

Quick Installation Guide

IMC-1001C-E

IMC-1001CS-E

Industrial Grade Unmanaged Gigabit Ethernet Media Converters



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WARNING:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual may cause harmful interference in which case the user will be required to correct the interference at his own expense. NOTICE: (1) The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. (2) Shielded interface cables and AC power cord, if any, must be used in order to comply with the emission limits.

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.



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Introduction

IMC-1001C(-E) & IMC-1001CS(-E) are Gigabit Ethernet media converters that support conversion between electrical 10/100/1000 Base-T and optical 1000Base-X or 100/1000Base-X SFP Ethernet. Housed in rugged DIN rail or wall mountable enclosures, these converters are designed for harsh environments, such as industrial networking and intelligent transportation systems (ITS) and are also suitable for many military and utility market applications where environmental conditions exceed commercial product specifications.

Package List

- IMC-1001C(-E) or IMC-1001CS(-E) device
- DIN rail bracket with screws
- Terminal block for power inputs
- Protective cap for IMC-1001CS(-E) SFP slot

Features

- DC input power 12/24/48VDC (9.6~60VDC)
- Redundant dual power inputs
- IP30 rugged metal housing
- Fanless design
- Supports wide temperature range -20°C~70°C (IMC-1001C-E & IMC-1001CS-E)
- Operates in Store and Forward switch mode or Pass Through converter mode (Set by DIP switch)

Specifications

Ethernet Interface

- Standards: IEEE802.3, IEEE 802.3u, IEEE 802.3ab
- Connector: RJ-45 (shielded)
- Auto MDI/MDI-X
- Speed: 10/100/1000Mbps
- Supports 802.3x Flow Control
- Operates in Store and Forward switch or Pass through converter mode (Set by DIP switch)
- Supports Link Fault Pass Through function (Set by DIP switch)
- Jumbo Frame 16K Bytes (Store & Forward Switching mode)

Optical Interface

- Standards: IEEE 802.3z
- Speed: 1000Mbps or 100/1000Mbps
- SC or ST connectors (1000Base-X), SFP slot (100/1000Base-X)
- Multimode (500M) 50/125um, 62.5/125um
- Single mode (20KM or 40KM) 9/125um
- Wavelength: 1310nm (Multimode or Single-mode)

Power

- DC Input Power: 12/24/48VDC (9.6~60VDC)
- Supports redundant dual power inputs
- Supports power input reverse polarity protection
- Connector: removable 4-pin terminal block
- Power Consumption:

Input Voltage Models	DC 12V	DC 24V	DC 48V
IMC-1001C(-E)	1.8W	2W	2.4W
IMC-1001CS(-E)	1.8W	2W	2.4W

Mechanical

- Fanless design
- Water & Dust Proof: IP30 protection
- Dimensions: 70 mm (D) x 30 mm (W) x 103 mm (H)
- Mounting: DIN-Rail mounting, Wall mounting (Optional)
- Weight:
 - IMC-1001C(-E): 230g
 - IMC-1001CS(-E): 225g

Environmental

- Operating Temperature: -20°C~70°C
- Storage Temperature: -40°C~85°C
- Humidity: 5%~95% (Non-condensing)

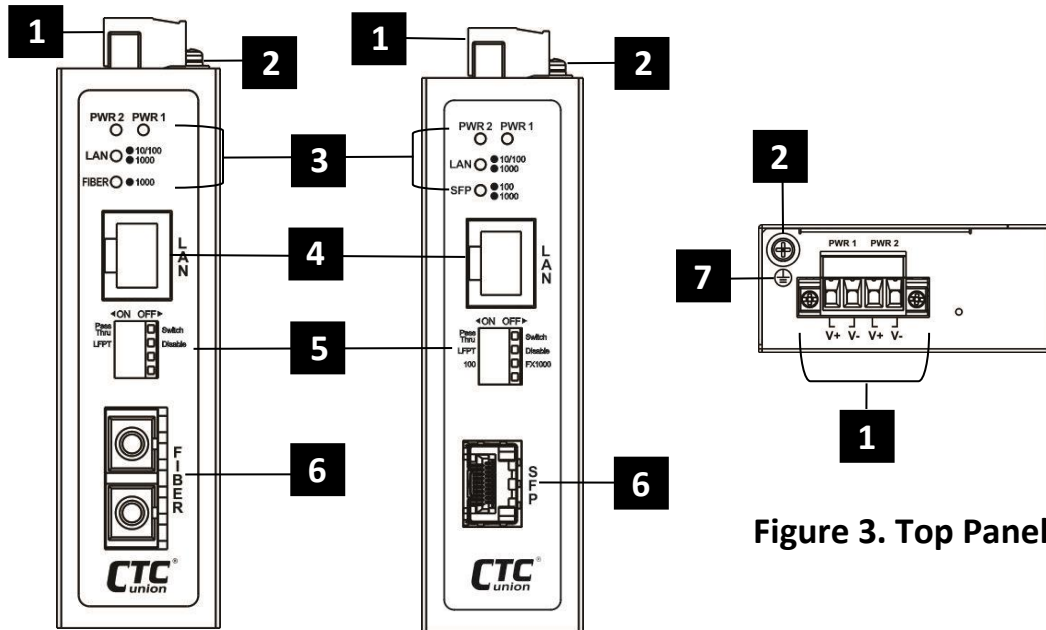
Certifications

- EMC: CE (EN55032, EN55035)
- EMI (Electromagnetic Interference): FCC Part 15 Subpart B Class A, CE
- Railway Traffic: EN50121-4
- Immunity for Heavy Industrial Environment: EN61000-6-2
- Emission for Heavy Industrial Environment: EN61000-6-4
- EMS (Electromagnetic Susceptibility) Protection Level:
 - EN61000-4-2 (ESD) Level 3, Criteria B
 - EN61000-4-3 (RS) Level 3, Criteria A
 - EN61000-4-4 (Burst) Level 3, Criteria A
 - EN61000-4-5 (Surge) Level 3, Criteria B
 - EN61000-4-6 (CS) Level 3, Criteria A
 - EN61000-4-8 (PFMF, Magnetic Field) Field Strength: 300A/m, Criteria A
- Shock: IEC 60068-2-27
- Freefall: IEC 60068-2-32
- Vibration: IEC 60068-2-6

MTBF (MIL-HDBK-217)

- IMC-1001C(-E): 1,278,798 hours
- IMC-1001CS(-E): 1,940,623 hours

Panels



**Figure 1. Front Panel
of IMC-1001C(-E)**

**Figure 2. Front Panel
of IMC-1001CS(-E)**

Figure 3. Top Panel

No.	Description
1	Power terminal block
2	Earth ground connector
3	LED indicators
4	LAN interface
5	Function DIP switch
6	Optical fiber interface (Fixed fiber or SFP slot)
7	Earth ground sign

Fiber & LAN Connection

Both Fiber and LAN interface are located on the front panel. The fiber interface of IMC-1001C(-E) supports 1000Mbps and has fixed optical transceiver option for SC or ST connector type; whereas, the fiber interface of IMC-1001CS(-E) utilizes a SFP slot that supports 100/1000Mbps. The LAN connection of both IMC-1001C(-E) & IMC-1001CS(-E) supports 10/100/1000Base-T and uses a shielded RJ-45 connector which supports Auto MDI/MDI-X.

Configuration settings are accomplished via a 4-pole DIP switch. Please see below for the settings of the operation mode switch.

DIP Switch Function Descriptions

Pole No.	Status	Setting	Function Description
1	OFF *	Switch	Store and Forward switch mode.
	ON	Pass Thru	Pass Through converter mode.
2	OFF *	Disable	Disable link fault pass through.
	ON	LFP	Enable link fault pass through.
3 (See NOTE 1)	OFF *	1000	Force Fiber speed to 1000Mbps.
	ON	100	Force Fiber speed to 100Mbps.
4	Reserved for future use.		

NOTE 1: This DIP switch is for IMC-1001CS(-E) model only.

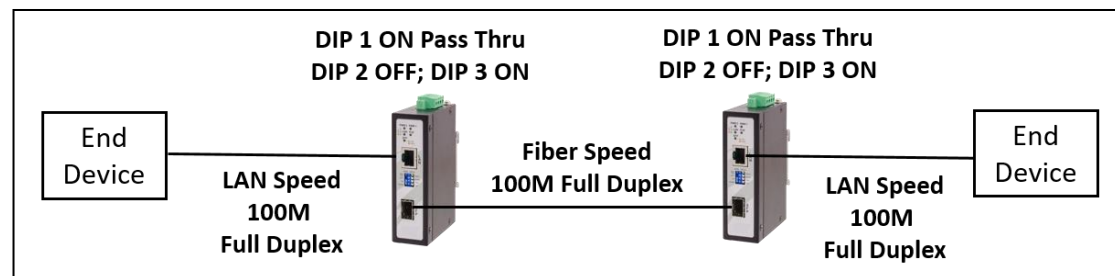
NOTE 2: By default, all DIP switches are set to OFF (marked with *) position.

NOTE 3: When LFP is enabled, the LAN port (Fiber port) link down will force Fiber port (LAN port) link down.

Pass Thru Mode

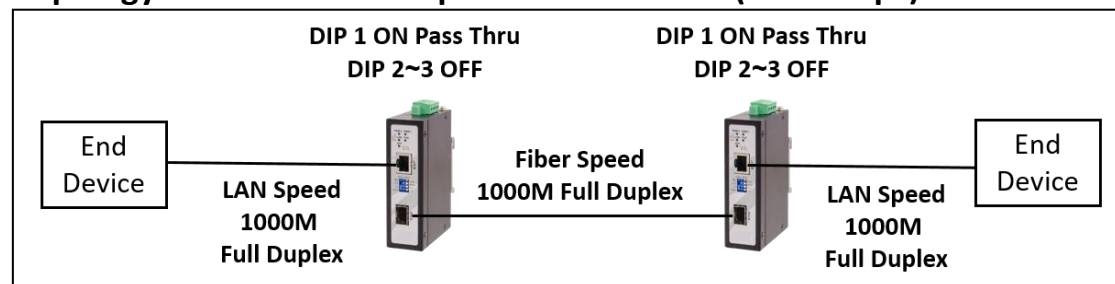
To activate Pass Through mode, set DIP pole 1 to ON position. The Pass Through mode allows the media converter to pass through traffic unmodified from one end device to the other over fiber. If your application topology is similar to one of the following two diagrams, it is recommended using “Pass Thru” mode.

Topology 1: LAN and fiber speed are the same (100Mbps).



NOTE: DIP 3 is for IMC-1001CS(-E) model only.

Topology 2: LAN and fiber speed are the same (1000Mbps).

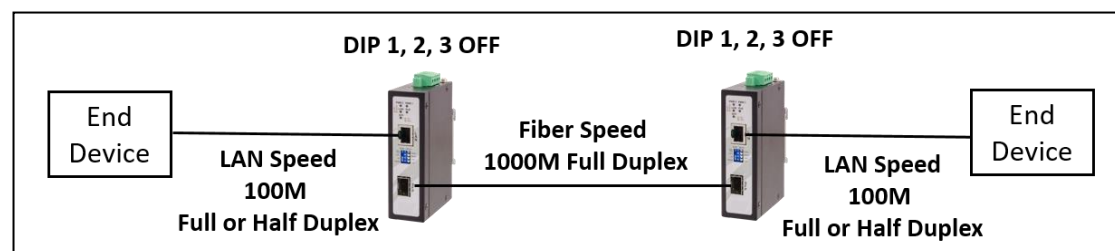


NOTE: DIP 3 is for IMC-1000CS(-E) model only.

Switch Mode

To activate Switch mode, set DIP pole 1 to OFF position. The Switch mode allows the media converter to store traffic it receives and to check for errors before forwarding data packets. If your application topology is similar to the diagram below, it is recommended using “Switch” mode.

Topology: LAN and fiber speed are different.



NOTE: DIP 3 is for IMC-1000CS(-E) model only.

Recommended Power & Ground Wiring Scheme

Power Connection

IMC-1001C(-E) & IMC-1001CS(-E) media converters are powered up by an external power supply. On the top panel, a removable 4-pin terminal block is provided for two pairs (PWR1 & PWR2) of DC power connection. To connect to the power supply, insert V+ and V- wire into power contacts. Then, tighten the wire-clamp screws to prevent power wires from loosening. If the power supply is connected correctly, then the PWR LED on the front panel will light in green.

Earth Ground Connection

An earth ground connector is provided on the top panel (See Figure 3) with an earth ground sign next to it. Grounding the device can help to release leakage of electricity to the earth safely so as to reduce injuries from electromagnetic interference (EMI).

Prior to connecting to the power, it is important to connect the ground wire to the earth. Follow steps below to install ground wire:

1. Remove the ground screw.
2. Attach the ground screw to the ring terminal of the grounding cable. Make sure that the ground cable is long enough to reach the earth.
3. Use a screwdriver to fasten the ground screw.

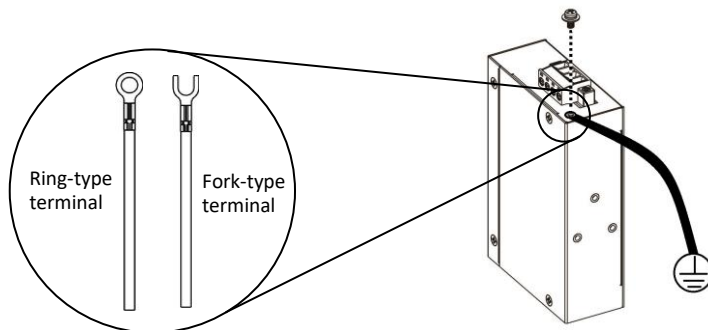


Figure 4. Ground Cable Types

Figure 5. Ground Connection

LED Indicators

LED	Color	Status	Description
PWR	Green	On	Lit if power is connected and active.
		Off	Power is not connected.
LAN	Amber	On	The connected LAN speed is 1000M.
		Blinking	Blinking when there is Ethernet traffic.
		Off	The LAN link is down or LAN speed is 10/100M.
	Green	On	The connected LAN speed is 10/100M.
		Blinking	Blinking when there is Ethernet traffic.
		Off	The LAN link is down or LAN speed is 1000M.
Fiber (See NOTE 1)	Amber	On	Fiber link is up and fiber speed is 1000M.
		Blinking	Blinking when there is Ethernet traffic.
		Off	Fiber link is down.
SFP (See NOTE 2)	Green	On	Fiber link is up and fiber speed is 100M.
		Blinking	Blinking when there is Ethernet traffic.
		Off	Fiber link is down.
	Amber	On	Fiber link is up and fiber speed is 1000M.
		Blinking	Blinking when there is Ethernet traffic.
		Off	Fiber link is down.

NOTE 1: This LED indicator is for IMC-1001C(-E) model only.

NOTE 2: This LED indicator is for IMC-1001CS(-E) model only.

Installation

IMC-1001C(-E) & IMC-1001CS(-E) can be installed in DIN rail or mounted on wall (optional). Hardware brackets for DIN rail installation are provided with the device. However, wall-mounting brackets are not provided. If you need wall-mounting installation kit, please contact your sales representative. When installing the DIN rail and wall-mounting bracket, be sure to correctly align the orientation pin.

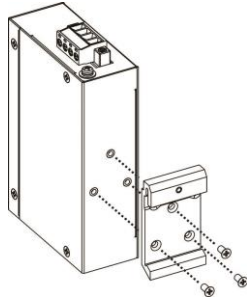


Figure 6. DIN Rail

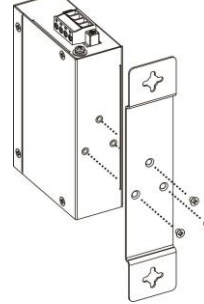


Figure 7. Wall Mounting

The IMC-1001C(-E) & IMC-1001CS(-E) with DIN Rail bracket have a steel spring in the upper rail of the bracket. This spring is compressed for mounting and un-mounting by applying downward force.

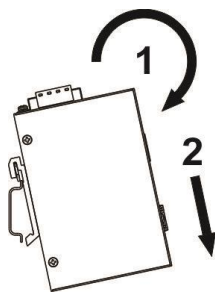


Figure 8. Mounting

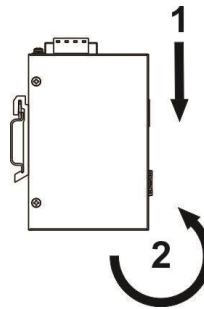


Figure 9. Un-mounting

