

# BELDEN



U.S. EDITION

## **Fiber Product Selection Guide** for Data Centers and LAN Installations



## **Selection Guide:** **Fiber Systems for In-Building Cabling**

### [Build a Fiber Product Portfolio to Fit Your Project Requirements](#)

Belden's fiber solutions are built for easy installation, to handle various density requirements and to support simple and on-demand scalability. Paired with our unmatched collaborative approach to service, Belden is right there with you: We'll help you build a fiber solution that meets the requirements of any project.

This guide includes a product selector to help you get started with selecting the right system—from the media type to the system type. It also includes local area network (LAN) and data center (DC) system selection examples, followed by media and system types with associated hardware and accessories.





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## BELDEN FX SYSTEMS PERFORMANCE CHART

Belden System	FX OM1	FX OM3	FX OM4	FX OS2
Standard	OM1 - 62.5 $\mu$ m Multimode Non-Bend-Insensitive TIA-492AAAA ANSI/TIA-568-D.3 ISO/IEC 11801	OM3 - 50 $\mu$ m Multimode Bend-Insensitive TIA-492AAAC ANSI/TIA-568-D.3 ISO/IEC 11801	OM4 - 50 $\mu$ m Multimode Bend-Insensitive TIA-492AAD ANSI/TIA-568-D.3 ISO/IEC 11801	OS2 - 9 $\mu$ m Singlemode Bend-Insensitive TIA-492CAAB ANSI/TIA-568-D.3 ISO/IEC 11801 ITU G.657A1
Ethernet Applications	Legacy 1G up to 275 m	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
Fiber Channel Applications	Legacy 1G up to 300 m	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	Aqua	Erika Violet Aqua (optional)*	Yellow
Connector and Adapter Color	Beige	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 0.35 dB LC/SC/ST 0.25 dB	MPO-12 0.2 dB LC/SC/ST 0.15 dB	MPO-12 0.5 dB LC/SC/ST 0.35 dB
Fiber Cable Loss	Tight Buffer (900 $\mu$ m) 3.5 dB @ 850 nm 1.25 dB @ 1300 nm Enterprise Loose Tube (250 $\mu$ m) 3.25 dB @ 850 nm 1.0 dB @ 1300 nm	Tight Buffer (900 $\mu$ m) 3.0 dB @ 850 nm 1.0 dB @ 1300 nm Enterprise Loose Tube (250 $\mu$ m) 3.0 dB @ 850 nm 1.0 dB @ 1300 nm	Tight Buffer (900 $\mu$ m) 3.0 dB @ 850 nm 1.0 dB @ 1300 nm Enterprise Loose Tube (250 $\mu$ m) 3.0 dB @ 850 nm 1.0 dB @ 1300 nm	Tight Buffer (900 $\mu$ m) 0.5 dB @ 1310 nm 0.5 dB @ 1550 nm Enterprise Loose Tube (250 $\mu$ m) 0.4 dB @ 1310 nm 0.3 dB @ 1550 nm
Min. EMB (MHz-km)	N/A	2000 @ 850 nm	4700 @ 850 nm	N/A
Min. OFL Bandwidth (MHz-km)	200 @ 850 nm 500 @ 1300 nm	1500 @ 850 nm 500 @ 1300 nm	3500 @ 850 nm 500 @ 1300 nm	N/A



# Fiber Solutions

## Product Selector

**Legend:** ● = Recommended/Possible Solution  
 ■ = Use with Caution/May Not be Ideal

**STEP 1:** Select media type based on your technology, network speed and Ethernet characteristics.

Media Selector	General			Typical Ethernet Characteristics		
	Technology	Network Speed	Speed	Loss Budget	Length	Applications
OM1	Legacy	Low Speed	<1 Gigabit	High	< 2000 m	OT Controls
OM3	Current	Some High Speed	10 Gigabit	Low	< 300 m	Network/IoT
OM4	Current	High Speed	100 Gigabit	Low	< 150 m	Network/IoT
OS2	Current	Very High Speed	400 Gigabit+	High	< 10 km	Network/IoT/Long Haul

**STEP 2:** Select cable termination type based on your available resources, tools, time constraints, etc.

Cabling Methods & Materials	Resources & Tooling			Time Constraints			Length				Purpose		Fiber Count	
	Installation Expertise	Testing Expertise	Limited Expertise	Limited Planning	Limited Installation	No Constraints	Variable	Predictable	Known	Unknown	Modular	Fixed	Low/Medium	High
Pre-Terminated Fiber	●	●	■	■	●	●	■	●	●	●	■	●	●	●
Field-Terminated Fiber	●	■	■	●	■	●	●	●	●	●	■	●	●	●
Combination Systems	●	■	■	●	●	●	●	●	●	●	■	●	●	●






**STEP 3:** Select platform type based on your density, connectivity and mounting requirements.





Connectivity Platforms & Materials	Density		Media Types Accepted & Advanced Connectivity					Mounting Type				Building Types			Data Center Types			
	Typical	Maximum Density per RU (strands/duplex ports/MPO ports)	Fiber Only	Fiber & Copper	Other Media	TAP Capable	PON Capable	Rack-Mount	Wall-Mount	Dedicated Mount	Special Mounts (e.g. Zero U)	Residential	Commercial LAN	Warehouse & Industrial	Edge DC	Small- to Mid-Scale	Large-Scale DC	Hyperscale & Central Office
FX ECX Platform	Low-Mid	48/24/na	●	●	●	—	●	●	●	—	—	●	●	●	●	●	—	—
FX UHD Platform	Mid-High	576/48/48	●	●	●	●	●	●	●	—	●	●	●	●	●	●	●	●



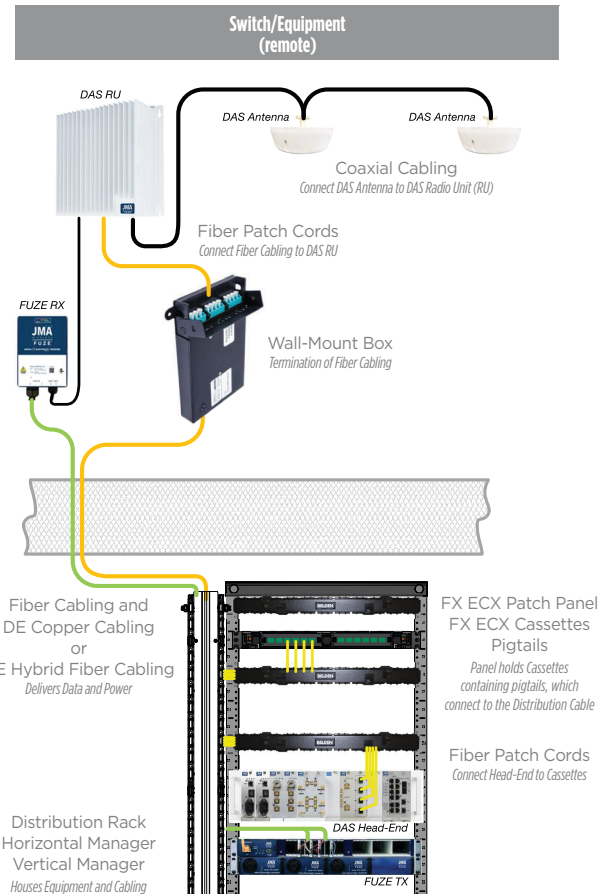
## Fiber Solutions LAN Use Cases

### EXAMPLE 1: DISTRIBUTED ANTENNA SYSTEM (DAS)




Fiber Cabling	Pigtails	Cassettes	FX ECX Patch Panels	Patch Cords
				
FX Indoor OS2 6f OFNP Distribution Cable, Tight Buffer	FX Field-Term Pigtails, OS2, LC/APC Simplex 900 µm, 12f	FX ECX Splice Cassette, OS2, LC/APC Duplex, 6-Port, 12f	FX ECX 1U Housing	FX Patch Cord, OS2, LC/APC Duplex - SC/APC Duplex, 2.0 mm, A-TO-B




Wall-Mount	Digital Electricity™ (DE) Cabling	Coaxial Cabling	Racks and Managers
			
FX Multi-Box Field-Terminated, OS2, 12f, LC/APC, w/Pigtails	DE Copper Only 16 AWG, 2-Pairs, Plenum	1/2" Air Plenum Coax, Blue	Horizontal & Vertical Cable Manager Distribution Rack





Note: for additional components, [www.jma.com](http://www.jma.com)

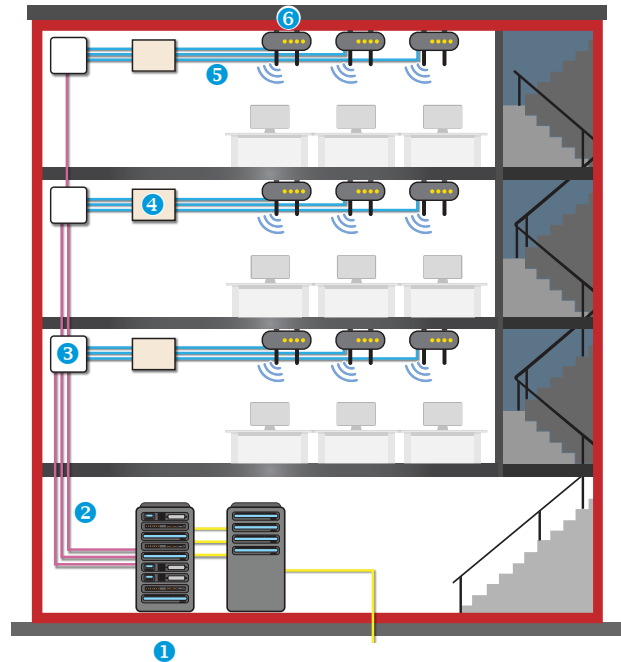


## EXAMPLE 2: SMALL CELL

Racks and Managers	ECX Patch Panels	Cassettes
		
Horizontal & Vertical Managers, Distribution Rack	FX ECX 1U Housing	LC Duplex Splice Cassette, OM4 Adapters

Pigtails	Patch Cords	Fiber Cabling
		
FX Field-Term Pigtails, OM4 LC, 900 µm, 12f	FX Pre-Terminated Assemblies, OM4, LC Duplex to LC Duplex, Zip Cord	FX Indoor OM4 12f Non-Utilized - Plenum Distribution Cable, Tight Buffer

Patch Panels	Patch Cords	Copper Cabling	FlexPlugs
			
10GX REVConnect Patch Panel 24-port, 1U (Preloaded)	10GX Patch Cord, Bonded-Pair, 4-Pair, 23 AWG Solid, CMR, T568A/B-T568A/B	10GXW13 Category 6A Cable, 4-Pair, U/UTP, CMP	REVConnect 10GX UTP FlexPlug, 18"



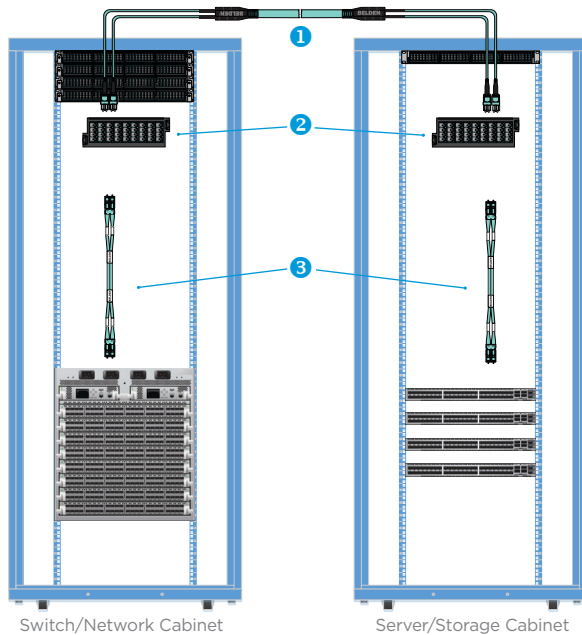
- 1 Centralized Unit (CU) with Fiber Connections: Distribution Rack, Cable Management, Fiber Housings, Cassettes, Pigtails and Patch Cords
- 2 Fiber Cable: typically OM4 or OS2
- 3 Distribution Unit (DU)
- 4 Copper Interconnect: Copper Patch Panels and Patch Cords
- 5 Copper Data Cable with power: typically Category 6A
- 6 Radio Unit (RU): use FlexPlug for tight connection points



## Fiber Solutions DC Use Cases

### EXAMPLE 1: TWO-CONNECTOR CHANNEL WITH DISCREET PATCHING (DUPLIX FIBER EQUIPMENT PORTS)

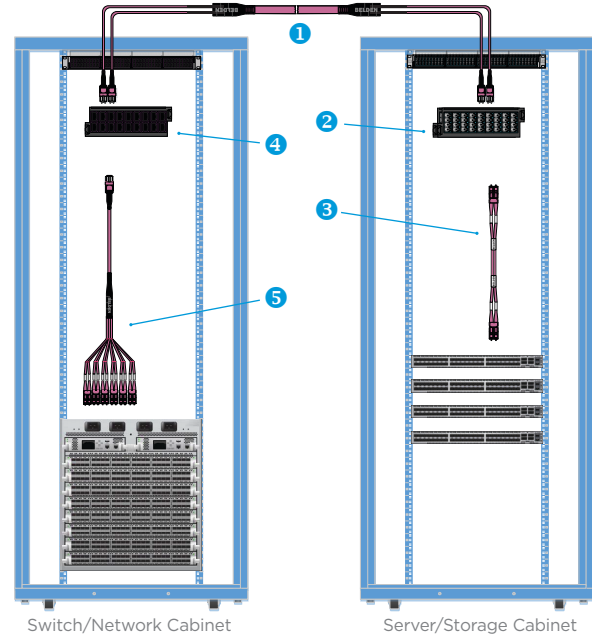
A two-connector channel for bi-directional or one direction applications (ex: 10G) using FX UHD Patch Panels, MPO-LC Pre-Term Cassettes in both switch/network cabinets and server/storage cabinets. FX MPO Trunks are used between the panels as permanent link connections. FX LC-LC Duplex Patch Cords are used for patching between the patch panels to the active equipment.



- 1 FX MPO Trunk
- 2 FX UHD MPO-LC Pre-terminated Cassette
- 3 FX LC Duplex Patch Cord

### EXAMPLE 2: TWO-CONNECTOR CHANNEL WITH HYDRA/DISCREET PATCHING (DUPLIX FIBER EQUIPMENT PORTS)

A two-connector channel for bi-directional or one direction applications (ex: 10G) using FX UHD Patch Panels, MPO-LC Pre-Term Cassettes in the switch/network cabinets and MPO Adapter Frames in the server/storage cabinets. FX MPO Trunks are used between the panels as permanent link connections. FX LC-LC Duplex Patch Cords are used for patching in the server/storage cabinets and MPO-LC Hydra Patch Cords are used for patching in the switch/network cabinets saving a point of connection and reducing the loss budget for the channel.

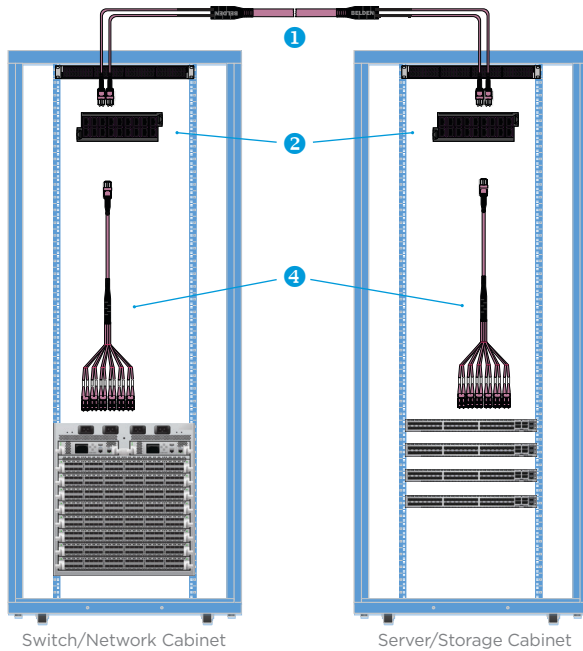


- 4 FX UHD MPO Adapter Frame
- 5 FX Hydra Patch Cord



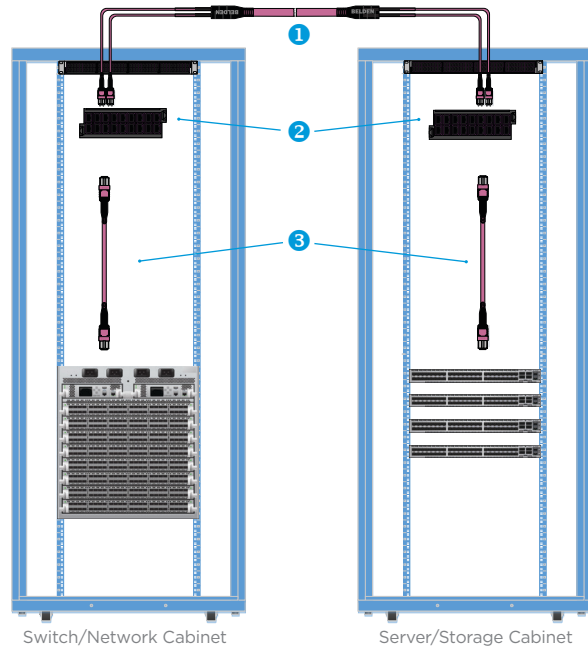
### EXAMPLE 3: HYDRA-TO-HYDRA PATCHING (DUPLIX FIBER EQUIPMENT PORTS)

A two-connector channel for bi-directional or one direction applications (ex: 10G) using FX UHD Patch Panels, MPO Adapter Frames in both switch/network cabinets and server/storage cabinets. FX MPO Trunks are used between the panels as permanent link connections. FX MPO-LC Hydra Cords are used for patching between the patch panels to the active equipment saving a point of connection at each cabinet side reducing the loss budget for the channel.



### EXAMPLE 4: TWO-CONNECTOR CHANNEL WITH MPO PATCHING (MULTI-FIBER EQUIPMENT PORTS)

A two-connector channel for multi-fiber applications (ex: 40G, 100G) using the FX UHD Patch Panels, MPO Adapter Frames in both switch/network cabinets and server/storage cabinets. FX MPO Trunks are used between the panels as permanent link connections. FX MPO Patch Cords are used for patching between the patch panels to the active equipment.



## Fiber Cable & Connectivity

Belden offers an extensive line of indoor and outdoor cable products in tight buffer and loose tube designs. You may choose from our selection of field-terminated cables or pre-terminated assemblies in OM1, OM3, OM4, and OS2 (Singlemode) media types.

### Eligible Fiber Products Can Ship Same-Day

To make sure fiber product availability and accessibility don't slow you down, Belden also offers same-day shipping on 60+ fiber cable and connectivity products.

There are no minimum or maximum order sizes: request 20 feet or 1,000 feet of cable, one connector or 500 connectors, or whatever else you need.

This same-day shipping service is available for projects of any size, from small enterprise data centers to large stadiums—and everything in between.



## Need Fiber? Have It Shipped Today!

To take advantage of Belden's Fiber Same-Day Shipping service, installers simply order the eligible fiber cabling and connectivity solutions they want through their selected Belden Distributor, specifying the same-day shipping program. Product orders placed by distributors to Belden Customer Service by 2pm ET on a business day will be processed as a same-day order. Orders received after 2pm ET will be processed as a same-day order on the following business day.

For a complete list of eligible products, please visit:

[www.belden.com/ship-same-day](http://www.belden.com/ship-same-day)

# OM1 (62.5 μm Multimode Fiber) Cabling | Field-Terminated System

## INDOOR CABLE

FX Distribution		FX Armored Distribution		FX Interconnect 2.0 mm	
Riser	Plenum	Riser	Plenum	Riser	Plenum
F11D006R9	F11D006P9	F11D006F9	F11D006A9	F11I002RB	F11I002PB
F11D012R9	F11D012P9	F11D012F9	F11D012A9	—	—
F11D024R9	F11D024P9	F11D024F9	F11D024A9	—	—

## INDOOR/OUTDOOR CABLE

FX Distribution		FX Loose Tube		
Riser	Plenum	Riser (Gel-Free)	Riser (Gel-Filled)	Plenum (Gel-Free)
FD1D024R9	FD1D024P9	FD1L006RC	FD1L006RF	FD1L006PC
FD1D048RK	FD1D048PK	FD1L012RD	FD1L012RG	FD1L012PD
FD1D072RK	FD1D072PK	FD1L024RD	FD1L024RG	FD1L024PD
FD1D096RK	FD1D096PK	FD1L048RD	FD1L048RG	FD1L048PD
FD1D144RK	FD1D144PK	FD1L072RD	FD1L072RG	FD1L072PD

## OUTDOOR CABLE

FX All-Dielectric Loose Tube		FX Armored Loose Tube	
Gel-Free	Gel-Filled	Gel-Free	Gel-Filled
FS1L012ND	FS1L012NG	FS1L0126D	FS1L0126G
FS1L024ND	FS1L024NG	FS1L0246D	FS1L0246G
FS1L048ND	FS1L048NG	FS1L0486D	FS1L0486G
FS1L072ND	FS1L072NG	FS1L0726D	FS1L0726G

## CONNECTORS

Termination	Performance	LC	SC	ST
FX Brilliance (Mechanical)	Standard	AX105200-S1	AX105205-S1	AX105210-S1
FX Fusion (Splice-on)	High	FTILC900FS01	FTISC900FS01	—

## PATCH CORDS

2-Fiber Jumpers, Riser	
LC Duplex to LC Duplex (2.0 mm Duplex cord)	FPILDLDxxxM
LC Duplex to ST (2.0 mm Duplex cord)	FPILDSTxxxM
SC Duplex to SC Duplex (3.0 mm Duplex cord)	FPISDSDxxxM
ST to ST (3.0 mm Duplex cord)	FPISTSTxxxM
LC Duplex to SC Duplex (2.0 mm Duplex cord)	FPILDSDxxxM
ST to SC Duplex (3.0 mm Duplex cord)	FPISDSTxxxM

Where xxx is the length in meters.

## TOOLKITS

FX Brilliance Precision Installation Kit	AX104271
FX Fusion Splicer	FXFSTOSPL
FX Fusion Standard Toolkit	FXFSTOSTK
FX Fusion Precision Toolkit	FXFSTOPTK



## OM3 (50 µm Multimode Fiber) Cabling | Field-Terminated System

### INDOOR CABLE

FX Distribution		FX Armored Distribution		FX Interconnect 2.0 mm	
Riser	Plenum	Riser	Plenum	Riser	Plenum
FI3D006R9	FI3D006P9	FI3D006F9	FI3D006A9	FI3I002RB	FI3I002PB
FI3D012R9	FI3D012P9	FI3D012F9	FI3D012A9	—	—
FI3D024R9	FI3D024P9	FI3D024F9	FI3D024A9	—	—

### INDOOR/OUTDOOR CABLE

FX Distribution		FX Loose Tube		
Riser	Plenum	Riser (Gel-Free)	Riser (Gel-Filled)	Plenum (Gel-Free)
FD3D024R9	FD3D024P9	FD3L006RC	FD3L006RF	FD3L006PC
FD3D048RK	FD3D048PK	FD3L012RD	FD3L012RG	FD3L012PD
FD3D072RK	FD3D072PK	FD3L024RD	FD3L024RG	FD3L024PD
FD3D096RK	FD3D096PK	FD3L048RD	FD3L048RG	FD3L048PD
FD3D144RK	FD3D144PK	FD3L072RD	FD3L072RG	FD3L072PD

### OUTDOOR CABLE

FX All-Dielectric Loose Tube		FX Armored Loose Tube	
Gel-Free	Gel-Filled	Gel-Free	Gel-Filled
FS3L012ND	FS3L012NG	FS3L0126D	FS3L0126G
FS3L024ND	FS3L024NG	FS3L0246D	FS3L0246G
FS3L048ND	FS3L048NG	FS3L0486D	FS3L0486G
FS3L072ND	FS3L072NG	FS3L0726D	FS3L0726G

### CONNECTORS

Termination	Performance	LC	SC	ST
FX Brilliance (Mechanical)	Standard	AXI05202-S1	AXI05207-S1	AXI05212-S1
FX Fusion (Splice-on)	High	FT3LC900FS01	FT3SC900FS01	—
FX Pigtails, 900 µm (Bulk Pack of 12)	High	FT3LC900PR12	FT3SC900PR12	FT3ST900PR12
Fusion Splice Heat Shrink Protector Sleeves 900 µm (25 pkg)	—	FXFUHS900AB25	FXFUHS900AB25	FXFUHS900AB25

### PATCH CORDS

2-Fiber Jumpers, Riser	
LC Duplex to LC Duplex, (2.0 mm Duplex cord)	FP3LDLDxxxM
LC Duplex to ST (2.0 mm Duplex cord)	FP3LDSTxxxM
SC Duplex to SC Duplex (3.0 mm Duplex cord)	FP3SDSDxxxM
ST to ST (3.0 mm Duplex cord)	FP3STSTxxxM
LC Duplex to SC Duplex (2.0 mm Duplex cord)	FP3LDSDxxxM
ST to SC Duplex (3.0 mm Duplex cord)	FP3SDSTxxxM

Where xxx is the length in meters.

### TOOLKITS

FX Brilliance Precision Installation Kit	AXI04271
FX Fusion Splicer	FXFSTOSPL
FX Fusion Standard Toolkit	FXFSTOSTK
FX Fusion Precision Toolkit	FXFSTOPTK





# OM3 (50 µm Multimode Fiber) | Pre-Terminated System

## ASSEMBLIES

MPO Trunks (Male to Male) Base-12, Plenum	Belden Part Number
12 fibers	FM3MMB1xxxMPMEA
24 fibers	FM3MMB2xxxMPMEA
36 fibers	FM3MMB3xxxMPUEA
48 fibers	FM3MMB4xxxMPUEA
72 fibers	FM3MMB6xxxMPUEA
96 fibers	FM3MMB8xxxMPUEA
144 fibers	FM3MMBDxxxMPUEA

MPO Trunks (Male to Male) Base-8, Plenum	Belden Part Number
8 fibers	FM34MB1xxxMPMEA
16 fibers	FM34MB2xxxMPMEA
24 fibers	FM34MB3xxxMPMEA
32 fibers	FM34MB4xxxMPUEA
48 fibers	FM34MB6xxxMPUEA
64 fibers	FM34MB8xxxMPUEA
96 fibers	FM34MBDxxxMPUEA

Where xxx is the length in meters.

Other polarity options are available for MPO trunks and MPO patch cords: Type A and Type C

Other polarity options are available for MPO - LC harnesses



## CABLE HARNESSES/HYDRA CORDS

MPO(F) Base-12 to LC, Plenum	Belden Part Number
MPO(F) to LC Duplex, Type A (Straight polarity)	FP3LDMFxxxM
MPO(F) to LC Uniboot, Type A (Straight polarity)	FP3LUMFxxxM

MPO(F) Base-8 to LC, Plenum	Belden Part Number
MPO(F) to LC Duplex SR4	FP3LD4FxxxM
MPO(F) to LC Uniboot SR4	FP3LU4FxxxM

## PATCH CORDS

MPO(F) to MPO(F) Fiber Jumpers, Plenum	Belden Part Number
MPO(F) to MPO(F) Base-12 Type B	FP3MFMFxxxM
MPO(F) to MPO(F) Base-8 Type B	FP34F4FxxxM

2-Fiber Jumper, Riser	Belden Part Number
LC Uniboot to LC Uniboot (Mini-round 2f 2.0 mm)	FP3LULUxxxM
LC Duplex to LC Duplex (1.6 mm Duplex cord)	FP3LDLDxxxMRIXE
LC Duplex to ST (1.6 mm Duplex cord)	FP3LDSTxxxMRIXE
LC Duplex to SC Duplex (1.6 mm Duplex cord)	FP3LDSDxxxMRIXE

Pre-terminated assemblies offer reduced cable stress (Integrated transition boot – bend radius control) 100 lbs pulling tension, faster pulling eye removal and easy patch panel attachment.



## OM4 (50 µm Multimode Fiber) Cabling | Field-Terminated System

### INDOOR CABLE

FX Distribution		FX Armored Distribution		FX Interconnect 2.0 mm	
Riser	Plenum	Riser	Plenum	Riser	Plenum
FI4D006R9	FI4D006P9	FI4D006F9	FI4D006A9	FI4I002RB	FI4I002PB
FI4D012R9	FI4D012P9	FI4D012F9	FI4D012A9	—	—
FI4D024R9	FI4D024P9	FI4D024F9	FI4D024A9	—	—

### INDOOR/OUTDOOR CABLE

FX Distribution		FX Loose Tube		
Riser	Plenum	Riser (Gel-Free)	Riser (Gel-Filled)	Plenum (Gel-Free)
FD4D024R9	FD4D024P9	FD4L006RC	FD4L006RF	FD4L006PC
FD4D048RK	FD4D048PK	FD4L012RD	FD4L012RG	FD4L012PD
FD4D072RK	FD4D072PK	FD4L024RD	FD4L024RG	FD4L024PD
FD4D096RK	FD4D096PK	FD4L048RD	FD4L048RG	FD4L048PD
FD4D144RK	FD4D144PK	FD4L072RD	FD4L072RG	FD4L072PD

### OUTDOOR CABLE

FX All-Dielectric Loose Tube		FX Armored Loose Tube	
Gel-Free	Gel-Filled	Gel-Free	Gel-Filled
FS4L012ND	FS4L012NG	FS4L0126D	FS4L0126G
FS4L024ND	FS4L024NG	FS4L0246D	FS4L0246G
FS4L048ND	FS4L048NG	FS4L0486D	FS4L0486G
FS4L072ND	FS4L072NG	FS4L0726D	FS4L0726G

### CONNECTORS

Termination	Performance	LC	SC	ST
FX Brilliance (Mechanical)	Standard	AXI05252-S1	AXI05253-S1	AXI05254-S1
FX Fusion (Splice-on)	High	FT4LC900FS01	FT4SC900FS01	
FX Pigtailed, 900 µm (Bulk Pack of 12)	High	FT4LC900PR12	FT4SC900PR12	FT4ST900PR12
Fusion Splice Heat Shrink Protector Sleeves 900 µm (25 pkg)	—	FXFUHS900AB25	FXFUHS900AB25	FXFUHS900AB25

### PATCH CORDS

2-Fiber Jumpers, Riser	
LC Duplex to LC Duplex (2.0 mm Duplex cord)	FP3LDLDxxxM
LC Duplex to ST (2.0 mm Duplex cord)	FP3LDSTxxxM
SC Duplex to SC Duplex (3.0 mm Duplex cord)	FP3SDSDxxxM
ST to ST (3.0 mm Duplex cord)	FP3STSTxxxM
LC Duplex to SC Duplex (2.0 mm Duplex cord)	FP3LDSDxxxM
ST to SC Duplex (3.0 mm Duplex cord)	FP3SDSTxxxM

Where xxx is the length in meters.

### TOOLKITS

FX Brilliance Precision Installation Kit	AXI04271
FX Fusion Splicer	FXFSTOSPL
FX Fusion Standard Toolkit	FXFSTOSTK
FX Fusion Precision Toolkit	FXFSTOPTK



# OM4 (50 μm Multimode Fiber) | Pre-Terminated System

## ASSEMBLIES

MPO Trunks (Male to Male) Base-12, Plenum	Belden Part Number
12 fibers	FM4MMB1xxxMPMEE
24 fibers	FM4MMB2xxxMPMEE
36 fibers	FM4MMB3xxxMPUEE
48 fibers	FM4MMB4xxxMPUEE
72 fibers	FM4MMB6xxxMPUEE
96 fibers	FM4MMB8xxxMPUEE
144 fibers	FM4MMBDxxxMPUEE

MPO Trunks (Male to Male) Base-8, Plenum	Belden Part Number
8 fibers	FM44MB1xxxMPMEE
16 fibers	FM44MB2xxxMPMEE
24 fibers	FM44MB3xxxMPMEE
32 fibers	FM44MB4xxxMPUEE
48 fibers	FM44MB6xxxMPUEE
64 fibers	FM44MB8xxxMPUEE
96 fibers	FM44MBDxxxMPUEE

Where **xxx** is the length in meters.

Other polarity options are available for MPO trunks and MPO patch cords: Type A and Type C

Other polarity options are available for MPO - LC harnesses



## CABLE HARNESSES/HYDRA CORDS

MPO(F) Base-12 to LC, Plenum	Belden Part Number
MPO(F) to LC Duplex, Type A (Straight polarity)	FP4LDMFxxxM
MPO(F) to LC Uniboot, Type A (Straight polarity)	FP4LUMFxxxM

MPO(F) Base-8 to LC, Plenum	Belden Part Number
MPO(F) to LC Duplex SR4	FP4LD4FxxxM
MPO(F) to LC Uniboot SR4	FP4LU4FxxxM

## PATCH CORDS

MPO(F) to MPO(F) Fiber Jumpers, Plenum	Belden Part Number
MPO(F) to MPO(F) Base-12 Type B	FP4MFMFxxxM
MPO(F) to MPO(F) Base-8 Type B	FP44F4FxxxM

2-Fiber Jumpers, Riser	Belden Part Number
LC Uniboot to LC Uniboot (Mini-round 2f 2.0 mm)	FP4LULUxxxM
LC Duplex to LC Duplex (1.6 mm Duplex cord)	FP4LDDLxxxMR1XE
LC Duplex to ST (1.6 mm Duplex cord)	FP4LDSTxxxMR1XE
LC Duplex to SC Duplex (1.6 mm Duplex cord)	FP4LDSDxxxMR1XE

Pre-terminated assemblies offer reduced cable stress (Integrated transition boot – bend radius control) 100 lbs pulling tension, faster pulling eye removal and easy patch panel attachment.



## OS2 (Singlemode Fiber) | Field-Terminated System

### INDOOR CABLE

FX Distribution		FX Armored Distribution		FX Interconnect 2.0 mm		FX Flexible Ribbon
Riser	Plenum	Riser	Plenum	Riser	Plenum	Plenum
FISD006R9	FISD006P9	FISD006F9	FISD006A9	FISIO02RB	FISIO02PB	FISR072P2
FISD012R9	FISD012P9	FISD012F9	FISD012A9	—	—	FISR144P2
FISD024R9	FISD024P9	FISD024F9	FISD024A9	—	—	FISR288P5

### INDOOR/OUTDOOR CABLE

FX Distribution		FX Loose Tube			FX Flexible Ribbon
Riser	Plenum	Riser (Gel-Free)	Riser (Gel-Filled)	Plenum (Gel-Free)	Riser
FSDS024R9	FSDS024P9	FDSL006RC	FDSL006RF	FDSL006PC	FDSR012R2
FSDS048RK	FSDS048PK	FDSL012RD	FDSL012RG	FDSL012PD	FDSR048R2
FSDS072RK	FSDS072PK	FDSL024RD	FDSL024RG	FDSL024PD	FDSR072R2
FSDS096RK	FSDS096PK	FDSL048RD	FDSL048RG	FDSL048PD	FDSR144R2
FSDS144RK	FSDS144PK	FDSL072RD	FDSL072RG	FDSL072PD	FDSR288R5

### OUTDOOR CABLE

FX All-Dielectric Loose Tube		FX Armored Loose Tube	
Gel-Free	Gel-Filled	Gel-Free	Gel-Filled
FSSL012ND	FSSL012NG	FSSL0126D	FSSL0126G
FSSL024ND	FSSL024NG	FSSL0246D	FSSL0246G
FSSL048ND	FSSL048NG	FSSL0486D	FSSL0486G
FSSL072ND	FSSL072NG	FSSL0726D	FSSL0726G

### CONNECTORS

Termination	Performance	LC	SC	ST
FX Brilliance (Mechanical)	Standard	AXI05203-S1	AXI05208-S1	AXI05213-S1
FX Fusion (Splice-on)	High	FTSLC900FS01	FTSSC900FS01	—
FX Pigtailed, 900 µm (Bulk Pack of 12)	High	FTSLC900PR12	FTSSC900PR12	FTSST900PR12
Fusion Splice Heat Shrink Protector Sleeves 900 µm (25 pkg)	—	FXFUHS900AB25	FXFUHS900AB25	FXFUHS900AB25
Mass Fusion Pigtailed, 250 µm, 12-Fiber Ribbon	High	FTSLC250PR12	FTSSC250PR12	FTSST250PR12
12-Fiber Ribbon Heat Shrink Splice Protectors	—	FXFUHSRIBEB12	—	—

### PATCH CORDS

2-Fiber Jumpers, Riser	
LC Duplex to LC Duplex (2.0 mm Duplex cord)	FPSLDLDxxxM
LC Duplex to ST (2.0 mm Duplex cord)	FPSLDSTxxxM
SC Duplex to SC Duplex (3.0 mm Duplex cord)	FPSDSDxxxM
ST to ST (3.0 mm Duplex cord)	FPSSTSTxxxM
LC Duplex to SC Duplex (2.0 mm Duplex cord)	FPSLDSDxxxM
ST to SC Duplex (3.0 mm Duplex cord)	FPSDSDxxxM

### TOOLKITS

FX Brilliance Precision Installation Kit	AXI04271
FX Fusion Splicer	FXFSTOSPL
FX Fusion Standard Toolkit	FXFSTOSTK
FX Fusion Precision Toolkit	FXFSTOPTK





## OS2 (Singlemode Fiber) | Pre-Terminated System

### ASSEMBLIES

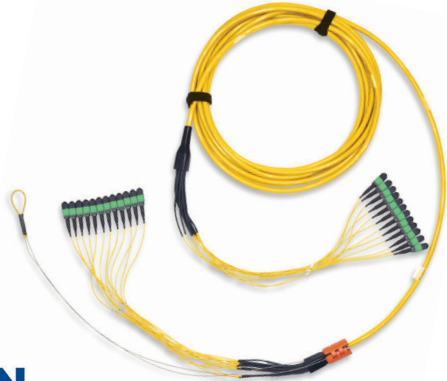
MPO Trunks (Male to Male) Base-12, Plenum	Belden Part Number
12 fibers	FMSMMB1xxxMPMEY
24 fibers	FMSMMB2xxxMPMEY
36 fibers	FMSMMB3xxxMPUEY
48 fibers	FMSMMB4xxxMPUEY
72 fibers	FMSMMB6xxxMPUEY
96 fibers	FMSMMB8xxxMPUEY
144 fibers	FMSMMBDxxxMPUEY

MPO Trunks (Male to Male) Base-8, Plenum	Belden Part Number
8 fibers	FMS4MB1xxxMPMEY
16 fibers	FMS4MB2xxxMPMEY
24 fibers	FMS4MB3xxxMPUEY
32 fibers	FMS4MB4xxxMPUEY
48 fibers	FMS4MB6xxxMPUEY
64 fibers	FMS4MB8xxxMPUEY
96 fibers	FMS4MBDxxxMPUEY

Where **xxx** is the length in meters.

Other polarity options are available for MPO trunks and MPO patch cords: Type A and Type C

Other polarity options are available for MPO - LC harnesses



### CABLE HARNESSES/HYDRA CORDS

MPO(F) Base-12 to LC, Plenum	Belden Part Number
MPO(F) to LC Duplex, Type A (Straight polarity)	FPSLDMFxxxM
MPO(F) to LC Uniboot, Type A (Straight polarity)	FPSLUMFxxxM

MPO(F) Base-8 to LC, Plenum	Belden Part Number
MPO(F) to LC Duplex SR4	FPSLD4FxxxM
MPO(F) to LC Uniboot SR4	FPSLU4FxxxM

### PATCH CORDS

MPO(F) to MPO(F) - Fiber Jumpers, Plenum	Belden Part Number
MPO(F) to MPO(F) Base-12 Type B	FPSMFMFxxxM
MPO(F) to MPO(F) Base-8 Type B	FP44F4FxxxM

2-Fiber Jumpers, Riser	Belden Part Number
LC Uniboot to LC Uniboot (Mini-round 2f 2.0 mm)	FPSLULUxxxM
LC Duplex to LC Duplex (1.6 mm Duplex cord)	FPSLDDLxxxMR1XY
LC/APC Duplex to LC/APC Duplex (1.6 mm Duplex cord)	FPSLALAxxxMR1XY
LC Duplex to ST (1.6 mm Duplex cord)	FPSLDSTxxxMR1XY
LC Duplex to SC Duplex (1.6 mm Duplex cord)	FPSLSDSxxxMR1XY

Pre-terminated assemblies offer reduced cable stress (Integrated transition boot – bend radius control) 100 lbs pulling tension, faster pulling eye removal and easy patch panel attachment.



## System Solution

# FiberExpress Enterprise Closet X System

### Applications

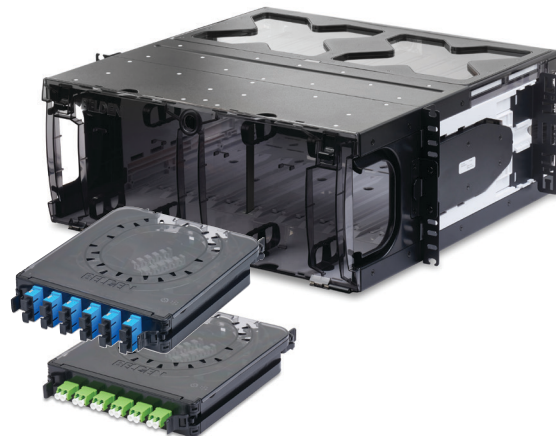
Belden's FiberExpress (FX) Enterprise Closet X (ECX) Patch Panel system is an elegant, intuitive and flexible solution designed to maximize installer flexibility when compared to industry-leading solutions. FX ECX has been optimized for LAN environments and AV applications, and provides an easy-to-deploy, efficient solution for installers.

### Features

- Patent-pending front and rear removable cassettes on all housings (1U, 2U and 4U) for optimal installation and operation flexibility
- Mixed-media capable: Copper/fiber using Belden's KeyConnect frames
- Multiple options for cable strain relief to secure fiber cables coming into the housing
- Tool-less, removable, clear doors and top covers provide better access and visibility to the inside of the panel

### Benefits

- Maximum installer flexibility for frequent moves, adds and changes (MAC) work with the front and rear removable cassettes on all housings
- Reduce space and cost: Simplified installation with fewer detachable components: Cassette rails molded into housing. No need for extra rail components that can get lost



### HARDWARE

FX ECX Patch Panel	Belden Part Number
1U Housing (2 modules)	ECX-01U
2U Housing (4 modules)	ECX-02U
4U Housing (12 modules)	ECX-04U

FX ECX Wall-Mount Housings	Belden Part Number
2-Module Wall-Mount Housing	ECX-02WM
4-Module Wall-Mount Housing	ECX-04WM
6-Module Wall-Mount Housing	ECX-06WM
1-Cassette Wall-Mount Holder	ECX-01WH

### ACCESSORIES

	Belden Part Number
Splice Tray Kit for 4U housing	ECX-SPLICEKIT
Managements Clips	ECX-MGTCLIPS
Door Lock Kit	ECX-LOCKKIT
Internal Strain Relief for 1U/2U	ECX-1U2U-INSTR
External Strain Relief for 1U/2U	ECX-1U2U-EXSTR

## ADAPTER FRAMES/CASSETTES

FX ECX Fiber Frames						
Ports (Fibers)	LC Duplex	SC Duplex	LC/APC Duplex	SC/APC Duplex	Ports (Fibers)	ST
3 (6)	FFyX03LD	FFyX03SD	FFSX03LA	FFSX03SA	6 (6)	FFyX06ST
6 (12)	FFyX06LD	FFyX06SD	FFSX06LA	FFSX06SA	12 (12)	FFyX12ST
12 (24)	FFyX12LD	—	FFSX12LA	—	—	—

FX ECX Splice Cassettes					
Ports (Fibers)	LC Duplex	SC Duplex	LC/APC Duplex	SC/APC Duplex	ST
3 (6)	—	FCyX03SDFS	—	FCSX03SAFS	FCyX06STFS
6 (12)	FCyX06LDFP*	FCyX06SDFS	FCSX06LAFS	FCSX06SAFS	FCyX12STFS
12 (24)	FCyX12LDFP*	—	FCSX12LAFS	—	—

Please note that Belden splice cassettes do not all come standard with pigtails, so both parts referenced would need to be ordered.

\*Part numbers ending in "FP" come preloaded with pigtails.

## PRE-TERMINATED CASSETTES (Coming Soon)

FX ECX Pre-Terminated Cassettes (Base-12)				
Ports (Fibers)	LC Duplex	SC Duplex	LC/APC Duplex	SC/APC Duplex
6 (12)	FCyX06LDMF	FCyX06SDMF	FCSX06LAMF	FCSX06SAMF
12 (24)	FCyX12LDMF	—	FCSX12LAMF	—

FX ECX Pre-Terminated Cassettes SR4 (Base-8)		
Ports (Fibers)	LC Duplex	LC/APC Duplex
4 (8)	FCyX04LDMF	FCSX04LAMF
8 (16)	FCyX08LDMF	FCSX08LAMF

Note: For Fiber Type Replace y with 1 for OM1, 3 for OM3, 4 for OM4, S for OS2.

## STANDARD FX ECX SPLITTER CASSETTES

Description (Upstream/Downstream)	Splitter	Belden Part Number
SC/APC to LC/APC	Single 1x2	SCSX1102SLF
SC/APC to LC/APC	Single 1x4	SCSX1104SLF
SC/APC to LC/APC	Single 1x8	SCSX1108SLF
SC/APC to LC/APC	Single 1x16	SCSX1116SLF
SC/APC to LC/APC	Single 1x32	SCSX1132SLF
SC/APC to LC/APC	Single 2x4	SCSX1204SLF
SC/APC to LC/APC	Single 2x8	SCSX1208SLF
SC/APC to LC/APC	Single 2x16	SCSX1216SLF
SC/APC to LC/APC	Single 2x32	SCSX1232SLF
SC/APC to LC/APC	Dual 1x16	SCSX2116SLF
SC/APC to LC/APC	Dual 2x8	SCSX2208SLF
LC/APC to LC/APC	Dual 2x16	SCSX2216LLF
LC/APC to LC/APC	Quad 1x8	SCSX4108LLF
MPO/APC to LC/APC	Quad 2x8	SCSX4208MLF



## System Solution

# FiberExpress Ultra-High-Density System

### Applications

High-density computing and storage requires connectivity that scales to facilitate the evolution of both data center and LAN applications. The FiberExpress (FX) Ultra-High-Density (UHD) Fiber Connectivity System allows the highest density connectivity available, doubling density over comparable units. Elegantly simple, yet uncompromisingly flexible, this rack-mountable system is crafted for effortless installation and maintenance.

### Features

- 1U, 2U and 4U configurations
- Cost effective, pre-terminated cable support; flexible field-termination options
- Ultra-high cabling density: up to 72 LC Duplex or 72 MPO adapters per rack unit

### Benefits

- One system to learn: Common intuitive components and modular design means less systems to manage and simplified moves, adds, and changes (MACs)
- Space-saving: 50% more ports per rack unit



### HARDWARE

FX UHD Patch Panels	Belden Part Number
1U Housing (4 modules)	AX104681
2U Housing (8 modules)	AX104682
4U Housing (16 modules)	AX104683

FX UHD Shelves and Cassette Holders	Belden Part Number
1U Standard Fixed Shelf (4 modules)	AX105164
1U Recessed Fixed Shelf (4 modules)	AX105165
4U Standard Fixed Shelf (10 modules)	AX105166
4U Recessed Fixed Shelf (10 modules)	AX105167
Zero U Single Cassette Holder (1 module)	FXFUBRSHM
Zero U Double Cassette Holder (2 modules)	FXFUBRDHM

FX UHD Wall-Mount Housings	Belden Part Number
FX UHD Wall-Mount Patch Panel, Black (4 modules)	AX106817
FX Ultra Stackable Wall-Mount Patch Panel, Black (2 modules)	AX103928
Door Lock Kit	AX103934

### ACCESSORIES

	Belden Part Number
FX UHD KeyConnect Frames 6-port	FFZH06KC
FX UHD Blank Plate	FFZH00BB
FX UHD Patch Cord Release Tool	AX104685
1U Rack-Mount Enclosure for Cable Tray Mounting	XPE-S0003
2U Rack-Mount Enclosure for Wire Tray/Ladder Rack Mounting	XPE-2U-0001
4U Rack-Mount Enclosure for Wire Tray/Ladder Rack Mounting	XPE-4U-0001



## ADAPTER FRAMES/CASSETTES

FX UHD Fiber Frames	Belden Part Number
18-port MPO FX UHD Adapter Frame	FFyH18MP
12-port MPO FX Ultra Adapter Frame	FFyU12MP
18-port LC Duplex FX UHD Adapter Frame	FFyH18LD
12-port LC Duplex FX UHD Adapter Frame	FFyU12LD

FX UHD Fiber Cassettes, Base-12	Belden Part Number
12-port FX Ultra MPO-12(F) to LC Duplex TYPE-A	FCyU12LDMF
12-port FX Ultra MPO-12(F) to LC Duplex TYPE-A-ALT	FCyU12LDMFIA

FX UHD Fiber Cassettes, Base-8	Belden Part Number
12-port (24f) FX Ultra MPO-12 (8f) Female to LC Duplex	FCyH12LD4F
8-port (16f) FX Ultra MPO-12 (8f) Female to LC Duplex	FCyH08LD4F
4-port (8f) FX Ultra MPO-12 (8f) Female to LC Duplex	FCyH04LD4F

Splice Cassettes	Belden Part Number
12-port FX UHD MPO Splice Cassette	FCyH12MPFS
12-port FX UHD LC Duplex Splice Cassette	FCyH12LDFS

Standard SR4 Optimizer Cassettes, Base-8	Belden Part Number
6-port FX Ultra MPO-12(12f) to MPO-12(8f)	FCyU064MMF
3-port FX Ultra MPO-12(12f) to MPO-12(8f)	FCyU034MMF

Note: For Fiber Type Replace y with 1 for OMI, 3 for OM3, 4 for OM4, S for OS2.

## TAP CASSETTE

					Belden Part Number	
Number of Live A-Ports	TAP Ratio	Live A-Port	Live B-Port	TAP Port	OM4	OM3
6	70/30	LC Duplex	MPO Female (12f)	LC Duplex	TC4H06LDMFLD	TC3H06LDMFLD
2	70/30	LC Duplex	LC Duplex	LC Duplex	TC4H02LDLDDL	TC3H02LDLDDL
6	70/30	LC Duplex	MPO Female (12f)	MPO Male (12f)	TC4H06LDMFMM	TC3H06LDMFMM
4	70/30	MPO Female (8f)	MPO Female (8f)	MPO Male (8f)	TC4H044F4F4M	TC3H044F4F4M

## SPLITTER CASSETTES

(Upstream/Downstream)	Splitter	Belden Part Number
SC/APC to LC/APC	Single 2x8	SCSU1208SLF
SC/APC to LC/APC	Single 2x16	SCSU1216SLF
SC/APC to LC/APC	Dual 2x8	SCSU2208SLF



## FX Connector Toolkits

Belden's FX Fusion Splicer and Precision Tool Kit help you deliver affordable, high quality performance, consistent and reliable terminations and help eliminate splicer errors due to dust and other contaminants for perfect cladding alignment.



## FX Fusion Active Cladding Splicer Kit\*

FXFSTOSPL

\*Belden's FX Fusion splicer is compatible with Splice Holder Family 2, part #FXFSSHFM2 (included), when terminating FX Fusion connectors

## Precision Toolkit for FX Fusion Splice-On Connector

FXFSTOPTK



## FiberExpress (FX) Fusion Splicer Rental Service

### Free Fusion Splicer Rental with the Purchase of FX Fusion Splice-On Connectors\*

Belden has made it even easier to use its FX Fusion Splice-On Connectors. When purchasing a new splicer isn't an option, free\* splicer rentals are now available with the purchase of Belden's FX Fusion Splice-On Connectors.

#### What's included?

- FX Fusion Splicer
- Precision cleaver
- Complimentary shipping

Achieve faster deployment, easier termination and better performance on your next project by utilizing FX Fusion Splice-On Connectors from Belden.



### Save \$400 per week per splicer rental!

Number of Connectors (Purchased)	Rental Duration (Weeks)	Number of Rental Unit(s)
500 Connectors	1	1
1000 Connectors	2	1
1000 Connectors	1	2
1500 Connectors	4	1
1500 Connectors	3	2

#### \*Terms & Conditions:

- Minimum purchase requirements apply
- Offer is good in the United States of America
- All terms and conditions to be confirmed with a written quote

Request Your Free FX Fusion Splicer RENTAL Now!

**BELDEN**

[www.belden.com/splicer-rental-service](http://www.belden.com/splicer-rental-service)



## KEY NORTH AMERICAN LOCATIONS

### UNITED STATES

#### Division Headquarters

401 Pennsylvania Parkway, #200  
Indianapolis, IN 46280  
USA  
Phone: 317-818-6300  
Inside Sales: 800-235-3361  
Fax: 317-818-6382  
[info@belden.com](mailto:info@belden.com)

### CANADA

#### National Business Center

2310 Alfred-Nobel  
St-Laurent Quebec H4S 2B4  
Canada  
Phone: 514-822-2345  
Inside Sales: 800-235-3361  
Fax: 514-822-7979  
[info@belden.com](mailto:info@belden.com)

### MEXICO

#### Regional Office

Av. de los Nogales  
No. 290 Fracc. San Carlos,  
Heroica Nogales C.P. 84090  
Nogales, Sonora México  
Phone: 52 0264 2060  
Fax: 52 0264 2126  
[customerservice.mx@belden.com](mailto:customerservice.mx@belden.com)

For worldwide sales and  
technical support, visit:  
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