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FS Media Converters Product Portfolio

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1. FS Media Converters

1.1 Copper to Fiber Media Converters

A copper to fiber media converter is a device used to convert data between electrical signals (using copper cables) and optical signals (using fiber optic cables). They are typically used when there is a need to extend the distance over which data can be transmitted, to isolate signals to reduce electromagnetic interference, to increase the bandwidth for data transmission, or for security. Media converters are usually small stand-alone devices, but are also available in modular designs integrated into switches. They can find applications in a variety of environments such as data centers, enterprise networks, schools, hospitals, and government agencies.

ID	96396	101472	101488	96397	101476
FS P/N	UMC-GA1F1T	UMC-1F1T	PMC-1F1T	UMC-GA1F2T	UMC-1S1T
Image					
Number and type of optical ports	1x 1000Base-X SFP	1x 100/1000Base-X SFP	1x 100/1000Base-X SFP	1x 100/1000Base-X SFP	1x 10GBase-X SFP+
Number and type of copper ports	1x 10/100/1000Base-T RJ45	1x 10/100/1000Base-T RJ45	1x 10/100/1000Base-T RJ45	2x 10/100/1000Base-T RJ45	1x 100M/1G/2.5G/5G/10GBase-T RJ45
Wavelength	/	/	/	/	/
Fiber Mode	optical transceiver module	optical transceiver module	optical transceiver module	optical transceiver module	optical transceiver module
Operating Temperature	0 to 40°C	0 to 50°C	0 to 50°C	0 to 40°C	0 to 50°C
Input Power	DC 5-12V	5V DC, 2A Max	52-56V DC, 0.58A	DC 5-12V	5V DC, 2A Max
Storage Temperature	-20 to 85°C	-10 to 70°C	-40 to 70°C	-20 to 85°C	-10 to 70°C

ID	101464	141486	101484	131586	196057	204189
FS P/N	UMC-1SC1T-MM	UMC-1S1T-R	PMC-1SC1T-SM	UMC-GA1SC1T-MM	UMC-GA1SC1T-SM-FX	UMC-GA1SC1T-SM-FX
Image						
Number and type of optical ports	1x 1000Base-X SC	1x 10GBase-X SFP+	1x 1000Base-X SC	1x 100/1000Base-X SC	1x 1000Base-X SC	1x 1000Base-X SC
Number and type of copper ports	1x 10/100/1000Base-T RJ45	1x 100M/1G/2.5G/5G/10G Base-T RJ45	1x 10/100/1000Base-T RJ45	1x 10/100/1000Base-T RJ45	1x 10/100/1000Base-T RJ45	1x 10/100/1000Base-T RJ45
Wavelength	850nm	/	1310nm	850nm	1310/1550nm	1550/1310nm
Fiber Mode	optical transceiver module	optical transceiver module	single mode	multimode	single mode	single mode
Operating Temperature	0 to 50°C	0 to 50°C	0 to 50°C	0 to 50°C	0 to 50°C	0 to 50°C
Input Power	5V DC, 2A Max	DC 5-12V	52~56V DC, 0.58A	DC 5-12V	DC 5-12V	DC 5-12V
Storage Temperature	-10 to 70°C	-10 to 70°C	-40 to 70°C	-10 to 70°C	-10 to 70°C	-10 to 70°C

1.2 Fiber to Fiber Media Converters

A fiber-to-fiber media converter is a specialized network device that enables signal conversion between two different types of fiber optic links. Such a device is useful when dealing with singlemode to multimode fiber conversion, wavelength conversion (e.g., converting long wavelength (LX) signals to short wavelength (SX) signals), or data rate conversion. Fiber-to-fiber converters are also often used to improve network interference immunity, extend signaling distances, and adapt to different fiber optic network standards. Fiber-to-fiber media converters play a key role in many high-bandwidth-demanding, data-sensitive, and long-distance network architectures, especially in telco infrastructures, enterprise data centers, and large network environments.

UMC-2S

10Gigabit Fiber Media Converter



- 2x SFP/SFP+ Slots
- 100M/1.25G/8.5G/10G Transmission Speed
- Depend on Plug-in Fiber Transceiver Transmission Distance
- DC 5-12V Input Power
- AC 100V-240V External Power

1.3 Industrial Media Converters

An industrial media converter is a network device designed to connect different network media, such as copper to fiber, in extreme or harsh environments. Unlike media converters used in commercial or office environments, industrial media converters typically have more ruggedized housings, a wide range of operating temperatures, and can handle higher levels of vibration, humidity, and electromagnetic interference. They are commonly found in manufacturing plants, power utilities, transportation systems, mining operations, and any outdoor or industrial environment that requires a stable network connection. When selecting a media converter for an industrial application, you should also consider the manufacturer's technical support and product quality assurance to ensure that the converter will work consistently over its expected lifecycle.

PIMC-2F2T

Gigabit PoE++ Ethernet Media Converter



- 2x 10/100/1000Base-T Ethernet RJ45
- 2x 100/1000Base-X Ethernet SFP
- Multimode 50/125μm or 62.5/125μm
- Singlemode 9/125μm
- DC 12-56V Input Power

IMC-2M2T

Gigabit Ethernet Media Converter



- 2x 10/100/1000Base-T Ethernet RJ45
- 2x 100/1000/2500Base-X Ethernet SFP
- Multimode 50/125μm or 62.5/125μm
- Singlemode 9/125μm
- DC 12~48V or AC 24V Input Power

IMC-1S1XMG

10Gigabit Ethernet Media Converter



- 1x 100M/1G/2.5G/5G/10GBase-T Ethernet RJ45
- 1x 10GBase-X Ethernet SFP+
- Multimode 50/125μm or 62.5/125μm
- Singlemode 9/125μm
- DC 12~48V or AC 24V Input Power

IMC-1F1T**Gigabit PoE+ Ethernet Media Converter**

- 1x 10/100/1000Base-T RJ45
- 1x 100/1000Base-X SFP
- Multimode 50/125μm, 62.5/125μm
- Singlemode 9/125μm
- 12~48V DC, 3A Max/24V AC, 1.5A Max, 50~60H.

IMC-GA1SC1T-SM**Gigabit Ethernet Media Converter**

- 1x 10/100/1000Base-T RJ45
- 1x 1000Base-X SC
- Singlemode 9/125μm
- DC 9-56V Input power
- AC 100V~240V External Power

IMC-GA1F1T**Gigabit Ethernet Media Converter**

- 1x 10/100/1000Base-T RJ45
- 1x 1000Base-X SFP
- Multimode 50/125μm, 62.5/125μm
- Singlemode 9/125μm
- DC 9-56V Input power
- AC 100V~240V External Power

IMC-GA1SC1T-MM**Gigabit Ethernet Media Converter**

- 1x 10/100/1000Base-T RJ45
- 1x 1000Base-X SC
- Multimode 50/125μm, 62.5/125μm
- DC 9-56V Input power
- AC 100V~240V External Power

1.4 PoE Media Converters

A PoE (Power over Ethernet) media converter is a special type of network device that allows non-PoE-compatible devices (e.g., webcams, wireless access points, IP phones, etc.) to receive both data signals and power over Ethernet cables. PoE technology simplifies the deployment of devices by eliminating the need for dedicated power cords, especially in places where wiring is difficult or power outlets are inconvenient. PoE media converters are ideal for deploying network devices in scenarios that lack convenient power access points or require long-distance transmission. PoE media converters are ideal for deploying network devices in scenarios where convenient power access points are lacking or where long distance transmission is required.

UMC-1F1T-PD

Gigabit Ethernet PoE+ PD Media Converter



- 1x 10/100/1000Base-T Ethernet RJ45
- 1x 100/1000Base-T Ethernet SFP
- Multimode 50/125μm or 62.5/125μm
- Singlemode 9/125μm

PMC-1F1T

Gigabit Ethernet PoE+ Media Converter



- 1x 10/100/1000Base-T RJ45
- 1x 100/1000Base-X SFP
- Multimode 50/125μm, 62.5/125μm
- Singlemode 9/125μm
- 52~56V DC, 0.58A Input Voltage

PMC-1SC1T-SM

Gigabit Ethernet PoE+ Media Converter



- 1x 10/100/1000Base-T RJ45
- 1x 1000Base-X SC
- Single-mode 9/125μm
- 52~56V DC, 0.58A Input Voltage

1.5 Media Converter Chassis

A media converter chassis, also known as a media converter rack or rack-mounted media converter system, is a device used for centralized management and power supply that is capable of housing multiple media converter modules. These chassis are capable of neatly mounting multiple converters in a centralized location, and typically support hot-swappable, which means that converter modules can be added or removed without interrupting power to the system. Using a media converter chassis is an effective way to build a scalable, highly available, and easy-to-manage network infrastructure, especially for data centers, large enterprise networks, or environments where a large number of converter devices need to be centrally managed.

MFMC-12DP

12 Slots Mini Media Converter Chassis



- AC 100V~240V, 1.0~1.8A, 50/60Hz Input Power
- DC 12V Per Power Supply, 5A Output Power
- 12 Number of Slots

MC-15SP

15 Slots Media Converter Chassis



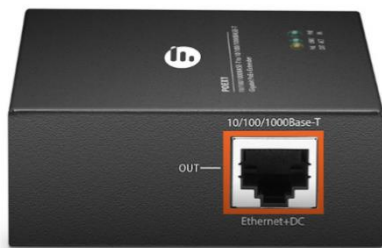
- AC 100~240V, 3.3A, 50-60Hz Input Power
- DC 5V Per Slot, 1A Output Power
- 15 Number of Slots

1.6 PoE Extenders

PoE Extenders are a very useful component in PoE deployments, especially when network connectivity needs to be provided in large facilities or in areas that are difficult to wire. With PoE extenders, users have the flexibility to distribute the network and power over a large physical area while maintaining the simplicity and cost-effectiveness of the network facility.

POEX1

Gigabit PoE+ Extender



- 1x 10/100/1000 Mbps PoE+ Copper Port (RJ-45)
- DC 48-56V Input Voltage
- DC 44-52V Output Voltage
- Up to 100m/500m with Daisy-chain Installation of 4 Units Data Transmission Distance

POEX4

Gigabit PoE+ Extender



- 4x 10/100/1000 Mbps PoE+ Copper Port (RJ-45)
- DC 50-56V Input Voltage
- DC 50-55V Output Voltage
- Up to 100m Data Transmission Distance

IPOEX4

Gigabit PoE+ Extender



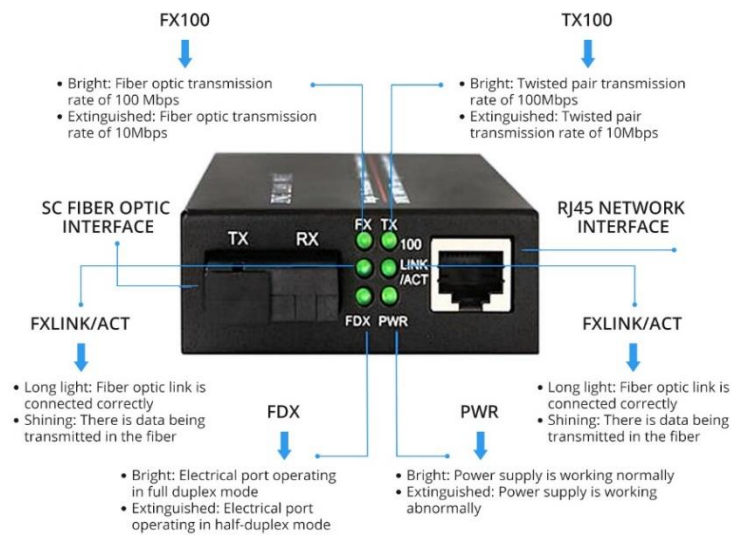
- 4x 10/100/1000 Mbps PoE+ Copper Port (RJ-45)
- DC 50-57V Input Voltage
- DC 45-55V Output Voltage
- Up to 100m Data Transmission Distance

2. Product Functions

2.1 Indicator Light

Fiber optic transceiver has 6 indicator lights (usually), each indicator light has a unique meaning, if the device is faulty, it is convenient for the staff to troubleshoot the problem.

The following is the general indicator working status, the actual product manual shall prevail, in addition, FX, FP refers to the optical port, TX, TP refers to the electrical port.



LED Indicators	Function	State	Working conditions
PWR	power indicator	light on	boot up
		light off	shut down
FX / SD TX / TP	connection status indicator	light on	with signal input
		light off	no signal input
Link / Act TP / LNK FX / LNK	connection status indicator	light on	connectivity
		flashing	during data transmission
		light off	no signal
FDX / COL	electrical port operating mode indicator	light on	full duplex
		light off	half-duplex
POE	POE power supply indicator	light on	powering
		light off	unplugged
Loop	loop detection indicator	light on	open
		light off	close
1000M	electrical port signal indicator	light on	1000M rate connectivity
		light off	10/100M rate adaptive

2.2 DIP Switch

DIP switches are hardware devices designed on fiber optic transceivers, some unmanaged fiber optic transceivers have 3 switches, some have 4 switches, and some have 8 switches.

The dip switches can be set by first disconnecting power to the transceiver and then adjusting the switch position. If set with power, the transceiver's internal integrated circuits must undergo a power-on reset through the power-down and power-up process for the setting to take effect.

No.	1		2		3		4		5	
Function	LFP		ALS		FX Reset		FX 100/1000M		Port-isolate mode	
State	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON
Description	disabling the LFP function	turn on the LFP function	turn off	turn on	turn off	turn on	gigabit	gigabit adaptive	turn on	turn off

- **Port isolation:** isolation between ports in the same VLAN within Layer 2 that cannot transmit
- **Optical port reset:** when enabled, the power will be turned off automatically when the optical port is disconnected, waiting for restart
- **Store-and-forward:** received packets are put into the buffer and forwarded only when all are received
- **Straight-through forwarding:** Forward the data frame directly after knowing its destination MAC address.
- **Semi-through forwarding:** check the frame length, only the frames with at least 64B will be forwarded.
- **Intelligent forwarding:** Monitor the number of packets transmitted with errors in the network and automatically switch the forwarding mode.
- **Jumbo frames:** Extends the maximum Ethernet frame length to 9K, reducing the extra overhead of network devices in processing packet headers.
- **2544:** Throughput, Latency, Packet Loss, Back-to-Back, System Recovery, Reset.

2.3 LFP

LFP, Link Fault Pass-through refers to the two communication devices (media converter, switches, routers, etc.) to connect the transmission, a transceiver at one end of the link failure, then the fault will be transferred to the optical port, at the same time will let the other end of the reception of the knowledge, to be able to quickly locate the line faults, and to facilitate the maintenance and management.

Principle	Schema
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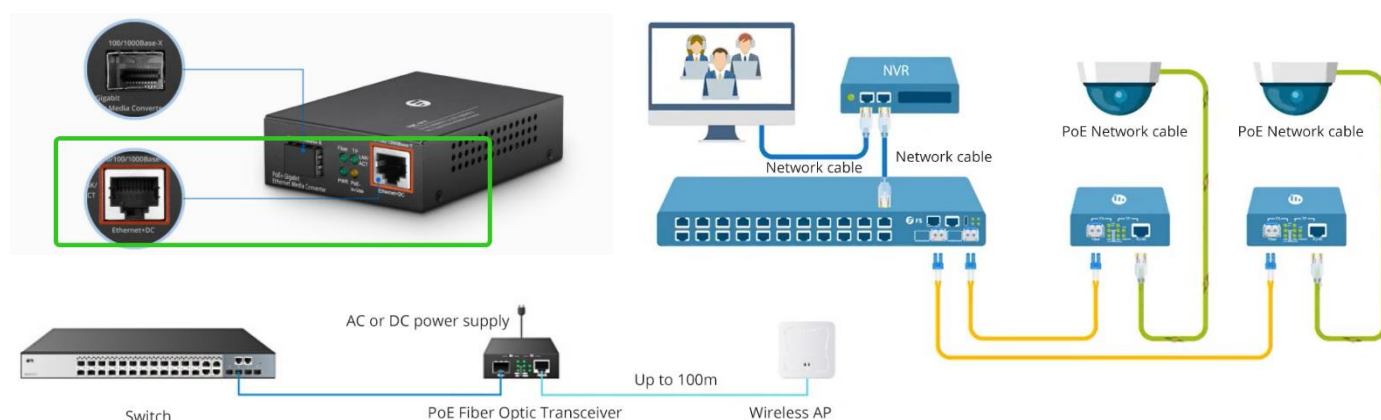
When the LFP failover function is turned on by the unmanaged fiber optic transceiver DIP dipswitch, if there is a link failure in the electrical port of the transceiver at the A end, this transceiver will transfer the failure of the electrical port to the optical port, and the A transceiver will stop the data transmission of the optical port; the transceiver at the B end will not be able to receive the data from the A transceiver, so it will know that the A transceiver has a link failure, and the B transceiver will stop the data transmission of both the optical port and the electrical port. B transceiver stops sending data from both optical and electrical ports, so the administrator can quickly find the problem line and easily solve the problem.



2.4 POE Power Supply

DC power is delivered to the local devices through the network cable. In other words, the SFP interface receives and sends optical signals through optical fiber, and the RJ45 interface delivers electrical signals and power to remote IP cameras, wireless devices, and VoIP phones through network cables (POE-enabled PSDs), **eliminating the labor and budgetary costs of installing separate power cables for the links.**

- Power over Ethernet interfaces support Power over Ethernet, and the interface shall comply with the PSE function specified in IEEE 802.3: 2018 to accomplish DC power delivery while transmitting data packets;
- The interfaces supporting Power over Ethernet shall comply with the provisions in the IEEE 802.3af: 2003 standard;
- The interfaces supporting Power over Ethernet shall conform to the provisions in the IEEE 802.3at: 2009 standard;
- The interface supporting Power over Ethernet shall comply with the provisions in the IEEE 802.3bt: 2018 standard;



3. Common Troubleshooting Solutions

1. The power indicator does not light up and the fiber optic transceiver cannot communicate

Solutions:

- Verify that the power cord is connected to the power connector on the back of the fiber optic transceiver.
- Check that the power outlet is energized by connecting other equipment to the power outlet.
- Check that the voltage of the power supply is within the normal range.

2. Link light does not come on

Solutions:

- Check the fiber optic line for breaks
- Check whether the fiber optic line has excessive loss and is out of range of the equipment.
- Check whether the fiber optic interface is connected correctly: the local TX is connected to the remote RX, and the remote TX is connected to the local RX.
- Check whether the fiber optic connector and the equipment interface are well connected; whether the jumper type matches the interface; whether the type of the equipment matches the fiber optic; whether the transmission length of the equipment matches the distance.

3. Frequently disconnected and underpowered

Solutions:

- May be too much attenuation for the optical path, at this time the optical power meter can be used to measure the optical power of the receiving end, if the receiving agility range around the 1-2dB range can be basically judged as a failure of the optical path.
- May be connected to the switch with the transceiver failure, this time the switch into a PC, that is, two transceivers directly connected to the PC, the two ends of the PING, such as the phenomenon does not appear when through when the phenomenon can be basically judged as a switch failure.
- May be transceiver failure, at this time the transceiver can be connected to both ends of the PC (not through the switch), both ends of the PING no problem, from one end to the other end of the transmission of a larger file (100M) or more, to observe its speed, such as the speed is very slow (200M or less than 15 minutes of file transmission), can be basically judged as a transceiver failure.

4. Heavy packet loss

Solutions:

- The electrical port of the transceiver does not match the duplex mode of the network device interface, or the device interfaces at both ends.
- Twisted-pair cable with RJ-45 header has a problem, carry out testing.
- Problems with the fiber optic connection. whether the jumper is aligned with the device interface. whether the pigtail matches the jumper and coupler type. etc.



Shenzhen (China)

Address: 24F, Yingfeng Center, Haitian 2nd Rd,
Nanshan District, Shenzhen
Tel: +86 (755) 8357 1351
Email: sales@feisu.com

Delaware (United States)

Address: 380 Centerpoint Blvd, New Castle,
DE 19720, United States
Tel: +1 (888) 468 7419
Email: us@fs.com

California (United States)

Address: 15241 Don Julian Rd, City of Industry,
CA 91745, United States
Tel: +1 (647) 243 6342
Email: us@fs.com

Munich (Germany)

Address: NOVA Gewerbepark Building 7, Am
Gfild 7,85375 Neufahrn bei Munich, Germany
Tel: +49 (0) 8165 4099 260
Email: de@fs.com

Singapore

Address: 30A Kallang Pl, #11-10/11/12 Singapore
339213
Tel: +65 6443 7951
Email: sg@fs.com

Wuhan (China)

Address: 9-14F, Optical Valley Software Park
A7, Guanshan Ave, Wuhan
Tel: +86 (027) 8808 9195
Email: sales@feisu.com

Birmingham (United Kingdom)

Address: Regus Edmund House, 12-22 Newhall
Street, Birmingham, B3 3AS
Tel: +49 (0) 8165 4099 260
Email: uk@fs.com

Melbourne (Australia)

Address: 57-59 Edison Rd, Dandenong South,
VIC 3175, Australia
Tel: +61 3 9693 3488
Email: au@fs.com

Tokyo (Japan)

Address: JS Progress Building, 4-1-23 Heiwajima,
Ota-ku, Tokyo 〒143-0006
Tel: 03-5826-8305
Email: jp@fs.com



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