

iMC2F

**Industrial 2 Ports Ethernet to Fiber Media Converter/ Unmanaged Switch
IEC 61850-3 and IEEE 1613 Compliant**

Product Overview



iMC2F is an industrial grade cost-effective solution for conversion of 10/100Base-T(X) RJ45 to 100FX or 100Base-X SFP interface which allows extending of communication distance using optical fiber. It is a fully compliant with standards IEC 61850-3 and IEEE 1613 converter that has been designed for power substation and rolling stock applications. The media converter supports MDI/MDIX auto detection for 10/100Base-T(X) interface, so crossover wires are not required. The iMC2F has a wide operating temperature range from -40°C to +85°C, accepts a wide input voltage range, and is suitable for harsh operating environments.

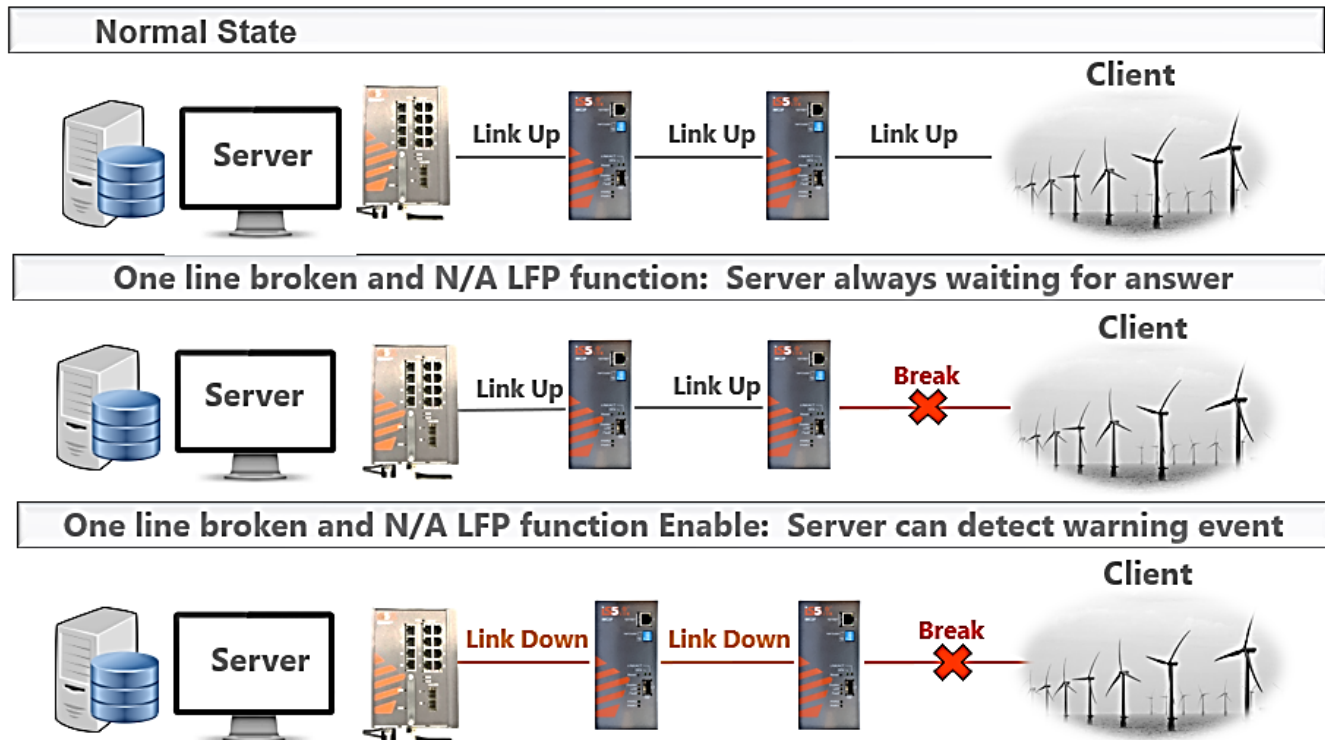
iMC2F supports Link Fault Pass-through (LFP) feature, which is usually used to solve problems encountered when operating traditional media converters. Such problems occur when one side of the link fails, and the other side still continues to transmit packets while waiting for a response that will never arrive. With LFP, system administrators can notice a link failure within a short period of time, minimizing the loss caused by this problem. To enable the LFP function, a DIP switch is used, and the iMC2F forces the link to shut down as soon as it notices that the other link has failed, giving the application software a chance to react to the situation.



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Network Architecture



The LFP function of iMC2F

The LFP function works only when both two converters have this capability in pairs. Furthermore, both media converters should be supplied by the same manufacturer/vender.



Features

Table 1. Features

Feature	
Supports:	<ul style="list-style-type: none">• 1 x 10/100Base-T(X) auto-negotiation and auto-MDI/MDI-X port• 1 x 100FX SC/ST port or 1 x 100Base-X SFP port• Ethernet to Fiber or Ethernet to SFP port• Link Fault Pass-through (LFP) function• Full/half duplex operation• Store and forward transmission
EN50155-compliant Ethernet switch for rolling stock applications	
Relay output for power failed alarm	
Dual Input Power Supplies	
IP-40 Galvanized Steel Housing	
DIP Switch for setting various functions	
Operating Temperature -40°C to +85°C	
DIN rail and panel mount	



Product Specifications

Table 2. Technical Specification

Description	Specification
10/100Base-T(X) RJ45 Port Auto MDI/MDIX	1
100FX SC/ST Port or 100Base-X SFP Port	1
Technology	
Processing	Store-and-Forward
DIP Switch setting	Switch 1 for LFP mode selection: (ON) enable / (OFF) disable Switch 2 for Ethernet speed selection: (ON)10Mbps / (OFF) 10/100Mbps Auto-negotiate 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
Physical Characteristics	
Enclosure	IP-40 Galvanized Steel
Dimensions (W x D x H)	71.1 (W) x 128.5 (D) x 174.0 (H) mm (2.80 x 5.06 x 6.85 inches) DIN rail 84.1 (W) x 118.6 (D) x 207.5 (H) mm (3.31 x 4.67 x 8.17 inches) panel at side 71.1 (W) x 131.7 (D) x 207.5 (H) mm (2.80 x 5.18 x 8.17 inches) panel at rear
Unit Weight (g)	~1200 g
Power	
Input Power	Dual DC Inputs 10-48VDC, Single Input 36-75VDC with Single 10-48VDC Backup, or Single Input 110-370VDC or 90-264VAC with Single 10-48VDC Backup
Power Consumption (Typ.)	LV model : 12 W HV model : 5.8 W max
Overload Current Protection	Present
Reverse Polarity Protection	Present on terminal block



Table 3. Compliance Specifications

Type	Standards
Electromagnetic Emissions	FCC Part 15, Class A, CISPR Class A (EN55022)
Electromagnetic Immunity	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
Industry Standards	IEC 61850-3 and IEEE 1613
Safety Standards	EN60950-1
Operating Environment	-40°C to +85°C (-40° to 185°F) (no fans) EN 60068-2-21
Storage Environment	-40°C to +85°C (-40° to 185°F) EN 60068-2-14
Operating Humidity	5% to 95% Non-condensing EN 60068-2-30
Shock	IEC60068-2-27
Free Fall	IEC60068-2-32
Vibration	IEC60068-2-32
Warranty	5 years

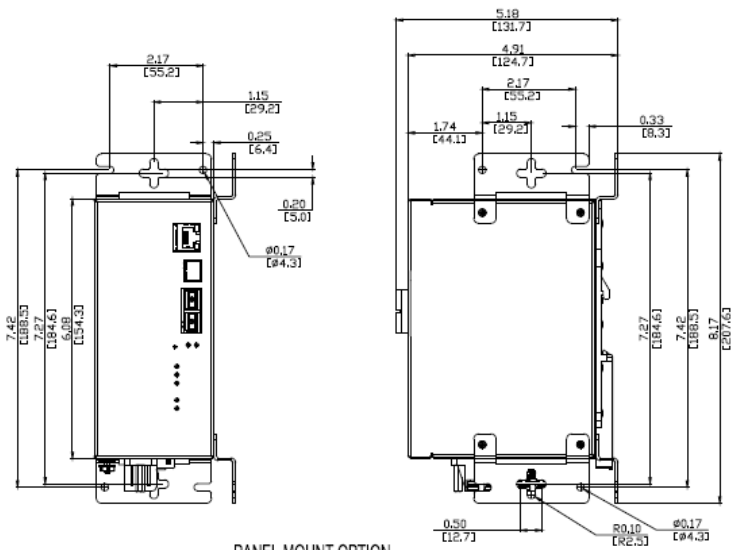
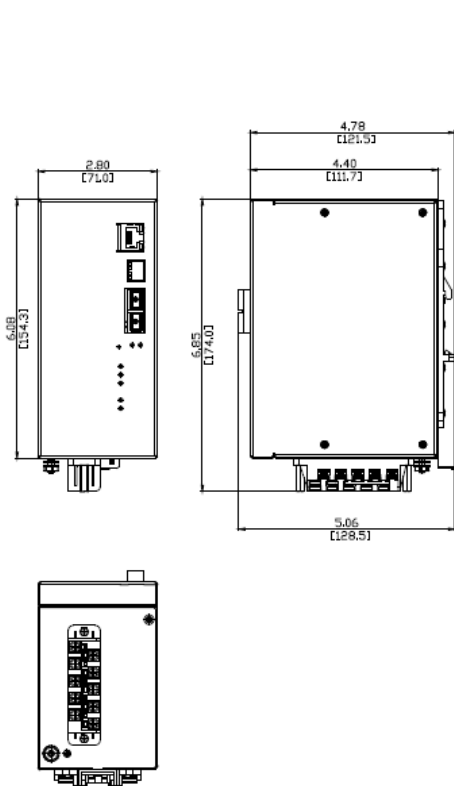
Table 4. Standards and Management

Description	Specification
IEEE Standards	IEEE 802.3 for 10Base-T IEEE 802.3u for 100Base-T(X) and 100Base-FX IEEE 802.3x for Flow control
RFC Compliance	RFC 4445 MDI RFC 5171UDLD Protocol



Dimensions

All dimensions are shown in inches.



PANEL MOUNT OPTION
BRACKET INSTALLED AT SIDE OR REAR



Ordering Information

Base	Power Supply	Mount	Ethernet Port 1	Ethernet Port 2	Conformal Coating	Description
iMC2F	HV	N	1RJ45	1MMST		
iMC2F						Core assembly and packaging
	LV					Dual Input 10-48VDC
	MV					Single Input 36-75VDC with Single 10-48VDC Backup
	HV					Single Input 110-370VDC or 90-264VAC with Single 10-48VDC Backup
		D				DIN Rail Mounting
		P				Panel Mounting
		N				No Mounting Hardware
			1RJ45			1 X 10/100Base-T(X) RJ45
				1MMSC		1 X 100FX Multimode SC, 1310nm, 2km
				1MMST		1 X 100FX Multimode ST, 1310nm, 2km
				1SMSC15		1 X 100FX Singlemode SC, 1310nm, 15km
				1SMST15		1 X 100FX Singlemode ST, 1310nm, 15km
				1SMSC40		1 X 100FX Singlemode SC, 1310nm, 40km
				1SMST40		1 X 100FX Singlemode ST, 1310nm, 40km
				1SMSC60		1 X 100FX Singlemode SC, 1310nm, 60km
				1SMST60		1 X 100FX Singlemode ST, 1310nm, 60km
				1SMSC80		1 X 100FX Singlemode SC, 1550nm, 80km
				1SMST80		1 X 100FX Singlemode ST, 1550nm, 80km
				1SMSC100		1 X 100FX Singlemode SC, 1550nm, 100km
				1SMST100		1 X 100FX Singlemode ST, 1550nm, 100km
				1SFP		1 X 100Base-X SFP
					C1	Conformal Coating

Example Order Code
Description:

iMC2F-HV-N-1RJ45-1MMST-C1

Industrial Media Converter-61850-3 Compliant, (Power Supply) Single Input 110-370VDC or 90-264VAC with Single 10-48VDC Backup, (Mount) No Mounting Hardware, (Ethernet Port 1) 1 X 10/100Base-T(X) RJ45, (Ethernet Port 2) 1 X 100FX Multimode ST, 1310nm, 2km (Blank no optical transceivers), C1 - added for conformal coating