



PHB-200M PHB-200

High Density Fiber Media Converter Concentrator, 20x 100/1000Base-T to 20x 100/1000Base-X SFP

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.

Features

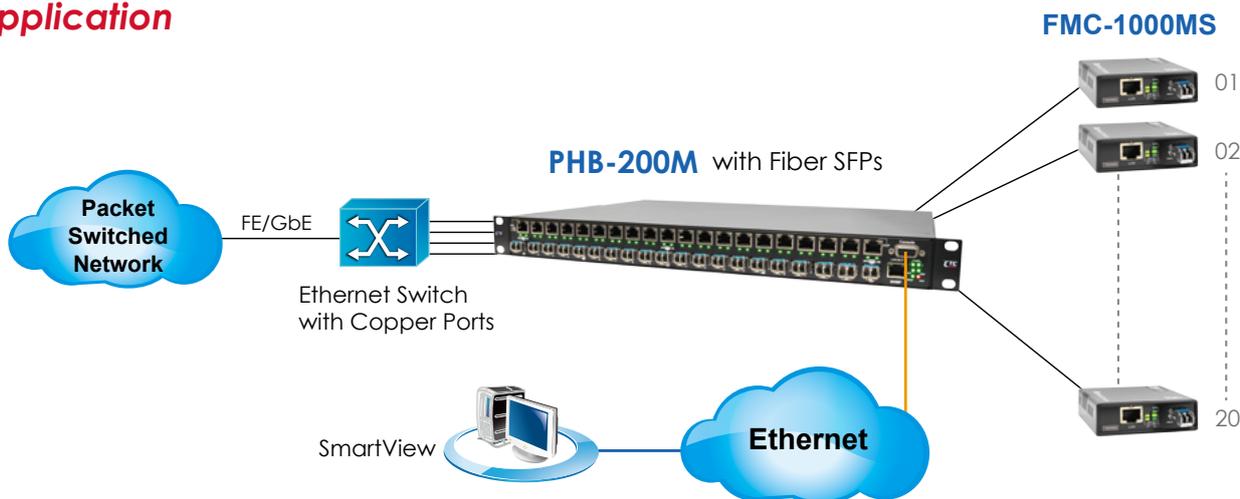
- 1U" Height 19" 20 channels Managed SFP patching hub
- 20-port 100/1000Base-T to 20-port 100/1000Base-X SFP
- Auto MDI/MDIX in TP port
- Auto-Negotiation in TX port
- Supports hot-swappable SFPs working at 100 Mbps and 1000 Mbps
- Supports Web, Telnet, SNMP Management (PHB-200M)
- Local configuration via DB9 port
- Supports Link Pass-Through & Link loss Alarm
- Supports any third-party standard SFP module
- Supports SFP DDM I
- 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, 18 ~ 72 VDC	
Power Consumption	AC : 105 VA DC : 70 W	
Dimensions	180 x 440 x 44mm (D x W x H)	
Weight	3kg	
Temperature	0 ~ 50°C (Operating), -10 ~ 70°C (Storage)	
Certification	CE, FCC, RoHS compliant	

Application



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



FMC-CH17 FMC-CH08

FMC Fiber Media Converter Chassis

The FMC-CH17 is a 2U high 19" 17 slots chassis and the FMC-CH08 is a 2U high 10" 8 slots chassis. The FMC 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 or FMC-CH08 chassis. With two power supplies, the FMC-CH17 chassis supports redundant power from any of two power options while FMC-CH08 supports single power options. The AC supplies operate from (100-240VAC) and DC supplies operate from 18-60VDC. The built in cooling fan ensures that the temperatures in the rack remain within the tolerated working range.

Features

- FMC-CH17, 2U, 19", 17-Slot chassis with single or dual built-in power for AC or DC
- FMC-CH08, 2U 10", 8-slot chassis with single built-in power for AC or DC
- Cross flow cooling fan built-in. (FMC-CH17)
- Designed for 19" Rack mounting
- FMC units are hot swappable

Specifications

Power Input	AC : 100 ~240V or DC : 18 ~ 60V
Power Consumption	<60W (FMC-CH17), <30W (FMC-CH08)
Dimensions (D x W x H)	199 x 476 x 88 mm (FMC-CH17) 173 x 252 x89 mm (FMC-CH08)
Weight	7.9Kg (FMC-CH17), 1.47Kg (FMC-08)

Temperature	0 ~ 50°C (Operating), -10 ~ 70°C (Storage)
Humidity	10 ~ 90% non-condensing
Certification	CE, FCC, RoHS Compliant
MTBF	65,000 hrs

Overview



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
FMC-CH08-AC,DC	2U, 10", 8-Slot FMC Converter Chassis with single AC or DC power

Power Type
FMC - CH17 - □□
 Example: FMC - CH17 - DC



FMC-1000S

10/100/1000Base-T to 1000Base-X SFP Gigabit Ethernet 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.

Features

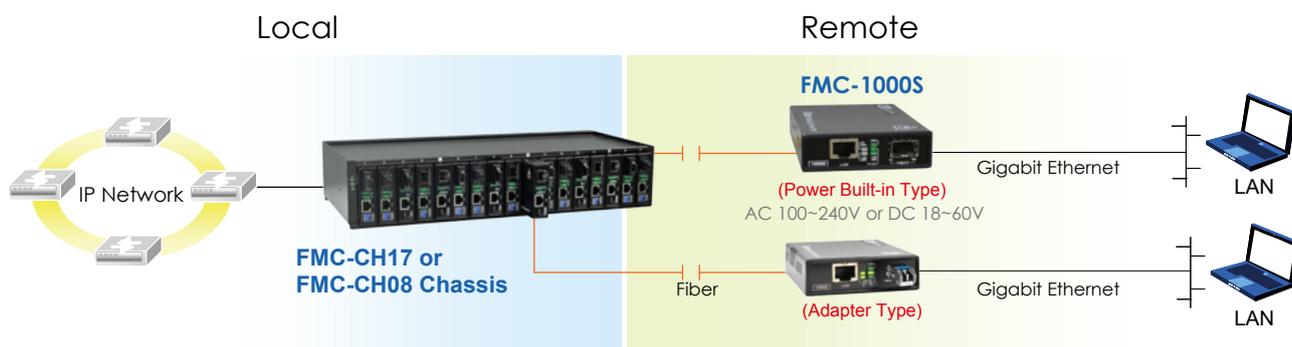
- 10/100/1000Base-T to 1000Base-X Converter
- Auto-Negotiation
- Auto MDI/MDIX
- Forward 2048 bytes (Max.) packets
- Supports Q in Q double tagged frame transparent
- Supports IEEE 802.1Q Tag VLAN pass thru
- Concentrated into FMC-CH17 or FMC-CH08 chassis (FMC-1000S Adapter type only)

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 73.4 x 23mm Power Built-in Type : 135 x 73.4 x 23mm
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, RoHS compliant
MTBF	65,000 hrs

Application



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

Power Type
FMC - 1000S - □□
 Example: FMC - 1000S - DC



FMC-10/100

10/100Base-TX to 100Base-FX Fast Ethernet 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.

Features

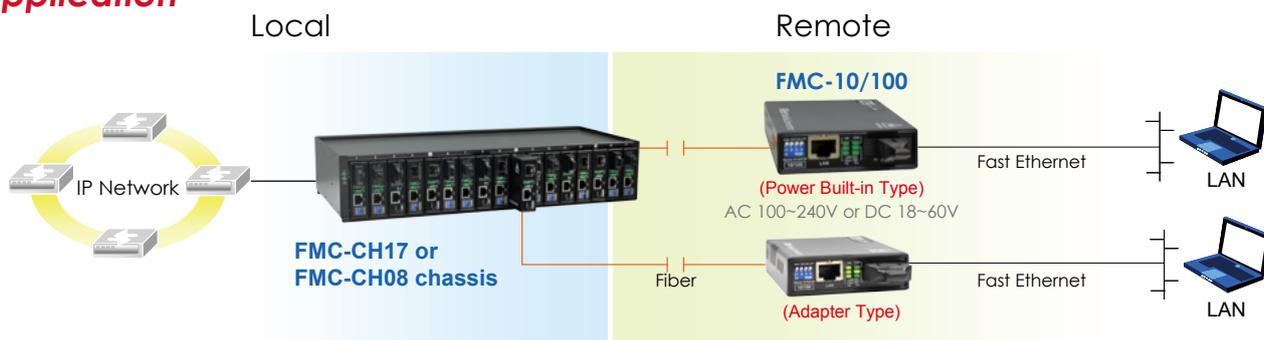
- 10/100Base-TX to 100Base-FX Converter
- Auto-Negotiation or forced mode
- Auto MDI/MDIX
- Forward 1600 bytes (Max.) packets
- Supports flow control (Pause)
- Supports Link Fault Pass-Through (LFPT)
- Supports Far End Fault Indication (FEFI)
- Forward 9K jumbo packets in converter mode (100M/Full)
- Concentrated into FMC-CH17 or FMC-CH08 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, 100Mbps
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: 108x 73.4x 23mm Power Built-in Type: 135x 73.4x 23mm
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, RoHS compliant
MTBF	65,000 hrs

Application



Ordering Information

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



FIB-232A

RS-232 to Fiber Media Converter

The FIB-232A is a low cost, compact, fiber converter designed to extend asynchronous RS-232 transmissions up to 120Km without any repeaters. The transmissions run in fibers which provide for excellent data security as well as being immune to EMI/RFI, variations in ground potentials, and lightning strikes. The FIB-232A operates at the physical layer (OSI Layer 1) and is completely transparent to the RS-232 transmissions and protocols. The FIB-232A uses an external power adapter. Utilizing an ST or SC fiber cable, the FIB-232A operates in Full Duplex mode for bi-directional transmissions. The FIB-232A RS-232 interface operates in DCE mode for direct connection to DTE devices such as PC DB9 port.

Features

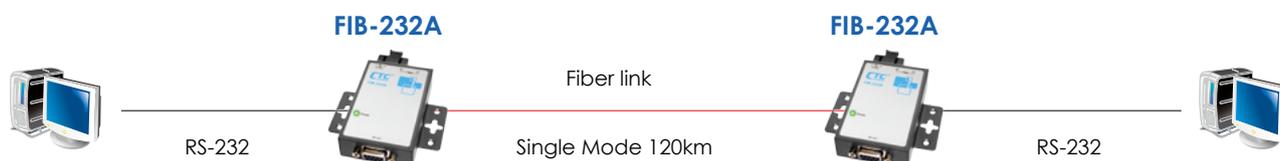
- Extends RS-232 transmission distance
- Up to 2km with multi-mode fiber
- Up to 120km with single-mode fiber
- Baud rates up to 230.4Kbps
- External power source supplied
- Compact size
- Designed for point to point use

Specifications

Signal Format	EIA RS-232C, ITU V.24, V.28
Mode	Asynchronous
Connector	DB9 Female, DCE
Fiber Port	1 x 9(ST, SC, FC)
Fiber Type	Single Mode, Multi-mode
Light Source	FP Laser, DFB Laser
Wavelength	1310 nm, 1550nm
Distance	2Km, 15Km, 30Km, 60Km, 80Km, 120Km

Baud Rate	Up to 230.4Kbps
BER	10 ⁻⁹
Indications	LED (Power)
External Power	DC12V, 0.4A
Dimensions	85 x 50 x 21mm (D x W x H)
Weight	90g
Environment	0 ~ 50°C, 20 ~ 95% RH -20 ~ 80°C, < 95% RH
Certification	CE, FCC, RoHS compliant

Application



Ordering Information

Model Name	Description
FIB-232A	RS-232 to fiber media converter
Connector Type	Connectivity Distance
SC, ST, FC	002: 2km 015: 15km 030: 30km 050: 50km 080: 80km 120: 120km 20A: WDM 20km A type 20B: WDM 20km B type 40A: WDM 40km A type 40B: WDM 40km B type 60A: WDM 60km A type 60B: WDM 60km B type 80A: WDM 80km A type 80B: WDM 80km B type

Connector Type Connectivity Distance
FIB - 232A -
 Example: FIB - 232A - SC002



FMC-1000M

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

3 Simple Media Converter

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.

Features

- 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



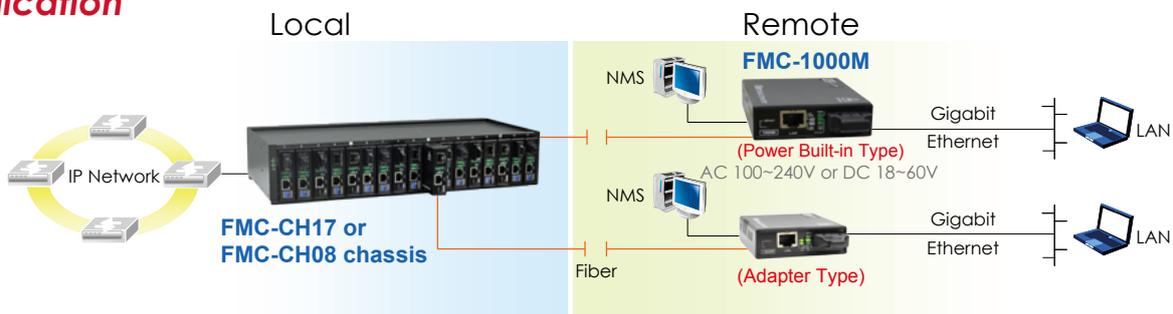
- Metal Chassis
- Power built-in type: AC + DC
- Dimension: 198x 135x 308mm (DxWxH)

Specifications

Optical Interface	Connector	1x9 (SC, ST, FC)
	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 73.4 x 23mm (FMC-1000M-AC or DC)-Plastic 198 x 135 x 308mm (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, RoHS compliant
MTBF	65,000 hrs

Application



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 AD Power
Connector Type	Connectivity Distance
SC	001: 500m 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
	80A: WDM 80km A type 80B: WDM 80km B type
	120A: WDM 120km A type 120B: WDM 120km B type

Power Type
FMC - 1000M - □□
 Example: FMC - 1000M - DC



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.

Features

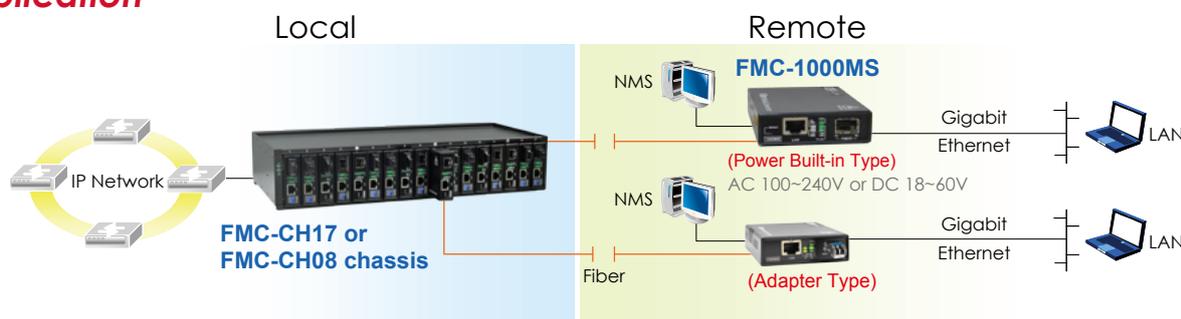
- 10/100/1000Base-T to 100/1000Base-X Converter
- Auto-Cross over for MDI/MDIX in TP port
- Auto-Negotiation or Manual mode in TP port
- Supports flow control Enable or Disable
- Supports Jumbo Frame 9K Packet
- Ingress/Egress Bandwidth control
- Supports IEEE802.3ah OAM management
- Firmware upgrade 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 73.4 x 23mm Power Built-in Type : 135 x 73.4 x 23mm
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, RoHS compliant
MTBF	65,000 hrs

Application



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 Media Converter

3
Simple Media
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 FTTH 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.

Features

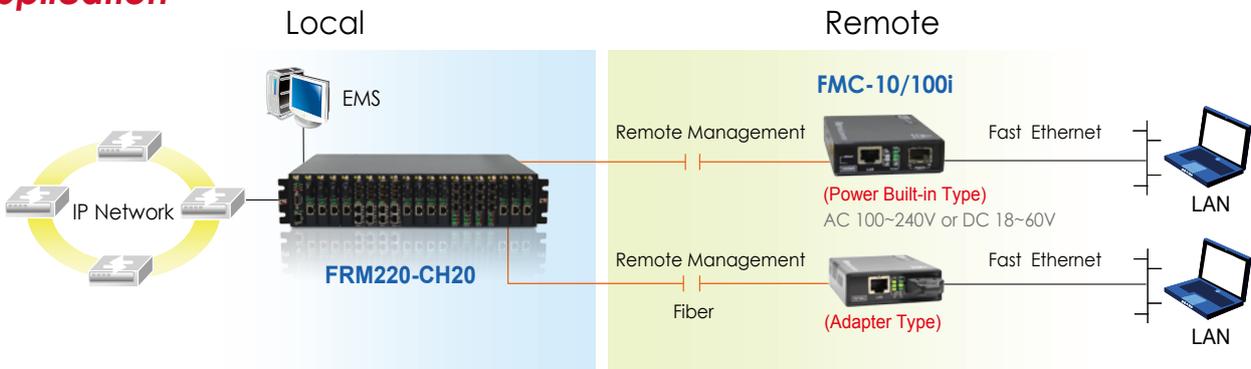
- 10/100Base-TX to 100Base-FX Converter
- Auto-Negotiation or forced mode
- Auto MDI/MDIX
- Forward 2046 bytes (Max.) packets in switch mode
- Forward 9K jumbo packets in converter mode
- Supports Q in Q double tagged frame transparent
- Supports IEEE 802.1q Tag VLAN pass thru
- Supports local / remote 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, 100Mbps
	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°C (Operating), -10 ~ 70°C (Storage)	
Humidity	10 ~ 90% non-condensing	
Dimensions (D x W x H)	Adapter Type	108 x 73.4 x 23mm
	Power Built-in Type	135 x 73.4 x 23mm
Weight	Adapter Type	120g
	Power Built-in Type	140g
Certification	CE, FCC, RoHS compliant	
MTBF	65,000 hrs	

Application



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