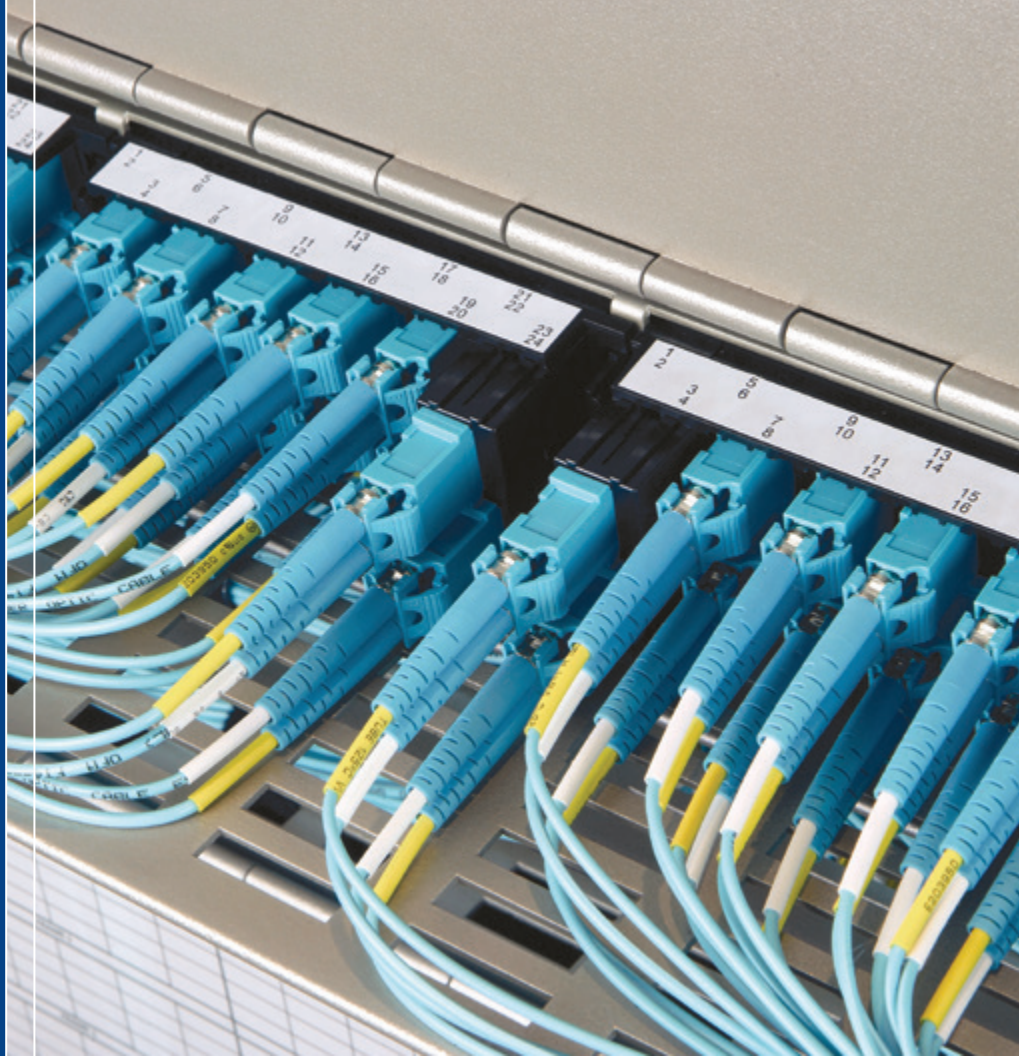
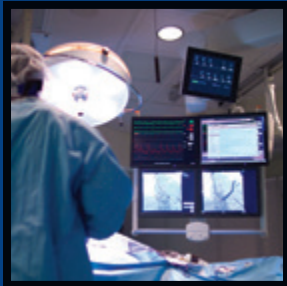




Belden® Optical Fiber Catalog



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.



Faster.
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Better.



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

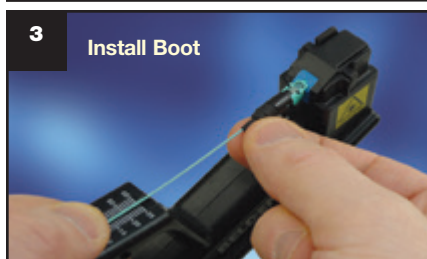
EASIER

- 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 μ m, 900 μ 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 μ m		Multimode, OM2, 50 μ m		Multimode, OM3/OM4, 50 μ m	
	1 per package	25 per package	1 per package	25 per package	1 per package	25 per package
LC with 900 μ m Boot	AX105200-S1	AX105200-B25	AX105201-S1	AX105201-B25	AX105202-S1	AX105202-B25
SC with 900 μ m Boot	AX105205-S1	AX105205-B25	AX105206-S1	AX105206-B25	AX105207-S1	AX105207-B25
ST with 900 μ 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 μ m Boot	AX105203-S1	AX105203-B25	-	-
SC with 900 μ m Boot	AX105208-S1	AX105208-B25	AX105209-S1	AX105209-B25
ST with 900 μ m Boot	AX105213-S1	AX105213-B25	-	-

* FX Brilliance Universal includes a boot for 900 μ 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

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

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



AX104271, Precision Installation Kit



AX104286, Precision Cleaver



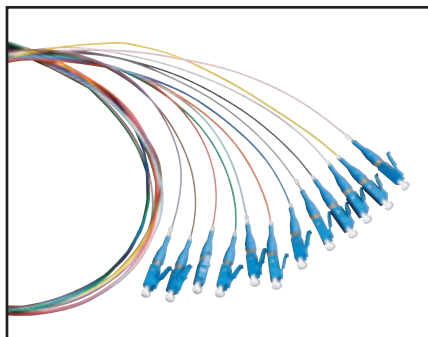
AX104276, Support Handle with Adapters



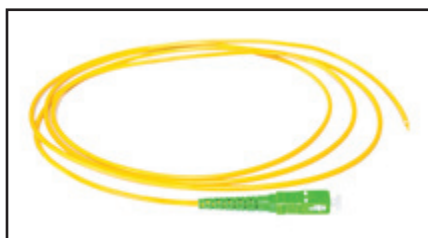
When used with the VFL, a light can be seen through the clear window on the connector body until a fiber has been properly terminated

FiberExpress Field Termination (continued)

FX Pigtails



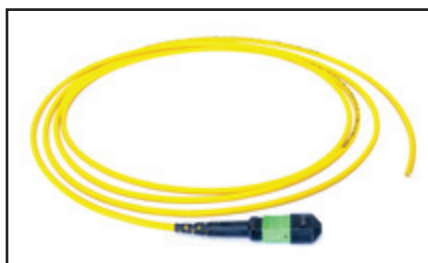
FTSLC900PR12, FX LC Color-coded Pigtail Kit, Singlemode



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



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



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

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

Standard Color-coded Pigtail Kits (900 μ m)

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 μ m fibers, 2 m in length.

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.

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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

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

FASTER

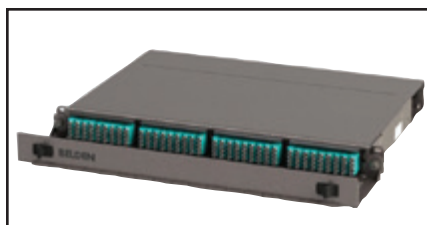
- Faster field-termination with high-accessibility sliding and tilting drawers
- Faster pre-term installation with simple fixed shelves and cassettes

EASIER

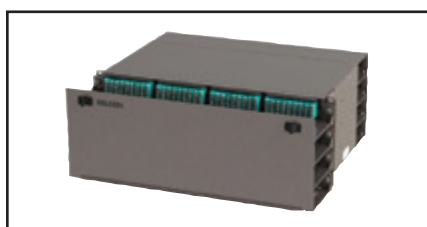
- Easier installation with tool-less removable drawers and lightweight housings
- Easier port identification with clear visible labeling
- Easier to configure with flexible port count LC, SC, ST and MPO modules

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



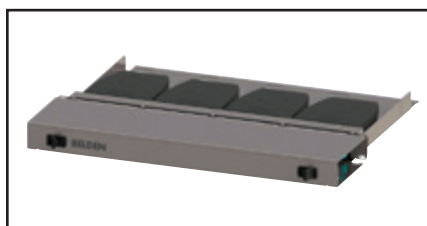
AX104681, FX Ultra HD 1U Patch Panel Housing (shown loaded)



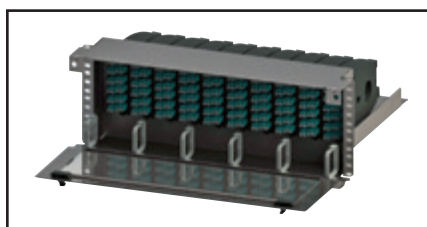
AX104683, FX UHD 4U Patch Panel Housing (shown loaded)



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)

FX UHD Housings

Feature-rich housings are fully enclosed to provide protection for exposed 250 μ m and 900 μ 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 ¹	N/A	N/A	N/A	AX104684
Optional Patch Cord Tray Cover, Titanium Finish ²	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

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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
LC Duplex to MPO-12(f)							
18 (3)	3	FX UHD*	—	FC3H18LDMF	FC4H18LDMF	FCSH18LDMF	FCSH18LAMF
12 (24)	2	FX Ultra	FC1U12LDMF	FC3U12LDMF	FC4U12LDMF	FCSU12LDMF	FCSU12LAMF
LC Duplex w/Shutters to MPO-12(f)							
6 (12)	1	FX Ultra	—	—	—	FCSU06LSMF	FCSU06LQMF
SC Duplex to MPO-12(f)							
6 (12)	1	FX Ultra	FC1U06SDMF	FC3U06SDMF	FC4U06SDMF	FCSU06SDMF	FCSU06SAMF
SC Simplex to MPO-12(f)							
12 (12)	1	FX Ultra	—	—	—	FCSU12SCMF	FCSU12SBMF
SC Simplex w/Shutters to MPO-12(f)							
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
LC Duplex to MPO-12(f)							
18 (3)	3	FX UHD*	–	FC3H18LDMF1A	FC4H18LDMF1E	FCSH18LDMF1B	FCSH18LAMF1G
12 (24)	2	FX Ultra	FC1U12LDMF1K	FC3U12LDMF1A	FC4U12LDMF1E	FCSU12LDMF1B	FCSU12LAMF1G
LC Duplex w/Shutters to MPO-12(f)							
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

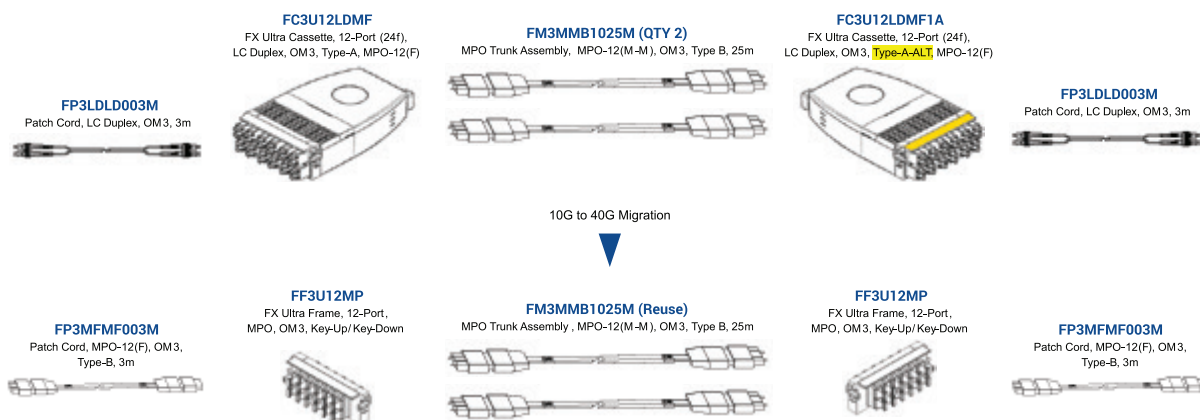
Building a SmartPart Number

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																																								
FC	3	U	03	LD	MM	A	A																																								
	<table><tr><th>Fiber Type</th></tr><tr><td>1 OM1</td></tr><tr><td>3 OM3</td></tr><tr><td>4 OM4</td></tr><tr><td>S OS2</td></tr></table>	Fiber Type	1 OM1	3 OM3	4 OM4	S OS2	<table><tr><th>Product Family</th></tr><tr><td>H FX UHD</td></tr><tr><td>U FX Ultra (1" Pull)</td></tr></table>	Product Family	H FX UHD	U FX Ultra (1" Pull)	<table><tr><th>Port Count (Patch Side)</th></tr><tr><td>03</td></tr><tr><td>06</td></tr><tr><td>12</td></tr><tr><td>18</td></tr></table>	Port Count (Patch Side)	03	06	12	18	<table><tr><th>Connector (Patch Side)</th></tr><tr><td>LD LC Duplex</td></tr><tr><td>LA LC/APC Duplex</td></tr><tr><td>LS LC Duplex w/Shutters</td></tr><tr><td>LQ LC/APC Duplex w/Shutters</td></tr><tr><td>SD SC Duplex</td></tr><tr><td>SC SC Simplex</td></tr><tr><td>SA SC/APC Duplex</td></tr><tr><td>SB SC/APC Simplex</td></tr><tr><td>SS SC Duplex w/Shutters</td></tr><tr><td>SR SC Simplex w/Shutters</td></tr><tr><td>SQ SC/APC Duplex w/Shutters</td></tr><tr><td>SP SC/APC Simplex w/Shutters</td></tr><tr><td>ST ST</td></tr></table>	Connector (Patch Side)	LD LC Duplex	LA LC/APC Duplex	LS LC Duplex w/Shutters	LQ LC/APC Duplex w/Shutters	SD SC Duplex	SC SC Simplex	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	<table><tr><th>Connector (Trunk Side)</th></tr><tr><td>MM MPO-12 (m)</td></tr><tr><td>MF MPO-12 (f)</td></tr></table>	Connector (Trunk Side)	MM MPO-12 (m)	MF MPO-12 (f)	<table><tr><th>Polarity (Trunk)</th></tr><tr><td>A Type-A</td></tr><tr><td>1 Type-A ALT.</td></tr></table>	Polarity (Trunk)	A Type-A	1 Type-A ALT.	<table><tr><th>Adapter Color</th></tr><tr><td>K Beige</td></tr><tr><td>N Black</td></tr><tr><td>A Aqua</td></tr><tr><td>E Erika V.</td></tr><tr><td>B Blue</td></tr><tr><td>G Green</td></tr></table>	Adapter Color	K Beige	N Black	A Aqua	E Erika V.	B Blue	G Green
Fiber Type																																															
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For further options contact Belden for custom Engineered solutions.

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



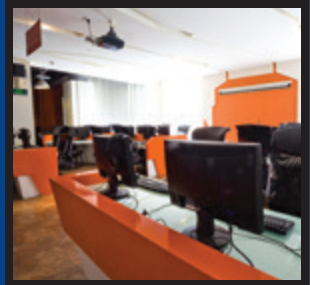
Simple Migration from 10G to 40G:

- 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.



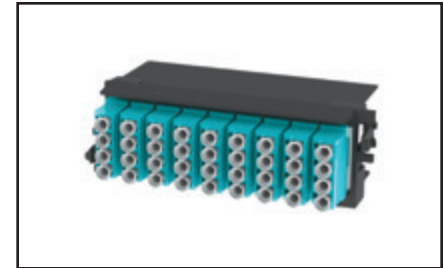
FiberExpress Patch Panel Systems (continued)

FX UHD and FX Ultra Frames

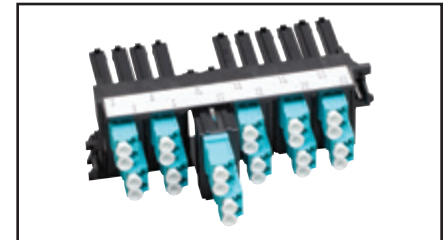
FX UHD and FX Ultra Frames

Standard Frames

		Belden Part Number				
Patch Ports (fibers)	Family	OM1 Beige Adapters	OM3 Aqua Adapters	OM4 Erika Violet Adapters	SM Blue Adapters	SM/APC Green Adapters
MPO Type-A (Key-Up/Key-Down)						
18	FX UHD	–	FF3H18MP	FF4H18MP	–	FFSH18MP
12	FX Ultra	–	FF3U12MP	FF4U12MP	–	FFSU12MP
LC Duplex						
18 (36)	FX UHD	–	FF3H18LD	FF4H18LD	FFSH18LD	FFSH18LA
12 (24)	FX Ultra	FF1U12LD	FF3U12LD	FF4U12LD	FFSU12LD	FFSU12LA
LC Duplex w/Shutters						
12 (24)	FX Ultra	–	–	–	FFSU06LS	FFSU06LQ
SC Duplex						
6 (12)	FX Ultra	FF1U06SD	FF3U06SD	FF4U06SD	FFSU06SD	FFSU06SA
SC Simplex						
12 (12)	FX Ultra	–	–	–	FFSU12SC	FFSU12SB
SC Simplex w/Shutters						
6 (6)	FX Ultra	–	–	–	FFSU06SR	FFSU06SP
ST						
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	1. Choose Fiber Type	2. Choose Product Family	3. Choose Port Count	4. Choose Connector for Patch Side	5. Choose Adapter Color
FF	3	H	18	LD	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

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.

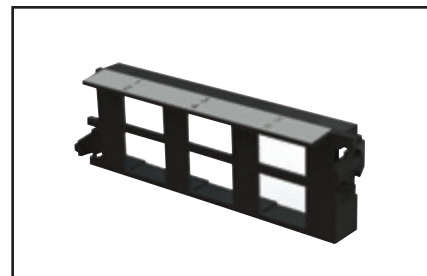
Standard Copper KeyConnect Adapters

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.

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



FFZH06KC, FX Ultra KeyConnect Frame, 6-Port



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



AX104024, 10GX RJ45 Coupler

Faster.
Easier.
Better.



FiberExpress Patch Panel Systems (continued)

FX Ultra Wall Mount and Accessories

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



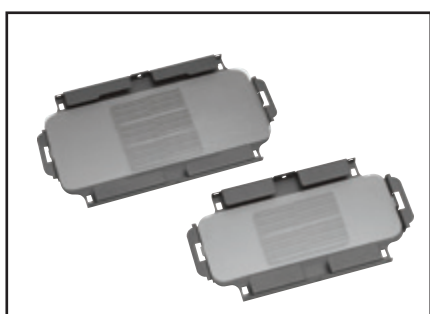
AX103928, FX Ultra Stackable Wall-mount Patch Panel



AX103930, FX Ultra Wall-mount Splice Enclosure



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



FX Ultra Splice Trays

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

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

Faster.
Easier.
Better.



FiberExpress Patch Panel Systems (continued)

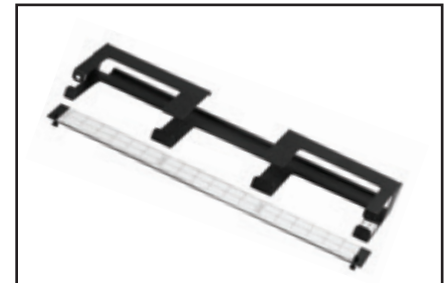
FX Manager Frames and Accessories

Standard FX M Frames

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

Standard Accessories

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



AX102032, FX Manager 1U Cable Management Accessory



AX100945, Flex Kit

FiberExpress Patch Panel Systems (continued)

FX Patch Rack Mount and Wall Mount Patch Panels

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

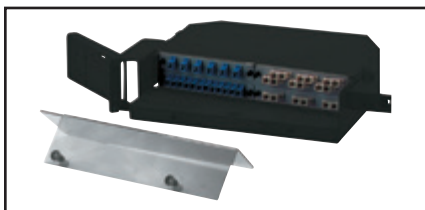
- Easier on the budget with economical adapter strips
- Easier access to the trunk side connectivity with swing out faceplate

BETTER

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



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



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



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



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

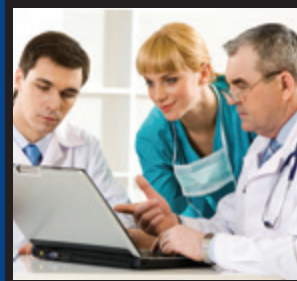
Rack Mount Patch Panels

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

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

Faster.
Easier.
Better.



FiberExpress Patch Panel Systems (continued)

FX Patch Adapter Strips and Accessories

Standard Optical Fiber Adapter Strips

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

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

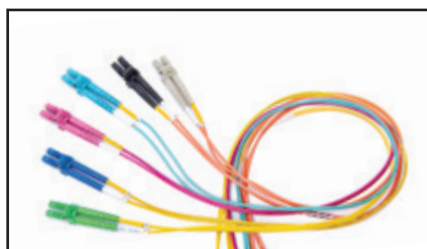
- Easier installation in dense cable trays with small diameter cord options
- Easier ordering with simple intelligent *SmartPart* Numbers
- Easier polarity management with industry leading easy-to-use duplex clips

BETTER

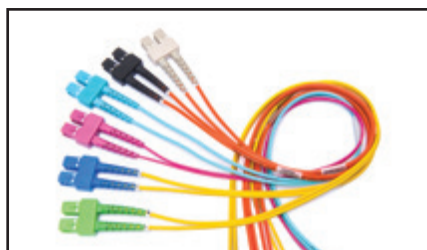
- Better architectural flexibility with low-loss OM4 0.2 dB MPO and 0.15 dB LC connectors
- Better ruggedization with larger diameter cord options
- Better flexibility with multiple connector options including LC, SC, ST and MPO
- Better quality through exhaustive design validation against TIA standards



FX MPO-12(f) Patch Cords, Assortment



FX LC Duplex Patch Cords, Assortment



FX SC Duplex Patch Cords, Assortment



FX ST Patch Cords, Assortment

FX Patch Cords - Standard Performance

Description	FX OM1	FX OM3	FX OM4	FX SM	FX SM/APC
Cable Performance - LC/SC/ST					
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 SC/ST/Hybrid: 3 mm Duplex Zip Cord				
Connector Performance - LC/SC/ST					
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
Cable Performance - MPO					
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				
Connector Performance - MPO					
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.

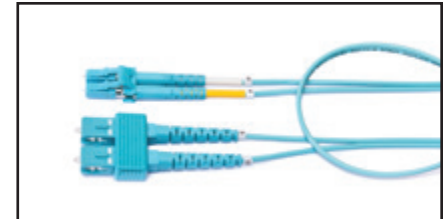


FiberExpress Pre-Terminated Assemblies (continued)

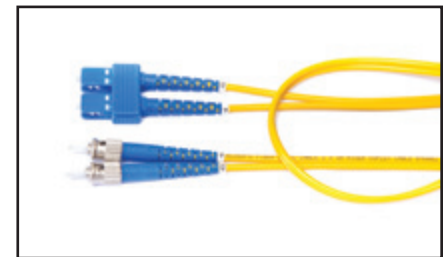
FX Patch Cords

Standard FX Patch Cords

Length (m)	OM1 Beige	OM3 Aqua	OM4 Erika Violet	OS2 Blue	OS2/APC Green
MPO-12(f) to MPO-12(f)					
2	–	FP3MFMF002M	FP4MFMF002M	–	FPSMFMF002M
3	–	FP3MFMF003M	FP4MFMF003M	–	FPSMFMF003M
5	–	FP3MFMF005M	FP4MFMF005M	–	FPSMFMF005M
LC Duplex to LC Duplex					
2	–	FP3LDLD002M	FP4LDLD002M	FPSLDLD002M	FPSLALA002M
3	–	FP3LDLD003M	FP4LDLD003M	FPSLDLD003M	FPSLALA003M
5	–	FP3LDLD005M	FP4LDLD005M	FPSLDLD005M	FPSLALA005M
SC Duplex to SC Duplex					
2	FP1SDSD002M	FP3SDSD002M	FP4SDSD002M	FPSSSDSD002M	FPSSASA002M
3	FP1SDSD003M	FP3SDSD003M	FP4SDSD003M	FPSSSDSD003M	FPSSASA003M
5	FP1SDSD005M	FP3SDSD005M	FP4SDSD005M	FPSSSDSD005M	FPSSASA005M
ST to ST (Duplex Cord)					
2	FP1STST002M	FP3STST002M	FP4STST002M	FPSSTST002M	–
3	FP1STST003M	FP3STST003M	FP4STST003M	FPSSTST003M	–
5	FP1STST005M	FP3STST005M	FP4STST005M	FPSSTST005M	–
Hybrid: LC Duplex to SC Duplex					
3	FP1LSDSD003M	FP3LSDSD003M	FP4LSDSD003M	FPSLDSDSD003M	FPSLASA003M
Hybrid: SC Duplex to ST					
3	FP1SDST003M	FP3SDST003M	–	FPSSDST003M	–



FP3LDSD003M, 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 (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 LSZH	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	7 Round 3.0 mm	B Type-B	E Erika V.
	LB LC/APC Simplex	LB LC/APC Simplex						
	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

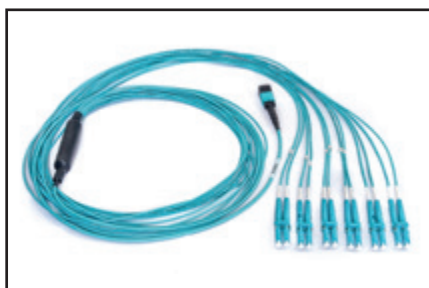
FP4MFMF010MP6AA - MPO-12 female to MPO-12 male, 10m in length, OM4 multi mode Plenum 2 mm round interconnect cable with Type-A polarity and aqua cable jacket and connectors

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
Cable Performance - LC/SC/ST				
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 LC: 2 mm Simplex Zip Cord			
Connector Performance - LC				
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			
Connector Performance - MPO				
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
10G Transceiver Pinout			
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
40G Transceiver Pinout			
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

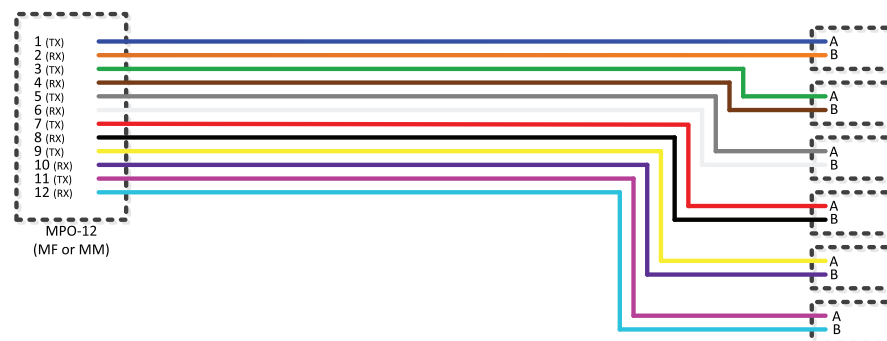
Building a SmartPart Number

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																																
FP	3	LD	MM	003M	R	7	A	A																																
	<table><tr><th>Fiber Type</th></tr><tr><td>1 OM1</td></tr><tr><td>3 OM3</td></tr><tr><td>4 OM4</td></tr><tr><td>S OS2</td></tr></table>	Fiber Type	1 OM1	3 OM3	4 OM4	S OS2	<table><tr><th>Connector 1</th></tr><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></table>	Connector 1	LD LC Duplex	LC LC Simplex	LM Mini-LC Duplex	LA LC/APC Duplex	LB LC/APC Simplex	<table><tr><th>Connector 2</th></tr><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></table>	Connector 2	MM MPO-12(m)	MF MPO-12(f)	4M MPO-12(m), 40G*	4F MPO-12(f), 40G*	<table><tr><th>Length</th></tr><tr><td>00M2 to 300M (use M as decimal)</td></tr></table>	Length	00M2 to 300M (use M as decimal)	<table><tr><th>Fire Rating</th></tr><tr><td>R Riser</td></tr><tr><td>P Plenum</td></tr><tr><td>L LSZH</td></tr></table>	Fire Rating	R Riser	P Plenum	L LSZH	<table><tr><th>Cable Construction</th></tr><tr><td>7 Round 3.0 mm</td></tr></table>	Cable Construction	7 Round 3.0 mm	<table><tr><th>Polarity</th></tr><tr><td>A Type-A</td></tr><tr><td>4 40G</td></tr></table>	Polarity	A Type-A	4 40G	<table><tr><th>Jacket Color</th></tr><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></table>	Jacket Color	O Orange	Y Yellow	A Aqua	E Erika V.
Fiber Type																																								
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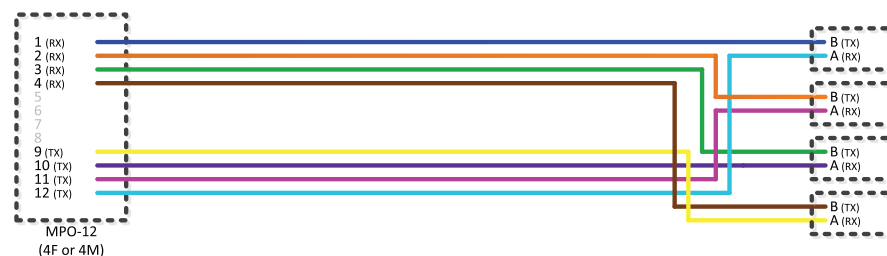
* For use with 40G Transceivers using MPO-12 connectors configured as 4 x 10G Ports.

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

FX Hydra Assembly – Traditional Pinout

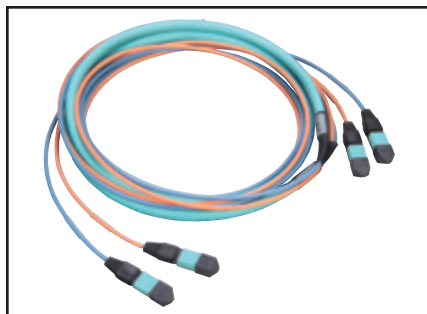


FX Hydra Assembly – 40G Transceiver Pinout



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

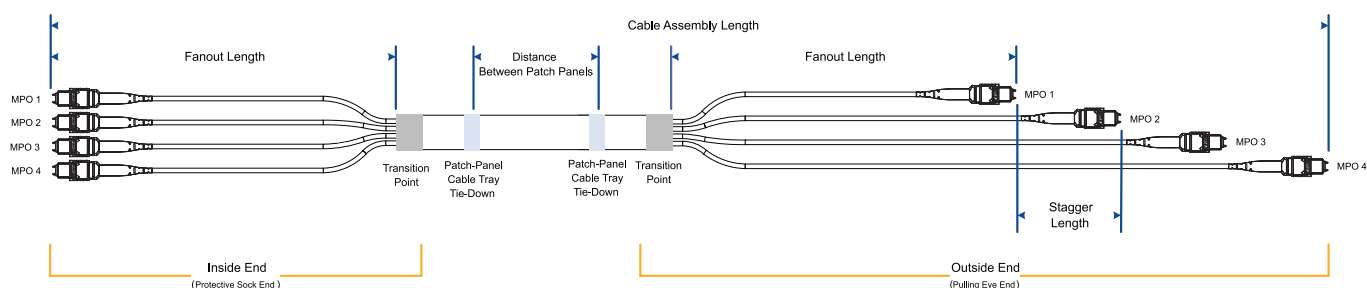
- Easier installation with 3-flange real and default pulling eye
- Easier ordering with simple intelligent *SmartPart* Numbers
- Easier upgradability to 40G and 100G with MPO pre-term solutions

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
Cable Performance				
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			
Connector Performance - MPO-12				
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			
Connector Performance - MPO-24				
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 MPO Trunk Assemblies

Standard FX MPO Trunk Assemblies

Building a SmartPart Number

Building a SmartPart Number

Fixed Letter Series

FM

1. Choose Fiber Type

4

Fiber Type	
3	OM3
4	OM4
S	OS2

2. Choose Connectors

M

Connectors	
M	MPO-12

3. Choose Connector Gender

M

Connector Gender	
M	Male to Male
E	Extension (M to F)

4. Choose Polarity (outside)

A

Polarity (outside)	
A	Type-A
B	Type-B
C	Type-C

5. Choose Connector Count (per side)

2

Connector Count	
1	12 Fiber
2	24 Fiber
D	144 Fiber

6. Choose Length

025M

Length
005M to 350M (use M as decimal)

Example

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

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

Examples:

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

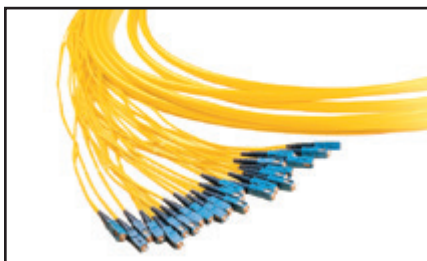
FMSMFC8200MPMEY - FX MPO Trunk, OS2, MPO-12/APC(Female to Female), Type-C, 8 MPO (96 fibers), 200 m, OFNP, Mini-Distribution (3.0 mm Sub-Units), Fan-Out: 1.0 m x In-Line, Yellow jacket

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
Installation Diameter - MPO-12 (Total Connectors)	1	2	3	4	6	8	12
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

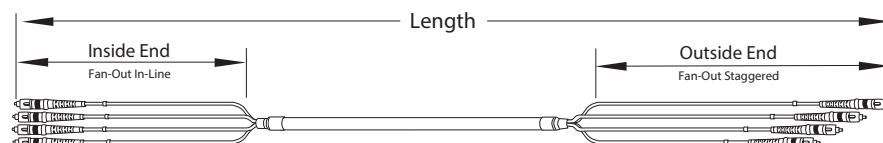
- Faster identification of fiber type with Erika Violet for OM4 cable, connectors and adapters
- Faster installation with pre-terminated solutions

EASIER

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

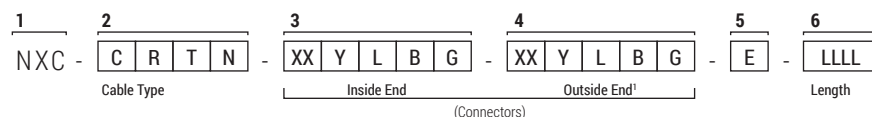
BETTER

- 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 μ m Multimode	6 6 Fibers
P Breakout 2.0 mm units	P OFNP - Plenum	N OM2 - 50 μ m Multimode	L 12 Fibers
U Mini-distribution ²	B Plenum Indoor Armored	F OM3 - 50 μ m Multimode	X 24 Fibers Sub-units
O Loose Tube	D Outdoor	G OM4 - 50 μ m Multimode	C 24 Fibers Non-unitized ³
	E Indoor / Outdoor Plenum	S OS2 - Singlemode	V 48 Fibers
			T 72 Fibers
			M 96 Fibers
			Z 144 Fibers

Faster.
Easier.
Better.

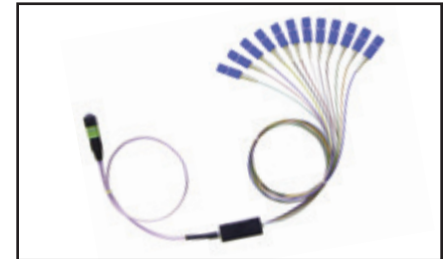


FiberExpress Pre-Terminated Assemblies (continued)

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 ⁴
ST ST	
PH 12-fiber MPO female	
PG 12-fiber MPO male	
LM mSFP (Mini LC)	
ZZ OPEN ⁴	



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 ⁵
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 ⁴	N None ⁴		

6 Length

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

Examples:

PEC Code	Description
NXC-MRFL-LCPFBN-LCPFBN-O-0015	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
NXC-UPFV-LDPFEN-PGPFEN-N-0020	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

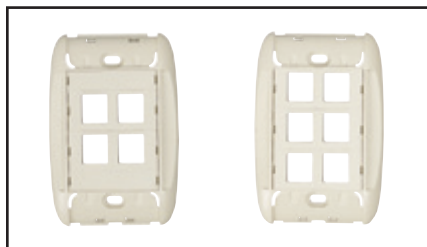
Please contact Belden to validate your PEC Code and for any other fiber cable assembly combinations not available in this guideline.

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



AX101874, MediaFlex Adapter Box, Double-Gang



AX101777, Labeling Window Cover for MediaFlex Plates

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

MediaFlex Faceplate Kits

Description	Belden Part Number	
	Almond	Elec. White
MediaFlex Faceplate Kit, KeyConnect-Style		
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

MediaFlex Workstation Outlets

Description	Belden Part Number	
	Almond	Elec. White
MediaFlex Plates		
Single-gang	AX101746	AX101747
Double-gang	AX101870	AX101871
MediaFlex Surface Adapter Boxes		
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

Faster.
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FiberExpress Workstation Outlets (continued)

MediaFlex Multimedia Inserts and KeyConnect Adapters

MediaFlex Inserts

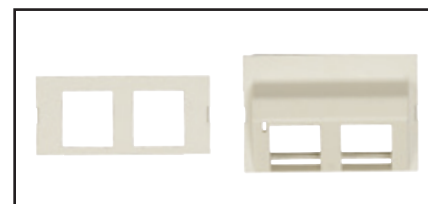
Description	Belden Part Number		
	Almond	Elec. White	Black
MediaFlex KeyConnect Module Insert			
2-port, Flush, bag of 10 pieces	AX102410	AX102411	AX102737
2-port, Angled, bag of 10 pieces	AX102412	AX101872	AX102735
MediaFlex Filler Inserts			
1 unit, bag of 10 pieces	AX101758	AX101759	AX101760
MediaFlex Multimedia Insert, Copper			
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
MediaFlex Multimedia Insert, Fiber			
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

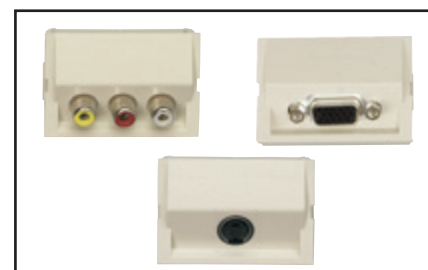
Refer to the Belden copper catalog for a larger selection of multimedia adapters.



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

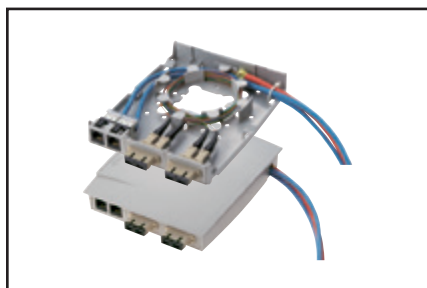
- Easier distribution of low port count connectivity and breakouts with self-contained designs
- Easier field-termination with easily accessible consolidation points

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 Aqua	OM4 Erika Violet	OS2 Blue	OS2/APC 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.

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



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

MDVO-Style Fiber Modules

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



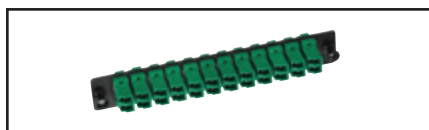
FX Brilliance Connectors



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 Pigtailed are offered in Multimode 62.5 μ m (OM1), laser-optimized 50 μ m (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 μ m 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.

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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.



Cable Selection Guide

Jacket Color Chart

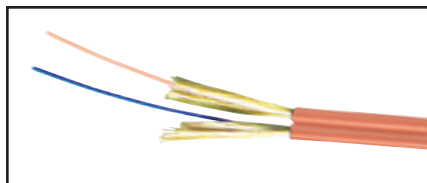
Cable Type	Jacket Color
Indoor Cables: Interconnect, Breakout, Distribution and Tray Optic	
OM1 & OM2	Orange
OM3	Aqua
OM4 (Standard)	Aqua
OM4 (Optional)	Erika Violet
OS2	Yellow
Indoor/Outdoor & Outdoor Cables: Distribution, Loose Tube, OSP	
OM1, OM2, OM3, OM4, OS2	Black
Specialty Cables: Tactical	
OM1,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

Specifications

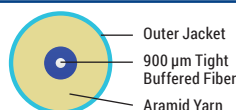
Bend Radius (vs. Cable OD)

Installation	15 x OD
Operation	10 x OD

Temperature Range

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

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

Description	Construction	Fiber Count	Fiber	Sub-Unit OD mm	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
Simplex 2.0 mm - Riser				
1	F11I001RB	F13I001RB	F14I001RBA	F15I001RB
Simplex 2.9 mm - Riser				
1	B97112	B9C001	B9E001	B9W001
Duplex 2.0 mm - Riser				
2	F11I002RB	F13I002RB	F14I002RBA	F15I002RB
Duplex 2.9 mm - Riser				
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

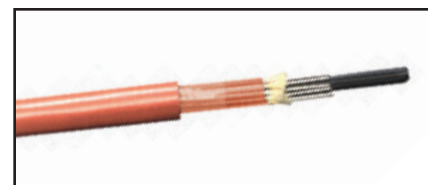
Robust terminations in demanding environments. All the ease of 900 μm tight buffered termination with only one fiber per sub-unit enables the ultimate bond between the connector and the cables' Aramid yarns resulting in unmatched strength and durability.

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			
									Operation		Installation	
				mm	mm	in.	Kg/km	lb/1000 ft.	N	lbs-f	N	lbs-f
Color-coded Sub-Units		2	900 μm TB	2.0	6.6	0.26	36	24	400	90	800	180
		4	900 μm TB	2.0	8.2	0.32	52	35	755	170	1535	345
		6	900 μm 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 μm TB	2.0	15.7	0.62	305	205	1335	300	2670	600

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.

Standard Configurations

Fiber Count	Belden Part Number			
	OM1 Orange	OM3 Aqua	OM4 Aqua	OS2 Yellow
Plenum				
2	B9B013	B9C013	B9E013	B9W013
4	B9B014	B9C014	B9E014	B9W014
6	B9B015	B9C015	B9E015	B9W015
12	B9B018	B9C018	B9E018	B9W018
LSZH/Riser				
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.

Specifications

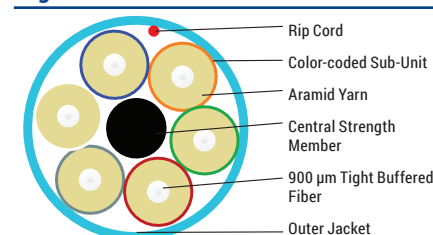
Bend Radius (vs. Cable OD)

Installation	15 x OD
Operation	10 x OD

Temperature Range

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

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

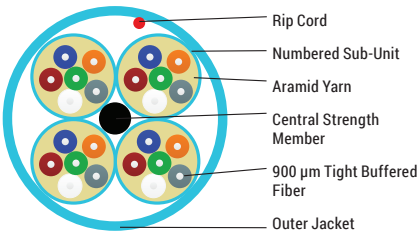
Bend Radius (vs. Cable OD)

Installation	15 x OD
Operation	10 x OD

Temperature Range

Storage	-40°C to 70°C (-40°F to 158°F)
Installation (Plenum/LSZH)	0°C to 60°C (32°F to 140°F)
Installation (Riser)	-10°C to 60°C (14°F to 140°F)
Operation (Plenum/LSZH)	0°C to 70°C (32°F to 158°F)
Operation (Riser)	-20°C to 70°C (-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	
					mm	in.	Kg/km	lb/1000 ft.	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			5.8	0.23	36	24	334	75	667	150
		10					39	26				
		12					43	29				
		16					8.8	0.35				
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

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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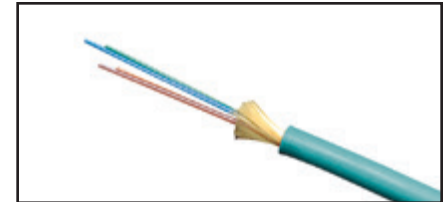
FiberExpress Distribution Cables (continued)

Tight Buffer — Indoor Riser & Plenum Rated

Standard Indoor Configurations

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

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



Optical Fiber Distribution Cable

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

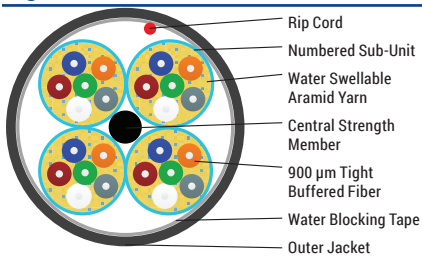
Bend Radius (vs. Cable OD)

Installation	20 x OD
Operation	10 x OD

Temperature Range

Storage	-40°C to 70°C (-40 to 158°F)
Installation	-20 to 70°C (-4 to 158°F)
Operation	-40 to 70°C (-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	
				mm	mm	in.	Kg/km	lb/1000 ft.	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	222	50	556	125
		8			5.8	0.23	36	24	334	75	667	150
		10					39	26				
		12					43	29				
		16			8.8	0.35	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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Easier.
Better.



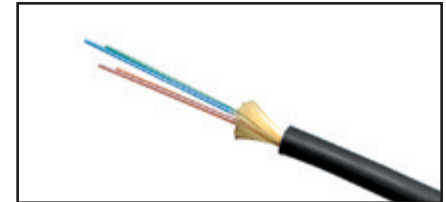
FiberExpress Distribution Cables (continued)

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

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



Optical Fiber Distribution Cable, Indoor/Outdoor

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

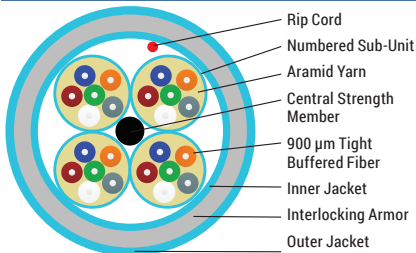
Bend Radius (vs. Cable OD)

Installation	20 x OD
Operation	15 x OD

Temperature Range

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

Faster.
Easier.
Better.



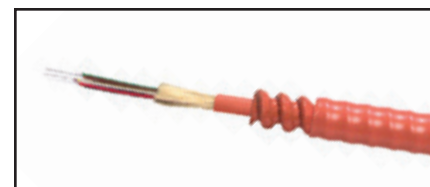
FiberExpress Armored Distribution Cables (continued)

Tight Buffer — Indoor Riser & Plenum Rated

Standard Indoor Configurations

Fiber Count	Belden Part Number			
	OM1 Orange	OM3 Aqua	OM4 Aqua	OS2 Yellow
Non-unitized - Riser				
6	B9B230	B9C230	B9E230	B9W230
12	B9B231	B9C231	B9E231	B9W231
24	B9B233	B9C233	B9E233	B9W233
Non-unitized - Plenum				
6	B9B240	B9C240	B9E240	B9W240
12	B9B241	B9C241	B9E241	B9W241
24	B9B242	B9C242	B9E242	B9W242
Unitized 6-Fiber Sub-Units - Plenum				
24	B9B243	B9C243	B9E243	B9W243
Unitized 12-Fiber Sub-Units - Plenum				
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

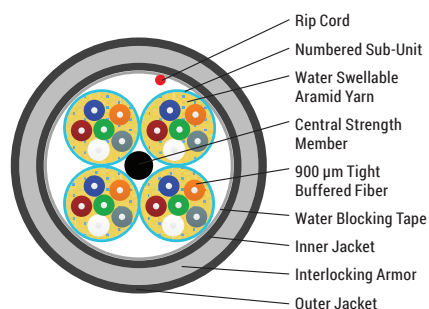
Bend Radius (vs. Cable OD)

Installation	20 x OD
Operation	15 x OD

Temperature Range

Storage	-40°C to 70°C (-40°F to 158°F)
Installation	-20°C to 70°C (-4°F to 158°F)
Operation	-40°C to 70°C (-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	
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)

Faster.
Easier.
Better.



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
Non-unitized - Riser				
6	B9B230T	B9C230T	B9E230T	B9W230T
12	B9B231T	B9C231T	B9E231T	B9W231T
24	B9B233T	B9C233T	B9E233T	B9W233T
Non-unitized - Plenum				
6	B9B240T	B9C240T	B9E240T	B9W240T
12	B9B241T	B9C241T	B9E241T	B9W241T
24	B9B242T	B9C242T	B9E242T	B9W242T
Unitized 6-Fiber Sub-Units - Plenum				
24	B9B243T	B9C243T	B9E243T	B9W243T
Unitized 12-Fiber Sub-Units - Plenum				
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.

Brilliance Maxi-Bend Specifications

- Environmental Protection
 - UV Resistant Jacket

Applications

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

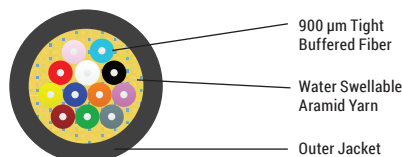
Specifications

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

Temperature Range

Storage	-70°C to +85°C (-94°F to 185°F)
Operation/Installation	-55°C to 85°C (-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

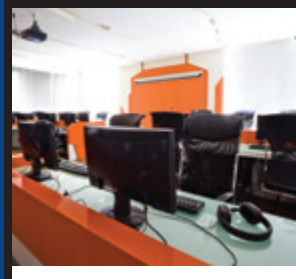
Description	Construction	Fiber Count	Fiber	Sub-Unit OD	Cable OD		Weight		Tensile Strength			
					mm	in.	Kg/km	lb/1000 ft.	Operation		Installation	
Non-Unitized		2	900 µm TB	N/A	6.1	0.24	33	22	667	150	1468	330
		4										
		6										
		8										
		12			7.1	0.28	37	25				

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.

Faster.
Easier.
Better.



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)

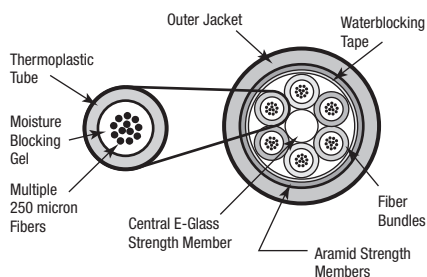
Storage	-40°C to 75°C
Operating	-40°C to 70°C

Min. Bend Radius

Installation	20 x OD
Long Term	15 x OD

Optical Specifications See page 33

Legend

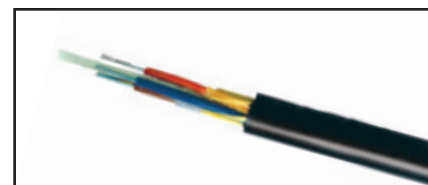


Compliance

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

Functional Requirements

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



Single Jacket, All Dielectric Optical Fiber Cable

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 62.5 / 125 µm Std. / 1 Gb	OM2 50 / 125 µm Std. / 1 Gb	OM3 50 / 125 µm 10 Gb – 300 m	OM4 50 / 125 µm 10 Gb – 550 m	OS2 Singlemode Enhanced	Inch	mm	lb/1000 ft	kg/km	lb	N	
Outdoor													
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	
Riser (NEC/CEC OFNR/OFN FT.4) Indoor/Outdoor													
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 62.5 / 125 µm Std. / 1 Gb	OM2 50 / 125 µm Std. / 1 Gb	OM3 50 / 125 µm 10 Gb – 300 m	OM4 50 / 125 µm 10 Gb – 550 m	OS2 Singlemode Enhanced	Inch	mm	lb/1000 ft	kg/km	lb	N
LSZH (NEC/CEC OFNR/OFN FT.4) Indoor/Outdoor												
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

Faster.
Easier.
Better.



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

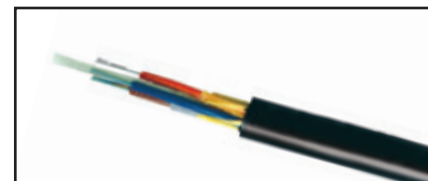
(EIA-455-104) 2000 cycles, min.

Min. Bend Radius

Installation	20 x OD
Long Term	15 x OD

Optical Specifications

See page 33



Single Jacket, All Dielectric Optical Fiber Cable

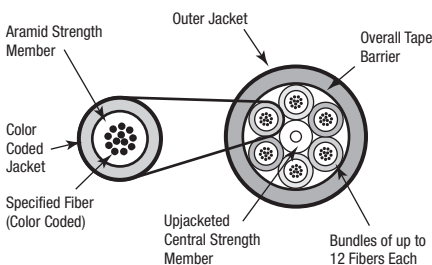
Compliance

- 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 62.5 / 125 µm Std. / 1 Gb	OM2 50 / 125 µm Std. / 1 Gb	OM3 50 / 125 µm 10 Gb – 300 m	OM4 50 / 125 µm 10 Gb – 550 m	OS2 Singlemode Enhanced	Inch	mm	lb/1000 ft	kg/km	lb	N	
Plenum (NEC/CEC OFNP/OFN FT.6) Indoor/Outdoor													
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 Cable

Double Jacket, Armored Loose Tube Cables (OSP Type)

Loose Tube – Outdoor, and Indoor/Outdoor Riser Rated

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

Riser

Buffer Tube

Strength Member

Central Strength Member

Armor

Color Code (Buffer)

Jacket Color

Ratings

Riser

PE

PVC

Thermoplastic

Aramid Yarn

E-Glass

Corrugated Steel Tape

Per TIA/EIA 598-B,
See page 33

Black

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

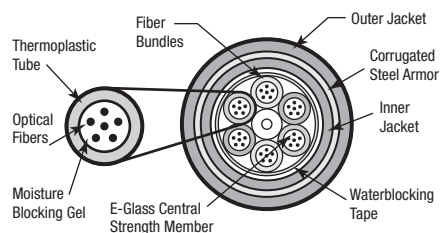
Min. Bend Radius

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.
Better.



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

Loose Tube – Outdoor, and Indoor/Outdoor Riser Rated

Loose Tube Series – Armored

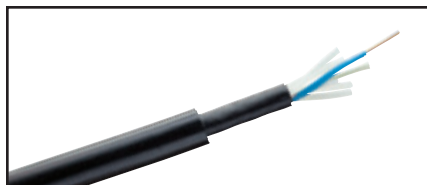


No. of Fibers	No. of Fibers Per Bundle	Belden Part Number					Outside Diameter		Weight		Max. Install Load		
		OM1 62.5 / 125 µm Std. / 1 Gb	OM2 50 / 125 µm Std. / 1 Gb	OM3 50 / 125 µm 10 Gb – 300 m	OM4 50 / 125 µm 10 Gb – 550 m	OS2 Singlemode Enhanced	Inch	mm	lb/1000 ft	kg/km	lb	N	
Outdoor													
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	
Riser (NEC/CEC OFCR/OFC FT.4) Indoor/Outdoor													
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

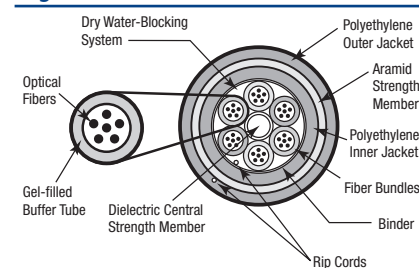
Storage -40°C to 75°C
Operating -40°C to 70°C

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

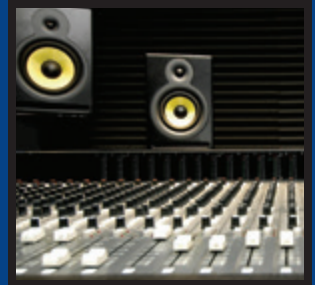
- GR-20-CORE

Loose Tube Series – Heavy Duty



No. of Fibers	No. of Fibers Per Bundle	Belden Part Number					Outside Diameter		Weight		Max. Install Load	
		OM1 62.5 / 125 µm Std. / 1 Gb	OM2 50 / 125 µm Std. / 1 Gb	OM3 50 / 125 µm 10 Gb – 300 m	OM4 50 / 125 µm 10 Gb – 550 m	OS2 Singlemode Enhanced	Inch	mm	lb/1000 ft	kg/km	lb	N
Outdoor												
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

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

Specifications

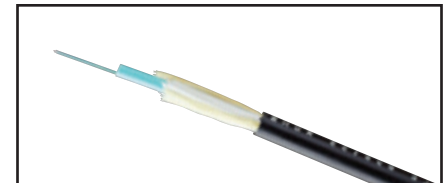
Temperature Range

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

Min. Bend Radius

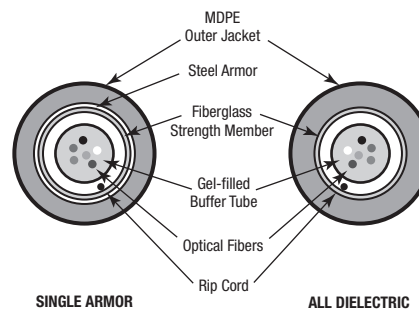
Installation	20 x OD
Long Term	15 x OD

Optical Specifications See page 33



Outdoor Loose Tube Cable

Legend



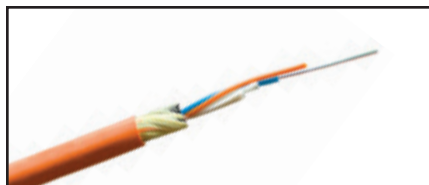
Functional Requirements

- GR-20-CORE

Central Tube Series



No. of Fibers	Belden Part Number					Outside Diameter		Weight		Max. Install Load	
	OM1 62.5 / 125 µm Std. / 1 Gb	OM2 50 / 125 µm Std. / 1 Gb	OM3 50 / 125 µm 10 Gb – 300 m	OM4 50 / 125 µm 10 Gb – 550 m	OS2 Singlemode Enhanced	Inch	mm	lb/1000 ft	kg/km	lb	N
Outdoor											
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
Outdoor Armored											
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



Tray Optic Cable

TrayOptic® Industrial, Heavy-Duty, All Dielectric Cables

Loose Tube — Indoor/Outdoor Riser Rated

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

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

Ratings

Riser	
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
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Impact Resistance

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

(EIA-455-104)	25 cycles, 12 lbs., 20 x OD radius min.
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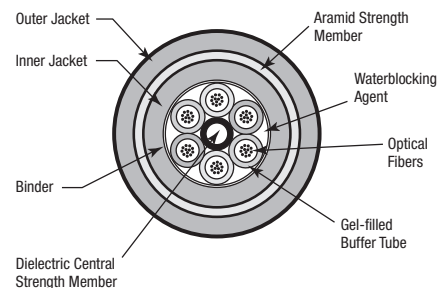
Min. Bend Radius

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 62.5 / 125 µm Std. / 1 Gb	OM2 50 / 125 µm Std. / 1 Gb	OM3 50 / 125 µm 10 Gb – 300 m	OM4 50 / 125 µm 10 Gb – 550 m	OS2 Singlemode Enhanced	Inch	mm	lb/1000 ft	kg/km	lb	N	
Riser (NEC/CEC OFNR/OFN FT.4) PVC Jacket Indoor/Outdoor													
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	
Riser (NEC/CEC OFNR/OFN FT.4) CPE Jacket Indoor/Outdoor													
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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Faster.
Easier.
Better.



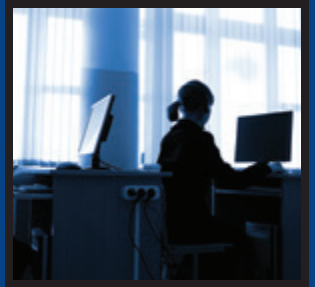
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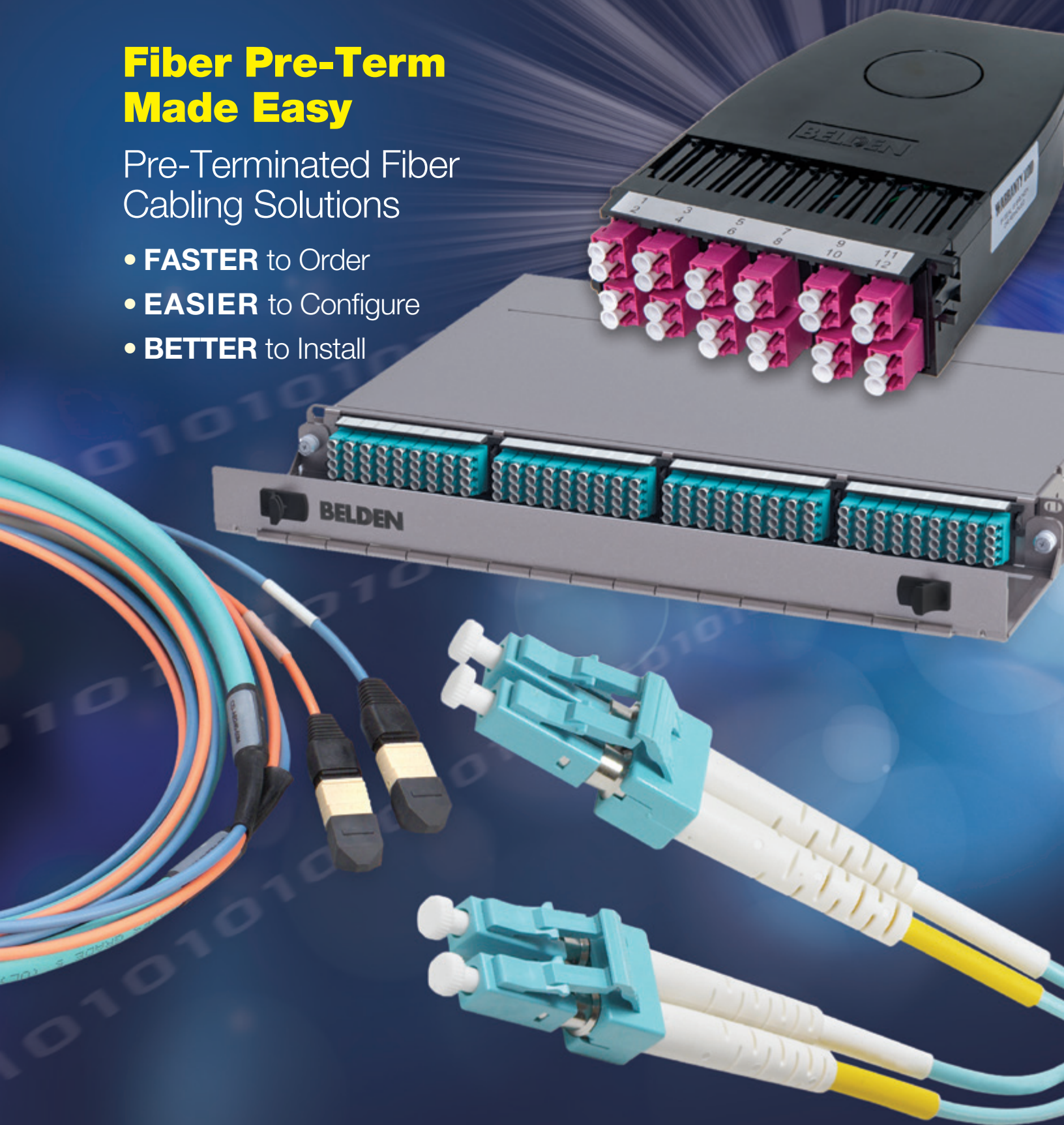
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