic                   | Electroless Nickel | 6278350-7    |



**SC to ST Duplex Adapter - Plastic**

**SC to ST Duplex Adapter - Plastic**

| Alignment Sleeve Material | Housing Color | Part Numbers |
|---------------------------|---------------|--------------|
| Metal (MM Only)           | Beige         | 5504663-4    |
|                           | Black         | 5504663-6    |
|                           | Aqua          | 5504663-5    |
| Metal                     | Beige         | 5503137-3    |
|                           | Black         | 5503137-1    |
|                           | Aqua          | 2-5503137-1  |
|                           | Blue          | 5503137-2    |
| Ceramic                   | Beige         | 5503137-6    |
|                           | Black         | 5503137-4    |
|                           | Aqua          | 1-5503137-9  |
|                           | Blue          | 5503137-5    |



**SC to ST Duplex Adapter - Metal**

**SC to ST Duplex Adapter - Metal**

| Alignment Sleeve Material | Housing Color      | Part Numbers |
|---------------------------|--------------------|--------------|
| Metal                     | Electroless Nickel | 6278051-1    |
| Ceramic                   | Electroless Nickel | 6278051-3    |

**Slide-on Retractable Cover for SC Simplex or Duplex Applications**



The Tyco Electronics slide-on retractable cover is used for simplex or duplex SC applications. These retractable doors slip onto the end of existing Tyco Electronics adapters and can be mounted after the adapter has already been installed.

- 1693539-1** — Blue Simplex SC
- 1693539-2** — Beige Simplex SC
- 1693539-3** — Green Simplex SC
- 1693540-1** — Blue Duplex SC
- 1693540-3** — Green Duplex SC

**Note:** All part numbers are RoHS compliant.

## ST Connectors — Epoxy Type

### Product Facts

- Epoxy type connector
- Pre-radiused ceramic ferrule
- Available in bulk packages
- Crimp tool  
Part Number 58433-4

### Singlemode Ceramic

#### Performance Characteristics

**Insertion Loss** — 0.3 dB typical  
**Back Reflection** — <-40 dB typical  
**Durability** — 200 cycles

#### Materials

**Ferrule Material** — Ceramic  
**Body Material** — Nickel Plated Brass  
**Coupling Nut Material** —  
Plated Die Cast

### Ceramic



### Singlemode ST Connector Kits — Ceramic Ferrule

| Body                | Coupling Nut | Boot Color             | Used With                              | Individual Pack Part Number | Bulk Pack Part Number | IS Sheet |
|---------------------|--------------|------------------------|----------------------------------------|-----------------------------|-----------------------|----------|
| Nickel-plated Brass | Zinc         | Yellow (900 µm)        | 900 µm and 250 µm Fibers               | 5503613-2                   | 5503613-3             | 408-9645 |
|                     | Zinc         | Yellow (Bend-Limiting) | 900 µm and 250 µm Fibers, 3.0 mm Cable | 5502579-2                   | —                     | 408-9645 |
|                     | Zinc         | Yellow (Short)         | 900 µm and 250 µm Fibers, 3.0 mm Cable | 5502580-2                   | 5502580-4             | 408-9645 |

### Multimode Ceramic

#### Performance Characteristics

**Insertion Loss** — 0.3 dB typical  
**Durability** — 500 cycles

### Ceramic



### Multimode ST Connector Kits — Ceramic Ferrule

| Body                | Coupling Nut | Boot Color                           | Used With                                       | Individual Pack Part Number | Bulk Pack Part Number | IS Sheet |
|---------------------|--------------|--------------------------------------|-------------------------------------------------|-----------------------------|-----------------------|----------|
| Polymer             | Polymer      | Black (Short)                        | 3.0 mm Cable                                    | —                           | 503569-2              | 408-9971 |
|                     |              | Black (Short)                        | 900 µm Fiber, 3.0 mm Cable                      | 503571-1                    | —                     | 408-9971 |
|                     |              | Black (Buffer)/Black (Short)         | 900 µm and 250 µm Fibers, 2.4 mm & 3.0 mm Cable | 5503571-3                   | —                     | 408-9971 |
|                     | Zinc         | Black (Short)                        | 3.0 mm Cable                                    | 503677-2                    | 503677-1              | 408-9971 |
| Nickel-plated Brass | Zinc         | Black (Short)                        | 3.0 mm Cable                                    | —                           | 5492458-2             | 408-9645 |
|                     |              | Black (Buffer)/Black (Short)         | 900 µm and 3.0 mm Cable                         | 5492458-1                   | —                     | 408-9645 |
|                     |              | Black (Buffer)/Black (Bend Limiting) | 900 µm and 250 µm Fibers, 2.4 mm & 3.0 mm Cable | 5501380-1                   | —                     | 408-9645 |
|                     |              | Black (Short)                        | 2.4 mm & 3.0 mm Cable                           | 1-5501380-6                 | 2-5501380-0           | 408-9645 |
|                     |              | Black (Right Angle)                  | 900 µm and 250 µm Fibers, 2.4 mm & 3.0 mm Cable | 5502674-1                   | —                     | 408-9645 |

**Note:** All part numbers are RoHS compliant.

**ST Connectors — Epoxy Type (Continued)**

**Polymer Composite**

**Multimode  
Polymer Composite**

**Performance Characteristics**

- Insertion Loss** — 0.3 dB Typical
- Durability** — 500 Cycles
- Crimp Tool** — Part Number 58433-4
- Instruction Sheet** — 408-9971  
<http://www.tycoelectronics.com/documents>

**Materials**

- Ferrule** — Composite Polymer
- Body** — Polymer
- Coupling Nut** — Polymer



**Multimode ST Connector Kits — Polymer Ferrule**

| Body    | Coupling Nut | Boot Color                       | Used With                                    | Individual Pack Part Number | Bulk Pack Part Number |
|---------|--------------|----------------------------------|----------------------------------------------|-----------------------------|-----------------------|
| Polymer | Polymer      | Black (Buffer)/<br>Black (Short) | 900 µm and<br>250 µm Fibers,<br>3.0 mm Cable | 5503415-1                   | —                     |
|         |              | Black (Short)                    | 3.0 mm Cable                                 | —                           | 503424-3              |

**Stainless Steel**

**Multimode  
Stainless Steel**

**Performance Characteristics**

- Insertion Loss** — 0.3 dB Typical
- Operating Temp. Range** —  
-30°C to +70°C
- Durability** — 500 cycles
- Crimp Tool** — Part Number 58551-1
- Instruction Sheet** — 408-4151  
<http://www.tycoelectronics.com/documents>

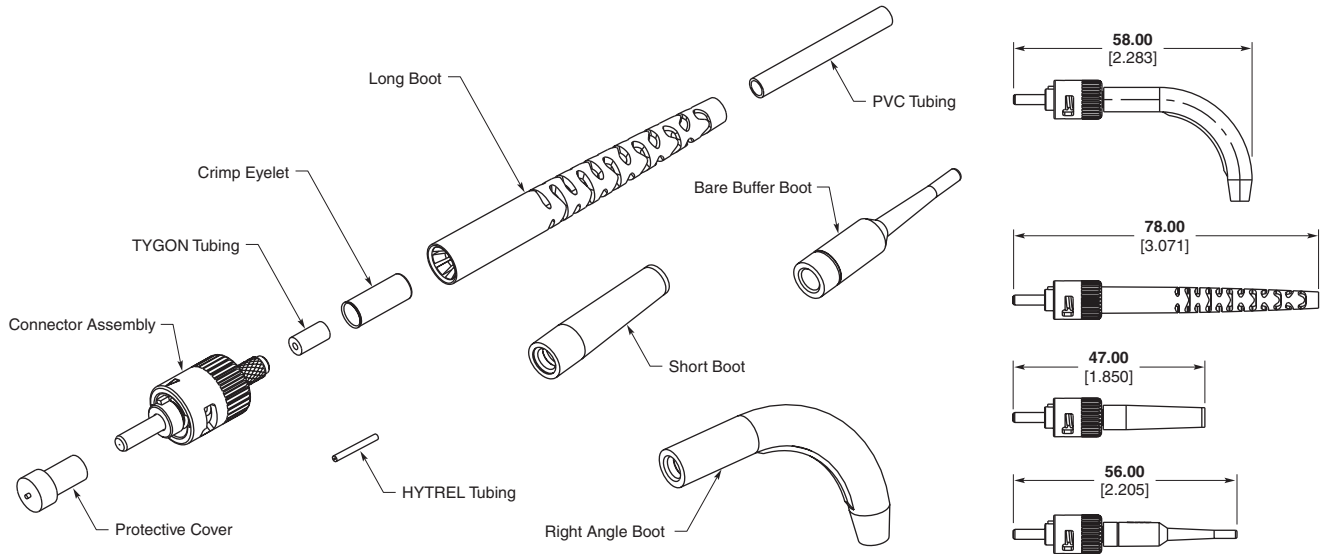


**Multimode ST Connector Kits — Stainless Steel Ferrule**

| Body            | Ferrule Designation | Boot Color            | Used With    | Part Number |
|-----------------|---------------------|-----------------------|--------------|-------------|
| Stainless Steel | 125                 | Black (Bend Limiting) | 3.0 mm Cable | 5504008-3   |
|                 |                     | Black (Long)          | 4.3 mm Cable | 5504008-4   |
|                 | 140                 | Black (Bend Limiting) | 3.0 mm Cable | 5504008-7   |
|                 | 231                 | Black (Bend Limiting) | 3.0 mm Cable | 1-5504008-4 |
|                 | 240                 | Black (Bend Limiting) | 3.0 mm Cable | 1-5504008-3 |
|                 | 280                 | Black (Short)         | 3.0 mm Cable | 4-5504008-6 |

**Note:** All part numbers are RoHS compliant.

**ST Connectors — Epoxy Type (Continued)**



**ST Connector Component Selection Chart (Bulk Packaged)**

| Fiber Type                                               | Connector Sub-Assembly | Cable Size | Crimp Eyelet | Tubing    | Strain Relief Part Number* |
|----------------------------------------------------------|------------------------|------------|--------------|-----------|----------------------------|
| Singlemode - Ceramic Ferrule<br>Metal Body, Metal Nut    | 5502578-2              | 1.6-2.0 mm | 501971-3     | 5501275-2 | 503219-X                   |
|                                                          |                        | 2.4 mm     | 501971-3     | 5501275-1 | 502128-X                   |
|                                                          |                        | 2.4 mm     | 501971-3     | 5501275-1 | 501457-X                   |
|                                                          |                        | 3.0 mm     | 501971-3     | —         | 502128-X                   |
|                                                          |                        | 3.0 mm     | 501971-3     | —         | 501457-X                   |
| Multimode - Ceramic Ferrule<br>Metal Body, Metal Nut     | 5492458-5              | 1.6-2.0 mm | 501971-3     | 5501275-2 | 503219-X                   |
|                                                          |                        | 2.4 mm     | 501971-3     | 5501275-1 | 502128-X                   |
|                                                          |                        | 2.4 mm     | 501971-3     | 5501275-1 | 501457-X                   |
|                                                          |                        | 3.0 mm     | 501971-3     | —         | 502128-X                   |
|                                                          |                        | 3.0 mm     | 501971-3     | —         | 501457-X                   |
| Multimode - Ceramic Ferrule<br>Metal Body, Polymer Nut   | 5501458-8              | 1.6-2.0 mm | 501971-3     | 5501275-2 | 503219-X                   |
|                                                          |                        | 2.4 mm     | 501971-3     | 5501275-1 | 502128-X                   |
|                                                          |                        | 2.4 mm     | 501971-3     | 5501275-1 | 501457-X                   |
|                                                          |                        | 3.0 mm     | 501971-3     | —         | 502128-X                   |
|                                                          |                        | 3.0 mm     | 501971-3     | —         | 501457-X                   |
| Multimode - Ceramic Ferrule<br>Polymer Body, Metal Nut   | 503676-5               | 1.6-2.0 mm | 501971-3     | 5501275-2 | 503219-X                   |
|                                                          |                        | 2.4 mm     | 501971-3     | 5501275-1 | 502128-X                   |
|                                                          |                        | 2.4 mm     | 501971-3     | 5501275-1 | 501457-X                   |
|                                                          |                        | 3.0 mm     | 501971-3     | —         | 502128-X                   |
|                                                          |                        | 3.0 mm     | 501971-3     | —         | 501457-X                   |
| Multimode - Ceramic Ferrule<br>Polymer Body, Polymer Nut | 503676-4               | 1.6-2.0 mm | 501971-3     | 5501275-2 | 503219-X                   |
|                                                          |                        | 2.4 mm     | 501971-3     | 5501275-1 | 502128-X                   |
|                                                          |                        | 2.4 mm     | 501971-3     | 5501275-1 | 501457-X                   |
|                                                          |                        | 3.0 mm     | 501971-3     | —         | 502128-X                   |
|                                                          |                        | 3.0 mm     | 501971-3     | —         | 501457-X                   |
|                                                          |                        | 900 µm     | 501971-3     | 502179-7  | 5503628-X                  |

\* Strain relief dash number indicates color - see chart on page 63 for details.

TYGON is a trademark of Saint-Gobain Performance Plastics Corporation.  
HYTREL is a trademark of E.I. du Pont de Nemours and Company.

**Note:** All part numbers are RoHS compliant.



**ST Connectors — Epoxy Type (Continued)**



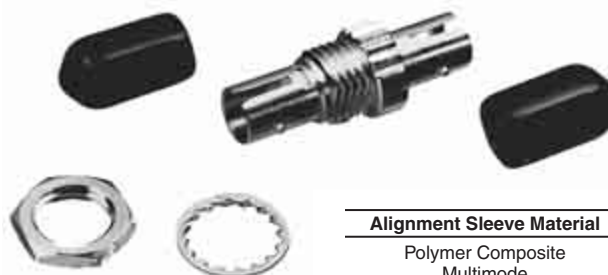
**Strain Relief Bulk packages (100 pcs./package)**

| Color | Bend Limiting | Short (3.0 mm) | Right Angle | Buffer      | Short (2.0 mm) | Bend Limiting (2.0 mm) |
|-------|---------------|----------------|-------------|-------------|----------------|------------------------|
| Black | 502128-1      | 501457-1       | 5502667-1   | 5503628-1   | 503219-1       | 233454-4               |
| Blue  | 502128-7      | 501457-5       | 5502667-2   | —           | —              | 233454-2               |
| Beige | —             | 501457-4       | —           | 1-5503628-9 | 503219-4       | 233454-6               |

**Product Facts**

- Free-hanging or panel mount design

**ST Coupling Receptacles**



| Alignment Sleeve Material   | Packaging   | Part Number |
|-----------------------------|-------------|-------------|
| Polymer Composite Multimode | Single      | 501381-1    |
|                             | Bulk (1000) | 501381-2    |
| Metal Multimode             | Single      | 504021-1    |
|                             | Bulk (50)   | 504021-2    |
| Zirconia Ceramic Singlemode | Single      | 502750-1    |
|                             | Bulk (50)   | 502750-2    |

**ST Polymer Duplex Receptacle**



| Alignment Sleeve Material | Color      | Part Number |
|---------------------------|------------|-------------|
| Metal/MM Only             | Beige      | 504662-2    |
| Metal/MM Only             | Lt. Almond | 504662-1    |

**ST Active Device Mounts — Multimode**

**Product Facts**

- Designed to accept multimode TO-18, TO-46 and TO-52 active devices
- Nickel plated, die cast zinc
- Mount to PCB or through panel
- Includes positioning ring



| Description     | Packaging    | Height | Part Number |
|-----------------|--------------|--------|-------------|
| Standard height | Single       | .410   | 5501474-1   |
| Low profile     | Single       | .280   | 5502585-2   |
| Low profile     | Single (100) | .314   | 5504022-2   |
| Low profile     | Bulk (50)    | .314   | 5504022-3   |

**Note:** All part numbers are RoHS compliant.

## FC Connectors

### Product Facts

- One-piece connector body:
  - Fastest assembly
- Compliant with:
  - JIS C-5970
- Pre-radiused ferrule

Instruction Sheet — 408-8674  
<http://www.tycoelectronics.com/documents>



### Singlemode FC Connector Kits - Polymer Crimp Body

**Performance Characteristics**  
**Insertion Loss** — <0.2 dB Typical  
**Return Loss** — <-59 dB Typical  
**Durability** — 200 Cycles

### Singlemode FC Connector Kits — Polymer Crimp Body

| Boot Color | Used With       | Individual Pack Part Number | Bulk Pack Part Number | Crimp Tool |
|------------|-----------------|-----------------------------|-----------------------|------------|
| Blue       | 3.0 mm Jacketed | 5504649-1                   | 5504649-8             | 503911-1   |
|            | 2.4 mm Jacketed | 5504914-2                   | —                     | 492026-1   |
|            | 2.0 mm Jacketed | 5504915-2                   | —                     | 492026-1   |
|            | 900 µm Buffer   | —                           | 5492052-5             | N/A        |

### GR-326 Style FC Connector Kits - Metal Crimp Body Singlemode

**Performance Characteristics**  
**Insertion Loss** — <0.2 dB Typical  
**Return Loss** — <-59 dB Typical  
**Tested to GR-326**  
**Tuning** — 6 position

### GR-326 Style Singlemode FC Connector Kits — Metal Crimp Body

| Boot Color | Used With       | Individual Pack Part Number | Bulk Pack Part Number | Crimp Tool                  |
|------------|-----------------|-----------------------------|-----------------------|-----------------------------|
| Blue       | 3.0 mm Jacketed | 4-1918962-2                 | —                     | (1) 492131-1<br>(1) 58532-1 |
|            | 2.4 mm Jacketed | 6754264-5                   | 6754264-6             | 1588176-1                   |
|            | 2.0 mm Jacketed | 6754264-4                   | 6754264-7             | 1588176-1                   |
|            | 900 µm Buffer   | 6754264-2                   | —                     | 1588176-1                   |



3.0 mm - GR-326 Style



3.0 mm Angled



900 µm Short



900 µm



GR-326 Style 900 µm

### FC Strain Reliefs — Jacketed Cable

| Description     | GR-326 Style | Part Number |             |           |           |
|-----------------|--------------|-------------|-------------|-----------|-----------|
|                 |              | Color       |             |           |           |
|                 |              | Black       | Red         | Beige     | Blue      |
| 3.0 mm          | No           | 1-5503971-0 | 1-5503971-1 | 5503971-1 | 5503971-2 |
| 2.4 mm          | No           | 1-5503971-2 | 1-5503971-3 | 5503971-3 | 5503971-4 |
| 2.0 mm          | No           | 2-5503971-3 | 2-5503971-7 | 5503971-5 | 5503971-6 |
| 3.0 mm          | Yes          | —           | —           | —         | 1588491-2 |
| 1.6 mm - 2.4 mm | Yes          | 1588153-3   | —           | 1588153-5 | 1588153-2 |

### FC Strain Reliefs — Angled

| Description |             | Part Number |           |           |
|-------------|-------------|-------------|-----------|-----------|
|             |             | Color       |           |           |
|             |             | Black       | Beige     | Blue      |
| 3.0 mm      | Simplex     | 1278705-3   | 1278705-2 | 1278705-1 |
| 2.0 mm      | Simplex     | 1374737-3   | 1374737-2 | 1374737-1 |
| 2.0 mm      | 45° Simplex | 6457543-4   | 6457543-1 | 6457543-2 |

### FC Strain Reliefs — 900 micron

| Description          |  | Part Number |           |           |
|----------------------|--|-------------|-----------|-----------|
|                      |  | Color       |           |           |
|                      |  | Black       | Beige     | Blue      |
| Long (33 mm) 900 µm  |  | 6457493-3   | 6457493-9 | 6457493-1 |
| Short (10 mm) 900 µm |  | 6278309-1   | —         | 6278309-2 |
| GR-326 Style 900 µm  |  | 1828184-2   | 1828184-4 | 1828184-1 |

**Note:** All part numbers are RoHS compliant.

**FC Connectors** (Continued)

**FC Connector Component Selection Chart (bulk packaged)**

| Fiber Type                    | Simplex Connector Sub-Assembly | Cable Size | Crimp Eyelet w/ Heat Shrink | Crimp Eyelet | Strain Relief Part Number*            |
|-------------------------------|--------------------------------|------------|-----------------------------|--------------|---------------------------------------|
| Singlemode - GR-326 Style     | 6754264-8                      | 1.6-2.0 mm | 6374150-1                   | —            | 1588153-X                             |
|                               |                                | 2.4 mm     | 6588189-1                   | —            | 1588153-X                             |
|                               | 6457216-5                      | 3.0 mm     | —                           | 504973-3     | 1588491-X                             |
| Singlemode Polymer Crimp Body | 5504649-9                      | 2.4 mm     | —                           | 503970-6     | 5503971-X                             |
|                               |                                | 3.0 mm     | —                           | 503970-3     | 5503971-X                             |
|                               |                                | 900 µm     | —                           | —            | 6457493-X (long)<br>6278309-X (short) |
| Multimode - Ceramic Ferrule   | 6374778-2                      | 1.6-2.0 mm | 6374150-1                   | —            | 1588153-X                             |
|                               |                                | 2.4 mm     | 6588189-1                   | —            | 1588153-X                             |
|                               | 5504922-3                      | 3.0 mm     | —                           | 503970-3     | 5503971-2                             |
|                               |                                | 900 µm     | —                           | —            | 6457493-9 (long)<br>6278309-1 (short) |

\* Strain relief dash number indicates color - see page 64 for details.

**FC Adapters**



FC Square Flange Adapter

**FC Simplex Square Flange Adapter - Metal**

| Alignment Sleeve Material | Panel Cut-out | Keyway Slot (Nom.) | Part Numbers |
|---------------------------|---------------|--------------------|--------------|
| Metal                     | Square Flange | Std. 2.33 mm       | 5501506-2    |
| Ceramic                   | Square Flange | Std. 2.33 mm       | 5501506-1    |



FC 8 mm/9 mm Dia. Round

**FC Simplex 8 mm/9 mm Dia. Round (D-Hole) Adapter - Metal**

| Alignment Sleeve Material | Panel Cut-out | Keyway Slot (Nom.) | Part Numbers |
|---------------------------|---------------|--------------------|--------------|
| Metal (Copper)            | D-Hole        | Std. 2.33 mm       | 5504407-1    |
| Ceramic                   | D-Hole        | Std. 2.33 mm       | 5504407-3    |
| Ceramic/APC               | D-Hole        | 2.05 mm Type R     | 5504407-8    |
| Ceramic/APC               | D-Hole        | Prec. 2.02 mm      | 5504407-7    |



FC 8 mm Dia. Round (Double D)

**FC Simplex 8 mm Dia. Round (Double D-Hole) Adapter - Metal**

| Alignment Sleeve Material | Panel Cut-out | Keyway Slot (Nom.) | Part Numbers |
|---------------------------|---------------|--------------------|--------------|
| Metal                     | Double D-Hole | Std. 2.33 mm       | 5504013-1    |

**Note:** All part numbers are RoHS compliant.

**FC Connectors** (Continued)

**Hybrid Adapters - SC/FC/ST**



FC to ST Simplex Adapter - Metal

**Hybrid FC to ST Simplex Adapter - Metal**

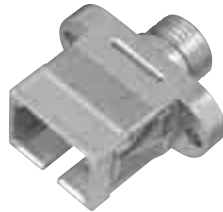
| Alignment Sleeve Material | Housing Color      | Part Numbers |
|---------------------------|--------------------|--------------|
| Metal                     | Electroless Nickel | 5503640-1    |
| Ceramic                   | Electroless Nickel | 5503640-2    |



SC to FC Simplex Adapter - Plastic

**SC to FC Simplex Adapter - Plastic**

| Alignment Sleeve Material | Housing Color | Part Numbers |
|---------------------------|---------------|--------------|
| Metal                     | Black         | 5502871-1    |
| Ceramic                   | Blue          | 5502871-4    |



SC to FC Simplex Adapter - Metal

**SC to FC Simplex Adapter - Metal**

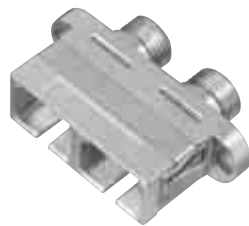
| Alignment Sleeve Material | Housing Color      | Part Numbers |
|---------------------------|--------------------|--------------|
| Metal                     | Electroless Nickel | 6278349-1    |
| Ceramic                   | Electroless Nickel | 6278349-3    |



Flangeless SC to FC Simplex Adapter - Metal

**Flangeless Simplex Adapter - Metal**

| Alignment Sleeve Material | Housing Color      | Part Numbers |
|---------------------------|--------------------|--------------|
| Metal                     | Electroless Nickel | 6278349-5    |
| Ceramic                   | Electroless Nickel | 6278349-7    |



SC to FC Duplex Adapter - Metal

**SC to FC Duplex Adapter - Metal**

| Alignment Sleeve Material | Housing Color      | Part Numbers |
|---------------------------|--------------------|--------------|
| Metal                     | Electroless Nickel | 6278050-1    |
| Ceramic                   | Electroless Nickel | 6278050-3    |

**Note:** All part numbers are RoHS compliant.



## FSD Connector Components — Multimode

### Product Facts

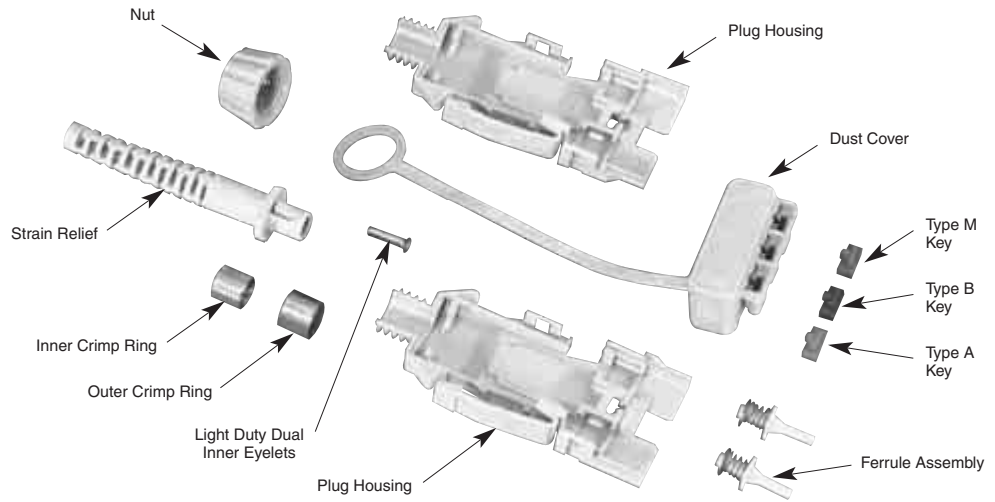
- Meets specifications of FDDI PMD - ANSI X3.166
- Ceramic ferrules available
- Designed in polarization and user defined keying

### Performance Characteristics

**Insertion Loss** — 0.5 dB typical  
**Durability** — Ceramic Ferrules 500 cycles

### Ceramic Instruction Sheet

408-9373  
<http://www.tycoelectronics.com/documents>



### FSD

| Diameter (µm)           | Part Number   |             |                         |             | Replacement Ferrules |
|-------------------------|---------------|-------------|-------------------------|-------------|----------------------|
|                         | Cable Type    |             |                         |             |                      |
|                         | DUALAN Cable  |             | Light Duty DUALAN Cable |             |                      |
|                         | Single Packed | Bulk Packed | Single Packed           | Bulk Packed |                      |
| <b>Ceramic Ferrules</b> |               |             |                         |             |                      |
| 125                     | 5501780-1     | 5501780-3*  | 5502015-1               | 5502015-3*  | 5501779-1            |

Termination Kit: 503746-6

\* Bulk packed, 200 per package.

Assembly Fixtures: with Polishing Tool: 501795-1; without Polishing Tool: 502023-1

### Field Keyable FSD Receptacles and Adapters



### Multimode Receptacles

| Description | Sleeve Material |          |
|-------------|-----------------|----------|
|             | Metal           | Ceramic  |
| FSD to FSD  | 502806-2        | 502806-4 |
| FSD to ST   | 502808-2        | 502808-4 |

**Note:** All part numbers are RoHS compliant.

## ESCON Connector Components

### ESCON Connector Plug

#### Product Facts

- Multimode
- IBM Approved
- Simple field assembly

#### Performance Characteristics

**Assembly Loss** — 0.2 dB Typical

**Durability** — 200 cycles

#### Instruction Sheet

408-9808

<http://www.tycoelectronics.com/documents>



| Description  | Part Number |
|--------------|-------------|
| 125 µm       | Black       |
| DUALAN Cable | 5492181-1   |
| DUALAN Cable | 5492181-2*  |

\* Bulk packed, 50 per package  
Termination Kit: 503746-6.

### ESCON Receptacles

#### Product Facts

- Multimode



| Description    | Part Number |
|----------------|-------------|
|                | Black       |
| ESCON to ESCON | 502825-2    |
| ESCON to ST    | 502826-2    |

### ESCON Assembly Fixture Kit

Used to hold ferrules during assembly, epoxy curing, and polishing. Allows simultaneous polishing of both ferrules.



| Description               | Part Number |
|---------------------------|-------------|
|                           | Black       |
| Without Polishing Bushing | 492236-2    |
| Polishing Bushing         | 492269-1    |

ESCON is a trademark of IBM Corporation.

**Note:** All part numbers are RoHS compliant.

## FSMA Products — Multimode

### Product Facts

- Industry compatible with 905 (FSMA-I) and 906 (FSMA-II) style connectors
- Terminates fiber sizes from 125 through 1000 microns in diameter
- Design parameters conform to NATO and IEC interface standards

### Performance Characteristics

**Insertion Loss** — 1.3 dB Typical

**Temperature Range** —  
-55°C to +105°C

**Durability** — 200 cycles

### Documentation

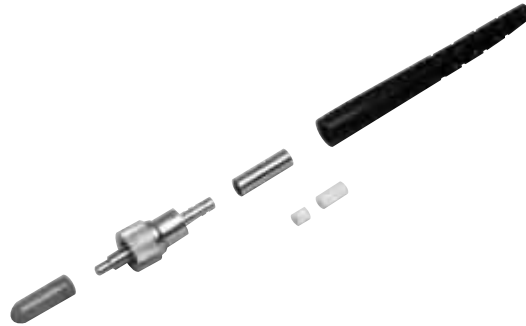
**Product Specification**  
108-45106

**Instruction Sheet**  
408-9863

FSMA 905 & 906

**Test Report**  
501-359

<http://www.tycoelectronics.com/documents>



### FSMA Connectors

| Ferrule Material | Connector Body Material | Fiber Diameter (µm) | Nominal Jacket O.D. |             |             |
|------------------|-------------------------|---------------------|---------------------|-------------|-------------|
|                  |                         |                     | 3.1 mm              |             | 4.3 mm      |
|                  |                         |                     | 905                 | 906         | 905         |
| Stainless Steel  | Nickel-Plated Brass     | 125                 | 5504566-1           | 5504014-1   | 5504567-1   |
|                  |                         | 140                 | 5504566-2           | 1-5504014-0 | 5504567-2   |
|                  |                         | 231                 | 5504566-7           | —           | —           |
|                  |                         | 336                 | 1-5504566-4         | —           | —           |
|                  |                         | 720                 | —                   | —           | 3-5504567-9 |
|                  |                         | 1000                | 3-5504566-0         | —           | —           |
|                  |                         | 1050                | 3-5504566-1         | —           | 2-5504567-9 |
|                  |                         | 2050                | —                   | —           | 3-5504567-3 |

### Adapter

#### Product Facts

- Precision mating adapter for all FSMA connectors
- In-line splice or panel mount design



| Description                                      | Part Number |
|--------------------------------------------------|-------------|
| <b>FSMA Adapters</b>                             |             |
| Hex Flange, Stainless Steel                      | 501049-1    |
| Hex Flange, Stainless Steel, Counterbore, Sealed | 501050-1    |
| Fixed Flange, Nickel-Plated Brass                | 5504026-1   |
| In-Line, Stainless Steel                         | 504028-1    |
| In-Line, Nickel-Plated Brass, Counterbore        | 5504030-1   |
| In-Line, Stainless Steel, Counterbore, Short     | 504031-1    |

### Active Device Mount

#### Product Facts

- Designed to house TO-18, TO-46, and TO-52 devices
- Constructed of nickel plated die cast zinc alloy or stainless steel
- Mounts to PC board or through panel



| Description                                  | Part Number |
|----------------------------------------------|-------------|
| <b>FSMA Active Device Mounts</b>             |             |
| PC Mount Receptacle, Die Cast                | 5502136-1   |
| PC Mount Receptacle, Die Cast, Bulk Packaged | 5502136-2   |
| PC Mount Receptacle, Stainless Steel         | 501055-1    |

**Note:** All part numbers are RoHS compliant.

## MT-RJ Connectors

### MT-RJ Plugs

#### Product Facts

- Designed to meet TIA/EIA 568-B.3
- Each MT-RJ Connector houses two fibers
- Half the size of duplex SC and ST Connectors
- Options available include:
  - Multimode or singlemode
  - Mini DUALAN or Mini Zipcord cable
  - With or without guide pins
- SECURE Connector Kits

#### Performance Characteristics

**Insertion Loss** — Typical (dB) 0.2 dB

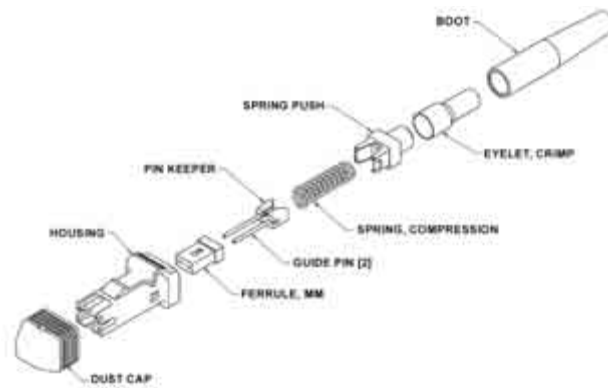
**Operating Temperature** —  
-10°C to 60°C

**Durability** — 500 Cycles

#### Instruction Sheet

408-4540

<http://www.tycoelectronics.com/documents>



#### Standard MT-RJ Connectors

| Fiber Type | Cable Type          | Pins               | Part Number |
|------------|---------------------|--------------------|-------------|
| Singlemode | 3.0 mm DUALAN       | Without Guide Pins | 6278399-1   |
|            | 3.0 mm DUALAN       | With Guide Pins    | 6278399-2   |
|            | 1.8 mm Mini Zipcord | Without Guide Pins | 6278751-1   |
|            | 1.8 mm Mini Zipcord | With Guide Pins    | 6278751-2   |
| Multimode  | 3.0 mm DUALAN       | Without Guide Pins | 6278398-1   |
|            | 3.0 mm DUALAN       | With Guide Pins    | 6278398-2   |
|            | 1.8 mm Mini Zipcord | Without Guide Pins | 6278750-1   |
|            | 1.8 mm Mini Zipcord | With Guide Pins    | 6278750-2   |

#### SECURE MT-RJ Connectors

| Fiber Type | Cable Type          | Pins               | Color  | Part Number |
|------------|---------------------|--------------------|--------|-------------|
| Multimode  | 1.8 mm Mini Zipcord | Without Guide Pins | Red    | 1918356-1   |
|            |                     |                    | Yellow | 1918356-2   |
|            |                     |                    | Green  | 1918356-3   |
|            |                     |                    | Blue   | 1918356-4   |
|            |                     |                    | Rose   | 1918356-5   |
|            |                     |                    | Aqua   | 1918356-6   |
|            |                     |                    | Brown  | 1918356-7   |
|            |                     |                    | Violet | 1918356-8   |
|            |                     |                    | Orange | 1918356-9   |
|            |                     |                    | Slate  | 1-1918356-0 |

#### MT-RJ to MT-RJ Adapter

**Simplex Part Number:**  
1278017-1 (light almond)

**Duplex Part Number:**  
6374906-1 (Almond)

#### MT-RJ to MT-RJ Simplex Adapter



#### MT-RJ to MT-RJ Duplex Adapter



**Note:** All part numbers are RoHS compliant.



**MT-RJ Connectors** (Continued)

**SL Series Outlets**

**Product Facts**

- Front-loading modules snap in and out for easy access
- Modular approach for flexibility
- “Invisible” icon holes stay hidden until used
- Individual jacks and inserts increase configuration and color-coding options
- MT-RJ SL Series housing accepts one MT-RJ Jack sold separately (See pages 119-122)

**MT-RJ SL Series Housing**

| Color            | Part Number |
|------------------|-------------|
| Almond           | 1374416-1   |
| Black            | 1374416-2   |
| White            | 1374416-3   |
| Gray             | 1374416-4   |
| Orange           | 1374416-5   |
| Blue             | 1374416-6   |
| Red              | 1374416-7   |
| Yellow           | 1374416-8   |
| Green            | 1374416-9   |
| Violet           | 1-1374416-0 |
| Electrical Ivory | 1-1374416-1 |
| Rose             | 2-1374416-3 |
| Aqua             | 2-1374416-4 |
| Brown            | 2-1374416-5 |
| Slate            | 2-1374416-6 |



**MT-RJ Optical Patch Panel**

Tyco Electronics' MT-RJ optical patch panels feature 24-port (48 fiber) capacity in a 1U high rack mounted enclosure and offer twice the fiber density of conventional patch panels. Features include pre-installed cable management, rugged cable entry

strain relief, and a sliding, tilt-out drawer for easy termination of tight buffer or loose tube cable. Adjustable mounting brackets allow the user to mount the enclosure in forward, flush or recessed positions. The patch panel is supplied ready for MT-RJ jack installation.



| Description                                                                                                                                                                     | Part Number |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| 1U Patch Panel with four, six-position MT-RJ interface housing Cable Management Rings (2 pieces), Cable Glands PG16, PG13.5, Dust Caps (24 pieces). (Jack modules not included) | 1206704-4   |

**MT-RJ Snap-In Adapter Plate**

The MT-RJ snap-in adapter plate manages six MT-RJ Patch panel jacks (ordered separately, see page 73). The adapter plate is designed to fit into existing rack and wall mount enclosures with the benefit of industry standard labels and icons for port identification.

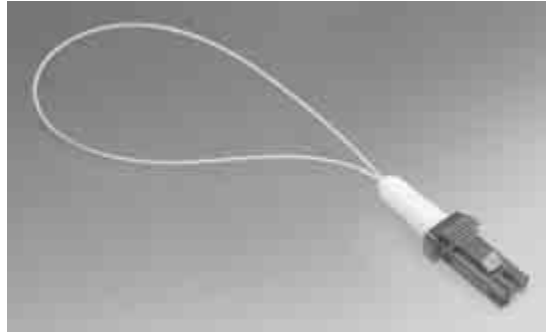


| Description                                              | Part Number |
|----------------------------------------------------------|-------------|
| MT-RJ Snap-In Adapter Plates (Jack modules not included) | 1278328-3   |

**Note:** All part numbers are RoHS compliant.

**MT-RJ Connectors** (Continued)

**MT-RJ Loopbacks**



| Description                              | Part Number |
|------------------------------------------|-------------|
| MT-RJ to Singlemode Loopback             | 6278358-1   |
| MT-RJ to Multimode Loopback, 50/125 μm   | 6278357-1   |
| MT-RJ to Multimode Loopback, 62.5/125 μm | 6278153-1   |

**MT-RJ Cable Assemblies**

See Cable Assemblies & Backplane Interconnects Section.

**MT-RJ Bend Limiting Boots**    **Part Number 6374208-X**



**Product Facts**

- **Compatible with all MT-RJ Jacks (see pages 119-122)**

| Color | Part Number |
|-------|-------------|
| Black | 6374208-4   |
| Beige | 6374208-5   |

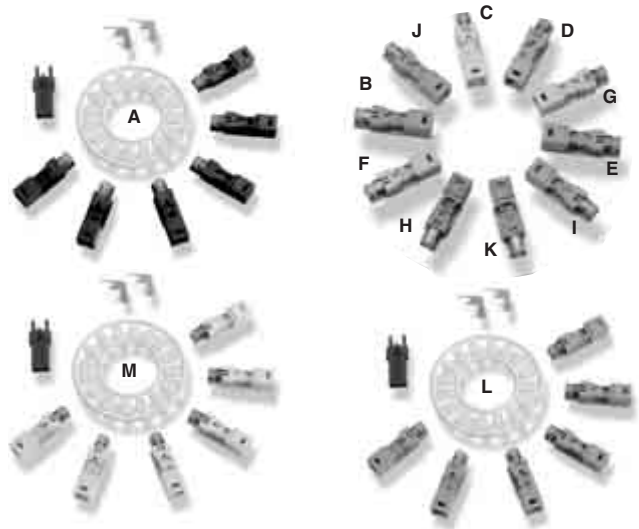
**Note:** All part numbers are RoHS compliant.

**MT-RJ Patch Panel Jacks, No Epoxy, No Polish**

**Product Facts**

- Patch panel jacks terminate either two 900 μm tight-buffered fibers or two 250 μm coated fibers (select appropriate part number):
  - No epoxy, no polishing, no crimping
  - Two (2) fibers in one ferrule
  - Re-terminatable – improves yield
  - Tunable
  - No bench tool required
- Each part number includes:
  - Six (6) patch panel jacks
  - Two (2) actuation tools
  - Fiber guide
  - Icon wheel
- Jack design eliminates need for MT-RJ Coupler
- Match fiber type of cable to fiber type of MT-RJ Jack

- Small form factor design is half the size of SC duplex
- Six (6) patch panel jacks fit in the MT-RJ Snap-in Adapter Plate (see page 72)
- SL Series Housings and bend-limiting boots sold separately (see pages 70, 72 and 78)
- MT-RJ Cable Assemblies on pages 121 and 122
- MT-RJ SECURE Jacks feature color-coded, keyed designs to limit improper connections in segregated or SECURE networks
- MT-RJ SECURE Plug only mates with same color MT-RJ SECURE Jack
- MT-RJ SECURE Cable Assemblies on pages 121 and 122
- Singlemode MT-RJ pigtail jacks on page 123



Easy 3-Step Termination



| Fiber Type                                                     | Jack Color | Figure                | Part Number         |                             |             |           |           |
|----------------------------------------------------------------|------------|-----------------------|---------------------|-----------------------------|-------------|-----------|-----------|
|                                                                |            |                       | 250 μm Coated Fiber | 900 μm Tight-buffered Fiber |             |           |           |
| 50/125 μm Multimode                                            | Standard   | Black                 | A                   | 6278303-1                   | 6588880-1   |           |           |
|                                                                |            | RED                   | B                   | 6278807-1                   | 6588879-1   |           |           |
|                                                                |            | YELLOW                | C                   | 6278807-2                   | 6588879-2   |           |           |
|                                                                |            | GREEN                 | D                   | 6278807-3                   | 6588879-3   |           |           |
|                                                                |            | BLUE                  | E                   | 6278807-4                   | 6588879-4   |           |           |
|                                                                |            | ROSE                  | F                   | 6278807-5                   | 6588879-5   |           |           |
|                                                                | SECURE     | AQUA                  | G                   | 6278807-6                   | 6588879-6   |           |           |
|                                                                |            | BROWN                 | H                   | 6278807-7                   | 6588879-7   |           |           |
|                                                                |            | VIOLET                | I                   | 6278807-8                   | 6588879-8   |           |           |
|                                                                |            | ORANGE                | J                   | 6278807-9                   | 6588879-9   |           |           |
|                                                                |            | SLATE                 | K                   | 1-6278807-0                 | 1-6588879-0 |           |           |
|                                                                |            | Gray                  | L                   | 6278303-4                   | 6588880-3   |           |           |
|                                                                |            | RED                   | B                   | 6693951-1                   | 6693949-1   |           |           |
| Laser Optimized (10 Gig)<br>(850 nm LO 50/125 μm)<br>Multimode | Standard   | YELLOW                | C                   | 6693951-2                   | 6693949-2   |           |           |
|                                                                |            | GREEN                 | D                   | 6693951-3                   | 6693949-3   |           |           |
|                                                                |            | BLUE                  | E                   | 6693951-4                   | 6693949-4   |           |           |
|                                                                |            | ROSE                  | F                   | 6693951-5                   | 6693949-5   |           |           |
|                                                                |            | AQUA                  | G                   | 6693951-6                   | 6693949-6   |           |           |
|                                                                |            | BROWN                 | H                   | 6693951-7                   | 6693949-7   |           |           |
|                                                                | SECURE     | VIOLET                | I                   | 6693951-8                   | 6693949-8   |           |           |
|                                                                |            | ORANGE                | J                   | 6693951-9                   | 6693949-9   |           |           |
|                                                                |            | SLATE                 | K                   | 1-6693951-0                 | 1-6693949-0 |           |           |
|                                                                |            | 62.5/125 μm Multimode | Standard            | Beige                       | M           | 6278303-2 | 6588880-2 |
|                                                                |            |                       |                     | RED                         | B           | 6278808-1 | 6588878-1 |
|                                                                |            |                       |                     | YELLOW                      | C           | 6278808-2 | 6588878-2 |
|                                                                |            |                       |                     | GREEN                       | D           | 6278808-3 | 6588878-3 |
| BLUE                                                           | E          |                       |                     | 6278808-4                   | 6588878-4   |           |           |
| ROSE                                                           | F          |                       |                     | 6278808-5                   | 6588878-5   |           |           |
| SECURE                                                         | AQUA       |                       | G                   | 6278808-6                   | 6588878-6   |           |           |
|                                                                | BROWN      |                       | H                   | 6278808-7                   | 6588878-7   |           |           |
|                                                                | VIOLET     |                       | I                   | 6278808-8                   | 6588878-8   |           |           |
|                                                                | ORANGE     |                       | J                   | 6278808-9                   | 6588878-9   |           |           |
|                                                                | SLATE      |                       | K                   | 1-6278808-0                 | 1-6588878-0 |           |           |

**Note:** Highlighted part numbers are routinely stocked for shortest lead times.

**Note:** All part numbers are RoHS compliant.

**MT-RJ Outlet Jacks, No Epoxy, No Polish**

**Product Facts**

- Outlet jacks terminate two 900 µm tight-buffered fibers
  - No epoxy, no polishing, no crimping
  - Two fibers in one ferrule
  - Re-terminatable - improves yield
  - Tunable
  - No bench tool required
- Each part number includes:
  - One (1) outlet jack
  - Actuation tool
  - Bend-limiting boot
  - SL Series Housing
- Match fiber type of cable to fiber type of MT-RJ Jack
- Jack design eliminates need for MT-RJ Coupler
- Small form factor design is half the size of SC duplex
- SL Series Housing allows use in any faceplate or outlet that accepts SL Series Jacks
- MT-RJ Cable Assemblies on pages 121 and 122
- MT-RJ SECURE Jacks feature ten color-coded, keyed designs to limit improper connections in segregated or SECURE networks
  - MT-RJ SECURE plug only mates with same color MT-RJ SECURE Jack
- MT-RJ SECURE Cable Assemblies on page 121

**Easy 3-Step Termination**



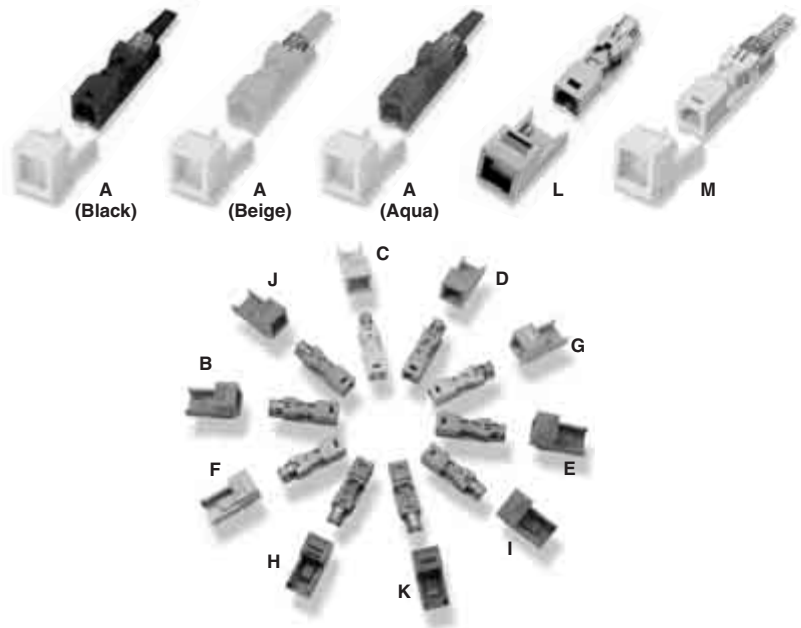
Strip



Cleave



Lock



| Fiber Type                                                     | Jack Color | Housing Color | Figure | Part Number |           |
|----------------------------------------------------------------|------------|---------------|--------|-------------|-----------|
| 50/125 µm Multimode                                            | Standard   | Black         | A      | 6278414-X   |           |
|                                                                | SECURE     | RED           | RED    | B           | 6278811-1 |
|                                                                |            | YELLOW        | YELLOW | C           | 6278811-2 |
|                                                                |            | GREEN         | GREEN  | D           | 6278811-3 |
|                                                                |            | BLUE          | BLUE   | E           | 6278811-4 |
|                                                                |            | ROSE          | ROSE   | F           | 6278811-5 |
|                                                                |            | AQUA          | AQUA   | G           | 6278811-6 |
|                                                                |            | BROWN         | BROWN  | H           | 6278811-7 |
|                                                                |            | VIOLET        | VIOLET | I           | 6278811-8 |
|                                                                |            | ORANGE        | ORANGE | J           | 6278811-9 |
| SLATE                                                          |            | SLATE         | K      | 1-6278811-0 |           |
| Laser Optimized (10 Gig)<br>(850 nm LO 50/125 µm)<br>Multimode | Standard   | Gray          | L      | 1-6278414-2 |           |
|                                                                | SECURE     | RED           | RED    | B           | 6754252-1 |
|                                                                |            | YELLOW        | YELLOW | C           | 6754252-2 |
|                                                                |            | GREEN         | GREEN  | D           | 6754252-3 |
|                                                                |            | BLUE          | BLUE   | E           | 6754252-4 |
|                                                                |            | ROSE          | ROSE   | F           | 6754252-5 |
|                                                                |            | AQUA          | AQUA   | G           | 6754252-6 |
|                                                                |            | BROWN         | BROWN  | H           | 6754252-7 |
|                                                                |            | VIOLET        | VIOLET | I           | 6754252-8 |
|                                                                |            | ORANGE        | ORANGE | J           | 6754252-9 |
| SLATE                                                          |            | SLATE         | K      | 1-6754252-0 |           |
| 62.5/125 µm Multimode                                          | Standard   | Beige         | M      | 6278415-X   |           |
|                                                                | SECURE     | RED           | RED    | B           | 6278810-1 |
|                                                                |            | YELLOW        | YELLOW | C           | 6278810-2 |
|                                                                |            | GREEN         | GREEN  | D           | 6278810-3 |
|                                                                |            | BLUE          | BLUE   | E           | 6278810-4 |
|                                                                |            | ROSE          | ROSE   | F           | 6278810-5 |
|                                                                |            | AQUA          | AQUA   | G           | 6278810-6 |
|                                                                |            | BROWN         | BROWN  | H           | 6278810-7 |
|                                                                |            | VIOLET        | VIOLET | I           | 6278810-8 |
|                                                                |            | ORANGE        | ORANGE | J           | 6278810-9 |
| SLATE                                                          |            | SLATE         | K      | 1-6278810-0 |           |

X denotes housing color: -1 = Almond, -2 = Black, -3 = White, -4 = Gray, -5 = Orange, -6 = Blue, -7 = Red, -8 = Yellow, -9 = Green, 1 - 0 = Violet, 1 - -1 = Electrical Ivory

**Note:** Highlighted part numbers are routinely stocked for shortest lead times.

**Note:** All part numbers are RoHS compliant.

**LIGHTCRIMP PLUS No Epoxy, No Polish LC, SC and ST Connectors**

**Product Facts**

- Multimode connector kits come with accessories needed to terminate to 250 µm fiber, 900 µm tight-buffered fiber, and 900 µm easy-strip
  - SC and ST kits also terminate 3 mm cables
- Singlemode connector kits terminate to 250 µm fiber, 900 µm tight-buffered fiber, 900 µm easy-strip and buffer tube splitter kits
- Easy installation:
  - No epoxy, no polishing
  - No bench tool required
  - Strip, cleave and crimp
- Easy identification:
  - Singlemode is blue
  - Laser Optimized (10 Gig) is aqua — 10 Gb/s applications
  - 62.5/125 µm is beige
  - 50/125 µm is black
- Match fiber type of cable to fiber type of LIGHTCRIMP PLUS
- Mates with standard couplers, adapters and adapter plates
- LC small form factor design is half the size of SC
- Tested to and meets TIA/EIA 568-B.3
- Termination tool kits on page 86

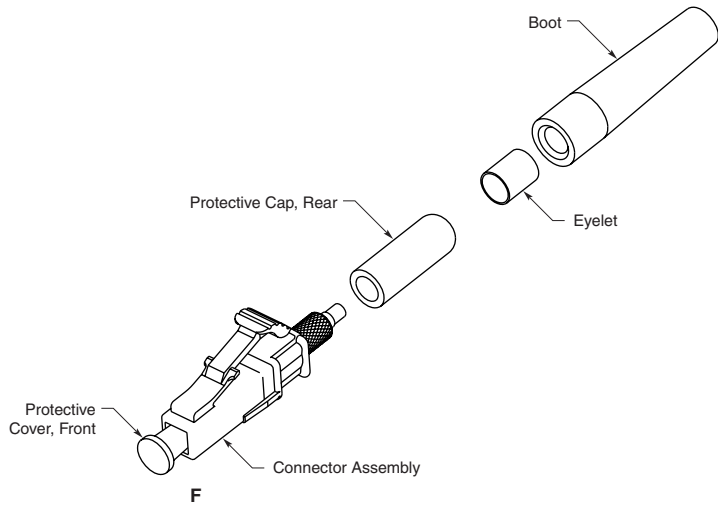


**Performance Characteristics**

**Insertion Loss** — Typical (dB)  
0.2 dB Singlemode; 0.3 dB Multimode

**Temperature Range** —  
-10°C to 60°C, tested to -40°C to 75°C

**Durability** — 500 cycles



**LIGHTCRIMP PLUS No Epoxy, No Polish LC, SC and ST Connectors** (Continued)

| Connector Type         | Fiber Type                                                        | Housing Color | Boot Color | Used With                                          | Figure | Part Number            | IS Sheet |
|------------------------|-------------------------------------------------------------------|---------------|------------|----------------------------------------------------|--------|------------------------|----------|
| Simplex LC             | Singlemode                                                        | Blue          | Blue       | 900 µm & 250 µm Fibers                             | A      | 6754482-1              | 408-8925 |
|                        | 50/125 µm Multimode                                               | Beige         | Black      | 900 µm & 250 µm Fibers                             | B      | 6754483-2              | 408-8925 |
|                        | Laser Optimized (10 Gig) (850 nm LO 50/125 µm) Multimode          | Beige         | Aqua       | 900 µm & 250 µm Fibers                             | –      | 6754483-4              | 408-8925 |
|                        | 62.5/125 µm Multimode                                             | Beige         | Beige      | 900 µm & 250 µm Fibers                             | B      | 6754483-1              | 408-8925 |
| Simplex LC Jacketed    | Singlemode Jacketed                                               | Blue          | Blue       | 1.6 - 2.0 mm Cable                                 | F      | 1918626-1              | 408-8925 |
|                        | 62.5/125 µm Multimode Jacketed                                    | Beige         | Beige      | 1.6 - 2.0 mm Cable                                 | F      | 1918627-1              | 408-8925 |
|                        | 50/125 µm Multimode Jacketed                                      | Beige         | Black      | 1.6 - 2.0 mm Cable                                 | F      | 1918627-2              | 408-8925 |
|                        | Laser Optimized (10 Gig) (850 nm LO 50/125 µm) Multimode Jacketed | Gray          | Aqua       | 1.6 - 2.0 mm Cable                                 | F      | 1918627-3              | 408-8925 |
| Simplex SECURE LC      | 50/125 µm Multimode Jacketed                                      | Various       | Various    | 1.6 - 2.0 mm Cable                                 | F      | 1828857-X <sup>1</sup> | 408-8925 |
|                        | Laser Optimized (10 Gig) (850 nm LO 50/125 µm) Multimode Jacketed | Various       | Various    | 1.6 - 2.0 mm Cable                                 | F      | 1828858-X <sup>1</sup> | 408-8925 |
|                        | 62.5/125 µm Multimode Jacketed                                    | Various       | Various    | 1.6 - 2.0 mm Cable                                 | F      | 1828859-X <sup>1</sup> | 408-8925 |
|                        | Singlemode Jacketed                                               | Various       | Various    | 1.6 - 2.0 mm Cable                                 | F      | 1828860-X <sup>1</sup> | 408-8925 |
| Duplex LC              | Singlemode                                                        | Blue          | Blue       | 900 µm & 250 µm Fibers                             | –      | 6754484-1              | 408-8725 |
|                        | 50/125 µm Multimode                                               | Beige         | Black      | 900 µm & 250 µm Fibers                             | –      | 6754485-2              | 408-8725 |
|                        | Laser Optimized (10 Gig) (850 nm LO 50/125 µm) Multimode          | Beige         | Aqua       | 900 µm & 250 µm Fibers                             | –      | 6754485-4              | 408-8725 |
|                        | 62.5/125 µm Multimode                                             | Beige         | Beige      | 900 µm & 250 µm Fibers                             | –      | 6754485-1              | 408-8725 |
| Simplex SC             | Singlemode*                                                       | Blue          | Blue       | 900 µm & 250 µm Fibers                             | C      | 6693276-1              | 408-4471 |
|                        | 50/125 µm Multimode                                               | Beige         | Black      | 900 µm & 250 µm Fibers, 3 mm Cable                 | D      | 6278079-2              | 408-4471 |
|                        | Laser Optimized (10 Gig) (850 nm LO 50/125 µm) Multimode          | Beige         | Aqua       | 900 µm & 250 µm Fibers, 3 mm Cable                 | –      | 6588291-2              | 408-4471 |
|                        | 62.5/125 µm Multimode                                             | Beige         | Beige      | 900 µm & 250 µm Fibers, 3 mm Cable                 | D      | 5492643-1              | 408-4471 |
| Duplex SC              | Singlemode                                                        | Blue          | Blue       | 900 µm & 250 µm Fibers                             | –      | 6693278-1              | 408-8603 |
|                        | 50/125 µm Multimode                                               | Beige         | Black      | 900 µm & 250 µm Fibers, 3 mm Cable                 | –      | 6278080-2              | 408-8603 |
|                        | Laser Optimized (10 Gig) (850 nm LO 50/125 µm) Multimode          | Beige         | Aqua       | 900 µm & 250 µm Fibers, 3 mm Cable                 | –      | 6588292-2              | 408-8603 |
|                        | 62.5/125 µm Multimode                                             | Beige         | Beige      | 900 µm & 250 µm Fibers, 3 mm Cable                 | –      | 6278009-1              | 408-8603 |
| ST                     | 50/125 µm Multimode                                               | Metallic      | Black      | 900 µm & 250 µm Fibers, 3 mm Cable                 | E      | 6278082-1              | 408-4457 |
|                        | 62.5/125 µm Multimode                                             | Metallic      | Beige      | 900 µm & 250 µm Fibers, 3 mm Cable                 | E      | 5492642-2              | 408-4457 |
| Duplex LC Clip         |                                                                   | Black         | —          | Package of 6 clips (for use with Simplex kits)     | G      | 1754371-2              | —        |
| Duplex SC Clip (Use 2) |                                                                   | Black         | —          | 2 pieces make one clip (for use with Simplex kits) | G      | 6348522-1              | —        |

**Note:** Highlighted part numbers are routinely stocked for shortest lead times.

\* Able to terminate up to 3 mm jacket.

<sup>1</sup> Dash denotes housing color: -1 Red, -2 Yellow, -3 Green, -4 Blue, -5 Rose, -6 Aqua, -7 Brown, -8 Violet, -9 Orange, 1- -0 Slate.

**Note:** All part numbers are RoHS compliant.

**LIGHTCRIMP No Epoxy, Polish SC and ST Connectors**

**Product Facts**

- No epoxy needed
- Easy installation: strip, crimp, cleave and polish
- Each connector kit comes with accessories needed to terminate to 250 μm fiber, 900 μm tight-buffered fiber, and 3 mm cables
  - Duplex part numbers contain two connectors
- Multimode connectors are suitable for use with 50/125 μm, Laser Optimized (10 Gig) (850 nm LO 50/125 μm) and 62.5/125 μm fibers
- Mates with standard couplers, adapters and adapter plates
- Meets TIA/EIA 568-B.3

**Performance Characteristics**

**Insertion Loss** — 0.4 dB typical  
**Temperature Range** — -40°C to 65°C  
**Durability** — 500 cycles



| Description |            |                         | Figure | Part Number | IS Sheet |
|-------------|------------|-------------------------|--------|-------------|----------|
| Simplex SC  | Multimode  | Ceramic Ferrule         | A      | 5503692-1   | 408-4066 |
| Duplex SC   | Multimode  | Ceramic Ferrule         | —      | 5503693-1   | 408-4066 |
|             | Singlemode | Ceramic Ferrule         | B      | 5504000-1   | 408-9860 |
| ST          | Multimode  | Stainless Steel Ferrule | C      | 5504034-1   | 408-9860 |
|             |            | Ceramic Ferrule         | B      | 5504001-1   | 408-9860 |
|             |            | Polymer                 | —      | 5492168-1   | 408-9860 |

**Note:** All part numbers are RoHS compliant.

## CORELINK Optical Fiber Splices

### Product Facts

- Each CORELINK splice mates two 900 µm tight-buffered fibers or two 250 µm coated fibers
- Easy to install
- Reusable
- No bench tool required
- Splices sold in packs of 12
  - Includes 2 actuator keys
- Optional CORELINK installation tool shown below
- Designed to TIA/EIA 568-B.3



### Performance Characteristics

**Mean Splice Loss** — < 0.3 dB

**Mean Return Loss** — -26 dB

**Temperature Range** —  
-0°C to 60°C

| Description                      |            |       | Part Number |
|----------------------------------|------------|-------|-------------|
| CORELINK Splice                  | Singlemode | Clear | 503577-1    |
| 2 Replacement keys in key holder |            |       | 503681-1    |

**Note:** Highlighted part number is routinely stocked for shortest lead times.

### Instruction Sheet

408-4019

<http://www.tycoelectronics.com/documents>

### CORELINK Splice Workstation

Part Number 503605-1

### Product Facts

- Optional tool for installing CORELINK mechanical splices
- Convenient fiber and splice holder for easy installation
- Works with singlemode and multimode CORELINK mechanical splices



### Instruction Sheet

408-4131

<http://www.tycoelectronics.com/documents>

**Note:** All part numbers are RoHS compliant.





**Optical Fiber Cable Performance**

**Product Facts**

- **AMP NETCONNECT Optical Fiber Cables are tested and designed to the most recent applicable industry standards for premise cabling, network and telecommunications applications, including:**
  - IEEE 802.3
    - Ethernet
    - Fast Ethernet
    - Gigabit Ethernet
    - 10 Gigabit Ethernet
  - FDDI
  - ATM
  - Fibre Channel
  - Token Ring
  - TIA/EIA-568
  - ISO 11801
  - ICEA-596
  - ICEA-640
  - ICEA-696
  - IEC 793-1
  - IEC 794-1
  - Telecordia GR-409-CORE
  - Telecordia GR-20-CORE

**Optical Fiber Cables**

**AMP NETCONNECT Optical Fiber Cables**

AMP NETCONNECT optical fiber cables contain the highest quality optical fiber and offer the best performance for LED-based, laser-based, and VCSEL-based (ex: Gigabit Ethernet and 10 Gigabit Ethernet) applications. AMP NETCONNECT multimode optical fibers offer performance guaranteed to go beyond the IEEE 802.3z distances for Gigabit Ethernet, and are guaranteed

to support IEEE 802.3ae distances for Ten Gigabit Ethernet while still supporting slower protocols such as Fast Ethernet and FDDI.

The AMP NETCONNECT Laser Optimized 10 Gig Optical Fiber System is a high performance cabling system which has been designed to meet or exceed the requirements of the 10 Gigabit Ethernet application while still supporting all legacy LED and VCSEL applications. The system

fulfills the specifications of IEEE 802.3ae for 10GBASE-SR (10 Gigabit Ethernet serial transmission on MMF at 850 nm) and complies to the OM-3 fiber type and link class definitions of the 2nd edition of ISO 11801. All AMP NETCONNECT Laser Optimized 10 Gig Optical Fiber System components have been designed and optimized to offer a complete, end-to-end system to support today's applications and provide an easy migration to higher data rates.

| Fiber                                                               | Gigabit Ethernet @ 850 nm | Gigabit Ethernet @ 1300 nm | 10 Gigabit Ethernet Serial @ 850 nm | 10 Gigabit Ethernet WDM @ 1300 nm |
|---------------------------------------------------------------------|---------------------------|----------------------------|-------------------------------------|-----------------------------------|
| Multimode 62.5/125 μm                                               | 300 m                     | 550 m                      | 33 m                                | 300 m                             |
| Multimode 50/125 μm                                                 | 600 m                     | 600 m                      | 82 m                                | 300 m                             |
| Laser Optimized 10 Gig (850 nm Laser Optimized 50/125 μm) Multimode | 1000 m                    | 600 m                      | 300 m                               | 300 m                             |

**Optical Fiber Cable Specifications**

|                             | Singlemode (1300/1550 nm) | Laser Optimized 10 Gig (850 nm LO 50/125 μm) Multimode (850/1300 nm) | Multimode 50/125 μm (850/1300 nm) | Multimode 62.5/125 μm (850/1300 nm) |
|-----------------------------|---------------------------|----------------------------------------------------------------------|-----------------------------------|-------------------------------------|
| <b>Indoor Cables</b>        |                           |                                                                      |                                   |                                     |
| Maximum Attenuation (dB/km) | 0.7/0.7                   | 3.5/1.5                                                              | 3.5/1.5                           | 3.5/1.5                             |
| OFL Bandwidth (MHz*km)      | —/—                       | 1500/500                                                             | 500/500                           | 200/500                             |
| Laser Bandwidth (MHz*km)    | —/—                       | 2000/—                                                               | —/—                               | —/—                                 |

**Optical Fiber Cable Temperature Ranges**

|                                                     |              | Riser                                | Plenum                               |
|-----------------------------------------------------|--------------|--------------------------------------|--------------------------------------|
| <b>Interconnect (Tight Buffered) Cables</b>         | Storage      | -40° C to +65° C (-40° F to +149° F) | -40° C to +65° C (-40° F to +149° F) |
|                                                     | Operating    | -20° C to +50° C (-4° F to +122° F)  | -20° C to +50° C (-4° F to +122° F)  |
|                                                     | Installation | -20° C to +50° C (-4° F to +122° F)  | -20° C to +50° C (-4° F to +122° F)  |
| <b>Indoor, Distribution (Tight Buffered) Cables</b> | Storage      | -40° C to +65° C (-40° F to +149° F) | -40° C to +65° C (-40° F to +149° F) |
|                                                     | Operating    | -20° C to +50° C (-4° F to +122° F)  | 0° C to +50° C (32° F to +122° F)    |
|                                                     | Installation | -20° C to +50° C (-4° F to +122° F)  | 0° C to +50° C (32° F to +122° F)    |

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

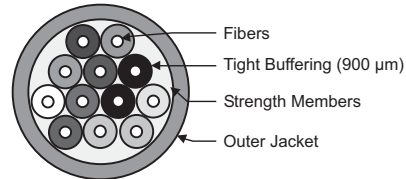
**Optical Fiber Cables** (Continued)



Distribution, 6-12 Fiber

**Product Facts**

- Suitable for horizontal and in-building backbone cabling and for direct termination with epoxy/polish, LIGHTCRIMP, LIGHTCRIMP PLUS and MT-RJ jacks
- Suitable for inter-building cabling if buried in conduit, below the frost line
- Strippable 900 µm tight buffer coating allows for easy connectorization
- TIA color-coded fibers for easy identification
- UL and cUL listed OFNR (Riser) and OFNP(Plenum)
- Interlocking armor available



Distribution Cables

| Fiber Count                                | Unit Count Unit (Fibers/Unit) | Fiber Type                                 | UL/NEC Ratings | Part Number | Weight kg/km (lb/kft) | Diameter mm (in) | Tensile Load N (lbf) |            | Bending Radius mm (in) |           |            |           |          |           |          |
|--------------------------------------------|-------------------------------|--------------------------------------------|----------------|-------------|-----------------------|------------------|----------------------|------------|------------------------|-----------|------------|-----------|----------|-----------|----------|
|                                            |                               |                                            |                |             |                       |                  | Installation         | Long Term  | Installation           | Long Term |            |           |          |           |          |
| 6                                          | 1 (6)                         | Singlemode                                 | Riser          | 1664036-6   | 22 (15)               | 4.8 (0.19)       | 667 (150)            | 167 (38)   | 96 (3.8)               | 48 (1.9)  |            |           |          |           |          |
|                                            |                               |                                            | Plenum         | 1664037-6   | 24 (16)               |                  | 445 (100)            | 111 (25)   |                        |           |            |           |          |           |          |
|                                            |                               | Multimode 50/125 µm                        | Riser          | 2-1664038-1 | 22 (15)               |                  | 667 (150)            | 167 (38)   |                        |           |            |           |          |           |          |
|                                            |                               |                                            | Plenum         | 2-1664039-1 | 24 (16)               |                  | 445 (100)            | 111 (25)   |                        |           |            |           |          |           |          |
|                                            |                               | Laser Optimized 10 Gig Multimode 50/125 µm | Riser          | 8-1664038-9 | 22 (15)               |                  | 667 (150)            | 167 (38)   |                        |           |            |           |          |           |          |
|                                            |                               |                                            | Plenum         | 8-1664039-9 | 24 (16)               |                  | 445 (100)            | 111 (25)   |                        |           |            |           |          |           |          |
|                                            |                               | Multimode 62.5/125 µm                      | Riser          | 1-1664040-1 | 22 (15)               |                  | 667 (150)            | 167 (38)   |                        |           |            |           |          |           |          |
|                                            |                               |                                            | Plenum         | 1-1664041-1 | 24 (16)               |                  | 445 (100)            | 111 (25)   |                        |           |            |           |          |           |          |
|                                            |                               | 8                                          | 1 (8)          | Singlemode  | Riser                 |                  | 1664042-6            | 24 (16)    |                        |           | 4.9 (0.19) | 667 (150) | 167 (38) | 108 (4.2) | 54 (2.1) |
|                                            |                               |                                            |                |             | Plenum                |                  | 1664043-6            | 26 (18)    |                        |           |            | 445 (100) | 111 (25) |           |          |
| Multimode 50/125 µm                        | Riser                         |                                            |                | 2-1664044-1 | 24 (16)               | 667 (150)        | 167 (38)             |            |                        |           |            |           |          |           |          |
|                                            | Plenum                        |                                            |                | 2-1664045-1 | 26 (18)               | 445 (100)        | 111 (25)             |            |                        |           |            |           |          |           |          |
| Laser Optimized 10 Gig Multimode 50/125 µm | Riser                         |                                            |                | 8-1664044-9 | 24 (16)               | 667 (150)        | 167 (38)             |            |                        |           |            |           |          |           |          |
|                                            | Plenum                        |                                            |                | 8-1664045-9 | 26 (18)               | 445 (100)        | 111 (25)             |            |                        |           |            |           |          |           |          |
| Multimode 62.5/125 µm                      | Riser                         |                                            |                | 1-1664046-1 | 24 (16)               | 667 (150)        | 167 (38)             |            |                        |           |            |           |          |           |          |
|                                            | Plenum                        |                                            |                | 1-1664047-1 | 26 (18)               | 445 (100)        | 111 (25)             |            |                        |           |            |           |          |           |          |
| 12                                         | 1 (12)                        |                                            |                | Singlemode  | Riser                 | 1664048-6        | 36 (24)              | 6.2 (0.24) | 667 (150)              | 167 (38)  |            | 124 (4.8) | 62 (2.4) |           |          |
|                                            |                               |                                            |                |             | Plenum                | 1664049-6        | 46 (31)              |            | 445 (100)              | 111 (25)  |            |           |          |           |          |
|                                            |                               | Multimode 50/125 µm                        | Riser          | 2-1664050-1 | 36 (24)               | 667 (150)        | 167 (38)             |            |                        |           |            |           |          |           |          |
|                                            |                               |                                            | Plenum         | 2-1664051-1 | 46 (31)               | 445 (100)        | 111 (25)             |            |                        |           |            |           |          |           |          |
|                                            |                               | Laser Optimized 10 Gig Multimode 50/125 µm | Riser          | 8-1664050-9 | 36 (24)               | 667 (150)        | 167 (38)             |            |                        |           |            |           |          |           |          |
|                                            |                               |                                            | Plenum         | 8-1664051-9 | 46 (31)               | 445 (100)        | 111 (25)             |            |                        |           |            |           |          |           |          |
|                                            |                               | Multimode 62.5/125 µm                      | Riser          | 1-1664052-1 | 36 (24)               | 667 (150)        | 167 (38)             |            |                        |           |            |           |          |           |          |
|                                            |                               |                                            | Plenum         | 1-1664053-1 | 46 (31)               | 445 (100)        | 111 (25)             |            |                        |           |            |           |          |           |          |

**Notes:** All of these cables are available with interlocking armor. Call for more information. Highlighted part numbers are routinely stocked for shortest lead times.

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

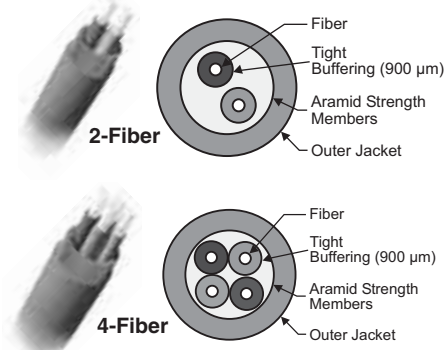
**Optical Fiber Cables (Continued)**



Horizontal, 2-4 Fiber

**Product Facts**

- Suitable for direct termination with epoxy/polish, **LIGHTCRIMP**, **LIGHTCRIMP PLUS** and **MT-RJ** jacks
- Blue, green, red and yellow **Dual and Quad multimode cables for MT-RJ SECURE Networks or network segregation**
- **Aramid yarn reinforcement**
- **UL and cUL listed OFNR (Riser) and OFNP(Plenum)**



**2-Fiber (Dual)**

| Fiber Count | Unit Count Unit (Fibers/Unit) | Fiber Type  | UL/NEC Ratings                             | Jacket Color | Part Number | Weight kg/km (lb/kft) | Diameter mm (in) | Tensile Load N (lbf) |           | Bending Radius mm (in) |           |         |
|-------------|-------------------------------|-------------|--------------------------------------------|--------------|-------------|-----------------------|------------------|----------------------|-----------|------------------------|-----------|---------|
|             |                               |             |                                            |              |             |                       |                  | Installation         | Long Term | Installation           | Long Term |         |
| 2           | 1(2)                          | Singlemode  | Riser                                      | Yellow       | 1664024-6   | 19 (13)               | 4.8 (0.19)       | 220 (50)             | 55 (12.5) | 95 (3.8)               | 48 (1.9)  |         |
|             |                               |             | Plenum                                     | Yellow       | 1664025-6   | 23 (16)               |                  |                      |           |                        |           |         |
|             |                               |             |                                            | Orange       | 2-1664026-1 | 19 (13)               |                  |                      |           |                        |           |         |
|             |                               |             |                                            | Blue         | 2-1664026-0 | 19 (13)               |                  |                      |           |                        |           |         |
|             |                               |             | Riser                                      | Green        | 2-1664026-2 | 19 (13)               |                  |                      |           |                        |           |         |
|             |                               | Red         |                                            | 2-1664026-4  | 19 (13)     |                       |                  |                      |           |                        |           |         |
|             |                               |             | Multimode 50/125 μm                        | Yellow       | 2-1664026-6 | 19 (13)               |                  |                      |           |                        |           |         |
|             |                               |             |                                            | Orange       | 2-1664027-1 | 23 (16)               |                  |                      |           |                        |           |         |
|             |                               |             |                                            | Blue         | 2-1664027-0 | 23 (16)               |                  |                      |           |                        |           |         |
|             |                               |             |                                            | Plenum       | Green       | 2-1664027-2           |                  |                      |           |                        |           | 23 (16) |
|             |                               |             |                                            |              | Red         | 2-1664027-4           |                  |                      |           |                        |           | 23 (16) |
|             |                               |             |                                            | Yellow       | 2-1664027-6 | 23 (16)               |                  |                      |           |                        |           |         |
|             |                               |             | Laser Optimized 10 Gig Multimode 50/125 μm | Riser        | Aqua        | 8-1664026-9           |                  |                      |           |                        |           | 19 (13) |
|             |                               |             |                                            | Plenum       | Aqua        | 8-1664027-9           |                  |                      |           |                        |           | 23 (16) |
|             |                               |             |                                            |              | Orange      | 1-1664028-1           |                  |                      |           |                        |           | 19 (13) |
|             |                               |             |                                            |              | Blue        | 1-1664028-0           |                  |                      |           |                        |           | 19 (13) |
|             |                               |             | Multimode 62.5/125 μm                      | Riser        | Green       | 1-1664028-2           |                  |                      |           |                        |           | 19 (13) |
|             |                               |             |                                            |              | Red         | 1-1664028-4           |                  |                      |           |                        |           | 19 (13) |
|             |                               |             |                                            | Yellow       | 1-1664028-6 | 19 (13)               |                  |                      |           |                        |           |         |
|             |                               |             |                                            | Orange       | 1-1664029-1 | 23 (16)               |                  |                      |           |                        |           |         |
|             | Blue                          | 1-1664029-0 |                                            | 23 (16)      |             |                       |                  |                      |           |                        |           |         |
|             | Plenum                        | Green       |                                            | 1-1664029-2  | 23 (16)     |                       |                  |                      |           |                        |           |         |
|             |                               | Red         |                                            | 1-1664029-4  | 23 (16)     |                       |                  |                      |           |                        |           |         |
|             | Yellow                        | 1-1664029-6 |                                            | 23 (16)      |             |                       |                  |                      |           |                        |           |         |

**4-Fiber (Quad)**

|   |        |             |                                            |             |             |             |            |          |           |          |          |         |
|---|--------|-------------|--------------------------------------------|-------------|-------------|-------------|------------|----------|-----------|----------|----------|---------|
| 4 | 1(4)   | Singlemode  | Riser                                      | Yellow      | 1664030-6   | 21 (14)     | 4.8 (0.19) | 220 (50) | 55 (12.5) | 95 (3.8) | 48 (1.9) |         |
|   |        |             | Plenum                                     | Yellow      | 1664031-6   | 25 (17)     |            |          |           |          |          |         |
|   |        |             |                                            | Orange      | 2-1664032-1 | 21 (14)     |            |          |           |          |          |         |
|   |        |             |                                            | Blue        | 2-1664032-0 | 21 (14)     |            |          |           |          |          |         |
|   |        |             | Riser                                      | Green       | 2-1664032-2 | 21 (14)     |            |          |           |          |          |         |
|   |        | Red         |                                            | 2-1664032-4 | 21 (14)     |             |            |          |           |          |          |         |
|   |        |             | Multimode 50/125 μm                        | Yellow      | 2-1664032-6 | 21 (14)     |            |          |           |          |          |         |
|   |        |             |                                            | Orange      | 2-1664033-1 | 25 (17)     |            |          |           |          |          |         |
|   |        |             |                                            | Blue        | 2-1664033-0 | 25 (17)     |            |          |           |          |          |         |
|   |        |             |                                            | Plenum      | Green       | 2-1664033-2 |            |          |           |          |          | 25 (17) |
|   |        |             |                                            |             | Red         | 2-1664033-4 |            |          |           |          |          | 25 (17) |
|   |        |             |                                            | Yellow      | 2-1664033-6 | 25 (17)     |            |          |           |          |          |         |
|   |        |             | Laser Optimized 10 Gig Multimode 50/125 μm | Riser       | Aqua        | 8-1664032-9 |            |          |           |          |          | 21 (14) |
|   |        |             |                                            | Plenum      | Aqua        | 8-1664033-9 |            |          |           |          |          | 25 (17) |
|   |        |             |                                            |             | Orange      | 1-1664034-1 |            |          |           |          |          | 21 (14) |
|   |        |             |                                            |             | Blue        | 1-1664034-0 |            |          |           |          |          | 21 (14) |
|   |        |             | Multimode 62.5/125 μm                      | Riser       | Green       | 1-1664034-2 |            |          |           |          |          | 21 (14) |
|   |        |             |                                            |             | Red         | 1-1664034-4 |            |          |           |          |          | 21 (14) |
|   |        |             |                                            | Yellow      | 1-1664034-6 | 21 (14)     |            |          |           |          |          |         |
|   |        |             |                                            | Orange      | 1-1664035-1 | 25 (17)     |            |          |           |          |          |         |
|   | Blue   | 1-1664035-0 |                                            | 25 (17)     |             |             |            |          |           |          |          |         |
|   | Plenum | Green       |                                            | 1-1664035-2 | 25 (17)     |             |            |          |           |          |          |         |
|   |        | Red         |                                            | 1-1664035-4 | 25 (17)     |             |            |          |           |          |          |         |
|   | Yellow | 1-1664035-6 |                                            | 25 (17)     |             |             |            |          |           |          |          |         |

**Note:** Highlighted part numbers are routinely stocked for shortest lead times.

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

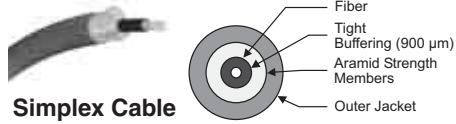
**Optical Fiber Cables (Continued)**



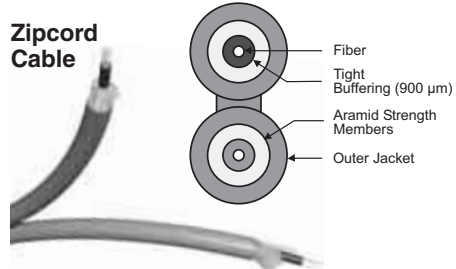
Interconnect, 1-2 Fiber

**Product Facts**

- Suitable for pigtails, patch cords and internal equipment connections
- Aramid yarn reinforcement
- UL and cUL listed OFNR (Riser) and OFNP(Plenum)



Simplex Cable



Zipcord Cable

**Simplex (2.0 mm)**

| Fiber Count | Unit Count Unit (Fibers/Unit) | Fiber Type                                 | UL/NEC Ratings | Part Number | Weight kg/km (lb/kft) | Diameter mm (in) | Tensile Load N (lbf) |           | Bending Radius mm (in) |           |
|-------------|-------------------------------|--------------------------------------------|----------------|-------------|-----------------------|------------------|----------------------|-----------|------------------------|-----------|
|             |                               |                                            |                |             |                       |                  | Installation         | Long Term | Installation           | Long Term |
| 1           | 1 (1)                         | Singlemode                                 | Riser          | 1664006-6   | 5 (3)                 | 2.0 (0.08)       | 220 (50)             | 55 (12.5) | 40 (1.6)               | 20 (0.8)  |
|             |                               |                                            | Plenum         | 1664007-6   | 6 (4)                 |                  |                      |           |                        |           |
|             |                               | Multimode 50/125 μm                        | Riser          | 2-1664008-1 | 5 (3)                 |                  |                      |           |                        |           |
|             |                               |                                            | Plenum         | 2-1664009-1 | 6 (4)                 |                  |                      |           |                        |           |
|             |                               | Laser Optimized 10 Gig Multimode 50/125 μm | Riser          | 8-1664008-9 | 5 (3)                 |                  |                      |           |                        |           |
|             |                               |                                            | Plenum         | 8-1664009-9 | 6 (4)                 |                  |                      |           |                        |           |
|             |                               | Multimode 62.5/125 μm                      | Riser          | 1-1664010-1 | 5 (3)                 |                  |                      |           |                        |           |
|             |                               |                                            | Plenum         | 1-1664011-1 | 6 (4)                 |                  |                      |           |                        |           |

**Simplex (2.9 mm)**

|   |       |                                            |        |             |       |            |          |           |          |          |
|---|-------|--------------------------------------------|--------|-------------|-------|------------|----------|-----------|----------|----------|
| 1 | 1 (1) | Singlemode                                 | Riser  | 1664000-6   | 8 (5) | 2.9 (0.11) | 220 (50) | 55 (12.5) | 58 (2.8) | 29 (1.1) |
|   |       |                                            | Plenum | 1664001-6   | 9 (6) |            |          |           |          |          |
|   |       | Multimode 50/125 μm                        | Riser  | 2-1664002-1 | 8 (5) |            |          |           |          |          |
|   |       |                                            | Plenum | 2-1664003-1 | 9 (6) |            |          |           |          |          |
|   |       | Laser Optimized 10 Gig Multimode 50/125 μm | Riser  | 8-1664002-9 | 8 (5) |            |          |           |          |          |
|   |       |                                            | Plenum | 8-1664003-9 | 9 (6) |            |          |           |          |          |
|   |       | Multimode 62.5/125 μm                      | Riser  | 1-1664004-1 | 8 (5) |            |          |           |          |          |
|   |       |                                            | Plenum | 1-1664005-1 | 9 (6) |            |          |           |          |          |

**Zipcord (2.0 mm)**

|   |       |                                            |        |             |       |                         |          |           |          |          |
|---|-------|--------------------------------------------|--------|-------------|-------|-------------------------|----------|-----------|----------|----------|
| 2 | 2 (1) | Singlemode                                 | Riser  | 1664018-6   | 6 (4) | 2.0 x 4.0 (0.08 x 0.16) | 220 (50) | 55 (12.5) | 40 (2.2) | 20 (0.8) |
|   |       |                                            | Plenum | 1664019-6   | 8 (5) |                         |          |           |          |          |
|   |       | Multimode 50/125 μm                        | Riser  | 2-1664020-1 | 6 (4) |                         |          |           |          |          |
|   |       |                                            | Plenum | 2-1664021-1 | 8 (5) |                         |          |           |          |          |
|   |       | Laser Optimized 10 Gig Multimode 50/125 μm | Riser  | 8-1664020-9 | 6 (4) |                         |          |           |          |          |
|   |       |                                            | Plenum | 8-1664021-9 | 8 (5) |                         |          |           |          |          |
|   |       | Multimode 62.5/125 μm                      | Riser  | 1-1664022-1 | 6 (4) |                         |          |           |          |          |
|   |       |                                            | Plenum | 1-1664023-1 | 8 (5) |                         |          |           |          |          |

**Zipcord (2.9 mm)**

|   |       |                                            |        |             |         |                         |          |           |          |          |
|---|-------|--------------------------------------------|--------|-------------|---------|-------------------------|----------|-----------|----------|----------|
| 2 | 2 (1) | Singlemode                                 | Riser  | 1664012-6   | 15 (10) | 2.9 x 5.8 (0.11 x 0.22) | 220 (50) | 55 (12.5) | 58 (2.2) | 29 (1.1) |
|   |       |                                            | Plenum | 1664013-6   | 18 (12) |                         |          |           |          |          |
|   |       | Multimode 50/125 μm                        | Riser  | 2-1664014-1 | 15 (10) |                         |          |           |          |          |
|   |       |                                            | Plenum | 2-1664015-1 | 18 (12) |                         |          |           |          |          |
|   |       | Laser Optimized 10 Gig Multimode 50/125 μm | Riser  | 8-1664014-9 | 15 (10) |                         |          |           |          |          |
|   |       |                                            | Plenum | 8-1664015-9 | 18 (12) |                         |          |           |          |          |
|   |       | Multimode 62.5/125 μm                      | Riser  | 1-1664016-1 | 15 (10) |                         |          |           |          |          |
|   |       |                                            | Plenum | 1-1664017-1 | 18 (12) |                         |          |           |          |          |

**Note:** Highlighted part numbers are routinely stocked for shortest lead times.

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

## MPO Connectors

### Product Facts

- Tested to Telecordia GR-1435
- Push Pull Latching
- 4, 8, 12, OR 24 fibers
- Color-coded housings differentiate singlemode and multimode:
  - Multimode - Beige
  - Singlemode - Green
- Manufactured to IEC Standards 61754-7 and TIA/EIA 604-5

### Industry Standard

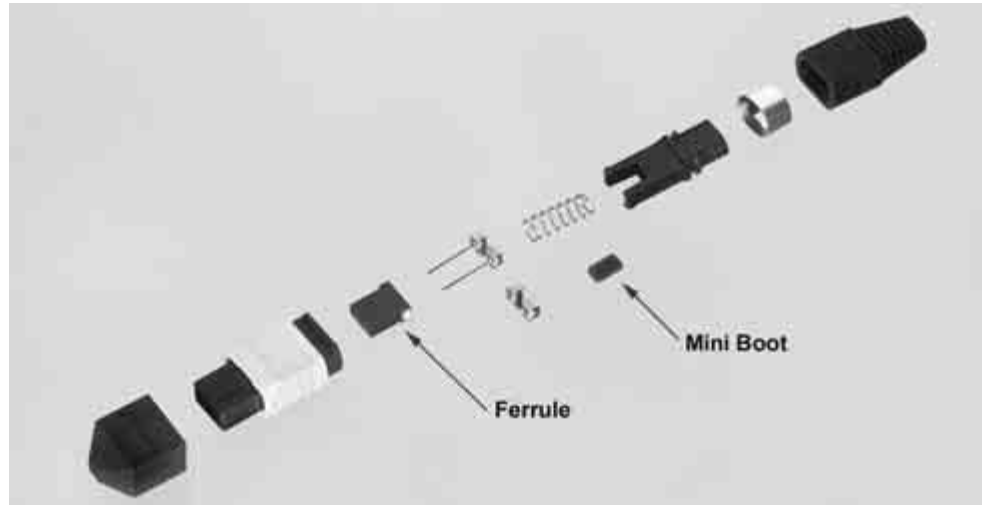
### Performance Characteristics

#### Singlemode

- Insertion Loss (Typ) — 0.25 dB
- Insertion Loss (Max) — 0.75 dB
- Return Loss — > 55 dB

#### Multimode

- Insertion Loss (Typ) — 0.2 dB
- Insertion Loss (Max) — 0.5 dB
- Return Loss — > 20 dB



### MPO Connector Kit Selection - Plug Kits

| Fiber Type | Female (no pins) | Male (with pins) |
|------------|------------------|------------------|
| Singlemode | 6457981-1        | 6457981-2        |
| Multimode  | 6457983-1        | 6457983-2        |

**Note:** Ferrules and Mini-Boots are sold separately. See chart below for proper part numbers.



### MPO Ferrule Kit with Mini-Boot

| Fiber Type | 4 Position | 8 Position | 12 Position |
|------------|------------|------------|-------------|
| Singlemode | 5492221-1  | 5492221-2  | 5492221-3   |
| Multimode  | 5503839-1  | 5503839-2  | 5503839-3   |

### Crimping Tool with Dieset

1588698-1



### MPO Adapters

| Adapter Type                  | Single Pack | 50 pc Bulk Pack |
|-------------------------------|-------------|-----------------|
| Adapter w/flange              | 1588172-1   | 1588172-5       |
| Adapter w/flange and clip     | 1588172-2   | 1588172-6       |
| Adapter w/o flange            | 1588172-3   | 1588172-7       |
| Adapter w/o flange and w/clip | 1588172-4   | 1588172-8       |

**Note:** All part numbers are RoHS compliant.

**Tooling**

**Powermeter Launch Lead Kits for Optical Testing and Certification**



Today testing of fiber optic links is more sensitive than ever. AMP NETCONNECT test kits guarantee precise and replicable fiber testing. All kits contain connectors with controlled end faces and support testing with 3 jumper test method in accordance to ISO/IEC 14763-3.

Each kit contains:

- Test leads for simplex and duplex IL test
- Test leads for CPR tests
- Fiber coupling bushes
- Two mandrels (Multimode only)
- Cleaning aides
- Instruction manual
- Data sheet of end face geometry

| Description                    | Part Number |
|--------------------------------|-------------|
| 50 μm, Multimode Launch Lead   | Y-6695241-X |
| 62.5 μm, Multimode Launch Lead | Y-6695243-X |
| 9 μm, Singlemode Launch Lead   | Y-6695245-X |

| Y- -X | Connector Type |
|-------|----------------|
| -1    | SC/PC to SC/PC |
| -2    | SC/PC to ST/PC |
| -3    | SC/PC to LC/PC |
| -4    | SC/PC to FC/PC |
| -5    | SC/PC to MT-RJ |

| Y- -X | Connector Type |
|-------|----------------|
| -6    | ST/PC to SC/PC |
| -7    | ST/PC to ST/PC |
| -8    | ST/PC to LC/PC |
| -9    | ST/PC to FC/PC |
| 1- -0 | ST/PC to MT-RJ |

| Y- -X | Connector Type |
|-------|----------------|
| 1- -1 | LC/PC to SC/PC |
| 1- -2 | LC/PC to ST/PC |
| 1- -3 | LC/PC to LC/PC |
| 1- -4 | LC/PC to FC/PC |
| 1- -5 | LC/PC to MT-RJ |

| Y- -X | Connector Type |
|-------|----------------|
| 1- -6 | FC/PC to SC/PC |
| 1- -7 | FC/PC to ST/PC |
| 1- -8 | FC/PC to LC/PC |
| 1- -9 | FC/PC to FC/PC |
| 2- -0 | FC/PC to MT-RJ |

Explanation: Connector 1 — to test equipment  
Connector 2 — under test

**OTDR Launch Lead Kits for Optical Testing and Certification**

Each kit contains:

- Launch and tail lead
- Length 400 m Multimode and 500 m Singlemode
- Data sheet of end face geometry
- Coupling bushings
- Cleaning aides
- Instruction manual



| Description                    | Part Number |
|--------------------------------|-------------|
| 50 μm, Multimode Launch Lead   | Y-6695240-X |
| 62.5 μm, Multimode Launch Lead | Y-6695242-X |
| 9 μm, Singlemode Launch Lead   | Y-6695244-X |

| Y- -X | Connector Type |
|-------|----------------|
| -1    | SC/PC to SC/PC |
| -2    | SC/PC to ST/PC |
| -3    | SC/PC to LC/PC |
| -4    | SC/PC to FC/PC |
| -5    | SC/PC to MT-RJ |

| Y- -X | Connector Type |
|-------|----------------|
| -6    | ST/PC to SC/PC |
| -7    | ST/PC to ST/PC |
| -8    | ST/PC to LC/PC |
| -9    | ST/PC to FC/PC |
| 1- -0 | ST/PC to MT-RJ |

| Y- -X | Connector Type |
|-------|----------------|
| 1- -1 | LC/PC to SC/PC |
| 1- -2 | LC/PC to ST/PC |
| 1- -3 | LC/PC to LC/PC |
| 1- -4 | LC/PC to FC/PC |
| 1- -5 | LC/PC to MT-RJ |

| Y- -X | Connector Type |
|-------|----------------|
| 1- -6 | FC/PC to SC/PC |
| 1- -7 | FC/PC to ST/PC |
| 1- -8 | FC/PC to LC/PC |
| 1- -9 | FC/PC to FC/PC |
| 2- -0 | FC/PC to MT-RJ |

Explanation: Connector 1 — to test equipment  
Connector 2 — under test

**Consumables for Power Meter and OTDR Launch Lead Kits**

| Description            | Part Number |
|------------------------|-------------|
| Cleaning Lens Book     | 434376-1    |
| Compressed Air Bottle  | 1206860-1   |
| Cleaning Stick 2.50 mm | 1918807-1   |
| Cleaning Stick 1.25 mm | 1918808-1   |
| Cleaning Stick MT-RJ   | 1391089-1   |

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



## Tooling (Continued)

### Tool Kit Compatibility Chart

|                                                             | Part Number | MT-RJ Jacks | MT-RJ SECURE Jacks | MT-RJ Plugs | LIGHTCRIMP PLUS |    |    | LIGHTCRIMP |    | Epoxy/Polish   |    |    |    |     |      |   |
|-------------------------------------------------------------|-------------|-------------|--------------------|-------------|-----------------|----|----|------------|----|----------------|----|----|----|-----|------|---|
|                                                             |             |             |                    |             | LC              | SC | ST | SC         | ST | LC             | SC | ST | FC | FSD | FSMA |   |
| Deluxe Premises Termination Tool Kit                        | 1278949-2   | X           | X                  |             | X               | X  | X  | X          | X  |                |    |    |    |     |      |   |
|                                                             | 1278949-3*  | X           | X                  |             | X               | X  | X  | X          | X  |                |    |    |    |     |      |   |
| MT-RJ Jack Tool Kit                                         | 1278346-1   | X           | X                  |             |                 |    |    |            |    |                |    |    |    |     |      |   |
|                                                             | 1278346-2*  | X           | X                  |             |                 |    |    |            |    |                |    |    |    |     |      |   |
| LIGHTCRIMP PLUS No Epoxy/No Polish Universal Tool Kit       | 1278118-4   | X           | X                  |             | X               | X  | X  |            |    |                |    |    |    |     |      |   |
|                                                             | 1278118-5*  | X           | X                  |             | X               | X  | X  |            |    |                |    |    |    |     |      |   |
| MT-RJ Plug Termination Kit                                  | 1278745-1   |             |                    | X           |                 |    |    |            |    |                |    |    |    |     |      |   |
|                                                             | 1278745-2*  |             |                    | X           |                 |    |    |            |    |                |    |    |    |     |      |   |
| LIGHTCRIMP PLUS No Epoxy/No Polish LC Tool Kit              | 1754845-1   |             |                    |             | X               |    |    |            |    |                |    |    |    |     |      |   |
|                                                             | 1754845-2*  |             |                    |             | X               |    |    |            |    |                |    |    |    |     |      |   |
| LIGHTCRIMP PLUS No Epoxy/No Polish SC Tool Kit              | 1278022-1   |             |                    |             |                 | X  |    |            |    |                |    |    |    |     |      |   |
|                                                             | 1278022-2*  |             |                    |             |                 | X  |    |            |    |                |    |    |    |     |      |   |
| LIGHTCRIMP PLUS No Epoxy/No Polish ST Tool Kit              | 492697-1    |             |                    |             |                 |    | X  |            |    |                |    |    |    |     |      |   |
|                                                             | 492697-2*   |             |                    |             |                 |    | X  |            |    |                |    |    |    |     |      |   |
| LIGHTCRIMP SC/ST No Epoxy/Polish Tool Kits                  | 503957-1    |             |                    |             |                 |    |    | X          | X  |                |    |    |    |     |      |   |
|                                                             | 503957-3    |             |                    |             |                 |    |    | X          | X  |                |    |    |    |     |      |   |
|                                                             | 492543-1    |             |                    |             |                 |    |    | X          | X  |                |    |    |    |     |      |   |
| LIGHTCRIMP SC No Epoxy/Polish Tool Kits                     | 503706-1    |             |                    |             |                 |    |    | X          |    |                |    |    |    |     |      |   |
|                                                             | 503706-2    |             |                    |             |                 |    |    | X          |    |                |    |    |    |     |      |   |
| LIGHTCRIMP ST No Epoxy/Polish Tool Kits                     | 503330-1    |             |                    |             |                 |    |    |            | X  |                |    |    |    |     |      |   |
|                                                             | 503330-3    |             |                    |             |                 |    |    |            | X  |                |    |    |    |     |      |   |
|                                                             | 492322-1    |             |                    |             |                 |    |    |            | X  |                |    |    |    |     |      |   |
| Pro-installer Epoxy/Polish Tool Kits                        | 501258-7    |             |                    |             |                 |    |    |            |    | X <sup>1</sup> | X  | X  | X  | X   | X    | X |
|                                                             | 501258-8    |             |                    |             |                 |    |    |            |    | X <sup>1</sup> | X  | X  | X  | X   | X    | X |
|                                                             | 501258-9    |             |                    |             |                 |    |    |            |    | X <sup>1</sup> | X  | X  | X  | X   | X    | X |
| Epoxy/Polish SC/FC Tool Kit (no microscope, no curing oven) | 503746-7    |             |                    |             |                 |    |    |            |    | X <sup>2</sup> | X  |    | X  |     |      |   |
| Epoxy/Polish ST Tool Kit (no microscope, no curing oven)    | 503746-1    |             |                    |             |                 |    |    |            |    | X <sup>2</sup> |    | X  |    |     |      |   |
| Epoxy/Polish FSMA Tool Kit (no microscope, no curing oven)  | 503746-2    |             |                    |             |                 |    |    |            |    | X <sup>2</sup> |    |    |    |     |      | X |
| Epoxy/Polish FSD Tool Kit (no microscope, no curing oven)   | 503746-6    |             |                    |             |                 |    |    |            |    | X <sup>2</sup> |    |    |    | X   |      |   |

<sup>1</sup> For LC terminations, also order Part Number 1754462-1.

<sup>2</sup> For LC terminations, also order Part Number 1754603-1.

\*Includes Precision Cleaver and Microscope.

### Epoxy/Polish Connector Consumables/Compatibility Chart

|               | Epoxies (Part Number) |                    |                  | Polishing Films (Part Number) |                 |                         |                   |                                 | Consumable Package* Part Number |
|---------------|-----------------------|--------------------|------------------|-------------------------------|-----------------|-------------------------|-------------------|---------------------------------|---------------------------------|
|               | EPO-TEK (504035-1)    | TRA-CON (501195-4) | HYSOL (502418-1) | 9 µm (1374484-1)              | 5 µm (228433-8) | Diamond Film (503887-1) | 0.3 µm (228433-5) | Final Polishing Film (502748-2) |                                 |
| LC Singlemode | X                     | X                  | X                | X                             | X               | X                       | X                 | —                               | 502306-4                        |
| LC Multimode  | X                     | X                  | X                | X                             | X               | X                       | X                 | —                               | 502306-4                        |
| SC Singlemode | X                     | X                  | X                | —                             | X               | —                       | X                 | X                               | 502306-2                        |
| SC Multimode  | X                     | X                  | X                | —                             | X               | —                       | X                 | X                               | 502306-2                        |
| ST Singlemode | —                     | X                  | X                | —                             | X               | —                       | X                 | X                               | 502306-2                        |
| ST Multimode  | —                     | X                  | X                | —                             | X               | —                       | X                 | —                               | 502306-1                        |

\*Epoxy & film for » 100 connectors.

**Note:** All part numbers are RoHS compliant.

**Tooling** (Continued)

**Deluxe Premises Termination Tool Kit**  
Part Number 1278949-2  
Part Number 1278949-3  
(Includes Precision Cleaver and Microscope)

**Product Facts**

- Includes all tools need for installing popular field-installable connectors
  - MT-RJ and MT-RJ SECURE Jacks
  - LIGHTCRIMP PLUS SC, LC and ST connectors
  - LIGHTCRIMP SC and ST connectors
- Convenient carrying case
- Includes consumables for LIGHTCRIMP connector terminations
  - For additional LIGHTCRIMP connector terminations, order additional polishing films 228433-9, 228433-8, 228433-7 and 228433-5 (page 93)
- Includes instructional CD-ROM video



**MT-RJ Jack Termination Tool Kit**  
Part Number 1278346-1  
Part Number 1278346-2  
(Includes Precision Cleaver and Microscope)

**Product Facts**

- Includes all tools needed for installing MT-RJ and MT-RJ SECURE Jacks



**MT-RJ Plug Termination Tool Kit**  
Part Number 1278745-1  
Part Number 1278745-2  
(Includes Precision Cleaver and Microscope)

**Product Facts**

- Includes all tools needed to terminate MT-RJ Plug in handy plastic case
- Contents: Cleave pen, Jacket/Buffer/Coating Stripper, KEVLAR Shears, Strip Template, Cable Clamps, Cure Fixtures, Crimp Tool, Die Sets, Epoxy Dispensers

**LIGHTCRIMP PLUS Termination Tool Kits**



**Product Facts**

- Includes all tools needed for installing the listed type LIGHTCRIMP PLUS no epoxy/no polish connectors, MT-RJ and MT-RJ SECURE Jacks
- LIGHTCRIMP PLUS Connector Termination Video CD-Rom also available separately, Part Number 1374503-1
- Convenient carrying case

| Description                                                                       | Part Number |                        |
|-----------------------------------------------------------------------------------|-------------|------------------------|
| Universal LIGHTCRIMP PLUS No epoxy/No polish Tool Kit (SC, LC, ST and MT-RJ Jack) | 1278118-4   | 1278118-5 <sup>1</sup> |
| LIGHTCRIMP PLUS LC Connector Termination Tool Kit                                 | 1754845-1   | 1754845-2 <sup>1</sup> |
| LIGHTCRIMP PLUS SC Connector Termination Tool Kit                                 | 1278022-1   | 1278022-2 <sup>1</sup> |
| LIGHTCRIMP PLUS ST Connector Termination Tool Kit                                 | 492697-1    | 492697-2 <sup>1</sup>  |

<sup>1</sup> Includes Precision Cleaver and Microscope.

**Note:** All part numbers are RoHS compliant.

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



**Tooling** (Continued)

**No Epoxy/No Polish Upgrade and Adaptive Termination Tool Kits**

**Product Facts**

- **Upgrade Tool Kit** supplements existing **LIGHTCRIMP PLUS** Tool Kits with tools needed to install **LC connectors**
- **Adaptive Tool Kits** supplements existing fiber optic tool kits with the tools needed to terminate
- LIGHTCRIMP PLUS connectors**
- **Saves money on full tool kit** by reusing tools from currently owned tool kits

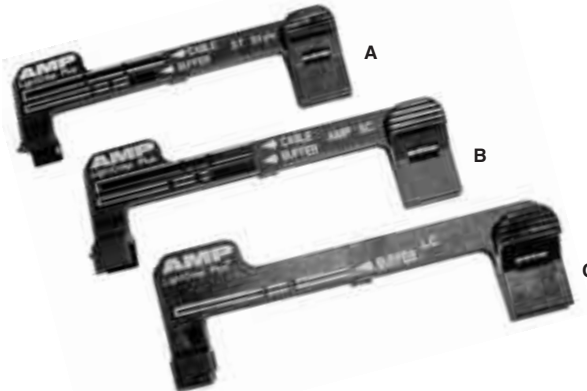
| Description                              | Terminates                | Includes                                                                                    | Cost Savings                                  | Part Number             |
|------------------------------------------|---------------------------|---------------------------------------------------------------------------------------------|-----------------------------------------------|-------------------------|
| LC LIGHTCRIMP PLUS Upgrade Kit           | LIGHTCRIMP PLUS LC        | LC Die Set and Cable Holder                                                                 | Low Cost Upgrade for Current Tool Kit         | 1754847-2               |
| LC LIGHTCRIMP PLUS Adaptive Kit          | LIGHTCRIMP PLUS LC        | Crimp Tool, LC Die Set, LC Cable Holder, Cleave Tool and Instruction Sheet                  | Fiber and Cable Strippers in Current Tool Kit | 1754846-1<br>1754846-2* |
| SC LIGHTCRIMP PLUS Adaptive Kit          | LIGHTCRIMP PLUS SC        | Crimp Tool, SC Die Set, SC Cable Holder, Cleave Tool and Instruction Sheet                  | Fiber and Cable Strippers in Current Tool Kit | 1754737-1<br>1754737-2* |
| Combination LIGHTCRIMP PLUS Adaptive Kit | LIGHTCRIMP PLUS SC and ST | Crimp Tool, SC and ST Die Sets, SC and ST Cable Holders, Cleave Tool and Instruction Sheets | Fiber and Cable Strippers in Current Tool Kit | 1754739-1<br>1754739-2* |
| ST LIGHTCRIMP PLUS Adaptive Kit          | LIGHTCRIMP PLUS ST        | Crimp Tool, ST Die Set, ST Cable Holder, Cleave Tool and Instruction Sheet                  | Fiber and Cable Strippers in Current Tool Kit | 1754738-1<br>1754738-2* |

\*Includes microscope and precision cleaver

**LIGHTCRIMP PLUS Cable Holders**

**Product Facts**

- **Used in LIGHTCRIMP PLUS connector terminations (included in LIGHTCRIMP PLUS Tool Kits)**



| Description | Figure | Part Number |
|-------------|--------|-------------|
| ST          | A      | 492703-1    |
| SC          | B      | 1278023-1   |
| LC          | C      | 1754138-1   |

**Fiber Optic Cleave Tool**  
Part Number 492674-1

**Product Facts**

- **Cleave fibers for LIGHTCRIMP PLUS connectors**
- **One is included in basic tool kits for MT-RJ Jacks and LIGHTCRIMP PLUS connectors (not the LC Upgrade Kit)**
- **Easy to use: clamp, score and bend**
- **Blade life-span is » 1000 cleaves**



**Note:** All part numbers are RoHS compliant.

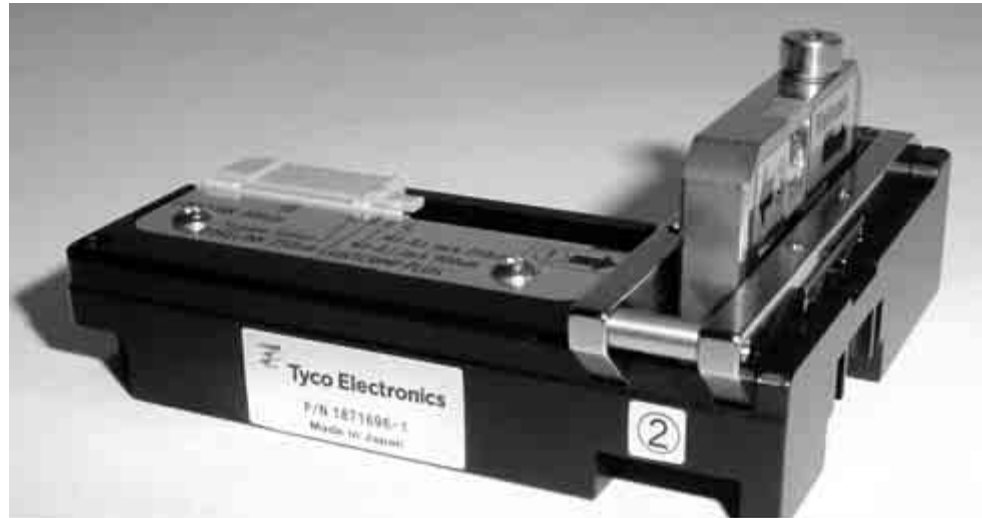
**Tooling** (Continued)



**“New” Hand Held Precision Cleaver**

**Part Number 1871696-1  
Hand Held Precision Cleaver**

**Part Number 1871696-2  
Hand Held Precision Cleaver  
with Trash Can  
(not a stocked item)**



**Product Facts**

- **Operator independent = no craft sensitivity = consistent cleave every time**
- **Hand held operation**
- **10,000 cleave blade life**
- **4, 6, 8, 10, and 18 millimeter cleave lengths**
- **Product specific markings for LIGHTCRIMP PLUS and MT-RJ jack connectors, CORELINK splice, and fusion splicing**
- **Cleaved surface angle < 1.5°**
- **No lip, no fracture, and no roll-off**
- **Padded belt case for convenience and storage**
- **Neck lanyard included**

Tyco Electronics' hand held precision fiber cleaver provides precision quality cleaves with the feel and robustness of a full scale precision cleaver in a hand held size at an exceptionally competitive price. The 10,000 cleave blade life far exceeds that of any other hand held cleaver currently on the market. The detailed scale markings indicate

proper cleave lengths for popular Tyco Electronics field installable fiber optic connectors and mechanical splices in addition to the standard numerical markings for other applications including fusion splicing. The included belt pouch and neck lanyard ensure that the cleaver is always within reach.

**Applications**

Affordable precision cleaving solution for:

- **Field installable mechanical splice connectors**
- **Fusion splicing**
- **Mechanical splicing**
- **Bare fiber adapters**

**Product Dimensions**

**Length** — 74 mm [2.913 in.]  
**Width** — 65.5 mm [2.578 in.]  
**Thickness** — 33.5 mm [1.318 in.]  
**Weight** — 136 g [0.30 lb.]

**Note:** All part numbers are RoHS compliant.

**Tooling** (Continued)

**LIGHTCRIMP Termination Tool Kits**

**Product Facts**

- Includes all tools needed for installing the listed type LIGHTCRIMP no epoxy/polish connectors
- Convenient carrying case
- Includes consumables for installing 60 LIGHTCRIMP connectors
  - For additional LIGHTCRIMP terminations, order additional polishing films 228433-9, 228433-8, 228433-7 and 228433-5 (page 93)
- Note: photo is representative of kits — contents may vary by Part Number



| Description          |                 | Microscope (if listed) | Part Number |
|----------------------|-----------------|------------------------|-------------|
| LIGHTCRIMP SC        | Termination Kit | —                      | 503706-1    |
|                      |                 | Premium Microscope     | 503706-2    |
| LIGHTCRIMP ST        | Termination Kit | —                      | 503330-1    |
|                      |                 | Premium Microscope     | 503330-3    |
|                      | Mini Tool Kit   | —                      | 492322-1    |
| LIGHTCRIMP SC and ST | Termination Kit | —                      | 503957-1    |
|                      |                 | Premium Microscope     | 503957-2    |
|                      | Mini Tool Kit   | —                      | 492543-1    |

**LIGHTCRIMP Cleave Tool**  
Part Number 503705-1

**Product Facts**

- Used in both SC and ST LIGHTCRIMP Connector terminations
- Included in the Deluxe and LIGHTCRIMP Tool Kits



**Note:** All part numbers are RoHS compliant.

**Tooling** (Continued)

**Pro-Installer Epoxy/Polish Connector Termination Tool Kits**

**Product Facts**

- Includes all tools necessary to install SC, ST, and FC Connectors
  - For LC terminations, also order Part Number 1754462-1
- Tool kits include:
  - Pro-Crimper II Hand Tool and crimping dies
  - Polishing bushings
  - Polishing film (also sold separately, page 93)
  - Cable and fiber strippers
  - Scissors
  - Scribe tool
- Includes polishing films to install 60 epoxy/polish connectors
  - Epoxy is sold separately (see page 92)
- Kits available with curing oven and microscope or without
- Convenient carrying case
- Photo is representative of kits — contents vary by Part Number



**Professional Installer Kit**

| Description                           | Part Number |
|---------------------------------------|-------------|
| With 110 V Curing Oven and Microscope | 501258-7    |
| With 220 V Curing Oven and Microscope | 501258-8    |
| Without Curing Oven or Microscope     | 501258-9    |

**Epoxy/Polish Connector Termination Tool Kits**

**Product Facts**

- Includes all tools necessary to install the listed epoxy/polish connectors
  - For LC terminations, also order Part Number 1754603-1
- Tool kits include:
  - Pro-Crimper II Hand Tool and crimping dies
  - Polishing bushings
  - Polishing film (also sold separately, page 93)
  - Cable and fiber strippers
  - Scissors
  - Scribe tool
- Includes polishing films to install » 60 epoxy/polish connectors
  - Epoxy is sold separately (see page 92)
- Does not include curing oven or microscope
- Convenient carrying case



| Description | Part Number |
|-------------|-------------|
| SC and FC   | 503746-7    |
| ST          | 503746-1    |
| FSMA        | 503746-2    |
| FSD         | 503746-6    |

**Note:** All part numbers are RoHS compliant.

**Tooling** (Continued)

**Cable Stripper**  
**Part Number 1375317-1**

**Product Facts**

- Cyclops Stripper ideal for stripping twisted pair (UTP and STP) and fiber optic cables up to 10.92 [0.43] diameter



**Sapphire-Tipped Scribe Tool and Accessories**

**Product Facts**

- Long-lasting sapphire blade
- Pen-type casing
- Used to install all Epoxy/Polish Connectors
- Included in Epoxy/Polish Tool Kits



| Description                 | Part Number |
|-----------------------------|-------------|
| Sapphire-tipped Scribe Tool | 504064-1    |
| Replacement Blades          | 504290-1    |

**Note:** All part numbers are RoHS compliant.

**Tooling** (Continued)

**Epoxy/Polish LC Termination Accessories**

**Product Facts**

- Supplement epoxy/polish tool kits on page 90 with these components to terminate LC Epoxy/Polish Connectors

- Different polishing films are required for LC polishing (see table on page 85 and films on page 93)

| Description                             | Part Number |
|-----------------------------------------|-------------|
| LC Polishing Puck — Metal               | 1754074-1   |
| LC Cable Preparation Template           | 1588756-1   |
| LC Hand Tool and Die Set                | 1588176-1   |
| LC 1.25 mm Ferrule Microscope Adapter   | 1278997-1   |
| LC Oven Block Assembly                  | 1457628-1   |
| LC Adaptive Kit — Anaerobic Epoxy Style | 1754603-1   |
| LC Adaptive Kit — Heat Cure             | 1754462-1   |

**EPO-TEK 353ND Epoxy**  
Part Number 504035-1



**Product Facts**

- For use with SC and LC Connectors
- Pre-measured two-part packets for consistent results
- Long pot life once mixed
- Heat-cured epoxy
- Supplied in 4-gram packets
- Cures in 15 minutes at 115° C

**TRA-CON Epoxies**  
Part Number 1918652-1



**Product Facts**

- For use with SC, LC, and ST Connectors
- Pre-measured two-part packets for consistent results
- Can be heat-cured or cured at ambient temperature
- Supplied in 2-gram packets
- Each packet terminates » 250 connectors
- 25 packets per pack
- Pot life = 30 minutes
- Cures in:
  - 24 hours @ 25° C
  - 2 hours @ 65° C
  - 10 minutes @ 110° C

**HYSOL Epoxy-Tubes**  
Part Number 502418-1



**Product Facts**

- For use with SC, LC, ST, FSD, FC, and FSMA Connectors
- Two-part epoxy in two tubes
- Heat-cured epoxy
- Terminates » 400 connectors
- One set of two (2) tubes per part number
- Pot life = 30 minutes
- Cures in 30 minutes at 100° C

**QC Quick Cure Adhesive**

**Product Facts**

- One-part adhesive eliminates the hassle and mess of mixing
- Applies easily and cures in minutes without heat or UV light
- Works with standard multimode epoxy-style connectors without performance degradation
- Faster procedure for time-saving productivity and lower installed costs
- Not for use with singlemode terminations



| Tube Size | Typical Connector Terminations Per Tube* | Part Number |
|-----------|------------------------------------------|-------------|
| 3 grams   | 100                                      | 492508-1    |

\*Your individual termination techniques will affect the number of terminations per tube.

**Note:** All part numbers are RoHS compliant.

**Tooling** (Continued)

**Epoxy Applicator Syringe**  
Part Number 501473-3

**Product Facts**

- 3 cc capacity



**Epoxy Curing Oven**

**Product Facts**

- Reduces time required to cure epoxy
- Provides a uniform, controlled curing environment
- Used for all epoxy/polish connectors
- Comes equipped to cure up to four Duplex Connectors and 12 Simplex Connectors at once
  - Optional blocks reconfigure to 8 Duplex or 24 Simplex Connectors
- Variable temperature control (60°C to 125°C)
- Includes thermometer and cable support bracket
- Two voltage options
- Curing sleeves on page 98



| Description                                                                         | Part Number |
|-------------------------------------------------------------------------------------|-------------|
| 110 VAC                                                                             | 502134-1    |
| 220 VAC                                                                             | 502134-2    |
| Adapter Block for 8 Duplex Connectors                                               | 502222-1    |
| Adapter Block for 24 Single Connectors                                              | 502129-1    |
| Block Assembly for 1,6, 2,0 & 2,4 mm SC and FC (metal crimp body) and LC Connectors | 1457528-1   |

**Polishing Films**

**Product Facts**

- Used to install LIGHTCRIMP and epoxy/polish connectors

| Description                          | Part Number |              |               |          |          |          |                |                        |
|--------------------------------------|-------------|--------------|---------------|----------|----------|----------|----------------|------------------------|
|                                      | FSMA        | Multimode ST | Singlemode ST | FC       | FSD/RSD  | SC       | LIGHTCRIMP XTC | LC                     |
| <b>Hand Polishing Film:</b>          |             |              |               |          |          |          |                |                        |
| 15 µm <sup>4</sup>                   | —           | —            | —             | —        | —        | —        | 228433-9       | —                      |
| 9 mm                                 | —           | —            | —             | —        | —        | —        | —              | 1374484-1 <sup>3</sup> |
| 5 µm <sup>4</sup>                    | 228433-8    | 228433-8     | 228433-8      | 228433-8 | 228433-8 | 228433-8 | 228433-8       | 228433-8               |
| 1 µm <sup>4</sup>                    | 228433-7    | 228433-7     | —             | —        | 228433-7 | —        | 228433-7       | —                      |
| <b>Fine Diamond Film<sup>1</sup></b> |             |              |               |          |          |          |                |                        |
| 0.3 µm <sup>4</sup>                  | 228433-5    | 228433-5     | 228433-5      | 228433-5 | 228433-5 | 228433-5 | 228433-5       | 228433-5               |
| <b>Final Polish Film<sup>1</sup></b> |             |              |               |          |          |          |                |                        |
|                                      | —           | —            | 502748-2      | 502748-2 | —        | 502748-2 | —              | —                      |
| <b>Consumables Kit<sup>2</sup></b>   |             |              |               |          |          |          |                |                        |
|                                      | 502306-1    | 502306-1     | 502306-2      | 502306-2 | 502306-1 | 502306-2 | —              | 502306-4               |

<sup>1</sup> Pack of 5.

<sup>2</sup> Contains all consumable supplies for at least 100 connectors.

<sup>3</sup> Pack of 15.

<sup>4</sup> Pack of 100.

**Note:** All part numbers are RoHS compliant.

**Tooling** (Continued)

**Hand Held Visual Fault Locator (VFL)**

**Product Facts**

- 650 nm (visible) Class 2 1.0 mW max Diode Laser
- 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 Tyco Electronics 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]

| Description                                   | Part Number |
|-----------------------------------------------|-------------|
| Hand Held Visual Fault Locator                | 1828352-1   |
| 1.25 mm Adapter for Hand Held VFL             | 1828353-1   |
| Includes Part Numbers 1828352-1 and 1828353-1 | 1828352-2   |

**Note:** All part numbers are RoHS compliant.





**Tooling** (Continued)

**Hand Held Microscope**

**Product Facts**

- High quality glass optics
  - 200X magnification
- Optimal visual examination of terminated ends
  - 500um field of view
- Dual illumination
  - Coaxial for inspecting polish quality
  - Oblique for general conditions
- Pre-centered, threaded adapter mount provides easy focusing and changing of connectors
- Field and laboratory examination for multimode and singlemode fibers
- Portable
- Integral infrared filter for safety
  - Do NOT use any microscope to view active fiber signals
- Disposable, Type LR44 batteries
- Long-life LED (approximately 100,000 hours of operation)
- Each Kit includes:
  - 10-power objective microscope with an impact resistant ergonomic rubber shell and high quality glass optics
  - 20-power eyepiece
  - Padded carrying case with an integrated belt loop and internal adapter storage pocket
  - Neck lanyard with safety breakaway feature
  - Universal 2.5 mm ferrule adapter (for SC, ST and FC)
- Other adapters available are:
  - Universal 1.25 mm (adapts LC and MU)
  - MT-RJ
  - MPO
  - MPO APC
  - MPX
  - MPX APC



Tyco Electronics' hand held microscope incorporates high quality glass optics and dual illumination lighting for unsurpassed 200X magnification. With a 500 µm Field of View (FOV) and both coaxial and oblique illuminations, this microscope will meet the proposed TIA/IEC hand held microscope specification for a polish quality scope (coaxial) and general conditions scope (oblique) in one compact unit.

The built in IR-laser attenuation filter will provide protection from accidental exposure to active fibers, although intentional and prolonged viewing of active fibers is not recommended. The ergonomic, impact resistant shell provides a rugged feel, and the included padded belt case and neck lanyard ensure that the microscope is always within reach.

**Applications**

Affordable inspection device for:

- Polish inspection
- General conditions (debris) inspection
- Cleave quality inspection
- Verifying core size

**Product Dimensions**

**Length** — 186.9 mm [7.359 in.]  
**Width** — 51.6 mm [2.030 in.]  
**Height** — 31.5 mm [1.240 in.]  
**Weight** — 317.5 g [0.70 lb.]

| Description          |                                | Part Number |
|----------------------|--------------------------------|-------------|
| Hand Held Microscope |                                | 1754767-1   |
|                      | 1.25 mm Universal LC and MU    | 1754765-1   |
|                      | 2.5 mm Universal SC, ST and FC | 1754766-1   |
|                      | SC APC                         | 1828833-1   |
|                      | MT-RJ                          | 1754768-1   |
| Adapters             | MPO                            | 1828836-1   |
|                      | MPO APC                        | 1828837-1   |
|                      | LIGHTRAY MPX Connectors        | 1828834-1   |
|                      | LIGHTRAY MPX APC Connectors    | 1828835-1   |
|                      | FSMA                           | 1985040-1*  |

\* Coupling adapter Part Number 1985041-1 required.

**DANGER: Active fibers should never be viewed through a microscope.**

**Note:** All part numbers are RoHS compliant.

**Tooling** (Continued)

**MTP/MPO IBC Cleaner**  
Part Number 1918809-1

**Product Facts**

- Cleans male or female MTP/MPO connectors
- Pre-washed cleaning cloth is lint and debris free
- Each cleaner is capable of more than 400 cleanings
- Can be used for bulkhead and unmated MTP/MPO cleaning
- Protective dust cover doubles as an adapter cap for cleaning unmated connectors
- FOCIS 5-Type MTP/MPO interface compliant
- Removes dust and oil contamination
- Ideal solution for cleaning parallel optics transceivers



The MTP/MPO IBC (In Bulkhead Cleaner) dry cloth cleaner offered by Tyco Electronics utilizes a densely woven micro-fiber cloth that cleans male (with pins) or female MTP/MPO connectors while in adapters, bulkheads, faceplates, or in unmated form with the unique adapter/dust cover. The unique cleaning cloth also reduces static charge

making it one of the most advanced cleaning systems available for bulkhead optical connector cleaning.

**Applications**

For effective cleaning of:

- Male and female MTP/MPO connectors inside mating adapters
- Unmated male and female MTP/MPO connectors using included adapter

- Parallel optics transceivers
- Networking gear including switches and routers
- Factory or field connectors

**Product Dimensions**

**Length** — 184.2 mm [7.25 in.]  
**Width** — 56.5 mm [2.22 in.]  
**Thickness** — 22 mm [0.866 in.]  
**Adapter Length** — 19.5 mm [0.759 in.]

MTP is a trademark of US Conec Ltd.

**OPTIPOP R Reel Cleaner**

**Product Facts**

- Static attraction is minimized
- Ultra clean micro-fiber cloth captures debris and other contamination
- Robust cloth does not fray or leave fibrous material behind
- Reduces the number of field and test issues caused by contaminated end faces
- High-end cost effective cleaning solution



The OPTIPOP R dry cloth cassette cleaners offered by Tyco Electronics utilize a densely woven micro-fiber cloth that cleans fiber optic connector tips while reducing static charge. This makes them one of the most advanced cleaning systems available for optical connector cleaning.

**Applications**

A variety of reel cleaner configurations allow for use on the major optical connector types including FC, SC, ST, LC, MU, ODVA conforming, MT-RJ, and MPO.

**Product Dimensions**

**Length** — 127 mm [5.00 in.]  
**Width** — 83 mm [3.26 in.]  
**Thickness** — 48 mm [1.89 in.]  
**Weight** — 150 g [0.33 lb.]



**Reel Cleaner Refill (Six per Pack)**  
Part Number 1918806-1

OPTIPOP is a trademark of NTT Advanced Technology Corporation.

**Note:** All part numbers are RoHS compliant.

| Description                                        | Part Number |
|----------------------------------------------------|-------------|
| MPO w/pins reel cleaner                            | 1918802-1   |
| One slot reel cleaner; 1.25 mm, 2.5 mm, MT No Pins | 1918803-1   |
| MT-RJ plug w/pins reel cleaner                     | 1918804-1   |
| Two slot reel cleaner; 1.25 mm and 2.5 mm          | 1918805-1   |
| Reel cleaner refill (six per pack)                 | 1918806-1   |



**Tooling** (Continued)

**OPTIPOP C Card Cleaner**

**Product Facts**

- Static attraction is minimized
- Ultra clean micro-fiber cloth captures debris and other contamination
- Robust cloth does not fray or leave fibrous material behind
- Reduces the number of field and test issues caused by contaminated end faces
- Compact size



Card Cleaner Refill (Ten per Pack)  
Part Number 1918811-1

The compact OPTIPOP C dry cloth card cleaner offered by Tyco Electronics utilizes a densely woven micro-fiber cloth that cleans fiber optic connector tips while reducing static charge. This makes it one of the most advanced cleaning systems available for optical connector cleaning.

**Applications**

The card cleaner can be used on major optical connector types including FC, SC, ST, LC, MU, LC, ODVA, MT-RJ\*, and MPO\*.

\*Without guide pins installed.

**Product Dimensions**

- Length** — 120 mm [4.72 in.]
- Width** — 57 mm [2.24 in.]
- Thickness** — 16 mm [0.63 in.]
- Weight** — 60 g [0.13 lb.]

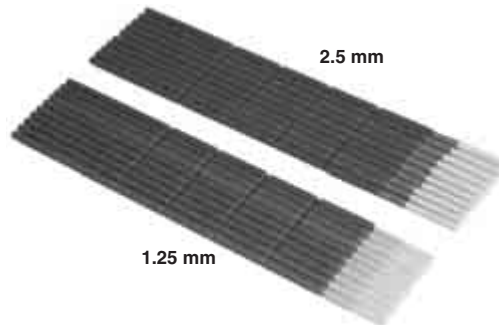
| Description                        | Part Number |
|------------------------------------|-------------|
| Fiber connector card cleaner       | 1918810-1   |
| Card cleaner refill (ten per pack) | 1918811-1   |

OPTIPOP is a trademark of NTT Advanced Technology Corporation.

**NEOCLEAN Stick Cleaner**

**Product Facts**

- Perforated handle for customizing length and angle
- Ultra clean micro-fiber cloth captures debris and other contamination while minimizing static attraction
- Robust cloth does not fray or leave fibrous material behind
- Reduces the number of field and test issues caused by contaminated end faces
- Convenient packaging



The NEOCLEAN dry cloth stick cleaners offered by Tyco Electronics utilize a densely woven micro-fiber cloth that cleans fiber optic connector tips while reducing static charge. This makes them one of the most advanced cleaning systems available for bulkhead optical connector cleaning.

**Applications**

The stick cleaners can be used on major single fiber optical connector types inside bulkhead adapters including FC, SC, ST, LC, MU, LC ODVA, and MT-RJ Jacks in addition to transceivers and lenses.

**Product Dimensions**

- Part Number 1918807-1**  
**2.5 mm Stick Cleaner**  
**Overall Length** — 151.2 mm [5.95 in.]  
**Tip Diameter** — 1.25 mm [0.049 in.]  
**Handle Diameter** — 2.65 mm [0.104 in.]  
**Tip Length** — 12.6 mm [0.496 in.]



- Part Number 1918808-1**  
**1.25 mm Stick Cleaner**  
**Overall Length** — 151.2 mm [5.95 in.]  
**Tip Diameter** — 2.5 mm [0.098 in.]  
**Handle Diameter** — 2.65 mm [0.104 in.]  
**Tip Length** — 20.0 mm [0.787 in.]



NEOCLEAN is a trademark of NTT Advanced Technology Corporation.

**Note:** All part numbers are RoHS compliant.

**Tooling** (Continued)

**Hand Tools**



**PRO-CRIMPER III Hand Tool**

Instruction Sheet 408-4020  
<http://www.tycoelectronics.com/documents>

**PRO-CRIMPER III Hand Tool**

| Connector                               | Cable Jacket Diameter (mm) | Part Number          |                |                   |
|-----------------------------------------|----------------------------|----------------------|----------------|-------------------|
|                                         |                            | Hand Tool w/ Die Set | Hand Tool Only | Die Set Only      |
| FSMA                                    | 3.0                        | 58551-1              | 58532-1        | 58552-1 (hex die) |
| ST Ceramic                              | 3.0                        | 58433-4              | 58532-1        | 58424-1           |
| ST Stainless Steel                      | 3.0                        | 58433-4              | 58532-1        | 58424-1           |
| ST Polymer Composite                    | 3.0                        | 58433-4              | 58532-1        | 58424-1           |
| ST Ceramic Used with Loose Tube         | 3.8                        | —                    | 58532-1        | 503890-1          |
| ST Stainless Steel (504XXX series only) | 3.0                        | 58551-1              | 58532-1        | 58552-1           |
| SC/FC (Polymer crimp body)              | 3.0                        | 503911-1             | 58532-1        | 503910-1          |
|                                         | 2.4 & 3.0                  | 492026-1             | 58532-1        | 492025-1          |
| SC, FC (Metal crimp body)               | 1.6-2.0, 2.4               | 1588176-1            | 58532-1        | 1588175-1         |
| SC/FC (Metal crimp body)                | 3.0                        | —                    | 58532-1        | 492131-1          |
| FSD - Ceramic                           | DUALAN & LDD               | 58519-1              | 58532-1        | 58510-1           |
| FSD - Polymer                           | DUALAN & LDD               | 58519-1              | 58532-1        | 58510-1           |
| FSD/MC - Ceramic                        | DUALAN & LDD               | 58519-1              | 58532-1        | 58510-1           |
| FSD Breakout Kit                        | DUALAN & Protection Kit    | 58519-1              | 58532-1        | 58510-1           |
| LIGHTCRIMP Plus and LIGHTCRIMP ST       | 3.0                        | 492623-1             | 58532-2        | 492622-1          |
| LIGHTCRIMP Plus and LIGHTCRIMP SC       | 3.0                        | 492782-1             | 58532-2        | 492783-1          |
| LIGHTCRIMP Plus LC                      | 1.6 – 2.0                  | 1754137-1            | 58532-2        | 1754136-1         |
| MT-RJ Plug                              | 1.8                        | 1278632-1            | 58532-1        | 1278627-1         |
| LC                                      | 3.0, 2-4, 1.6-2.0          | 1588176-1            | 58532-1        | 1588175-1         |

**Polishing Bushing, Curing Sleeves and Strip Card Kits**

| Connector                          | Cable Jacket Diameter (mm) | Part Number                                    |                                  |                |
|------------------------------------|----------------------------|------------------------------------------------|----------------------------------|----------------|
|                                    |                            | Polishing Bushing                              | Curing Sleeves/Pieces            | Strip Card Kit |
| <b>FSMA</b>                        | 3.0                        | 228025-1                                       | 502249-1 (12 pcs.)               | 501818-1       |
| <b>ST</b>                          |                            |                                                |                                  |                |
| Ceramic, Stainless Steel           | 3.0                        | 503337-1 (Metal)<br>503304-1 (Black Polymer)   | 502259-1 (12 pcs.)               | 501818-1       |
| Polymer Composite                  | 3.0                        | 503304-2 (Beige Polymer)                       | 502259-1 (12 pcs.)               | 501818-1       |
| <b>FC</b>                          | 3.0                        | 504862-1                                       | 502862-2 (6 pcs.)                | 1754636-1      |
| <b>SC</b>                          | 3.0                        | 502631-1 (Black Polymer)                       | 502656-1 (1 pc.)                 | 1754636-1      |
| <b>LC</b>                          |                            | 1754074-1 (Metal)<br>1918196-1 (Black Polymer) | 1457630-X <sup>1</sup> (12 pcs.) | 1588756-1      |
| <b>FSD - Ceramic &amp; Polymer</b> | DUALAN & LDD               | 501795-1*                                      | 502023-1**                       | 501818-1       |

\* Curing Assembly Kit with polishing bushing.  
 \*\* Curing Assembly Kit without polishing bushing.  
<sup>1</sup> -1 LC 900 μm  
 -2 LC jacketed cable

**Note:** All part numbers are RoHS compliant.