



# IMC-1000MS-PH12

100/1000Base-T to 100/1000Base-X SFP with PoE+ (PSE) Managed Fiber Converter (30W, 12V Booster)



IMC-1000MS-PH12 is a 10/100/1000Base-T to 100/1000Base-X manageable Gigabit Ethernet media converter which not only offers dual-speed fixed fiber transceiver or SFP cage module options for the optical interface, but also injects PoE+ power through the electrical RJ-45 port. Housed in rugged DIN rail or wall mountable enclosures, IMC-1000MS-PH12 converters are designed for harsh environments, such as IP surveillance, industrial networking, intelligent transportation systems (ITS) and are also suitable for many military and utility market applications where environmental conditions exceed commercial product specifications.

IMC-1000MS-PH12 also provides many advanced Ethernet functions (VLAN, storm filter, ingress/egress bandwidth control, etc.) and can be managed via an easy-to-use GUI or standard SNMP manager such as CTC SmartView™. With built-in OAM (Operation, Administration, Maintenance & Provisioning) functions such as loop-back test and dying gasp, IMC-1000MS-PH12 can be monitored from a centrally located OAM-enabled FRM220-1000MS via remote in-band management which helps to reduce operational expenditures by keeping truck rolls to a minimum.

## Features

- Conversion between 10/100/1000Base-T and 100/1000Base-X fiber cable interface
- Supports Dual Rate (100/1000) SFP for selectable fast or gigabit speed on fiber port
- 12/24/48VDC (9.6~57VDC) redundant dual input power with built-in very high efficiency booster(97~99%) to rise up 55 VDC for PoE output
- Regulate PoE output voltage (55VDC) to stabilize PoE device, and guarantee delivery PoE power distance to 100meter (Figure 4)
- Provides IEEE802.3at PoE output (30W)
- IP30 rugged metal housing and fanless
- Wide operating temperature -20~75°C
- CE, FCC, Railway traffic EN50121-4 certification
- Heavy industrial grade EMS, EMI EN61000-6-2, EN61000-6-4 certification
- Supports Jumbo frame 9K bytes packet
- Ingress/Egress bandwidth control with 64K granularity
- PoE configuration and monitor
- Auto Laser Shutdown (ALS)
- Supports LFPT (Link Fault Pass Through)
- Supports Digital Diagnostic Monitor Interface (DDMI) for SFP
- Supports 16 IEEE802.1Q Tag VLAN Group
- MIB counters
- SNMP alarm trap for power loss and port link down
- Web based and SNMP for management (Figure 1, 3)
- Remote Loop-Back test
- Supports in-band management from FRM220 Chassis with FRM220-1000MS (Figure 2)
- Supports SmartView for centralized management (Please see Catalog chapter 1- Software Management for more details)
- Supporting Central EMS for management of up to 50 SmartView Server, and 25,000 device (maximum) (Please see Catalog chapter 1- Software Management for more details)

## Specifications

<b>Standard</b>	IEEE802.3 10Base-T 10Mbit/s Ethernet IEEE802.3u 100Base-TX, 100Base-FX, Fast Ethernet IEEE802.3ab 1000Base-T Gbit/s Ethernet over twisted pair IEEE802.3z 1000Base-X Gbit/s Ethernet over Fiber-Optic IEEE802.3x Flow Control and Back pressure IEEE802.3at PoE+ (Power over Ethernet enhancement) IEEE802.3af PoE (Power over Ethernet) IEEE802.1q Tag VLAN
<b>Fiber Ports</b>	SFP slot for 100Base-X or 1000Base-X, 100M/1000M speed set by Web
<b>RJ45 Ports</b>	10/100/1000Base-T Auto MDI/MDI-X and Auto-Negotiation Function Supports UTP CAT.5e Twisted Pair cable
<b>Push Button</b>	Reset, Load default setting
<b>Data Process Architecture</b>	Pass through mode
<b>Jumbo Frame</b>	9K bytes

<b>Fiber Parameters</b>	Fiber Cable (Multi-mode): 50/125um,62.5/125um Fiber Cable (Single-mode): 9/125um SFP, Distance depending on plugged-in Fiber Transceiver
<b>LFPT (Link Fault Pass Through)</b>	TX- Fiber: If TX port link down, the media converter will force Fiber port to link down Fiber-TX: If Fiber port link down, the media converter will force TX port to link down
<b>Connector and Pin Assignment</b>	SFP Slot RJ-45 Socket: Cat 5e (10/100/1000Mbps) Twisted Pair cable Auto MDI/MDI-X and Auto-Negotiation Function Support
<b>Connector and Pin Assignment</b>	RJ-45 Port support IEEE 802.3at/af End-Span, Alternative A mode PoE (V+): RJ-45 pin 1, 2 PoE (V-): RJ-45 pin 3, 6 Data (1,2,3,6,4,5,7,8)

<b>LED</b>	Per Unit: Power 1 (Green), Power 2 (Green), Fault (Amber) Fiber LNK/ACT (Green): ON : Connected to network, OFF: Not connected to network, BLK : Receive /Transmit Data Fiber Speed: Yellow : 1000Base-X, Green : 100Base-X RJ-45 port: Speed: 10 (OFF), 100 (Green), 1000 (Yellow) LNK/ACT for RJ45(Green): ON : Connected to network, OFF: Not connected to network, BLK : Networking is active PoE Status (Green): Flash : PoE Fault (Over-load or short), ON : PoE normal working, OFF : PoE No Power output
<b>Reverse Polarity Protection</b>	Supported for Power Input
<b>Overload Current Protection</b>	Supported
<b>Alarm Relay Contact</b>	Relay outputs with current carrying capacity of 1 A @24VDC
<b>Removable Terminal Block</b>	Provides 2 redundant power, alarm relay contact, 6 Pin
<b>Operating Humidity</b>	5%~95% (Non-condensing )
<b>Operating Temperature</b>	-20°C ~ 75°C
<b>Storage Temperature</b>	-40°C ~ 85°C
<b>Housing</b>	Rugged Metal, IP30 Protection and fanless
<b>Dimensions</b>	106 x 62.5 x 135 mm (D X W X H)
<b>Weight</b>	650g
<b>Installation</b>	DIN Rail mounting, or wall mounting (Optional)
<b>Power Supply</b>	12/24/48VDC (9.6~57VDC), Redundant power with polarity reverse protect function and removable terminal block Built-in very high efficiency booster(97~99%) to rise up 55 VDC for PoE output Regulated PoE output voltage (55VDC) to stabilize PoE device, and guarantee delivery PoE power distance to 100meter (Figure 4)

<b>PoE Power budget</b>	30W																									
<b>Power Consumption</b>	<table border="1"> <thead> <tr> <th colspan="5">Power consumption &amp; Boost efficiency</th> </tr> <tr> <th>Input Voltage</th> <th>Total Power Consumption</th> <th>Device Power Consumption</th> <th>PoE Budget</th> <th>Boost Efficiency</th> </tr> </thead> <tbody> <tr> <td>12VDC</td> <td>34.2W</td> <td>3.9W</td> <td>30W</td> <td>99.0%</td> </tr> <tr> <td>24VDC</td> <td>34.7W</td> <td>4.4W</td> <td>30W</td> <td>99.0%</td> </tr> <tr> <td>48VDC</td> <td>35.4W</td> <td>4.7W</td> <td>30W</td> <td>97.7%</td> </tr> </tbody> </table>	Power consumption & Boost efficiency					Input Voltage	Total Power Consumption	Device Power Consumption	PoE Budget	Boost Efficiency	12VDC	34.2W	3.9W	30W	99.0%	24VDC	34.7W	4.4W	30W	99.0%	48VDC	35.4W	4.7W	30W	97.7%
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<b>MTBF</b>	864,121 Hours MIL-HDBK-217																									
<b>Warranty</b>	5 years																									
<b>Certifications</b>																										
<b>EMC</b>	CE																									
<b>EMI</b>	FCC Part 15 Subpart B Class A, CE																									
<b>Rail Way Traffic</b>	EN50121-4																									
<b>Immunity for Heavy Industrial environment</b>	EN 61000-6-2																									
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<b>EMS (Electromagnetic Susceptibility) Protection Level</b>	EN61000-4-2 (ESD) Level 3, Criteria B EN61000-4-3 (RS) Level 3, Criteria A EN61000-4-4 (EFT) Level 3, Criteria A EN61000-4-5 (Surge) Level 3, Criteria B EN61000-4-6 (CS) Level 3, Criteria A EN61000-4-8 (PFMF) Field strength 300A/m Criteria A																									
<b>Safety</b>	UL60950-1 (pending)																									
<b>Shock</b>	IEC 60068-2-27																									
<b>Freefall</b>	IEC 60068-2-32																									
<b>Vibration</b>	IEC 60068-2-6																									

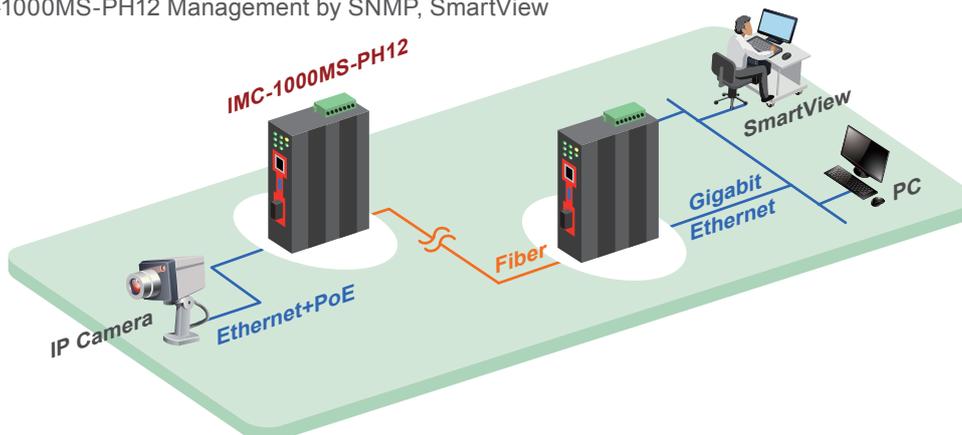
## Software Specifications

<b>SNMP or Web Mode (figure 1, 3)</b>	
<b>Management</b>	Ingress/Egress bandwidth control with 64K granularity Web management, Firmware upgrade via Web Supports SNMP, MIB for management Supports DHCP client for automatic IP configuration Supports 802.1Q tag VLAN, 16 Tag VLAN group, MIB counters display
<b>Configuration</b>	IP configuration, password setting, converter configuration port configuration, MIB counter, SNMP configuration VLAN group configuration, alarm configuration PoE Configuration
<b>Diagnostic &amp; Monitor</b>	Supports Link Fault Pass-Through (LFPT) Function Broadcast/Multicast/Unicast storm filter SNMP alarm trap for power loss and port link Up/Down PoE Status

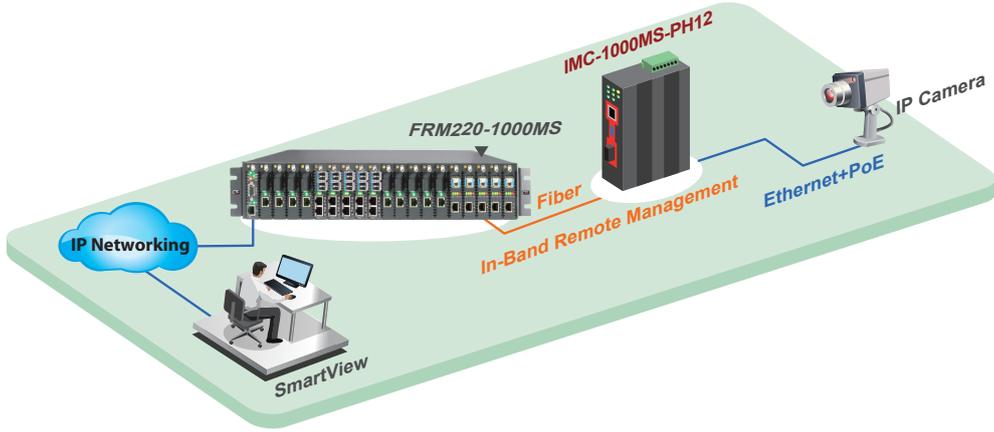
<b>In-Band Remote mode (Figure 2)</b>	
<b>Management</b>	Supports in-band management from FRM220 Chassis With FRM220-1000MS card Ingress/Egress bandwidth control with 64K granularity
<b>Configuration</b>	IP configuration, converter configuration, port configuration, MIB counter VLAN group configuration, alarm configuration, PoE Configuration
<b>Diagnostic &amp; Monitor</b>	Remote loop back test Supports Link Fault Pass-Through (LFPT) Function Broadcast/Multicast/Unicast storm filter PoE Status

## Application

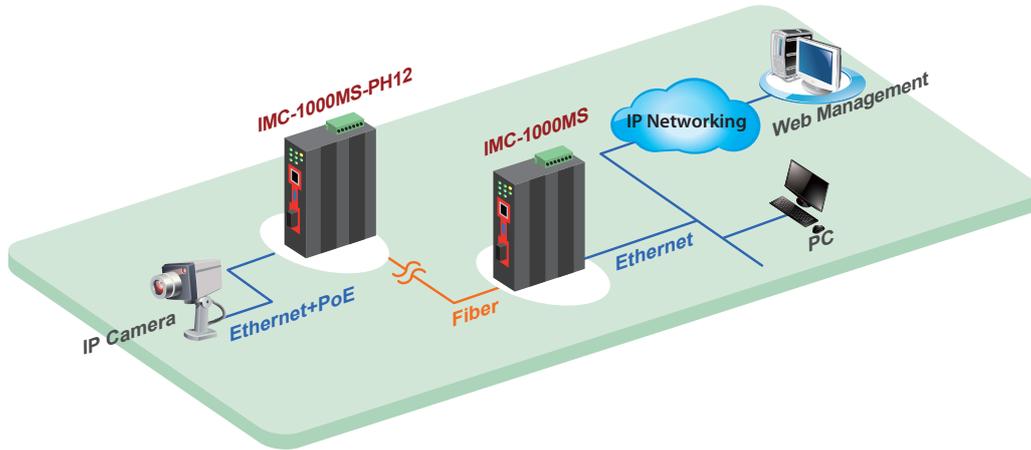
Figure 1 : IMC-1000MS-PH12 Management by SNMP, SmartView



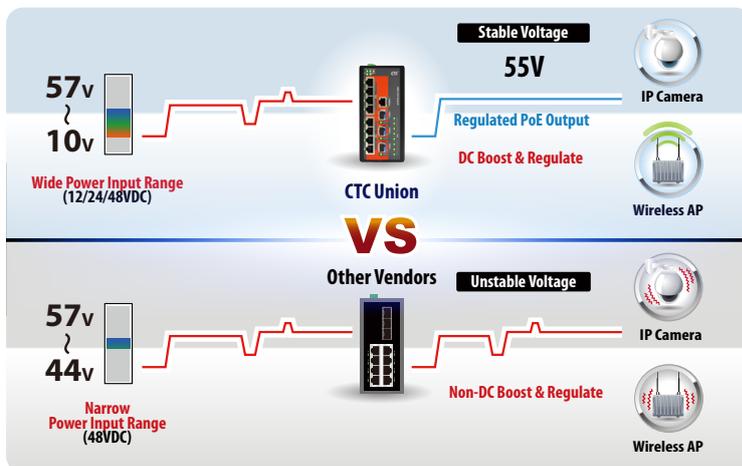
**Figure 2 :** IMC-1000MS-PH12 Application in Remote, In-Band Management



**Figure 3 :** IMC-1000MS-PH12 Application in Web Management

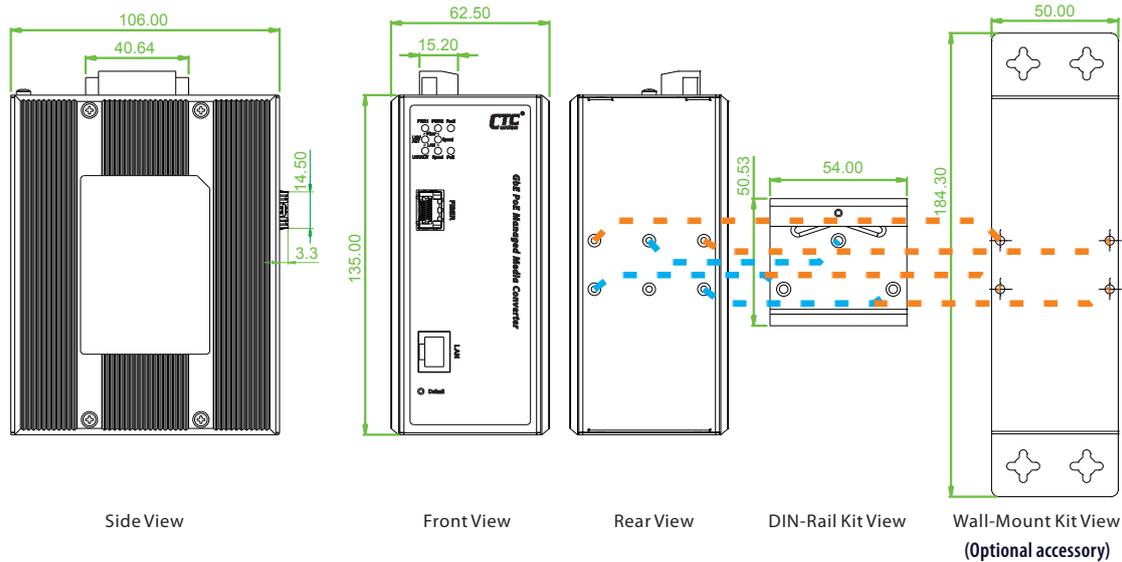


**Figure 4 :** High efficiency boost technology for PoE



- Regulated PoE output voltage (55VDC) to stabilize PoE device
- Guarantee delivery PoE power distance to 100 meters
- Wide range input power 24/48VDC (20~57VDC)
- Built-in very high efficiency (94~97%) to boost PoE output voltage

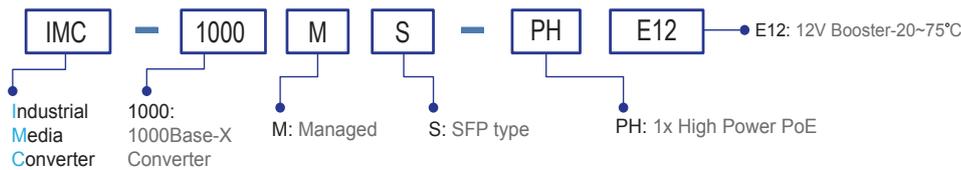
## Dimensions



## Ordering Information

Model Name	Managed	RJ45 UTP	Fiber	PoE Port		Power Input	Certification			Operating Temperature
		10/100/1000 Base-T	Dual Speed 100/1000Base-X	IEEE802.3at (PSE)	Power Budget	Redundant	Railway EN50121-4	EN61000-6-2 EN61000-6-4	CE, FCC	
IMC-1000MS-PHE12	V	1	1 SFP	1	30W	12/24/48VDC	V	V	V	-20~75°C

### Model Naming Rule



### Package List

- IMC-1000MS-PH12
- CD (MIB file, Manual)
- Quickly installation guide
- Din Rail bracket with screws
- Terminal block
- Protective caps for SFP ports

## Optional Accessories

### Wall mount kit accessories

IND-WMK02 Wall Mount kit for Industrial product, 184 x 50mm

### Industrial SFP Transceiver

The ISFP series of industrial grade SFP modules have been fully tested with the IMC-1000MS-PH12 product for guaranteed compatibility and performance. The best performance can be guaranteed even in mission-critical applications. (Please see CTC Union's Industrial SFP datasheet for more details and more items.)

ISFP-M7000-85-D(E)	Industrial SFP GbE 1000Base-SX, M/M, 500 meter, wave length 850nm, 7.5dB, LC, DDMI, -10~70°C (-40~85°C)
ISFP-S7020-31-D(E)	Industrial SFP 1000Base-LX, S/M, 20km, wave length 1310nm, 15dB, LC, DDMI, -10~70°C (-40~85°C)
ISFP-T7T00-00-(E)	Industrial SFP 1000Base-T UTP 100meter, -10~70°C (-40~85°C)
ISFP-M5002-31-D(E)	Industrial SFP 155M 100Base-FX, MM, 2km, wave length 1310nm, 12dB, LC, DDMI, -10~70°C (-40~85°C)
ISFP-S5030-31-D(E)	Industrial SFP 155M 100Base-FX, SM, 30km, 1310nm, 19dB, LC, DDMI, -10~70°C (-40~85°C)

### SFP Naming Rule

