

# iMC2F



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## Industrial IEC 61850-3 Ethernet to Fiber Media Converter

### Features

- Fully compliant with the requirement of IEC 61850-3 and IEEE 1613
- EN50155-compliant Ethernet switch for rolling stock applications
- 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
- Supports store and forward transmission
- Relay output for power failed alarm
- Provided DIP-Switch to setting function
- High reliability and rigid IP-40 housing
- DIN-Rail and wall mounting enabled



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## Introduction

The iMC2F media converter is a cost-effective solution for the conversion between 10/100Base-T(X) and 100Base-FX interface. It allows you to extend communication distance using optical fiber. The iMC2F has been designed for power substation applications and rolling stock applications and is fully compliant with the requirement of IEC 61850-3 and IEEE 1613. The media converter supports MDI/MDIX auto detection, so crossover wires are not required. The iMC2F has wide operating temperature range from -40 ~ 85°C, accepts a wide input voltage range, and is suitable for harsh operating environments.

The iMC2F also supports the LFP (Link Fault Pass-through) feature. Link Fault Pass Through is usually used to solve the problem encountered when operating traditional media converters. The problem is this. When one side of the link fails, the other side still continues to transmit packets, and waits for a response that will never arrive. With link fault pass through, system administrators are able to notice the link failure within a short period of time, minimizing the loss caused by this problem. Use the DIP-Switch to enable the LFP function, the iMC2F will then force the link to shutdown as soon as it notices that the other link has failed, giving the application software a chance to react to the situation. The iMC2F has been designed to satisfy the most demanding environments in substation and rolling stock applications.

## Specifications

Model Number		iMC2F-MM	iMC2F-SS	iMC2F-SFP
<b>Physical Ports</b>				
10/100 Base-T(X) Port in RJ45 Auto MDI/MDIX		1	1	1
<b>Fiber Port Specification</b>	Fiber Port Number	1	1	-
	Fiber Port Standard	100Base-FX	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, ST	SC, ST	-
	Typical Distance (Km)	2 Km	25 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		-	-	1
<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		

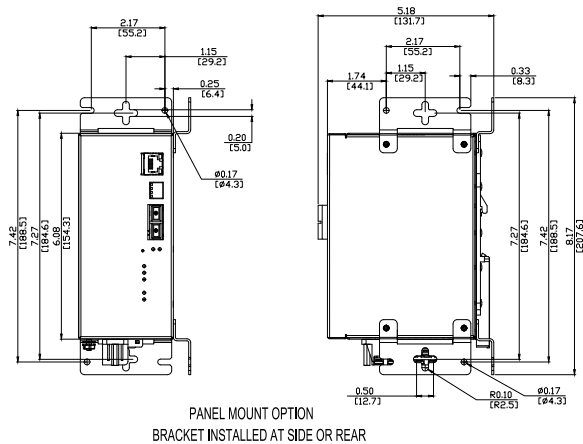
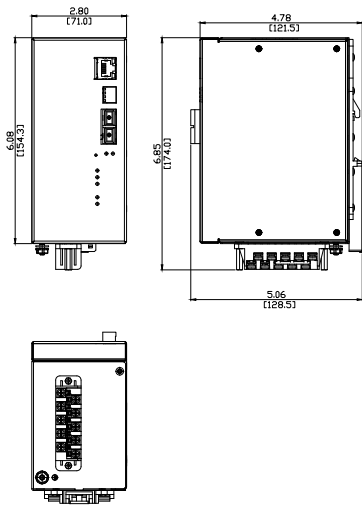


Processing	Store-and-Forward
DIP-Switch setting	DIP-Switch 1 for LFP mode selection : (ON) enable / (OFF) disable DIP-Switch 2 for Ethernet speed selection : (ON)10Mbps / (OFF) 10/100Mbps Auto-negotiate DIP-Switch 3 for Ethernet full/half duplex selection : (ON) Half-duplex / (OFF) Full/Half-Duplex Auto-negotiate DIP-Switch 4 for fiber full/half duplex selection : (ON) Half-Duplex / (OFF) Full-Duplex
<b>LED indicators</b>	
Power indicator	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 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
<b>Power</b>	
Input Power	LV input: 10 to 48VDC, MV input: 36-72VDC or, HV: Single input universal supply 120-370VDC or 85-264VAC with a single 10-48VDC Backup.
Power consumption (Typ.)	11 Watts
Overload current protection	Present
Reverse polarity protection	Present on terminal block
<b>Physical Characteristic</b>	
Enclosure	IP-40
Dimension (W x D x H)	52(W) x 106.1(D) x 144.3(H) mm (2.05x4.18x5.68 inch.)
Weight (g)	1.4Kg
<b>Environmental</b>	
Storage Temperature	-40 to 85oC (-40 to 185oF)
Operating Temperature	-40 to 85oC (-40 to 185oF)
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>	
Warranty	5 Years



# Dimensions

All Dimensions are in Inches



# Ordering Information

Base	Power Supply	Mount	Ethernet Port 1	Ethernet Port 2	Description
iMC2F	LV	D	1RJ45	1SSC10	
iMC2F					Core assembly and packaging
	LV				Dual Input (10-48VDC)
	MV				Dual Input (36-72VDC)
	HV				Single Input 120-370VDC or 85-264VAC with Single 10-48VDC Backup
		D			DIN Rail Mounting
		P			Panel Mounting
		N			No Mounting Hardware
			1RJ45		10/100/1000Base TX RJ45
				1MSC05	100FX Multimode SC, 850nm, 500m
				1MST05	100FX Multimode ST, 850nm, 500m
				1SSC10	100FX Singlemode SC, 1310nm, 10km
				1SST10	100FX Singlemode ST, 1310nm, 10km
				1SSC25	100FX Singlemode SC, 1310nm, 25km
				1SST25	100FX Singlemode SC, 1310nm, 25km
				1SFP**	100X SFP (Blank no optical transceiver)

Example order code: iMC2F-LV-D-1RJ45-1SSC10-C1  
 Description: 61850 Media Converter, Power Supply: Dual Input (10-48VDC), DIN Rail Mount, 1x10/100Base T(X), 1x100Base-F(X) Singlemode SC, 10Km port, Conformal Coating  
 C1=Add for Conformal coating



SFP Module #	Description
SFP100-MM-2	SFP 100Mbps Multimode LC Transceiver 2km, 1310nm, -40C - +85C
SFP100-SM-30	SFP 100Mbps Singlemode LC Transceiver 30km, 1310nm, -40C - +85C
SFP100-SM-60	SFP 100Mbps Singlemode LC Transceiver 60km, 1310nm, -40C - +85C
SFP100-SM-100	SFP 100Mbps Singlemode LC Transceiver 100km, 1550nm, -40C - +85C
SFP100-SM-120	SFP 100Mbps Singlemode LC Transceiver 120km, 1550nm, -40C - +85C
SFP100BIDI1-SM-20	SFP 100Mbps Bi-Directional Singlemode LC Transceiver 20km, TX1310 nm, RX1550nm, -40C - +85C
SFP100BIDI2-SM-20	SFP 100Mbps Bi-Directional Singlemode LC Transceiver 20km, TX1550 nm, RX1310nm, -40C - +85C
SFP100BIDI1-SM-40	SFP 100Mbps Bi-Directional Singlemode LC Transceiver 40km, TX1310 nm, RX1550nm, -40C - +85C
SFP100BIDI2-SM-40	SFP 100Mbps Bi-Directional Singlemode LC Transceiver 40km, TX1550 nm, RX1310nm, -40C - +85C
SFP100BIDI1-SM-60	SFP 100Mbps Bi-Directional Singlemode LC Transceiver 60km, TX1310 nm, RX1550nm, -40C - +85C
SFP100BIDI2-SM-60	SFP 100Mbps Bi-Directional Singlemode LC Transceiver 60km, TX1550 nm, RX1310nm, -40C - +85C
SFP1000-MM-550	SFP 1Gbps Multimode LC Transceiver 500m, 850nm, -20C - +85C
SFP1000-MM-2	SFP 1Gbps Multimode LC Transceiver 2km, 1310nm, -40C - +85C
SFP1000-SM-10	SFP 1Gbps Singlemode LC Transceiver 10km, 1310nm, -40C - +85C
SFP1000-SM-20	SFP 1Gbps Singlemode LC Transceiver 20km, 1310nm, -40C - +85C
SFP1000-SM-30	SFP 1Gbps Singlemode LC Transceiver 30km, 1310nm, -40C - +85C
SFP1000-SM-40	SFP 1Gbps Singlemode LC Transceiver 40km, 1310nm, -40C - +85C
SFP1000-SM-50	SFP 1Gbps Singlemode LC Transceiver 50km, 1550nm, -40C - +85C
SFP1000-SM-70	SFP 1Gbps Singlemode LC Transceiver 70km, 1550nm, -40C - +85C
SFP1000-SM-8-	SFP 1Gbps Singlemode LC Transceiver 80km, 1550nm, -40C - +85C
SFP1000BIDI1-SM-10	SFP 1Gbps Bi-Directional Singlemode LC Transceiver 10km, TX1310 nm, RX1550nm, -40C - +85C
SFP1000BIDI2-SM-10	SFP 1Gbps Bi-Directional Singlemode LC Transceiver 10km, TX1550 nm, RX1310nm, -40C - +85C
SFP1000BIDI1-SM-20	SFP 1Gbps Bi-Directional Singlemode LC Transceiver 20km, TX1310 nm, RX1550nm, -40C - +85C
SFP1000BIDI2-SM-20	SFP 1Gbps Bi-Directional Singlemode LC Transceiver 20km, TX1550 nm, RX1310nm, -40C - +85C
SFP1000BIDI1-SM-40	SFP 1Gbps Bi-Directional Singlemode LC Transceiver 40km, TX1310 nm, RX1550nm, -40C - +85C
SFP1000BIDI2-SM-40	SFP 1Gbps Bi-Directional Singlemode LC Transceiver 40km, TX1550 nm, RX1310nm, -40C - +85C
SFP1000BIDI1-SM-60	SFP 1Gbps Bi-Directional Singlemode LC Transceiver 60km, TX1310 nm, RX1550nm, -40C - +85C
SFP1000BIDI2-SM-60	SFP 1Gbps Bi-Directional Singlemode LC Transceiver 60km, TX1550 nm, RX1310nm, -40C - +85C
SFP1000BIDI1-SM-80	SFP 1Gbps Bi-Directional Singlemode LC Transceiver 80km, TX1310 nm, RX1550nm, -40C - +85C
SFP1000BIDI2-SM-80	SFP 1Gbps Bi-Directional Singlemode LC Transceiver 80km, TX1550 nm, RX1310nm, -40C - +85C