

EDGE™ Enabled Enhanced Management Frame (EMF)

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Features and Benefits

Utilizes EDGE Modules

Seamless data center MTP® Connectivity deployment

MTP trunk strain-relief

Organized trunk integration

Intra-bay jumper storage

Utilizes single jumper length for frame connections making ordering easier

Integrated horizontal jumper troughs

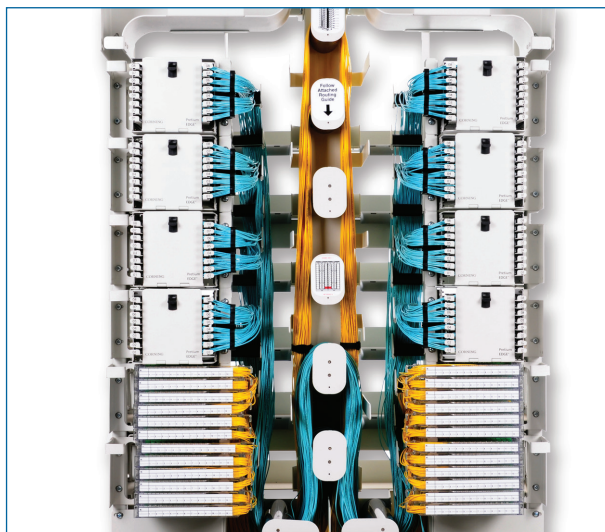
No need for additional overhead pathways

Separate jumper storage and horizontal pathways

Eliminates jumper entanglement at vertical crossings

The enhanced management frame (EMF) is designed for cross-connect applications in the main distribution area (MDA) of the data center. It is built from a modular platform that allows capacity scaling at both a housing and module level. User-friendly features such as a single jumper length, intrabay jumper storage and multiple interbay routing options make this frame an ideal solution for dense data center fiber cross-connects. The improved jumper routing and management system is achieved by separating the storage and horizontal paths into two different locations. An isolated center-mounted inter-bay jumper slack allows for a single jumper length, while the rear of the frame contains multiple horizontal jumper troughs for passing between frames. Separating the two functions eliminates jumper entanglement, allowing easier jumper additions and decommissioning.

The EMF can be utilized with several housing options, including MTP connectivity via EDGE™ housings. These housings accommodate the EDGE MTP to LC modules and MTP panels for rapid, dependable data center deployment. The EDGE EMF housing also incorporates EDGE MTP trunk strain-relief. When fully populated, the frame supports 24 housings, each with 96-fiber capacity when using EDGE modules, resulting in 2304-fiber maximum density. This frame can also utilize traditional EMF housings to support in-frame splice, stubbed hardware and splitters/couplers for WDM applications. These housings can be interspersed within the frame for application flexibility.



Enhanced Management Frame (EMF)

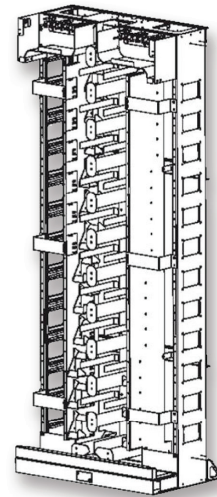
| Photo CAR329

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Network Bay Frame

The building block for this solution is the frame. Each frame holds 12 housings on the left and 12 housings on the right for a total of 24 housings in each unit. Trunks are fed from overhead cable trays that can be connected to the frame using frame extensions.



EMF
| Drawing ZA-3255

Empty Frame

Part Number	Description	Dimensions (HxWxD)	Units per Delivery
CCF-BAY-7	7-ft EMF with 12 rear troughs attached, mounts 12 left-hand and 12 right-hand fiber housings	213.4 cm x 86.4 cm x 43.2 cm (84.0 in x 34.0 in x 17.0 in)	1/1
CCF-FRAME-EXT-7-8	1-ft EMF Extension used to tie 7-ft frame to 8-ft overhead	30.5 cm x 86.4 cm x 43.2 cm (12 in x 34 in x 17 in)	1/1
CCF-FRAME-EXT-7-9	2-ft EMF Extension used to tie 7-ft frame to 9-ft overhead	61 cm x 86.4 cm x 43.2 cm (24 in x 34 in x 17 in)	1/1
CCF-FRAME-EXT-7-11	4.5 ft EMF Extension used to tie 7-ft frame to 11.5-ft overhead	137.2 cm x 86.4 cm x 43.2 cm (54 in x 34 in x 17 in)	1/1
QFMABK1A	Zone 4 Mounting Bolt Kit	-	1/1
CCF-PAD-KIT	Isolation Pad Kit for EMF frame (includes mounting hardware)	86.4 cm x 43.12 cm (34 in x 17 in in)	1/1

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EMF Housings

EMF EDGE™ housings have individual sliding trays that hold eight modules for a maximum density of 96 fibers per unit. With two strain-relief positions, jumper slack is easily managed when installed.



Part Number	Dimensions (HxWxD)	Weight	Number of Panels
CCF-CML-96EDGE	14.5 cm x 24.1 cm x 33.1 cm (5.7 in x 9.5 in x 13.0 in)	39 lb	8
CCF-CMR-96EDGE	14.5 cm x 24.1 cm x 33.1 cm (5.7 in x 9.5 in x 13.0 in)	39 lb	8

Part Number	Description	Units per Delivery
CCF-CML-96EDGE	Empty Left-Hand Housing, holds eight EDGE Solutions modules	1/1
CCF-CMR-96EDGE	Empty Right-Hand Housing, holds eight EDGE Solutions modules	1/1

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EDGE™ Modules

EDGE™ modules provide the interface between the MTP® connector on the trunk and the LC duplex jumpers that will then connect directly into electronics. The LC duplex adapters feature hinged VFL-compatible shutters that move up and out of the way when the connector is inserted. Specially designed indents in the shutters ensure that the end faces of the connectors are never touched. These shutters replace the standard dust caps that typically once removed are never replaced, exposing the interior end faces to dust particles and possible damage.



EDGE Module with VFL-Compatible Shutters
| Photo LAN1545

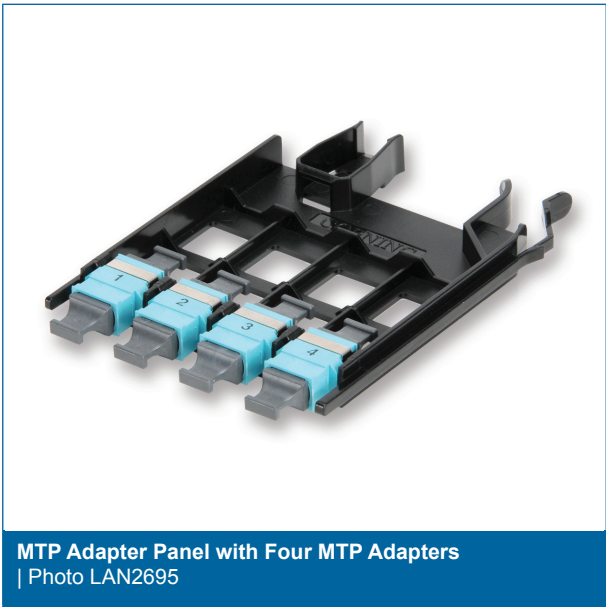
Part Number	Adapter Type Front	Adapter Color Front	Adapter Type Back	Fiber Category
ECM-UM12-04-89G	Shuttered LC	Blue	MTP	SM (OS2)
ECM-UM12-18-89G	Shuttered LC APC	Green	MTP	SM (OS2)
ECM-UM12-05-93Q	Shuttered LC	Aqua	MTP	50 μm MM (OM4)
ECM-UM12-05-93T	Shuttered LC	Aqua	MTP	50 μm MM (OM3)

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MTP® Adapter Panels

EDGE™ MTP® Adapter Panels provide a simple interface to mate MTP Connectors. This occurs when connecting MTP trunks to MTP extender trunks, MTP trunks to trunk harnesses and in 40G multimode networks when MTP trunks are connected to 40G jumpers.



Part Number	Fiber Count	Fiber Category
EDGE-CP24-E3	24	50 µm MM (OM3/OM4)
EDGE-CP48-E3	48	50 µm MM (OM3/OM4)
EDGE-CP24-90	24	SM (OS2)
EDGE-CP48-90	48	SM (OS2)

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Trunk Specifications

Mechanical Characteristics							
Fiber Count	Nominal Outer Diameter	Pulling Grip Outer Diameter	Strain-Relief Bracket Type	Minimum Conduit Size with 18-in Elbow	Weight	Min. Bend Radius Installation	Min. Bend Radius Operation
12	5.5 mm ± 0.3 mm (0.22 in)	41 mm (1.6 in)	1	2.5 in	32 kg/km (21 lb/1000 ft)	82.5 mm (3.25 in)	27.5 mm (1.08 in)
24	7.7 mm ± 0.3 mm (0.30 in)	41 mm (1.6 in)	1	2.5 in	50 kg/km (34 lb/1000 ft)	115.5 mm (4.55 in)	38.5 mm (1.52 in)
36	8.0 mm ± 0.3 mm (0.31 in)	41 mm (1.6 in)	1	2.5 in	56 kg/km (38 lb/1000 ft)	120 mm (4.72 in)	40 mm (1.57 in)
48	8.5 mm ± 0.3 mm (0.33 in)	56 mm (2.2 in)	2	3.0 in	63 kg/km (42 lb/1000 ft)	127.5 mm (5.02 in)	42.5 mm (1.67 in)
72	10.5 mm ± 0.3 mm (0.41 in)	56 mm (2.2 in)	2	3.0 in	95 kg/km (64 lb/1000 ft)	157.5 mm (6.2 in)	52.5 mm (2.07 in)
96	11.9 mm ± 0.3 mm (0.47 in)	56 mm (2.2 in)	2	3.0 in	111 kg/km (74 lb/1000 ft)	178.5 mm (7.03 in)	59.5 mm (2.34 in)
144	12.5 mm ± 0.3 mm (0.49 in)	56 mm (2.2 in)	2	3.0 in	122 kg/km (82 lb/1000 ft)	187.5 mm (7.38 in)	62.5 mm (2.46 in)

Trunk Shipping Information

Reel Capacities			
Packaging Method	Reel A	Reel B	Reel C
Reel Diameter (in)	19.5	19.5	19.5
Reel Width (in)	5	12	18
Fiber Count	Capacities (ft)		
12	30-999	-	-
24	30-700	701-999	-
36	30-600	601-999	-
48	30-450	451-999	-
72	30-300	301-700	701-999
96	30-250	251-400	401-800
144	30-200	201-300	301-650

Note: Trunks under 30 ft are shipped in a cardboard box and not on a reel.

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Transmission Performance

Fiber Type	Multimode	Multimode	Single-mode
Fiber Core Diameter (μm)	50	50	8.2
Fiber Category	OM3	OM4	OS2
Fiber Code	T	Q	G
Performance Option Code	80	90	01
Wavelengths (nm)	850/1300	850/1300	1310/1383/1550
Maximum Attenuation (dB/km)	2.8/1.0	2.8/1.0	0.4/0.4/0.3
Serial 1 Gigabit Ethernet (m)	1000/600	1100/600	5000/-/-
Serial 10 Gigabit Ethernet (m)	300/-	550/-	10000/-/40000
Min. Overfilled Launch (OFL) Bandwidth (MHz*km)	1500/500	3500/500	-
Minimum Effective Modal Bandwidth (EMB) (MHz*km)	2000/-	4700/-	-
Induced Attenuation @ 7.5 mm Radius (dB)	< 0.2(2 turns, 850 nm)	< 0.2(2 turns, 850 nm)	-

* Single-mode (OS2) fiber is ITU-T G.652.D compliant.

* 50 μm multimode fiber (OM3/OM4) meets 0.75 ns optical skew when used in all Corning Plug & Play™/EDGE™ systems solutions.

* OM3/OM4 Multimode fiber minimum effective modal bandwidth assumes 1.0 dB maximum total connector/splice loss.

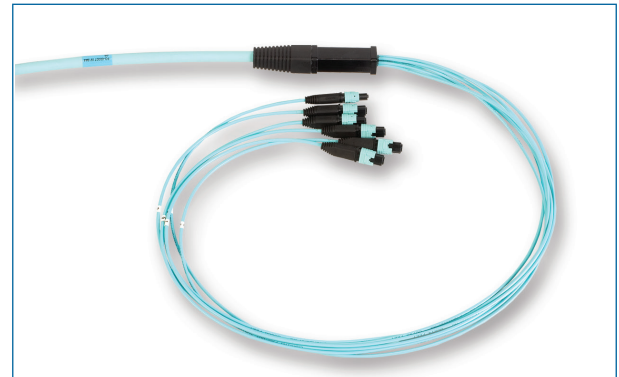
Notes: 1) Improved attenuation and bandwidth options available.
 2) Bend-insensitive single-mode fibers available on request.
 3) Contact a Corning Customer Care Representative for additional information.

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MTP® Trunks

EDGE™ MTP® Trunks provide the backbone of the EDGE Solution. With non-pinned MTP Connectors on both ends of the cable, these trunks are designed to interface with the EDGE or Plug & Play™ modules. All trunks are shipped with strain-relief clips that allow for the tool-less installation into the EMF housing.



EDGE MTP Trunk
| Photo LAN1550

Ordering Information

<div><div></div><div>1</div></div>	<div><div></div><div>2</div></div>	<div><div></div><div>3</div></div>	<div><div></div><div>4</div></div>	P N D D U -	<div><div></div><div>5</div></div>	F
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1 Select grip application.

G = Grip on one end
Z = No grips

2 Select non-pinned MTP Connectors.

7575 = Multimode
9090 = Single-mode

3 Select fiber count.

12 = 12 fibers
24 = 24 fibers
48 = 48 fibers
72 = 72 fibers
96 = 96 fibers
E4 = 144 fibers

4 Select fiber type.

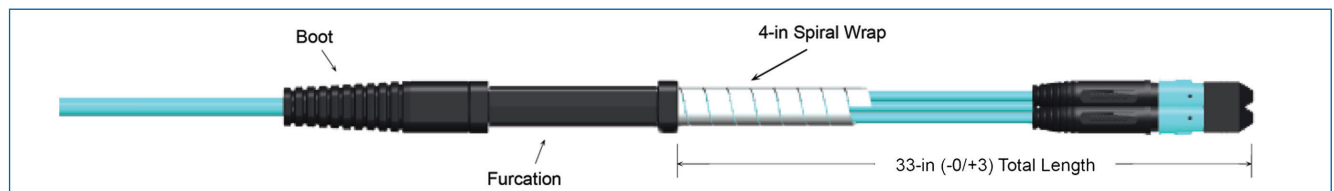
T = OM3
Q = OM4
G = OS2

5 Select cable length in ft.

(measured from furcation to furcation)

030, 040, 050, 060, 070, 080,
090, 100, 110, 120, 130, 140,
150, 170, 180, 190 or 200

Note: Other cable lengths available upon request.



EDGE Solutions Trunk Cable Configuration
| Drawing ZA-3496

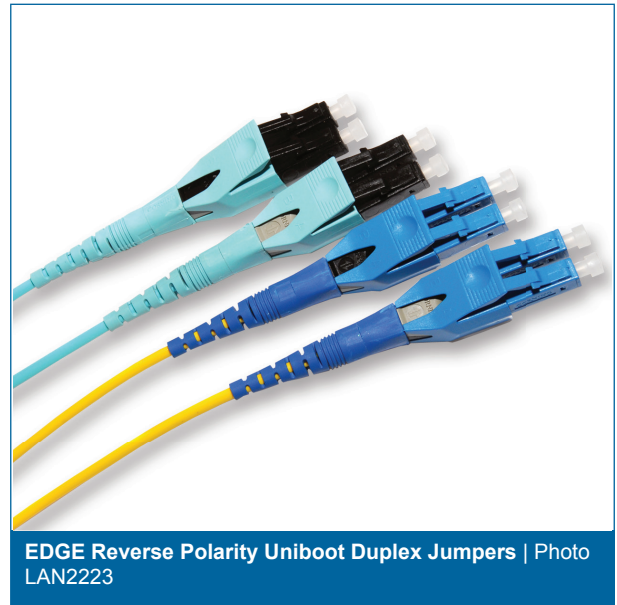
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Reverse Polarity Uniboot Duplex Jumpers

The key advantage of the EMF is that one jumper length (5.5 m) is used for any connection within the frame, while a simple equation (7 m + 1.5 m x every additional frame) determines the length when going from frame to frame.



Ordering Information

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	0	2	<input type="text"/>	D	<input type="text"/>	2	0	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
1	2		3			4					5		6	

1 Select connector one type.

Multimode

- 05 = Multimode (OM3/OM4) LC duplex
- 57 = Multimode (OM3/OM4) SC duplex
- 79 = Multimode (OM3/OM4) LC reverse polarity uniboot

Single-mode

- 04 = Single-mode (OS2) LC duplex
- 72 = Single-mode (OS2) SC duplex
- 78 = Single-mode (OS2) LC UPC
- 80 = Single-mode (OS2) LC APC reverse polarity uniboot

2 Select connector two type.

- 79 = Multimode (OM3/OM4) LC reverse polarity uniboot
- 78 = Single-mode (OS2) LC UPC
- 80 = Single-mode (OS2) LC APC reverse polarity uniboot

3 Select fiber type.

- T = 50 um multimode (OM3)
- Q = 50 um multimode (OM4)
- G = Bend-improved single-mode (OS2)

4 Select flame rating.

- 1 = Riser
- 8 = Plenum

5 Select length.

- 001-999

6 Select unit of measure.

- M = Meters
- F = Feet

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Hardware Accessories

End Cap and Door Cover

EMF end caps protect the end of a bay line-up while providing a clean, finished appearance. A dual-door front cover provides individual access to the left or right column of termination housings.



Accessories		
Part Number	Description	Units per Delivery
CCF-COVER-7	Simple One-Piece Decorative Lift-Off Panel Cover for the front of the EMF	1/1
CCF-COVER-2-7	Dual-Door Front Cover for the EMF; provides individual access to the left or right column of termination housings	1/1
CCF-EC-7	Decorative End Cap for protecting the end of a bay line-up	1/1

EDGE™ Enabled Enhanced Management Frame (EMF)

The Corning logo, consisting of the word "CORNING" in white, uppercase, sans-serif font, centered within a solid blue square.

Installation Guides

EMF Frame Trough Edge Guard	SRP-000-262
EMF Frame Waterfall	SRP-000-263
EMF Frame Fiber Retainer	SRP-000-264
Enhanced Management Frame (EMF)	SRP-003-542
Jumper Routing Procedure	SRP-003-599
Frame Accessories	SRP-003-612
CCF Frame Extensions for EMF	SRP-003-622
End Cap for EMF	SRP-003-634
End Guard for EMF	SRP-003-635
Installation for CCF Doors for EMF	SRP-003-636
EDGE™ Solution Modules in an EMF Frame	SRP-003-885

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