

Industrial Managed GbE Converter with PoE



30 Watts,
12V Booster

IMC-1000MS-PH12

100/1000Base-T to 100/1000Base-X SFP with PoE+ (PSE) Managed Fiber Converter (30 Watts, 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
- 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 (Figure 5)
- Supporting Central EMS for management of up to 50 SmartView Server, and 25,000 device (maximum) (Figure 6)

Specifications

Standard	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
Fiber Ports	SFP slot for 100Base-X or 1000Base-X, 100M/1000M speed set by Web
RJ45 Ports	10/100/1000Base-T
Push Button	Reset, Load default setting
Data Process Architecture	Pass through mode
Jumbo Frame	9K bytes
Fiber Parameters	Fiber Cable (Multi-mode): 50/125um,62.5/125um Fiber Cable (Single-mode): 9/125um SFP, Distance depending on plugged-in Fiber Transceiver
LFPT (Link Fault Pass Through)	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
Connector and Pin Assignment	SFP Slot RJ-45 Socket: CAT-3/5 (10/100/1000Mbps) Twisted Pair cable Auto MDI/MDI-X and Auto-Negotiation Function Support 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)

LED	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
Reverse Polarity Protection	Present for Power Input
Overload Current Protection	Present
Alarm Relay Contact	Relay outputs with current carrying capacity of 1 A @24VDC
Removable Terminal Block	Provides 2 redundant power, alarm relay contact, 6 Pin
Operating Humidity	5%~95% (Non-condensing)
Operating Temperature	-10°C ~ 60°C (IMC-1000MS-PH12) -20°C ~ 75°C (IMC-1000MS-PHE12)
Storage Temperature	-40°C~85°C
Housing	Rugged Metal, IP30 Protection and fanless
Dimensions	106 x 62.5 x 135 mm (D X W X H)
Weight	650g

Installation	DIN Rail mounting or wall mounting																				
Power Supply	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)																				
PoE Power budget	30W																				
Power Consumption	<p>IMC-1000MS-PH12 & IMC-1000MS-PHE12</p> <table border="1"> <thead> <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>	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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MTBF	331689 (IMC-1000MS-PH12, IMC-1000MS-PHE12) MIL-HDBK-217																				
Warranty	5 years																				
Certifications																					
EMC	CE																				

EMI	FCC Part 15 Subpart B Class A, CE EN 55022 Class A
Rail Way Traffic	EN50121-4
Immunity for Heavy Industrial environment	EN 61000-6-2
Emission for Heavy industrial environment	EN 61000-6-4
EMS (Electromagnetic Susceptibility) Protection leve	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
Safety	UL60950-1 (pending)
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6

Software Specifications

SNMP or Web Mode (figure 1, 3)

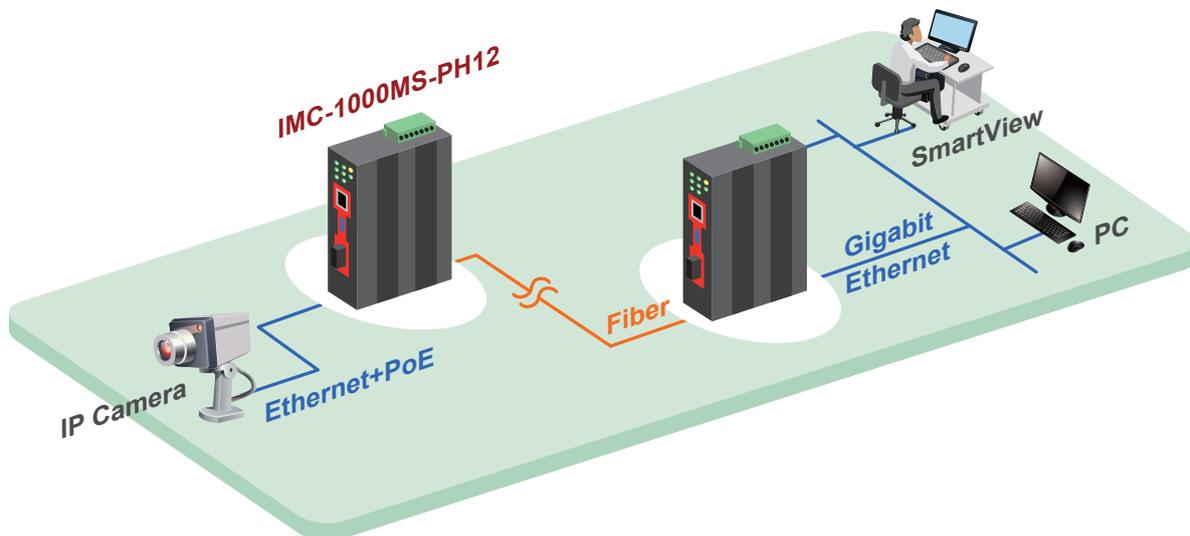
Management	Ingress/Egress bandwidth control with 64K granularity Web management, Firmware upgrade via Web Supports SNMP, MIB for management Supports DHCP client for automatic IP configuration Supports 802.1Q tag VLAN, 16 Tag VLAN group, MIB counters display
Configuration	IP configuration, password setting, converter configuration port configuration, MIB counter, SNMP configuration VLAN group configuration, alarm configuration PoE Configuration
Diagnostic & Monitor	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

In-Band Remote mode (Figure 2)

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

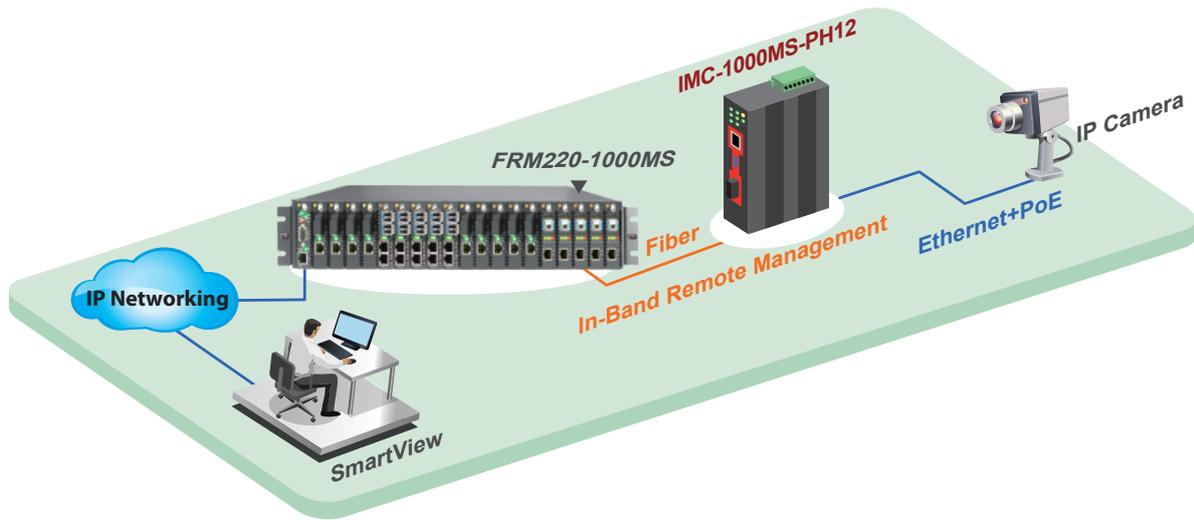
Application

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

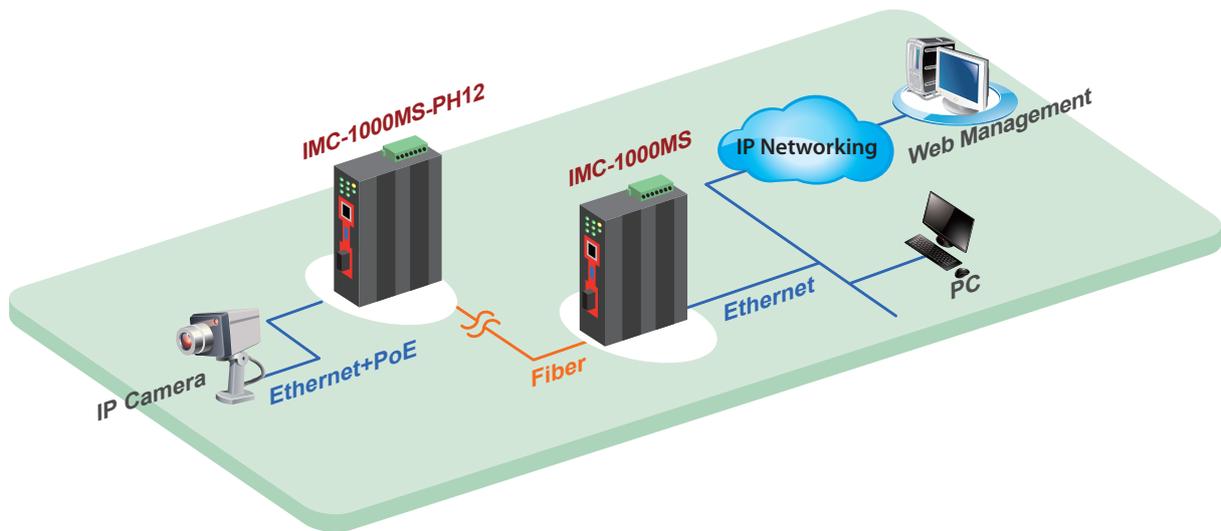


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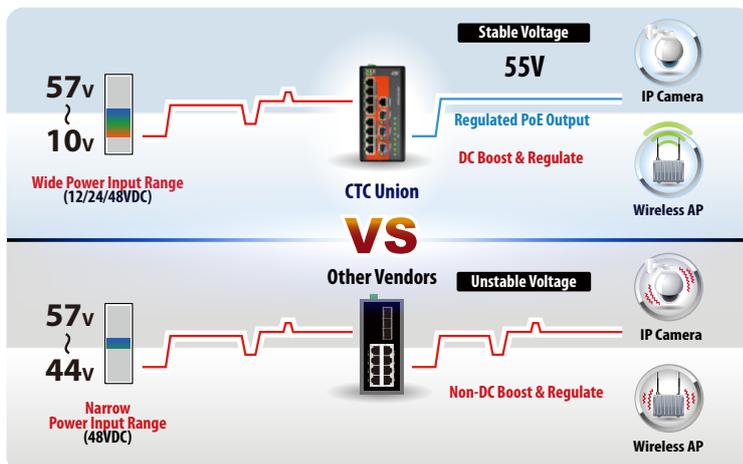
► **Figure 2 :** IMC-1000MS-PH12 Application in Remote, In-Band Management



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

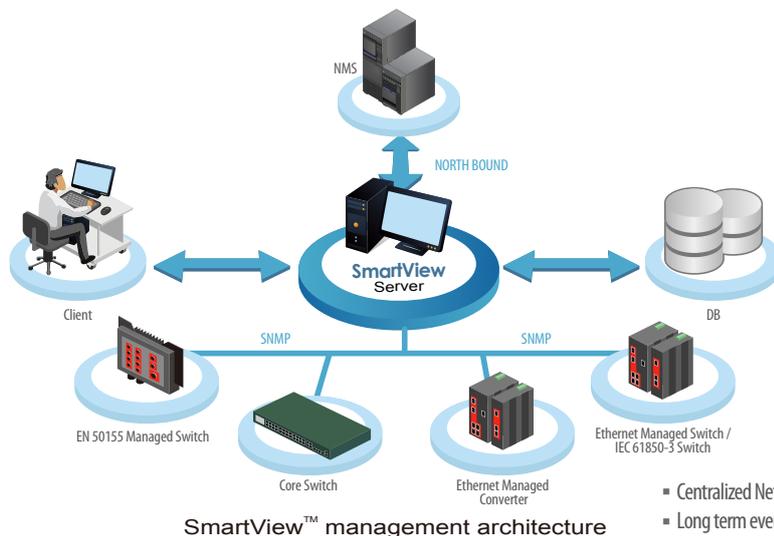


► **Figure 4 :** High efficiency boost technology for PoE



- Regulated PoE output voltage (55VDC) to stabilize PoE device
- Guarantee delivery PoE power distance to 100 meter
- Wide range input power 12/24/48VDC (10~57VDC)
- Built-in very high efficiency (94~97%) to boost PoE output voltage

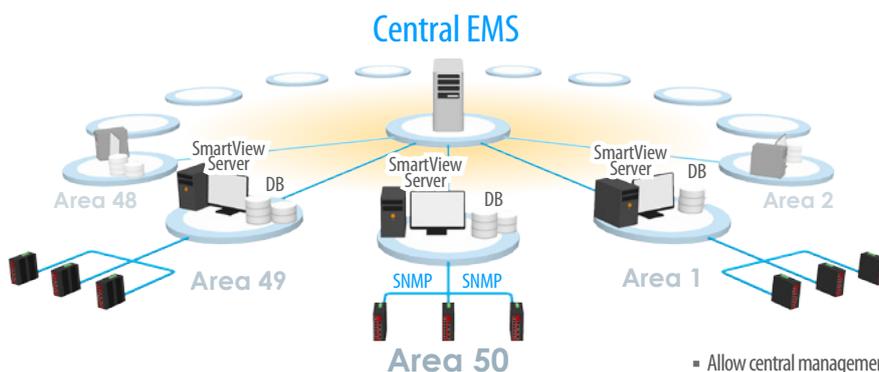
► **Figure 5 : SmartView™**



SmartView™ management architecture

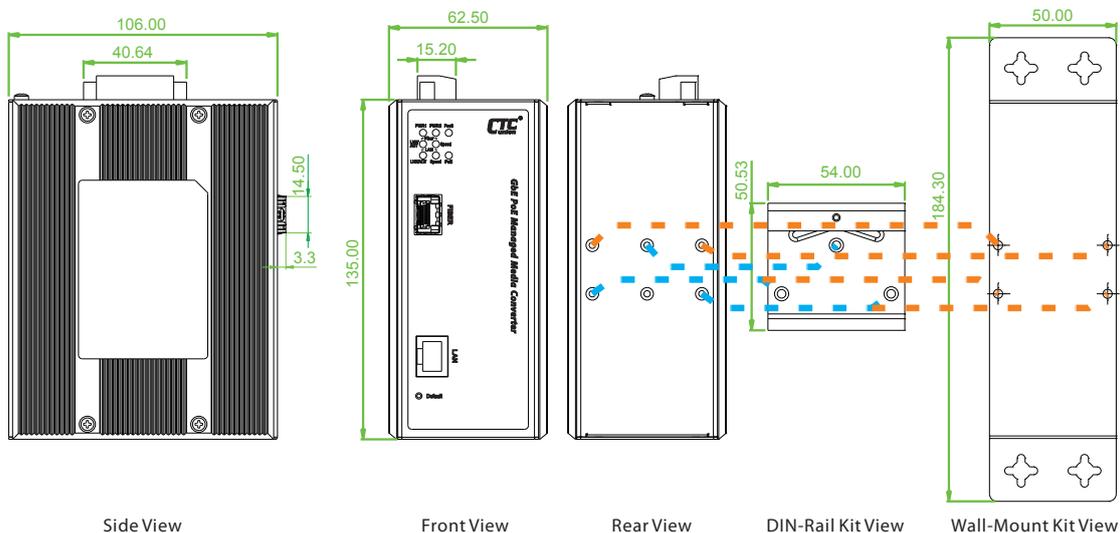
- Centralized Network Management Platform
- Long term events storage (up to 1 year)
- Alarm trap and event log management
- Real-time visual representations
- Remote access control
- Traffic/performance monitoring and management

► **Figure 6 : Central EMS allows central management of up to 50 SmartView™ servers**



- Allow central management of up to 50 SmartView™ servers
- Allow up to 25,000 devices management
- Hierarchical Network Management Architecture
- Easy and rapid expansion of SmartView™ EMS

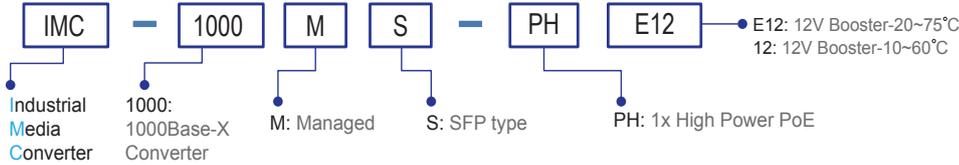
Dimensions



Ordering Information

Model Name	Managed	UTP	Fiber	PoE Port		Input Voltage (Boost)	Certification			Operating Temperature
		10/100/1000 Base-T	Dual Speed 100/1000Base-X	IEEE802.3at (PSE)	Power Budget		Railway EN50121-4	EN61000-6-2 EN61000-6-4	CE, FCC	
IMC-1000MS-PH12	V	1	1 SFP	1	30W	12/24/48VDC	V	V	V	-10~60 C
IMC-1000MS-PHE12	V	1	1 SFP	1	30W	12/24/48VDC	V	V	V	-20~75 C

Model Naming Rule



Optional Accessories

Industrial Power Supply

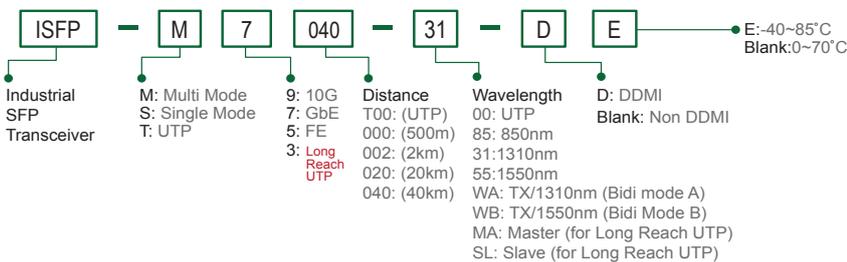
DR-4524	Industrial Power, Input 85 ~ 264VAC, Output 24VDC, 48W, -10 ~ +50°C
MDR-40-24	Industrial Power, Input 85 ~ 264VAC, Output 24VDC, 40W, -20 ~ +70°C

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)
ISFP-T3T00-MA-(E)	Industrial SFP 100Mbps, long reach UTP (2 wire) (500meter), Master, -10~70°C (-40~85°C)
ISFP-T3T00-SL-(E)	Industrial SFP 100Mbps, long reach UTP (2 wire) (500meter), Slave, -10~70°C (-40~85°C)

SFP Naming Rule



Package List

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