FIBERROAD

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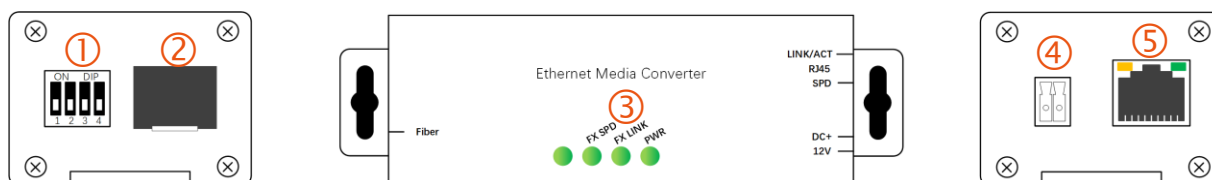# Mini Industrial
Ethernet Media Converter

User Manual

Mini Industrial Ethernet Media Converter

This user manual describes how to install and use the Industrial Media Converter. This is the Media Converter of choice for harsh environments constrained by space.

## Instruction

❖ Item ① : DIP Switch

DIP Switch	Function	Status	Description
#1	LFP Function	OFF	Disable
		ON	Enable
#2	ALS Functions (Only For SFP)	OFF	Disable
		ON	Enable
#3	FX Reset	OFF	Disable
		ON	Enable
#4	FX Speed Set	OFF	Fixed 1000M
		ON	FX 100M/1000M

❖ Item ② : SFP Port

SFP Transceiver Module

You can select different SFP modules as required (Please refer to our SFP selection list for the appropriate module). To insert/remove the SFP, the procedures are as follow:

1. On the side panel, insert the SFP module into the SFP port until it is securely locked.
2. Connect the optical fiber (1/2 core) to the LC connector(s) of the SFP.
3. To remove the SFP module, press down the lock of the LC connector of the optical fiber to pull out the fiber cable.
4. Pull down the SFP lever and hold its position. Pull out the SFP module from the SFP port.
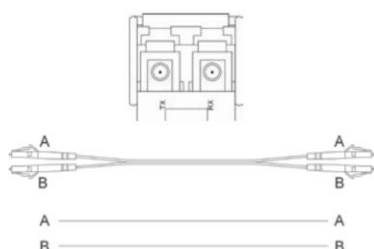
Notes: If you make your own cable, we suggest labeling the two sides of the same line with the same letter (A-to-A and B-to-B, shown as below, or A1-to-A2 and B1-to-B2).

Setup
a) Connect the Ethernet port of the media converter to a PC or network device with a network cable.
b) Insert the appropriate SFP into the corresponding SFP port. Connect the fiber cable from the remote device (media converter or switch) to the LC connector of the SFP.
c) After the device is powered on, the PWR indicator will all be on. If the indicators are not on, check the power supply connection.
d) After all cables are correctly connected, the indicators will be lit as per port status LEDs .
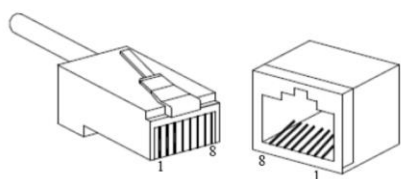
❖ Item ③ : The Port Status LEDs

LED	State	Indication
PWR	Green	Power On
PWR	Off	Power Off
SPD	Green	1000Base-TX
SPD	Off	100Base-TX
LINK/ACT	Steady	A valid network connection established
LINK/ACT	Flashing	Transmitting or receiving data. ACT Stands for Activity

❖ Item ④ : Power Connector
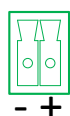
12VDC	-	GND	Terminal Block
	+	12V	

❖ Item ⑤ : RJ45 Ethernet Port

RJ 45 port support automatic MDI/MDI-X operation. Can connect the PC, Server, Converter and HUB .Pin 1,2,3,6 Corresponding connections in MDI. 1→3, 2→6, 3→1, 6→2 are used as cross wiring in the MDI-X port of Converter and HUB. 10/100/1000Base-TX are used in MDI/MDI-X, the define of Pin in the table as below.

Pin	Label
1	TP0+
2	TP0-
3	TP1+
4	TP2+
5	TP2-
6	TP1-
7	TP3+
8	TP3-

Figure 1 10/100/1000M Lan Port Pinouts

Pin	MDI Signal Definition	MDIX Signal Definition
1	TD+	RD+
2	TD-	RD-
3	RD+	TD+
4	NC	NC
5	NC	NC
6	RD-	TD-
7	NC	NC
8	NC	NC

As aforementioned, an Ethernet crossover cable is adopted to connect two ports of the same configuration (i.e. MDI-to-MDI or MDIX-to-MDIX). However, it may generate some confusion and inconveniences when deploying two different kinds of Ethernet cables. The auto-MDI/MDIX technology is developed to fix this problem: It automatically switches between MDI and MDIX as required. Auto MDI/MDIX ports on newer device interfaces detect if the connection requires a crossover, then automatically choose the MDI or MDIX configuration to properly match the other end of the link. In this case, it doesn't matter if you using straight through or crossover cables. The chart below shows cable types for MDI/MDIX and auto-MDIX.

Setting	MDI/MDIX Device Type	
	PC or other MDI Device	Switch, hub or other MDIX Device
MDI	Crossover cable	Straight-through cable
MDIX	Straight-through cable	Crossover cable
Auto-MDI/MDIX	Either crossover or straight-through cable	

❖ **Drawing**
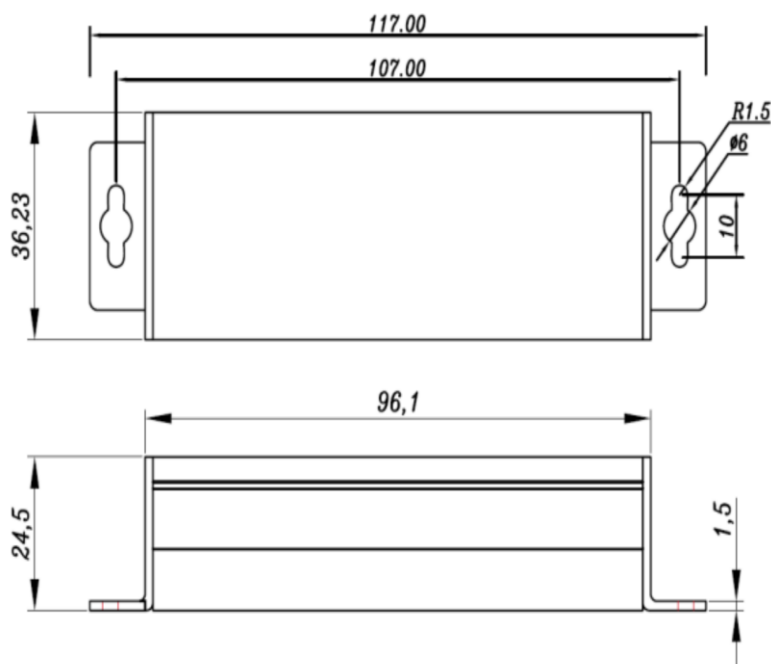
❖ Installation

Before installation, confirm that the work environment meet the installation require, including the power needs and abundant space. Whether it is close to the connection equipment and other equipment are prepared or not.
1. Avoid in the sunshine, keep away from the heat fountainhead or the area where in intense EMI.
2. Examine the cables and plugs that installation requirements.
3. Examine whether the cables be seemly or not (less than 100m) according to reasonable scheme.
4. Power: 12-48VDC power input
5. Environment:
   working temperature: -30 ~ 75℃
   Storage Temperature: -30 ~ 85℃
   Relative humidity 5% ~ 95%

Assembly, Startup, and Dismantling

• Installation: Mount the Micro type unit onto a fixture, or camera housings, e.g. a plank, (either on the wall or on a flat surface) with at least 2 screws piercing through the holes on the mounting frame to secure it in position.
• Startup: Connect the supply voltage to start up the Media Converter via the terminal block.
• Dismantling: Locate and remove the securing screws. Usually, but not limited to, at least 2 screws.

Wiring Requirements

Cable laying need to meet the following requirements,
1. It is needed to check whether the type, quantity and specification of cable match the requirement before cable laying;
2. It is needed to check the cable is damaged or not, factory records and quality assurance booklet before cable laying;
3. The required cable specification, quantity, direction and laying position need to match construction requirements, and cable length depends on actual position;
4. All the cable cannot have break-down and terminal in the middle;
5. Cables should be straight in the hallways and turning;
6. Cable should be straight in the groove, and cannot beyond the groove in case of holding back the inlet and outlet holes. Cables should be banded and fixed when they are out of the groove;
7. User cable should be separated from the power lines. Cables, power lines and grounding lines cannot be overlapped and mixed when they are in the same groove road. When cable is too long, it cannot hold down other cable, but structure in the middle of alignment rack;
8. Pigtail cannot be tied and swerved as less as possible. Swerving radius cannot be too small (small swerving causes terrible loss of link). Its banding should be moderate, not too tight, and should be separated from other cables;
9. It should have corresponding simple signal at both sides of the cable for maintaining.

❖ Specification

Ethernet Interface	
Ports	1x10/100/1000Base-TX RJ45 ports, 1x100/1000Base-FX SFP/SC ports
Pors Mode(Tx)	Auto Negotiation Speed Full/Half Duplex Mode Auto MDI/MDI-X Connection
Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) and 100BaseFX IEEE 802.3ab for 1000BaseT(X) IEEE 802.3z for 1000BaseSX/LX/LHX/ZX IEEE 802.3x for flow control
Maximum Packet Length	Up to 12K
Forward Filter Rate	14,880pps(10Mbps) 148,800pps(100Mbps) 1,488,000pps(1000Mbps)
Transmission Mode	Store and Forward (full/half duplex mode)

Transmission Distance	
SFP Port	Depends on optical module(0-160km)
RJ45 Port Transmission Distance	100m（using standard CAT5/CAT5e cable）

Power Information	
Input Power	12VDC
Power Consumption	2.4W Max. 0.2A@12VDC

Physical Characteristics	
Housing	Aluminum case
IP Rating	IP40
Dimensions	36.2mm*117mm*24.5mm
Installation Mode	Wall Mounting
Weight	0.15Kg

Working Environment	
Operating Temperature	-30℃~75℃ (-30 to 167 ℉)
Operating Humidity	5%~90% (non-condensing)
Storage Temperature	-40℃~85℃ (-40 to 185 ℉)

Warranty	
MTBF	> 300,000 hours
Defects Liability Period	5 years warranty, lifetime technical support