PHB-200M
PHB-200

20x 100/1000Base-T to 20x100/1000Base-X SFP Patching Hub

PHB-200M is a 20-channel Managed SFP patching hub that converts Ethernet copper 100/1000Base-TX to SFPs working at 100Mbps and 1000Mbps. PHB-200M can connect to any RJ-45 Ethernet switch and supports any third-party standard SFP module from any SFP vendor. PHB-200M can also be used as an Ethernet copper-to-fiber media converter. With different kinds of fiber optic media, both multi-mode and single mode fiber are available as well as BiDi which allows bi-directional transmissions using only a single fiber to extend the distance of Fast Ethernet and Gigabit Ethernet networks. With SNMP and Web-based management, the network administrator can monitor, configure and control the activity of PHB-200M remotely.
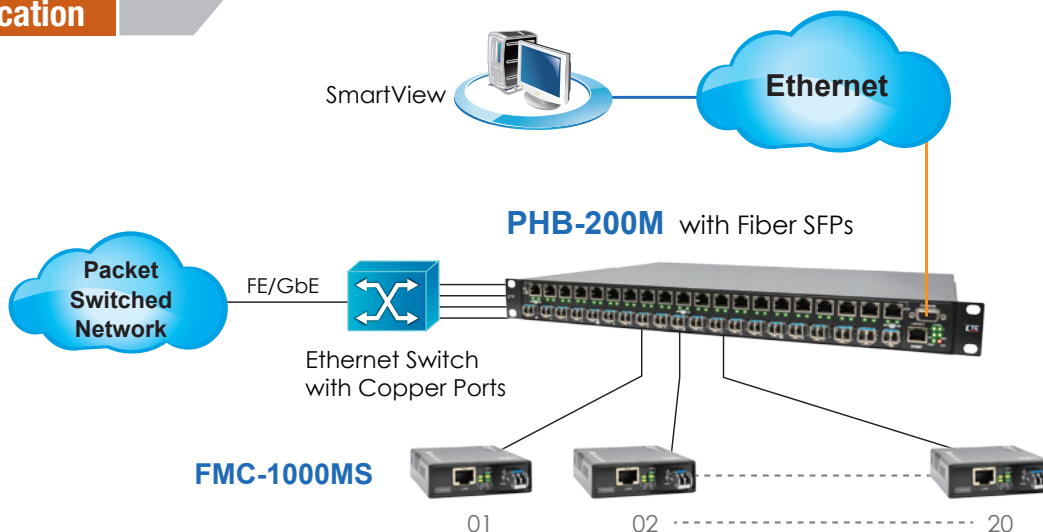
Feature

- 1U" Height 19" 20 channels Managed SFP patching hub
- 20-port 100/1000Base-T to 20-port 100/1000Base-X SFP
- Auto MDI/MDIX in TP port
- Auto-Negotiation in TX port
- Supports hot-swappable SFPs working at 100 Mbps and 1000 Mbps
- Supports Web, Telnet, SNMP Management (PHB-200M)

- Local configuration via DB9 port
- Supports Link Pass-Through & Link loss Alarm
- Supports any third-party standard SFP module
- Supports SFP DDMI
- Layer 1 wire-speed conversion with fully transparent function
- Available in 3 types : power built-in AC, DC, AC+DC

Specifications

Optical Interface	Connector	SFP LC
	Number of port	20
	Data rate	100/1000Mbps
	Duplex mode	Full duplex
	Fiber	MM 50/125um, 6.25/125um, SM 9/125um
	Distance	MM 2km, SM 15/30/50/80/120km, WDM 20/40/60/80km
	Wavelength	1310nm, 1550nm, CWDM 1471nm ~ 1611nm
Management		Console, Web, Telnet, SNMP
Control Port		RS-232 DCE, DB-9, female
Standards		IEEE 802.3, 802.3u, 802.3ab, 802.3z, 802.3x
Indications		Power FX-Link, Duplex, TX-Link/Act, TX-Speed

Electrical Interface	Connector	RJ-45
	Number of port	20
	Data rate	10/100/1000Mbps
	Duplex mode	Half / Full duplex
	Cable	10Base-T Cat. 3, 4, 5 UTP
		100/1000Base-T Cat.5, 5e or higher
Power		100 ~ 240VAC, 36~60 VDC
Power Consumption		65W
Dimensions		180 x 440 x 44mm (D x W x H)
Weight		3.4kg
Temperature		0 ~ 50°C (Operating), -10 ~ 70°C (Storage)
Certification		CE, FCC

Application

SmartView

Ethernet

PHB-200M with Fiber SFPs

Packet Switched Network

FE/GbE

Ethernet Switch with Copper Ports

FMC-1000MS

01   02   20

Ordering Information

Model Name	Description
PHB-200M-AC, DC, AD	Managed 20-port 100/1000-TX to 20-port 100/1000-X SFP, built-in AC, DC or AD (AC+DC) Power
PHB-200-AC, DC, AD	20-port 100/1000-TX to 20-port 100/1000-X SFP, built-in AC, DC or AD (AC+DC) Power

Power Type

PHB – 200 ☐ – ☐☐

Example: PHB – 200M – DC

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CTC union

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Specifications & design are subject to change without prior notice. Please visit CTC Union website for more details.

FMC-CH17
Simple Converter Chassis

The FMC-CH17 is a 2U high 19" 17 slots chassis. The chassis provides an economic solution in low density fiber converter installations where no management features are required. Each FMC or VDTU2A-301 converter is an independent Ethernet to fiber or Ethernet to copper media converter that may be used as a stand-alone converter or placed in the FMC-CH17 chassis. With two power supplies, the FMC-CH17 chassis supports redundant power from any of two power options. The AC supplies operate from (100-240VAC) and DC supplies operate from 36-60VDC. The built in cooling fan ensures that the temperatures in the rack remain within the tolerated working range.

Feature

- FMC-CH17, 2U, 19", 17-Slot chassis with single or dual built-in power for AC or DC
- Cross flow cooling fan built-in.
- Designed for 19" Rack mounting
- FMC units are hot swappable

Specifications

Power Input	AC : 100 ~240V or DC : 36 ~ 60V		**Temperature**	0 ~ 50°C (Operating), -10 ~ 70°C (Storage)
Power Consumption	<60W		**Humidity**	10 ~ 90% non-condensing
Dimensions (D x W x H)	199 x 476 x 88 mm		**Certification**	CE, FCC
Weight	7.9Kg		**MTBF**	65,000 hrs

Application

FMC-CH17 Front view

FMC Option Converters
- Fast Ethernet
- Gigabit Ethernet
- VDSL2 LAN Extender

17-Slot

FMC-CH17 Back view

DC Power Terminal
Power Switch
FAN

AC Power Socket
Power Switch

Ordering Information

Model Name	Description
FMC-CH17-AC, DC, AD, AA, DD	2U, 19", 17-Slot FMC Converter Chassis with AC, DC, AD, AA or DD power

Power Type
FMC – CH17 – ☐☐
Example: FMC – CH17 – DC

FMC-1000S

10/100/1000Base–T to 1000Base–X SFP Media Converter

The FMC-1000S family are Gigabit Ethernet 10/100/1000Base-T to 1000Base-X non-managed stand-alone media converters, which give you the fiber cabling connectors, LC with SFP module. Pluggable SFP are available in both multi-mode and single mode types as well as BiDi which allows bi-directional transmissions using only a single fiber cable. Auto-negotiation will automatically tailor to convert full-duplex signals, according to IEEE802.3u standards. LED indicators signal the power status of the converter, UTP port speed and Link status FX port speed and Link status.
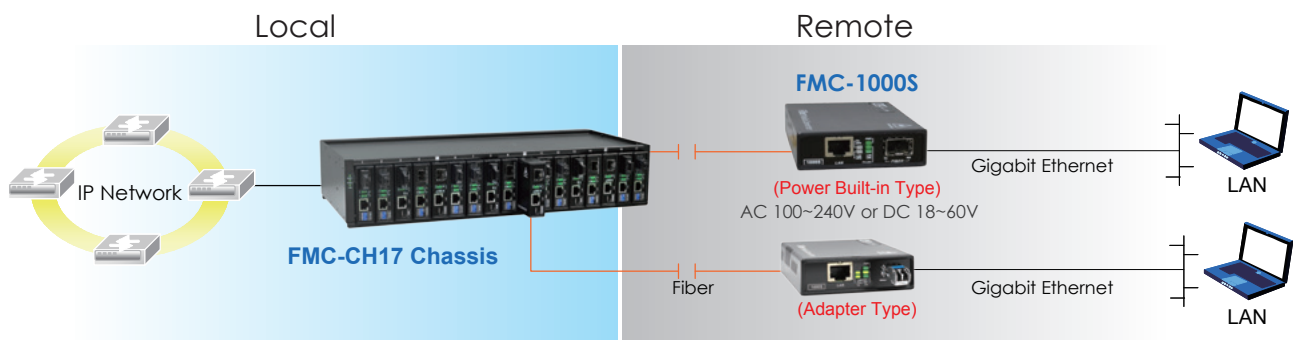
Feature

- 10/100/1000Base-T to 1000Base-X Converter
- Auto-Negotiation
- Auto MDI/MDIX
- Forward 2048 bytes (Max.) packets

- Supports Q in Q double tagged frame transparent
- Supports IEEE 802.1Q Tag VLAN pass thru
- Concentrated into FMC-CH17 chassis (FMC-1000S Adapter type only)

Specifications

Optical Interface	Connector	SFP LC
	Data rate	1.25G
	Duplex mode	Full duplex
	Fiber	MM 50/125μm, 62.5/125μm
		SM 9/125μm
	Distance	MM 2km, SM 15/30km
		WDM 20/40km
	Wavelength	MM 1310nm, SM 1310,1550nm
		WDM 1310Tx/1550Rx (Type A)
		1550Tx/1310Rx (Type B)
Electrical Interface	Connector	RJ-45
	Data rate	10Mbps, 100Mbps, 1000Mbps
	Duplex mode	Full duplex
	Cable	100Base-TX Cat.5, 5e or higher
		1000Base-T Cat.5, 5e or higher

Standards	IEEE 802.3, 802.3u, 802.3Z, 802,3ab
Indications	LED (Power, FX Link, FX SPD, TX SPD, TX Link)
Power Input	Adapter Type: DC 12V
	Power Built-in Type : AC 100 ~ 240V
	Power Built-in Type: DC 18 ~ 60V
Power Consumption	< 3W
Dimensions (D x W x H)	Adapter Type:108 x 23 x 73.4mm
	Power Built-in Type : 135 x 23 x 73.4mm
Weight	Adapter Type : 120g
	Power Built-in Type : 140g
Temperature	0 ~ 50℃ (Operating), -10 ~ 70℃ (Storage)
Humidity	10 ~ 90% non-condensing
Certification	CE, FCC
MTBF	65,000 hrs

Application

Local

Remote

IP Network

FMC-CH17 Chassis

FMC-1000S

(Power Built-in Type)
AC 100~240V or DC 18~60V

Gigabit Ethernet

LAN

Fiber

(Adapter Type)

Gigabit Ethernet

LAN

Ordering Information

Model Name	Description
FMC-1000S	10/100/1000Base-T to 1000Base-X SFP Non-managed Media Converter Adapter Type
FMC-1000S-AC, DC	10/100/1000Base-T to 1000Base-X SFP Non-managed Media Converter with AC or DC Power Built-in Type

Power Type

FMC – 1000S – ☐☐

Example: FMC – 1000S – DC

FMC-10/100

10/100Base–TX to 100Base–FX Media Converter

The FMC-10/100 family are Fast Ethernet 10/100Base-TX to 100Base-FX non-managed stand-alone media converters, which give you the options to choose from the most popular fiber cabling connectors, ST, SC or FC. Both multi-mode and single mode converter models are available as well as BiDi which allows bi-directional transmissions using only a single fiber cable. Auto-negotiation will automatically tailor to convert both half-duplex and full-duplex signals, according to IEEE802.3u standards. LED indicators signal the power status of the converter, UTP port speed, Link, and duplex status, FX port Link and duplex status.
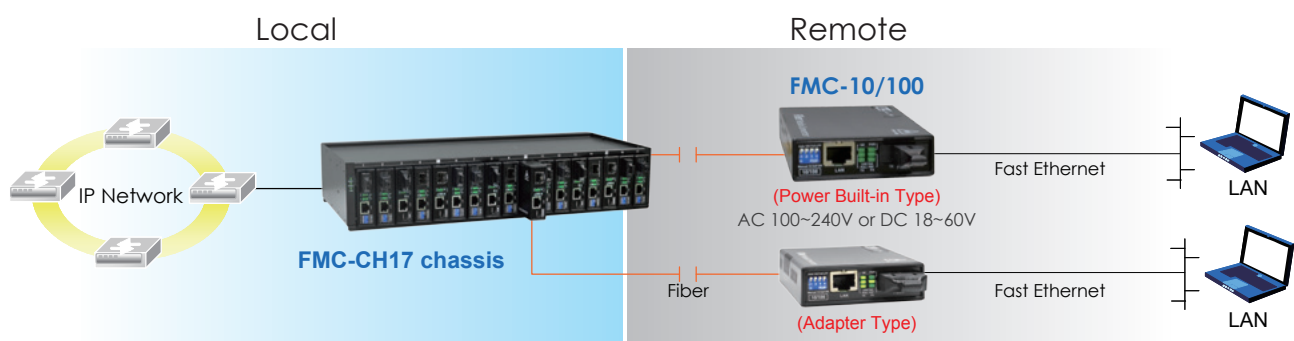
Feature

- 10/100Base-TX to 100Base-FX Converter
- Auto-Negotiation or forced mode
- Auto MDI/MDIX
- Forward 1600 bytes (Max.) packets
- Supports flow control (Pause)

- Supports Link Fault Pass-Through (LFPT)
- Supports Far End Fault Indication (FEFI)
- Forward 9K jumbo packets in converter mode (100M/Full)
- Concentrated into FMC-CH17 chassis (FMC-10/100 Adapter type only)

Specifications

Optical Interface	Connector	1x9 (SC, ST, FC)
	Data rate	125Mbps
	Duplex mode	Full duplex
	Fiber	MM 50/125µm, 62.5/125µm
		SM 9/125µm
	Distance	MM 2km, SM 15/30km
		WDM 20/40km
	Wavelength	MM 1310nm, SM 1310, 1550nm
		WDM 1310Tx/1550Rx (Type A)
		1550Tx/1310Rx (Type B)
Electrical Interface	Connector	RJ-45
	Data rate	10Mbps, 100Mpbs
	Duplex mode	Half / Full duplex
	Cable	10Base-T Cat.3, 4, 5, cat.6
		100Base-TX Cat.5, 5e or cat.6

Standards	IEEE 802.3, IEEE 802.3u
Indications	LED (Power, FX Link, TX SPD, TX Link, TX Duplex, FEF)
Power Input	Adapter Type: DC 12V
	Power Built-in Type: AC 100 ~ 240V
	Power Built-in Type: DC 18 ~ 60V
Power Consumption	< 3W
Dimensions (D x W x H)	Adapter Type: 108 x 23 x 73.4mm
	Power Built-in Type: 135 x 23 x 73.4mm
Weight	Adapter Type: 120g
	Power Built-in Type: 140g
Temperature	0 ~ 50°C (Operating), -10 ~ 70°C (Storage)
Humidity	10 ~ 90% non-condensing
Certification	CE, FCC
MTBF	65,000 hrs

Application

Local — Remote

FMC-10/100
(Power Built-in Type)
AC 100~240V or DC 18~60V
Fast Ethernet — LAN

IP Network — FMC-CH17 chassis

Fiber — (Adapter Type) — Fast Ethernet — LAN

Ordering Information

Model Name	Description
FMC-10/100	10/100Base-TX to 100Base-FX Non-Managed Media Converter Adapter Type
FMC-10/100-AC	10/100Base-TX to 100Base-FX Non-Managed Media Converter with AC Power
FMC-10/100-DC	10/100Base-TX to 100Base-FX Non-Managed Media Converter with DC Power

Connector Type	Connectivity Distance		
SC, ST, FC	002: 2km	015: 15km	030: 30km
	20A: WDM 20km A type	20B: WDM 20km B type	40A: WDM 40km A type 40B: WDM 40km B type
	80A: WDM 80km A type	80B: WDM 80km B type	120A: WDM 120km A type 120B: WDM 120km B type

Power Type

FMC − 10/100 − ☐☐

Example: FMC − 10/100 − AC

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FMC-1000M

10/100/1000Base–T to 1000Base–X Web Smart OAM Managed Converter

3

The FMC-1000M family are Gigabit Ethernet 10/100/1000Base-T to 1000Base-X Web Smart OAM/IP based managed fiber media converters, which provide simple control and setting function on each Ethernet port through out of band network via a Web browser. The FMC-1000M media converters give you the fiber cabling connector, Both multi-mode and single mode converter models are available as well as BiDi which allows bi-directional transmissions using only a single fiber cable. Auto-negotiation will automatically tailor to convert both half-duplex and full-duplex signals, according to IEEE802.3u standards. LED indicators signal the power status of the converter, UTP port speed, Link, and duplex status, FX port Link and duplex status.

Feature

- 10/100/1000Base-T to 1000Base-X Converter
- Auto-Cross over for MDI/MDIX in TP port
- Auto-Negotiation or Manual mode in TP port
- Supports flow control Enable or Disable
- Web management on stand-alone.
- Supports 802.3ah-OAM/IP in-band management
- Supports Jumbo Frame 9K Packet, Ingress/Egress Bandwidth control
- Supports Link Fault Pass Through (LFP) and Auto Laser Shutdown (ALS)
- Firmware upgrade via Web, Dying gasp (remote power failure detection)

FMC-1000M-AD

- Metal Chassis
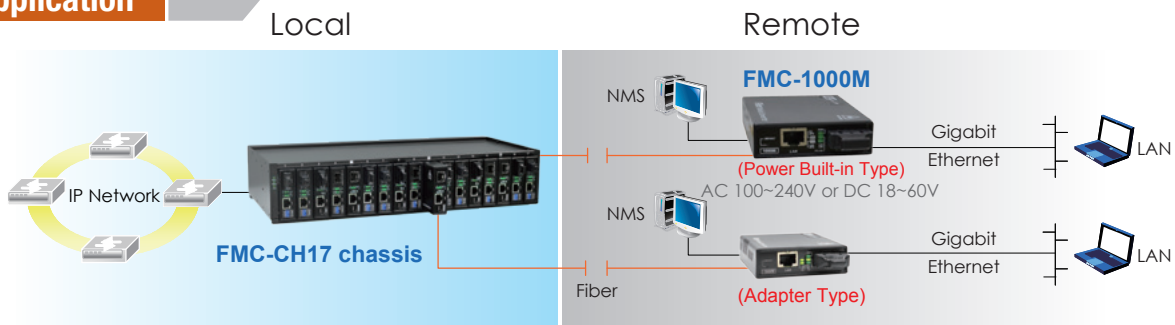- Power built-in type: AC + DC
- Dimension: 201 x 35 x 135mm (DxWxH)

Specifications

Optical Interface	Connector	1x9 (SC)
	Data rate	1000Mbps
	Duplex mode	Full duplex
	Fiber	MM 50/125μm, 62.5/125μm
		SM 9/125μm
	Distance	MM 550m, SM 20/40km
		WDM 20/40km
	Wavelength	MM 1310nm, SM 1310, 1550nm
		WDM 1310Tx/1550Rx (Type A)
		1550Tx/1310Rx (Type B)
Electrical Interface	Connector	RJ-45
	Data rate	10Mbps, 100Mbps, 1000Mbps
	Duplex mode	Half / Full duplex
	Cable	10Base-T Cat.3, 4, 5, UTP
		100Base-TX Cat.5, 5e or higher
Standards		IEEE 802.3, IEEE 802.3u IEEE 802.3ab, 802.3z

Indications	LED (Power, FX-Link, FX Speed, LAN Speed, LAN Link)
Power Input	Adapter Type: DC 12V
	Power Built-in Type : AC 100 ~ 240V, DC 18 ~ 60V
Power Consumption	< 4W
Dimensions (D x W x H)	Adapter Type : 108 x 73.4 x 23mm (FMC-1000M)-Plastic
	Power Built-in Type : 135 x 23 x 73.4mm (FMC-1000M-AC or DC)-Plastic 201 x 35 x 135mm (FMC-1000M-AD)-Metal
Weight	Adapter Type : 120g (FMC-1000M)
	Power Built-in Type : 140g (FMC-1000M-AC or DC) 1.2kg (FMC-1000M-AD)
Temperature	0 ~ 50°C (Operating), -10 ~ 70°C (Storage)
Humidity	10 ~ 90% non-condensing
Certification	CE, FCC
MTBF	65,000 hrs

Application

Local

Remote

FMC-1000M

NMS

Gigabit
Ethernet

LAN

(Power Built-in Type)
AC 100~240V or DC 18~60V

IP Network

FMC-CH17 chassis

NMS

Gigabit
Ethernet

LAN

Fiber

(Adapter Type)

Ordering Information

Model Name	Description
FMC-1000M	10/100/1000Base-T to 1000Base-X Web Smart OAM/IP Managed Media Converter Adapter Type
FMC-1000M-AC, DC	10/100/1000Base-T to 1000Base-X Web Smart OAM/IP Managed Media Converter with AC or DC Power
FMC-1000M-AD	10/100/1000Base-T to 1000Base-X Web Smart OAM/IP Managed Media Converter with AC + DC Power
Connector Type	Connectivity Distance
SC	001: 550m 002: 2km S/M 010: 10km 020: 20km 040: 40km
	20A: WDM 20km A type 20B: WDM 20km B type
	40A: WDM 40km A type 40B: WDM 40km B type

Power Type

FMC – 1000M – ☐☐

Example: FMC – 1000M – DC

Simple Media Converter

FMC-1000MS

10/100/1000Base–T to 100/1000Base–X SFP Web Smart OAM Managed Converter

The FMC-1000MS family are Gigabit Ethernet 10/100/1000Base-T to 100/1000Base-X Web Smart OAM/IP managed fiber media converters, which provide simple control and setting function on each Ethernet port through out of band network via a Web browser. The FMC-1000MS media converters give you the fiber cabling connector, SFP-LC Both multi-mode and single mode converter models are available as well as BiDi which allows bi-directional transmissions using only a single fiber cable. Auto-negotiation will automatically tailor to convert both half-duplex and full-duplex signals, according to IEEE802.3u standards. LED indicators signal the power status of the converter, UTP port speed, Link, and duplex status, FX port Link and duplex status.
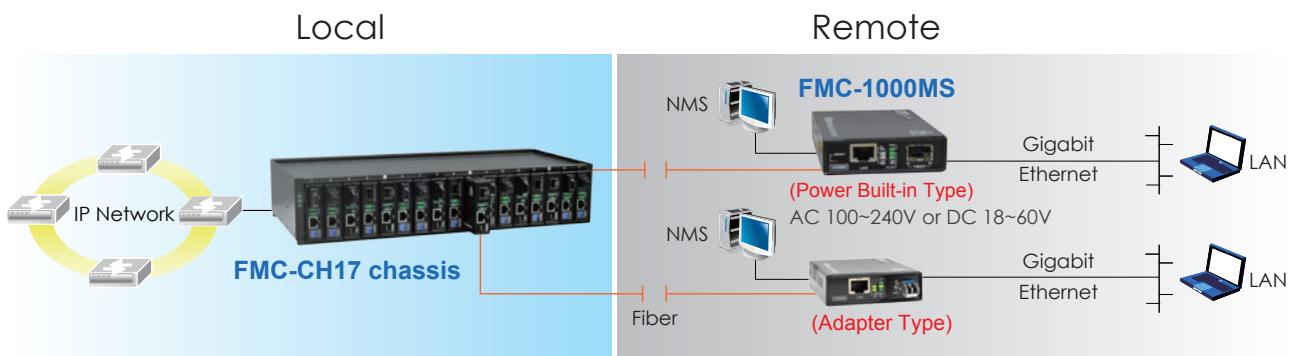
Feature

- 10/100/1000Base-T to 100/1000Base-X Converter
- Auto-Cross over for MDI/MDIX in TP port
- Auto-Negotiation or Manual mode in TP port
- Supports flow control Enable or Disable
- Supports Jumbo Frame 9K Packet
- Ingress/Egress Bandwidth control
- Supports IEEE802.3ah OAM management
- Firmware upgrade via Web
- Digital Diagnostic (DOM) SFP Support

- Management Password Setting
- Dying gasp (remote power failure detection)
- Supports Link Fault Pass-Through (LFPT) Function
- Supports Auto Laser Shutdown (ALS) Function
- Web management on stand-alone.
- Supports D/D function for SFP fiber transceiver
- Supports On-Line F/W upgrade (local) by the Web manager
- Supports 16 Tag VLAN Group
- RMON counters

Specifications

Optical Interface	Connector	SFP LC
	Data rate	125/1250Mbps
	Duplex mode	Full duplex
	Fiber	MM 50/125μm, 62.5/125μm
		SM 9/125μm
	Distance	MM 2km, SM 15/30km
		WDM 20/40km
	Wavelength	MM 1310nm, SM 1310,1550nm
		WDM 1310Tx/1550Rx (Type A)
		1550Tx/1310Rx (Type B)
Electrical Interface	Connector	RJ-45
	Data rate	10Mbps, 100Mbps, 1000Mbps
	Duplex mode	Half / Full duplex
	Cable	10Base-T Cat.3, 4, 5, UTP
		100Base-TX Cat.5, 5e or higher

Standards	IEEE 802.3, IEEE 802.3u IEEE 802.3ab, 802.3z
Indications	LED (Power, FX-Link, LAN Speed, LAN Link)
Power Input	Adapter Type: DC 12V
	Power Built-in Type : AC 100 ~ 240V
	Power Built-in Type : DC 18 ~ 60V
Power Consumption	< 3W
Dimensions (D x W x H)	Adapter Type : 108 x 23 x 73.4mm
	Power Built-in Type : 135 x 23 x 73.4mm
Weight	Adapter Type : 120g
	Power Built-in Type : 140g
Temperature	0 ~ 50°C (Operating), -10 ~ 70°C (Storage)
Humidity	10 ~ 90% non-condensing
Certification	CE, FCC
MTBF	65,000 hrs

Application

Local

Remote

FMC-1000MS

NMS

Gigabit
Ethernet

LAN

(Power Built-in Type)
AC 100~240V or DC 18~60V

NMS

Gigabit
Ethernet

LAN

(Adapter Type)

IP Network

FMC-CH17 chassis

Fiber

Ordering Information

Model Name	Description
FMC-1000MS	10/100/1000Base-T to 100/1000Base-X SFP Web Smart Managed Media Converter (optional SFP module) Adapter Type
FMC-1000MS-AC,DC	10/100/1000Base-T to 100/1000Base-X SFP Web Smart Managed Media Converter (optional SFP module) with AC or DC Power

Power Type

FMC – 1000MS – ☐☐

Example: FMC – 1000MS – DC

FMC-10/100i

10/100Base–TX to 100Base–FX In–Band Managed Converter

The FMC-10/100i family are Fast Ethernet 10/100Base-TX to 100Base-FX In-band managed media converters, which give you the options to choose from the most popular fiber cabling connectors, ST, SC or FC. With advanced features like bandwidth control, this media converter is targeted for customer premises equipment in metro LAN, campus, enterprise and FTTx applications. By offering in-band management, this converter can be completely controlled and monitored from a centrally located managed rack controlling all converter settings including band-width control, duplex, and speed configuration. This media converter is completely transparent to Layer 2 and Layer 3 protocols including IEEE 802.1q, VLAN tag, Q in Q, STP, IPX, IP, etc.
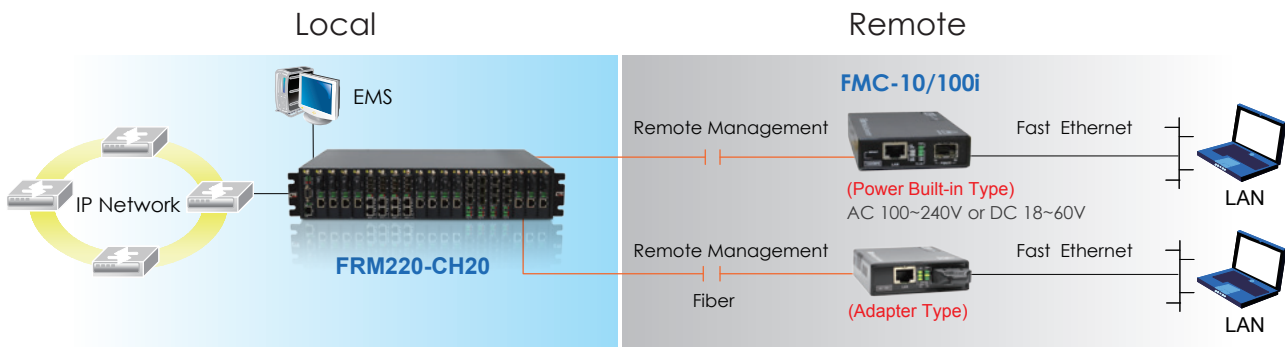
Feature

- 10/100Base-TX to 100Base-FX Converter
- Auto-Negotiation or forced mode
- Auto MDI/MDIX
- Forward 2046 bytes (Max.) packets in switch mode
- Forward 9K jumbo packets in converter mode
- Supports Q in Q double tagged frame transparent
- Supports IEEE 802.1q Tag VLAN pass thru
- Supports local / remote In-band management (Monitor and Configure) by the SNMP manager with FRM220-10/100i

- Bandwidth control (Nx32K or Nx512Kbps)
- Supports flow control (Pause)
- Supports remote CPE power fail detect (dying gasp)
- Supports Far End Fault Indication (FEFI)
- Supports Link Fault Pass-Through (LFPT)
- Supports Loop Back Test
- Supports RMON counter
- Auto Laser Shutdown (ALS)
- Fiber Hardware Reset (FHR)
- Online local / remote f/w upgrade

Specifications

Optical Interface	Connector	1x9 (SC, ST, FC)
	Data rate	125Mbps
	Duplex mode	Full duplex
	Fiber	MM 62.2/125μm, 50/125μm.
		SM 9/125μm
	Distance	MM 2km, SM 15/30km
		WDM 20/40km
	Wavelength	MM 1310nm, SM 1310,1550nm
		WDM 1310Tx/1550Rx (Type A)
		1550Tx/1310Rx (Type B)
Standards		IEEE 802.3, IEEE 802.3u
Power Input		Adapter Type : DC 12V
		Power Built-in Type : AC 100 ~ 240V
		Power Built-in Type : DC 18 ~ 60V
LEDs		Power, FX Link, TX SPD, TX Link, TX Duplex, FEF

Electrical Interface	Connector	RJ-45
	Data rate	10Mbps, 100Mpbs
	Duplex mode	Half / Full duplex
	Cable	10Base-T Cat.3, 4, 5, UTP
		100Base-TX Cat.5, 5e
	Distance	100 meters
Power Consumption		< 3W
Temperature		0 ~ 50℃ (Operating), -10 ~ 70℃ (Storage)
Humidity		10 ~ 90% non-condensing
Dimensions (D x W x H)		Adapter Type : 108 x 23 x 73.4mm
		Power Built-in Type : 135 x 23 x 73.4mm
Weight		Adapter Type : 120g
		Power Built-in Type : 140g
Certification		CE, FCC
MTBF		65,000 hrs

Application

Local

Remote

EMS

FMC-10/100i

Remote Management — Fast Ethernet

(Power Built-in Type)
AC 100~240V or DC 18~60V

LAN

IP Network

FRM220-CH20

Remote Management — Fast Ethernet

Fiber

(Adapter Type)

LAN

Ordering Information

Model Name	Description
FMC-10/100i	10/100Base-TX to 100Base-FX In-band managed Media Converter Adapter Type
FMC-10/100i-AC,DC	10/100Base-TX to 100Base-FX In-band managed Media Converter with AC or DC Power

Connector Type	Connectivity Distance
SC, ST, FC	002: 2km 015: 15km 030: 30km
	20A: WDM 20km A type 20B: WDM 20km B type 40A: WDM 40km A type 40B: WDM 40km B type

Power Type

FMC – 10/100i – ☐☐

Example: FMC – 10/100i – DC