CORNING

10G HPoE Media Converter
1LAN-FMC-10G Gen II

1LAN-FMC-10G Front

1LAN-FMC-10G Top

The Corning FMC-10G Generation II is a compact, yet advanced version of its predecessor. This industrial-grade, unmanaged, 10G fibre media converter is equipped with one RJ-45 copper interface and one SFP+ fibre optic interface. The RJ-45 copper interface supports speeds ranging from 100MB to 10GB, while the SFP+ port offers a compatible 10GBase-SR/LR SFP+ interface, also supporting 1G/2.5G Base SFPs.

A key upgrade in this model is its support for both 1G and 10G transceivers, unlike the previous version which only supported 10G transceivers. Additionally, this new FMC features two dip switches on its face, introducing new functions. The "Watch Dog" dip switch will reset the PoE power to the powered device (PD) if it stops transmitting data for more than 300 seconds. The "Link Fault Pass-Through" (LFP) dip switch provides link down status to the switch for both local and remote FMCs. If both dip switches are turned off, the Gen 2 FMC will perform just like the Gen 1 version.

The unit comes with 802.3bt Type 4 Power over Ethernet (PoE++, HPoE) capabilities, allowing it to deliver up to 90W of power output and high-speed data transmission to edge devices. The Corning FMC-10G functions as a Power Sourcing Equipment (PSE), providing power and high-speed data transmission over an Ethernet cable to powered devices (PDs). The unit offers non-blocking wire-speed performance and exceptional flexibility, making it ideal for extending 10G Ethernet into outdoor long reach applications or industrial environments where reliable power input is crucial. It also supports redundant power with two power inputs ranging from 44 to 57VDC.

The unit is encased in an IP30-rated, rugged yet compact housing that can be wall or DIN rail mounted. It's ideally suited for a wide range of applications, from copper to fibre media conversion in environments requiring up to 10GE bandwidth and capable of withstanding wide temperature ranges.

Features	Benefits
Physical Port	▪ 1 port 10G/5G/2.5G/1G/100M Base-T RJ45 interface with IEEE 802.3bt PoE++ injector function ▪ 1 port 10GBase-X SFP+ interface (Compatible with 1G/2.5G Base-X SFP)
Power over Ethernet	▪ Complies with IEEE 802.3bt PoE++ Type-4 PSE ▪ Backward compatible with IEEE 802.3af/at PoE+ standard ▪ Supports PoE Power up to 90 watts for PoE port. ▪ Provides power over RJ45 Ethernet cable to PD with Ethernet port. ▪ Auto-detect IEEE 802.3bt equipment and protects device from being damaged by incorrect installation. ▪ Remote powering of connected PD up to 100m
Layer 2 Features	▪ IEEE 802.3an/802.3ae Ethernet standard compliant ▪ Supports auto-negotiation and 10Gbps full duplex mode ▪ Prevents packet loss with IEEE 802.3x pause frame flow control (full-duplex) ▪ Automatic address learning and address aging
Industrial Case and Installation	▪ Slim-type IP30 metal case ▪ DIN rail and wall-mount design ▪ 44~57V DC redundant power with reverse polarity protection ▪ 100 meters over Cat6A at 10Gbps ▪ Plug-and-Play Installation ▪ Powered Fault Alarm contact (24VDC 1A max)
Dip switch controlled functionality	▪ Switch 1 LFP (Link Fault Pass though) ▪ Switch 2 Watchdog

Specifications

Hardware Specifications	
Copper Interface	1 x 10G/5G/2.5G/1G/100M Base-T RJ45 Auto-MDI/MDI-X, auto-negotiation
Fibre Optical Interface	1 x 10GBase-SR/LR SFP+ interface (compatible with 1G/2.5G Base SFP)
Connector	▪ 4-pin terminal block for Power 1, Power 2 2-pin terminal block for powered fault alarm. (24VDC 1A output max) ▪ Pin 1/2 for Power 1, Pin 3/4 for fault alarm, Pin5/6 for alternate Power 2
Alarm	Provides one relay output for power failure
LED	P1, P2, Alarm, RJ-45 PoE Usage (Downside) RJ-45 LNK/ACT (Upside) 5G/10G SFP+ port LNK/ACT 2.5G SFP port LINK/ACT 1G SFP port LINK/ACT
Enclosure	IP30 type metal case
Installation	DIN-rail and wall mount
Dimensions (W x D x H)	4.7in (L), 3.5in (W), 1.4in (H)	120mm (L), 90mm (W), 35.0mm (H) Weight: 12.8oz	360g
Weight	270g
Power Requirements	44~57V DC, supports reverse polarity protection
Power Consumption	System ON without loading 48V DC: up to 5.5W Full loading with PoE++ (1 Port) 48V DC: up to 100W
Built-in Surge Protection	6KV on both Ethernet and Power ports

Specifications

Flow Control	IEEE 802.3x pause frame for full duplex
Fabric	20Gbps
Network Cables	**10G/5G/2.5G/1G/100M Base-T:** 10G - Cat 6A/7 5G - Cat 6/6A/7 2.5G/1G - Cat 5e/6/6A/7 100M – Cat 5/5e/6/6A/7 Cat 5/5e/6/6A/7 UTP cable (max 100 meters) EIA/TIA-568 100-ohm STP (max 100 meters) **10GBase-LR/SR/BX:** 50/125um or 62.5/125um multi-mode fibre optic cable, up to 300m 9/125um single-mode fibre optic cable, up to 80km

Power over Ethernet

PoE Standard	IEEE 802.3bt, Type 4Power over Ethernet Plus Plus (HPoE)
PoE Power Output	90W
PoE Power Supply Type	End-span + Mid-span
Power Pin Assignment	Mode A End-span: 1/2(-), 3/6(+) Mode B Mid-span: 4/5(+), 7/8(-)
PoE Power Budget	▪ 15.4 watts @ 44~57 VDC Input ▪ 30 watts @ 50~57 VDC Input ▪ 60 watts @ 50~57 VDC Input ▪ 90 watts @ 52~57 VDC Input

Standards Conformance
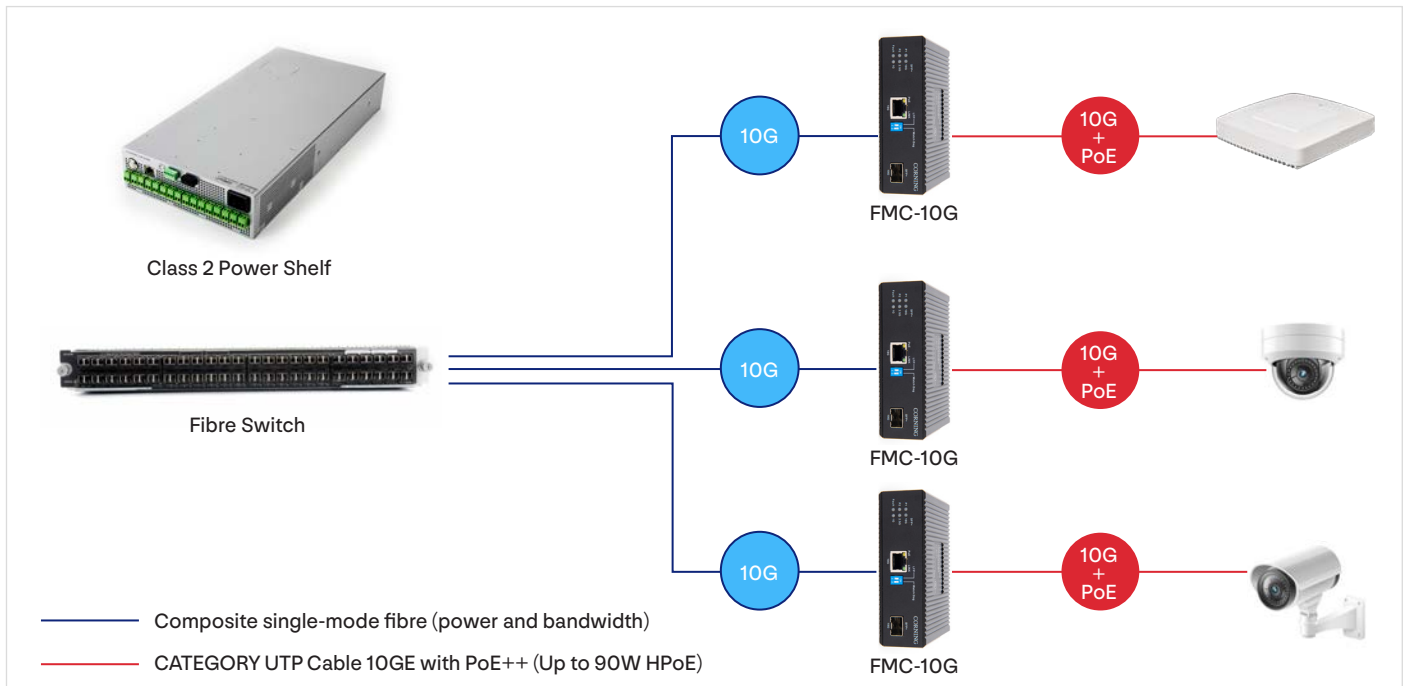
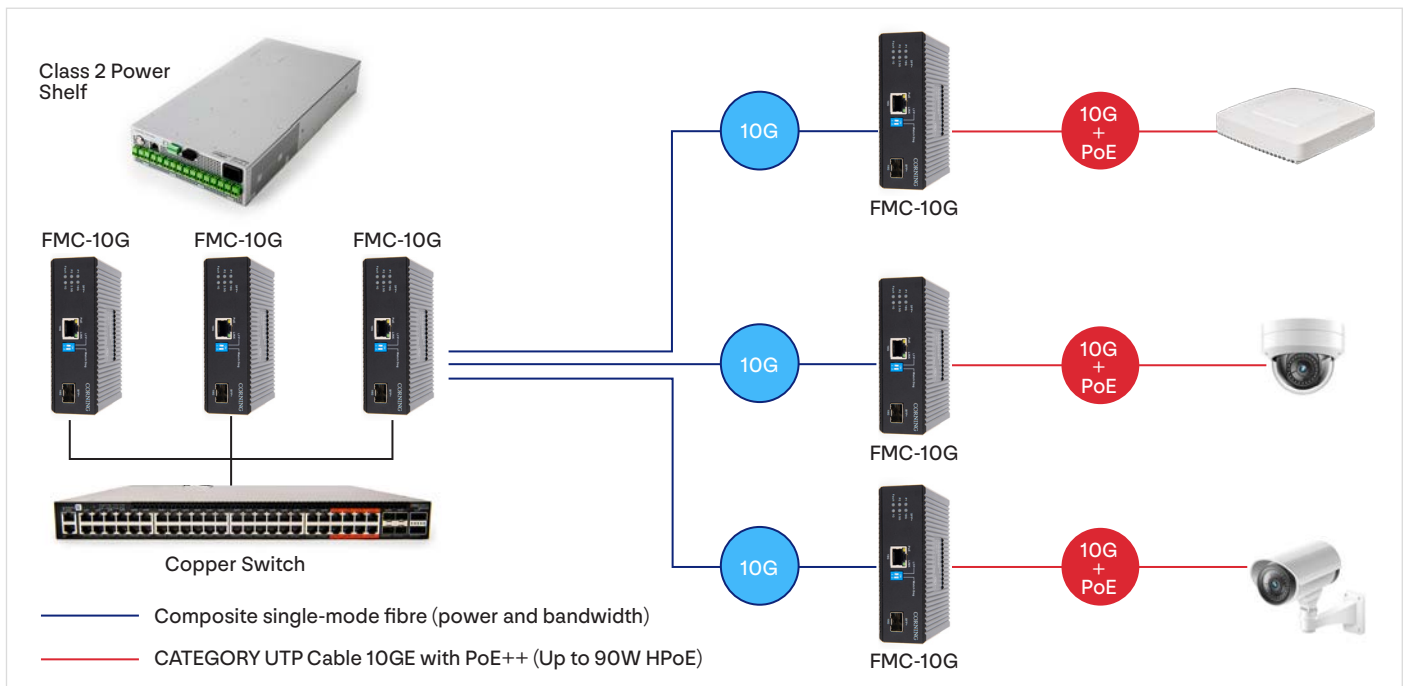|	
IEEE Standards	IEEE 802.3u 100Base-T IEEE 802.3ab 1000Base-T IEEE 802.3bz 2.5G/5GBase-T IEEE 802.3an 10GBase-T IEEE 802.3ae 10Gbps Ethernet IEEE 802.3af Power over Ethernet - IEEE 802.3at Power over Ethernet Plus - IEEE 802.3bt Power over Ethernet Plus Plus
Regulatory Compliance	FCC Part 15 Class A CE/UKCA

Environment

Temperature	Operating temperature: -40℉ ~ 167℉	-40℃ ~75℃ Storage temperature: -40℉ ~ 185℉	-40℃ ~ 85℃
Humidity	Operating: 5% ~ 95% RH Non-condensing

Application

The Corning FMC-10G lends itself to 2 main methods of deployment. Single sided - extending the reach of an optical switch. Double sided - extending the reach of a copper based switch.

Class 2 Power Shelf

Fibre Switch

FMC-10G

FMC-10G

FMC-10G

10G + PoE

10G + PoE

10G + PoE

——— Composite single-mode fibre (power and bandwidth)

——— CATEGORY UTP Cable 10GE with PoE++ (Up to 90W HPoE)

Method 1

Class 2 Power Shelf

FMC-10G   FMC-10G   FMC-10G

Copper Switch

FMC-10G

FMC-10G

FMC-10G

10G + PoE

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10G + PoE

——— Composite single-mode fibre (power and bandwidth)

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Method 2

Dip Switch Features

LFP (**Link Fault Pass-Through**)

This feature provides link down status for local and remote FMCs. It needs to be enabled on the dip switch.

1. The link down status of LAN side will inform the other remote media converter.

   E.g., As shown below, when the LAN port of Local MC link is down the LAN port of Remote MC will be set to link down and LFP is forced.

| LAN | | **Local MC** | WAN | | WAN | **Remote MC** | | LAN |

2. The link down status of WAN side will firstly transfer to LAN side for Local media converter, then transfer to LAN side of remote media converter.

   E.g., as shown below, when WAN side of Local MC link down, the LAN port of Local MC will be set to link down and LFP forced, then set the LAN port of Remote MC to be link down and LFP forced

3. When LAN port is back to link up, the system will cancel LFP forced status of the companion media converter LAN port.

   E.g., When LAN port of Local MC back to link up from link down, the system will cancel LFP forced status of LAN port of Remote MC.

3. When WAN port of Local MC back to link up, the system will cancel the LFP forced status for all the LAN ports of both local and remote media converter.

Watchdog

This feature supports to reset the PoE Powered Device (PD) if there is no traffic received by the FMC for 300 seconds. When reset triggered, the PD site equipment will reboot and then reconnect to the 1LAN-FMC-10G. It can recover the PD equipment that had crashed or was hung up. It needs to be enabled by the dip switch.

Ordering Information

Description	Part Number
10G Fibre Media Converter, 1x10G RJ-45, 802.3bt HPoE	1LAN-FMC-10G
Din Rail Accessory Bracket for FMC (48.4 x 32 x 9mm) (15 g)	1LAN-FMC-DINBRACKET
EN 50022 – 35 × 7.5 (1M) (DIN RAIL)	1LAN-SDAN-DIN1160
Outdoor enclosure for micro SDAN family (81XX, 82XX), FMC	1LAN-D600-ENC-3
Outdoor enclosure for 4/8 GE port Family (729X, 769X)	1LAN-D600-ENC-8
Class 2 power supply, 56 Vdc, 1 channel, mini form factor, includes DIN Bracket	CIP-01-56V
Class 2 power supply, 56 Vdc, 16 channels, 1.5RU	CIP-16-56V
Class 2 power supply, 56 Vdc, 32 channels, 1.5RU	CIP-32-56V
10GBASE-BX10-D BiDi SFP+ 1330 nm-TX/1270 nm-RX 10 km DOM Transceiver Module	1LAN-SFPP-10G-BXD-I
10GBASE-BX10-U BiDi SFP+ 1270 nm-TX/1330 nm-RX 10 km DOM Transceiver Module	1LAN-SFPP-10G-BXU-I
1G B Bi-Di SFP; 1310Tx/1490Rx	1LAN-SFP-3405BC
1G Bi-Di SFP; 1490Tx/1310Rx	1LAN-SFP-4305BC
10Gb/s SFP+ Transceiver module, SMF, 1310 nm, 10 km	1LAN-SFPP-10LR
1G SFP TRX, 1000BASE-LXLH, SMF, 1310 nm, 10 km	1LAN-SFP-1GB-LXLH

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