FB-10/100MMC Series Managed/Unmanaged

10/100Mbps Fiber Media Converter User Manual

(Version 1.5)

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Content

1. Overview

FB-10/100MMC Series Media Converter can be used in the telecommunication IP MAN broadband optical network solution for its steady performance and powerful function. The Standalone device has power supply built in. Built-in double redundant power modules of 16-slot chassis make higher security and stability possible. The special designed switch core of the product can not only transmit 802.1Q VLAN TAG protocol transparently, but support auto-compatible 10Mbps、100Mbps and half/full duplex topology. Selectable SC, FC, ST optical port makes the networks more flexible and feasible for the possibility of cost reduction.

FB-10/100MMC Series media converter includes two types. One is F1-XXXXXXX, which is unmanaged media converter. The other is F2-XXXXXXX, which is managed media converter. Besides providing all of the functions of the F1 converter, F2 can support WEB management, SNMP software management and Console management. Customers conveniently view and set all the local modules and the remote standalone via management interface, including the function of enable/disable a certain port, setting the port rate, duplex mode, twist-pair port speed limitation and resetting the chassis, single module or remote end standalone device.

More information about software, please read relative user manual for reference.

2. Features

2.1. Hardware Features

- Support 10Base-T、100Base-TX、100Base-FX
- Fully compatible with IEEE802.3、IEEE802.3u、IEEE802.3x standards
- Up to 120Km distance without any relay device
- High-performance auto-negotiation chips make sure the data transfer with higher security, stability and without block.
- Up to 1916 bytes package forwarded
- Support half/full duplex mode Auto-negotiate
- All the modules support hot-swap function
- Single-strand/double-strand optical port selectable
- Chassis supports double redundant power supply modules and each power supply module supports up to 100 Watt power output for the security and stability

- Chassis support cascade Link up to 4 numbers for management, 4 chassis need only one IP address.

2.2. Software Features (Just for F2 Converter)

2.2.1. System

- Support Console, WEB and SNMP-based management
- Select the system or a single local module or remote end device to reset
- Reset chassis to factory default
- Support firmware updating, with the update tool and new version firmware file download from our website.
- Support SNMP management. Set Trap Destination, Community Name, and authority
- Provide MIB file, make it easy to be integrated into the third-party SNMP management software
- Tree-view structure makes it easy to manage many chassis from one software interface

2.2.2. Monitor and Setting

- Show details of system information, including chassis name, location information, IP address, start-up time, software and hardware version
- View & configure the working status of local and remote device, including connection status, speed, half/full duplex mode, port status
- View the detailed information of power supply
- Set the speed(bandwidth) limitation of the Ethernet port from 0Mbps to 70Mbps with step of 32Kbps
- Support remote loop back function, three loop back positions selectable
- Summarize the data flow information and show the communication state of each port

2.2.3. Alarm

- Real-time Alarm can be added to a float window automatically or pop up to get more attention
- One history alarm message window for searching, deleting, copying etc.

2.2.4. Security

- 3 levels of the users to advance the security of the software system

3. Interface Specification

3.1. Ethernet Port

Fully compatible with IEEE 802.3、IEEE802.3u and IEEE802.3x Standards

1) Data Rate: 10/100Mbps auto-negotiation
2) Half/full duplex mode auto-negotiation
3) Connectors: RJ45 Jack
4) Support automatic MDI/MDI-X crossover

3.2. Fiber Optical Port

1) Adopt standard 1*9 pin optical transceiver module;
2) Wavelength: 850nm, 1310nm on multi-mode, 1310nm,1550nm on single-mode;
3) Up to 120km transmission distance on single-mode;
4) SC/PC, ST/PC and FC/PC are optional
5) Optical Power Budget List：

Wavelength (nm)	Connector	Emit Power (dBm)	Sensitivity (dBm)	Saturation (dBm)	Max Dist. (Km)	Loss (dBm/Km)
MM850	SC/ST	-14 ~ -18.5	-31~ -34	-14	2	3
MM1310	SC/ST	-14 ~ -18.5	-31~ -34	-14	5	2
SM1310	SC/ST/FC	-6 ~ -15	Better than -34	-3	40	0.4
SM1310	SC/ST/FC	3 ~ -3	Better than -36	-3	80	0.4
1550 DFB	SC/ST/FC	3 ~ -3	Better than -36	-3	120	0.25

4. General

4.1. Device Size

Standalone: 132mm (width) × 122mm (depth) × 36mm (height)

19-inch Chassis: 440mm (width)×250mm（depth）×125mm（height）

4.2. Power

AC: 100V~240V, 50/60Hz

DC: -48 VDC

Power consumption: Standalone < 3W, Chassis full of modules < 50W

4.3. Environment

- Working environment:

Temperature: 5℃ ~ 40℃;

Humidity: 30% ~ 90% (25℃);

Atmosphere pressure: 86 kPa ~ 106 kPa.

- Store and transportation environment:

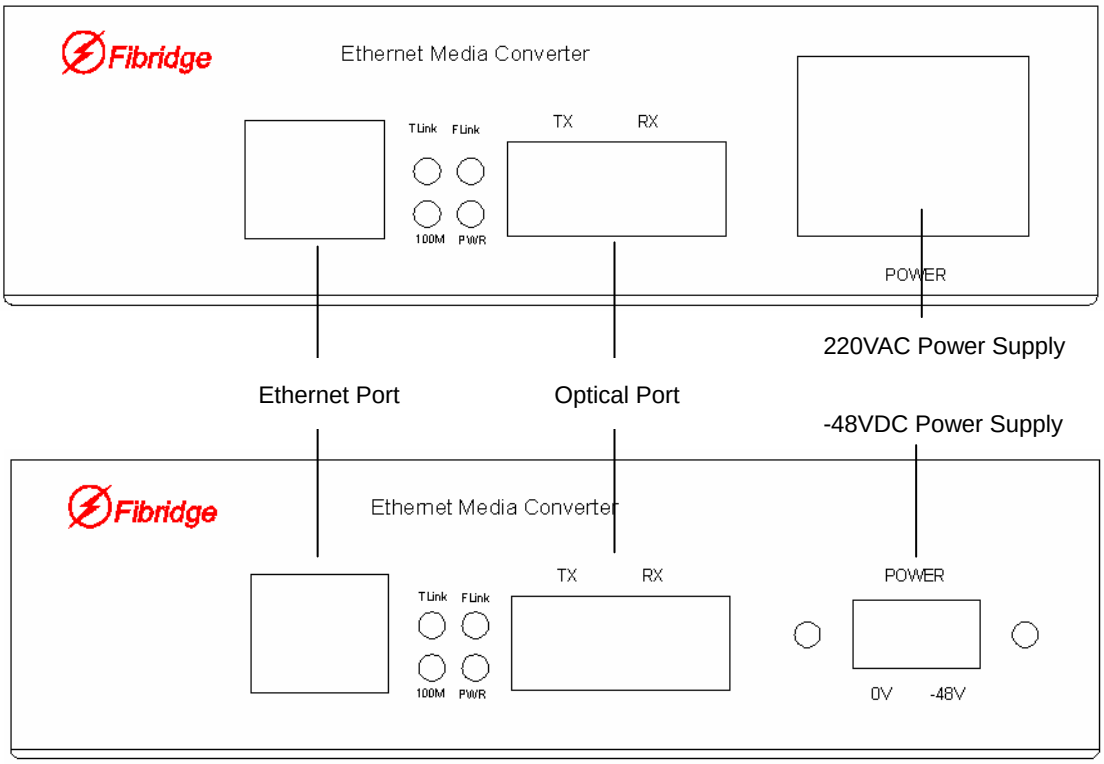
Temperature: -20℃ ~ 60℃;

Humidity: 20% ~ 90% (25℃);

Atmosphere pressure: 86 kPa ~ 106 kPa.

5. Appearance

5.1. Panel of the Managed/Unmanaged Standalone

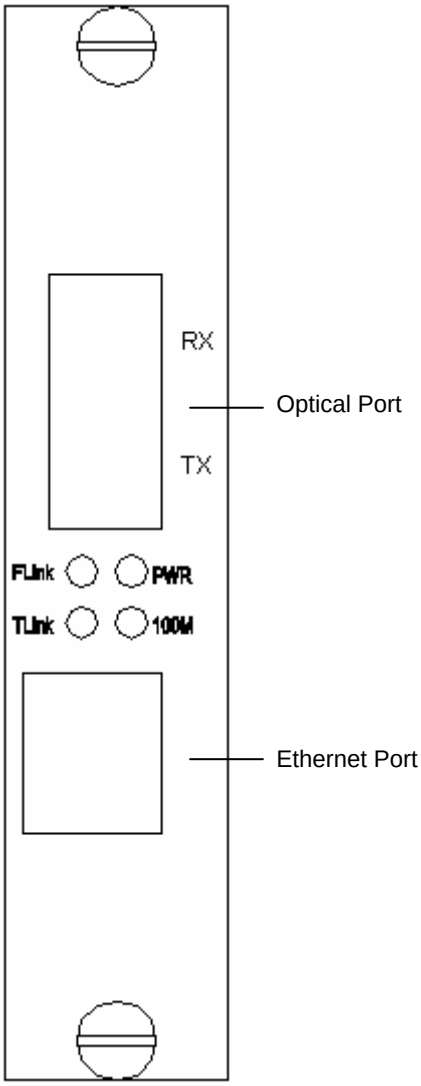


Note:

The Ethernet port supports MDI-MDIX auto crossover. And the optical port support single-strand mode.

Figure1 Panel of the managed/unmanaged standalone

5.2. Panel of the Managed/Unmanaged Module

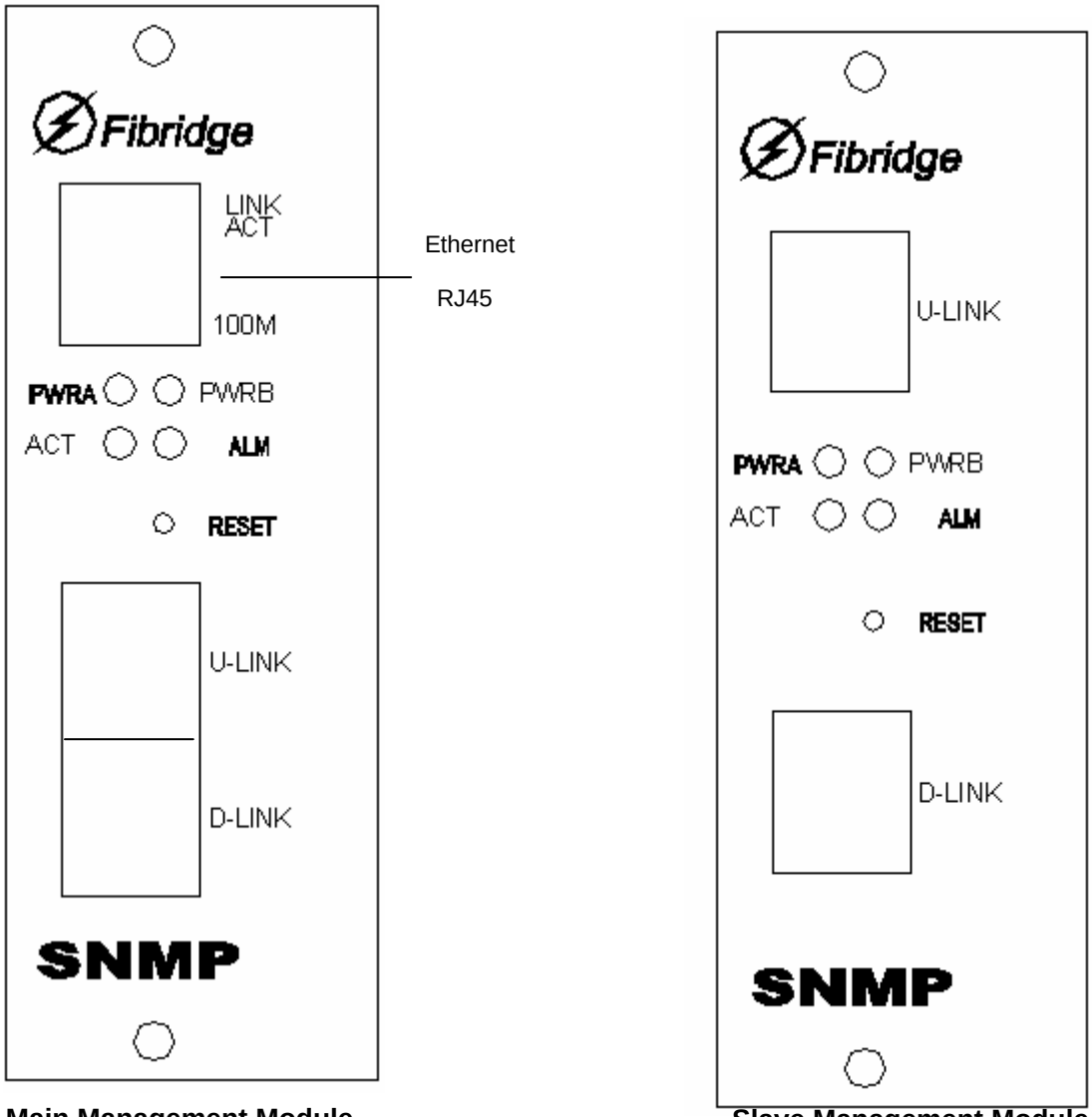


Note:

The Ethernet port supports MDI-MDIX auto crossover. And the optical port support single-strand mode.

Figure2 Panel of the managed/unmanaged Module

5.3. Panel of the Management Module



Main Management Module **Slave Management Module**

Note:

- The Main Module is used to connect to the PC and the Slave Module. The Slave Module is used to connect with the Main Module and other Slave Module.
- The Ethernet port on the Main Module supports MDI-MDIX auto crossover.
- U-Link (RJ45) on the Main Module is used to connect to the RS232 port of the PC*
- D-Link (RJ45) on the Main Module is used to connect to the U-Link of the Slave Module **
- U-Link (RJ45) on the Slave Module is used to connect to D-Link of the Main Module **
- D-Link (RJ45) on the Slave Module is used to connect to U-Link of the Slave Module **

* using special cable; **using MDI UTP5 cable See figure to get more information.

Figure 3 Panel of the Main/Slave Management Module

5.4. Front Panel of the Chassis

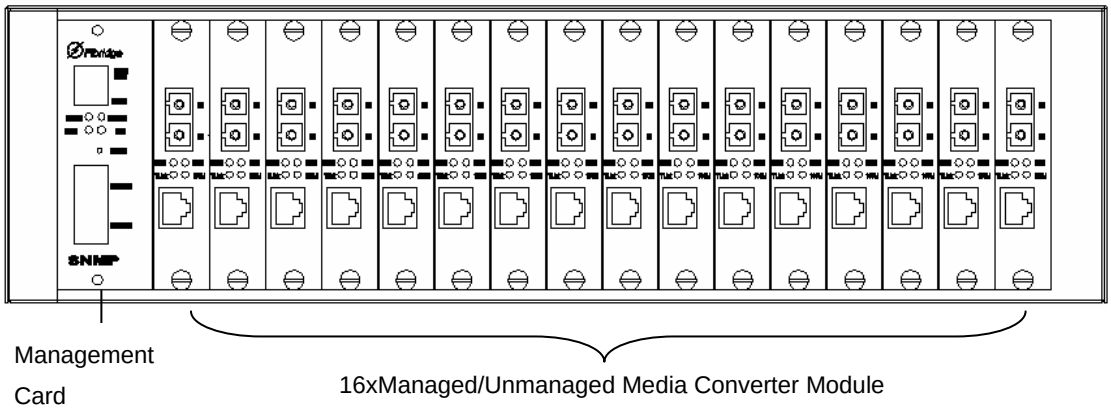


Figure 4 Front Panel of the Chassis

5.5. Back Panel of the Chassis

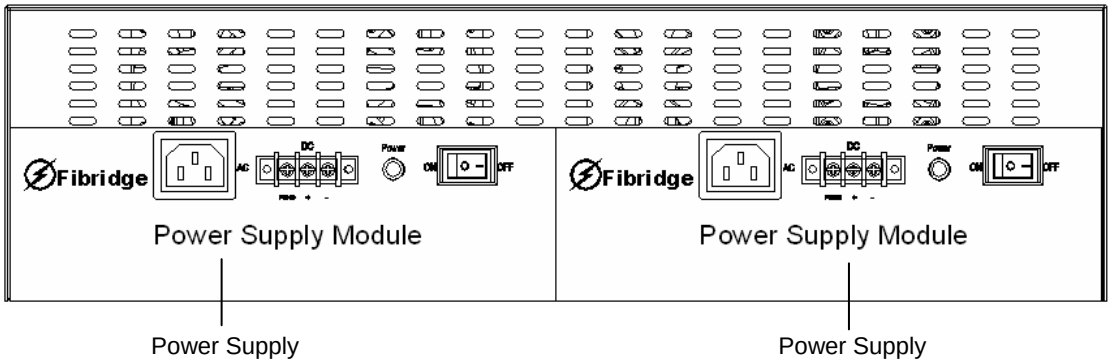


Figure 5 Back Panel of the Chassis

5.6. Panel of the Power Supply

The Panel of the AC and DC Power Supply is the same.

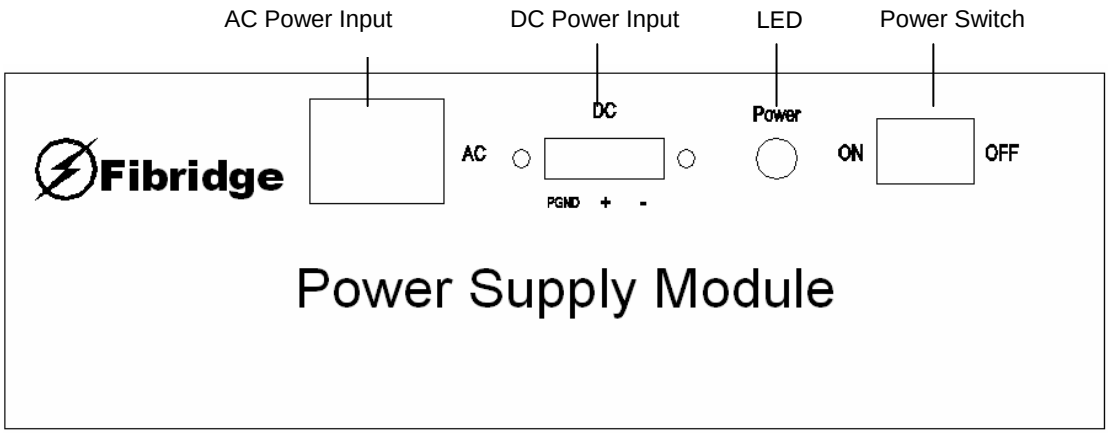


Figure 6 Panel of the Power Supply

5.7. LEDs of the Managed/Unmanaged Media Converter

Table 1 LEDs of Media Converter

LED	Color	Function	Status	Description
PWR	Green	Power Status	ON	Power Supply Ok
			OFF	No Power Supply
Tlink	Yellow	Twist-pair port Link/Act Status	ON	Twist-pair port linked
			BLINK	Twist-pair port is transferring data
			OFF	Twist-pair port not linked
Flink	Yellow	Optical port Link/Act status	ON	Optical port linked
			BLINK	Optical port is transferring data
			OFF	**Optical port not linked**
100M	Green	Twist-pair port speed	ON	100Mbps
			OFF	10Mbps

5.8. LEDs of the Management Module

Table 2 LEDs of the Management Module

LED	Color	Function	Status	Description
PWRA	Green	Power A Status	ON	Power A supply OK
PWRB	Green	Power B Status	ON	Power A supply OK
ACT	Yellow	CPU Status	Blink	CPU works OK
			ON or OFF	CPU works wrongly
ALM	Red	Environment Monitor	ON	Some Alarms of the Environment appears
			OFF	No Alarm of the Environment appears

6. Typical Applications

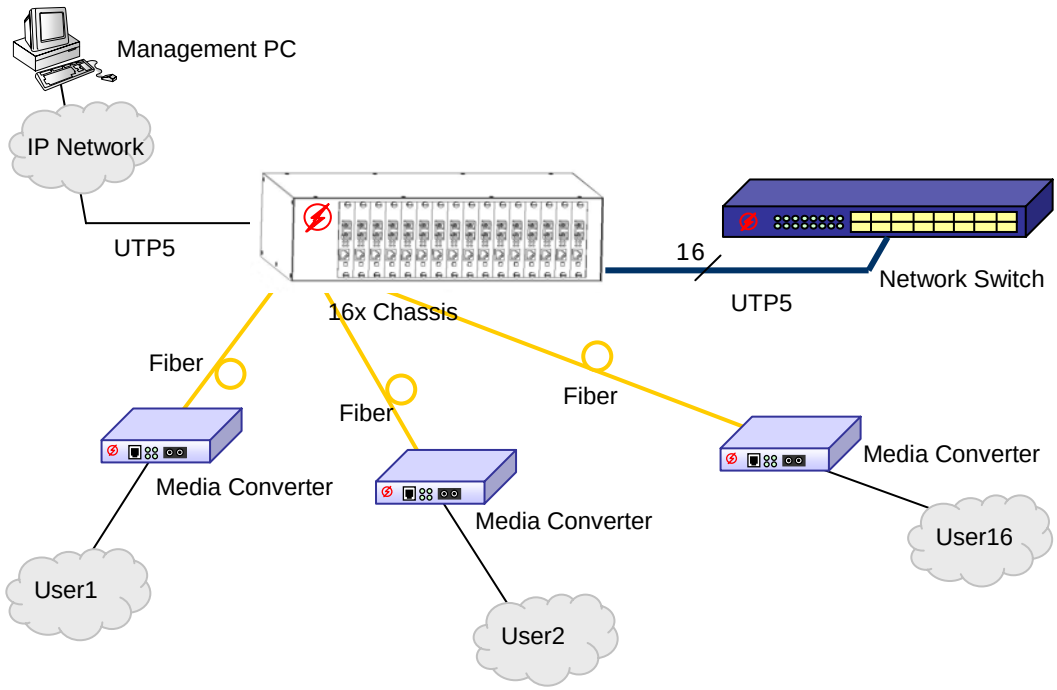


Figure 7 Typical Application Topology of the Media Converter

7. Management Port Set

(Just for F2 Converter)

7.1. RS-232 Management Port

Baud Rate: 57600

Data Width: 8

Odd/Even Parity: None

Stop Bit: 1

Flow Control: None

Connector: DB9, Male

7.2. Twist-pair Management Port

Port Speed: 10/100Mbps auto-negotiation

Auto-negotiate on half/full duplex mode

Connector: RJ45

7.3. Default User and Password

Name: admin

Password: No Password

7.4. Default IP Address

The default IP address of the chassis: 192.168.0.216

8. Installation

8.1. Standalone Installation

1) Connect the fiber strand and twist-pair cable according to the practical application environment, then connect the power;
2) Connect the power supply, the media converter will do the self-test. During the test, all LEDs will blink one by one;
3) After reset, if the line connects correctly, the LEDs PWR, Tlink and Flink will light on. That means the twist-pair port and fiber port connect normally. The 100M LED is on while link speed is 100Mbps at twist-pair port;
4) If OK, then the line is connected;
5) When transferring data，Tlink and Flink will blink.

8.2. Chassis Installation

1) Insert the modules into the chassis one by one;
2) Fix the chassis to a certain place;
3) Connect the two power supply modules to power source with power cable;
4) Switch on the power supply, each media converter module will be self-tested and all LEDs will blink one by one;
5) If OK, then the line is connected;
6) When transferring data, Tlink and Flink will blink.
7) For cascade Application：

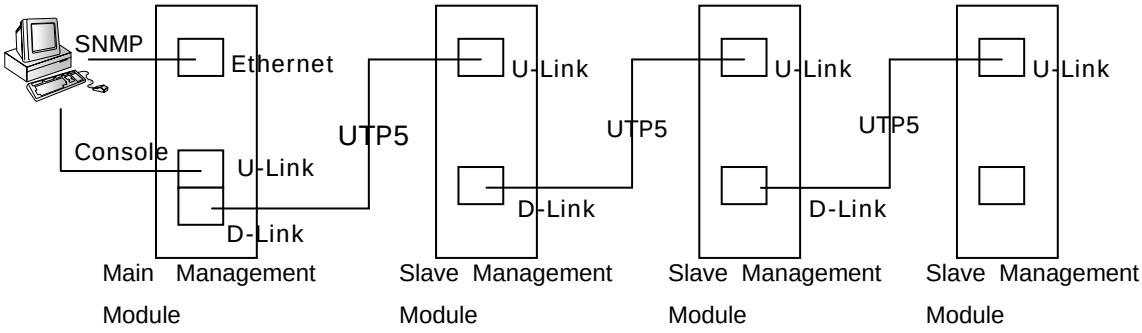


Figure 8 Cascade Connection

8.3. Single-strand and CWDM device

Fibridge can also provide single-strand or CWDM device. Single-strand device is the same to the Double-strand device, except the optical port, which should be used in pairs. For example, one device use 1510nm for transmitting, 1310nm for receiving, the other end should use 1310nm for transmitting, and 1550nm for receiving.

Figure 9 Single-strand Application

For CWDM device, besides the Media Converter, there is one CWDM device, which is a Passive Optical Device. The CWDM device can support up to 8 units of Media Converter to transmit and receive data in one fiber.

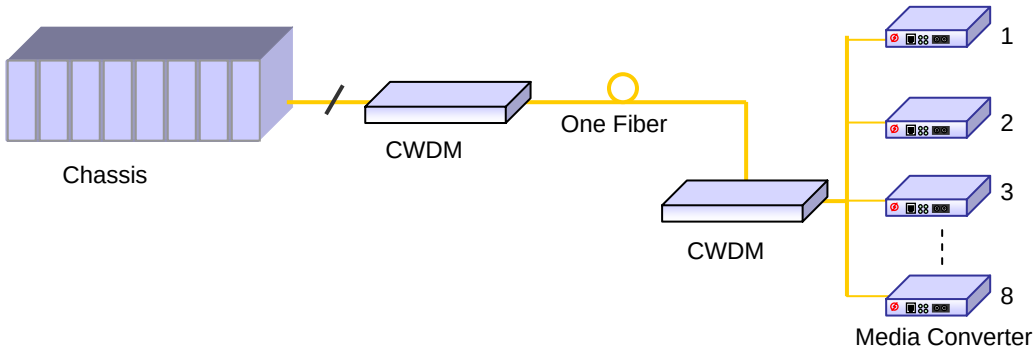


Figure 10 CWDM Application

9. FAQ: Failures & Solutions

1. Failure: Power LED is off.

Solution:

Check-up the device if the power cable is connected correctly.

2. Failure: Tlink is off after reset with twist-pair port connected

Solution:

（1） Check if the twist-pair cable is connected correctly.

（2） Check if the Ethernet device connected with the converter is running normally.

3. Failure: Flink is off after reset with optical port connected

Solution:

（1）Check if the fiber is connected correctly.

（2）Failure connection of transmit or receive side may lead to the Flink led off .So need to check if the TX or RX connection of the fiber port is normal.

4. Failure: Data transfer abnormally, including transferring failure, data loss

Solution:

（1）Check if the transmit power of converter optical port is normal；

（2）Be sure no single-mode fiber connected with multi-mode equipment;

（3）Check if it is used in pairs when single-strand converter is used.

5. Failure: The device doesn't work after normal state for a while. That is to say, the media converter doesn't transfer data, but if reset, it will work normally.

Solution:

It is usually caused by the Ethernet switch. In normal status, the switch will take CRC and package length check, and drop the bad package. However, some bad ones could not be inspected and thus could not be sent out or dropped, so these bad packages will be stored in the buffer one by one, until the switch is filled up, which brings about the failure of the switch. Try to connect the converter with PC directly to see if the failure is not existed.

10.Order information

10.1. Model

FB-10/100MMC Media Converter

FB-CHS Chassis

10.2. Part Number of module or standalone media converter

Note: X should be changed to 1 or 2. When X=1, it means unmanaged converter. When X=2, it means managed converter

FX-M32CA	Multi mode converter, Wavelength 1310nm, SC optical connector, Standalone, 220VAC power supply
FX-M31CD	Multi mode converter, Wavelength 850nm, SC optical connector, Standalone, -48VDC power supply
FX-S3042CA	Single mode converter, Wavelength 1310nm, SC optical connector, Standalone, 40KM, 220VAC power supply
FX-S3082CA	Single mode converter, Wavelength 1310nm, SC optical connector, Standalone, 80KM, 220VAC power supply

FX-S3042TM Single mode converter, Wavelength 1310nm, ST optical connector, Module, 40KM

FX-W3042CA Single strand converter, Wavelength 1310nm, SC optical connector, Standalone, 40KM, 220VAC power supply

FX-W3043CA Single strand converter, Wavelength 1550nm, SC optical connector, Standalone, 40KM, 220VAC power supply

FX-W3042CM Single strand converter, Wavelength 1310nm, SC optical connector, Module, 40KM

FX-W3043CM Single strand converter, Wavelength 1550nm, SC optical connector, Module, 40KM

10.3. Part Number (P/N) of Chassis

FC-216 16-slot chassis, support double redundant power supplies

FC-216-M Management Card of the chassis

10.4. Part Number (P/N) of Chassis power supply module

FP-2100A 16-slot chassis power supply module, AC 220V input, 100Watt output

FP-2100D 16-slot chassis power supply module, DC -48V input, 100Watt output

NOTE: We Reserve the right to vary descriptions and specifications without notice due to Fibridge's policy of continuous product improvement.