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100/1000BASE-X to 10/100/1000BASE-T

802.3at PoE+ Media Converter

Model: MC-1GP+SFP-EC

User's Manual

1. PRODUCT FEATURES

Gigabit Ethernet 802.3at PoE+ Media Converter : MC-1GP+SFP-EC

- ■ **Interface**
    - ☐ RJ45 interface with **Data + Power** output
    - ☐ SFP fiber optic slot
    - ☐ DC 52V~56V power input socket
- ■ **PoE**
    - ☐ Complies with IEEE 802.3af and IEEE 802.3at standard, mid-span PSE
    - ☐ Provides DC 52V~56V power over RJ45 Ethernet cable to devices with Ethernet port
    - ☐ Supports PoE power up to 30 watts for PoE port
    - ☐ Auto detects IEEE 802.3at/IEEE 802.3af PoE equipment, protecting the devices from being damaged by incorrect installation
    - ☐ Remote power feeding up to 100m
    - ☐ IEEE 802.3at/IEEE 802.3af splitter device compatibility
- ■ **Hardware**
    - ☐ Metal case
    - ☐ LED indicators
        - ➢ Power LED
        - ➢ PoE-in-use
        - ➢ Fiber LNK / ACT
        - ➢ TP LNK / ACT
    - ☐ DIP switch: LFP (Link Fault Passthrough) mode selection
    - ☐ 9K maximum frame size supported
    - ☐ Wall-mount or DIN-rail installation (optional)

2. CHECKLIST

Your MC-1GP+SFP-EC carton should contain the following items:

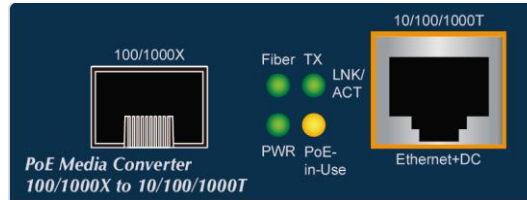| Media Converter x 1	AC-DC Adapter (Input: 52~56V DC) x 1

| Note:	*The MC-1GP+SFP-EC comes with one vacant SFP module slot. The mini GBIC SFP module is not included in the package and should be purchased separately based on your application needs.*

3. PRODUCT OUTLOOK

There is one RJ45 twisted-pair jack (auto-MDI/MDI-X), one 100/1000X fiber-optic SFP slot and four LED indicators.

Figure 1: Front View of the MC-1GP+SFP-EC

There is one DIP switch for Link Fault Passthrough (LFP) feature. It is turned on for Link Loss Carry Forward (LLCF) and Link Loss Return (LLR) detection but this feature is not operable when turned off. Please refer to section 4 for more information. There is also one DC 52V ~ 56V power socket for the Gigabit Ethernet 802.at PoE+ Media Converter.
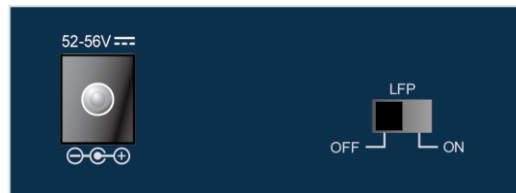
Figure 2: Rear View of the MC-1GP+SFP-EC

Power Information

The power jack of the Gigabit Ethernet 802.at PoE+ Media Converter measures **2.1mm** in diameter and comes with 52V ~ 56V DC power input. It conforms to the bundled AC-DC adapter.

4. LINK FAULT PASS-THROUGH (LFP)

The LFP function includes LLCF and LLR. LLCF and LLR can immediately alarm administrators the issue of the link media and provide efficient solution to monitor the network. The LFP function can be disabled or enabled by the DIP switch.

LLCF means when a device is connected to the converter and the TP line loses the link, the converter's fiber will disconnect the transmission link. LLR (Link Loss Return) means when a device is connected to the converter and the fiber line loses the link, the converter's fiber will disconnect the transmission link.

✑ Note:	LFP function is ON by default setting. If you are familiar with the network installation and for diagnostic purpose (i.e. check which end is broken), you can turn it off and reset the converter to make it take effect. Otherwise, please keep it in the default position.

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To install the MC-1GP+SFP-EC, simply complete the following steps:

Ethernet Installation

Step 1: Turn off the power of the device/station in a network to which the MC-1GP+SFP-EC will be attached.

Step 2: Ensure that there is no activity in the network.

Step 3: Attach fiber cable from the MC-1GP+SFP-EC to the fiber network (this requires an SFP module).

Step 4: Attach a Cat.5/5e/6 cable from the 10/100/1000BASE-T network to the RJ45 port on the MC-1GP+SFP-EC.

Step 5: Connect the 52V~56V DC power adapter to the MC-1GP+SFP-EC and verify that the Power LED lights up.

Step 6: Turn on the power of the device/station; the TX Link and FX Link LEDs should light up when all cables are attached.
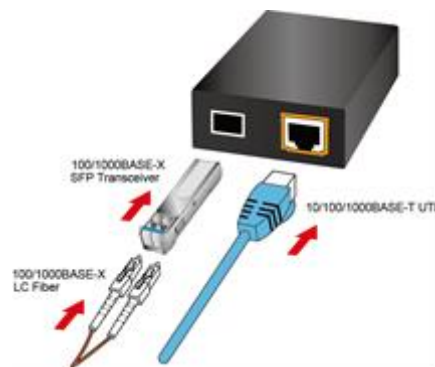

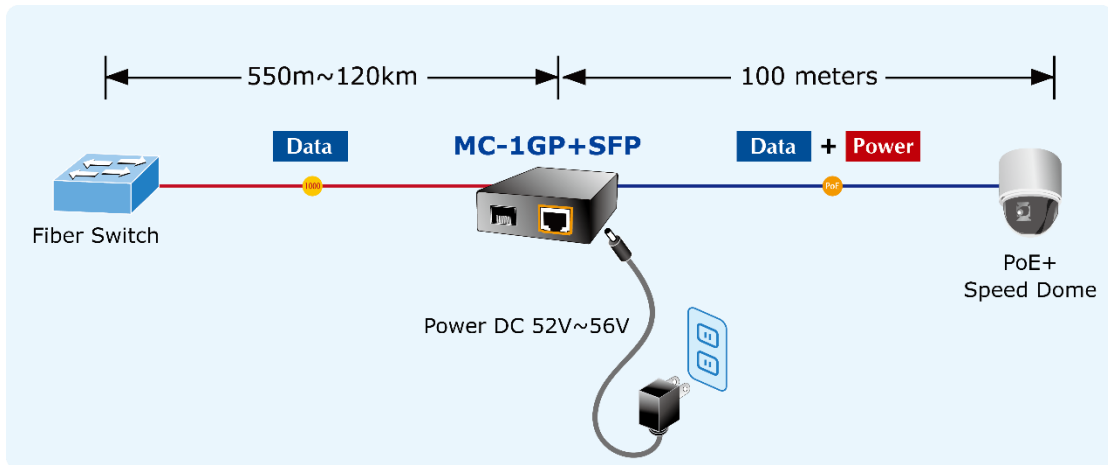**Figure 3:** MC-1GP+SFP-ECInstallation

✎ Note	1. Please check the link-budget of your SFP transceivers and its physical wiring distance. In some installation, an in-line optical attenuator may be required to protect your transceivers.
	2.. Cat5/5e/6 Ethernet cables in or straight/crossover with RJ45 connectors are accepted; please refer to section 8 for more about the wiring distance of your TP, optic-fiber networks.

PoE Function

The installation of the MC-1GP+SFP-EC and the IEEE 802.3at/802.3af Injector/Splitter.

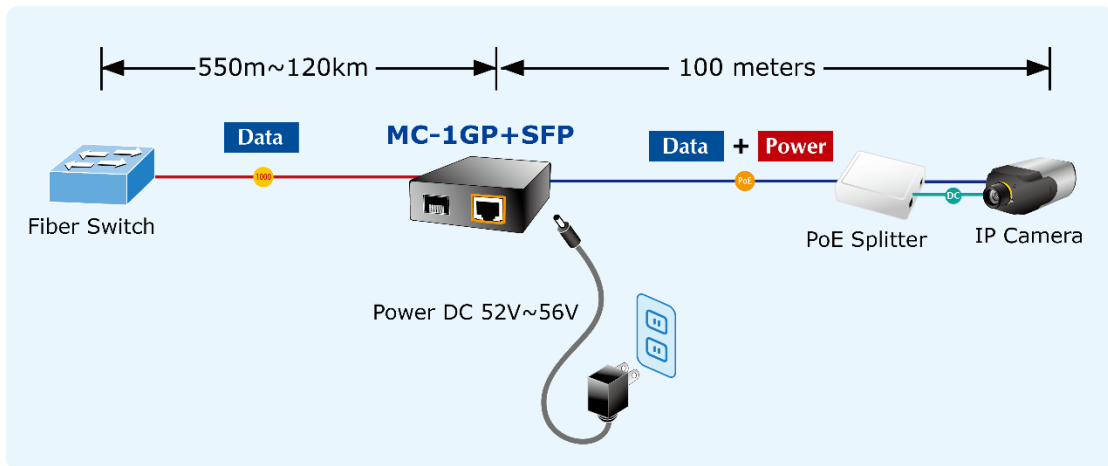Before your installation, it is recommended to check your network environment. If there is any IEEE 802.3at/802.3af devices that need to be powered on, the MC-1GP+SFP-EC can provide you with a way to supply power for this Ethernet device conveniently and easily without separate power cables.

The MC-1GP+SFP-EC equips an AC-DC adapter with DC 54V input and it injects the DC power into the twisted-pair cable.

```
550m~120km          100 meters
Data    MC-1GP+SFP    Data + Power
Fiber Switch                        PoE+
                                    Speed Dome
Power DC 52V~56V
```

1000BASE-SX/LX Fiber O ptic
1000BASE-T UTP with PoE

For the places where it is hard to find a power inlet or outlet, the MC-1GP+SFP-EC provides the easiest way to power your PoE capable device such as an IP camera or wireless access point via IEEE 802.3at or 802.3af and is compatible with most PoE splitters.


```
550m~120km          100 meters
Data    MC-1GP+SFP    Data + Power
Fiber Switch                  PoE Splitter   IP Camera
Power DC 52V~56V
```

1000BASE-SX/LX Fiber Optic
1000BASE-T UTP with PoE

6 DUPLEX MODE SUPPORT

The MC-1GP+SFP-EC RJ45 port supports triple speed -- 10/100/1000BASE-T auto-negotiation. It will auto detect the link speed and the duplex mode by default with its link partner. The fiber port (100/1000BASE-FX/SX/LX) allows **100/1000Mbps full duplex** by auto-negotiation. Please also check the setting of the link partner to ensure compatibility.

7. LED INDICATION

System

LED	Color	Description
PWR	**Green**	Lit indicates the device is powered.

10/100/1000BASE-T Port

LED	Color		Function
LNK/ACT	**Green**	**Blinks**	Indicating that the PoE+ Media Converter is actively sending or receiving data over that port.
		Lights	Indicating that the port is linked up at 10/100/1000Mbps.
		Off	Indicating that the port is linked down.
PoE in Use	**Orange**	**Lights**	Indicating that the port is providing PoE power to remote powered device.
		Off	Indicating that the port is not providing PoE power to remote powered device.

100/1000BASE-X Fiber Port

LED	Color		Function
LNK/ACT	**Green**	**Blinks**	Indicating that the PoE+ Media Converter is actively sending or receiving data over that port.
		Lights	Indicating that the port is linked up.
		Off	Indicating that the port is linked down.

8 CABLE CONNECTION PARAMETERS

The wiring details are shown below:

Duplex	Connection	Limitation (max.)
Twisted Pair		
Half/Full	Node to Node Node to Switch/Hub	100 meters

Fiber Optic Cables:

Standard (Wavelength)	100BASE-FX (1310nm)	1000BASE-SX (850nm)	1000BASE-LX (1310nm)
Fiber Type & Cable Specifications	Multi-mode	50/125μm or 62.5/125μm	
	Single mode	9/125μm	

9. PRODUCT SPECIFICATIONS

Model	MC-1GP+SFP-EC
Interface	
Copper Port	10/100/1000BASE-T Ethernet TP interface Auto-negotiation, auto MDI/MDI-X with PoE injector function

SFP Interface	100/1000BASE-X SFP interface
Fiber Mode	Can vary depending on SFP Module used (sold seperately)
Fiber Port Type (connector)	SFP, LC type (sold seperately)
Fiber Maximum Distance	Can vary depending on SFP Module used (sold seperately)
Power Over Ethernet	
PoE Output	IEEE 802.3af Power over Ethernet PSE IEEE 802.3at Power over Ethernet Plus PSE
Power Output	PoE 52-56V DC, 30 watts
PoE Power Supply Type	Mid-span
Power Pin Assignment	4/5 (+), 7/8 (-)
PoE Power Budget	30 watts
Hardware Specifications	
Switch Architecture	Store-and-Forward
Flow Control	Back pressure for half duplex mode IEEE 802.3x pause frame for full duplex mode
Maximum Frame Size	9K
LED	System: PWR Fiber 100/1000BASE-X: LNK / ACT TP 10/100/1000BASE-T: LNK / ACT PoE: Power-in-use
Dimensions (W x D x H)	94 x 26 x 70 mm
Weight	0.21kg
Power Supply	52-56V DC, external AC-to-DC adapter
LFP Mode	Enable: Shut down either TP port or fiber port that is broken Disable: Link LED indicators still on if connection of the other end is broken
Installation	Wall-mount or DIN-rail installation
Standards Conformance	
Regulatory Compliance	FCC Part 15 Class A, CE
Protocols and Standards Compliance	IEEE 802.3 Ethernet IEEE 802.3u 100BASE-TX/100BASE-FX IEEE 802.3ab Gigabit Ethernet IEEE 802.3z Gigabit Ethernet over Fiber Optic IEEE 802.3x Flow Control IEEE 802.3af Power over Ethernet IEEE 802.3at Power over Ethernet enhancements standard
Cables	TP: Cat 5 / 5e / 6 UTP cable Fiber: Multi-mode: 50/125μm or 62.5/125μm optic fiber Single mode: 9/125μm optic fiber
Environment	
Temperature	0~50 degrees C
Humidity	5~90% (non-condensing)

Customer Support

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