

## Installation

The converter comes with both wall mount and DIN rail hardware brackets. When installing the DIN rail bracket, be sure to correctly align the orientation pin.

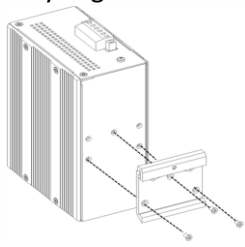


Figure 8. DIN Rail

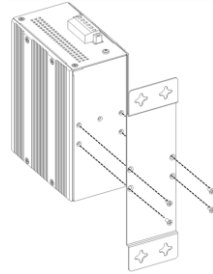


Figure 9. Wall Mount

The converter with DIN Rail bracket has a steel spring in the upper rail of the bracket. This spring is compressed for mounting and un-mounting by applying downward force.

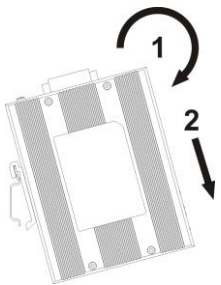


Figure 10. Mounting

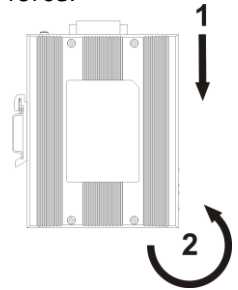


Figure 11. Un-mounting

**CTC Union Technologies Co., Ltd.**  
Far Eastern Vienna Technology Center  
(Neihu Technology Park)  
8F, No. 60 Zhouzi St., Neihu District, Taipei 114  
Taiwan

T +886-2-26591021  
F +886-2-26590237  
E sales@ctcu.com

To download this QIG or a more complete user manual, please visit  
<http://www.ctcu.com/Industrial/>



©2014 CTC Union Technologies Co., Ltd.  
All trademarks are the property of their respective owners.  
Technical information in this document is subject to change without notice.

# CTC Union Technologies Co., Ltd. Quick Installation Guide

## IMC-1000-PH12, IMC-1000S-PH12 IMC-1000-PHE12, IMC-1000S-PHE12

Industrial Grade Gigabit Ethernet PoE+ Fiber Converters



sales@ctcu.com

## Introduction

**IMC-1000-PH(E)12 & IMC-1000S-PH(E)12** are Gigabit Ethernet PoE (Power over Ethernet) media converters that support conversion between electrical 10/100/1000Base-TX and optical 100/1000Base-X Ethernet. Housed in rugged DIN rail or wall mountable enclosures, these switches 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.

## Features

- 12/24/48VDC (9.6~57VDC) redundant dual input power and built-in very high efficient power booster
- Constant and regulated PoE output voltage at 55VDC
- IP30 rugged metal housing
- Dual rate (100/1000M) optical support
- Wide temperature range -20°C~75°C (IMC-1000-PHE12 & IMC-1000S-PHE12)
- Industrial grade EMS, EMI, EN50121-4, EN61000-6-2, EN61000-6-4

## Specifications

### Optical Interface

- Standards: IEEE 802.3u, 802.3z
- Speed: 100/1000M
- SC connector — IMC-1000-PH(E)12
- SFP slot — IMC-1000S-PH(E)12
- Multimode (500m) 50/125um, 62.5/125um
- Single mode (20km or 40km) 9/125um
- Wavelength: 1310nm (S/M or M/M)

### Ethernet Interface

- Standards: IEEE802.3, 802.3u, 802.3ab
- Connector: RJ-45 (shielded)
- Auto MDI/MDI-X
- Speed: 10/100/1000Base-T (Auto)
- Duplex: Full/Half (Auto)
- MTU: 9600K
- Link Fault Pass Through (LFP) (enable/disable by DIP)

### Power over Ethernet

- 1 PoE Enabled port
- Supports IEEE 802.3af 15.4W PoE & IEEE 802.3at 30W PoE+
- Positive (VCC+) pins 1, 2; Negative (VCC-) pins 3, 6
- Data: pins 1, 2, 3, 4, 5, 6, 7, 8

## Specifications (cont.)

### Power

- Absolute Range: 9.6~57VDC
- Reverse Polarity Protection: Yes
- Dual Power Inputs: Yes
- Connector: Removable terminal block
- Consumption:

	Items	Total Power	Device Power	PoE	Boost
	Input Voltage	Consumption	Consumption	Budget	Efficiency
IMC-1000-PH(E)12	12VDC	34W	3.5W	30W	98.4%
	24VDC	34.4W	4.1W	30W	99.0%
	48VDC	34.9W	4.3W	30W	98.0%
IMC-1000S-PH(E)12	12VDC	33.8W	3.3W	30W	98.4%
	24VDC	34.2W	4W	30W	99.3%
	48VDC	34.8W	4.2W	30W	98.0%

### Mechanical

- Water & Dust Proof: IP30 Protection
- Dimensions: 106mm (D) x 62.5mm (W) x 135mm (H)
- Mounting: DIN-Rail, Wall Mount (Kits included)
- Weight: 655g — IMC-1000-PH(E)12, 650g — IMC-1000S-PH(E)12

### Environmental

- Operating Temperature: -10°C~60°C — IMC-1000(S)-PH12  
-20°C~75°C — IMC-1000(S)-PHE12
- Storage Temperature: -40°C~85°C
- Humidity: 5%~95% (Non-condensing)

### Certifications

- EMC: CE
- EMI (Electromagnetic Interference): FCC, FCC Part 15 Subpart B Class A, CE EN55022 Class A
- 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
- Safety: UL60950-1 (Pending)
- Shock: EN60068-2-27
- Freefall: EN60068-2-32
- Vibration: EN60068-2-6
- MTBF: 419,822 Hours — IMC-1000-PH(E)12 (MIL-HDBK-217)  
432,104 Hours — IMC-1000S-PH(E)12 (MIL-HDBK-217)

## Connectors

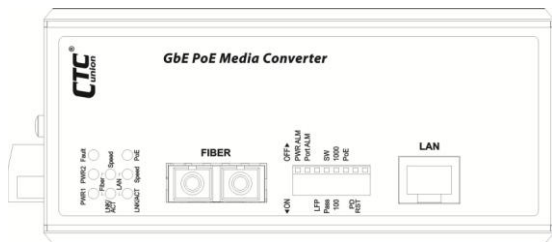


Figure 1. IMC-1000-PH(E)12 Front Panel

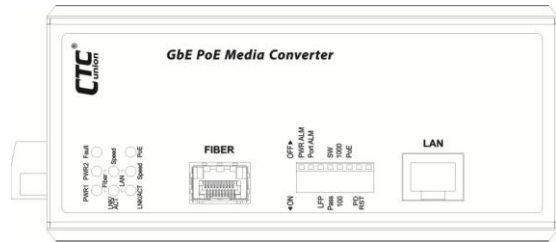


Figure 2. IMC-1000S-PH(E)12 Front Panel

### LAN and Fiber Connection

IMC-1000-PH(E)12 & IMC-1000S-PH(E)12 have one electrical LAN port and one fiber port (Fixed type or SFP) on the front panel. The LAN port that utilizes shielded RJ-45 connectors supports 10/100/1000M; while the fiber port supports fixed speed 100/1000M or dual rate 100/1000M (SFP option).

### PoE Port

The LAN port supports PoE (Power over Ethernet) per IEEE802.3af (15.4W) or IEEE802.3at (30W) for connection to standard PoE PD (Power Devices) such as IP Cameras, Access Points, IP Phones, Digital Signage, etc. PoE eliminates the need to run separate power to these devices thereby simplifying deployment and reducing expenses.

The LAN port may also connect to any non-PoE device for normal Ethernet transmission without any damage to the non-PoE device or to this device.

## RJ-45 Ethernet Port Pinouts

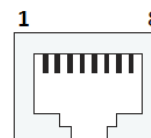


Figure 3. RJ-45 Ethernet Port Pinouts

### RJ-45 Ethernet & PoE Pin Assignments

Pin No.	RJ-45 Ethernet		PoE Output
	100Base-TX	1000Base-T	
1	RX+	TRD 0+	V+
2	RX-	TRD 0-	V+
3	TX+	TRD 1+	V-
4	-	TRD 2+	
5	-	TRD 2-	
6	TX-	TRD 1-	V-
7	-	TRD 3+	
8	-	TRD 3-	

### Power and Alarm

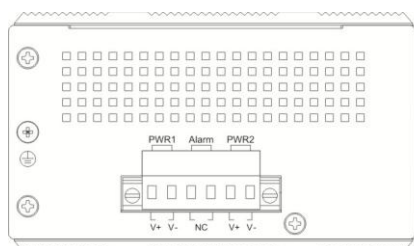


Figure 4. Terminal Block

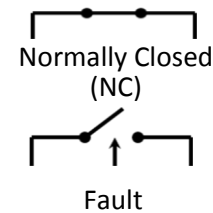


Figure 5. Alarm Relay Circuit

Power (PWR1, PWR2)	There are input connectors for two power sources on the terminal block. Only one power source is required for normal operation. The second power source input may be provided for redundancy.
Alarm	The alarm relay contact can be wired into an alarm circuit which senses an alarm condition when the contact is broken. The alarm relay is normally closed when there is no alarm condition (See Figure 5). The alarm conditions are selectable through DIP Switch to include power and link faults. Please note that the alarm relay contact can only support 1A current at 24VDC. Do not apply voltage and current that exceed these specifications.

## Operation Mode Switch

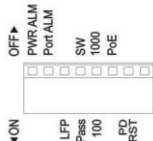


Figure 6. DIP Switch

DIP No.	Status	Function	Description
1	OFF *	Enable Power Alarm	Provide an alarm indication when either power input loses power.
	ON	Disable Power Alarm	No alarm when either power input loses power.
2	OFF *	Enable Port Alarm	Provide an alarm indication when either copper or fiber port loses link.
	ON	Disable Port Alarm	No alarm when either copper or fiber port loses link.
3	OFF *	Disable LFP	Disable LFP (Link Fault Pass through).
	ON	Enable LFP	LFP (Link Fault Pass through) allows a link condition to be passed from fiber to TP or from TP to fiber. <b>NOTE: LFP is available when the converter is set to 'Switch' mode (DIP No. 4 is OFF).</b>
4	OFF *	Switch Mode	The device acts as a store & forward device supporting MAC learning and filtering.
	ON	Pass Through Mode	The device acts as pure 'converter' that the internal switch is bypassed, enabling low latency and jumbo (unlimited) frame support. Do not enable LFP in this mode or fiber may not link. <b>NOTE: LAN and Fiber speed must match when configured in converter mode. If fiber speed is 1000M, UTP speed must be 1000M.</b>
5	OFF *	1000M	Force the FX port speed to 1000M.
	ON	100M	Force the FX port speed to 100M. <b>NOTE: Please ensure that the SFP module used is capable of operating in the dual rate.</b>
6	OFF*	Enable PoE	Enable PoE power output function.
	ON	Disable PoE	Disable PoE power output function.
7	OFF*	Disable Remote PD Reset	Disable remote PD reset function.
	ON	Enable Remote PD Reset	When DIP 7 is set to ON, the PSE device upon the loss of fiber link will stop supply power for 3 seconds to the connected PD device. This will force the PD device to power off and then power on.
8			Reserved for future use

NOTE 1: By default, all DIP switches are set to OFF (marked with \*).

NOTE 2: After changing the DIP switch setting, you must restart the device to activate the setting.

## LED Indicators

LED	Color	Definition
PWR1/PWR2	Green	Power is connected and active at the PWR1/PWR2 input terminal connection.
	Off	Power is not connected.
Fault	Amber	Fiber link loss, TP link loss or either one power loss
	Off	Normal operation with no power, fiber or TP faults.
Fiber LINK/ACT	Green	Fiber port has optical link.
	Blinking	Blinking when there is data traffic.
	Off	No optical link.
Fiber Speed	Green	The fiber connected speed is 100M.
	Yellow	The fiber connected speed is 1000M.
LAN LINK/ACT	Green	LAN port has a link.
	Blinking	Blinking when there is Ethernet traffic.
	Off	No Ethernet link.
LAN Speed	Green	The UTP (LAN) speed is 100M.
	Yellow	The UTP (LAN) speed is 1000M.
	Off	The UTP (LAN) speed is 10M.
PoE	Green	The respective LAN port has successfully negotiated PoE and is supplying output power to the remote connected PD.
	Blinking	One of the PoE faults (overload, short circuit, port failure at startup) occurs.
	Blinking twice	The remote PD device performs power reset.
	Off	PD is not connected or output power is not provided.

### Remote PD Reset Application

- 4 -

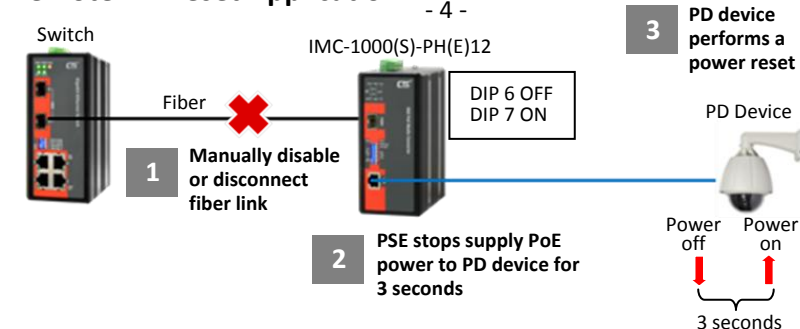


Figure 7. IMC-1000(S)-PH(E)12 Remote PD Reset Function