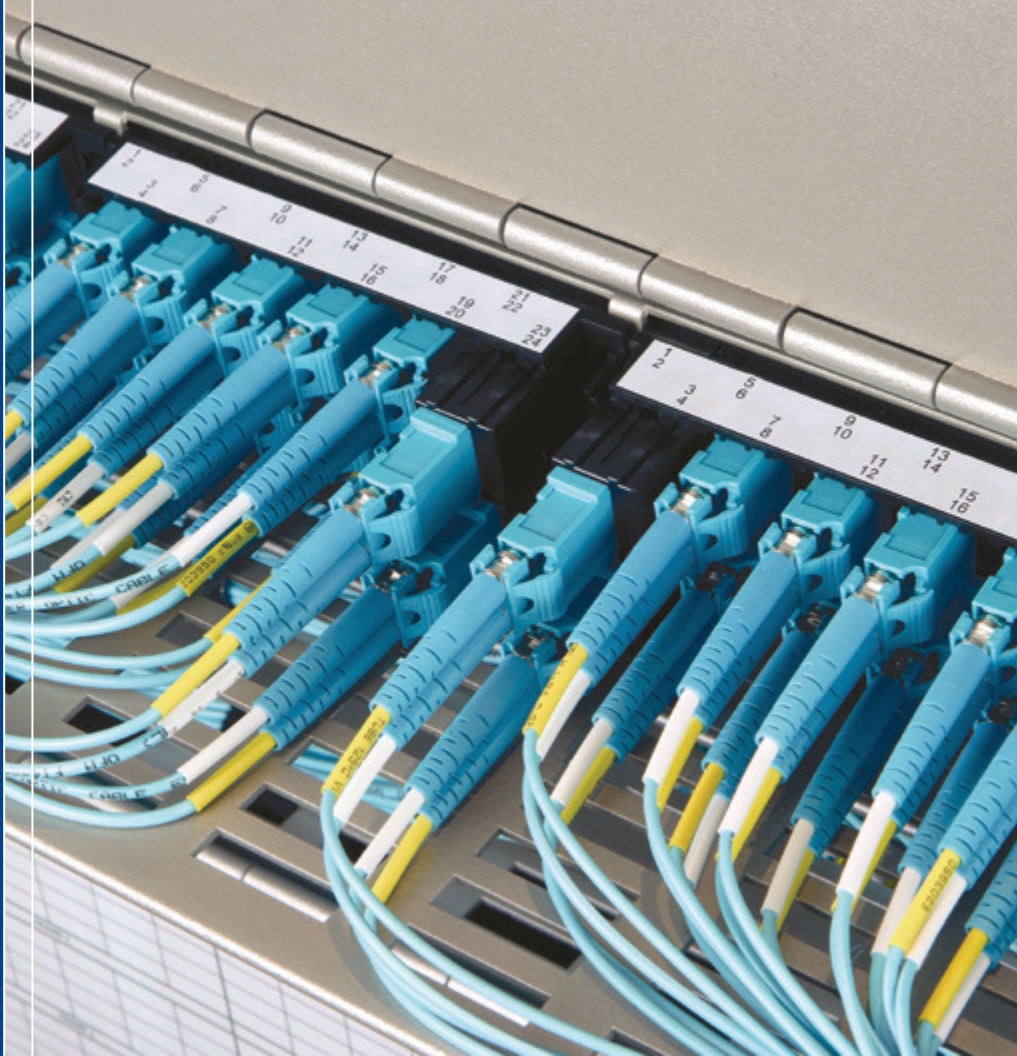




## Belden® Optical Fiber Catalog



Faster.  
Easier.  
Better.

**Belden**  
**FiberExpress®**  
**Systems**

# BELDEN

With the *FiberExpress* Systems, Belden takes a complete approach to fiber optic cabling. Our systems are uniquely positioned to support everything from legacy fiber systems and current backbone and data center fiber links, to future high-speed fiber transmission and long-reach fiber applications.





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## Belden FiberExpress® Systems Reduce Complexity and Increase Flexibility

Involved in the development of optical fiber components for over 40 years, Belden is a leading supplier of high-quality, cost-effective optical fiber cabling systems. The FX Systems are the culmination of Belden's experience and expertise in a variety of applications, including data centers, premise and campus network backbone infrastructures, fiber-to-the-desk (FTTD) applications, and horizontal and centralized cabling systems. Guaranteed to meet or exceed all applicable TIA/EIA, ISO/IEC and IEEE standards, each end-to-end FX System is designed to offer reduced complexity, increased flexibility, and rapid installation.

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## A Complete Approach to Fiber Optic Cabling

Belden FX Systems are available in a variety of performance levels to meet the value and price point for a wide variety of applications. Each system is uniquely color-coded for easy identification in the field.

The following is a recap of the five Belden FX Systems that are offered today:

| Belden System                              | FX OM1   | FX OM2   | FX OM3   | FX OM4   | FX SM  |
|--|--|--|--|--|--|
| <b>Standard</b>                            | OM1 – 62.5 µm<br>Multimode Non-Bend Insensitive<br>TIA/EIA-568-C.3<br>ISO 11801  | OM2 – 50 µm<br>Multimode Bend Insensitive<br>TIA/EIA-568-C.3<br>ISO 11801  | OM3 – 50 µm<br>Multimode Bend Insensitive<br>TIA/EIA-568-C.3<br>ISO 11801  | OM4 – 50 µm<br>Multimode Bend Insensitive<br>TIA/EIA-568-C.3<br>ISO 11801  | OS2<br>Singlemode Non-Bend Insensitive<br>ITU G.652D   |
| <b>Ethernet Applications</b>               | Legacy<br>1G up to 275 m   | Not Recommended for<br>New Designs   | 1G up to 550 m<br>10G up to 300 m<br>40G/100G up to 100 m  | 10G up to 400 m<br>40G/100G up to 150 m  | 10G up to 30/40 km<br>40G/100G up to 10/40 km  |
| <b>Fibre Channel Applications</b>          | Legacy<br>1G up to 300 m   | Not Recommended for New<br>Designs   | 4G up to 380 m<br>8G up to 300 m<br>16G up to 100 m  | 16G up to 125 m  | 4/8/16G up to 10 km  |
| <b>Fiber Cable Assemblies Jacket Color</b> | Orange   | Orange   | Aqua   | Erika Violet<br>Aqua (optional)*   | Yellow   |
| <b>Connector &amp; Adapter Color</b>       | Beige  | Black  | Aqua   | Erika Violet<br>Aqua (optional)*   | Blue<br>Green (APC)  |
| <b>Pre-Term Connector Loss</b>             | MPO-12 0.5 dB<br>LC/SC/ST 0.25 dB  | MPO-12 0.5 dB<br>LC/SC/ST 0.25 dB  | MPO-12 0.35 dB<br>LC/SC/ST 0.25 dB   | MPO-12 0.2 dB<br>LC/SC/ST 0.15 dB  | MPO-12 0.75 dB<br>LC/SC/ST 0.35 dB   |
| <b>Fiber Loss</b>                          | Tight Buffer (900 µm)<br>3.5 dB @ 850 nm<br>1.2 dB @ 1300 nm<br>Loose Tube (250 µm)<br>2.9 dB @ 850 nm<br>0.9 dB @ 1300 nm | Tight Buffer (900 µm)<br>3.5 dB @ 850 nm<br>1.2 dB @ 1300 nm<br>Loose Tube (250 µm)<br>3.5 dB @ 850 nm<br>1.2 dB @ 1300 nm | Tight Buffer (900 µm)<br>3.0 dB @ 850 nm<br>1.2 dB @ 1300 nm<br>Loose Tube (250 µm)<br>3.0 dB @ 850 nm<br>1.0 dB @ 1300 nm | Tight Buffer (900 µm)<br>3.5 dB @ 850 nm<br>1.2 dB @ 1300 nm<br>Loose Tube (250 µm)<br>3.0 dB @ 850 nm<br>1.0 dB @ 1300 nm | Tight Buffer (900 µm)<br>0.5 dB @ 1310 nm<br>0.5 dB @ 1550 nm<br>Loose Tube (250 µm)<br>0.35 dB @ 1310 nm<br>0.25 dB @ 1550 nm |
| <b>Min. OFL Bandwidth (MHz-km)</b>         | 200 @ 850 nm<br>500 @ 1300 nm  | 1500 @ 850 nm<br>500 @ 1300 nm   | 3500 @ 850 nm<br>550 @ 1300 nm   | N/A  | N/A  |

\* Belden Standard OM4 products use Erika Violet Cable with Erika Violet connectors. Aqua OM4 cable and connectors are available as Tailored products by selecting OM4 fiber with the Aqua color code. Other combinations of fiber type and color will continue to use the default connector colors with the specified cable jacket color.



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Fiber**Express**® Brilliance®

# Universal

FIELD-INSTALLABLE FIBER OPTIC CONNECTORS

> FASTER.

> EASIER.

> BETTER.



## FiberExpress Field Termination

### FX Brilliance Universal Connectors



FX Brilliance Universal Connectors

Brilliant in design and universal in implementation, FX Brilliance Universal no-epoxy, no-polish, no-crimp field-installable connectors make fiber field termination faster, easier and better with our industry-leading design.

#### FASTER

- Faster fiber termination in as few as 5 seconds
- Faster installation proficiency through simple termination technique

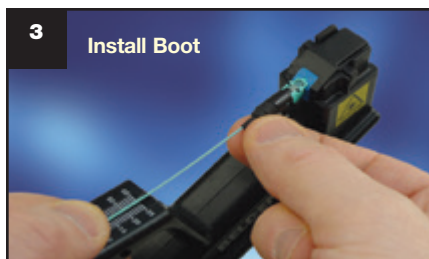
#### EASIER

- Easier with no epoxy or polishing
- Easier no-crimp design
- Easier with universal tools and installation for LC, SC and ST

#### BETTER

- Better termination yield with integrated VFL feedback
- Better universal cable support for 250  $\mu$ m, 900  $\mu$ m, 2 mm Jacketed, 3 mm Jacketed
- Better universal fiber support for OM1, OM2, OM3, OM4 as well as OS2

### Three Simple Steps



| Connector Performance | Maximum Insertion Loss | Typical Insertion Loss | Return Loss |
|-----------------------|------------------------|------------------------|-------------|
| Multimode             | 0.5 dB                 | 0.2 dB                 | 25 dB       |
| Singlemode UPC        | 0.5 dB                 | 0.3 dB                 | 50 dB       |
| Singlemode APC        | 0.5 dB                 | 0.3 dB                 | 60 dB       |

| Description              | Belden Part Number           |                |                            |                |                                |                |
|--------------------------|------------------------------|----------------|----------------------------|----------------|--------------------------------|----------------|
|                          | Multimode, OM1, 62.5 $\mu$ m |                | Multimode, OM2, 50 $\mu$ m |                | Multimode, OM3/OM4, 50 $\mu$ m |                |
|                          | 1 per package                | 25 per package | 1 per package              | 25 per package | 1 per package                  | 25 per package |
| LC with 900 $\mu$ m Boot | AX105200-S1                  | AX105200-B25   | AX105201-S1                | AX105201-B25   | AX105202-S1                    | AX105202-B25   |
| SC with 900 $\mu$ m Boot | AX105205-S1                  | AX105205-B25   | AX105206-S1                | AX105206-B25   | AX105207-S1                    | AX105207-B25   |
| ST with 900 $\mu$ m Boot | AX105210-S1                  | AX105210-B25   | AX105211-S1                | AX105211-B25   | AX105212-S1                    | AX105212-B25   |

| Description              | Belden Part Number |                |                     |                |
|--------------------------|--------------------|----------------|---------------------|----------------|
|                          | Singlemode, OS2    |                | Singlemode, OS2/APC |                |
|                          | 1 per package      | 25 per package | 1 per package       | 25 per package |
| LC with 900 $\mu$ m Boot | AX105203-S1        | AX105203-B25   | -                   | -              |
| SC with 900 $\mu$ m Boot | AX105208-S1        | AX105208-B25   | AX105209-S1         | AX105209-B25   |
| ST with 900 $\mu$ m Boot | AX105213-S1        | AX105213-B25   | -                   | -              |

\* FX Brilliance Universal includes a boot for 900  $\mu$ m Tight Buffered fiber. Boots for 2 mm/3 mm Jacketed fiber are sold separately.

| Description                   | Belden Part Number |
|-------------------------------|--------------------|
| 2 mm jacketed Boot, bag of 25 | AX105214-B25       |
| 3 mm jacketed Boot, bag of 25 | AX105215-B25       |

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## FiberExpress Field Termination (continued)

### FX Brilliance Universal Installation Kits and Accessories

#### Improve Installer Comfort, Repeatability and Performance

Although termination of the FX Brilliance Universal connector can be done with no specialized tools, installation kits are available with all the tools necessary to prepare the fiber as well as to provide a stable work platform to achieve optimal installation results.

#### FX Brilliance Installation Kit

| Description   | Belden Part Number |
|---|--------------------|
| Precision Installation Kit (Basic Kit, Fiber Preparation Tools, Precision Cleaver and Visual Fault Locator) | AX104271           |



AX104271, Precision Installation Kit

#### FX Brilliance Accessories

| Description   | Belden Part Number |
|---|--------------------|
| Precision Cleaver   | AX104286           |
| Precision Cleaver Replacement Blade (for FC-7 cleaver)                                | AX104293           |
| Precision Cleaver Replacement Blade (for FC-7R cleaver)                               | AX104593           |
| Support Handle with Adapters  | AX104276           |
| Support Handle LC Adapter   | AX104289           |
| Support Handle SC Adapter   | AX104290           |
| Support Handle ST Adapter   | AX104291           |
| Visual Fault Locator (VFL-250) with Adapter Cords                                     | AX104283           |
| Visual Fault Locator (VFL-125) LC-LC Adapter Cord                                     | AX203567           |
| Visual Fault Locator (VFL-125/250) LC-SC Adapter Cord (valid for ST also)             | AX203568           |
| Visual Fault Locator (VFL-250) SC-SC Adapter Cord (valid for ST also)                 | AX203569           |
| Visual Fault Locator (VFL-125) LC-SC/APC Adapter Cord & Support Handle SC/APC Adapter | AX203895           |
| Visual Fault Locator (VFL-250) SC-SC/APC Adapter Cord & Support Handle SC/APC Adapter | AX203930           |
| Fiber/Cable Stripper  | AX103151           |
| Pen Marker  | AX104279           |
| Refurbishing Materials (80 alcohol wipes and a black pen marker)                      | AX100951           |
| Safety Glasses  | AX104282           |
| Scissors  | AX104280           |
| Tweezers  | AX104278           |
| Waste Bottle  | AX104281           |



AX104286, Precision Cleaver

#### Ensure Durable Rugged Installation on 250 μm Fiber

Field Breakout kits are available to provide a durable 900 μm coating for 250 μm fibers to ensure optimal retention, flex and twist support without sacrificing the outdoor performance of loose-tube cables or the small diameter of mini-distribution cables.

#### Breakout Kits

| Description   | Belden Part Number |
|---|--------------------|
| Breakout Kit for 2.0 mm Subunits, 6-fiber, 1-Pack                 | AX101100           |
| Breakout Kit for 3.0 mm Subunits, 12-fiber, 1-Pack                | AX101101           |
| Breakout kit for 5.2 mm Subunits (Central Tube), 6-fiber, 1-Pack  | AX104695           |
| Breakout kit for 5.2 mm Subunits (Central Tube), 12-fiber, 1-Pack | AX104696           |



AX104276, Support Handle with Adapters

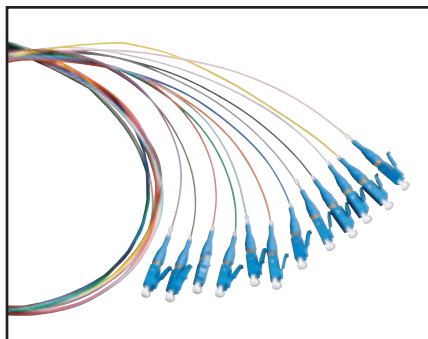


When used with the VFL, a light can be seen through the clear window on the connector body until a fiber has been properly terminated



## FiberExpress Field Termination (continued)

### FX Pigtails



FTSLC900PR12, FX LC Color-coded Pigtail Kit, Singlemode

Established technology with a pedigree of resilience. Traditional fusion splice-on connectors with pigtails provide factory-polished performance with field-termination convenience within harsh environments.

#### FASTER

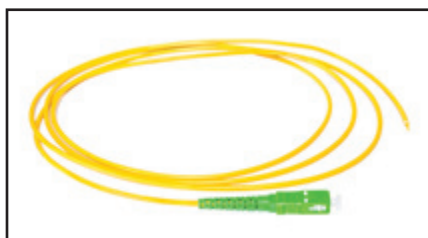
- Faster connector identification with color-coded pigtail kits
- Faster delivery with standard LC, SC or ST 2 meter pigtail kits

#### EASIER

- Easier field-termination with factory pre-terminated connectors
- Easier ordering with intuitive *SmartPart* numbers

#### BETTER

- Better quality with precision factory-polished connectors
- Better insertion loss at 0.25 dB OM3 and 0.15 dB OM4



FTSSB3MMPS01, FX Splice-On Pigtail, Green SC/APC Simplex on 2 m of 3 mm Jacketed Cable using 900 µm OS2 fiber

### Standard Color-coded Pigtail Kits (900 µm)

| Description | Belden Part Number |              |              |              |              |
|-------------|--------------------|--------------|--------------|--------------|--------------|
|             | OM1                | OM3          | OM4          | OS2          | SM/APC       |
| LC          | -                  | FT3LC900PR12 | FT4LC900PR12 | FTSLC900PR12 | FTSLB900PR12 |
| SC          | FT1SC900PR12       | FT3SC900PR12 | FT4SC900PR12 | FTSSC900PR12 | FTSSB900PR12 |
| ST          | FT1ST900PR12       | FT3ST900PR12 | -            | FTSST900PR12 | -            |

Standard Color-coded Pigtail Kits contain 12 color-coded 900 µm fibers, 2 m in length.



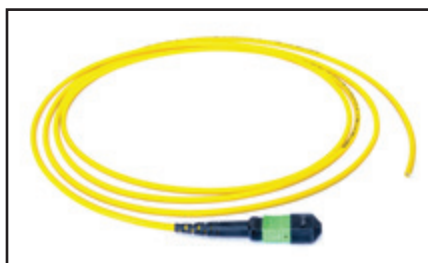
FT4LD2MMPS01, FX Splice-On Pigtail, Erika Violet LC Duplex on 2 m of 2 mm Jacketed Cable using 900 µm OM4 fiber

### Standard Single Pigtails (Jacketed)

| Description | Belden Part Number |              |              |              |              |
|-------------|--------------------|--------------|--------------|--------------|--------------|
|             | OM1                | OM3          | OM4          | OS2          | SM/APC       |
| MPO-12(m)   | -                  | FT3MM3MMPS01 | -            | -            | FTSMM3MMPS01 |
| LC          | -                  | FT3LC2MMPS01 | FT4LC2MMPS01 | FTSLC2MMPS01 | FTSLB2MMPS01 |
| LC Duplex   | -                  | FT3LD2MMPS01 | FT4LD2MMPS01 | FTSLD2MMPS01 | FTSLA2MMPS01 |
| SC          | FT1SC900PS01       | FT3SC3MMPS01 | FT4SC3MMPS01 | FTSSC3MMPS01 | FTSSB3MMPS01 |
| SC Duplex   | -                  | FT3SD3MMPS01 | FT4SD3MMPS01 | FTSSD3MMPS01 | FTSSA3MMPS01 |
| ST Simplex  | FT1ST900PS01       | FT3ST3MMPS01 | -            | FTSST3MMPS01 | -            |

Standard Single Pigtails contain 1 unit, 2 m in length.

See page 33 for standard fiber color code charts.



FTSMM3MMPS01, FX Splice-On Pigtail, Green MPO-12/APC (male) on 2 m of 3 mm Jacketed Cable using 250 µm OS2 fiber

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## FiberExpress Field Termination (continued)

### FX Pigtails

#### Tailored Pigtails

#### Building a SmartPart Number

The fixed letters indicates the series

**FT**

1. Choose Fiber Type

**4**

2. Choose Connectors

**LD**

3. Choose Cable Type

**2MM**

4. Choose Product Family

**P**

5. Choose Packaging

**S01**

6. Choose Jacket Color

**A**

7. Choose Length

**3M**

| Fiber Type |     |
|------------|-----|
| 1          | OM1 |
| 3          | OM3 |
| 4          | OM4 |
| S          | OS2 |

| Connectors |                |
|------------|----------------|
| LC         | LC Simplex     |
| LB         | LC/APC Simplex |
| LD         | LC Duplex      |
| SC         | SC Simplex     |
| SB         | SC/APC Simplex |
| SD         | SC Duplex      |
| ST         | ST             |
| MM         | MPO-12 (m)     |
| MF         | MPO-12 (f)     |

| Cable Type |                |
|------------|----------------|
| 250        | 250 μm Fiber   |
| 900        | Tight Buffered |
| 2MM        | Jacketed       |
| 3MM        | Jacketed       |

| Product Family |                |
|----------------|----------------|
| P              | Fusion Pigtail |

| Packaging |               |
|-----------|---------------|
| S01       | Single Unit   |
| R06       | Rainbow 6 Pk  |
| R12       | Rainbow 12 Pk |

| Jacket Color |          |
|--------------|----------|
| O            | Orange   |
| Y            | Yellow   |
| A            | Aqua     |
| E            | Erika V. |

| Length (meters) |    |
|-----------------|----|
|                 | 1M |
|                 | 2M |
|                 | 3M |
|                 | 4M |
|                 | 5M |
|                 | 6M |
|                 | 7M |
|                 | 8M |
|                 | 9M |

#### Examples:

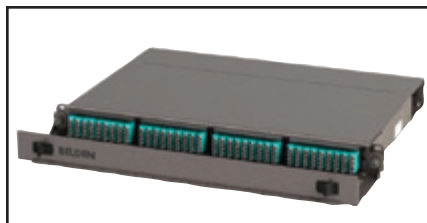
**FT4LD2MMPS01A3M** - LC Duplex (2 connectors), 3 m in length, OM3 Multimode Riser 2 mm duplex zip cord with Aqua cable jacket and Aqua Connectors

**FTSSB900PS01W5M** - SC/APC Simplex, 5 m in length, OS2 Singlemode 900 μm white fiber

For further options contact Belden for custom Engineered solutions.

## FiberExpress Patch Panel Systems

### FX UHD Housings and Shelves



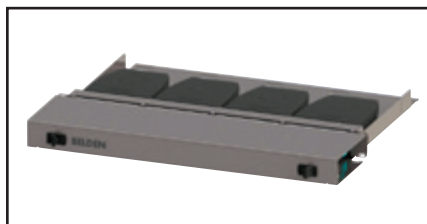
AX104681, FX Ultra HD 1U Patch Panel Housing (shown loaded)



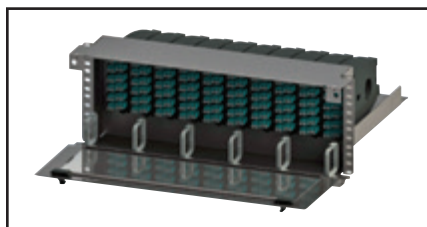
AX104683, FX UHD 4U Patch Panel Housing (shown loaded)



AX104681, FX UHD Patch Panel 1U with mounted Splice Housing Kit (AX104684)



AX105164, FX UHD 1U Patch Panel Standard Shelf (shown loaded)



AX105167, FX UHD 4U Patch Panel Recessed Shelf (shown loaded)

Elegantly simple yet uncompromisingly flexible. Ultra high-density rack-mount fiber connectivity system, crafted for effortless installation and maintenance.

#### FASTER

- Faster field-termination with high-accessibility sliding and tilting drawers
- Faster pre-term installation with simple fixed shelves and cassettes

#### EASIER

- Easier installation with tool-less removable drawers and lightweight housings
- Easier port identification with clear visible labeling
- Easier to configure with flexible port count LC, SC, ST and MPO modules

#### BETTER

- Better fiber protection with covered patch cord tray
- Better high density offering with 18-port modules for up to 72 LC Duplex ports per 1U
- Better visibility with light colored Titanium finish

#### FX UHD Housings

Feature-rich housings are fully enclosed to provide protection for exposed 250  $\mu$ m and 900  $\mu$ m fibers coupled with sliding and tilting drawers to speed up and simplify installation and maintenance.

| Description   | Number of Module Bays | Total LC Duplex/ MPO Ports using FX Ultra Frames and Cassettes | Total LC Duplex/ MPO Ports using FX UHD Frames and Cassettes | Belden Part Number |
|---|-----------------------|--|--|--------------------|
| 1U Housing with Front and Rear Cable Tray, Titanium Finish                | 4                     | 48   | 72   | AX104681           |
| 4U Housing with Front and Rear Cable Tray, Titanium Finish                | 16                    | 192  | 288  | AX104683           |
| 4U 23" Housing with Front and Rear Cable Tray, Titanium Finish            | 20                    | 240  | 360  | AX105379           |
| Optional 1U Splice Housing Kit, 144 splices, Titanium Finish <sup>1</sup> | N/A                   | N/A  | N/A  | AX104684           |
| Optional Patch Cord Tray Cover, Titanium Finish <sup>2</sup>              | N/A                   | N/A  | N/A  | AX105162           |

1. Up to 4 splice housing kits can be added to 4U housings. Splice housing kits are only compatible with standard 19" rack mount housings.
2. Use with 1U or 4U housings to protect the contents of the topmost patch cord tray. Patch cord tray cover is included with 23" housings.

#### FX UHD Shelves

Entry-level cost effective solutions for pre-terminated systems.

| Description                              | Number of Module Bays | Total LC Duplex/ MPO Ports using FX Ultra Frames and Cassettes | Total LC Duplex/ MPO Ports using FX UHD Frames and Cassettes | Belden Part Number |
|--|-----------------------|--|--|--------------------|
| 1U Standard Fixed Shelf, Titanium Finish | 4                     | 48   | 72   | AX105164           |
| 1U Recessed Fixed Shelf, Titanium Finish | 4                     | 48   | 72   | AX105165           |
| 4U Standard Fixed Shelf, Titanium Finish | 10                    | 120  | 180  | AX105166           |
| 4U Recessed Fixed Shelf, Titanium Finish | 10                    | 120  | 180  | AX105167           |

See the FX UHD System Product Bulletin (PB500) for further options



Faster.  
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Better.



## FiberExpress Patch Panel Systems (continued)

### FX UHD and FX Ultra Cassettes

#### FX UHD and FX Ultra Cassettes

Featuring the highest density at 144 LC Duplex or MPO ports per 19" rack unit FX UHD family is the ideal choice for high-port count applications such as in the data center.

Unique 1" pull-out feature of the FX Ultra family provides a medium density solution with a superior ease of use for day-to-day MAC (moves, adds and changes) within the Enterprise or cross-connect within the data center.

#### Standard Type-A Cassettes

|   |             |          | Belden Part Number |                   |                           |                   |                       |
|---|-------------|----------|--------------------|-------------------|---------------------------|-------------------|-----------------------|
| Patch Ports (fibers)                      | Trunk Ports | Family   | OM1 Beige Adapters | OM3 Aqua Adapters | OM4 Erika Violet Adapters | OS2 Blue Adapters | SM/APC Green Adapters |
| <b>LC Duplex to MPO-12(f)</b>             |             |          |                    |                   |                           |                   |                       |
| 18 (3)                                    | 3           | FX UHD*  | -                  | FC3H18LDMF        | FC4H18LDMF                | FCSH18LDMF        | FCSH18LAMF            |
| 12 (24)                                   | 2           | FX Ultra | FC1U12LDMF         | FC3U12LDMF        | FC4U12LDMF                | FCSU12LDMF        | FCSU12LAMF            |
| <b>LC Duplex w/Shutters to MPO-12(f)</b>  |             |          |                    |                   |                           |                   |                       |
| 6 (12)                                    | 1           | FX Ultra | -                  | -                 | -                         | FCSU06LSMF        | FCSU06LQMF            |
| <b>SC Duplex to MPO-12(f)</b>             |             |          |                    |                   |                           |                   |                       |
| 6 (12)                                    | 1           | FX Ultra | FC1U06SDMF         | FC3U06SDMF        | FC4U06SDMF                | FCSU06SDMF        | FCSU06SAMF            |
| <b>SC Simplex to MPO-12(f)</b>            |             |          |                    |                   |                           |                   |                       |
| 12 (12)                                   | 1           | FX Ultra | -                  | -                 | -                         | FCSU12SCMF        | FCSU12SBMF            |
| <b>SC Simplex w/Shutters to MPO-12(f)</b> |             |          |                    |                   |                           |                   |                       |
| 6 (6)                                     | 1           | FX Ultra | -                  | -                 | -                         | FCSU06SRMF        | FCSU06SPMF            |

\*Optional HD Patch cord release tool AX104685



FC3H18LDMF, FX UHD Cassette, OM3, 18 ports, MPO-12 (male), LC Duplex, Type-A, Aqua adapters



FC4U12LDMF, FX Ultra Cassette, OM4, 12 ports, MPO-12 (male), LC Duplex, Type-A, Erika Violet adapters

#### Standard Type-A-Alternate Cassettes\*

|  |             |          | Belden Part Number |                   |                           |                   |                       |
|--|-------------|----------|--------------------|-------------------|---------------------------|-------------------|-----------------------|
| Patch Ports (fibers)                     | Trunk Ports | Family   | OM1 Beige Adapters | OM3 Aqua Adapters | OM4 Erika Violet Adapters | OS2 Blue Adapters | SM/APC Green Adapters |
| <b>LC Duplex to MPO-12(f)</b>            |             |          |                    |                   |                           |                   |                       |
| 18 (3)                                   | 3           | FX UHD*  | -                  | FC3H18LDMF1A      | FC4H18LDMF1E              | FCSH18LDMF1B      | FCSH18LAMF1G          |
| 12 (24)                                  | 2           | FX Ultra | FC1U12LDMF1K       | FC3U12LDMF1A      | FC4U12LDMF1E              | FCSU12LDMF1B      | FCSU12LAMF1G          |
| <b>LC Duplex w/Shutters to MPO-12(f)</b> |             |          |                    |                   |                           |                   |                       |
| 6 (12)                                   | 1           | FX Ultra | -                  | -                 | -                         | FCSU06LSMF1B      | FCSU06LQMF1G          |

\* In order to maintain proper port numbering within a 10G installation AND chart your path to 40G and beyond, please see the diagram on the following page that outlines when and where to use Type-A-Alternate Cassettes, as well as the process for migrating to 40G.

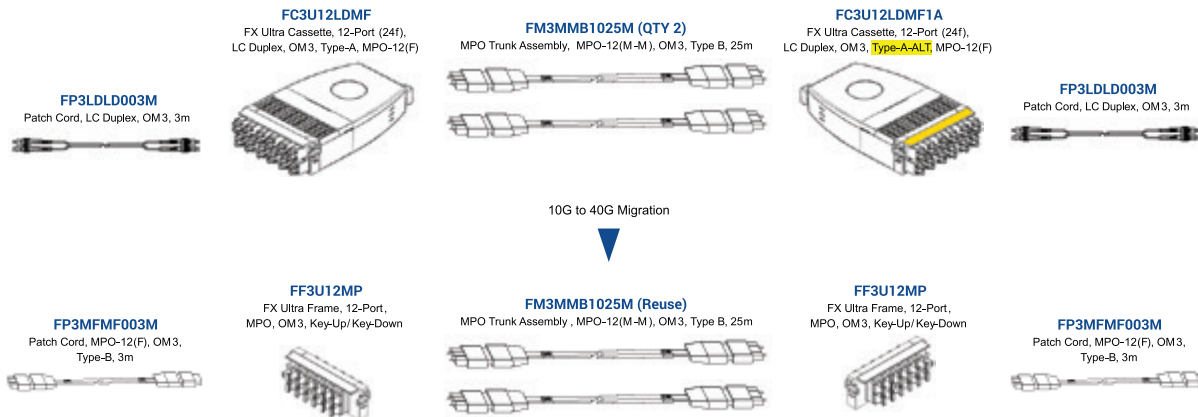
## FiberExpress Patch Panel Systems (continued) FX UHD and FX Ultra Cassettes

### Tailored FX UHD and FX Ultra Cassettes Building a SmartPart Number

|                     |                      |                          |                                   |                                  |                                  |                            |                         |
|---------------------|----------------------|--------------------------|-----------------------------------|----------------------------------|----------------------------------|----------------------------|-------------------------|
| Fixed Letter Series | 1. Choose Fiber Type | 2. Choose Product Family | 3. Choose Port Count (Patch Side) | 4. Choose Connector (Patch Side) | 5. Choose Connector (Trunk Side) | 6. Choose Polarity (Trunk) | 7. Choose Adapter Color |
| <b>FC</b>           | <b>3</b>             | <b>U</b>                 | <b>03</b>                         | <b>LD</b>                        | <b>MM</b>                        | <b>A</b>                   | <b>A</b>                |
|                     | <b>Fiber Type</b>    | <b>Product Family</b>    | <b>Port Count (Patch Side)</b>    | <b>Connector (Patch Side)</b>    | <b>Connector (Trunk Side)</b>    | <b>Polarity (Trunk)</b>    | <b>Adapter Color</b>    |
|                     | 1 OM1                | H FX UHD                 | 03                                | LD LC Duplex                     | MM MPO-12 (m)                    | A Type-A                   | K Beige                 |
|                     | 3 OM3                | U FX Ultra (1" Pull)     | 06                                | LA LC/APC Duplex                 | MF MPO-12 (f)                    | 1 Type-A ALT.              | N Black                 |
|                     | 4 OM4                |                          | 12                                | LS LC Duplex w/Shutters          |                                  |                            | A Aqua                  |
|                     | S OS2                |                          | 18                                | LQ LC/APC Duplex w/Shutters      |                                  |                            | E Erika V.              |
|                     |                      |                          |                                   | SD SC Duplex                     |                                  |                            | B Blue                  |
|                     |                      |                          |                                   | SC SC Simplex                    |                                  |                            | G Green                 |
|                     |                      |                          |                                   | SA SC/APC Duplex                 |                                  |                            |                         |
|                     |                      |                          |                                   | SB SC/APC Simplex                |                                  |                            |                         |
|                     |                      |                          |                                   | SS SC Duplex w/Shutters          |                                  |                            |                         |
|                     |                      |                          |                                   | SR SC Simplex w/Shutters         |                                  |                            |                         |
|                     |                      |                          |                                   | SQ SC/APC Duplex w/Shutters      |                                  |                            |                         |
|                     |                      |                          |                                   | SP SC/APC Simplex w/Shutters     |                                  |                            |                         |
|                     |                      |                          |                                   | ST ST                            |                                  |                            |                         |

For further options contact Belden for custom Engineered solutions.

### Using Type-A-Alternate Cassettes to maintain proper port numbering for 10G installations and migration to 40G



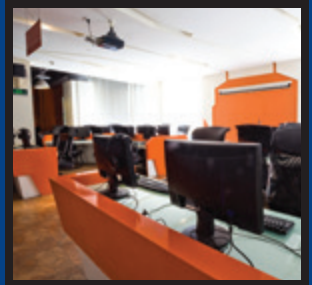
#### Simple Migration from 10G to 40G:

- Retain:
  - FiberExpress FX UHD Patch Panel Housings and Shelves
  - FiberExpress MPO Trunk Assemblies
- Upgrade:
  - Cost-effective FX Ultra/FX UHD Frames
  - Patch Cords

#### Keys to a Successful Upgrade:

- Be Ready to 40GBase-SR4 and future 100GBase-SR4
  - MPO 12-fiber Connectors and Trunk Assemblies
  - Male to Male Trunk Assemblies
- Simplify Port Numbers
  - Type-A Polarity Cassettes with Type-A-Alternate Polarity on one end
- Reduce Replacement Parts
  - Identical Patch Cords on Both Ends
- Prevent Damage to Active Equipment
  - MPO Female to Female Patch Cords

Faster.  
Easier.  
Better.



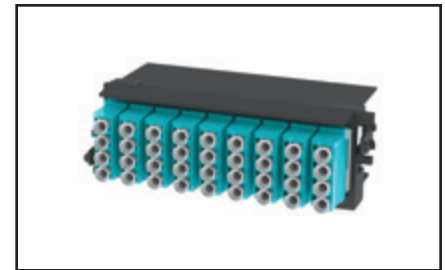
## FiberExpress Patch Panel Systems (continued)

FX UHD and FX Ultra Frames

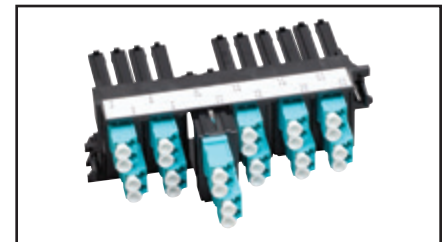
### FX UHD and FX Ultra Frames

#### Standard Frames

| Patch Ports (fibers)                | Family   | Belden Part Number |                   |                           |                  |                       |
|-------------------------------------|----------|--------------------|-------------------|---------------------------|------------------|-----------------------|
|                                     |          | OM1 Beige Adapters | OM3 Aqua Adapters | OM4 Erika Violet Adapters | SM Blue Adapters | SM/APC Green Adapters |
| <b>MPO Type-A (Key-Up/Key-Down)</b> |          |                    |                   |                           |                  |                       |
| 18                                  | FX UHD   | -                  | FF3H18MP          | FF4H18MP                  | -                | FFSH18MP              |
| 12                                  | FX Ultra | -                  | FF3U12MP          | FF4U12MP                  | -                | FFSU12MP              |
| <b>LC Duplex</b>                    |          |                    |                   |                           |                  |                       |
| 18 (36)                             | FX UHD   | -                  | FF3H18LD          | FF4H18LD                  | FFSH18LD         | FFSH18LA              |
| 12 (24)                             | FX Ultra | FF1U12LD           | FF3U12LD          | FF4U12LD                  | FFSU12LD         | FFSU12LA              |
| <b>LC Duplex w/Shutters</b>         |          |                    |                   |                           |                  |                       |
| 12 (24)                             | FX Ultra | -                  | -                 | -                         | FFSU06LS         | FFSU06LQ              |
| <b>SC Duplex</b>                    |          |                    |                   |                           |                  |                       |
| 6 (12)                              | FX Ultra | FF1U06SD           | FF3U06SD          | FF4U06SD                  | FFSU06SD         | FFSU06SA              |
| <b>SC Simplex</b>                   |          |                    |                   |                           |                  |                       |
| 12 (12)                             | FX Ultra | -                  | -                 | -                         | FFSU12SC         | FFSU12SB              |
| <b>SC Simplex w/Shutters</b>        |          |                    |                   |                           |                  |                       |
| 6 (6)                               | FX Ultra | -                  | -                 | -                         | FFSU06SR         | FFSU06SP              |
| <b>ST</b>                           |          |                    |                   |                           |                  |                       |
| 12 (12), Metal                      | FX Ultra | FFSU12ST           |                   |                           |                  | -                     |



FF3H18LD, FX UHD Frame, OM3, 18 ports, LC Duplex, Aqua adapters



FF3U12LD, FX Ultra Frame, OM3, 12 ports, LC Duplex, Aqua adapters

### Tailored FX UHD and FX Ultra Frames

#### Building a SmartPart Number

Fixed Letter Series: **FF**

1. Choose Fiber Type: **3**

2. Choose Product Family: **H**

3. Choose Port Count: **18**

4. Choose Connector for Patch Side: **LD**

5. Choose Adapter Color: **A**

| Fiber Type | Product Family       | Port Count (Patch Side) | Connector (Patch Side)       | Adapter Color |
|------------|----------------------|-------------------------|------------------------------|---------------|
| 1 OM1      | H FX UHD             | 03                      | LD LC Duplex                 | K Beige       |
| 3 OM3      | U FX Ultra (1" Pull) | 06                      | LA LC/APC Duplex             | N Black       |
| 4 OM4      |                      | 12                      | LS LC Duplex w/Shutters      | A Aqua        |
| S OS2      |                      | 18                      | LQ LC/APC Duplex w/Shutters  | E Erika V.    |
|            |                      |                         | SD SC Duplex                 | B Blue        |
|            |                      |                         | SC SC Simplex                | G Green       |
|            |                      |                         | SA SC/APC Duplex             |               |
|            |                      |                         | SB SC/APC Simplex            |               |
|            |                      |                         | SS SC Duplex w/Shutters      |               |
|            |                      |                         | SR SC Simplex w/Shutters     |               |
|            |                      |                         | SQ SC/APC Duplex w/Shutters  |               |
|            |                      |                         | SP SC/APC Simplex w/Shutters |               |
|            |                      |                         | ST ST                        |               |
|            |                      |                         | MP MPO Up/Down               |               |
|            |                      |                         | MR MPO Up/Up                 |               |



## FiberExpress Patch Panel Systems (continued)

FX UHD and FX Ultra Adapters and Accessories

### Standard FX Ultra KeyConnect Frames

| Patch Ports | Description                      | Belden Part Number |
|-------------|----------------------------------|--------------------|
| 6           | FX Ultra KeyConnect Frame 6-Port | FFZH06KC           |
| 8           | FX Ultra KeyConnect Frame 8-Port | FFZH08KC           |



FFZH06KC, FX Ultra KeyConnect Frame, 6-Port

### Standard Fiber KeyConnect Adapters

| Description | Belden Part Number |                  |          |              |
|-------------|--------------------|------------------|----------|--------------|
|             | OM3 Aqua           | OM4 Erika Violet | SM Blue  | SM/APC Green |
| LC Duplex   | AX104939           | AX105641-BK      | AX102421 | AX105642-BK  |
| SC Simplex  | -                  | -                | AX102688 | AX105374     |
| ST          | ← AX102244 →       |                  |          | -            |

Above adapters are for Black Bezels. Contact your local Belden representative for a complete listing of KeyConnect adapters in other colors.

### Standard Copper KeyConnect Adapters

| Description             | Belden Part Number |          |          |
|-------------------------|--------------------|----------|----------|
|                         | Black              | Blue     | White    |
| 10GX RJ45 Coupler       | AX104024           | AX104019 | AX104023 |
| 10GX RJ45 Modular Jack  | AX102283           | AX102288 | AX102282 |
| CAT6+ RJ45 Coupler      | AX104215           | AX104210 | AX104214 |
| CAT6+ RJ45 Modular Jack | AX101321           | AX101326 | AX101320 |

Above adapters are for Black Bezels. Contact your local Belden representative for a complete listing of KeyConnect adapters in other colors.



AX104572, FX Color-coded Icon Kit, (shown on frame)

### Standard FX UHD Accessories

| Description                             | Belden Part Number |
|---|--------------------|
| FX UHD Blank Plate                      | FFZH00BB           |
| FX UHD Patch Cord Release Tool          | AX104685           |
| FX Ultra LC Duplex Color-coded Icon Kit | AX104572           |



AX104024, 10GX RJ45 Coupler

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## FiberExpress Patch Panel Systems (continued)

### FX Ultra Wall Mount and Accessories



AX103928, FX Ultra Stackable Wall-mount Patch Panel



AX103930, FX Ultra Wall-mount Splice Enclosure



AX103928 and AX103932, FX Ultra Wall-mount Patch Panel with Spacer



FX Ultra Splice Trays

Resolute protection while maintaining the utmost adaptability. Complete selection of fiber enclosures provides effortless security and protection while leveraging both the flexibility and density of the FX UHD frames and cassettes.

#### FASTER

- Faster installation with easy access and lightweight housing
- Faster installation with pre-terminated cassettes

#### EASIER

- Easier configuration with FX UHD and FX Ultra modules in LC, SC and ST
- Easier security with optical door lock
- Easier expansion with stackable design

#### BETTER

- Better with support for Pre-Term and Field-Term including splicing
- Better management with independent doors for trunk and patching sides
- Better density with up to 36 LC Duplex ports

#### FX Ultra Wall Mount

| Description                             | Number of Module Bays | Splice Trays                | Belden Part Number |
|---|-----------------------|-----------------------------|--------------------|
| Stackable Wall Mount Patch Panel, Black | 2                     | 2 x 8" (Up to 48-Splices)   | AX103928           |
| Stackable Wall Mount Splice Enclosure   | 0                     | 4 x 10" (Up to 144-Splices) | AX103930           |

Splice trays sold separately

#### FX Ultra Splice Trays

| Description     | Splices per Tray | Belden Part Number |
|-----------------|------------------|--------------------|
| 8" Splice Tray  | 24               | AX103912           |
| 10" Splice Tray | 36               | AX103913           |

All splice trays accommodate 2.5 mm OD single fiber splice protectors up to 80 mm in length

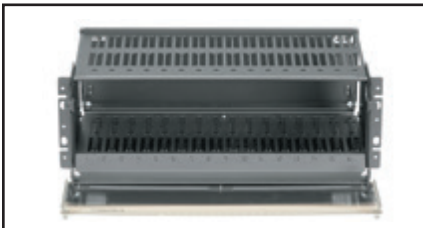
#### FX Ultra Wall Mount Accessories

| Description          | Belden Part Number |
|----------------------|--------------------|
| 2-inch Spacer, Black | AX103932           |
| Door Lock Kit        | AX103934           |

## FiberExpress Patch Panel Systems (continued) FX Manager Patch Panels and Cassettes



AX101943, FX M 1U Rack-Mount Patch Panel



AX100935, FX M 4U 23" Rack-Mount Patch Panel



AX102307 LC Duplex Pre-Terminated Connector Module

Compact in size while being exceedingly serviceable. Unique feature-rich cassettes provide a compact solution for housing fusion splices, field-term or pre-term within a high-design fiber connectivity system.

### FASTER

- Faster installation with simple lightweight housing
- Faster patch cord access for moves, adds and changes with 1" cassette pullout

### EASIER

- Easier fusion splicing with unique splice cassette
- Easier field-termination with cassette entry from rear of the housing

### BETTER

- Better cross-connect implementation with 4U vertical cassette mounting
- Better upgrade path with MPO pre-term solutions

### FX Manager

| Description                        | Module Bays | Belden Part Number |
|------------------------------------|-------------|--------------------|
| 1U Rack-Mount Patch Panel          | 3           | AX101943           |
| 1U Patch Cord Management Accessory | N/A         | AX104032           |
| 4U Rack-Mount Patch Panel          | 12          | AX101085           |
| 4U 23" Rack-Mount Patch Panel      | 16          | AX100935           |

### Standard FX M Cassettes

| Patch Ports (fibers)          | Trunk Ports | Family | Belden Part Number |                   |                   |
|-------------------------------|-------------|--------|--------------------|-------------------|-------------------|
|                               |             |        | OM1 Beige Adapters | OM3 Aqua Adapters | OS2 Blue Adapters |
| <b>LC Duplex to MPO-12(m)</b> |             |        |                    |                   |                   |
| 12 (24)                       | 2           | FX M   | AX102309           | AX102308          | AX102307          |
| <b>SC Duplex to MPO-12(m)</b> |             |        |                    |                   |                   |
| 6 (12)                        | 1           | FX M   | AX101091           | AX101114          | AX101090          |
| <b>ST to MPO-12(m)</b>        |             |        |                    |                   |                   |
| 12 (12)                       | 1           | FX M   | AX101189           | AX101190          | AX101188          |



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## FiberExpress Patch Panel Systems (continued)

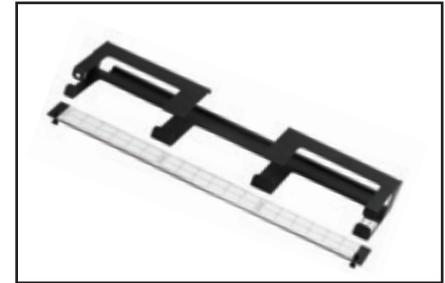
FX Manager Frames and Accessories

### Standard FX M Frames

| Patch Ports (fibers)                | Family | Belden Part Number               |                   |                   |
|-------------------------------------|--------|----------------------------------|-------------------|-------------------|
|                                     |        | OM1 Beige Adapters               | OM3 Aqua Adapters | OS2 Blue Adapters |
| <b>MPO Type-A (Key-Up/Key-Down)</b> |        |                                  |                   |                   |
| 6                                   | FX M   | <b>AX101484 (Black Adapters)</b> |                   |                   |
| <b>LC Duplex</b>                    |        |                                  |                   |                   |
| 12 (24)                             | FX M   | <b>AX102306</b>                  | <b>AX103070</b>   | <b>AX102305</b>   |
| 6 (12)                              | FX M   | <b>AX101528</b>                  | <b>AX103071</b>   | <b>AX101527</b>   |
| <b>SC Duplex</b>                    |        |                                  |                   |                   |
| 6 (12)                              | FX M   | <b>AX101714</b>                  | <b>AX101114</b>   | <b>AX101713</b>   |
| <b>SC Simplex</b>                   |        |                                  |                   |                   |
| 6 (6)                               | FX M   | -                                | -                 | <b>AX100943</b>   |
| <b>ST</b>                           |        |                                  |                   |                   |
| 12 (12), Metal                      | FX M   | ←                                | <b>AX101186</b>   | →                 |
| 6 (6), Metal                        | FX M   | ←                                | <b>AX100936</b>   | →                 |

### Standard Accessories

| Description   | Belden Part Number |
|---|--------------------|
| FX M Blank Module   | <b>AX104462</b>    |
| Flex Kit (Bend Limiting Tube, Transition Tube, Manifold)        | <b>AX100945</b>    |
| Splice Holder Kit (4 x 6-position splice holders & Wiremarkers) | <b>AX105538</b>    |



AX102032, FX Manager 1U Cable Management Accessory



AX100945, Flex Kit

## FiberExpress Patch Panel Systems (continued) FX Patch Rack Mount and Wall Mount Patch Panels



AX100041, FX 12/24 Port (1U) Rack-mount Patch Panel

Economical yet effective. Low to medium density rack mount fiber panels with simple adapter strips are the mainstay for fiber field termination.

### FASTER

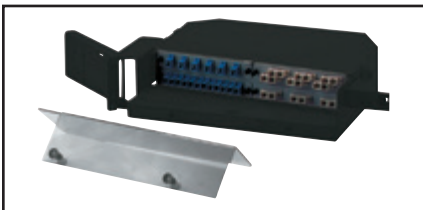
- Faster access to rear side (trunk) connectivity without removing patch cords

### EASIER

- Easier on the budget with economical adapter strips
- Easier access to the trunk side connectivity with swing out faceplate

### BETTER

- Better support for mixed field-term connectivity including splicing
- Better use of valuable space through a compact footprint



AX100068, FX 24/48 Port (2U) Rack-mount Patch Panel (shown loaded)

### Rack Mount Patch Panels

| Description                 | Maximum Number of Adapter Strips | Splice Trays              | Belden Part Number |
|-----------------------------|----------------------------------|---------------------------|--------------------|
| 1U Rack Mount               | 2                                | 1 x 8" (Up to 24-Splices) | AX100041           |
| 2U Rack Mount               | 4                                | 2 x 8" (Up to 48-Splices) | AX100068           |
| 3U Rack Mount (Rear Access) | 4                                | 2 x 8" (Up to 48-Splices) | AX104934           |
| 4U Rack Mount               | 8                                | 4 x 8" (Up to 96-Splices) | AX100116           |



AX104934, FX (3U) Rack-Mount Patch Panel (Rear Access) (shown loaded)

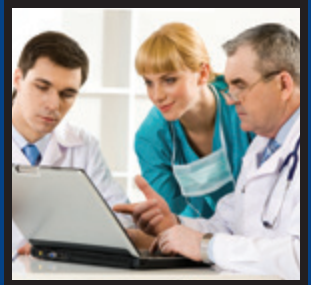
### Wall Mount Patch Panels

| Description       | Maximum Number of Adapter Strips | Splice Trays              | Belden Part Number |
|-------------------|----------------------------------|---------------------------|--------------------|
| Small Wall-Mount  | 2                                | 1 x 8" (Up to 24-Splices) | AX100495           |
| Medium Wall-Mount | 4                                | 2 x 8" (Up to 48-Splices) | AX100540           |
| Large Wall-Mount  | 8                                | 4 x 8" (Up to 96-Splices) | AX100542           |



AX100116, FX 48/96 Port (4U) Rack-mount Patch Panel (shown loaded)

Faster.  
Easier.  
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## FiberExpress Patch Panel Systems (continued)

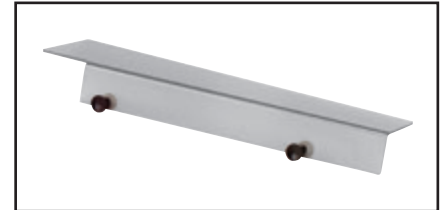
### FX Patch Adapter Strips and Accessories

#### Standard Optical Fiber Adapter Strips

| Patch Ports (fibers) | Family   | Belden Part Number |                   |                  |                       |
|----------------------|----------|--------------------|-------------------|------------------|-----------------------|
|                      |          | OM1 Beige Adapters | OM3 Aqua Adapters | SM Blue Adapters | SM/APC Green Adapters |
| <b>LC Duplex</b>     |          |                    |                   |                  |                       |
| 12 (24)              | FX Patch | AX101741           | -                 | AX101743         | AX105561              |
| 6 (12)               | FX Patch | AX101729           | -                 | AX101731         | AX105537              |
| <b>SC Duplex</b>     |          |                    |                   |                  |                       |
| 6 (12)               | FX Patch | AX100098           | -                 | AX101409         | -                     |
| 3 (6)                | FX Patch | AX100094           | -                 | AX101407         | -                     |
| <b>SC Simplex</b>    |          |                    |                   |                  |                       |
| 12 (12)              | FX Patch | -                  | -                 | AX100532         | AC301420              |
| <b>ST</b>            |          |                    |                   |                  |                       |
| 12 (12)              | FX Patch | AX100528           |                   |                  | -                     |
| 6 (6)                | FX Patch | AX100534           |                   |                  | -                     |

#### Standard Optical Fiber Accessories

| Description  | Belden Part Number |
|--|--------------------|
| FX Patch Blank Strip                               | AX100066           |
| 1U Front Cover, Smoked Plexiglas                   | AX100045           |
| 8" Splice Kit (Tray, Holders, Wiremarkers & Cover) | A0649869           |



AX100045, Front Cover for 1U



AX100495, Small Wall Mount (page 18)



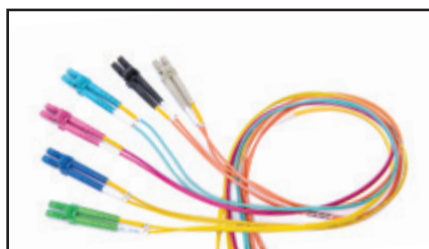
AX100542, Large Wall Mount (page 18)

## FiberExpress Pre-Terminated Assemblies

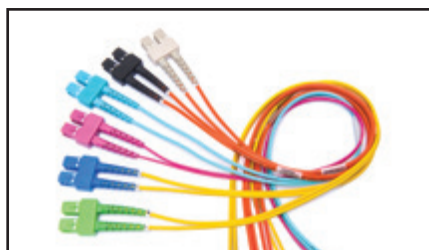
### FX Patch Cords



FX MPO-12(f) Patch Cords, Assortment



FX LC Duplex Patch Cords, Assortment



FX SC Duplex Patch Cords, Assortment



FX ST Patch Cords, Assortment

Uncomplicated, robust, versatile and conveniently available. Superior quality and performance FX patch cords deliver a robust design to withstand the rigours of daily use in both off-the-shelf standard configurations and rapid custom tailored installations.

#### FASTER

- Faster delivery with off-the shelf availability of standard items
- Faster identification of fiber type with Erika Violet for OM4 cable and connectors

#### EASIER

- Easier installation in dense cable trays with small diameter cord options
- Easier ordering with simple intelligent *SmartPart* Numbers
- Easier polarity management with industry leading easy-to-use duplex clips

#### BETTER

- Better architectural flexibility with low-loss OM4 0.2 dB MPO and 0.15 dB LC connectors
- Better ruggedization with larger diameter cord options
- Better flexibility with multiple connector options including LC, SC, ST and MPO
- Better quality through exhaustive design validation against TIA standards

#### FX Patch Cords - Standard Performance

| Description                             | FX OM1   | FX OM3  | FX OM4  | FX SM    | FX SM/APC |
|---|--|---------|---------|----------|-----------|
| <b>Cable Performance - LC/SC/ST</b>     |  |         |         |          |           |
| IL Max. 850 nm/1300 nm (dB/Km)          | 3.5/1.2  | 3.0/1.2 | 3.0/1.2 | -        |           |
| IL Max. 1310 nm/1550 nm (dB/Km)         | -  | -       | -       | 0.5/0.5  |           |
| Fire Rating                             | LC/SC/ST: Riser  |         |         |          |           |
| Cable Style                             | LC: 2 mm Duplex Zip Cord<br>SC/ST/Hybrid: 3 mm Duplex Zip Cord |         |         |          |           |
| <b>Connector Performance - LC/SC/ST</b> |  |         |         |          |           |
| IL Max. (dB)                            | 0.25   | 0.25    | 0.15    | 0.35     | 0.35      |
| Polish - RL Typ. (dB)                   | PC - 30  | PC - 30 | PC - 30 | UPC - 55 | APC - 65  |

| Description                        | FX OM1               | FX OM3  | FX OM4  | FX SM     | FX SM/APC |
|------------------------------------|----------------------|---------|---------|-----------|-----------|
| <b>Cable Performance - MPO</b>     |                      |         |         |           |           |
| IL Max. 850 nm/1300 nm (dB/Km)     | 3.5/1.2              | 3.0/1.0 | 3.0/1.0 | -         |           |
| IL Max. 1310 nm/1550 nm (dB/Km)    | -                    | -       | -       | 0.35/0.25 |           |
| Fire Rating                        | Plenum               |         |         |           |           |
| Cable Style                        | MPO-12: 3.0 mm Round |         |         |           |           |
| <b>Connector Performance - MPO</b> |                      |         |         |           |           |
| IL Max. (dB)                       | 0.5                  | 0.35    | 0.2     | -         | 0.75      |
| Polish - RL Typ. (dB)              | PC - 30              | PC - 30 | PC - 30 | -         | APC - 60  |



Faster.  
Easier.  
Better.

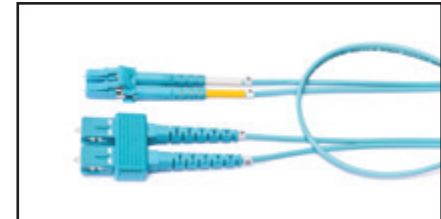


## FiberExpress Pre-Terminated Assemblies (continued)

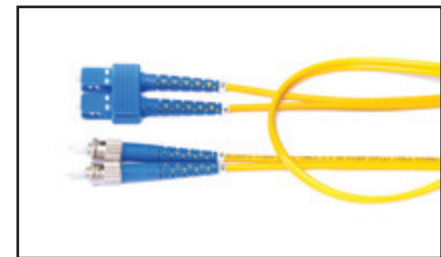
### FX Patch Cords

#### Standard FX Patch Cords

| Length (m)                            | OM1<br>Beige | OM3<br>Aqua | OM4<br>Erika Violet | OS2<br>Blue | OS2/APC<br>Green |
|---------------------------------------|--------------|-------------|---------------------|-------------|------------------|
| <b>MPO-12(f) to MPO-12(f)</b>         |              |             |                     |             |                  |
| 2                                     | -            | FP3MFMF002M | FP4MFMF002M         | -           | FPSMFMF002M      |
| 3                                     | -            | FP3MFMF003M | FP4MFMF003M         | -           | FPSMFMF003M      |
| 5                                     | -            | FP3MFMF005M | FP4MFMF005M         | -           | FPSMFMF005M      |
| <b>LC Duplex to LC Duplex</b>         |              |             |                     |             |                  |
| 2                                     | -            | FP3LDLD002M | FP4LDLD002M         | FPSLDLD002M | FPSLALA002M      |
| 3                                     | -            | FP3LDLD003M | FP4LDLD003M         | FPSLDLD003M | FPSLALA003M      |
| 5                                     | -            | FP3LDLD005M | FP4LDLD005M         | FPSLDLD005M | FPSLALA005M      |
| <b>SC Duplex to SC Duplex</b>         |              |             |                     |             |                  |
| 2                                     | FP1SDSD002M  | FP3SDSD002M | FP4SDSD002M         | FPSSDSD002M | FPSSASA002M      |
| 3                                     | FP1SDSD003M  | FP3SDSD003M | FP4SDSD003M         | FPSSDSD003M | FPSSASA003M      |
| 5                                     | FP1SDSD005M  | FP3SDSD005M | FP4SDSD005M         | FPSSDSD005M | FPSSASA005M      |
| <b>ST to ST (Duplex Cord)</b>         |              |             |                     |             |                  |
| 2                                     | FP1STST002M  | FP3STST002M | FP4STST002M         | FPSSTST002M | -                |
| 3                                     | FP1STST003M  | FP3STST003M | FP4STST003M         | FPSSTST003M | -                |
| 5                                     | FP1STST005M  | FP3STST005M | FP4STST005M         | FPSSTST005M | -                |
| <b>Hybrid: LC Duplex to SC Duplex</b> |              |             |                     |             |                  |
| 3                                     | FP1LDS003M   | FP3LDS003M  | FP4LDS003M          | FPSLDS003M  | FPSLASA003M      |
| <b>Hybrid: SC Duplex to ST</b>        |              |             |                     |             |                  |
| 3                                     | FP1SDST003M  | FP3SDST003M | -                   | FPSSDST003M | -                |



FP3LDS003M, Hybrid LC Duplex to SC Duplex, OM3 Aqua



FPSSDST003M, Hybrid SC Duplex to ST, OS2 Blue

#### Tailored FX Patch Cords

##### Building a SmartPart Number

| Fixed Letter Series | 1. Choose Fiber Type | 2. Choose Connector 1 | 3. Choose Connector 2 | 4. Choose Length* | 5. Choose Fire Rating | 6. Choose Cable Construction | 7. Choose Polarity | 8. Choose Jacket Color |
|---------------------|----------------------|-----------------------|-----------------------|-------------------|-----------------------|------------------------------|--------------------|------------------------|
| FP                  | S                    | LA                    | LA                    | 10M5              | R                     | 2                            | X                  | Y                      |

| Fiber Type | Connector 1       | Connector 2       | Length*                            | Fire Rating | Cable Construction | Polarity         | Jacket Color |
|------------|-------------------|-------------------|------------------------------------|-------------|--------------------|------------------|--------------|
| 1 OM1      | LD LC Duplex      | LD LC Duplex      | 001M to 300M<br>(use M as decimal) | R Riser     | 2 Duplex 2.0 mm    | X A/B (Cross)    | O Orange     |
| 3 OM3      | LC LC Simplex     | LC LC Simplex     |                                    | P Plenum    | 3 Duplex 3.0 mm    | S A/A (Straight) | Y Yellow     |
| 4 OM4      | LM Mini-LC Duplex | LM Mini-LC Duplex |                                    | L LSHZ      | 4 Simplex 2.0 mm   | A Type-A         | A Aqua       |
| S OS2      | LA LC/APC Duplex  | LA LC/APC Duplex  |                                    | C CM/PVC    | 5 Simplex 3.0 mm   | B Type-B         | E Erika V.   |
|            | LB LC/APC Simplex | LB LC/APC Simplex |                                    |             | 7 Round 3.0 mm     | C Type-C         |              |
|            | SD SC Duplex      | SD SC Duplex      |                                    |             |                    |                  |              |
|            | SC SC Simplex     | SC SC Simplex     |                                    |             |                    |                  |              |
|            | SA SC/APC Duplex  | SA SC/APC Duplex  |                                    |             |                    |                  |              |
|            | SB SC/APC Simplex | SB SC/APC Simplex |                                    |             |                    |                  |              |
|            | ST ST             | ST ST             |                                    |             |                    |                  |              |
|            | MM MPO-12(m)      | MM MPO-12(m)      |                                    |             |                    |                  |              |
|            | MF MPO-12(f)      | MF MPO-12(f)      |                                    |             |                    |                  |              |

\*For assemblies greater than 15 m in length consider Multi-fiber cable assemblies with robust features such as heavier cable jackets and pulling eyes.

#### Examples:

**FPSLALA10M5L2XY** - LC/APC duplex to LC/APC duplex, 10.5m in length, OS2 Singlemode LSHZ (Low Smoke Zero Halogen) 2 mm duplex zip cord with A-to-B polarity and a yellow cable jacket

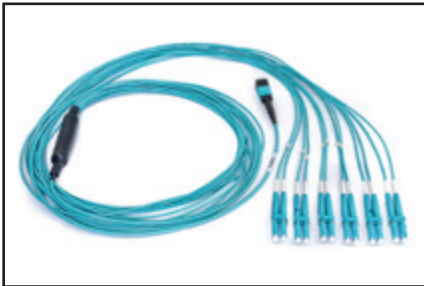
**FP4MFMF010MP6AA** - MPO-12 female to MPO-12 male, 10m in length, OM4 multi mode Plenum 2 mm round interconnect cable with Type-A polarity and aqua cable jacket and connectors

## FiberExpress Pre-Terminated Assemblies (continued)

### FX Hydra Assemblies



FP3LD4F003M, FX Hydra Assembly, OM3, 4 LC Duplex, MPO-12(Female), 40G Polarity, 3 m



FP3LDMF003M, FX Hydra Assembly, OM3, 6 LC Duplex, MPO-12(Female), Type-A Polarity, 3 m

Uniquely suited within dense fixed environments. Compact alternative for statically configured patch cords and pre-term cassettes eliminates connection points to improve performance and alleviate space constraints.

#### FASTER

- Faster deployment at the switch with MPO to LC fanout construction

#### EASIER

- Easier upgradability from 10G to 40G or 100G with MPO connectivity

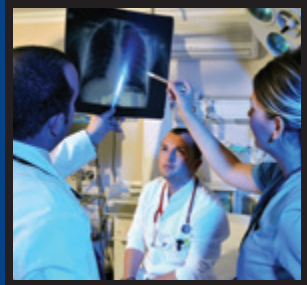
#### BETTER

- Better identification of fiber type with Erika Violet for OM4 cable and connectors
- Better airflow with small transition point construction

### FX Hydra Assemblies - Standard Performance

| Description                         | FX OM3   | FX OM4  | FX SM     | FX SM/APC |
|-------------------------------------|--|---------|-----------|-----------|
| <b>Cable Performance - LC/SC/ST</b> |  |         |           |           |
| IL Max. 850 nm/1300 nm (dB/Km)      | 3.0/1.0  | 3.0/1.0 | -         |           |
| IL Max. 1310 nm/1550 nm (dB/Km)     | -  | -       | 0.35/0.25 |           |
| Fire Rating                         | Riser  |         |           |           |
| Cable Style                         | MPO: 3.0 mm Round<br>LC: 2 mm Simplex Zip Cord |         |           |           |
| <b>Connector Performance - LC</b>   |  |         |           |           |
| IL Max. (dB)                        | 0.25   | 0.15    | 0.35      | 0.35      |
| Polish - RL Typ. (dB)               | PC - 30  | PC - 30 | UPC - 55  | APC - 65  |
| Fanout Length                       | 0.5 m, In-Line                                 |         |           |           |
| <b>Connector Performance - MPO</b>  |  |         |           |           |
| IL Max. (dB)                        | 0.35   | 0.2     | -         | 0.75      |
| Polish - RL Typ. (dB)               | PC - 30  | PC - 30 | -         | APC - 60  |

Faster.  
Easier.  
Better.



## FiberExpress Pre-Terminated Assemblies (continued)

### FX Hydra Assemblies

#### Standard FX Hydra Assemblies

| Description   | OM3 Aqua    | OM4 Erika Violet | OS2 Blue    |
|---|-------------|------------------|-------------|
| <b>10G Transceiver Pinout</b>                                 |             |                  |             |
| MPO-12(f) to 6 x LC Duplex, 1 m In-Line Fanout, 2 m in length | FP3LDMF002M | FP4LDMF002M      | FPSLDMF002M |
| MPO-12(f) to 6 x LC Duplex, 1 m In-Line Fanout, 3 m in length | FP3LDMF003M | FP4LDMF003M      | FPSLDMF003M |
| MPO-12(f) to 6 x LC Duplex, 1 m In-Line Fanout, 5 m in length | FP3LDMF005M | FP4LDMF005M      | FPSLDMF005M |
| <b>40G Transceiver Pinout</b>                                 |             |                  |             |
| MPO-12(f) to 6 x LC Duplex, 1 m In-Line Fanout, 2 m in length | FP3LD4F002M | FP4LD4F002M      | FPSLD4F002M |
| MPO-12(f) to 6 x LC Duplex, 1 m In-Line Fanout, 3 m in length | FP3LD4F003M | FP4LD4F003M      | FPSLD4F003M |
| MPO-12(f) to 6 x LC Duplex, 1 m In-Line Fanout, 5 m in length | FP3LD4F005M | FP4LD4F005M      | FPSLD4F005M |

#### Tailored FX Hydra Assemblies

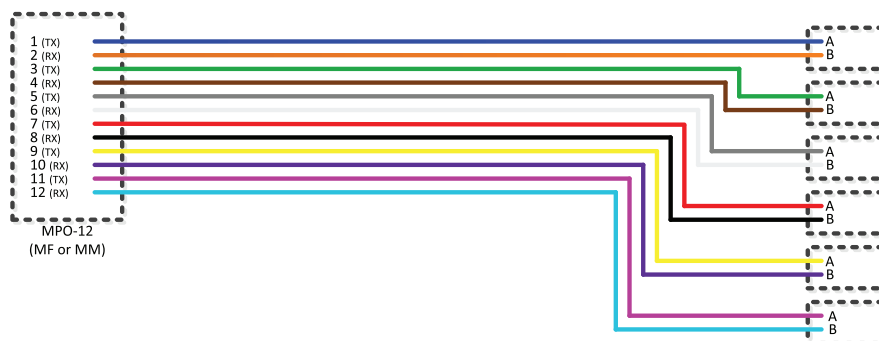
##### Building a SmartPart Number

| Fixed Letter Series             | 1. Choose Fiber Type   | 2. Choose Connector 1 | 3. Choose Connector 2 | 4. Choose Length | 5. Choose Fire Rating | 6. Choose Cable Construction | 7. Choose Polarity  | 8. Choose Jacket Color |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
|---------------------------------|--|-----------------------|-----------------------|------------------|-----------------------|------------------------------|---|------------------------|--------------|---------------|-------------------|------------------|-------------------|---|-------------|--------------|--------------|--------------------|--------------------|--|--------|---------------------------------|---|-------------|---------|----------|--------|---|--------------------|----------------|---|----------|----------|-------|--|--------------|----------|----------|--------|------------|
| <b>FP</b>                       | <b>3</b>   | <b>LD</b>             | <b>MM</b>             | <b>003M</b>      | <b>R</b>              | <b>7</b>                     | <b>A</b>  | <b>A</b>               |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
|                                 | <table border="1"> <thead> <tr><th>Fiber Type</th></tr> </thead> <tbody> <tr><td>1 OM1</td></tr> <tr><td>3 OM3</td></tr> <tr><td>4 OM4</td></tr> <tr><td>S OS2</td></tr> </tbody> </table> | Fiber Type            | 1 OM1                 | 3 OM3            | 4 OM4                 | S OS2                        | <table border="1"> <thead> <tr><th>Connector 1</th></tr> </thead> <tbody> <tr><td>LD LC Duplex</td></tr> <tr><td>LC LC Simplex</td></tr> <tr><td>LM Mini-LC Duplex</td></tr> <tr><td>LA LC/APC Duplex</td></tr> <tr><td>LB LC/APC Simplex</td></tr> </tbody> </table> | Connector 1            | LD LC Duplex | LC LC Simplex | LM Mini-LC Duplex | LA LC/APC Duplex | LB LC/APC Simplex | <table border="1"> <thead> <tr><th>Connector 2</th></tr> </thead> <tbody> <tr><td>MM MPO-12(m)</td></tr> <tr><td>MF MPO-12(f)</td></tr> <tr><td>4M MPO-12(m), 40G*</td></tr> <tr><td>4F MPO-12(f), 40G*</td></tr> </tbody> </table> | Connector 2 | MM MPO-12(m) | MF MPO-12(f) | 4M MPO-12(m), 40G* | 4F MPO-12(f), 40G* | <table border="1"> <thead> <tr><th>Length</th></tr> </thead> <tbody> <tr><td>00M2 to 300M (use M as decimal)</td></tr> </tbody> </table> | Length | 00M2 to 300M (use M as decimal) | <table border="1"> <thead> <tr><th>Fire Rating</th></tr> </thead> <tbody> <tr><td>R Riser</td></tr> <tr><td>P Plenum</td></tr> <tr><td>L LSZH</td></tr> </tbody> </table> | Fire Rating | R Riser | P Plenum | L LSZH | <table border="1"> <thead> <tr><th>Cable Construction</th></tr> </thead> <tbody> <tr><td>7 Round 3.0 mm</td></tr> </tbody> </table> | Cable Construction | 7 Round 3.0 mm | <table border="1"> <thead> <tr><th>Polarity</th></tr> </thead> <tbody> <tr><td>A Type-A</td></tr> <tr><td>4 40G</td></tr> </tbody> </table> | Polarity | A Type-A | 4 40G | <table border="1"> <thead> <tr><th>Jacket Color</th></tr> </thead> <tbody> <tr><td>O Orange</td></tr> <tr><td>Y Yellow</td></tr> <tr><td>A Aqua</td></tr> <tr><td>E Erika V.</td></tr> </tbody> </table> | Jacket Color | O Orange | Y Yellow | A Aqua | E Erika V. |
| Fiber Type                      |  |                       |                       |                  |                       |                              |   |                        |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
| 1 OM1                           |  |                       |                       |                  |                       |                              |   |                        |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
| 3 OM3                           |  |                       |                       |                  |                       |                              |   |                        |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
| 4 OM4                           |  |                       |                       |                  |                       |                              |   |                        |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
| S OS2                           |  |                       |                       |                  |                       |                              |   |                        |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
| Connector 1                     |  |                       |                       |                  |                       |                              |   |                        |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
| LD LC Duplex                    |  |                       |                       |                  |                       |                              |   |                        |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
| LC LC Simplex                   |  |                       |                       |                  |                       |                              |   |                        |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
| LM Mini-LC Duplex               |  |                       |                       |                  |                       |                              |   |                        |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
| LA LC/APC Duplex                |  |                       |                       |                  |                       |                              |   |                        |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
| LB LC/APC Simplex               |  |                       |                       |                  |                       |                              |   |                        |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
| Connector 2                     |  |                       |                       |                  |                       |                              |   |                        |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
| MM MPO-12(m)                    |  |                       |                       |                  |                       |                              |   |                        |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
| MF MPO-12(f)                    |  |                       |                       |                  |                       |                              |   |                        |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
| 4M MPO-12(m), 40G*              |  |                       |                       |                  |                       |                              |   |                        |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
| 4F MPO-12(f), 40G*              |  |                       |                       |                  |                       |                              |   |                        |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
| Length                          |  |                       |                       |                  |                       |                              |   |                        |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
| 00M2 to 300M (use M as decimal) |  |                       |                       |                  |                       |                              |   |                        |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
| Fire Rating                     |  |                       |                       |                  |                       |                              |   |                        |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
| R Riser                         |  |                       |                       |                  |                       |                              |   |                        |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
| P Plenum                        |  |                       |                       |                  |                       |                              |   |                        |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
| L LSZH                          |  |                       |                       |                  |                       |                              |   |                        |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
| Cable Construction              |  |                       |                       |                  |                       |                              |   |                        |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
| 7 Round 3.0 mm                  |  |                       |                       |                  |                       |                              |   |                        |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
| Polarity                        |  |                       |                       |                  |                       |                              |   |                        |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
| A Type-A                        |  |                       |                       |                  |                       |                              |   |                        |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
| 4 40G                           |  |                       |                       |                  |                       |                              |   |                        |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
| Jacket Color                    |  |                       |                       |                  |                       |                              |   |                        |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
| O Orange                        |  |                       |                       |                  |                       |                              |   |                        |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
| Y Yellow                        |  |                       |                       |                  |                       |                              |   |                        |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
| A Aqua                          |  |                       |                       |                  |                       |                              |   |                        |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |
| E Erika V.                      |  |                       |                       |                  |                       |                              |   |                        |              |               |                   |                  |                   |   |             |              |              |                    |                    |  |        |                                 |   |             |         |          |        |   |                    |                |   |          |          |       |  |              |          |          |        |            |

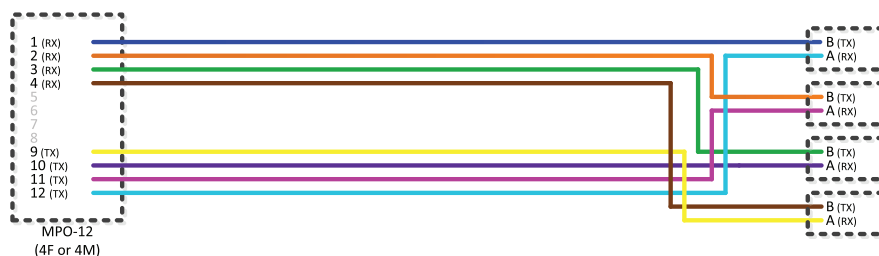
\* For use with 40G Transceivers using MPO-12 connectors configured as 4 x 10G Ports.

For further options including pulling eyes, stagger, fanout length see pages 26-27 for FX Multi-Fiber Cable Assemblies.

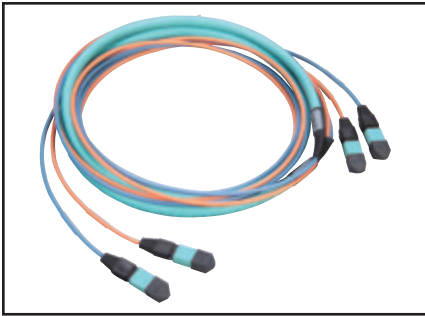
#### FX Hydra Assembly – Traditional Pinout



#### FX Hydra Assembly – 40G Transceiver Pinout



## FiberExpress Pre-Terminated Assemblies (continued) FX MPO Trunk Assemblies



FA400261, MPO(F) - MPO(F), 24 (2x12) Fibers, OM3 (50 µm), Type C - Cross-Over Assembly

Innovative performance with ingrained simplicity. Industry-leading low-loss MPO Trunks are the foundation of Easier, Faster and Better pre-terminated fiber connectivity solutions revolutionizing the data center.

### FASTER

- Faster identification of fiber type with Erika Violet for OM4 Cable, Connectors and Adapters
- Faster installation with pre-terminated solutions

### EASIER

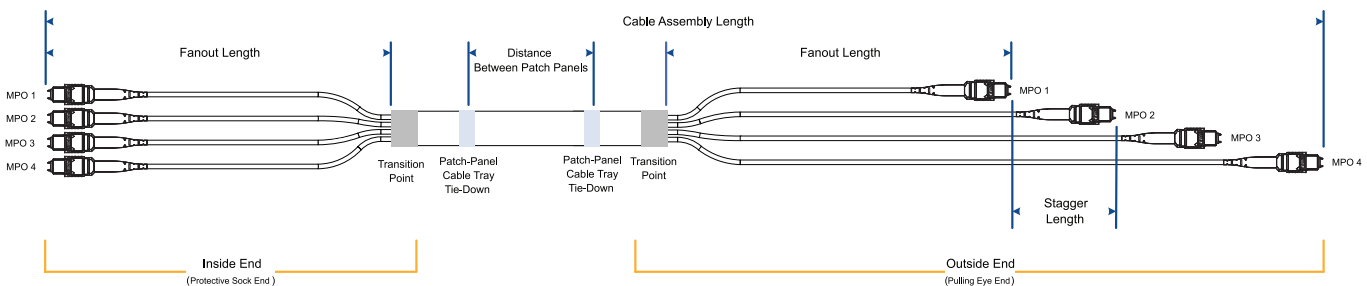
- Easier installation with 3-flange real and default pulling eye
- Easier ordering with simple intelligent *SmartPart* Numbers
- Easier upgradability to 40G and 100G with MPO pre-term solutions

### BETTER

- Better architectural flexibility with high-performance 0.2 dB OM4 MPO connectors
- Better quality through exhaustive design validation against TIA standards

### FX MPO Trunk Assemblies - Standard Performance

| Description                           | FX OM1            | FX OM3  | FX OM4  | FX SM     |
|---------------------------------------|-------------------|---------|---------|-----------|
| <b>Cable Performance</b>              |                   |         |         |           |
| IL Max. 850 nm/1300 nm (dB/Km)        | 3.5/1.2           | 3.0/1.0 | 3.0/1.0 | -         |
| IL Max. 1310 nm/1550 nm (dB/Km)       | -                 | -       | -       | 0.35/0.25 |
| Fire Rating                           | Plenum            |         |         |           |
| Cable Style                           | Mini-Distribution |         |         |           |
| <b>Connector Performance - MPO-12</b> |                   |         |         |           |
| IL Max. (dB)                          | 0.5               | 0.35    | 0.2     | 0.75      |
| Polish - RL Typ. (dB)                 | PC - 30           | PC - 30 | PC - 30 | APC - 60  |
| Fanout Length                         | 0.5 m, In-Line    |         |         |           |
| <b>Connector Performance - MPO-24</b> |                   |         |         |           |
| IL Max. (dB)                          | 0.5               | 0.35    | 0.2     | 0.75      |
| Polish - RL Typ. (dB)                 | PC - 30           | PC - 30 | PC - 30 | APC - 60  |



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## FiberExpress Pre-Terminated Assemblies (continued)

### FX MPO Trunk Assemblies

#### Standard FX MPO Trunk Assemblies

##### Building a SmartPart Number

|                     |                      |                      |                            |                              |                                      |                                 |
|---------------------|----------------------|----------------------|----------------------------|------------------------------|--------------------------------------|---------------------------------|
| Fixed Letter Series | 1. Choose Fiber Type | 2. Choose Connectors | 3. Choose Connector Gender | 4. Choose Polarity (outside) | 5. Choose Connector Count (per side) | 6. Choose Length                |
| <b>FM</b>           | <b>4</b>             | <b>M</b>             | <b>M</b>                   | <b>A</b>                     | <b>2</b>                             | <b>025M</b>                     |
|                     | <b>Fiber Type</b>    | <b>Connectors</b>    | <b>Connector Gender</b>    | <b>Polarity (outside)</b>    | <b>Connector Count</b>               | <b>Length</b>                   |
|                     | 3 OM3                | M MPO-12             | M Male to Male             | A Type-A                     | 1 12 Fiber                           | 005M to 350M (use M as decimal) |
|                     | 4 OM4                |                      | E Extension (M to F)       | B Type-B                     | 2 24 Fiber                           |                                 |
|                     | S OS2                |                      |                            | C Type-C                     | D 144 Fiber                          |                                 |

##### Examples:

**FM4MMA2025M** - FX MPO Trunk, OM4, MPO-12 (Male to Male), Type-A, 2 MPO (24 fibers), 25 M, OFNP, Mini-Distribution (3.0 mm Sub-Units), Fan-Out: 0.5 M x In-Line, Erika Violet jacket

**FMSMEAD17M5** - FX MPO Trunk, OS2, MPO-12/APC (Male to Female), Type-A, 12 MPO (144 fibers), 17.5 M, OFNP, Mini-Distribution (3.0 mm Sub-Units), Fan-Out: 0.5 M x In-Line, Yellow jacket

#### Tailored FX MPO Trunk Assemblies

##### Building a SmartPart Number

|                     |                      |                      |                            |                              |                                      |                                 |                       |                              |                                   |                         |
|---------------------|----------------------|----------------------|----------------------------|------------------------------|--------------------------------------|---------------------------------|-----------------------|------------------------------|-----------------------------------|-------------------------|
| Fixed Letter Series | 1. Choose Fiber Type | 2. Choose Connectors | 3. Choose Connector Gender | 4. Choose Polarity (outside) | 5. Choose Connector Count (per side) | 6. Choose Length                | 7. Choose Fire Rating | 8. Choose Cable Construction | 9. Choose Fan-Out Geometry        | 10. Choose Jacket Color |
| <b>FM</b>           | <b>4</b>             | <b>M</b>             | <b>M</b>                   | <b>A</b>                     | <b>4</b>                             | <b>25M5</b>                     | <b>P</b>              | <b>M</b>                     | <b>2</b>                          | <b>A</b>                |
|                     | <b>Fiber Type</b>    | <b>Connectors</b>    | <b>Connector Gender</b>    | <b>Polarity (outside)</b>    | <b>Connector Count</b>               | <b>Length</b>                   | <b>Fire Rating</b>    | <b>Cable Construction</b>    | <b>Fan-Out Geometry</b>           | <b>Jacket Color</b>     |
|                     | 1 OM1                | M MPO-12             | M Male to Male             | A Type-A                     | 1 12 Fiber                           | 001M to 500M (use M as decimal) | R Riser               | M Mini-Distribution 3 mm     | D 0.5 m x In-Line                 | O Orange                |
|                     | 3 OM3                |                      | F Female to Female         | B Type-B                     | 2 24 Fiber                           |                                 | P Plenum              |                              | E 1.0 m x In-Line                 | Y Yellow                |
|                     | 4 OM4                |                      | E Extension (M to F)       | C Type-C                     | 3 36 Fiber                           |                                 | L LSZH                |                              | F 1.5 m x In-Line                 | A Aqua                  |
|                     | S OS2                |                      |                            |                              | 4 48 Fiber                           |                                 | I I/O Plenum          |                              | G 2.0 m x In-Line                 | E Erika V.              |
|                     |                      |                      |                            |                              | 6 72 Fiber                           |                                 | A Plenum Armored      |                              | 1 0.5 m x Staggered 80 mm/1 conn. |                         |
|                     |                      |                      |                            |                              | 8 96 Fiber                           |                                 | B I/O Plenum Armored  |                              | 2 0.5 m x Staggered 80 mm/2 conn. |                         |
|                     |                      |                      |                            |                              | D 144 Fiber                          |                                 | H I/O LSZH            |                              | 3 0.5 m x Staggered 80mm/3 conn.  |                         |
|                     |                      |                      |                            |                              |                                      |                                 | C LSZH Armored        |                              | 4 0.5 m x Staggered 80 mm/4 conn. |                         |
|                     |                      |                      |                            |                              |                                      |                                 | D I/O LSZH Armored    |                              | 6 0.5 m x Staggered 80 mm/6 conn. |                         |
|                     |                      |                      |                            |                              |                                      |                                 | O Outdoor             |                              |                                   |                         |

##### Examples:

**FM4MMA425M5PM2A** - FX MPO Trunk, OM4, MPO-12 (Male to Male), Type-A, 4 MPO (48 fibers), 25.5 m, OFNP, Mini-Distribution (3.0 mm Sub-Units), Fan-Out: 0.5 m x Stag 80 mm/2 Conn., Aqua connectors and jacket

**FMSMFC8200MPMEY** - FX MPO Trunk, OS2, MPO-12/APC (Female to Female), Type-C, 8 MPO (96 fibers), 200 m, OFNP, Mini-Distribution (3.0 mm Sub-Units), Fan-Out: 1.0 m x In-Line, Yellow jacket

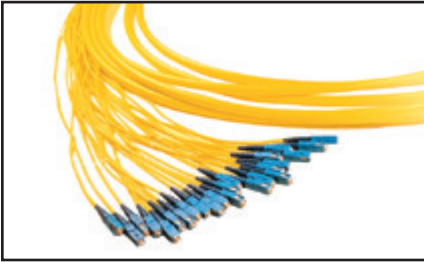
For even more options FX MPO Trunk Assemblies can be Engineered to meet any requirement. Please contact your local Belden representative for more information.

#### Pulling Eye Diameter

| Description  | 12-Fiber | 24-Fiber | 36-Fiber | 48-Fiber | 72-Fiber | 96-Fiber | 144-Fiber |
|--|----------|----------|----------|----------|----------|----------|-----------|
| <b>Installation Diameter - MPO-12 (Total Connectors)</b> | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>6</b> | <b>8</b> | <b>12</b> |
| One Bundle, No Stagger                                   | 19.5 mm  | 25.4 mm  | 30.0 mm  | 31.7 mm  | 38.1 mm  | 41.900   | 50.8 mm   |
| 1 Connector per Bundle, 8 cm Bundle Stagger              |          | 19.5 mm  | 19.5 mm  | 19.5 mm  | 19.5 mm  | 19.5 mm  | 19.5 mm   |
| 2 Connectors per Bundle, 8 cm Bundle Stagger             |          |          |          | 25.4 mm  | 25.4 mm  | 25.4 mm  | 25.4 mm   |
| 3 Connectors per Bundle, 8 cm Bundle Stagger             |          |          |          |          | 30.0 mm  | 30.0 mm  | 30.0 mm   |
| 4 Connectors per Bundle, 8 cm Bundle Stagger             |          |          |          |          |          | 31.7 mm  | 31.7 mm   |
| 6 Connectors per Bundle, 8 cm Bundle Stagger             |          |          |          |          |          |          | 38.1 mm   |



## FiberExpress Pre-Terminated Assemblies (continued) Multi-Fiber Cable Assemblies



Multi-Fiber Cable Assembly

Superior consistent craftsmanship culminating in near instantaneous installation. Highly configurable multi-fiber pre-terminated cable assemblies are engineering for maximum performance and crafted ensuring superior quality.

### FASTER

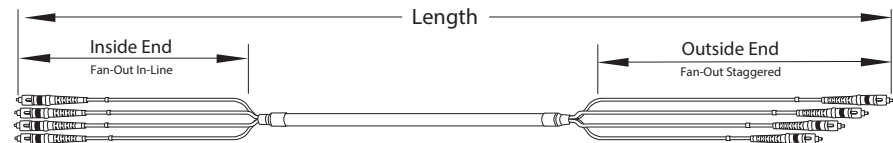
- Faster identification of fiber type with Erika Violet for OM4 cable, connectors and adapters
- Faster installation with pre-terminated solutions

### EASIER

- Easier installation with 3-flange reel and default pulling eye
- Easier ordering with simple intelligent *SmartPart* Numbers

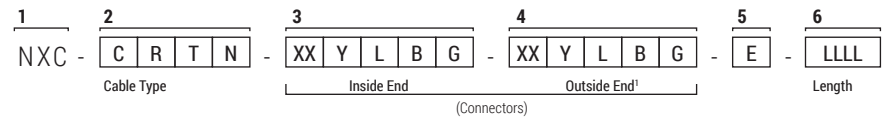
### BETTER

- Better quality through exhaustive design validation against TIA standards
- Better flexibility through absolute customizability



### Product Engineering Code (PEC) - GUIDELINE

Use the following options to determine the Product Engineering code (PEC) and order custom combination of cable type, connectors and length required.



### 1 NXC identifies the product family for all fiber cable assemblies

#### 2 Select Cable Type

| C Cable Construction             | R Fire Rating             | T Fiber Type              | N Fiber Count                         |
|----------------------------------|---------------------------|---------------------------|---------------------------------------|
| M Distribution cable             | R OFNR - Riser            | M OM1 - 62.5 μm Multimode | 6 6 Fibers                            |
| P Breakout 2.0 mm units          | P OFNP - Plenum           | N OM2 - 50 μm Multimode   | L 12 Fibers                           |
| U Mini-distribution <sup>2</sup> | B Plenum Indoor Armored   | F OM3 - 50 μm Multimode   | X 24 Fibers Sub-units                 |
| O Loose Tube                     | D Outdoor                 | G OM4 - 50 μm Multimode   | C 24 Fibers Non-unitized <sup>3</sup> |
|                                  | E Indoor / Outdoor Plenum | S OS2 - Singlemode        | V 48 Fibers                           |
|                                  |                           |                           | T 72 Fibers                           |
|                                  |                           |                           | M 96 Fibers                           |
|                                  |                           |                           | Z 144 Fibers                          |

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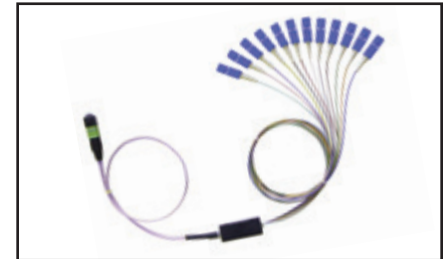


## FiberExpress Pre-Terminated Assemblies (continued)

### Multi-Fiber Cable Assemblies

#### 3 and 4 Inside End and Outside End (Connectors)

| XX Connectors          | Y Polish / Performance Level              |
|------------------------|---|
| LC LC Simplex          | P PC - Physical Contact Multimode         |
| LD LC Duplex           | U UPC - Ultra Physical Contact Singlemode |
| SC SC Simplex          | A APC - Angled Polish Contact Singlemode  |
| SD SC Duplex           | Z Not applicable <sup>4</sup>             |
| ST ST                  |   |
| PH 12-fiber MPO female |   |
| PG 12-fiber MPO male   |   |
| LM mSFP (Mini LC)      |   |
| ZZ OPEN <sup>4</sup>   |   |



900 µm Fan-out Assembly

#### Fan-out

#### 5 Pulling Eye

| L Fan-Out Length    | B Fan-Out Construction | G Fan-Out Geometry | E Pulling Eye                 |
|---------------------|------------------------|--------------------|-------------------------------|
| C 0.5 m             | B 900 µm Tight buffer  | N In line or None  | O At Outside end <sup>5</sup> |
| F 1 m               | E 2.0 mm jacket        | A Staggered 25 mm  | N None                        |
| G 2 m               | G 3.0 mm jacket        | B Staggered 50 mm  |                               |
| N None <sup>4</sup> | N None <sup>4</sup>    |                    |                               |

#### 6 Length

LLLL is the length from tip to tip in meters: 0001, 0005, 0015, 0100, etc.

#### Examples:

| PEC Code                             | Description  |
|--------------------------------------|--|
| <b>NXC-MRFL-LCPFBN-LCPFBN-O-0015</b> | Multi-Fiber cable assembly, Distribution cable, Riser, OM3(50 µm), 12 fibers, LC/PC - LC/PC, Fan-out: 1 m - 900 µm - In line, with pulling eye, 15 m                                     |
| <b>NXC-UPFV-LDPFEN-PGPFEN-N-0020</b> | Multi-Fiber cable assembly, Mini-distribution cable, Plenum, OM3 (50 µm), 48 fibers, LC Duplex/PC - MPO (m)/PC, Fan-out: 1 m - 2.0 mm(LC) & 3.0 mm (MPO) - In Line, No pulling eye, 20 m |

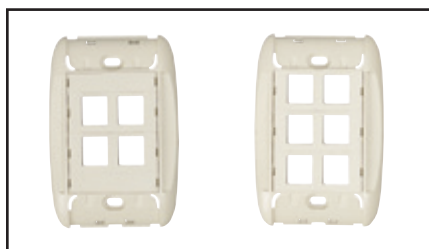
Please contact Belden to validate your PEC Code and for any other fiber cable assembly combinations not available in this guideline.

#### Notes:

1. Outside end refers to the pulling side.
2. Mini-distribution cable is a round cable with sub-units of 12 Loose tube fibers each. It's used for MPO assemblies.
3. Single jacket design. It's only used for Distribution cable.
4. Only for Outside End. It's used for pigtails.
5. Pulling eye is strongly recommended for assemblies longer than 10 m.

## FiberExpress Workstation Outlets

MediaFlex Faceplate Kits, Workstation Outlets, and Window Covers



AX102428, AX102430, MediaFlex KeyConnect Faceplate Kit

Tasteful designs balancing purpose and elegance. Grounded in the reconfigurable KeyConnect platform Belden workstation outlets provide a stylish footprint for copper, fiber and multimedia connectivity at the workstation.

### FASTER

- Faster installation with support for standard NEMA type outlet boxes

### EASIER

- Easier customizability for mixed copper, fiber and multimedia using the KeyConnect keystone-style system
- Easier port identification through elegant integrated label holders
- Easier mounting in constrained spaces with optional angled

### BETTER

- Better cable management and bend radius control with surface adapter boxes
- Better looking modern curved styling available in a variety of colors



AX101874, MediaFlex Adapter Box, Double-Gang

### MediaFlex Faceplate Kits

| Description                                      | Belden Part Number |             |
|--|--------------------|-------------|
|  | Almond             | Elec. White |
| <b>MediaFlex Faceplate Kit, KeyConnect-Style</b> |                    |             |
| 2-port, Flush, Single-gang                       | AX104494           | AX104495    |
| 4-port, Flush, Single-gang                       | AX102428           | AX102429    |
| 6-port, Flush, Single-gang                       | AX102430           | AX102431    |
| 2-port, Angled, Single-gang                      | AX104498           | AX104499    |
| 4-port, Angled, Single-gang                      | AX102432           | AX102433    |



AX101777, Labeling Window Cover for MediaFlex Plates

### MediaFlex Workstation Outlets

| Description                            | Belden Part Number |             |
|--|--------------------|-------------|
|  | Almond             | Elec. White |
| <b>MediaFlex Plates</b>                |                    |             |
| Single-gang                            | AX101746           | AX101747    |
| Double-gang                            | AX101870           | AX101871    |
| <b>MediaFlex Surface Adapter Boxes</b> |                    |             |
| Single-gang                            | AX102481           | AX102482    |
| Double-gang                            | AX101874           | AX101875    |

Contact Customer Service for other colors and configurations.

### MediaFlex ID Window Covers

| Description                                | Belden Part Number |
|--|--------------------|
| Window Cover, Clear, bag of 25 units       | AX101773           |
| Window Cover, Gray, bag of 25 units        | AX101774           |
| Window Cover, Almond, bag of 25 units      | AX101775           |
| Window Cover, Elec. White, bag of 25 units | AX101776           |
| Window Cover, Black, bag of 25 units       | AX101777           |

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## FiberExpress Workstation Outlets (continued)

### MediaFlex Multimedia Inserts and KeyConnect Adapters

#### MediaFlex Inserts

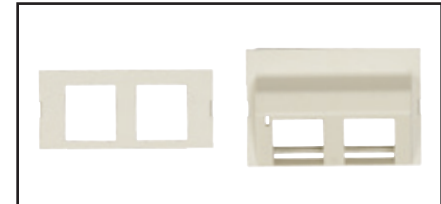
| Description                                | Belden Part Number |             |             |
|--|--------------------|-------------|-------------|
|  | Almond             | Elec. White | Black       |
| <b>MediaFlex KeyConnect Module Insert</b>  |                    |             |             |
| 2-port, Flush, bag of 10 pieces            | AX102410           | AX102411    | AX102737    |
| 2-port, Angled, bag of 10 pieces           | AX102412           | AX101872    | AX102735    |
| <b>MediaFlex Filler Inserts</b>            |                    |             |             |
| 1 unit, bag of 10 pieces                   | AX101758           | AX101759    | AX101760    |
| <b>MediaFlex Multimedia Insert, Copper</b> |                    |             |             |
| 3-port RCA (Angled)                        | AX101878           | AX101879    | AX101880    |
| SVHS Module (Angled)                       | AX101882           | AX101883    | AX101884    |
| SVGA Module (IDC interface) (Angled)       | AX101886           | AX101887    | AX101888    |
| SVGA Feed Through (Angled)                 | AX102335           | AX102336    | AX102337    |
| SVGA Feed Through, 3.5 mm Audio (Angled)   | AX105158-AL        | AX105158-EW | AX105158-BK |
| <b>MediaFlex Multimedia Insert, Fiber</b>  |                    |             |             |
| Duplex SC Multimode                        | AX101940           | AX101941    | AX101942    |
| Duplex SC Singlemode                       | AX101936           | AX101937    | AX101938    |
| SC/APC Duplex                              | AX105638-AL        | AX105638-EW | AX105638-BK |

Contact Customer Service for other colors and configurations.

#### KeyConnect Adapters

| Description                          | Belden Part Number |             |             |
|--------------------------------------|--------------------|-------------|-------------|
|                                      | Almond             | Elec. White | Black       |
| LC Duplex OM3 (Aqua Adapter)         | AX104937           | AX104938    | AX104939    |
| LC Duplex OM4 (Erika Violet Adapter) | AX105641-AL        | AX105641-EW | AX105641-BK |
| LC Duplex SM (Blue Adapter)          | AX102419           | AX102420    | AX102421    |
| LC Duplex SM/APC (Green Adapter)     | AX105642-AL        | AX105642-EW | AX105642-BK |
| SC Simplex OM3 (Aqua Adapter)        | AX105643-AL        | AX105643-EW | AX105643-BK |
| SC Simplex SM (Blue Adapter)         | AX102686           | AX102687    | AX102688    |
| SC/APC Simplex SM (Green Adapter)    | AX105374-AL        | AX105374-EW | AX105374-BK |

Refer to the Belden copper catalog for a larger selection of multimedia adapters.



MediaFlex Inserts for KeyConnect Modules: AX102410, Flush, 2-port, Almond and AX102412, Angled, 2-Port, Almond



AX101760, MediaFlex Filler Insert, 1-unit



AX101878, MediaFlex RCA Inserts, 3-port, Almond  
AX101882, MediaFlex SVHS Inserts, 1-port, Almond  
AX101886, MediaFlex SVGA Inserts, 1-port, Almond



AX101940, MediaFlex SC Duplex Multimode Insert, Almond



AX104939, KeyConnect Adapter, LC Duplex, OM3 (Aqua Adapter), Black

## FiberExpress Workstation Connectivity

### FX Multi Box (M-Box) and MDVO Multimedia Outlet Box

Strategically placed connectivity through overt design. Compact low-port count field-term or pre-term distributed consolidation points minimizing installation time by maximizing trunk capacity.

#### FASTER

- Faster installation with a variety of surface mount options

#### EASIER

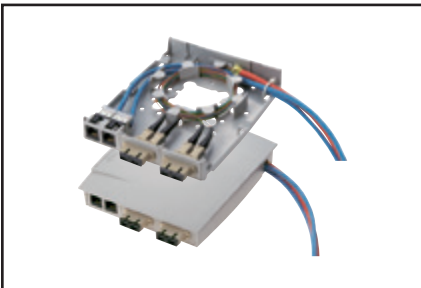
- Easier distribution of low port count connectivity and breakouts with self-contained designs
- Easier field-termination with easily accessible consolidation points

#### BETTER

- Better options for pre-term and field-term including splicing



FW3MBP06LD, FX M-Box Pre-Term, 6 x LC Duplex, 1 MPO-12(f), OM3



A0643206, MDVO Multimedia Outlet Box, shown here as terminated

#### FX Multi Box (M-Box)

Extremely compact, the feature rich M-Box is ideally suited for floor box and consolidation point applications. Supporting pre-terminated MPO-12(f) connectivity with an integrated fanout to LC, 1G and 10G Ethernet can be quickly deployed and re-deployed eliminating field termination. When the need arises additional versions of the M-Box are fully equipped to handle and protect field termination including both mechanical splice and pigtail fusion splicing techniques.

| Description                                      | Belden Part Number |                     |             |                  |
|--|--------------------|---------------------|-------------|------------------|
|  | OM3<br>Aqua        | OM4<br>Erika Violet | OS2<br>Blue | OS2/APC<br>Green |
| FX Multi-Box Pre-Term MPO-12(f) to 6 x LC Duplex | FW3MBP06LD         | FW4MBP06LD          | FWSMBP06LD  | FWSMBP06LA       |
| FX Multi-Box Field-Term                          | FW3MBS06LD         | FW4MBS06LD          | FWSMBS06LD  | FWSMBS06LA       |

#### MDVO Multimedia Outlet Box

The MDVO Multimedia Outlet Box brings unique versatility for multimedia work area installations. The box design provides cable management and helps maintain cable bend radius. The low profile design and side-entry of the outlet box offers better protection for patch cords. The outlet box can accept up to six MDVO-style modules or three SC Duplex footprint adapters.

The MDVO Multimedia Outlet Box can be mounted directly on the wall or attached to standard electrical boxes. Included with the MDVO Multimedia box are three 1-port SC Duplex footprint mounting bezels and three 2-port MDVO adapters.

| Description                        | Belden Part Number |             |
|------------------------------------|--------------------|-------------|
|                                    | Almond             | Elec. White |
| MDVO Multimedia Outlet Box, 6-Port | A0643206           | A0643207    |

\*See the Belden copper catalog for a larger selection.



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## FiberExpress Workstation Connectivity (continued)

Multi-User Outlet Box, MDVO-Style Fiber Modules, and Duplex Footprint Fiber Adapters

### Multi-User Outlet Box

The Multi-User Outlet Box is a versatile box that can be used in many different applications. The outlet box can accommodate up to 24 connections of any type: UTP, fiber or coax. The outlet box is ideal for use as a multi-user telecommunications assembly, or simply as a high-density multimedia telecommunications outlet. The Multi-User Outlet Box can also be used as a wall mounted patch panel in confined areas, such as shallow rooms and cabinets.



AX100222, Multi-User Outlet Box (shown here with optional modules)

| Description                                  | Belden Part Number |             |          |
|--|--------------------|-------------|----------|
|  | Almond             | Elec. White | Black    |
| Multi-User Outlet Box, 24-MDVO Ports (Empty) | AX100220           | AX100221    | AX100222 |
| Multi-User KeyConnect 12-Port Adapter Strip  | -                  | -           | AX104615 |

### MDVO-Style Fiber Modules

| Description                         | Almond      | Elec. White | Black       |
|-------------------------------------|-------------|-------------|-------------|
| LC Duplex – OM3 (Aqua Adapter)      | AX105696-AL | AX105696-EW | AX105696-BK |
| LC Duplex – SM (Blue Adapter)       | AX102214    | AX102215    | AX102216    |
| SC Simplex – OM3 (Aqua Adapter)     | AX105697-AL | AX105697-EW | AX105697-BK |
| SC Simplex – SM (Blue Adapter)      | AX104624-02 | AX104624-03 | AX104624-04 |
| SC/APC Simplex – SM (Green Adapter) | AX105698-AL | AX105698-EW | AX105698-BK |
| ST – Metal                          | AX105699-AL | AX105699-EW | AX105699-BK |

### Standard Duplex Footprint Fiber Adapters

| Description                      | Belden Part Number |                  |              |               |
|----------------------------------|--------------------|------------------|--------------|---------------|
|                                  | OM3 Aqua           | OM4 Erika Violet | OS2 Blue     | OS2/APC Green |
| SC Duplex, Flangeless            | AX105691-B25       | AX105692-B25     | AX105002-B25 | AX105646-B25  |
| SC Duplex w/Shutters, Flangeless | -                  | -                | AX105693-B25 | AX105694-B25  |

Refer to the Belden copper catalog for a larger selection of workstation connectivity options.

## FiberExpress Secure/Keyed LC System

### FX Secure/Keyed LC System



FX Secure/Keyed LC System



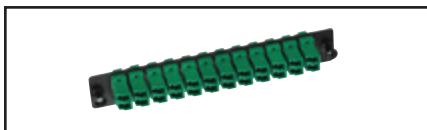
FX Brilliance Connectors



FX Secured/Keyed LC Ultra Cassette



FX Secure/Keyed LC Manager Module



FX Secure/Keyed LC Adapter Strip

The FX Secure/Keyed LC System allows for physical segregation of network segments in secure fiber cabling infrastructures. All Secure/Keyed LC products are available with 12 different keying options each carrying a different color to facilitate network administration. The keying detail inside the connector is highly tamper-resistant and cannot be reproduced inside a standard LC connector to violate the network security. All products comply with the FOCIS 10 standard and optical performance exceeds all industry standards for SFF connectors.

The Secure/Keyed LC Adapter Modules, Frames, Cassettes and Adapter Strips can be used in all mounting hardware for workstation area, Consolidation Point or Telecom Room applications. The Secure/Keyed LC FX Manager Modules can be used in 19- and 23-inch FX Manager Shelves to provide a high-density management system.

The Secure/Keyed LC FX Ultra Frames and Cassettes can be used with the FX UHD Rack and FX Ultra Wall-mount Patch Panels to provide an Ultra high-density patching system that is easy to deploy, operate and maintain, while ensuring maximum uptime, uninterrupted availability and superior performance.

The Secure/Keyed LC Patch Cords and Pigtails are offered in Multimode 62.5 μm (OM1), laser-optimized 50 μm (OM3 and OM4) and Singlemode (OS2) for the most demanding network performance.

The Secure/Keyed LC Brilliance Universal Field Installable Connectors are available in Multimode 50 μm laser-optimized (OM4, OM3 compatible) and Singlemode (OS2) fiber versions.

### FX Secure/Keyed LC System

| Description | Splices |
|-------------|---------|
| LC Key1     | Red     |
| LC Key2     | Green   |
| LC Key3     | Yellow  |
| LC Key4     | Black   |
| LC Key5     | Orange  |
| LC Key6     | Blue    |
| LC Key7     | Violet  |
| LC Key8     | Rose    |
| LC Key9     | Aqua    |
| LC KeyA     | Brown   |
| LC KeyB     | Slate   |
| LC KeyC     | White   |

For additional details, please refer to the Secure/Keyed LC System Product Bulletin PB275.

Faster.  
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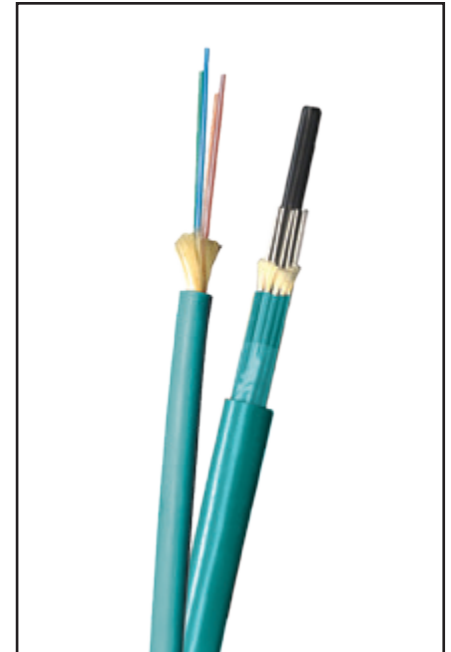
## FiberExpress Optic Cables

### Introduction

The optical fiber cables featured in this section have been expanded to meet advances in technology and the demands of both commercial and industrial applications. Refer to this page for selecting a fiber type, color coding information, and optical specifications. Belden's extensive line of indoor and outdoor cable products is offered in tight buffer and loose tube designs. Armored, burial, and ruggedized designs are suited to a host of industrial environments. For each product design, items for OM1, OM2, OM3, OM4, and OS2 (Singlemode) items have been developed. Belden fiber products are third party tested by either ETL or UL and approved for use according to the National Electric Code.

### Customer Service

Many fiber designs are available from stock through our Distributors. For your new or custom application that you do not locate in this section, contact Customer Service at 1-800-Belden-1 (800.235.3361) for additional information or to request a quote. Further product and technical information is also available on our web site at [www.belden.com](http://www.belden.com).



### Cable Selection Guide

#### Jacket Color Chart

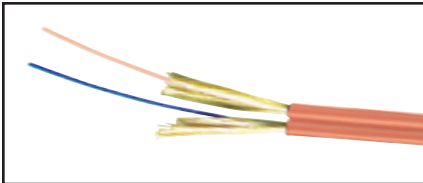
| Cable Type  | Jacket Color |
|---|--------------|
| <b>Indoor Cables: Interconnect, Breakout, Distribution and Tray Optic</b> |              |
| OM1 & OM2   | Orange       |
| OM3   | Aqua         |
| OM4 (Standard)  | Aqua         |
| OM4 (Optional)  | Erika Violet |
| OS2   | Yellow       |
| <b>Indoor/Outdoor &amp; Outdoor Cables: Distribution, Loose Tube, OSP</b> |              |
| OM1, OM2, OM3, OM4, OS2   | Black        |
| <b>Specialty Cables: Tactical</b>   |              |
| OM1, OM2, OM3, OM4, OS2   | Black        |

See page 4, FX Systems chart for technical performance.

The part numbers in the following pages represent standard fiber cables, many more constructions are available, please contact your Belden representative for more information.

## FiberExpress Interconnect Cables

### Tight Buffer – Riser & Plenum Rated



Duplex Optical Fiber Interconnect Cable

Supple and compact yet undoubtedly resilient. Small form factor FX interconnect cables provide the right combination of flexibility, small size and robustness needed to withstand the rigours of daily patching without sacrificing density.

#### Applications:

- Patching
- Inside Cabinets
- Workstation Equipment Connections

### Specifications

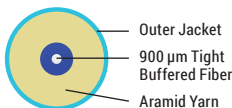
#### Bend Radius (vs. Cable OD)

|              |         |
|--------------|---------|
| Installation | 15 x OD |
| Operation    | 10 x OD |

#### Temperature Range

|                            |                                   |
|----------------------------|-----------------------------------|
| Storage                    | -40°C to 70°C<br>(-40°F to 158°F) |
| Installation (Plenum/LSZH) | 0°C to 60°C<br>(32°F to 140°F)    |
| Installation (Riser)       | -10°C to 60°C<br>(14°F to 140°F)  |
| Operation (Plenum/LSZH)    | 0°C to 70°C<br>(32°F to 158°F)    |
| Operation (Riser)          | -20°C to 70°C<br>(-4°F to 158°F)  |

### Legend



### Compliance

- TIA/EIA-568-C.3
- ISO/IEC 11801, 2nd Edition
- Telcordia GR-409-CORE
- RoHS II 2011/65/EU
- REACH EC1907-2006
- NEC/CEC OFNR/OFN FT.4 (RISER - PVC)
- NEC/CEC OFNR/OFN FT.4 (LSZH - FRPE)
- NEC/CEC OFNP/OFN FT.6 (PLENUM - PVC or PVDF)

| Description | Construction | Fiber Count | Fiber     | Sub-Unit OD | Cable OD  |             | Weight |             | Tensile Strength |    |              |    |
|-------------|--------------|-------------|-----------|-------------|-----------|-------------|--------|-------------|------------------|----|--------------|----|
|             |              |             |           |             | mm        | in.         | Kg/km  | lb/1000 ft. | Operation        |    | Installation |    |
| Simplex     |              | 1           | 900 µm TB | N/A         | 2.0       | 0.08        | 4      | 3           | 66               | 15 | 220          | 50 |
|             |              | 1           |           |             | 2.9       | 0.11        | 7      | 5           |                  |    |              |    |
| Duplex Zip  |              | 2           | 900 µm TB | N/A         | 2.0 x 4.0 | 0.08 x 0.06 | 7      | 5           | 66               | 15 | 220          | 50 |
|             |              | 2           |           |             | 2.9 x 5.8 | 0.11 x 0.22 | 16     | 11          |                  |    |              |    |

### Standard Configurations

| Fiber Count                   | Belden Part Number |          |           |            |
|-------------------------------|--------------------|----------|-----------|------------|
|                               | OM1 Orange         | OM3 Aqua | OM4 Aqua  | OS2 Yellow |
| <b>Simplex 2.0 mm - Riser</b> |                    |          |           |            |
| 1                             | F11001RB           | F13001RB | F14001RBA | FIS001RB   |
| <b>Simplex 2.9 mm - Riser</b> |                    |          |           |            |
| 1                             | B97112             | B9C001   | B9E001    | B9W001     |
| <b>Duplex 2.0 mm - Riser</b>  |                    |          |           |            |
| 2                             | F11002RB           | F13002RB | F14002RBA | FIS002RB   |
| <b>Duplex 2.9 mm - Riser</b>  |                    |          |           |            |
| 2                             | B96915             | B9C002   | B9E002    | B9W002     |

For an exhaustive selection contact Belden customer service or your local Belden Representative for more details.

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## FiberExpress Breakout Cables

Tight Buffer – Indoor Riser, Plenum & LSZH Rated

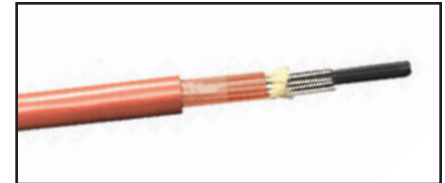
Robust terminations in demanding environments. All the ease of 900  $\mu\text{m}$  tight buffered termination with only one fiber per sub-unit enables the ultimate bond between the connector and the cables' Aramid yarns resulting in unmatched strength and durability.

### Applications:

- Horizontal distribution for Fiber-to-the-desk
- In-building backbone
- Factory floor automation
- Broadcast and A/V in-building installations

### Additional Options

- 2.5 mm and 2.9 mm Subunits
- MSHA (Mining) Approvals



Optical Fiber Breakout Cable

| Description                          | Construction | Fiber Count | Fiber                | Sub-Unit OD | Cable OD |       | Weight |       | Tensile Strength |           |      |              |      |
|--------------------------------------|--------------|-------------|----------------------|-------------|----------|-------|--------|-------|------------------|-----------|------|--------------|------|
|                                      |              |             |                      |             | mm       | mm    | in.    | Kg/km | lb/1000 ft.      | Operation |      | Installation |      |
|                                      |              |             |                      |             | N        | lbs-f | N      | lbs-f |                  |           |      |              |      |
| Color-coded Sub-Units                |              | 2           | 900 $\mu\text{m}$ TB | 2.0         | 6.6      | 0.26  | 36     | 24    | 400              | 90        | 800  | 180          |      |
|                                      |              | 4           | 900 $\mu\text{m}$ TB | 2.0         | 8.2      | 0.32  | 52     | 35    | 755              | 170       | 1535 | 345          |      |
|                                      |              | 6           | 900 $\mu\text{m}$ TB | 2.0         | 9.1      | 0.36  | 80     | 54    | 1025             | 230       | 2070 | 465          |      |
|                                      |              | 8           |                      |             | 10.3     | 0.41  | 103    | 69    | 1335             | 300       | 2670 | 600          |      |
|                                      |              | 10          |                      |             | 11.6     | 0.46  | 128    | 86    |                  |           |      |              |      |
| 12                                   |              | 13.1        |                      |             | 0.51     | 164   | 110    |       |                  |           |      |              |      |
| High-Count Non-Color-coded Sub-Units |              | 18          | 900 $\mu\text{m}$ TB | 2.0         | 15.7     | 0.62  | 305    | 205   |                  |           |      |              | 1335 |

Above specifications provide a general representation for the product family. Improved specifications may exist for Riser, Plenum or LSZH constructions. Consult individual technical data sheets for exact specifications.

## Specifications

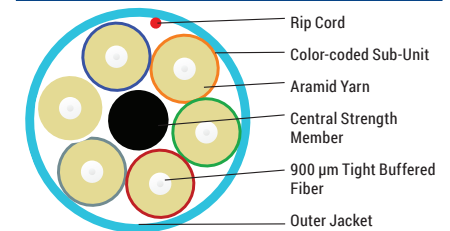
### Bend Radius (vs. Cable OD)

|              |         |
|--------------|---------|
| Installation | 15 x OD |
| Operation    | 10 x OD |

### Temperature Range

|                            |                                   |
|----------------------------|-----------------------------------|
| Storage                    | -40°C to 70°C<br>(-40°F to 158°F) |
| Installation (Plenum/LSZH) | 0°C to 60°C<br>(32°F to 140°F)    |
| Installation (Plenum/LSZH) | 0°C to 60°C<br>32°F to 140°F      |
| Installation (Riser)       | -10°C to 60°C<br>(14°F to 140°F)  |
| Operation (Plenum/LSZH)    | 0°C to 70°C<br>(32°F to 158°F)    |
| Operation (Riser)          | -20°C to 70°C<br>(-4°F to 158°F)  |

## Legend



## Standard Configurations

| Fiber Count       | Belden Part Number |          |          |            |
|-------------------|--------------------|----------|----------|------------|
|                   | OM1 Orange         | OM3 Aqua | OM4 Aqua | OS2 Yellow |
| <b>Plenum</b>     |                    |          |          |            |
| 2                 | B9B013             | B9C013   | B9E013   | B9W013     |
| 4                 | B9B014             | B9C014   | B9E014   | B9W014     |
| 6                 | B9B015             | B9C015   | B9E015   | B9W015     |
| 12                | B9B018             | B9C018   | B9E018   | B9W018     |
| <b>LSZH/Riser</b> |                    |          |          |            |
| 2                 | B9B130             | B9C130   | B9E130   | B9W130     |
| 4                 | B9B131             | B9C131   | B9E131   | B9W131     |
| 6                 | B9B132             | B9C132   | B9E132   | B9W132     |
| 12                | B9B135             | B9C135   | B9E135   | B9W135     |

For an exhaustive selection contact Belden customer service or your local Belden Representative for more details.

## Compliance

- TIA/EIA-568-C.3
- ISO/IEC 11801, 2nd Edition
- Telcordia GR-409-CORE
- RoHS II 2011/65/EU
- REACH EC1907-2006
- NEC/CEC OFNR/OFN FT.4 (RISER - PVC)
- NEC/CEC OFNR/OFN FT.4 (LSZH - FRPE)
- NEC/CEC OFNP/OFN FT.6 (PLENUM - PVC or PVDF)



## FiberExpress Distribution Cables

Tight Buffer – Indoor Riser & Plenum Rated

Fast installation, easy termination. Sub-unitized cables provide easy routing and 900 µm tight-buffered fiber supporter fast and robust field-termination.

### Applications:

- Horizontal distribution for Fiber-to-the-desk
- In-building backbone
- Factory floor automation
- Data Center EDA areas

### Additional Options

- MSHA (Mining) Approvals

### Indoor Specifications

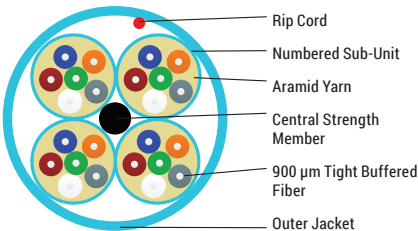
#### Bend Radius (vs. Cable OD)

|              |         |
|--------------|---------|
| Installation | 15 x OD |
| Operation    | 10 x OD |

#### Temperature Range

|                            |                                   |
|----------------------------|-----------------------------------|
| Storage                    | -40°C to 70°C<br>(-40°F to 158°F) |
| Installation (Plenum/LSZH) | 0°C to 60°C<br>(32°F to 140°F)    |
| Installation (Riser)       | -10°C to 60°C<br>(14°F to 140°F)  |
| Operation (Plenum/LSZH)    | 0°C to 70°C<br>(32°F to 158°F)    |
| Operation (Riser)          | -20°C to 70°C<br>(-4°F to 158°F)  |

### Legend



### Compliance

- TIA/EIA-568-C.3
- ISO/IEC 11801, 2nd Edition
- Telcordia GR-409-CORE
- RoHS II 2011/65/EU
- REACH EC1907-2006
- NEC/CEC OFNR/OFN FT.4 (RISER - PVC)
- NEC/CEC OFNR/OFN FT.4 (LSZH - FRPE)
- NEC/CEC OFNP/OFN FT.6 (PLENUM - PVC or PVDF)

| Description                 | Construction | Fiber Count | Fiber     | Sub-Unit OD | Cable OD |      | Weight |             | Tensile Strength |       |              |       |
|-----------------------------|--------------|-------------|-----------|-------------|----------|------|--------|-------------|------------------|-------|--------------|-------|
|                             |              |             |           |             | mm       | in.  | Kg/km  | lb/1000 ft. | Operation        |       | Installation |       |
|                             |              |             |           |             |          |      |        |             | N                | lbs-f | N            | lbs-f |
| Non-Unitized                |              | 2           | 900 µm TB | N/A         | 4.8      | 0.19 | 22     | 15          | 222              | 50    | 556          | 125   |
|                             |              | 4           | 900 µm TB | N/A         | 4.8      | 0.19 | 25     | 17          | 222              | 50    | 556          | 125   |
|                             | 6            | 31          |           |             |          |      | 21     |             |                  |       |              |       |
|                             | 8            | 36          |           |             |          |      | 24     |             |                  |       |              |       |
|                             | 10           | 39          |           |             |          |      | 26     |             |                  |       |              |       |
|                             | 12           | 43          |           |             |          |      | 29     |             |                  |       |              |       |
| 16                          | 64           | 43          | 556       | 125         | 1112     | 250  |        |             |                  |       |              |       |
| 24                          | 80           | 54          |           |             |          |      |        |             |                  |       |              |       |
| Unitized 6-Fiber Sub-Units  |              | 24          | 900 µm TB | 4.5         | 13.1     | 0.52 | 145    | 97          | 1001             | 225   | 2002         | 450   |
|                             |              | 36          | 16.0      |             | 0.63     | 221  | 148    | 1668        | 375              | 3336  | 750          |       |
| Unitized 12-Fiber Sub-Units |              | 36          | 900 µm TB | 5.5         | 14.1     | 0.56 | 162    | 109         | 1001             | 225   | 2002         | 450   |
|                             |              | 48          |           |             | 15.5     | 0.61 | 207    | 139         | 1423             | 320   | 2847         | 640   |
|                             |              | 72          |           |             | 19.0     | 0.75 | 321    | 216         | 2002             | 450   | 4226         | 950   |
|                             |              | 96          |           |             | 22.8     | 0.90 | 536    | 360         | 2780             | 625   | 5560         | 1250  |
|                             |              | 144         |           |             | 25.4     | 1.00 | 602    | 404         | 4226             | 950   | 8452         | 1900  |

Above specifications provide a general representation for the product family. Improved specifications may exist for Riser, Plenum or LSZH constructions. Consult individual technical data sheets for exact specifications.

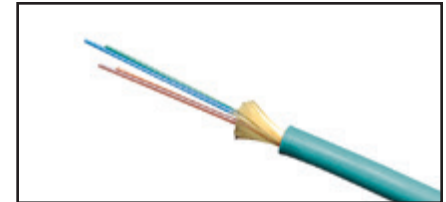
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**FiberExpress Distribution Cables** (continued)  
Tight Buffer – Indoor Riser & Plenum Rated

**Standard Indoor Configurations**

| Fiber Count                                 | Belden Part Number |          |          |            |
|---|--------------------|----------|----------|------------|
|   | OM1 Orange         | OM3 Aqua | OM4 Aqua | OS2 Yellow |
| <b>Non-unitized - Riser</b>                 |                    |          |          |            |
| 2   | B9B037             | B9C037   | B9E037   | B9W037     |
| 6   | B9B039             | B9C039   | B9E039   | B9W039     |
| 12  | B9B042             | B9C042   | B9E042   | B9W042     |
| 24  | B9B601             | B9C601   | B9E601   | B9W601     |
| <b>Non-unitized - Plenum</b>                |                    |          |          |            |
| 2   | B9B043             | B9C043   | B9E043   | B9W043     |
| 6   | B9B045             | B9C045   | B9E045   | B9W045     |
| 12  | B9B048             | B9C048   | B9E048   | B9W048     |
| 24  | B9B611             | B9C611   | B9E611   | B9W611     |
| <b>Unitized 6-Fiber Sub-Units - Riser</b>   |                    |          |          |            |
| 24  | B9B602             | B9C602   | B9E602   | B9W602     |
| <b>Unitized 6-Fiber Sub-Units - Plenum</b>  |                    |          |          |            |
| 24  | B9B612             | B9C612   | B9E612   | B9W612     |
| <b>Unitized 12-Fiber Sub-Units - Plenum</b> |                    |          |          |            |
| 48  | -                  | B9C616   | B9E616   | B9W616     |
| 72  | -                  | B9C620   | B9E620   | B9W620     |
| 96  | -                  | B9C623   | B9E623   | B9W623     |
| 144   | -                  | B9C621   | B9E621   | B9W621     |



Optical Fiber Distribution Cable

For an exhaustive selection contact Belden customer service or your local Belden Representative for more details.

## FiberExpress Distribution Cables (continued) Tight Buffer – Indoor/Outdoor Riser, Plenum & LSZH Rated

### Indoor/Outdoor Specifications

- Environmental Protection
  - UV Resistant Jacket
  - Moisture Resistant Jacket
  - Fungus Resistant Jacket
  - Water Blocking Aramid
  - Water Blocking Tape

### Additional Options

- MSHA (Mining) Approvals

### Indoor/Outdoor Specifications

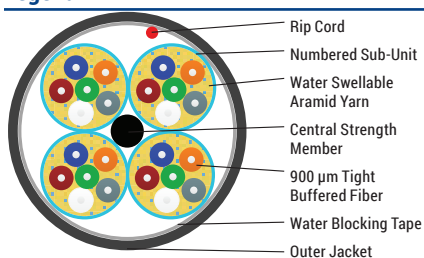
#### Bend Radius (vs. Cable OD)

|              |         |
|--------------|---------|
| Installation | 20 x OD |
| Operation    | 10 x OD |

#### Temperature Range

|              |                                 |
|--------------|---------------------------------|
| Storage      | -40°C to 70°C<br>(-40 to 158°F) |
| Installation | -20 to 70°C<br>(-4 to 158°F)    |
| Operation    | -40 to 70°C<br>(-40 to 158°F)   |

### Legend



### Compliance

- TIA/EIA-568-C.3
- ISO/IEC 11801, 2nd Edition
- Telcordia GR-20-CORE
- RoHS II 2011/65/EU
- REACH EC1907-2006
- NEC/CEC OFNR/OFN FT.4 (RISER - PVC)
- NEC/CEC OFNR/OFN FT.4 (LSZH - FRPE)
- NEC/CEC OFNP/OFN FT.6 (PLENUM - PVC or PVDF)

| Description                 | Construction | Fiber Count | Fiber     | Sub-Unit OD | Cable OD |      | Weight |             | Tensile Strength |       |              |       |
|-----------------------------|--------------|-------------|-----------|-------------|----------|------|--------|-------------|------------------|-------|--------------|-------|
|                             |              |             |           |             | mm       | in.  | Kg/km  | lb/1000 ft. | Operation        |       | Installation |       |
|                             |              |             |           |             |          |      |        |             | N                | lbs-f | N            | lbs-f |
| Non-Unitized                |              | 2           | 900 μm TB | N/A         | 4.8      | 0.19 | 22     | 15          | 222              | 50    | 556          | 125   |
|                             |              | 4           | 900 μm TB | N/A         | 4.8      | 0.19 | 25     | 17          | 222              | 50    | 556          | 125   |
|                             |              | 6           |           |             |          |      | 31     | 21          |                  |       |              |       |
|                             |              | 8           |           |             | 36       | 24   |        |             |                  |       |              |       |
|                             |              | 10          |           |             | 39       | 26   |        |             |                  |       |              |       |
|                             |              | 12          |           |             | 43       | 29   |        |             |                  |       |              |       |
| 16                          | 64           | 43          |           |             |          |      |        |             |                  |       |              |       |
| 24                          | 80           | 54          | 556       | 125         | 1112     | 250  |        |             |                  |       |              |       |
| Unitized 6-Fiber Sub-Units  |              | 24          | 900 μm TB | 4.5         | 13.1     | 0.52 | 145    | 97          | 1001             | 225   | 2002         | 450   |
|                             |              | 36          |           |             | 16.0     | 0.63 | 221    | 148         | 1668             | 375   | 3336         | 750   |
| Unitized 12-Fiber Sub-Units |              | 36          | 900 μm TB | 5.5         | 14.1     | 0.56 | 162    | 109         | 1001             | 225   | 2002         | 450   |
|                             |              | 48          |           |             | 15.5     | 0.61 | 207    | 139         | 1423             | 320   | 2847         | 640   |
|                             |              | 72          |           |             | 19.0     | 0.75 | 321    | 216         | 2002             | 450   | 4226         | 950   |
|                             |              | 96          |           |             | 22.8     | 0.90 | 536    | 360         | 2780             | 625   | 5560         | 1250  |
|                             |              | 144         |           |             | 25.4     | 1.00 | 602    | 404         | 4226             | 950   | 8452         | 1900  |

Above specifications provide a general representation for the product family. Improved specifications may exist for Riser, Plenum or LSZH constructions. Consult individual technical data sheets for exact specifications.

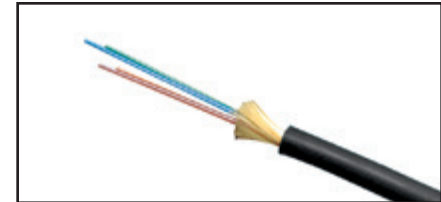
Faster.  
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**FiberExpress Distribution Cables** (continued)  
Tight Buffer – Indoor/Outdoor Riser, Plenum & LSZH Rated

**Standard Indoor/Outdoor Configurations**

| Fiber Count   | Belden Part Number |           |           |           |
|---|--------------------|-----------|-----------|-----------|
|   | OM1 Black          | OM3 Black | OM4 Black | OS2 Black |
| <b>Non-unitized - Riser/LSZH</b>                      |                    |           |           |           |
| 2   | B9B100             | B9C100    | B9E100    | B9W100    |
| 6   | B9B102             | B9C102    | B9E102    | B9W102    |
| 12  | B9B104             | B9C104    | B9E104    | B9W104    |
| 24  | B9B107             | B9C107    | B9E107    | B9W107    |
| <b>Non-unitized - Riser</b>                           |                    |           |           |           |
| 2   | B9B037T            | B9C037T   | B9E037T   | B9W037T   |
| 6   | B9B039T            | B9C039T   | B9E039T   | B9W039T   |
| 12  | B9B042T            | B9C042T   | B9E042T   | B9W042T   |
| 24  | B9B601T            | B9C601T   | B9E601T   | B9W601T   |
| <b>Non-unitized - Plenum</b>                          |                    |           |           |           |
| 2   | B9B043T            | B9C043T   | B9E043T   | B9W043T   |
| 6   | B9B045T            | B9C045T   | B9E045T   | B9W045T   |
| 12  | B9B048T            | B9C048T   | B9E048T   | B9W048T   |
| 24  | B9B611T            | B9C611T   | B9E611T   | B9W611T   |
| <b>Unitized 6-Fiber Sub-Units - Riser/LSZH, Riser</b> |                    |           |           |           |
| 24  | B9B602T            | B9C602T   | B9E602T   | B9W602T   |
| <b>Unitized 6-Fiber Sub-Units - Plenum</b>            |                    |           |           |           |
| 24  | B9B612T            | B9C612T   | B9E612T   | B9W612T   |
| <b>Unitized 12-Fiber Sub-Units - Riser/LSZH</b>       |                    |           |           |           |
| 48  | B9B112             | B9C112    | B9E112    | B9W112    |
| 72  | B9B114             | B9C114    | B9E114    | B9W114    |
| 96  | B9B116             | B9C116    | B9E116    | B9W116    |
| 144   | B9B120             | B9C120    | B9E120    | B9W120    |
| <b>Unitized 12-Fiber Sub-Units - Plenum</b>           |                    |           |           |           |
| 48  | B9B616T            | B9C616T   | B9E616T   | B9W616T   |
| 72  | B9B620T            | B9C620T   | B9E620T   | B9W620T   |
| 96  | B9B623T            | B9C623T   | B9E623T   | B9W623T   |
| 144   | B9B621T            | B9C621T   | B9E621T   | B9W621T   |



Optical Fiber Distribution Cable, Indoor/Outdoor

For an exhaustive selection contact Belden customer service or your local Belden Representative for more details.

## FiberExpress Armored Distribution Cables

### Tight Buffer – Indoor, Riser and Plenum Rated

Heightened Protection with simple termination. Augmenting the easy termination of Distribution cable with interlocking armor to provide an elevated resistance to cutting, crushing and the gnawing of rodents all while eliminating the additional expense of innerduct.

#### Applications:

- Campus/Inter Building
- Telecom Trunks
- Industrial
- Rugged Environments

#### Indoor Specifications

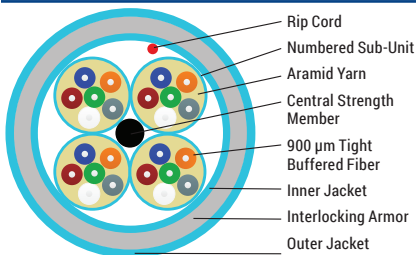
##### Bend Radius (vs. Cable OD)

|              |         |
|--------------|---------|
| Installation | 20 x OD |
| Operation    | 15 x OD |

##### Temperature Range

|                            |                                   |
|----------------------------|-----------------------------------|
| Storage                    | -40°C to 70°C<br>(-40°F to 158°F) |
| Installation (Plenum/LSZH) | 0°C to 60°C<br>(32°F to 140°F)    |
| Installation (Riser)       | -10°C to 60°C<br>(14°F to 140°F)  |
| Operation (Plenum/LSZH)    | 0°C to 70°C<br>(32°F to 158°F)    |
| Operation (Riser)          | -20°C to 70°C<br>(-4°F to 158°F)  |

#### Legend



| Description                 | Construction | Fiber Count | Fiber     | Sub-Unit OD | Cable OD |      | Weight |             | Tensile Strength |       |              |       |
|-----------------------------|--------------|-------------|-----------|-------------|----------|------|--------|-------------|------------------|-------|--------------|-------|
|                             |              |             |           |             | mm       | in.  | Kg/km  | lb/1000 ft. | Operation        |       | Installation |       |
|                             |              |             |           |             |          |      |        |             | N                | lbs-f | N            | lbs-f |
| Non-Unitized                |              | 6           | 900 µm TB | N/A         | 14.5     | 0.57 | 189    | 127         | 360              | 81    | 1201         | 270   |
|                             |              | 12          |           |             | 15.7     | 0.62 | 150    | 223         | 400              | 90    | 1334         | 300   |
|                             |              | 24          |           |             | 17.0     | 0.67 | 335    | 225         |                  |       |              |       |
| Unitized 6-Fiber Sub-Units  |              | 24          | 900 µm TB | 4.5         | 21.5     | 0.85 | 391    | 263         | 890              | 200   | 2700         | 600   |
|                             |              | 36          |           |             | 25.3     | 1.00 | 548    | 368         |                  |       |              |       |
| Unitized 12-Fiber Sub-Units |              | 48          | 900 µm TB | 5.5         | 24.6     | 0.97 | 540    | 363         | 890              | 200   | 2700         | 600   |
|                             |              | 72          |           |             | 27.8     | 1.09 | 716    | 481         |                  |       |              |       |
|                             |              | 96          |           |             | 32.5     | 1.28 | 930    | 625         |                  |       |              |       |
|                             |              | 144         |           |             | 35.6     | 1.40 | 1005   | 675         |                  |       |              |       |

Above specifications provide a general representation for the product family. Improved specifications may exist for Riser, Plenum or LSZH constructions. Consult individual technical data sheets for exact specifications.

#### Compliance

- TIA/EIA-568-C.3
- ISO/IEC 11801, 2nd Edition
- Telcordia GR-409-CORE
- RoHS II 2011/65/EU
- REACH EC1907-2006
- NEC/CEC OFNR/OFN FT.4 (RISER - PVC)
- NEC/CEC OFNR/OFN FT.4 (LSZH - FRPE)
- NEC/CEC OFNP/OFN FT.6 (PLENUM - PVC or PVDF)



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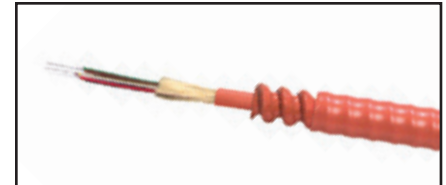


**FiberExpress Armored Distribution Cables** (continued)  
Tight Buffer – Indoor Riser & Plenum Rated

**Standard Indoor Configurations**

| Fiber Count                                 | Belden Part Number |          |          |            |
|---|--------------------|----------|----------|------------|
|   | OM1 Orange         | OM3 Aqua | OM4 Aqua | OS2 Yellow |
| <b>Non-unitized - Riser</b>                 |                    |          |          |            |
| 6   | B9B230             | B9C230   | B9E230   | B9W230     |
| 12  | B9B231             | B9C231   | B9E231   | B9W231     |
| 24  | B9B233             | B9C233   | B9E233   | B9W233     |
| <b>Non-unitized - Plenum</b>                |                    |          |          |            |
| 6   | B9B240             | B9C240   | B9E240   | B9W240     |
| 12  | B9B241             | B9C241   | B9E241   | B9W241     |
| 24  | B9B242             | B9C242   | B9E242   | B9W242     |
| <b>Unitized 6-Fiber Sub-Units - Plenum</b>  |                    |          |          |            |
| 24  | B9B243             | B9C243   | B9E243   | B9W243     |
| <b>Unitized 12-Fiber Sub-Units - Plenum</b> |                    |          |          |            |
| 48  | B9B245             | B9C245   | B9E245   | B9W245     |
| 72  | B9B246             | B9C246   | B9E246   | B9W246     |
| 96  | B9B247             | B9C247   | B9E247   | B9W247     |
| 144   | B9B248             | B9C248   | B9E248   | B9W248     |

For an exhaustive selection contact Belden customer service or your local Belden Representative for more details.



Armored Optical Fiber Distribution Cable

## FiberExpress Armored Distribution Cables

Tight Buffer – Indoor/Outdoor, Riser and Plenum Rated

### Indoor/Outdoor Specifications

- Environmental Protection
  - UV Resistant Jacket
  - Moisture Resistant Jacket
  - Fungus Resistant Jacket
  - Water Blocking Aramid
  - Water Blocking Tape

### Additional Options

- MSHA (Mining) Approvals

### Indoor/Outdoor Specifications

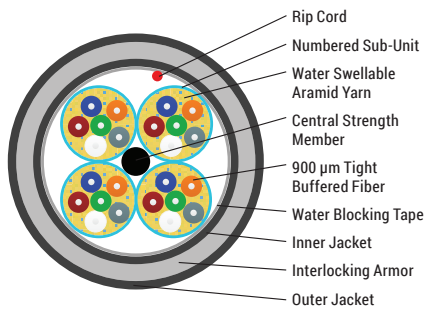
#### Bend Radius (vs. Cable OD)

|              |         |
|--------------|---------|
| Installation | 20 x OD |
| Operation    | 15 x OD |

#### Temperature Range

|              |                                   |
|--------------|-----------------------------------|
| Storage      | -40°C to 70°C<br>(-40°F to 158°F) |
| Installation | -20°C to 70°C<br>(-4°F to 158°F)  |
| Operation    | -40°C to 70°C<br>(-40°F to 158°F) |

### Legend



| Description                 | Construction | Fiber Count | Fiber     | Sub-Unit OD | Cable OD |      | Weight |             | Tensile Strength |       |              |       |
|-----------------------------|--------------|-------------|-----------|-------------|----------|------|--------|-------------|------------------|-------|--------------|-------|
|                             |              |             |           |             | mm       | in.  | Kg/km  | lb/1000 ft. | Operation        |       | Installation |       |
|                             |              |             |           |             |          |      |        |             | N                | lbs-f | N            | lbs-f |
| Non-Unitized                |              | 6           | 900 µm TB | N/A         | 14.5     | 0.57 | 189    | 127         | 360              | 81    | 1201         | 270   |
|                             |              | 12          |           |             | 15.7     | 0.62 | 150    | 223         | 400              | 90    | 1334         | 300   |
|                             |              | 24          |           |             | 17.0     | 0.67 | 335    | 225         |                  |       |              |       |
| Unitized 6-Fiber Sub-Units  |              | 24          | 900 µm TB | 4.5         | 21.5     | 0.85 | 391    | 263         | 890              | 200   | 2700         | 600   |
|                             |              | 36          |           |             | 25.3     | 1.00 | 548    | 368         |                  |       |              |       |
| Unitized 12-Fiber Sub-Units |              | 48          | 900 µm TB | 5.5         | 24.6     | 0.97 | 540    | 363         | 890              | 200   | 2700         | 600   |
|                             |              | 72          |           |             | 27.8     | 1.09 | 716    | 481         |                  |       |              |       |
|                             |              | 96          |           |             | 32.5     | 1.28 | 930    | 625         |                  |       |              |       |
|                             |              | 144         |           |             | 35.6     | 1.40 | 1005   | 675         |                  |       |              |       |

Above specifications provide a general representation for the product family. Improved specifications may exist for Riser, Plenum or LSZH constructions. Consult individual technical data sheets for exact specifications.

### Compliance

- TIA/EIA-568-C.3
- ISO/IEC 11801, 2nd Edition
- Telcordia GR-20-CORE
- RoHS II 2011/65/EU
- REACH EC1907-2006
- NEC/CEC OFNR/OFN FT.4 (RISER - PVC)
- NEC/CEC OFNR/OFN FT.4 (LSZH - FRPE)
- NEC/CEC OFNP/OFN FT.6 (PLENUM - PVC or PVDF)

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**FiberExpress Armored Distribution Cables** (continued)  
Tight Buffer – Indoor/Outdoor Riser & Plenum Rated

**Standard Indoor/Outdoor Configurations**

| Fiber Count                                 | Belden Part Number |           |           |           |
|---|--------------------|-----------|-----------|-----------|
|   | OM1 Black          | OM3 Black | OM4 Black | OS2 Black |
| <b>Non-unitized - Riser</b>                 |                    |           |           |           |
| 6   | B9B230T            | B9C230T   | B9E230T   | B9W230T   |
| 12  | B9B231T            | B9C231T   | B9E231T   | B9W231T   |
| 24  | B9B233T            | B9C233T   | B9E233T   | B9W233T   |
| <b>Non-unitized - Plenum</b>                |                    |           |           |           |
| 6   | B9B240T            | B9C240T   | B9E240T   | B9W240T   |
| 12  | B9B241T            | B9C241T   | B9E241T   | B9W241T   |
| 24  | B9B242T            | B9C242T   | B9E242T   | B9W242T   |
| <b>Unitized 6-Fiber Sub-Units - Plenum</b>  |                    |           |           |           |
| 24  | B9B243T            | B9C243T   | B9E243T   | B9W243T   |
| <b>Unitized 12-Fiber Sub-Units - Plenum</b> |                    |           |           |           |
| 48  | B9B245T            | B9C245T   | B9E245T   | B9W245T   |
| 72  | B9B246T            | B9C246T   | B9E246T   | B9W246T   |
| 96  | B9B247T            | B9C247T   | B9E247T   | B9W247T   |
| 144   | B9B248T            | B9C248T   | B9E248T   | B9W248T   |

For an exhaustive selection contact Belden customer service or your local Belden Representative for more details.

## FiberExpress Brilliance Tactical Cables

### Tight Buffer - Outdoor



Unprecedented flexibility coupled with high crush resistance. Military inspired Tactical cables provide the utmost durability for repeated deployment and retrieval in severe environments.

#### Applications

- ENG Vehicles
- Outdoor news, sporting and other events
- Digital Camera Interconnect
- Re-deployable communications
- Industrial and Automation

#### Brilliance Maxi-Bend Specifications

- Environmental Protection
  - UV Resistant Jacket

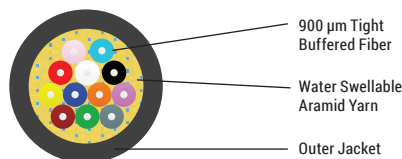
#### Specifications

|                                   |         |
|-----------------------------------|---------|
| Cycle Flexing (cycles/min)        | 2000    |
| Crush Resistance (N/cm)           | 400     |
| Impact Resistance (@ 2.2N-m)      | 200     |
| <b>Bend Radius (vs. Cable OD)</b> |         |
| Installation                      | 15 x OD |
| Operation                         | 8 x OD  |

#### Temperature Range

|                        |                                    |
|------------------------|------------------------------------|
| Storage                | -70°C to +85°C<br>(-94°F to 185°F) |
| Operation/Installation | -55°C to 85°C<br>(-67°F to 185°F)  |

#### Legend



#### Compliance

- TIA/EIA-455-41 (Crush)
- TIA/EIA-455-25 (Impact)
- TIA/EIA-455-104 (Cyclic Flexing)
- RoHS II 2011/65/EU
- REACH EC1907-2006

| Description  | Construction | Fiber Count | Fiber     | Sub-Unit OD | Cable OD |        | Weight |             | Tensile Strength |     |              |     |
|--------------|--------------|-------------|-----------|-------------|----------|--------|--------|-------------|------------------|-----|--------------|-----|
|              |              |             |           |             | mm       | mm in. | Kg/km  | lb/1000 ft. | Operation        |     | Installation |     |
| Non-Unitized |              | 2           | 900 µm TB | N/A         | 6.1      | 0.24   | 33     | 22          | 667              | 150 | 1468         | 330 |
|              |              | 4           |           |             | 7.1      | 0.28   | 37     | 25          |                  |     |              |     |
|              |              | 6           |           |             |          |        |        |             |                  |     |              |     |
|              |              | 8           |           |             |          |        |        |             |                  |     |              |     |
|              |              | 12          |           |             |          |        |        |             |                  |     |              |     |

#### Standard Brilliance Maxi-Bend Configurations

| Fiber Count | Belden Part Number |           |
|-------------|--------------------|-----------|
|             | OM1 Black          | OS2 Black |
| 2           | B96571             | B96566    |
| 4           | B96551             | B96639    |
| 6           | B96572             | B96567    |
| 12          | B96575             | B96570    |

For an exhaustive selection contact Belden customer service or your local Belden Representative for more details.

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## Single Jacket, All Dielectric Loose Tube Cables

Loose Tube – Outdoor, and Indoor/Outdoor Riser & LSZH Rated

Gel-filled buffer tube prevents water migration. All-dielectric strength member. Available as Riser rated cable, thereby eliminating the need for service entrance splicing to in-building cable. Full dielectric construction, no grounding required. Available with up to 216 fibers. Length markings in meters for easy determination of cable length.

### Applications

- Medium to high fiber count requirements
- Inter-building duct installations
- Lashed aerial
- Indoor/outdoor
- Industrial outside plant (OSP Type)

### Jacket Specifications

#### Jacket Material

Outdoor PE  
Riser PVC

Buffer Tube PBT

Strength Member Aramid Yarn

Central Strength Member E-Glass

Color Code (Buffer) Per TIA/EIA 598-B,  
See page 39

Jacket Color Black

### Ratings

#### Riser

UL Type OFNR  
cUL Type OFN FT.4  
Flame Resistance UL 1666

### Specifications

#### Temperature Range (Outdoor Series)

Storage -40°C to 75°C  
Operating -40°C to 70°C

#### Temperature Range (Riser Series)

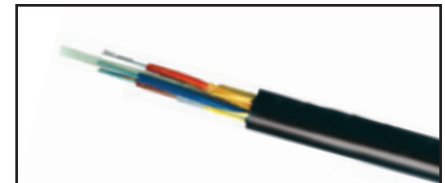
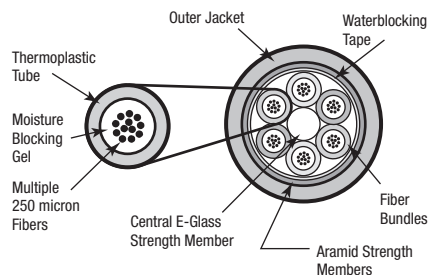
Storage -40°C to 75°C  
Operating -40°C to 70°C

#### Min. Bend Radius

Installation 20 x OD  
Long Term 15 x OD

Optical Specifications See page 33

### Legend



Single Jacket, All Dielectric Optical Fiber Cable

### Compliance

- TIA/EIA-568-C.3
- ICEA S-87-640

### Functional Requirements

- GR-20-CORE
- GR-409-CORE

## Single Jacket, All Dielectric Loose Tube Cables (continued) Loose Tube – Outdoor, and Indoor/Outdoor Riser Rated



### Loose Tube Series

| No. of Fibers                                       | No. of Fibers Per Bundle | Belden Part Number                  |                                   |                                     |                                     |                               | Outside Diameter |      | Weight     |       | Max. Install Load |      |
|---|--------------------------|-------------------------------------|-----------------------------------|-------------------------------------|-------------------------------------|-------------------------------|------------------|------|------------|-------|-------------------|------|
|   |                          | OM1<br>62.5 / 125 μm<br>Std. / 1 Gb | OM2<br>50 / 125 μm<br>Std. / 1 Gb | OM3<br>50 / 125 μm<br>10 Gb – 300 m | OM4<br>50 / 125 μm<br>10 Gb – 550 m | OS2<br>Singlemode<br>Enhanced | Inch             | mm   | lb/1000 ft | kg/km | lb                | N    |
| <b>Outdoor</b>                                      |                          |                                     |                                   |                                     |                                     |                               |                  |      |            |       |                   |      |
| 6   | 6                        | B9B510T                             | B9A510T                           | B9C510T                             | B9E510T                             | B9W510T                       | 0.41             | 10.5 | 56         | 84    | 600               | 2700 |
| 12  | 12                       | B9B511T                             | B9A511T                           | B9C511T                             | B9E511T                             | B9W511T                       | 0.41             | 10.5 | 56         | 84    | 600               | 2700 |
| 24  | 12                       | B9B500T                             | B9A500T                           | B9C500T                             | B9E500T                             | B9W500T                       | 0.41             | 10.5 | 57         | 85    | 600               | 2700 |
| 36  | 12                       | B9B502T                             | B9A502T                           | B9C502T                             | B9E502T                             | B9W502T                       | 0.41             | 10.5 | 58         | 86    | 600               | 2700 |
| 48  | 12                       | B9B505T                             | B9A505T                           | B9C505T                             | B9E505T                             | B9W505T                       | 0.41             | 10.5 | 59         | 87    | 600               | 2700 |
| 72  | 12                       | B9B507T                             | B9A507T                           | B9C507T                             | B9E507T                             | B9W507T                       | 0.45             | 11.5 | 71         | 106   | 600               | 2700 |
| 96  | 12                       | B9B513T                             | B9A513T                           | B9C513T                             | B9E513T                             | B9W513T                       | 0.52             | 13.2 | 91         | 136   | 600               | 2700 |
| 144   | 12                       | B9B509T                             | B9A509T                           | B9C509T                             | B9E509T                             | B9W509T                       | 0.67             | 17.0 | 148        | 220   | 600               | 2700 |
| 216   | 12                       | B9B520T                             | B9A520T                           | B9C520T                             | B9E520T                             | B9W520T                       | 0.69             | 17.4 | 150        | 224   | 600               | 2700 |
| <b>Riser (NEC/CEC OFNR/OFN FT.4) Indoor/Outdoor</b> |                          |                                     |                                   |                                     |                                     |                               |                  |      |            |       |                   |      |
| 6   | 6                        | B9B810                              | B9A810                            | B9C810                              | B9E810                              | B9W810                        | 0.51             | 12.9 | 107        | 157   | 600               | 2700 |
| 12  | 12                       | B9B811                              | B9A811                            | B9C811                              | B9E811                              | B9W811                        | 0.51             | 12.9 | 108        | 160   | 600               | 2700 |
| 24  | 12                       | B9B812                              | B9A812                            | B9C812                              | B9E812                              | B9W812                        | 0.51             | 12.9 | 108        | 161   | 600               | 2700 |
| 36  | 12                       | B9B813                              | B9A813                            | B9C813                              | B9E813                              | B9W813                        | 0.51             | 12.9 | 109        | 162   | 600               | 2700 |
| 48  | 12                       | B9B814                              | B9A814                            | B9C814                              | B9E814                              | B9W814                        | 0.51             | 12.9 | 110        | 164   | 600               | 2700 |
| 72  | 12                       | B9B815                              | B9A815                            | B9C815                              | B9E815                              | B9W815                        | 0.54             | 13.7 | 128        | 190   | 600               | 2700 |
| 96  | 12                       | B9B816                              | B9A816                            | B9C816                              | B9E816                              | B9W816                        | 0.61             | 15.5 | 159        | 237   | 600               | 2700 |
| 144   | 12                       | B9B817                              | B9A817                            | B9C817                              | B9E817                              | B9W817                        | 0.76             | 19.3 | 243        | 361   | 600               | 2700 |

Alternative fiber counts are available.



### Loose Tube Indoor/Outdoor Fiber Optic Cable

| No. of Fibers                                      | No. of Fibers Per Bundle | Belden Part Number                  |                                   |                                     |                                     |                               | Outside Diameter |       | Weight     |       | Max. Install Load |      |
|--|--------------------------|-------------------------------------|-----------------------------------|-------------------------------------|-------------------------------------|-------------------------------|------------------|-------|------------|-------|-------------------|------|
|  |                          | OM1<br>62.5 / 125 μm<br>Std. / 1 Gb | OM2<br>50 / 125 μm<br>Std. / 1 Gb | OM3<br>50 / 125 μm<br>10 Gb – 300 m | OM4<br>50 / 125 μm<br>10 Gb – 550 m | OS2<br>Singlemode<br>Enhanced | Inch             | mm    | lb/1000 ft | kg/km | lb                | N    |
| <b>LSZH (NEC/CEC OFNR/OFN FT.4) Indoor/Outdoor</b> |                          |                                     |                                   |                                     |                                     |                               |                  |       |            |       |                   |      |
| 6  | 6                        | B9B830                              | B9A830                            | B9C830                              | B9E830                              | B9W830                        | 0.38             | 9.65  | 71         | 105   | 600               | 2700 |
| 12   | 12                       | B9B831                              | B9A831                            | B9C831                              | B9E831                              | B9W831                        | 0.38             | 9.65  | 71         | 105   | 600               | 2700 |
| 24   | 12                       | B9B832                              | B9A832                            | B9C832                              | B9E832                              | B9W832                        | 0.38             | 9.65  | 71         | 105   | 600               | 2700 |
| 36   | 12                       | B9B833                              | B9A833                            | B9C833                              | B9E833                              | B9W833                        | 0.38             | 9.65  | 62         | 92    | 600               | 2700 |
| 48   | 12                       | B9B834                              | B9A834                            | B9C834                              | B9E834                              | B9W834                        | 0.48             | 12.18 | 101        | 151   | 600               | 2700 |



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## Single Jacket, All Dielectric Loose Tube Cables (continued)

### Loose Tube – (Gel-free) Indoor/Outdoor Plenum Rated

Dry waterblocking technology used within tubes and under jacket. Available as Plenum rated cable, thereby eliminating the need for service entrance splicing to in-building cable. Small diameter and bend radius facilitate installation in tight spaces. Full dielectric construction, no grounding required. Available with up to 144 fibers. Fibers grouped into sets of 12 for maximum density. Length markings in meters for easy determination of cable length.

#### Applications

- Medium to high fiber count requirements
- Inter-building duct installations
- Lashed aerial
- Indoor/outdoor
- Campus backbones
- Data Centers
- High Density Cable Trays

#### Jacket Specifications

##### Jacket Material

Non-unitized  
Unitized

Thermoplastic  
PVDF-Copolymer

##### Buffer Tube

Thermoplastic

##### Strength Member

E-Glass and  
Aramid Yarn

##### Central Strength Member

Upjacketed

##### Color Code (Fiber)

Per TIA/EIA 598-B,  
See page 39

##### Jacket Color

Black

#### Ratings

##### Plenum

|                  |          |
|------------------|----------|
| UL Type          | OFNP     |
| cUL Type         | OFN FT.6 |
| Flame Resistance | NFPA 262 |

#### Specifications

##### Temperature Range

|              |               |
|--------------|---------------|
| Storage      | -40°C to 80°C |
| Operating    | -40°C to 70°C |
| Installation | 0°C to 60°C   |

##### Cyclic Flexing

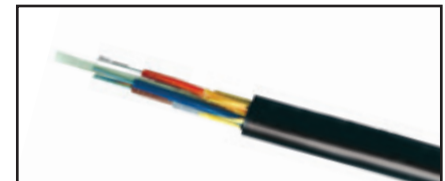
(EIA-455-104) 2000 cycles, min.

##### Min. Bend Radius

|              |         |
|--------------|---------|
| Installation | 20 x OD |
| Long Term    | 15 x OD |

##### Optical Specifications

See page 33



Single Jacket, All Dielectric Optical Fiber Cable

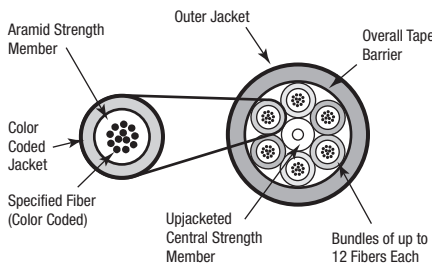
#### Compliance

- TIA/EIA-568-C.3
- ICEA S-104-696

#### Functional Requirements

- GR-20-CORE
- GR-409-CORE

#### Legend



#### Loose Tube Series

| No. of Fibers  | No. of Fibers Per Bundle | Belden Part Number                  |                                   |                                     |                                     |                               | Outside Diameter |       | Weight     |       | Max. Install Load |      |
|--|--------------------------|-------------------------------------|-----------------------------------|-------------------------------------|-------------------------------------|-------------------------------|------------------|-------|------------|-------|-------------------|------|
|  |                          | OM1<br>62.5 / 125 μm<br>Std. / 1 Gb | OM2<br>50 / 125 μm<br>Std. / 1 Gb | OM3<br>50 / 125 μm<br>10 Gb – 300 m | OM4<br>50 / 125 μm<br>10 Gb – 550 m | OS2<br>Singlemode<br>Enhanced | Inch             | mm    | lb/1000 ft | kg/km | lb                | N    |
| <b>Plenum (NEC/CEC OFNP/OFN FT.6) Indoor/Outdoor</b> |                          |                                     |                                   |                                     |                                     |                               |                  |       |            |       |                   |      |
| 6  | 6                        | B9B202                              | B9A202                            | B9C202                              | B9E202                              | B9W202                        | 0.265            | 6.70  | 33         | 49    | 320               | 1423 |
| 12   | 12                       | B9B204                              | B9A204                            | B9C204                              | B9E204                              | B9W204                        | 0.265            | 6.70  | 33         | 49    | 320               | 1423 |
| 24   | 12                       | B9B205                              | B9A205                            | B9C205                              | B9E205                              | B9W205                        | 0.359            | 9.12  | 47         | 70    | 405               | 1801 |
| 36   | 12                       | B9B206                              | B9A206                            | B9C206                              | B9E206                              | B9W206                        | 0.359            | 9.12  | 47         | 70    | 405               | 1801 |
| 48   | 12                       | B9B207                              | B9A207                            | B9C207                              | B9E207                              | B9W207                        | 0.359            | 9.12  | 48         | 71    | 405               | 1801 |
| 72   | 12                       | B9B209                              | B9A209                            | B9C209                              | B9E209                              | B9W209                        | 0.429            | 10.90 | 72         | 107   | 600               | 2700 |
| 96   | 12                       | B9B211                              | B9A211                            | B9C211                              | B9E211                              | B9W211                        | 0.501            | 12.73 | 102        | 152   | 600               | 2700 |
| 144  | 12                       | B9B215                              | B9A215                            | B9C215                              | B9E215                              | B9W215                        | 0.665            | 16.89 | 191        | 284   | 600               | 2700 |

Alternative fiber counts and hybrid constructions are available.

## Double Jacket, Armored Loose Tube Cables (OSP Type)

Loose Tube – Outdoor, and Indoor/Outdoor Riser Rated



Double Jacket Armored Cable

Gel-filled buffer tube prevents water migration. Available as Riser rated cable, thereby eliminating the need for service entrance splicing to in-building cable. Rodent resistant. Available in sizes up to 216 fibers. Length markings in meters for easy determination of cable length.

### Applications

- Direct burial
- Low to high fiber count requirements
- Inter-building duct installations
- Indoor/outdoor
- Industrial outside plant (OSP Type)

### Jacket Specifications

#### Jacket Material

Outdoor PE

Riser PVC

**Buffer Tube** Thermoplastic

**Strength Member** Aramid Yarn

**Central Strength Member** E-Glass

**Armor** Corrugated Steel Tape

**Color Code (Buffer)** Per TIA/EIA 598-B, See page 33

**Jacket Color** Black

### Ratings

**Riser** OFCR

### Specifications

#### Temperature Range (Outdoor)

Storage -40°C to 75°C

Operating -40°C to 70°C

#### Temperature Range (Riser)

Storage -40°C to 80°C

Operating -40°C to 70°C

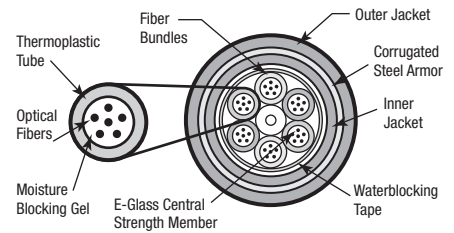
#### Min. Bend Radius

Installation 20 x OD

Long Term 15 x OD

**Optical Specifications** See page 33

### Legend



### Compliance

- TIA/EIA-568-C.3
- ICEA S-87-640

### Functional Requirements

- GR-20-CORE
- GR-409-CORE

Faster.  
Easier.  
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## Double Jacket, Armored Loose Tube Cables (OSP Type) (continued)

Loose Tube – Outdoor, and Indoor/Outdoor Riser Rated



### Loose Tube Series – Armored

| No. of Fibers  | No. of Fibers Per Bundle | Belden Part Number                       |  |  |  |                               | Outside Diameter |      | Weight     |       | Max. Install Load |      |
|--|--------------------------|--|--|--|--|-------------------------------|------------------|------|------------|-------|-------------------|------|
|  |                          | OM1<br>62.5 / 125 $\mu$ m<br>Std. / 1 Gb | OM2<br>50 / 125 $\mu$ m<br>Std. / 1 Gb | OM3<br>50 / 125 $\mu$ m<br>10 Gb – 300 m | OM4<br>50 / 125 $\mu$ m<br>10 Gb – 550 m | OS2<br>Singlemode<br>Enhanced | Inch             | mm   | lb/1000 ft | kg/km | lb                | N    |
| <b>Outdoor</b>                                       |                          |  |  |  |  |                               |                  |      |            |       |                   |      |
| 6  | 6                        | B9B381T                                  | B9A381T                                | B9C381T                                  | B9E381T                                  | B9W381T                       | 0.62             | 15.5 | 134        | 200   | 600               | 2670 |
| 12   | 12                       | B9B382T                                  | B9A382T                                | B9C382T                                  | B9E382T                                  | B9W382T                       | 0.62             | 15.5 | 134        | 200   | 600               | 2670 |
| 24   | 12                       | B9B384T                                  | B9A384T                                | B9C384T                                  | B9E384T                                  | B9W384T                       | 0.62             | 15.5 | 134        | 200   | 600               | 2670 |
| 36   | 12                       | B9B386T                                  | B9A386T                                | B9C386T                                  | B9E386T                                  | B9W386T                       | 0.62             | 15.5 | 134        | 200   | 600               | 2670 |
| 48   | 12                       | B9B389T                                  | B9A389T                                | B9C389T                                  | B9E389T                                  | B9W389T                       | 0.62             | 15.5 | 134        | 200   | 600               | 2670 |
| 72   | 12                       | B9B391T                                  | B9A391T                                | B9C391T                                  | B9E391T                                  | B9W391T                       | 0.65             | 16.4 | 138        | 206   | 600               | 2670 |
| 96   | 12                       | B9B398T                                  | B9A398T                                | B9C398T                                  | B9E398T                                  | B9W398T                       | 0.72             | 18.2 | 170        | 254   | 600               | 2670 |
| 144  | 12                       | B9B393T                                  | B9A393T                                | B9C393T                                  | B9E393T                                  | B9W393T                       | 0.90             | 22.9 | 259        | 385   | 600               | 2670 |
| <b>Riser (NEC/CEC OFCR/OFCR FT.4) Indoor/Outdoor</b> |                          |  |  |  |  |                               |                  |      |            |       |                   |      |
| 6  | 6                        | B9B890                                   | B9A890                                 | B9C890                                   | B9E890                                   | B9W890                        | 0.54             | 13.7 | 138        | 205   | 600               | 2700 |
| 12   | 12                       | B9B891                                   | B9A891                                 | B9C891                                   | B9E891                                   | B9W891                        | 0.54             | 13.7 | 138        | 205   | 600               | 2700 |
| 24   | 12                       | B9B892                                   | B9A892                                 | B9C892                                   | B9E892                                   | B9W892                        | 0.54             | 13.7 | 138        | 205   | 600               | 2700 |
| 36   | 12                       | B9B893                                   | B9A893                                 | B9C893                                   | B9E893                                   | B9W893                        | 0.54             | 13.7 | 138        | 205   | 600               | 2700 |
| 48   | 12                       | B9B894                                   | B9A894                                 | B9C894                                   | B9E894                                   | B9W894                        | 0.66             | 16.8 | 176        | 262   | 600               | 2700 |
| 72   | 12                       | B9B895                                   | B9A895                                 | B9C895                                   | B9E895                                   | B9W895                        | 0.66             | 16.8 | 172        | 256   | 600               | 2700 |
| 96   | 12                       | B9B896                                   | B9A896                                 | B9C896                                   | B9E896                                   | B9W896                        | 0.70             | 17.8 | 206        | 307   | 600               | 2700 |
| 144  | 12                       | B9B897                                   | B9A897                                 | B9C897                                   | B9E897                                   | B9W897                        | 0.88             | 22.4 | 302        | 449   | 600               | 2700 |

Additional armor/jacket configurations are available including Single and Triple jacket with armor.  
Armor types include steel/aluminum corrugated, steel/aluminum interlock, and glass yarn rodent resistant.

## Double Jacket, Heavy-Duty Loose Tube Cables

### Loose Tube – Outdoor



Double Jacket Heavy-Duty Cable

Gel-filled buffer tube prevents water migration. Available with up to 216 fibers.

#### Applications

- Direct burial
- Harsh environments
- Applications requiring good ozone-, moisture- and weather-resistance

#### Jacket Specifications

##### Jacket Material

Outer Jacket: PE

Inner Jacket: PE

##### Buffer Tube

PBT

##### Strength Member

Aramid Yarn

##### Central Strength Member

E-Glass

##### Core Wrap

Water Swellable Tape

**Color Code (Buffer)** Per TIA/EIA 598-B, See page 33

**Jacket Color** Black

#### Specifications

##### Temperature Range

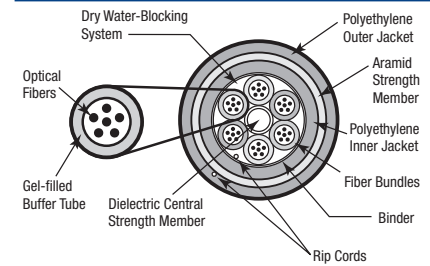
Storage -40°C to 75°C  
Operating -40°C to 70°C

##### Min. Bend Radius

Installation 20 x OD  
Long Term 15 x OD

**Optical Specifications** See page 33

#### Legend



#### Compliance

- TIA/EIA-568-C.3
- ICEA S-87-640

#### Functional Requirements

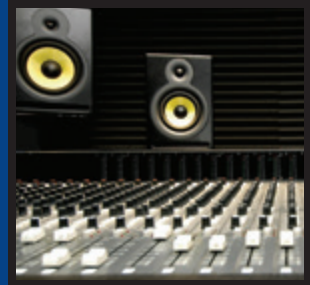
- GR-20-CORE

### Loose Tube Series – Heavy Duty



| No. of Fibers  | No. of Fibers Per Bundle | Belden Part Number                  |                                   |                                     |                                     |                               | Outside Diameter |      | Weight     |       | Max. Install Load |      |
|----------------|--------------------------|-------------------------------------|-----------------------------------|-------------------------------------|-------------------------------------|-------------------------------|------------------|------|------------|-------|-------------------|------|
|                |                          | OM1<br>62.5 / 125 µm<br>Std. / 1 Gb | OM2<br>50 / 125 µm<br>Std. / 1 Gb | OM3<br>50 / 125 µm<br>10 Gb - 300 m | OM4<br>50 / 125 µm<br>10 Gb - 550 m | OS2<br>Singlemode<br>Enhanced | Inch             | mm   | lb/1000 ft | kg/km | lb                | N    |
| <b>Outdoor</b> |                          |                                     |                                   |                                     |                                     |                               |                  |      |            |       |                   |      |
| 2              | 2                        | B9B840                              | B9A840                            | B9C840                              | B9E840                              | B9W840                        | 0.49             | 12.5 | 84         | 125   | 600               | 2700 |
| 4              | 4                        | B9B841                              | B9A841                            | B9C841                              | B9E841                              | B9W841                        | 0.49             | 12.5 | 84         | 125   | 600               | 2700 |
| 6              | 6                        | B9B842                              | B9A842                            | B9C842                              | B9E842                              | B9W842                        | 0.49             | 12.5 | 84         | 125   | 600               | 2700 |
| 12             | 12                       | B9B844                              | B9A844                            | B9C844                              | B9E844                              | B9W844                        | 0.49             | 12.5 | 84         | 125   | 600               | 2700 |
| 18             | 12                       | B9B845                              | B9A845                            | B9C845                              | B9E845                              | B9W845                        | 0.49             | 12.5 | 84         | 125   | 600               | 2700 |
| 24             | 12                       | B9B846                              | B9A846                            | B9C846                              | B9E846                              | B9W846                        | 0.49             | 12.5 | 84         | 125   | 600               | 2700 |
| 36             | 12                       | B9B847                              | B9A847                            | B9C847                              | B9E847                              | B9W847                        | 0.49             | 12.5 | 84         | 125   | 600               | 2700 |
| 48             | 12                       | B9B848                              | B9A848                            | B9C848                              | B9E848                              | B9W848                        | 0.49             | 12.5 | 84         | 125   | 600               | 2700 |
| 72             | 12                       | B9B849                              | B9A849                            | B9C849                              | B9E849                              | B9W849                        | 0.53             | 13.4 | 97         | 144   | 600               | 2700 |
| 96             | 12                       | B9B820                              | B9A820                            | B9C820                              | B9E820                              | B9W820                        | 0.60             | 15.2 | 121        | 180   | 600               | 2700 |
| 144            | 12                       | B9B821                              | B9A821                            | B9C821                              | B9E821                              | B9W821                        | 0.75             | 19.0 | 184        | 274   | 600               | 2700 |
| 216            | 12                       | B9B822                              | B9A822                            | B9C822                              | B9E822                              | B9W822                        | 0.76             | 19.3 | 187        | 273   | 600               | 2700 |

Faster.  
Easier.  
Better.



## Central Tube Cables

### Loose Tube – Outdoor, and Outdoor Armored

Economical option for low fiber counts. Quick and easy end preparation. Fully waterblocked with gel-filled buffer tube. No rods – easy handling. Crush, impact and abrasion resistant.

#### Applications

- Campus OSP backbones
- Drop cable
- Telecommunications and data trunk
- Direct burial (armored only)
- Lashed aerial

#### Jacket Specifications

|   |                                   |
|---|-----------------------------------|
| <b>Jacket Material</b>                    | PE                                |
| <b>Buffer Tube</b>                        | PBT                               |
| <b>Core Wrap</b>                          | Water Swellable Tape              |
| <b>Strength Member</b>                    | Fiberglass                        |
| <b>Armor</b>                              | Corrugated Steel                  |
| <b>Color Codes</b><br>(Jacket and Fibers) | Per TIA/EIA 598-B,<br>See page 39 |
| <b>Jacket Color</b>                       | Black                             |

#### Specifications

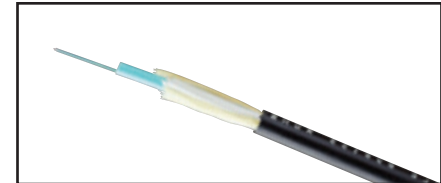
##### Temperature Range

|           |               |
|-----------|---------------|
| Storage   | -40°C to 75°C |
| Operating | -40°C to 70°C |

##### Min. Bend Radius

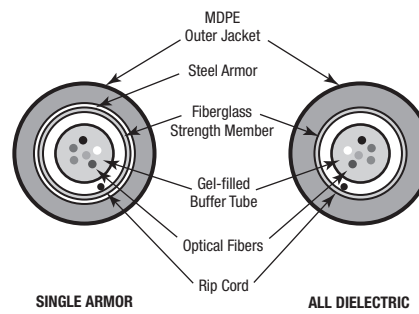
|              |         |
|--------------|---------|
| Installation | 20 x OD |
| Long Term    | 15 x OD |

**Optical Specifications** See page 33



Outdoor Loose Tube Cable

#### Legend



#### Functional Requirements

- GR-20-CORE

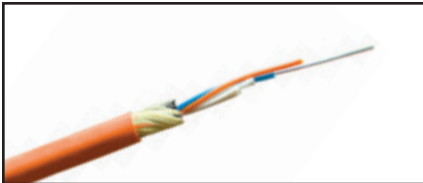
## Central Tube Series



| No. of Fibers          | Belden Part Number                  |                                   |                                     |                                     |                               | Outside Diameter |      | Weight     |       | Max. Install Load |      |
|------------------------|-------------------------------------|-----------------------------------|-------------------------------------|-------------------------------------|-------------------------------|------------------|------|------------|-------|-------------------|------|
|                        | OM1<br>62.5 / 125 µm<br>Std. / 1 Gb | OM2<br>50 / 125 µm<br>Std. / 1 Gb | OM3<br>50 / 125 µm<br>10 Gb – 300 m | OM4<br>50 / 125 µm<br>10 Gb – 550 m | OS2<br>Singlemode<br>Enhanced | Inch             | mm   | lb/1000 ft | kg/km | lb                | N    |
| <b>Outdoor</b>         |                                     |                                   |                                     |                                     |                               |                  |      |            |       |                   |      |
| 2                      | B9B150                              | B9A150                            | B9C150                              | B9E150                              | B9W150                        | 0.31             | 7.8  | 34         | 50    | 600               | 2700 |
| 4                      | B9B151                              | B9A151                            | B9C151                              | B9E151                              | B9W151                        | 0.31             | 7.8  | 34         | 50    | 600               | 2700 |
| 6                      | B9B152                              | B9A152                            | B9C152                              | B9E152                              | B9W152                        | 0.31             | 7.8  | 34         | 50    | 600               | 2700 |
| 8                      | B9B153                              | B9A153                            | B9C153                              | B9E153                              | B9W153                        | 0.31             | 7.8  | 34         | 50    | 600               | 2700 |
| 10                     | B9B154                              | B9A154                            | B9C154                              | B9E154                              | B9W154                        | 0.31             | 7.8  | 34         | 50    | 600               | 2700 |
| 12                     | B9B155                              | B9A155                            | B9C155                              | B9E155                              | B9W155                        | 0.31             | 7.8  | 34         | 50    | 600               | 2700 |
| 24                     | B9B159                              | B9A159                            | B9C159                              | B9E159                              | B9W159                        | 0.31             | 7.8  | 34         | 50    | 600               | 2700 |
| <b>Outdoor Armored</b> |                                     |                                   |                                     |                                     |                               |                  |      |            |       |                   |      |
| 2                      | B9B170                              | B9A170                            | B9C170                              | B9E170                              | B9W170                        | 0.48             | 12.2 | 95         | 140   | 600               | 2700 |
| 4                      | B9B171                              | B9A171                            | B9C171                              | B9E171                              | B9W171                        | 0.48             | 12.2 | 95         | 140   | 600               | 2700 |
| 6                      | B9B172                              | B9A172                            | B9C172                              | B9E172                              | B9W172                        | 0.48             | 12.2 | 95         | 140   | 600               | 2700 |
| 8                      | B9B173                              | B9A173                            | B9C173                              | B9E173                              | B9W173                        | 0.48             | 12.2 | 95         | 140   | 600               | 2700 |
| 10                     | B9B174                              | B9A174                            | B9C174                              | B9E174                              | B9W174                        | 0.48             | 12.2 | 95         | 140   | 600               | 2700 |
| 12                     | B9B175                              | B9A175                            | B9C175                              | B9E175                              | B9W175                        | 0.48             | 12.2 | 95         | 140   | 600               | 2700 |
| 24                     | B9B179                              | B9A179                            | B9C179                              | B9E179                              | B9W179                        | 0.48             | 12.2 | 95         | 140   | 600               | 2700 |

## TrayOptic® Industrial, Heavy-Duty, All Dielectric Cables

Loose Tube – Indoor/Outdoor Riser Rated



Tray Optic Cable

Laser Optimized Fiber to handle Gigabit Ethernet light sources and expanded bandwidth requirements. Passes IEEE 1202/583-2003 flame test. Waterblocking agent for moisture protection. CPE outer jacket option provides extra chemical or abrasion resistance.

### Applications

- Industrial and other harsh environment applications
- Factory automation
- Direct burial

### Jacket Specifications

|                        |             |
|------------------------|-------------|
| <b>Jacket Material</b> | PVC or CPE  |
| <b>Strength Member</b> | Aramid Yarn |
| <b>Jacket Color</b>    |             |
| Singlemode             | Yellow      |
| 62.5/125 µm            | Orange      |
| 50/125 µm / 1 Gb       | Orange      |
| 50/125 µm / 10 Gb      | Aqua        |

### Ratings

|                  |                      |
|------------------|----------------------|
| <b>Riser</b>     |                      |
| UL Type          | OFNR                 |
| cUL Type         | OFN FT.4             |
| Flame Resistance | IEEE 1202 / 383-2003 |

### Specifications

#### Temperature Range

|           |               |
|-----------|---------------|
| Storage   | -40°C to 70°C |
| Operating | -40°C to 70°C |

#### Crush Resistance

|              |           |
|--------------|-----------|
| (EIA-455-41) | 2000 N/cm |
|--------------|-----------|

#### Impact Resistance

|              |                       |
|--------------|-----------------------|
| (EIA-455-25) | 2000 impacts @ 1.6N-m |
|--------------|-----------------------|

#### Cyclic Flexing

|               |  |
|---------------|--|
| (EIA-455-104) | 25 cycles, 12 lbs.,<br>20 x OD radius min. |
|---------------|--|

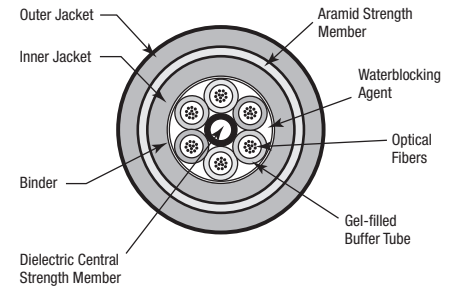
#### Min. Bend Radius

|              |         |
|--------------|---------|
| Installation | 20 x OD |
| Long Term    | 15 x OD |

**Maximum Installation Load** 600 lbs. (2700 N)

**Optical Specifications** See page 33

### Legend



### Compliance

- TIA/EIA-568-C.3
- ICEA S-104-696

### Functional Requirements

- GR-20-CORE
- GR-409-CORE



Faster.  
Easier.  
Better.



**TrayOptic® Industrial, Heavy-Duty, All Dielectric Cables** (continued)  
Loose Tube – Indoor/Outdoor Riser Rated



**TrayOptic Series**

| No. of Fibers  | No. of Fibers Per Bundle | Belden Part Number                  |                                   |                                     |                                     |                               | Outside Diameter |       | Weight     |       | Max. Install Load |      |
|--|--------------------------|-------------------------------------|-----------------------------------|-------------------------------------|-------------------------------------|-------------------------------|------------------|-------|------------|-------|-------------------|------|
|  |                          | OM1<br>62.5 / 125 µm<br>Std. / 1 Gb | OM2<br>50 / 125 µm<br>Std. / 1 Gb | OM3<br>50 / 125 µm<br>10 Gb – 300 m | OM4<br>50 / 125 µm<br>10 Gb – 550 m | OS2<br>Singlemode<br>Enhanced | Inch             | mm    | lb/1000 ft | kg/km | lb                | N    |
| <b>Riser (NEC/CEC OFNR/OFN FT.4) PVC Jacket Indoor/Outdoor</b> |                          |                                     |                                   |                                     |                                     |                               |                  |       |            |       |                   |      |
| 2  | 2                        | I100255                             | I1A0255                           | I1C0255                             | I1E0255                             | I1W0255                       | 0.43             | 11.00 | 92         | 136   | 600               | 2700 |
| 4  | 4                        | I100455                             | I1A0455                           | I1C0455                             | I1E0455                             | I1W0455                       | 0.43             | 11.00 | 92         | 136   | 600               | 2700 |
| 6  | 6                        | I100655                             | I1A0655                           | I1C0655                             | I1E0655                             | I1W0655                       | 0.43             | 11.00 | 92         | 136   | 600               | 2700 |
| 8  | 4                        | I400855                             | I4A0855                           | I4C0855                             | I4E0855                             | I4W0855                       | 0.43             | 11.00 | 92         | 136   | 600               | 2700 |
| 12   | 6                        | I601255                             | I6A1255                           | I6C1255                             | I6E1255                             | I6W1255                       | 0.43             | 11.00 | 92         | 136   | 600               | 2700 |
| 18   | 6                        | I601855                             | I6A1855                           | I6C1855                             | I6E1855                             | I6W1855                       | 0.43             | 11.00 | 92         | 136   | 600               | 2700 |
| 24   | 6                        | I602455                             | I6A2455                           | I6C2455                             | I6E2455                             | I6W2455                       | 0.43             | 11.00 | 92         | 136   | 600               | 2700 |
| 36   | 6                        | I603655                             | I6A3655                           | I6C3655                             | I6E3655                             | I6W3655                       | 0.43             | 11.00 | 92         | 136   | 600               | 2700 |
| 48   | 12                       | I604855                             | I6A4855                           | I6C4855                             | I6E4855                             | I6W4855                       | 0.54             | 13.72 | 128        | 186   | 600               | 2700 |
| 60   | 12                       | I606055                             | I6A6055                           | I6C6055                             | I6E6055                             | I6W6055                       | 0.54             | 13.72 | 128        | 186   | 600               | 2700 |
| 72   | 12                       | I607255                             | I6A7255                           | I6C7255                             | I6E7255                             | I6W7255                       | 0.54             | 13.72 | 128        | 186   | 600               | 2700 |
| <b>Riser (NEC/CEC OFNR/OFN FT.4) CPE Jacket Indoor/Outdoor</b> |                          |                                     |                                   |                                     |                                     |                               |                  |       |            |       |                   |      |
| 2  | 2                        | I100266                             | I1A0266                           | I1C0266                             | I1E0266                             | I1W0266                       | 0.43             | 10.90 | 89         | 124   | 600               | 2700 |
| 4  | 4                        | I100466                             | I1A0466                           | I1C0466                             | I1E0466                             | I1W0466                       | 0.43             | 10.90 | 89         | 124   | 600               | 2700 |
| 6  | 6                        | I100666                             | I1A0666                           | I1C0666                             | I1E0666                             | I1W0666                       | 0.43             | 10.90 | 89         | 124   | 600               | 2700 |
| 8  | 4                        | I400866                             | I4A0866                           | I4C0866                             | I4E0866                             | I4W0866                       | 0.43             | 10.90 | 89         | 124   | 600               | 2700 |
| 12   | 6                        | I601266                             | I6A1266                           | I6C1266                             | I6E1266                             | I6W1266                       | 0.43             | 10.90 | 89         | 124   | 600               | 2700 |
| 18   | 6                        | I601866                             | I6A1866                           | I6C1866                             | I6E1866                             | I6W1866                       | 0.43             | 10.90 | 89         | 124   | 600               | 2700 |
| 24   | 6                        | I602466                             | I6A2466                           | I6C2466                             | I6E2466                             | I6W2466                       | 0.43             | 10.90 | 89         | 124   | 600               | 2700 |
| 36   | 6                        | I603666                             | I6A3666                           | I6C3666                             | I6E3666                             | I6W3666                       | 0.43             | 10.90 | 89         | 124   | 600               | 2700 |
| 48   | 12                       | I604866                             | I6A4866                           | I6C4866                             | I6E4866                             | I6W4866                       | 0.54             | 13.72 | 125        | 192   | 600               | 2700 |
| 60   | 12                       | I606066                             | I6A6066                           | I6C6066                             | I6E6066                             | I6W6066                       | 0.54             | 13.72 | 125        | 192   | 600               | 2700 |
| 72   | 12                       | I607266                             | I6A7266                           | I6C7266                             | I6E7266                             | I6W7266                       | 0.54             | 13.72 | 125        | 192   | 600               | 2700 |

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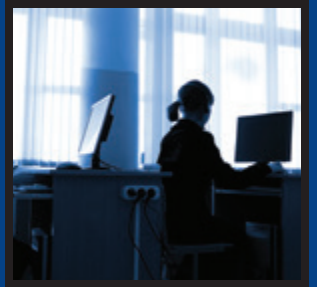
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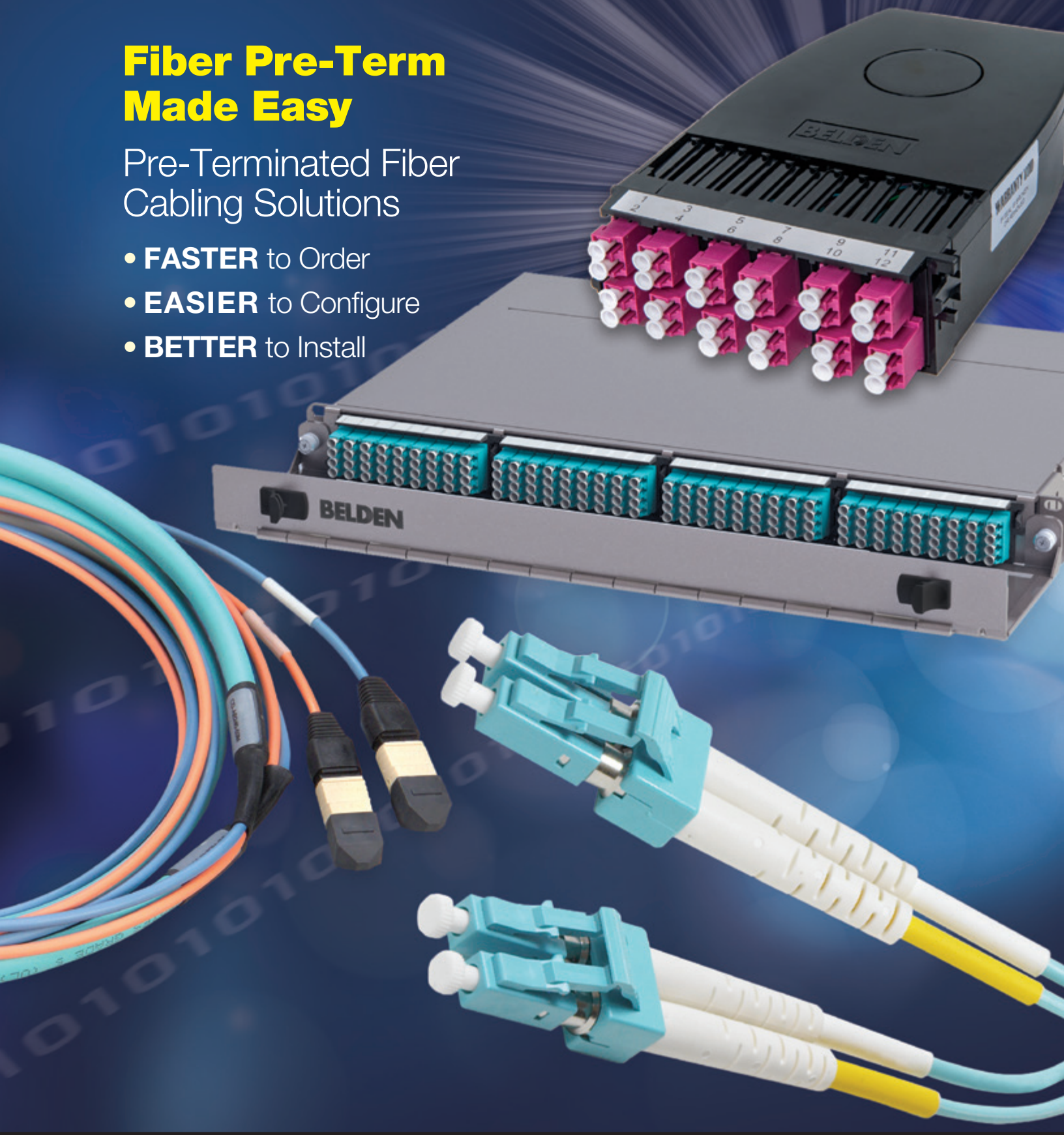
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