

Data Center Optical Distribution Frame Solutions



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Data Center Optical Distribution Frame Solutions

Introduction

TIA-942 presents the cross-connect architecture as the best practice for Main Distribution Area (MDA). Utilizing a centralized cross-connect frame allows maintenance to be performed without disrupting the cables attached to active equipment. All moves, adds and changes can be performed on the passive cross-connect frame. The benefits of deploying a cross-connect architecture in the MDA include: lower operating costs, enhanced reliability, and a reduced risk of downtime due to poor fiber jumper management.

Frames

ADC developed its innovative Optical Distribution Frame (ODF) for high-fiber count applications. At 2304 terminations in a single frame, its unique, user-friendly design and superior cable management provide enterprise customers an optimum solution to handle applications with high fiber counts such as data centers.

ADC's ODF product line is designed to fit a variety of termination, splice, and storage applications. This frame is designed with an emphasis on superior cable management and ease of use, including features such as ample trough space for cable and jumpers, easy access to connectors, and storage for jumpers. The frame sections are shipped from the factory fully equipped with all cable management hardware including a built-in jumper storage panel.

Fiber Termination Blocks (FTBs)

Fiber Termination Blocks (FTBs) are available with SC adapters in block configurations of 144-positions, and with LC adapters in 144- and 192-positions. FTBs utilize sliding adapter packs to gain easy access to both the front and rear connectors. FTBs can be ordered with adapters only, with factory terminated IFC stubs, or as Plug-and-Play cassettes (see pages 348-350).

Sliding Adapter Packs

Sliding adapter packs house groups of fiber optic adapters and are mounted in fiber termination blocks to provide easy access to connectors. Sliding adapter packs are available with SC and LC adapters. The adapters come in packs of four and six depending on the adapter type and the desired termination density.

Data Center Splice Cabinet

The Data Center Splice Cabinet is a high-density splice solution. This cabinet allows up to 1,440 splices within an enclosed area. The cabinet was developed to be the single splice point and often resides in the entrance room of the data center. This will allow direct routing of the spliced fiber into the ODF.

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Data Center Optical Distribution Frame Solutions

Introduction



Features and Benefits

Ample Trough Space

Reduces jumper pile-up and congestion

- Reduces maintenance time due to easy removal and tracing of jumpers
- Minimizes risk of microbends or damage to fiber

Built-in Jumper Storage Panel

Minimizes number of required jumper lengths

Maintains fiber bend radius

Simplifies frame installation

- Saves money by reducing the number of different jumper lengths that have to be kept in inventory
- Minimizes risk of microbends or damage to fiber

Enclosed system ensures easy cable access without fiber cross-over points

Sliding Adapter Packs

Promotes high density

Provides easy access to connectors

- Saves valuable floor space
- Reduces time required for operations and maintenance

Intelligent Cable Routing System

No fiber cross-over points

Multiple vertical troughways

- Reduces maintenance time due to easier removal and tracing of jumpers and minimizes fiber "weaving"

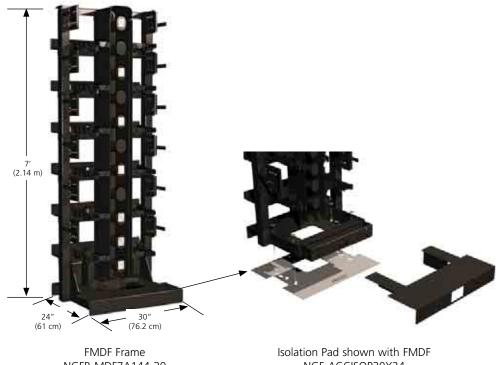
Bend Radius Protection at Every Turn

- ODF provides complete bend radius at every turn to ensure network performance and reliability



Fiber Main Distribution Frame (FMDF)

The FMDF is the cornerstone of the ODF product line. This innovative frame has six 5-inch horizontal troughs for a total of 30 inches of horizontal trough space. This abundant trough space minimizes fiber pile up and congestion leading to easier moves, adds and changes. The frame has twelve Fiber Termination Block (FTB) mounting positions equally divided between vertical columns on the left and right sides of the frame as shown in the figure below. The frame is available in 30-inch wide version and provides additional vertical trough space for the highest termination density applications. The built-in jumper storage panel will store up to 3.5 meters (12 feet) of jumper slack.



NGFB-MDF7A144-30

NGF-ACCISOP30X24

Ordering Information

Description	Dimensions (HxWxD)	Catalog Number
Fiber Main Distribution Frame (FMDF) Accommodates 12 Fiber Termination Blocks (FTBs) or 12 Plug-and-Play Cassette Blocks¹ Short Bracket 30" Frame For use with SC 144-position FTBs, or LC 192-position FTBs, LC 144- and 192-position Plug-and-Play Cassette Blocks¹ Long Bracket 30" Frame For use with LC 144-position FTBs	7' x 30" x 24" (2.14 m x 76.2 cm x 61 cm)	NGFB-MDF7A144-30

Each frame section includes heavy duty floor anchor bolts for concrete floor applications.

Note: ADC recommends the use of 1.7 mm/ 1.6 mm jumpers when deploying 192-position FTBs.

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¹ For Plug-and-Play Cassette ordering information for ODF frame, see pages 348-350.



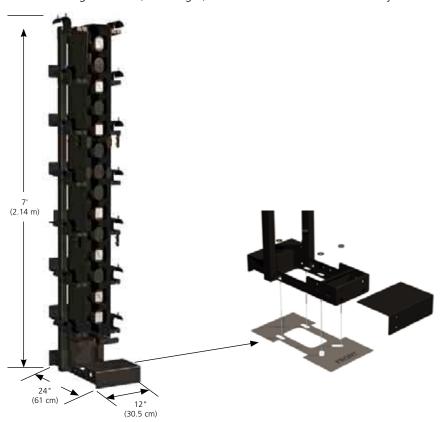
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Frame Accessories

Fiber Optic Terminal Jumper Storage Panel

The fiber optic terminal jumper storage panel is an optional filler panel that provides up to 5 meters (16.4 feet) of slack storage for jumpers that run between terminal equipment and the rear ports of an ODF terminal block in cross-connect applications. This slack storage capability allows for greater flexibility in determining jumper lengths and allows for use of more standard length jumpers. This panel is installed within the ODF frame lineup between ODF frames. The fiber optic terminal storage panels are available in two different configurations depending on the way the ODF frame system is zoned. ODF frames can be zoned by vertical or by frame. A 12-inch wide panel is available that serves two verticals (one on each side) for use when frames are zoned by vertical. Also, 8-inch wide versions are available that serve a single vertical (left or right) for use when frames are zoned by frame.



Fiber Optic Terminal Storage Panel NGFB-ACCFOTSB

Isolation Pad shown with FOTSB NGF-ACCISOPFS12X24

Description	Dimensions (HxWxD)	Catalog Number
Fiber Optic Terminal Jumper Storage Panel Use with FMDF Frame Color: Black	7' x 12" x 24" (2.14 m x 30.5 cm x 61 cm)	NGFB-ACCFOTSB
A template for frame installation providing isolation between the frame and the ground		NGF-ACCISOPFS12X24

Note: When using the Fiber Optic Terminal Storage Panels, a cable exit UP block must be used.

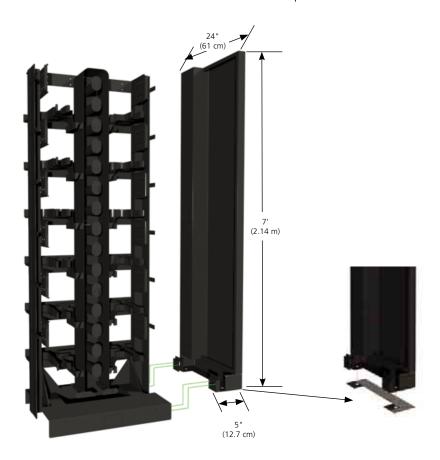
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Frame Accessories

End Guard

End guards provide protection for the fibers entering and exiting frames at the end of a lineup. They are designed for universal fit to be used on either end of the lineup.



ODF Frame NGFB-MDF7A144-30 End Guard NGFB-ACCEGD007 Isolation Pad shown with End Guard NGF-ACCISOPEG24

1-800-366-3891

Description	Dimensions (HxWxD)	Catalog Number
End Guard Use with FMDF Frames Color: Black	7' x 5" x 24" (2.14 m x 12.7 cm x 61 cm)	NGFB-ACCEGD007
Isolation Pad - End Guard A template for frame installation providing isolation between the frame and the ground		NGF-ACCISOPEG24



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Fiber Termination Blocks (FTBs) – Factory Terminated Stubs

Configuration Information

FTBs are available with factory terminated indoor rated cable (IFC) in ribbon or stranded configurations. All blocks are 100% factory tested to guarantee continuity and reliable connections. Factory terminated FTBs make installation quick and easy, reducing labor costs. Before ordering, determine the block orientation and cable exit direction. Factory terminated FTBs may be ordered with a "left" orientation (mounts on the left side of the frame) or a "right" orientation (mounts on the right side of the frame). The cable exit direction will be either "upward" (cables terminated to the rear side of the block exit up toward the top of the frame) or "downward" (cables terminated to the rear side of the block exit down toward the bottom of the frame).



Preterminated Fiber Termination Blocks Arrive from the Factory with Either IFC or OSP Cables



Fiber Cable Easily Uncoils During Installation



Fiber Termination Block Ships Inside the Drum



IFC Cables Loaded into FTB

Defir	nition of Variables
1	Block Style General adapter type required in the FTB
2	Block Configuration Maximum number of terminations that the FTB will accommodate when fully loaded
3	Block Orientation Vertical column of the frame the FTB is to be mounted on
4	Cable Exit Direction Direction the equipment jumpers or IFC cable will exit from the FTB
5	Adapter/Connector #1 Specific adapter/connector type required in the FTB. Refers to the adapter/connector type at the FTB
6	Connector #2 Specific connector type required at the cable end opposite the FTB
7	Cable Type Type of cable to be terminated to the FTB
8	Cable Length Required length of the cable terminated to the FTB

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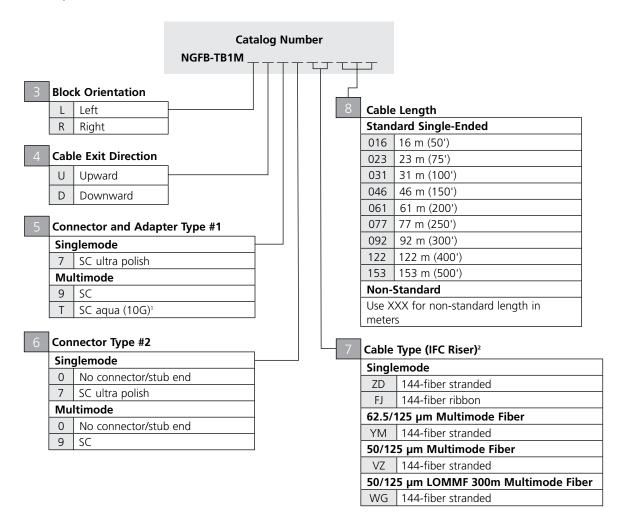
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Data Center Optical Distribution Frame Solutions

SC Style FTBs with Factory Terminated Stubs

144-position Blocks



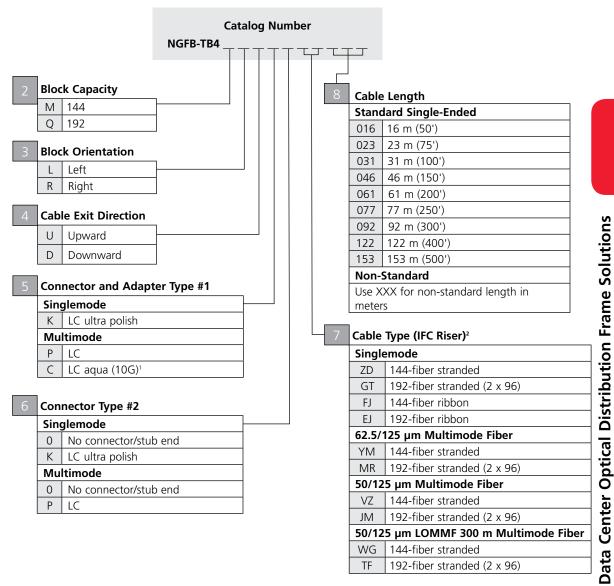
- ADC recommends the use of aqua colored adapters with laser optimized multimode fiber for identification of 10 Gigabit circuits.
- Panels using ADC's standard cable offering have a shorter lead time than panels using a specific cable manufacturer. ADC provides GR-409 compliant cable that meets or exceeds our high quality standards. Standard cable offering above will use Corning SMF28-e, Sumitomo, Alcatel or similar singlemode fiber based on current market availability.

See previous page for definition of variables.

Other configurations are available upon request. Please contact ADC Technical Assistance Center.



LC Style FTBs with Factory Terminated Stubs



- ¹ ADC recommends the use of aqua colored adapters with laser optimized multimode fiber for identification of 10 Gigabit circuits.
- ² Panels using ADC's standard cable offering have a shorter lead time than panels using a specific cable manufacturer. ADC provides GR-409 compliant cable that meets or exceeds our high quality standards. Standard cable offering above will use Corning SMF28-e, Sumitomo, Alcatel or similar singlemode fiber based on current market availability.

See previous page for definition of variables.

Other configurations are available upon request. Please contact ADC Technical Assistance Center.

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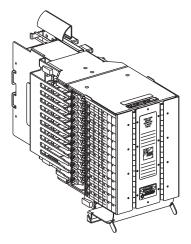
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Data Center Optical Distribution Frame Solutions

Fiber Termination Blocks (FTBs) – Unterminated (Adapter Only)

FTBs without fiber can be ordered fully loaded with adapters. Before ordering, determine the block orientation and cable exit direction. Unterminated FTBs may be ordered with a "left" orientation (mounts on the left side of the frame) or a "right" orientation (mounts on the right side of the frame). The cable exit direction will be either "upward" * (cables terminated to the rear side of the block exit up toward the top of the frame) or "downward" (cables terminated to the rear side of the block exit down toward the bottom of the frame). All blocks with adapters only are configured to terminate single or dual jumpers on the rear of the block. If a multifiber breakout style cable (i.e., OSP/IFC) is to be terminated to the rear of the block, a separate clamping kit and replacement rear storage area kit is required (see next page). FTBs cannot be ordered with a combination of singlemode and multimode adapters. If this combination is desired, ADC recommends purchasing a fully loaded adapter only termination block, and separate sliding adapter packs to customize the block on-site.



144-Position Right Upward FTB Shown

Note: When using the Fiber Optic Terminal Storage Panels, a cable exit UP block must be used.

Ordering information on next page.



Data Center Optical Distribution Frame Solutions

Fiber Termination Blocks (FTBs) – Unterminated (Adapter Only)

Description	Catalog Number
144-position Blocks	
Multimode LC	
LC (beige) adapters; cable exit up; RIGHT block orientation	NGFB-TB4MRUP
LC (beige) adapters; cable exit up; LEFT block orientation	NGFB-TB4MLUP
LC (beige) adapters; cable exit down; RIGHT block orientation	NGFB-TB4MRDP
LC (beige) adapters; cable exit down; LEFT block orientation	NGFB-TB4MLDP
Multimode SC	
SC (beige) adapters; cable exit up; RIGHT block orientation	NGFB-TB1MRU9
SC (beige) adapter; cable exit up; LEFT block orientation	NGFB-TB1MLU9
SC (beige) adapters; cable exit down; RIGHT block orientation	NGFB-TB1MRD9
SC (beige) adapters; cable exit down; LEFT block orientation	NGFB-TB1MLD9
10G Multimode LC ¹	
LC (aqua) adapters with zirconia sleeves; cable exit up; RIGHT block orientation	NGFB-TB4MRUC
LC (aqua) adapters with zirconia sleeves; cable exit up; LEFT block orientation	NGFB-TB4MLUC
LC (aqua) adapters with zirconia sleeves; cable exit down; RIGHT block orientation	NGFB-TB4MRDC
LC (aqua) adapters with zirconia sleeves; cable exit down; LEFT block orientation	NGFB-TB4MLDC
10G Multimode SC	
SC (aqua) adapters with zirconia sleeves; cable exit up; RIGHT block orientation	NGFB-TB1MRUT
SC (aqua) adapters with zirconia sleeves; cable exit up; LEFT block orientation	NGFB-TB1MLUT
SC (aqua) adapters with zirconia sleeves; cable exit down; RIGHT block orientation	NGFB-TB1MRDT
SC (aqua) adapters with zirconia sleeves; cable exit down; LEFT block orientation	NGFB-TB1MLDT
Singlemode LC	
LC (blue) adapters with zirconia sleeves; cable exit up; RIGHT block orientation	NGFB-TB4MRUK
LC (blue) adapters with zirconia sleeves; cable exit up; LEFT block orientation	NGFB-TB4MLUK
LC (blue) adapters with zirconia sleeves; cable exit down; RIGHT block orientation	NGFB-TB4MRDK
LC (blue) adapters with zirconia sleeves; cable exit down; LEFT block orientation	NGFB-TB4MLDK
Singlemode SC	
SC (blue) adapters with zirconia sleeves; cable exit up; RIGHT block orientation	NGFB-TB1MRU7
SC (blue) adapters with zirconia sleeves; cable exit up; LEFT block orientation	NGFB-TB1MLU7

Ordering information continues on next page.

NGFB-TB1MRD7

NGFB-TB1MLD7

SC (blue) adapters with zirconia sleeves; cable exit down; RIGHT block orientation

SC (blue) adapters with zirconia sleeves; cable exit down; LEFT block orientation

ADC recommends the use of aqua colored adapters with laser optimized multimode fiber for identification of 10 Gigabit circuits.

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Data Center Optical Distribution Frame Solutions

Fiber Termination Blocks (FTBs) – Unterminated (Adapter Only)

Description	Catalog Number
192-position Blocks	ı
Multimode LC	
LC (beige) adapters; cable exit up; RIGHT block orientation	NGFB-TB4QRUP
LC (beige) adapters; cable exit up; LEFT block orientation	NGFB-TB4QLUP
LC (beige) adapters; cable exit down; RIGHT block orientation	NGFB-TB4QRDP
LC (beige) adapters; cable exit down; LEFT block orientation	NGFB-TB4QLDP
10G Multimode LC¹	
LC (aqua) adapters with zirconia sleeves; cable exit up; RIGHT block orientation	NGFB-TB4QRUC
LC (aqua) adapters with zirconia sleeves; cable exit up; LEFT block orientation	NGFB-TB4QLUC
LC (aqua) adapters with zirconia sleeves; cable exit down; RIGHT block orientation	NGFB-TB4QRDC
LC (aqua) adapters with zirconia sleeves; cable exit down; LEFT block orientation	NGFB-TB4QLDC
Singlemode LC	
LC (blue) adapters with zirconia sleeves; cable exit up; RIGHT block orientation	NGFB-TB4MRUK
LC (blue) adapters with zirconia sleeves; cable exit up; LEFT block orientation	NGFB-TB4MLUK
LC (blue) adapters with zirconia sleeves; cable exit down; RIGHT block orientation	NGFB-TB4MRDK
LC (blue) adapters with zirconia sleeves; cable exit down; LEFT block orientation	NGFB-TB4MLDK

ADC recommends the use of agua colored adapters with laser optimized multimode fiber for identification of 10 Gigabit circuits.

Note: ADC recommends the use of 1.7mm/ 1.6mm jumpers when deploying 192-position FTBs.



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Data Center Optical Distribution Frame Solutions

Fiber Termination Blocks (FTBs)

Configuration Information

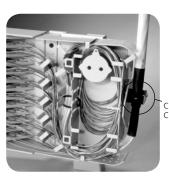
Def	Definition of Variables		
1	Block Style General adapter type required in the FTB		
2	Block Configuration Maximum number of terminations that the FTB will accommodate when fully loaded		
3	Block Orientation Vertical column of the frame the FTB is to be mounted on		
4	Cable Exit Direction Direction the equipment jumpers or OSP cable will exit from the FTB		
5	Adapter Type Specific adapter type required in the FTB		

Cable Clamping/Block Conversion Kits

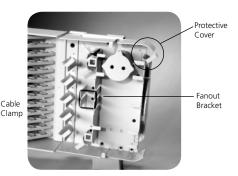
Adapter-only blocks are configured to accommodate single fiber jumpers or multifiber breakout cables. If loading a preterminated intrafacility (IFC) cable or a preterminated OSP cable is desired, additional hardware will be required. Block conversion kits are available to convert adapter only blocks to blocks that will accept preterminated IFC or OSP style cables. The conversion kits contain the cable management hardware, brackets and cable clamps required to convert the block. The kit required will depend on the block style originally purchased.



72-Position Block Loaded with Jumpers

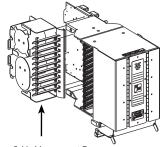


72-Position Block Loaded with Multifiber Breakout Cable



72-Position Block with Clamping Kit

Description	Catalog Number
Block style originally purchased	
144- or 192-position left up blocks	NGFB-ACCRCMSLU
144- or 192-position right up blocks	NGFB-ACCRCMSRU
144- or 192-position left down blocks	NGFB-ACCRCMSLD
144- or 192-position right down blocks	NGFB-ACCRCMSRD



Rear Cable Management Tray for 144 Block Conversion Kit

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Data Center Optical Distribution Frame Solutions

Sliding Adapter Packs

Sliding adapter packs house groups of fiber optic adapters and are mounted in Fiber Termination Blocks to provide easy access to connectors. Sliding Adapter Packs are available with SC and LC adapters. The adapters come in packs of six and eight depending on the adapter type and the desired termination density. See table below for configuration guidelines.





SC pack (Style K)

Sliding Adapter Pack Configuration Guidelines			
Block	Adapter Type	Adapter Pack	Adapter Pack
Configuration		Configuration	Option
144-Position (block code 'M')	SC, LC	6 Pack/6 Pack	K (shown below)
192-Position (block code 'Q')	LC	8 Pack/8 Pack	J

Ordering Information			
Description	Catalog Number ¹		
144-position Blocks			
Multimode LC	NGF-SAPP0K00		
Multimode SC	NGF-SAP90K00		
10G Multimode LC ¹	NGF-SAPC0K00		
10G Multimode SC ¹	NGF-SAPT0K00		
Singlemode LC	NGF-SAPK0K00		
Singlemode SC	NGF-SAP70K00		
192-position Blocks			
Multimode LC	NGF-SAPP0J00		
10G Multimode LC ¹	NGF-SAPC0J00		
Singlemode LC	NGF-SAPK0J00		

ADC recommends the use of aqua colored adapters with laser optimized multimode fiber for 10 Gigabit circuit identification.

Note: ADC recommends the use of 1.7mm/ 1.6mm jumpers when deploying 192-position FTBs.



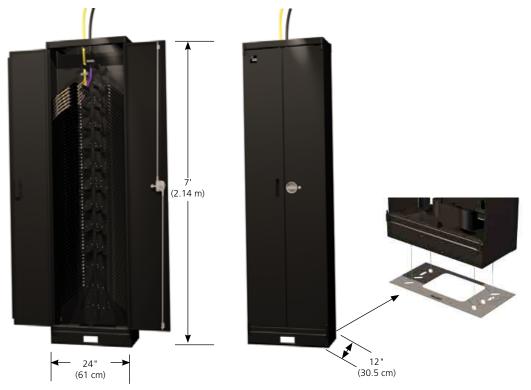
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Data Center Optical Distribution Frame Solutions

Splice Cabinet

The Data Center Splice Cabinet is a high-density splice solution, housing up to 1,440 splices within a 23.6- by 11.8-inch footprint. Shipped complete with the necessary cable management, it features slots which secure and protect the round splice trays and can hold up to sixty 12-fiber splice trays on each vertical. The cabinet is shipped with lockable front doors and may be ordered for applications in which the cables enter from above or below.



OMX Splice Cabinet MX6-BSPL-1440-U7 Doors Open and Closed

Isolation Pad shown with OMX Cabinet MX6-BAYTEMPLATE

Description	Dimensions (HxWxD)	Catalog Number
Fully Configured Splice Cabinet Accommodates up to 1440 fiber splices Cable enters from top Color: black Cabinet - Cable Exit Up Cable enters from above Color: black Cabinet - Cable Exit Down Cable enters from below Color: black	7' x 24" x 12" (2.14 m x 61 cm x 30.5 cm)	MX6-BSPL-1440-U7 MX6-BSPL-1440-D7
Isolation Pad - Splice Cabinet A template for cabinet installation providing isolation between the cabinet and the ground		MX6-BAYTEMPLATE



Accessories

Splice Wheel

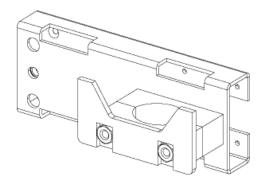
Ordering Information		
Description	Catalog Number	
Splice Wheel Accommodates up to 24 fiber splices, heat shink fusion chip	FST-DRS24-NT	
Accommodates 2x12 mass ribbon fusion splices	FST-DRS12-MT	



FST-DRS24-HS

Cable Clamps

Description Catalog Number OMX Splice Frame Cable Clamps For OSP Cable For IFC Cable FOR IFC Cable MX6-SPLIFCCLMP



FEC-ACCCLMP01

MX6-SPLIFCCLMP

1-800-366-3891



Data Center Optical Distribution Frame Solutions

Accessories

Cable Clamp Kit

Cable clamp kits are available for securing IFC/OSP cable or equipment jumpers on the rear of the FTB. Each FTB has three cable clamp mounting positions.

Cable clamp kit for active equipment patch cord includes:

Cable clamp bracket	1 each
O-ring	1 each
Screws	2 each

Cable clamp kit for trunk cables includes:

Clamp cover	1 each
Clamps	2 each
0.5" Grommet (inner diameter)	1 each
0.6" Grommet (inner diameter)	1 each
0.7" Grommet (inner diameter)	1 each
#14 - #6 AWG split bolt	1 each
Shield bonding connector	1 each
1-foot lead wire	1 each
#6 AWG ring terminal lug	1 each
Clamp cover plate	1 each

Description	Catalog Number
Cable clamp kit for equipment patch cords (included with fiber termination blocks loaded with adapters only)	NGF-ACCCLMP04
Cable clamp kit* for trunk cables, dielectric cable without grounding hardware (included with fiber termination blocks with IFC)	NGF-ACCCLMP08

^{*} One NGF-ACCCLMP08 is also included with each cable clamp kit and block conversion kit (see page 273).



Accessories

Frame Installation Kit

Frame installation kits may be used on network frames and are seismic zone 4 rated.

Computer floor kit includes:

Threaded rods 4 each, 5/8" – 11" x 30"

Heavy nuts, locks and flat washers 12 each

Nuts with springs 4 each, 1/2" x 30" and shoulder washers

Unistrut and anchor kit 1 each, 10'

Overhead support kit includes:

Designation card holder 1 each Two-bar channel 4 each Framing clip with 0.56 4 each Framing clip with 0.69 4 each

Clip J-bolt 4 each, 1/2" – 13" x 18" long
Threaded rod 2 each, 5/8" x 18" long
Hex nut 4 each, 1/2" x 13"
Hex nut 4 each, 5/8" x 11"

Ordering Information

Description	Catalog Number
Frame installation kit for Computer floor	FDF-ACC146
Overhead support	RINST-TOP7

Standard Cross-Connect Patch Cord Lengths

Total Number of Sections Traversed ¹	Approximate Patch Cord Length Meters (Feet)
Same frame	6 m (18')
Adjacent frames	7 m (23')
3 to 4	8 m (26')
5 to 6	10 m (33')
7 to 8	11 m (36')
9 to 10	12 m (39')

Depending on office requirements, 11 or more frame sections may require the use of interbay tie panels. For additional information, please call ADC Technical Assistance Center, 1-800-366-3891. For recommended cross-connect method and installation instructions, refer to User Manual ADCP-90-285.

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