MEDIA CONVERTER INDUSTRIAL

Quick Installation Guide

IMC-111 Series   Industrial Media Converter

Introduction

IMC-111 Series is a cost-effective solution for the conversion between 10/100Base-T(X) and 100Base-FX interface, it allows you to extend communication distance by optical fiber. **IMC-111 series** supports MDI/MDIX auto detection, so you don't need to use crossover wires. **IMC-111 series** with wide operating temperature range from -40 ~ 70℃ and accepts a wide voltage range from dual 12 ~ 48 VDC power inputs, so it is suitable for harsh operating environments.
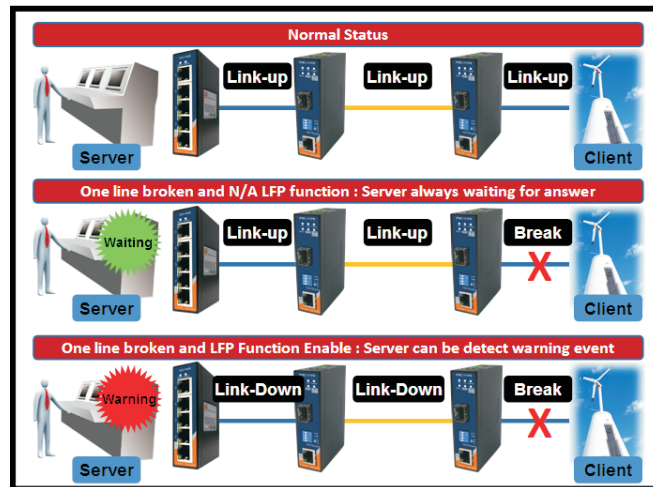
IMC-111 series also supports the **LFP (Link Fault Pass-through)** feature. When one side of the link fails, the other side continues transmitting packets, and waiting for a response that never arrives from the disconnected side. Use the DIP-Switch to enable the LFP function, then **IMC-111 series** will force the link to shutdown as soon as noticed that the other link has failed, giving the application software a chance to react to the situation. Therefore, the **IMC-111 series** is reliable media converter 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 or Ethernet to SFP port**
▷ **Supports LFP (Link Fault Pass-through) function**
▷ **Supports full/half duplex operation mode**
▷ **Supports store and forward transmission**
▷ **Provided DIP-Switch to setting function**
▷ **High reliability and rigid IP-30 housing**
▷ **DIN-Rail and wall-mount enabled**
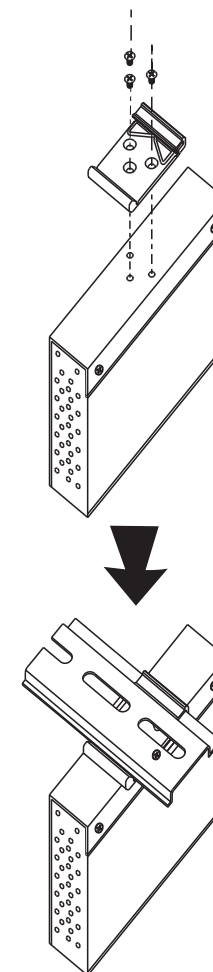
Connections of Media converter and LFP function

Specifications

| ORing Media Converter Model	IMC-111FB-MM-SC	IMC-111FB-SS-SC	IMC-111PB
Physical Ports			
10/100 Base-T(X) Ports in RJ45 Auto MDI/MDIX	1	1	1
100Base-FX Multi-mode Ports Fiber Ports Number	1	-	-
Fiber Diameter (μm)	62.5/125 μm 50/125 μm	-	-
Fiber Optical Connector	SC	-	-
Typical Distance (Km)	2 Km	-	-
Wavelength (nm)	1310 nm	-	-
Max. Output Optical Power (dbm)	-14 dbm	-	-
Min. Output Optical Power (dbm)	-23.5 dbm	-	-
Max. Input Optical Power (Saturation)	0 dbm	-	-
Min. Input Optical Power (Sensitivity)	-31 dbm	-	-
Link Budget (db)	7.5 db	-	-
100Base-FX Single-mode Ports Fiber Ports Number	-	1	-
Fiber Diameter (μm)	-	9/125 μm	-
Fiber Optical Connector	-	SC	-
Typical Distance (Km)	-	30 Km	-
Wavelength (nm)	-	1310 nm	-
Max. Output Optical Power (dbm)	-	-8 dbm	-
Min. Output Optical Power (dbm)	-	-15 dbm	-
Max. Input Optical Power (Saturation)	-	0 dbm	-
Min. Input Optical Power (Sensitivity)	-	-34 dbm	-
Link Budget (db)	-	19 db	-
100Base-FX SFP port	-	-	1
Technology			
Ethernet standards	IEEE 802.3 for 10Base-T, IEEE 802.3u for 100Base-T(X) and 100Base-FX, IEEE 802.3x for Flow control		
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) 100Mbps DIP-Switch 3 for Ethernet full/half duplex selection : (ON) Full/Half-Duplex Auto-negotiate / (OFF) Ethernet Full-Duplex DIP-Switch 4 for fiber full/half duplex selection : (ON) Half-Duplex / (OFF) Full/Half-Duplex Auto-negotiate		
LED Indicators			
Power indicator	Green : Power LED x 2 (ON: power input on-line / (OFF) power input off-line		
10/100Base-T(X) RJ 45 port indicator	Green for port Link/Act -(ON) Link up / (Blinking) Acting / (OFF) Link down Amber for 100Mbps/10Mbps indicator- (ON) Working at 100Mbps / (OFF) Working at 10Mbps 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 / (Flash) 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		
Power			
Input power	Dual 12~48 VDC power inputs on 4-pin terminal block		
Power consumption(Typ.)	2.2 Watts		
Overload current protection	Present		
Reverse polarity protection	Present on terminal block		
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)	218 g		213 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

Installation

● **Din-Rail Install Step**   ● **Wall-mounted Install Step**
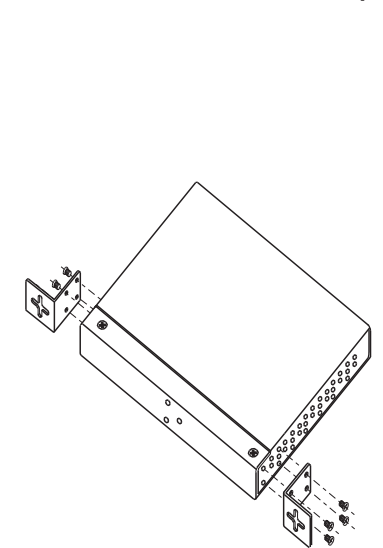
ORing Industrial Networking Corp.

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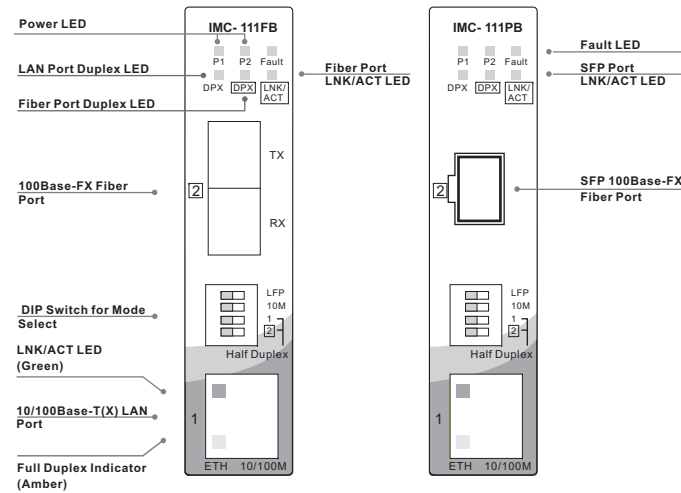FAX: +886-2-2218-1014   E-mail: support@oring-networking.com

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IMC-111 Series   Industrial Media Converter

Front Panel

Power LED
LAN Port Duplex LED
Fiber Port Duplex LED
100Base-FX Fiber Port
DIP Switch for Mode Select
LNK/ACT LED (Green)
10/100Base-T(X) LAN Port
Full Duplex Indicator (Amber)

IMC-111FB
P1 P2 Fault
DPX DPX LNK/ACT
TX
RX
LFP 10M
1 2
Half Duplex
ETH 10/100M

IMC-111PB
P1 P2 Fault
DPX DPX LNK/ACT
LFP 10M
1 2
Half Duplex
ETH 10/100M

Fiber Port LNK/ACT LED
Fault LED
SFP Port LNK/ACT LED
SFP 100Base-FX Fiber Port

■ 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/Half-duplex Auto-negotiate

Power Connection Guide

PWR2 PWR1
G
V2+ V2- V1+ V1- DC12-48V
Frame Ground

Power Supply 12-48 VDC
V+
V-

V+ V-
Power Supply 12-48 VDC

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
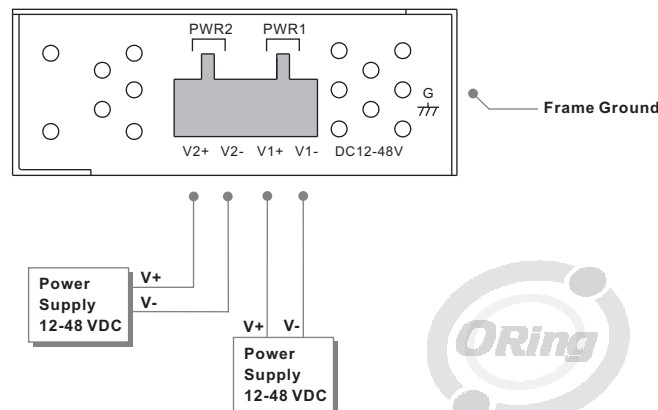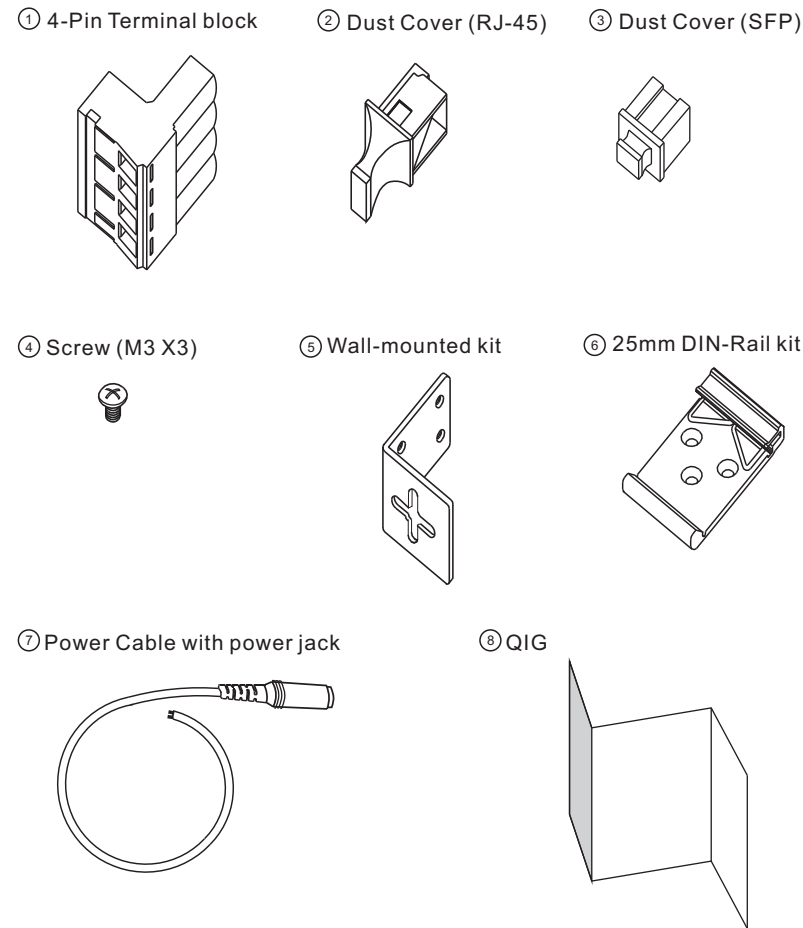
Packing list

Model name	Model Description	Accessory
IMC-111FB-MM-SC	Industrial mini type Ethernet to fiber media converter with 1x10/100Base-T(X) and 1x100Base-FX, multi-mode, 2Km/1310nm, SC connector	①X 1, ②X 1, ③X 8, ④X 2, ⑤X 1, ⑦X 1, ⑧X 1
IMC-111FB-SS-SC	Industrial mini type Ethernet to fiber media converter with 1x10/100Base-T(X) and 1x100Base-FX, single-mode, 30Km/1310nm, SC connector	①X 1, ②X 1, ③X 8, ④X 2, ⑤X 1, ⑦X 1, ⑧X 1
IMC-111PB	IIndustrial mini type Ethernet to fiber media converter with 1x10/100Base-T(X) and 1x100Base-FX, SFP socket	①X 1, ②X 1, ③X 1, ④X 8, ⑤X 2, ⑥X 1, ⑦X 1, ⑧X 1

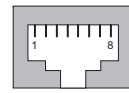## Communication Connections

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

■ RJ45 (8-pin, MDI) Port Pinouts

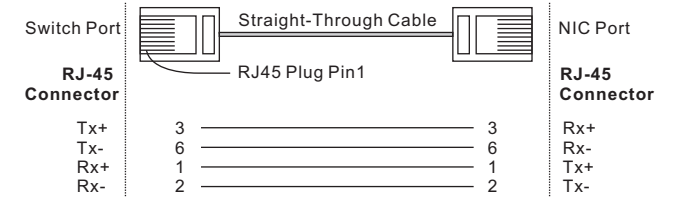| Pin	Single
1	Tx+
2	Tx-
3	Rx+
6	Rx-
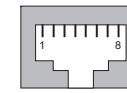
■ RJ45 (8-pin, MDI-X) Port Pinouts

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 Connection

SC-Port Pinouts   SC-Port Pinouts

Tx   SC-Port to SC-Port Cable Wiring   Rx
Rx   Tx
SC-Port Pinouts   SC-Port Pinouts

	Cable Wiring	
Tx	————	Rx
Rx	————	Tx
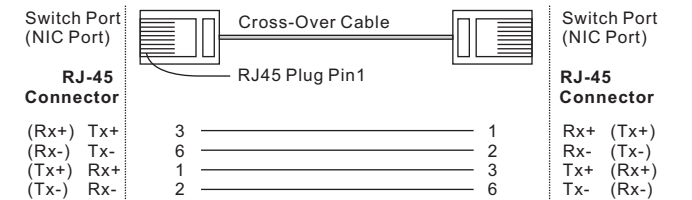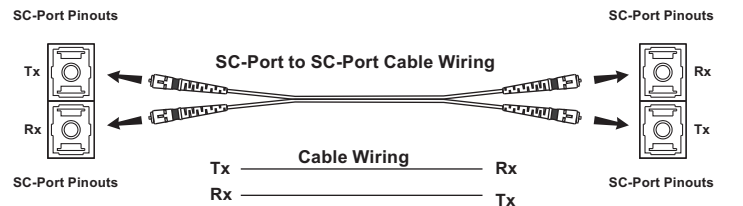
● 100Base-FX SFP Port Connection

LC-Port Pinouts   LC-Port Pinouts

Tx   LC-Port to LC-Port Cable Wiring   Rx
Rx   Tx

	Cable Wiring	
Tx	————	Rx
Rx	————	Tx