

FHD Base-12 MTP®-LC/SC/MDC Cassettes

High Density, Pre-terminated, Modular, Ultra-Low-Loss Cassette System



Application

FHD Base-12 cassettes provide a reliable interface between 12-fibre MTP®/MPO connectors and LC/SC/MDC duplex connectors. Pre-terminated and pre-tested, they deliver verified optical performance and reliability, ensuring fast installation and enhanced network integrity. With low insertion loss and improved performance specifications, these cassettes support more mated pairs and longer link distances. This enables efficient deployment in high-density environments, maximizing rack space utilization and offering design flexibility. They also integrate seamlessly with high-density fiber cable assemblies and FHD enclosures, supporting robust connectivity for remote sites and data center applications.

Features

- Pre-terminated and pre-tested fibers eliminate complex, craft-sensitive field terminations and ensure high quality.
- Supports up to 144 LC fibers in 1U space, enabling optimal density and efficient rack utilization.
- Plug-and-play modules enable rapid installation of multiple fiber links, reducing deployment time.
- Low insertion loss supports more mated pairs and extended link distances for flexible network design.
- Ceramic ferrules and alignment sleeves ensure stable optical performance and long-term reliability.
- Available in Type A, Type AF, Type B1, Type B2, and Universal polarity configurations for diverse needs.
- Uses bend insensitive fiber compliant with Telcordia, EIA/TIA, and IEC standards to ensure interoperability.

Standards Compliance

- TIA-942 data center design guidelines
- ANSI/TIA-568.3-D
- ANSI/TIA-604-5 for connector intermateability
- RoHS 2011/65/EU

Product Constructions

			
Front Connector	LC Duplex	SC Duplex	MDC Duplex
Rear Connector	Single Mode: MTP® Adapter(s) with Male Ferrules (pins)		
	Multimode: MTP® Adapter(s) with Male Ferrules (pins)	/	/
Fiber Count	12/24/36	12	48
Fiber Mode	Single Mode: OS2 9/125µm		
	Multimode: OM3 50/125µm, OM4 50/125µm, OM5 50/125µm	/	/
Body Material	Aluminium (AL5052)		
Sleeves Material	Zirconia Ceramic		
Housing Type	Cassette		
Dimensions (HxWxD)	1.38"x4.29"x4.64" (35x109x118mm)		

Environmental Properties

Operating Temperature	-10 to 60°C (14 to 140°F)
Storage Temperature	-10 to 60°C (14 to 140°F)

Performance Properties

  			
Polarity	Type A/AF/B1/B2/Universal	Type A	Type A
Insertion Loss (Front)	Single Mode: LC/SC APC ≤0.3dB, UPC ≤0.2dB		Single Mode: MDC UPC ≤0.2dB
	Multimode: LC/SC UPC ≤0.2dB		/
Insertion Loss (Rear)	Single Mode: MTP® Standard ≤0.75dB, Ultra Low ≤0.35dB		Single Mode: MTP® Ultra Low ≤0.35dB
	Multimode: MTP® ≤0.6dB, Ultra Low ≤0.35dB		/
Return Loss (Front)	Single Mode: LC/SC/MDC ≥50dB		
	Multimode: LC/SC ≥30dB		/
Return Loss (Rear)	Single Mode: MTP® ≥60dB		
	Multimode: MTP® ≥20dB		/
Polish Type (Front)	Single Mode: LC (UPC/APC)	Single Mode: SC (UPC/APC)	Single Mode: MDC Duplex (UPC)
	Multimode: LC (UPC)	Multimode: SC (UPC)	/
Polish Type (Rear)	Single Mode: MTP® (APC)		
	Multimode: MTP® (UPC)		/
Durability (Front)	1000 Mating Cycles		200 Mating Cycles
Durability (Rear)	500 Mating Cycles		

Color Codes

Fiber Mode	Polish Type	Adapter Color
OS2	APC	Green
	UPC	Blue
OM3	UPC	Aqua
OM4	UPC	Aqua
OM5	UPC	Lime Green

Note: Color coding is currently only for the front connector.

Polarity Illustration

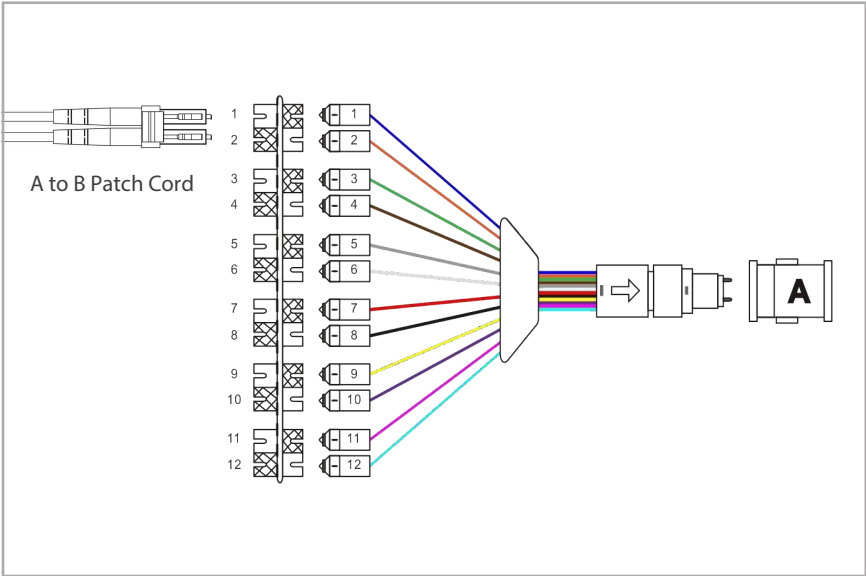
In any installation, it is essential to ensure that the transmitter at one end is compatible with the corresponding receiver at the other end. FS offers a range of intelligent solutions to help you manage and optimize your network and its connectivity.

I. MTP® -12 Cassette, Type A



Port Labeling	2	4	6	8	10	12
	1	3	5	7	9	11

Inner Sequence	2	4	6	8	10	12
	1	3	5	7	9	11



Note: Type A and Type AF are used as a pair in a two cassette method A link.

Pin Assignment			
Port ID	Discrete Connector Position	Fiber Color	MTP Connector Position
1	A	Blue	1
	B	Orange	2
2	A	Green	3
	B	Brown	4
3	A	Slate	5
	B	White	6
4	A	Red	7
	B	Black	8
5	A	Yellow	9
	B	Violet	10
6	A	Rose	11
	B	Aqua	12

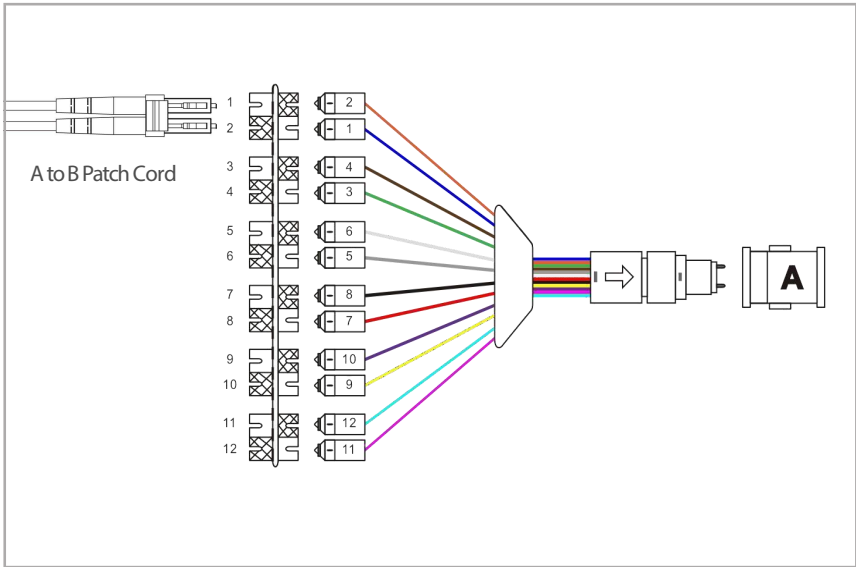
Polarity Illustration

II. MTP® -12 Cassette, Type AF



Port Labeling	2	4	6	8	10	12
	1	3	5	7	9	11

Inner Sequence	1	3	5	7	9	11
	2	4	6	8	10	12



Note: Type A and Type AF are used as a pair in a two cassette method A link.

Pin Assignment			
Port ID	Discrete Connector Position	Fiber Color	MTP Connector Position
1	A	Orange	2
	B	Blue	1
2	A	Brown	4
	B	Green	3
3	A	White	6
	B	Slate	5
4	A	Black	8
	B	Red	7
5	A	Violet	10
	B	Yellow	9
6	A	Aqua	12
	B	Rose	11

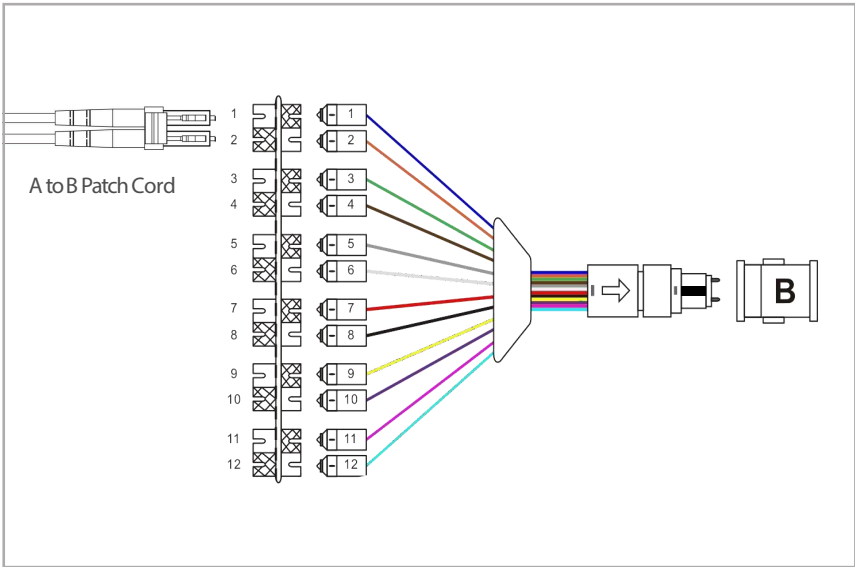
Polarity Illustration

III. MTP® -12 Cassette, Type B1



Port Labeling	2	4	6	8	10	12
	1	3	5	7	9	11

Inner Sequence	2	4	6	8	10	12
	1	3	5	7	9	11



Note: Type B1 and Type B2 are used as a pair in a two cassette method B link.

Pin Assignment			
Port ID	Discrete Connector Position	Fiber Color	MTP Connector Position
1	A	Blue	1
	B	Orange	2
2	A	Green	3
	B	Brown	4
3	A	Slate	5
	B	White	6
4	A	Red	7
	B	Black	8
5	A	Yellow	9
	B	Violet	10
6	A	Rose	11
	B	Aqua	12

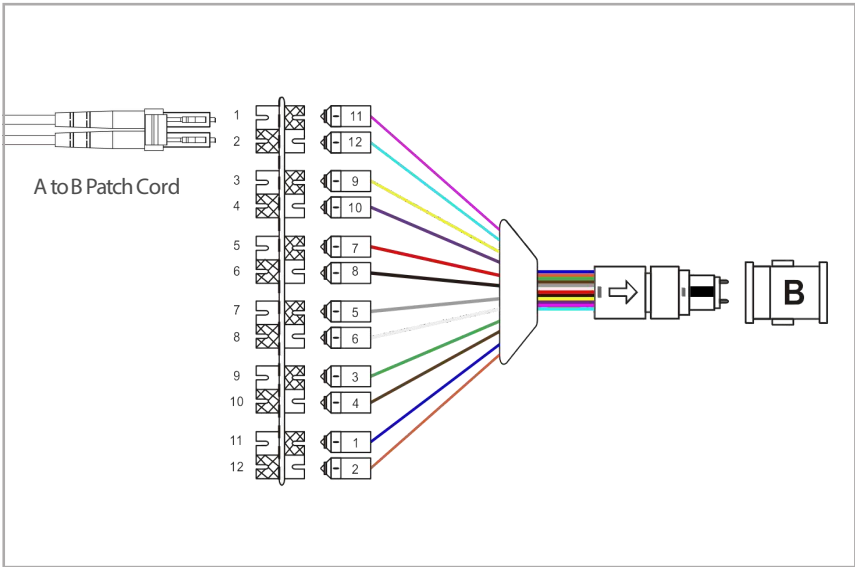
Polarity Illustration

IV. MTP® -12 Cassette, Type B2



Port Labeling	2	4	6	8	10	12
	1	3	5	7	9	11

Inner Sequence	12	10	8	6	4	2
	11	9	7	5	3	1



Note: Type B1 and Type B2 are used as a pair in a two cassette method B link.

Pin Assignment			
Port ID	Discrete Connector Position	Fiber Color	MTP Connector Position
1	A	Rose	11
	B	Aqua	12
2	A	Yellow	9
	B	Violet	10
3	A	Red	7
	B	Black	8
4	A	Slate	5
	B	White	6
5	A	Green	3
	B	Brown	4
6	A	Blue	1
	B	Orange	2

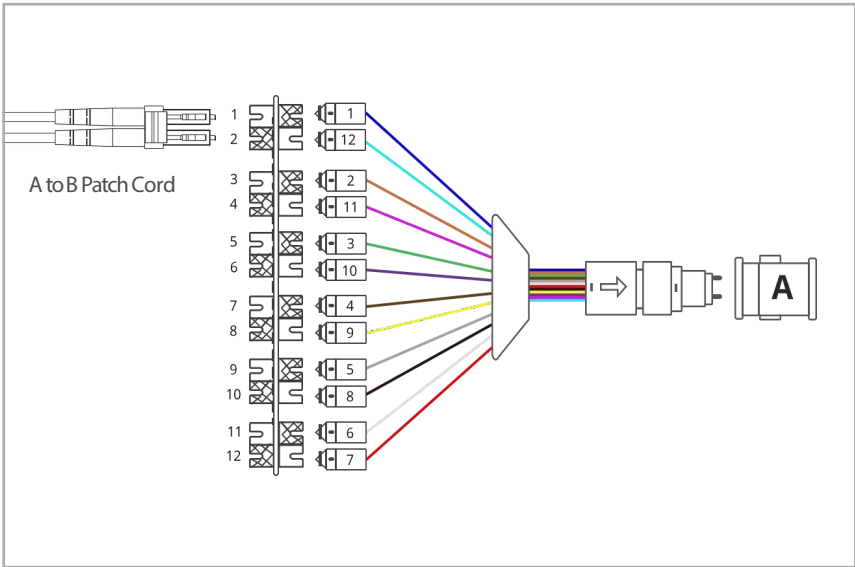
Polarity Illustration

V. MTP® -12 Cassette, Universal



Port Labeling	2	4	6	8	10	12
	1	3	5	7	9	11

Inner Sequence	12	11	10	9	8	7
	1	2	3	4	5	6

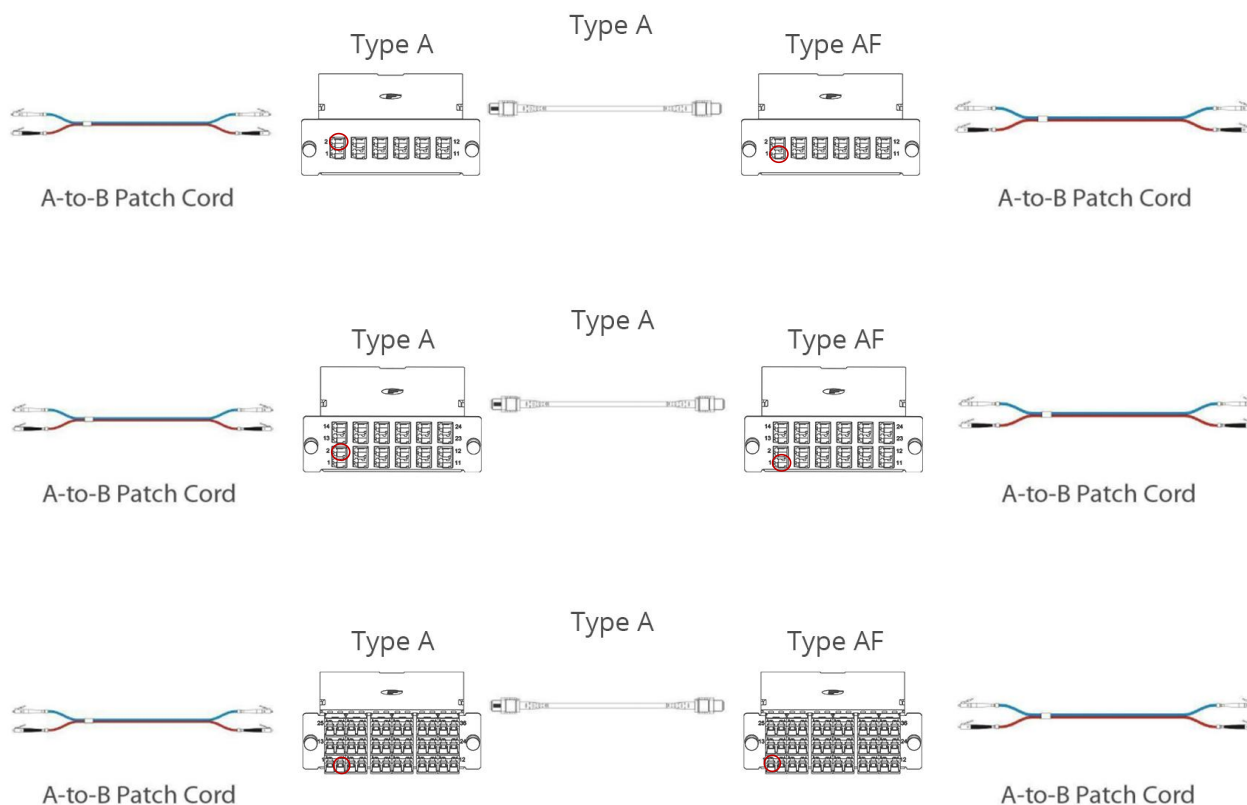


Note: Universal polarity to be used at both ends of a Method B trunk reduces the complexity of a fiber network, ensuring consistent polarity, and streamlining network maintenance.

Pin Assignment			
Port ID	Discrete Connector Position	Fiber Color	MTP Connector Position
1	A	Blue	1
	B	Aqua	12
2	A	Orange	2
	B	Rose	11
3	A	Green	3
	B	Violet	10
4	A	Brown	4
	B	Yellow	9
5	A	Slate	5
	B	Black	8
6	A	White	6
	B	Red	7

Method for Achieving Fiber Polarity

Connectivity Method A for Duplex Signals



Note: The transmission of the signal is P2 in and P1 out.

Connectivity Method B for Duplex Signals

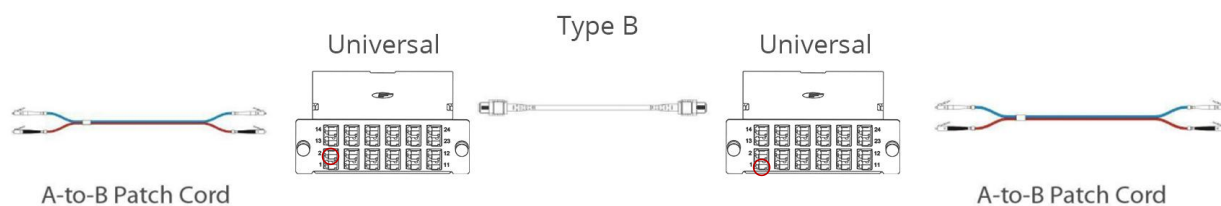


Note: The transmission of the signal is P2 in and P1 out.

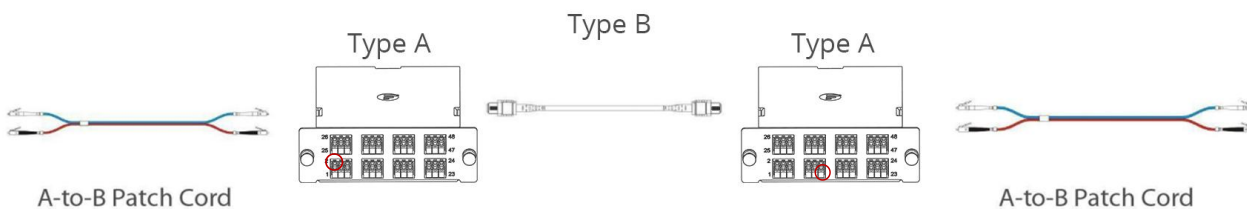
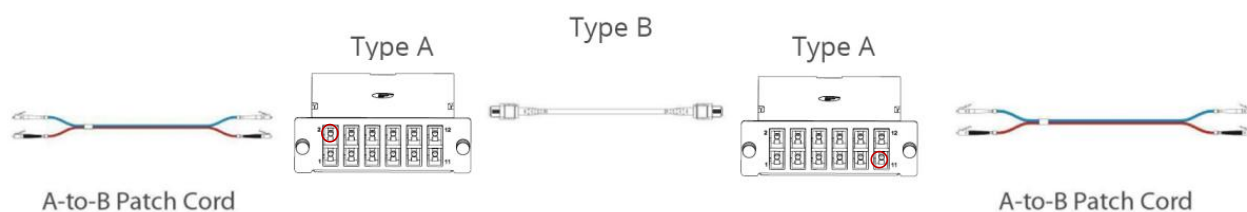
Universal cassettes can also be used to convert transceiver ports at 4:1 (utilizing 8 of 12 fibers or MTP® -8 Cassettes)

Method for Achieving Fiber Polarity

Connectivity Method B for Duplex Signals



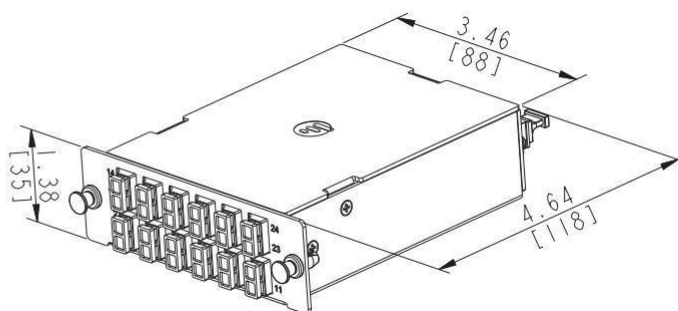
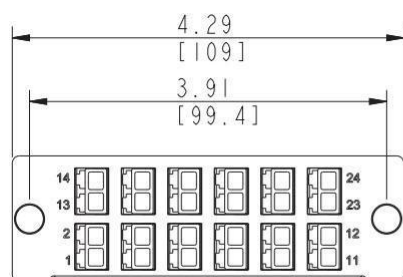
Note: The transmission of the signal is P2 in and P1 out.



Note: The transmission of the signal is P2 in and P11 out.

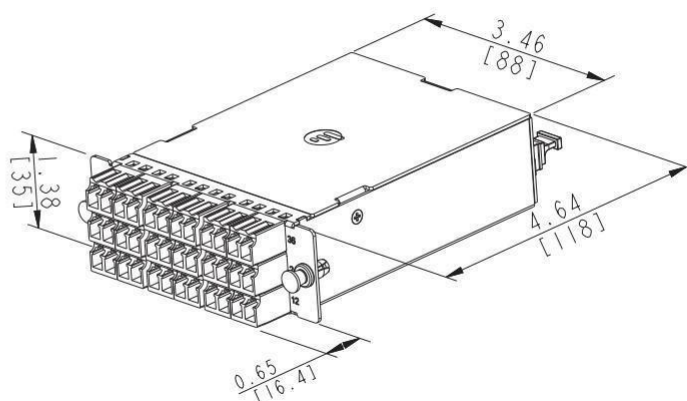
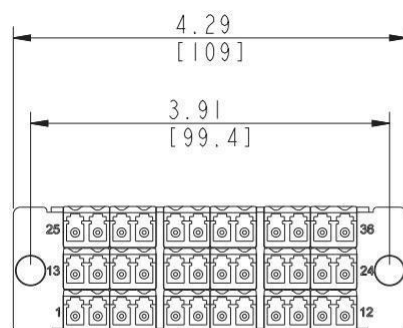
Layout and Dimensions

12/24F LC & 12F SC Cassette

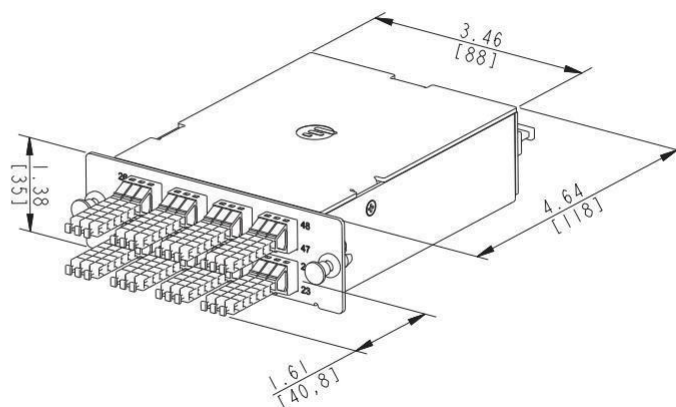
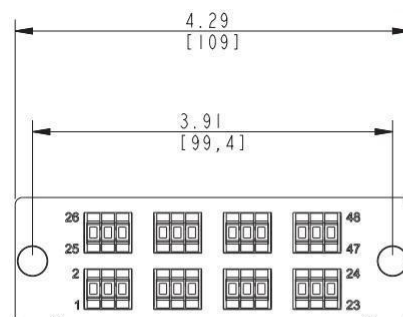


Note: 12/24F LC and 12F SC Cassettes are of the same dimensions.

36F LC Cassette



48F MDC Cassette



Dimensions are in inches. (Dimensions in parentheses are in millimeters).

Ordering Information

Fiber Mode	Front Connector	Rear Connector	Fiber Count	Front Color	Polarity
• OS2	• LC APC	• MTP®-8	• 8	• Green	• Type A
• OM3	• LC UPC	• MTP®-12	• 12	• Blue	• Type AF
• OM4	• SC APC	• MTP®-24	• 16	• Aqua	• Universal
• OM5	• SC UPC		• 24	• Magenta	
	• MDC UPC		• 36	• Lime Green	
			• 48		

Note:

- MTP connector (single mode) with APC polish and pinned (male) type by default.
- MTP connector (multimode) with UPC polish and pinned (male) type by default.
- Type B polarity is available for multimode only.
- Universal polarity is supported by MTP-12 and MTP-8 only.
- SC interface is available for 12-fiber configuration only.

Products Listing

12-Fiber Cassettes	
ID	Description
57016	OS2 Single Mode, Type A, 12 Fibers, MTP®-12 (Male) to 6 x LC Duplex (Blue)
57037	OS2 Single Mode, Type AF, 12 Fibers, MTP®-12 (Male) to 6 x LC Duplex (Blue)
57017	OM4 Multimode, Type A, 12 Fibers, MTP®-12 (Male) to 6 x LC Duplex (Aqua)
57038	OM4 Multimode, Type AF, 12 Fibers, MTP®-12 (Male) to 6 x LC Duplex (Aqua)
174246	OM5 Multimode, Type A, 12 Fibers, MTP®-12 (Male) to 6 x LC Duplex (Lime Green)
174247	OM5 Multimode, Type AF, 12 Fibers, MTP®-12 (Male) to 6 x LC Duplex (Lime Green)
182641	OS2 Single Mode, Universal, 12 Fibers, MTP®-12 (Male) to 6 x LC Duplex (Blue)
182642	OM4 Multimode, Universal, 12 Fibers, MTP®-12 (Male) to 6 x LC Duplex (Aqua)
57058	OS2 Single Mode, Type A, 12 Fibers, MTP®-12 (Male) to 6 x SC Duplex (Blue)

Products Listing

24-Fiber Cassettes

ID	Description
57341	OS2 Single Mode, Type A, 24 Fibers, 2 x MTP®-12 (Male) to 12 x LC Duplex (Blue)
68540	OS2 Single Mode, Type AF, 24 Fibers, 2 x MTP®-12 (Male) to 12 x LC Duplex (Blue)
57342	OM4 Multimode, Type A, 24 Fibers, 2 x MTP®-12 (Male) to 12 x LC Duplex (Aqua)
68541	OM4 Multimode, Type AF, 24 Fibers, 2 x MTP®-12 (Male) to 12 x LC Duplex (Aqua)
174248	OM5 Multimode, Type A, 24 Fibers, 2 x MTP®-12 (Male) to 12 x LC Duplex (Lime Green)
174249	OM5 Multimode, Type AF, 24 Fibers, 2 x MTP®-12 (Male) to 12 x LC Duplex (Lime Green)
182643	OS2 Single Mode, Universal, 24 Fibers, 2 x MTP®-12 (Male) to 12 x LC Duplex (Blue)
182644	OM4 Multimode, Universal, 24 Fibers, 2 x MTP®-12 (Male) to 12 x LC Duplex (Aqua)

36-Fiber Cassettes

ID	Description
105333	OS2 Single Mode, Type A, 36 Fibers, 3 x MTP®-12 (Male) to 18 x Shuttered LC Duplex (Blue)
105334	OS2 Single Mode, Type AF, 36 Fibers, 3 x MTP®-12 (Male) to 18 x Shuttered LC Duplex (Blue)
105335	OM4 Multimode, Type A, 36 Fibers, 3 x MTP®-12 (Male) to 18 x Shuttered LC Duplex (Aqua)
105336	OM4 Multimode, Type AF, 36 Fibers, 3 x MTP®-12 (Male) to 18 x Shuttered LC Duplex (Aqua)

48-Fiber Cassettes

ID	Description
147014	OS2 Single Mode, Type A, 48 Fibers, 4 x MTP®-12 (Male) to 8 x MDC 3-Port Duplex (Blue)

Matching Products

Fiber Enclosures

ID	Description
96427	1U Rack Mount Enclosure Unloaded, Tool-less Removable Top Cover, Holds up to 4 x FHD® Cassettes or Panels
70361	1U Rack Mount Enclosure Unloaded, Sliding Drawer, Holds up to 4 x FHD® Cassettes, Panels, or Splice Trays
145167	1U Rack Mount Enclosure Unloaded, Sliding and Tilt-down Drawer, Holds up to 4 x FHD® Cassettes or Panels
70419	1U Rack Mount Modular Enclosure Unloaded, Rear Cable Managers, Holds up to 4 x FHD® Cassettes or Panels
50550	Wall Mount Enclosure Unloaded, 2 Ports, Holds up to 2 x FHD® Cassettes or Panels, 2 x Splice Trays

Note: 36-fiber cassettes are not recommended to fit in the FHD series wall mount enclosure.

MTP® Jumpers

ID	Description
68102	5m (16ft) MTP® Jumper, MTP®-12 APC (Female) to MTP®-12 APC (Female), 12 Fibers, Single Mode (OS2), Plenum (OFNP), 0.35dB Max, Type A
68018	1m (3ft) MTP® Jumper, MTP®-12 APC (Female) to MTP®-12 APC (Female), 12 Fibers, Single Mode (OS2), Plenum (OFNP), 0.35dB Max, Type B
317779	5m (16ft) MTP® Jumper, MTP®-12 UPC (Female) to MTP®-12 UPC (Female), 12 Fibers, Multimode (OM3), Plenum (OFNP), 0.35dB Max, Type A
317767	1m (3ft) MTP® Jumper, MTP®-12 UPC (Female) to MTP®-12 UPC (Female), 12 Fibers, Multimode (OM3), Plenum (OFNP), 0.35dB Max, Type B
68106	5m (16ft) MTP® Jumper, MTP®-12 UPC (Female) to MTP®-12 UPC (Female), 12 Fibers, Multimode (OM4), Plenum (OFNP), 0.35dB Max, Type A
68017	1m (3ft) MTP® Jumper, MTP®-12 UPC (Female) to MTP®-12 UPC (Female), 12 Fibers, Multimode (OM4), Plenum (OFNP), 0.35dB Max, Type B
183670	1m (3ft) MTP® Jumper, MTP®-12 UPC (Female) to MTP®-12 UPC (Female), 12 Fibers, Multimode (OM5), Plenum (OFNP), 0.35dB Max, Type A
310195	1m (3ft) MTP® Jumper, MTP®-12 UPC (Female) to MTP®-12 UPC (Female), 12 Fibers, Multimode (OM5), Plenum (OFNP), 0.35dB Max, Type B

Fiber Patch Cables

ID	Description
40191	1m (3ft) Fiber Patch Cable, 2 Fibers, LC UPC Duplex to LC UPC Duplex, Single Mode (OS2), Riser (OFNR), 2.0mm
40180	1m (3ft) Fiber Patch Cable, 2 Fibers, LC UPC Duplex to LC UPC Duplex, Multimode (OM4), Riser (OFNR), 2.0mm
69091	1m (3ft) Fiber Patch Cable, 2 Fibers, LC UPC Duplex to LC UPC Duplex, Multimode (OM5), Riser (OFNR), 2.0mm

Matching Products

High Density Cables	
ID	Description
72166	1m (3ft) LC UPC to LC UPC Flat Clip Uniboot Duplex OS2 Single Mode Riser (OFNR) 2.0mm BIF Fiber Optic Patch Cable
72170	1m (3ft) LC UPC to LC UPC Flat Clip Uniboot Duplex OM4 Multimode Riser (OFNR) 2.0mm BIF Fiber Optic Patch Cable
130968	1m (3ft) Uniboot Fiber Patch Cable, MDC UPC Duplex to LC UPC Duplex, Single Mode (OS2), Riser (OFNR), 2.0mm, for 100/400/800G Network Connection