



# IMC-P111FX / IMC-P111P M12 Series

**Industrial IEC 61850-3 Ethernet to fiber media converter with 1x10/  
100Base-T(X) M12 connector to 1x100Base-FX fiber or 1x100Base-FX  
SFP socket**

## Features

- Designed for Railway application and fully compliant with the requirement of IEC 61850-3 and IEEE 1613
- Leading EN50155-compliant Ethernet switch for rolling stock application
- Supports 1 port 10/100Base-T(X) auto-negotiation and auto-MDI/MDI-X
- Support Ethernet to fiber or Ethernet to SFP port
- Support **LFP (Link Fault Pass-through)** function
- Supports full/half duplex operation
- Supports store and forward transmission
- Supports relay output for power failed alarm
- Provided DIP-Switch to setting function
- Ultra-rugged enclosure M12 connector for toughest industrial usages
- High reliability and rigid IP-30 housing
- DIN-Rail and wall mounting enabled

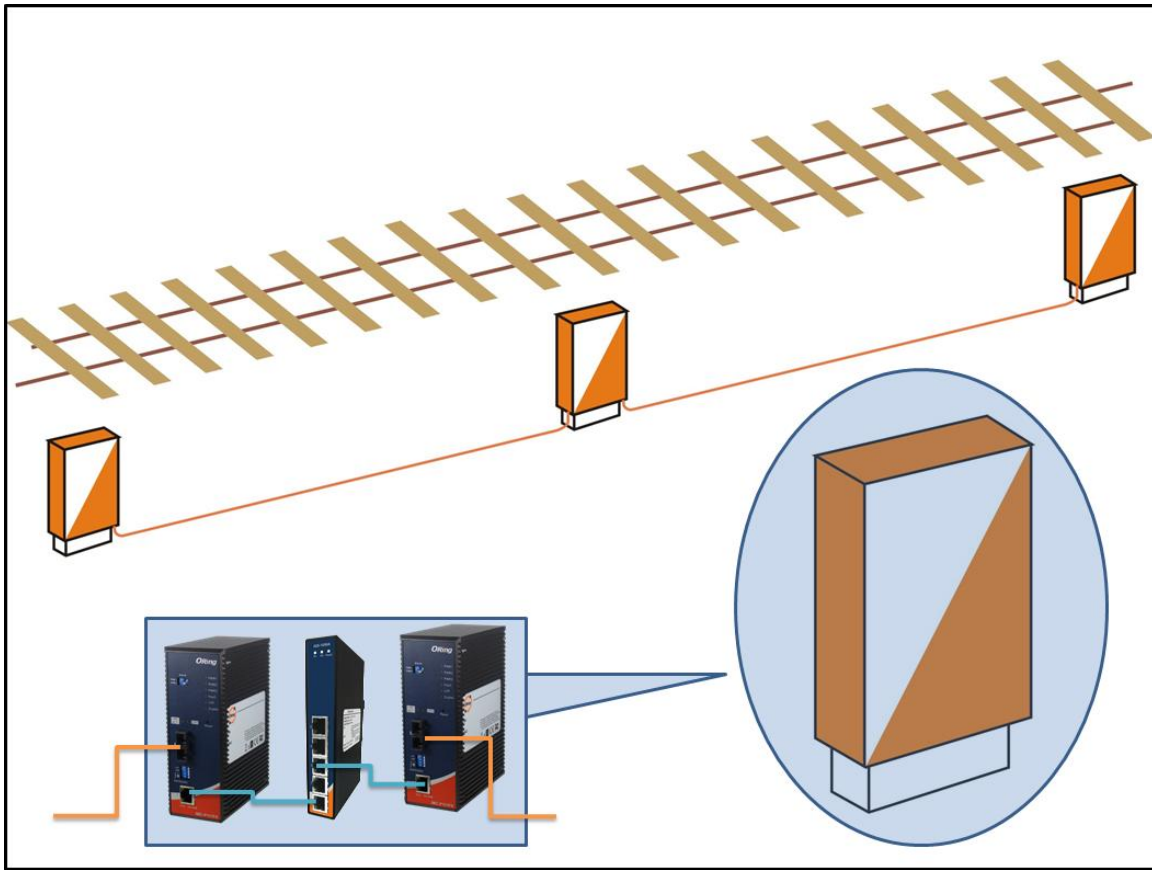


## Introduction

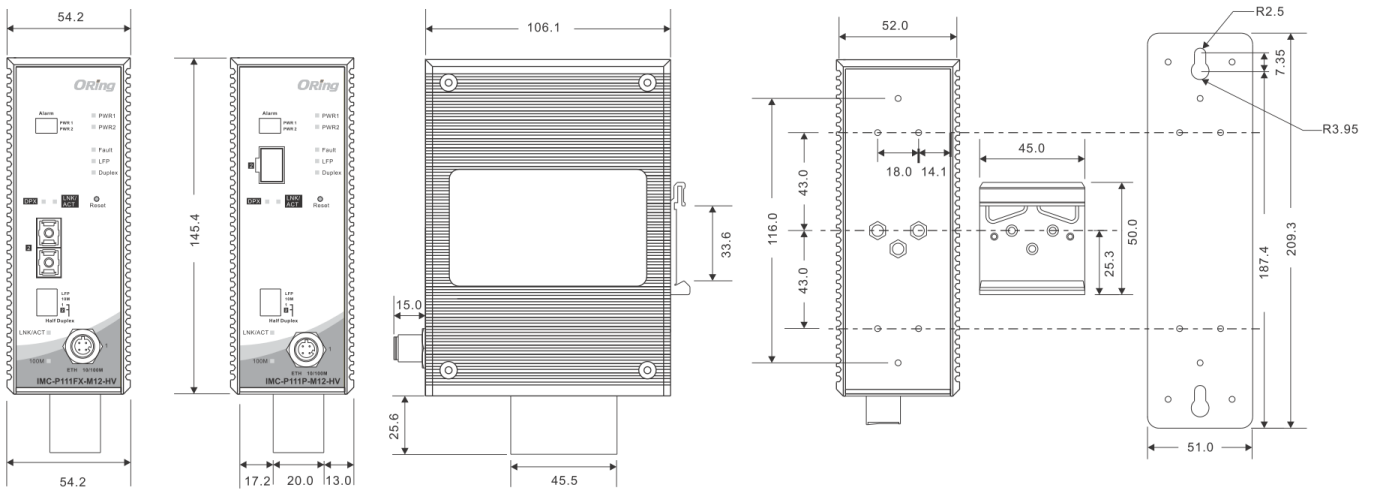
IMC-P111 M12 series is a cost-effective solution for the conversion between 10/100Base-T(X) M12 connector and 100Base-FX interface; it allows you to extend communication distance by optical fiber. IMC-P111 M12 series are designed for power substation application and rolling stock application, fully compliant with the requirement of IEC 61850-3 and IEEE 1613. IMC-P111 M12 series supports MDI/MDIX auto detection, so you don't need to use crossover wires. IMC-P111 M12 series Ethernet switch use M12 connectors to ensure tight, robust connections, and guarantee reliable operation against environmental disturbances, such as vibration and shock. IMC-P111 M12 series with wide operating temperature range from -40 ~ 85°C and accepts a wide voltage range power inputs, so it is suitable for harsh operating environments.

IMC-P111 M12 series also support 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-P111 M12 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-P111

M12 series is reliable media converter and can satisfy most demand of power substation and rolling stock application.

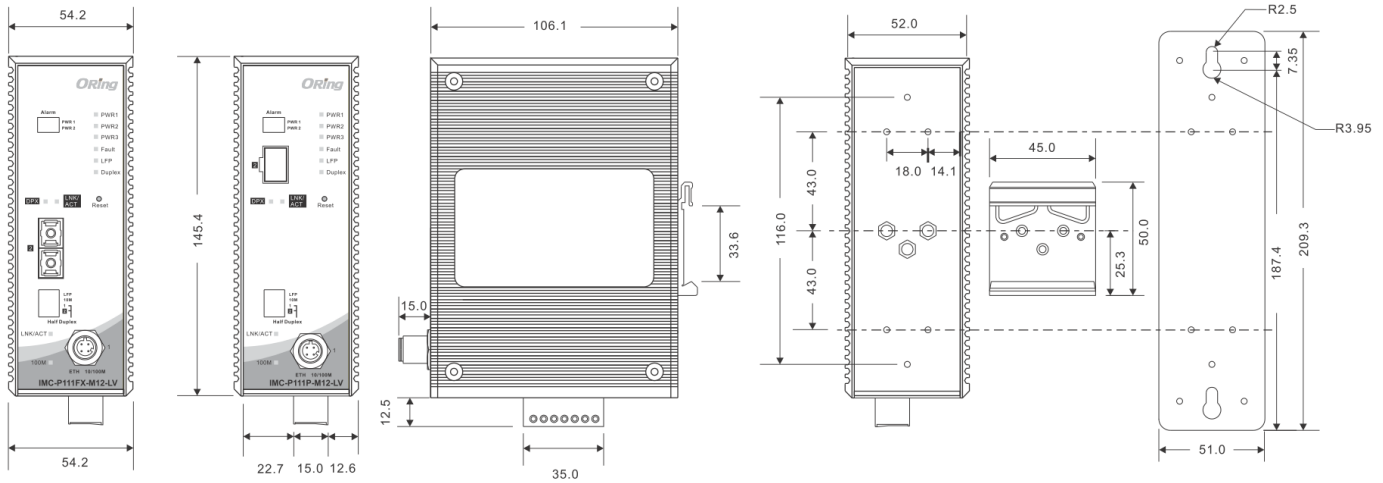


## Dimension



IMC-P11-M12-HV Series

Unit=mm



IMC-P111-M12-LV Series

Unit=mm

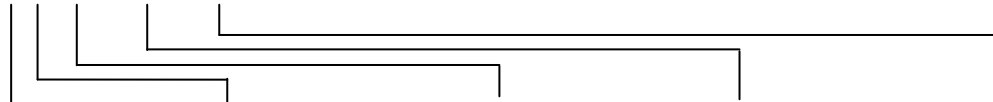
## Specifications

ORing Media Converter Model	IMC-P111FX-MM-SC-M 12	IMC-P111FX-SS-SC-M 12	IMC-P111P-M12	
<b>Physical Ports</b>				
10/100 Base-T(X) Port in RJ45 Auto MDI/MDIX	<b>1 (M12 A-coded)</b>	<b>1 (M12 A-coded)</b>	<b>1 (M12 A-coded)</b>	
Fiber Port Specification	Fiber Ports Number	<b>1</b>	-	
	Fiber Ports Standard	100Base-FX	-	
	Fiber Mode	Multi-mode	Single-mode	
	Fiber Diameter (µm)	62.5/125 µm 50/125 µm	9/125 µm	-
	Fiber Optical Connector	SC	SC	-
	Typical Distance (Km)	2 Km	30 Km	-
	Wavelength (nm)	1310 nm	1310 nm	-
	Max. Output Optical Power (dbm)	-14 dbm	-8 dbm	-
	Min. Output Optical Power (dbm)	-23.5 dbm	-15 dbm	-
	Max. Input Optical Power (Saturation)	0 dbm	0 dbm	-
Min. Input Optical Power (Sensitivity)	-31 dbm	-34 dbm	-	
Link Budget (db)	7.5 db	19 db	-	
100Base-FX SFP port	-	-	<b>1</b>	
<b>Technology</b>				
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) 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			
<b>Alarm DIP-Switch</b>				
DIP-Switch 1	Power-1 failed warning : (ON) enable, (OFF) disable			
DIP-Switch 2	Power-2 failed warning : (ON) enable, (OFF) disable			
<b>LED indicators</b>				
Power indicator	LV Model : Green : Power LED x 3 (ON : power input on-line / (OFF) power input off-line HV Model : Green : Power LED x 2 (ON : power input on-line / (OFF) power input off-line			

10/100Base-T(X) RJ45 port indicator	Green for port Link/Act – (ON) Link up / (Blinking) Acting / (OFF) Link down Amber 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 Amber for fiber port duplex indicator – (ON) Full-Duplex / (OFF) Half-Duplex		
LFP statue indicator	Amber LED – (ON) LFP function fail / (OFF) LFP function disable		
Fault indicator	Amber : Indicate unexpected event occurred		
Duplex indicator	Green for port duplex indicator – (ON) Full-Duplex / (OFF) Half-Duplex		
<b>Power</b>			
LV Model Input Power	Triple DC inputs. Dual 12~48VDC on 7-pin terminal block, one 12~45VDC on power jack		
HV Model Input Power	Dual 100~240VAC power inputs on 8-pin terminal block		
Power consumption (Typ.)	LV model : 12 Watts, HV model : 100VAC/4.8Watts, 240VAC/5.8Watts)	LV model : 12 Watts HV model : 100VAC/4.8Watts, 240VAC/5.8Watts)	LV model : 12 Watts HV model : 100VAC/4.8Watts, 240VAC/5.8Watts)
Overload current protection	Present		
Reverse polarity protection	Present on terminal block		
<b>Physical Characteristic</b>			
Enclosure	IP-30		
Dimension (W x D x H)	54.2(W) x 106.1(D) x 145.4(H) mm (2.05x4.18x5.68 inch.)		
Weight (g)	LV model : 691 g HV model : 833 g	LV model : 681 g HV model : 823 g	
<b>Environmental</b>			
Storage Temperature	-40 to 85°C (-40 to 185°F)		
Operating Temperature	-40 to 85°C (-40 to 185°F)		
Operating Humidity	5% to 95% Non-condensing		
<b>Regulatory approvals</b>			
Power Automation	IEC 61850-3, IEEE 1613		
EMI	FCC Part 15, CISPR (EN55022) class A, EN50155 (EN50121-3-2, EN55011, EN50121-4)		
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		
<b>Warranty</b>	5 years		

## Ordering Information

**IMC-P1ABCC-DD-EE-M12-FF**



Code	10/100Base-T(X)	100Base-FX	Fiber Port Type	Fiber Optical Mode	Fiber Connector	Optical	Voltage Type
Definition	Port Number	Fiber Port Number					
<b>Option</b>	- 1: 1 ports	- 1: 1 port	- <b>FX</b> : 100Base-FX fiber - <b>P</b> : 100Base-FX SFP	- <b>MM</b> : Multi-mode - <b>SS</b> : Single-mode	- <b>SC</b> : SC connector		- <b>LV</b> : Low-Voltage power inputs - <b>HV</b> : High-Voltage power inputs

Model Name	Description
<b>IMC-P111FX-MM-SC-M12-LV</b>	Industrial IEC 61850-3 Ethernet to fiber media converter with 1x10/100Base-T(X) M12 connector and 1x100Base-FX, multi-mode, 2Km/1310nm, SC connector, low-voltage power inputs
<b>IMC-P111FX-SS-SC-M12-LV</b>	Industrial IEC 61850-3 Ethernet to fiber media converter with 1x10/100Base-T(X) M12 connector and 1x100Base-FX, single-mode, 30Km/1310nm, SC connector, low-voltage power inputs
<b>IMC-P111FX-MM-SC-M12-HV_US</b>	Industrial IEC 61850-3 Ethernet to fiber media converter with 1x10/100Base-T(X) M12 connector and 1x100Base-FX, multi-mode, 2Km/1310nm, SC connector, high-voltage power inputs, US power cord
<b>IMC-P111FX-SS-SC-M12-HV_US</b>	Industrial IEC 61850-3 Ethernet to fiber media converter with 1x10/100Base-T(X) M12 connector and 1x100Base-FX, single-mode, 30Km/1310nm, SC connector, high-voltage power inputs, US power cord
<b>IMC-P111FX-MM-SC-M12-HV_UK</b>	Industrial IEC 61850-3 Ethernet to fiber media converter with 1x10/100Base-T(X) M12 connector and 1x100Base-FX, multi-mode, 2Km/1310nm, SC connector, high-voltage power inputs, UK power cord
<b>IMC-P111FX-SS-SC-M12-HV_UK</b>	Industrial IEC 61850-3 Ethernet to fiber media converter with 1x10/100Base-T(X) M12 connector and 1x100Base-FX, single-mode, 30Km/1310nm, SC connector, high-voltage power inputs, UK power cord
<b>IMC-P111FX-MM-SC-M12-HV_EU</b>	Industrial IEC 61850-3 Ethernet to fiber media converter with 1x10/100Base-T(X) M12 connector and 1x100Base-FX, multi-mode, 2Km/1310nm, SC connector, high-voltage power inputs, EU power cord
<b>IMC-P111FX-SS-SC-M12-HV_EU</b>	Industrial IEC 61850-3 Ethernet to fiber media converter with 1x10/100Base-T(X) M12 connector and 1x100Base-FX, single-mode, 30Km/1310nm, SC connector, high-voltage power inputs, EU power cord
<b>IMC-P111FX-MM-SC-M12-HV_JP</b>	Industrial IEC 61850-3 Ethernet to fiber media converter with 1x10/100Base-T(X) M12 connector and 1x100Base-FX, multi-mode, 2Km/1310nm, SC connector, high-voltage power inputs, JP power cord
<b>IMC-P111FX-SS-SC-M12-HV_JP</b>	Industrial IEC 61850-3 Ethernet to fiber media converter with 1x10/100Base-T(X) M12 connector and 1x100Base-FX, single-mode, 30Km/1310nm, SC connector, high-voltage power inputs, JP power cord
<b>IMC-P111P-M12-LV</b>	Industrial IEC 61850-3 Ethernet to fiber media converter with 1x10/100Base-T(X) M12 connector and 1x100Base-FX, SFP socket, low-voltage power inputs
<b>IMC-P111P-M12-HV_US</b>	Industrial IEC 61850-3 Ethernet to fiber media converter with 1x10/100Base-T(X) M12 connector and 1x100Base-FX, SFP socket, high-voltage power inputs, US power cord
<b>IMC-P111P-M12-HV_UK</b>	Industrial IEC 61850-3 Ethernet to fiber media converter with 1x10/100Base-T(X) M12 connector and 1x100Base-FX, SFP socket, high-voltage power inputs, UK power cord
<b>IMC-P111P-M12-HV_EU</b>	Industrial IEC 61850-3 Ethernet to fiber media converter with 1x10/100Base-T(X) M12 connector and 1x100Base-FX, SFP socket, high-voltage power inputs, EU power cord
<b>IMC-P111P-M12-HV_JP</b>	Industrial IEC 61850-3 Ethernet to fiber media converter with 1x10/100Base-T(X) M12 connector and 1x100Base-FX, SFP socket, high-voltage power inputs, JP power cord

Available Model

## Packing List

- IMC-P111-M12 x 1
- Wall-Mount Kit x 1
- Quick Installation Guide x 1
- Din-Rail Kit x 1