ORing Industrial Networking Corp.

Version 1.0

PoE
MEDIA
CONVERTER
INDUSTRIAL

Quick Installation Guide

IPMC-111PB

Industrial PoE Media Converter

Introduction

IPMC-111PB is a cost-effective solution for the conversion interface between 10/100Base-T(X) and 100Base-FX with SFP socket, it allows you to extend communication distance by optical fiber. **IPMC-111PB** supports MDI/MDIX auto detection, so you don't need to use crossover wires. **IPMC-111PB** also support Power over Ethernet, a system to transmit electrical power up to 30 watts, along with data, to remote devices over standard twisted-pair cable in an Ethernet network. Each **IPMC-111PB** has 1x10/100Base-T(X) P.S.E. (Power Sourcing Equipment) port to provide power in a PoE setup. **IPMC-111PB** with wide operating temperature range from -40 ~ 70℃ and accepts a wide voltage range from dual redundant 50~57 VDC power inputs, so it is suitable for harsh operating environments.
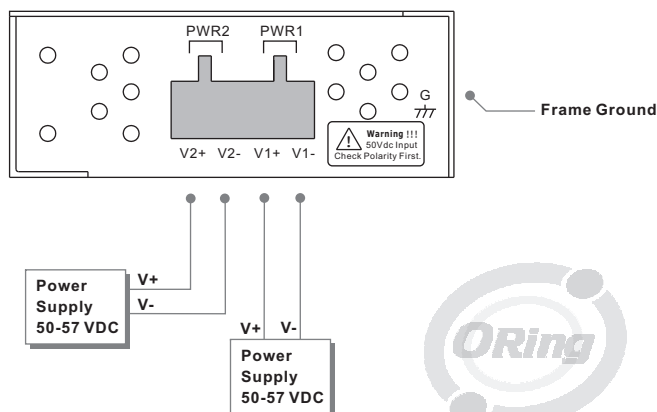
IPMC-111PB also supports the **LFP (Link Fault Pass-through)** feature. When one side of the link fails, the other side continues transmitting packets, and waiting for a response that never arrives from the disconnected side. Use the DIP-Switch to enable the LFP function, then **IPMC-111PB** will force the link to shutdown as soon as noticed that the other link has failed, to notice the administrator to react to the situation. Therefore, the **IPMC-111PB** is reliable media converter with PoE capability and can satisfy most demand of operating environment.

Features

▷ **Supports 1 port 10/100Base-T(X) auto-negotiation and auto-MDI/MDI-X**
▷ **Supports Ethernet to fiber with SFP socket**
▷ **Supports LFP (Link Fault Pass-through) function**
▷ **Supports full/half duplex operation mode**
▷ **P.S.E. fully compliant with IEEE802.3at standard, provide up to 30 Watts**
▷ **Supports store and forward transmission**
▷ **Provided DIP-Switch to set operation mode**
▷ **High reliability and rigid IP-30 housing**
▷ **DIN-Rail and wall-mount enabled**
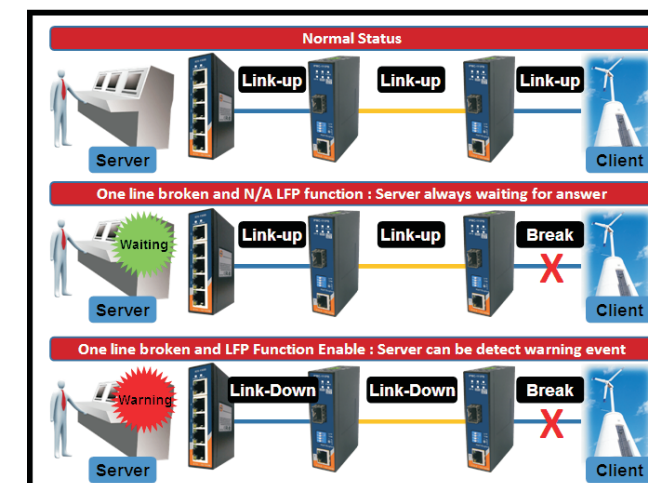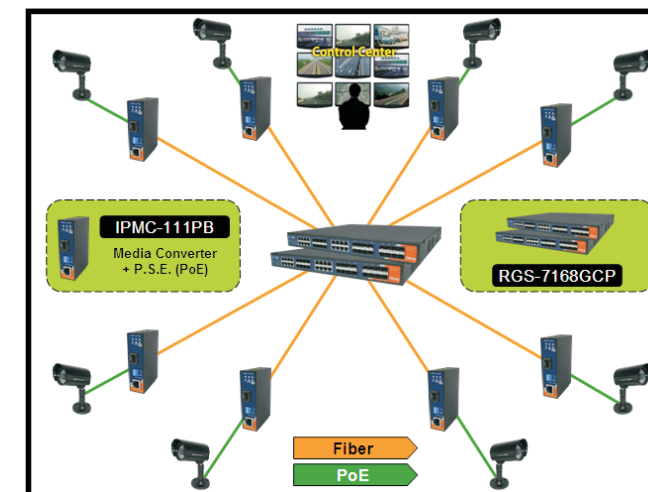
Power Connection Guide

Power Supply 50-57 VDC
Power Supply 50-57 VDC
Frame Ground
Warning !!! 50Vdc Input Check Polarity First.
PWR2 PWR1
V2+ V2- V1+ V1- G

Specifications

ORing PoE Media Converter Model	IPMC-111PB
Physical Ports	
10/100 Base-T(X) with P.S.E. Port in RJ45 Auto MDI/MDIX	1
Technology	
Ethernet standards	IEEE 802.3 for 10Base-T IEEE 802.3u for 100Base-TX and 100Base-FX IEEE 802.3x for Flow control IEEE 802.3at PoE specification (up to 30 Watts per port for P.S.E.)
Processing	Store-and-Forward
DIP-Switch setting	DIP-Switch 1 for LFP mode selection : (ON) enable / (OFF) disable DIP-Switch 2 for Ethernet speed selection : (ON)10Mbps / (OFF) 10/100Mbps Auto-negotiate DIP-Switch 3 for Ethernet full/half duplex selection : (ON) Half-duplex / (OFF) Full/Half-Duplex Auto-negotiate DIP-Switch 4 for fiber full/half duplex selection : (ON) Half-Duplex / (OFF) Full-Duplex
LED Indicators	
Power indicator	Green : Power LED x 2
10/100Base-T(X) RJ 45 port indicator	Green on RJ45 for port Link/Act -(ON) Link up / (Blinking) Acting / (OFF) Link down Green for port duplex indicator- (ON) Full-Duplex / (OFF) Half-Duplex
100Base-FX fiber port indicator	Green for fiber port Link/Act - (ON) Link up / (Blinking) Acting / (OFF) Link down Green for fiber port duplex indicator- (ON) Full-Duplex/ (OFF) Half-Duplex
LFP statue indicator	Amber LED - (ON) LFP function fail / (OFF) LFP function disable
PoE indicator	Green for P.S.E. indicator
Power	
Input power	Dual 50 VDC voltage power input at 4 pin terminal block
Power consumption(Typ.)	31.2 Watts (P.S.E. output included)
Overload current protection	Present
Reverse polarity protection	Present
Physical Characteristic	
Enclosure	IP-30
Dimension (W x D x H)	26.1 (W) x 70 (D) x 95 (H)mm (1.03 x 2.76 x 3.74 inch)
Weight (g)	210 g
Environmental	
Storage Temperature	-40 to 85℃ (-40 to 185°F)
Operating Temperature	-40 to 70℃ (-40 to 158°F)
Operating Humidity	5% to 95% Non-condensing
Regulatory Approvals	
EMI	FCC Part 15, CISPR (EN55022) class A
EMS	EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-5 (Surge), EN61000-4-6 (CS), EN61000-4-8, EN61000-4-11
Shock	IEC60068-2-27
Free Fall	IEC60068-2-32
Vibration	IEC60068-2-6
Safety	EN60950-1
Warranty	5 years

Connections of Media converter and LFP function

Connections with LFP function

Normal Status
Link-up Link-up Link-up
Server Client

One line broken and N/A LFP function : Server always waiting for answer
Waiting Link-up Link-up Break
Server Client

One line broken and LFP Function Enable : Server can be detect warning event
Warning Link-Down Link-Down Break
Server Client

Connections of Media Converter

Control Center
IPMC-111PB
Media Converter + P.S.E. (PoE)
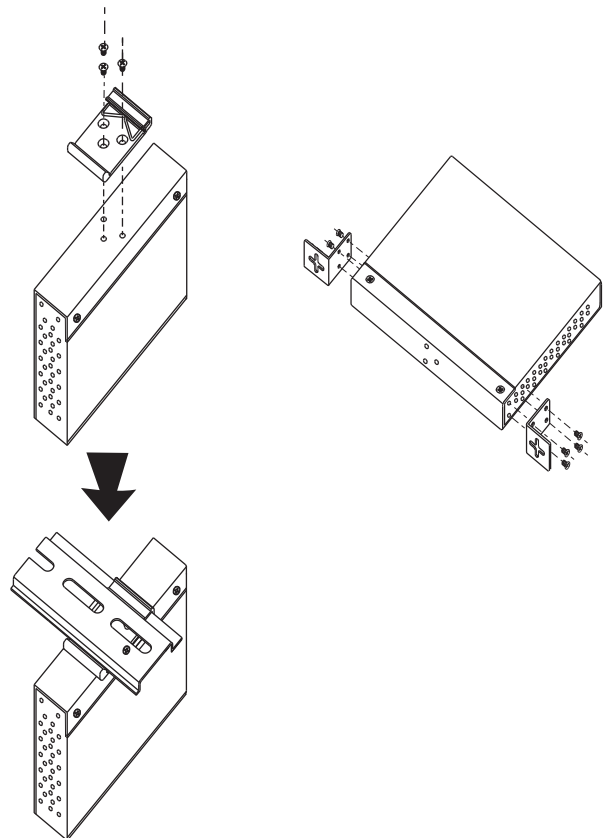RGS-7168GCP
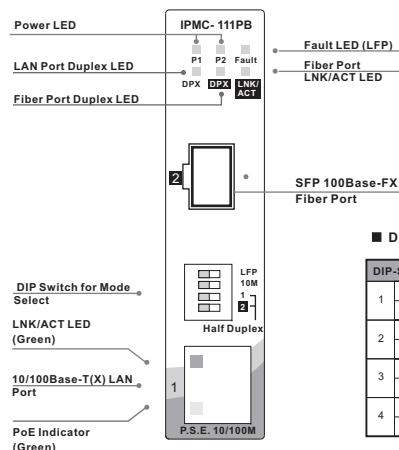Fiber
PoE

PoE MEDIA CONVERTER INDUSTRIAL

Quick Installation Guide

IPMC-111PB Industrial PoE Media Converter

Installation

- Din-Rail Install Step
- Wall-mounted Install Step

Front Panel

- Power LED
- LAN Port Duplex LED
- Fiber Port Duplex LED

IPMC-111PB

P1 P2 Fault
- Fault LED (LFP)
- Fiber Port LNK/ACT LED

DPX DPX LNK/ACT

2 — SFP 100Base-FX Fiber Port

- DIP Switch for Mode Select
- LNK/ACT LED (Green)
- 10/100Base-T(X) LAN Port
- PoE Indicator (Green)

LFP 10M 1 2 Half Duplex

1

P.S.E. 10/100M

■ DIP Switch Function

DIP-Switch		Description
1	ON	LFP mode enable
	OFF	LFP mode disable
2	ON	Ethernet speed 10Mbps
	OFF	Ethernet speed 100Mbps
3	ON	Full/Half-duplex Auto-negotiate
	OFF	Ethernet Full-duplex
4	ON	Fiber Half-duplex
	OFF	Fiber Full-duplex

Accessory

① 4-Pin Terminal block
② Dust Cover (RJ-45)
③ Dust Cover (SFP)

④ Screw (M3 X3)
⑤ Wall-mounted kit
⑥ 25mm DIN-Rail kit

⑦ Power Cable with power jack
⑧ QIG
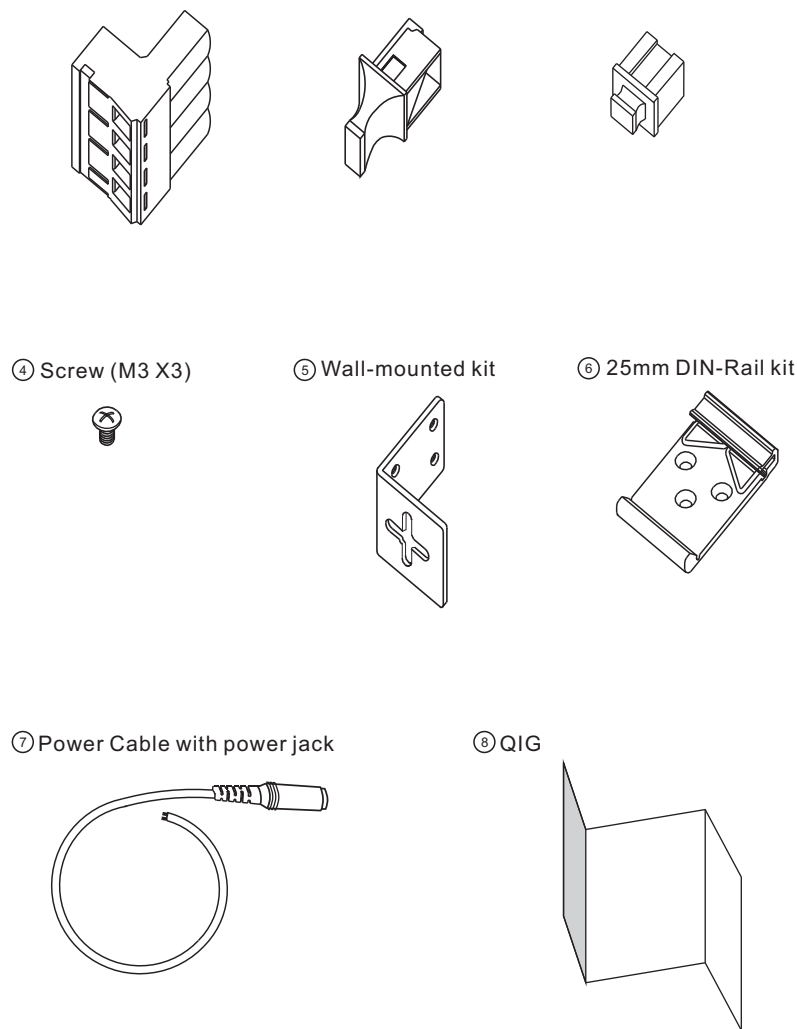
Packing list

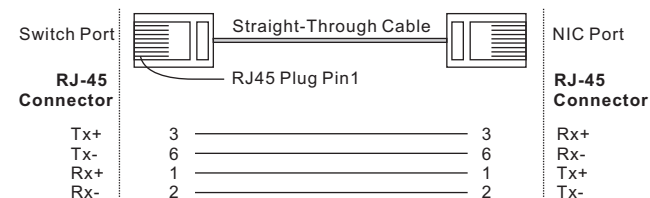| Model name	Model Description	Accessory
IPMC-111PB	Industrial mini type Ethernet to fiber media converter with 1x10/100Base-T(X) P.S.E. and 1x100Base-FX, SFP socket	①X 1, ②X 1, ③X 1, ④X 8, ⑤X 2, ⑥X 1, ⑦X 1, ⑧X 1

Communication Connections
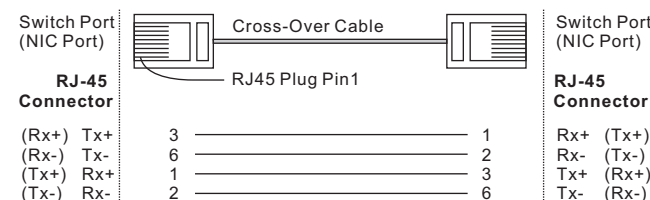
10/100Base-T(X) Ethernet Port Connection

■ RJ45 (8-pin, MDI) Port Pinouts

Pin	Single
1	Tx+
2	Tx-
3	Rx+
6	Rx-

■ RJ45 (8-pin, MDI-X) Port Pinouts

Pin	Single
1	Rx+
2	Rx-
3	Tx+
6	Tx-

■ RJ45 (8-pin) to RJ45 (8-Pin) Straight-Through Cable Wiring

Switch Port — Straight-Through Cable — NIC Port
RJ-45 Connector — RJ45 Plug Pin1 — RJ-45 Connector

Tx+	3	—	3	Rx+
Tx-	6	—	6	Rx-
Rx+	1	—	1	Tx+
Rx-	2	—	2	Tx-

■ RJ45 (8-pin) to RJ45 (8-Pin) Cross-Over Cable Wiring

Switch Port (NIC Port) — Cross-Over Cable — Switch Port (NIC Port)
RJ-45 Connector — RJ45 Plug Pin1 — RJ-45 Connector

(Rx+)	Tx+	3	—	1	Rx+	(Tx+)
(Rx-)	Tx-	6	—	2	Rx-	(Tx-)
(Tx+)	Rx+	1	—	3	Tx+	(Rx+)
(Tx-)	Rx-	2	—	6	Tx-	(Rx-)

100Base-FX SFP Port Connection

LC-Port Pinouts

LC-Port to LC-Port Cable Wiring

Tx
Rx

LC-Port Pinouts

Rx
Tx

Cable Wiring	
Tx	Rx
Rx	Tx
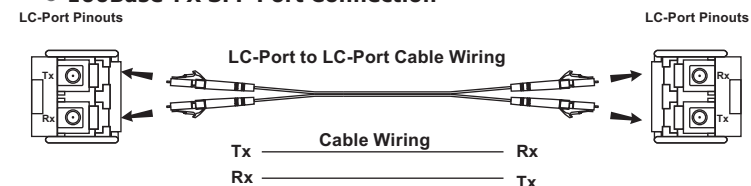
10/100Base-T(X) Pin Definition

RJ-45 Output (Data and Power)		
Pin	Symbol	Description
1	Rx+ (Vdc+)	Data Receive and Feeding power(+)
2	Rx- (Vdc+)	Data Receive and Feeding power(+)
3	Tx+ (Vdc-)	Data Receive and Feeding power(-)
4	NC	Not Connected
5	NC	Not Connected
6	Tx- (Vdc-)	Data Receive and Feeding power(-)
7	NC	Not Connected
8	NC	Not Connected

Note: pins 3 and 6 (-Vdc) should not be shorted to ground