Industrial 4-port 10/100/1000T 802.3bt PoE++ Injector Hub

IPOE-470/IPOE-470-12V

User's Manual

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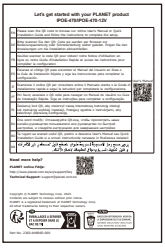
1. Packet Contents

Thank you for purchasing PLANET Industrial 4-port Gigabit 802.3bt PoE++ Injector Hub, IPOE-470/IPOE-470-12V. In the following sections, the term **"Industrial PoE++ Injector Hub"** means the IPOE-470 or IPOE-470-12V.

Open the box of the Industrial PoE++ Injector Hub and carefully unpack it. The box should contain the following items:

Industrial PoE++ Injector Hub x 1	Quick Start QR Code Sheet x 1
	

DIN-rail Kit x 1	RJ45 Dust Caps x 8	Wall-mount Kit x 1
		

If any of these are missing or damaged, please contact your dealer immediately.

2. Product Specifications

Model	IPOE-470	IPOE-470-12V
Hardware Specifications		
Copper Ports	4-pair 10/100/1000BASE-T RJ45 ■ Data input (port 1 to port 4) ■ Data + PoE output (port 1 to port 4)	
Connector	Removable 6-pin terminal block Pins 1 and 2 for Power 1 Pins 5 and 6 for Power 2 Pins 4 and 4 for fault alarm	
Data Rate	10/100/1000Mbps	
Power Requirements	**48~54V DC**, redundant power with reverse polarity protection	**12~54V DC**, redundant power with reverse polarity protection
Power Consumption (Ethernet Full Loading)	**System ON without loading** 52V DC: 2.08 watts/7.1BTU 54V DC: 2.16 watts/7.4BTU	**System ON without loading** 12V DC: 6.36 watts/21.7BTU 54V DC: 8.1 watts/27.6BTU
	Full loading 52V DC: 250.6 watts/855BTU 54V DC: 251.1 watts/856.7BTU	**Full loading** 12V DC: 69.48 watts/237.1BTU 54V DC: 262.98 watts/897.3BTU
DIP Switch	**Per PoE port** ■ **Off: BT/PoH** -- 802.3bt PoE++ 95W PoE output ■ **ON: Force** -- 60w PoE output	
Dimensions	50 x 87.8 x 135 mm (W x D x H)	
Weight	544g	679g
Enclosure	IP30 metal case	
Installation	DIN-rail kit and wall-mount kit	

LED Indicator	System: Power 1 (Green) Power 2 (Green) Alarm (Red) PoE Usage: 80W/160W/240W (Amber) 802.3bt PoE++ Port: PoE-in-use x 1 (Amber)	
ESD Protection	6KV	
Surge Protection	6KV	
Network Cable	Twisted-pair cable up to 100 meters (328ft) 10BASE-T: 4-pair UTP Cat. 3, 4, 5, 5e, 6 100BASE-TX: 4-pair UTP Cat. 5, 5e, 6 1000BASE-T: 4-pair UTP Cat. 5e, 6	
Power over Ethernet		
PoE Standard	IEEE 802.3bt PoE++, 4-pair type 4 PSE Backward compatible with IEEE 802.3at PoE+ PSE	
PoE Power Supply Type	802.3bt PoE++ End-span + Mid-span 802.3at PoE+ End-span/Mid-span	
Power Pin Assignment	Pair 1 End-span: 1/2(-), 3/6(+) Pair 2 Mid-span: 4/5(+), 7/8(-) 802.3bt: 1/2(-), 3/6(+), 4/5(+), 7/8(-)	
PoE Power Output	Max. 95 watts to 802.3bt PoE++ PD Max. 60 watts to force-powered PD Max. 36 watts to 802.3at PoE+ PD	
PoE Power Budget (max.)	240W@52V DC input 120W@48V DC input	240W@48~54V DC input 120W@24~47V DC input 60W@12~23V DC input
Number of devices that can be powered	4	

Standards Conformance	
Regulatory Compliance	FCC Part 15 Class A, CE
Stability Testing	IEC 60068-2-32 (free fall) IEC 60068-2-27 (shock) IEC 60068-2-6 (vibration)
Standards Compliance	IEEE 802.3 Ethernet IEEE 802.3u Fast Ethernet IEEE 802.3ab Gigabit Ethernet IEEE 802.3at Power over Ethernet Plus IEEE 802.3bt Power over Ethernet Plus Plus
Environment	
Temperature	Operating: -40~75 degrees C Storage: -40~75 degrees C
Humidity	Operating: 5~90% (non-condensing) Storage: 5~90% (non-condensing)

3. Hardware Introduction

3.1 Device Front Panel

The front panels of the Industrial PoE++ Injector Hubs consist of Ethernet interfaces and LED indicators.

■ Front View

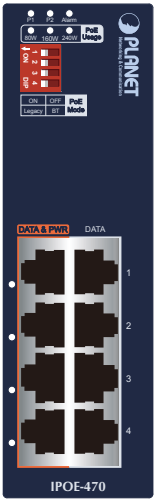


Figure 1: IPOE-470 Front View

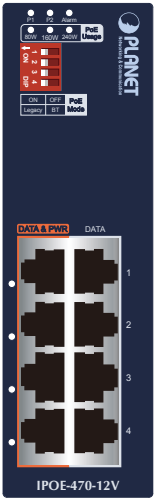


Figure 2: IPOE-470-12V Front View

■ System LEDs

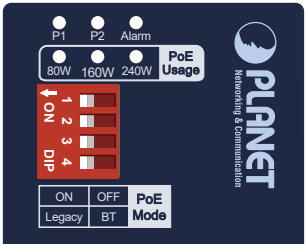
LED	Color	Function
P1	Green	Lights to indicate DC power input 1 has power.
P2	Green	Lights to indicate DC power input 2 has power.
Alarm	Red	Lights to indicate either power 1 or power 2 has no power.
PoE Usage	Amber	**80W, 160W, 240W** Lights to indicate the system consumes over 80-/160-/240-watt PoE power budget. Blinks to indicate the system consumes less than 80-/160-/240-watt PoE power budget.

■ **802.3bt PoE++ TP Interface LEDs**

LED	Color	Function
802.3bt PoE++ PoE-in-Use	Amber	Lights to indicate that the port is providing PoE in-line power to remote powered device.
		Off to indicate that the port is not providing PoE in-line power to remote powered device.

3.2 DIP Switch Information

To meet the demand of various powered devices consuming stable PoE power, the PoE++ Injector Hub provides one DIP switch for two PoE operation mode options as shown in the following table.



PoE Mode	Description
802.3bt (Default)	The Standard mode is to provide power to the PD device that follows the IEEE 802.3af/at/bt standard.
Legacy	The Legacy mode supports Ultra PoE. It is to provide power to the PD devices that do not fully follow the IEEE 802.3af/at/bt standard.

Caution	The IPOE-470 series also supports Force Power Mode in the Legacy mode. If the output power of IPOE-470 series in the Legacy Mode is less than 1 watt for 20 seconds, the Force Mode will be enabled for 2 seconds. If the loading is still less than 1 watt, the Legacy Mode will be enabled again.

Warning	TO PREVENT THE DEVICES FROM DAMAGE, please make sure the remote devices support either the Legacy or Force Mode before turning the DIP switch to the Legacy Mode.

Note	Adjust the DIP switch to the desired mode before powering on the IPOE-470 series.

3.3 Device Top Panel

The upper panels of the Industrial PoE++ Injector Hubs consist of one terminal block connector within two power inputs.

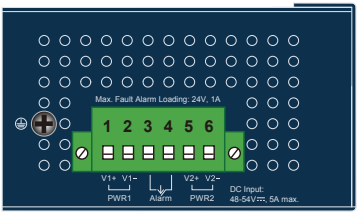


Figure 3: IPOE-470 Top View

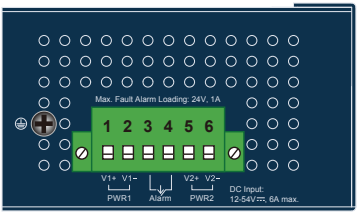


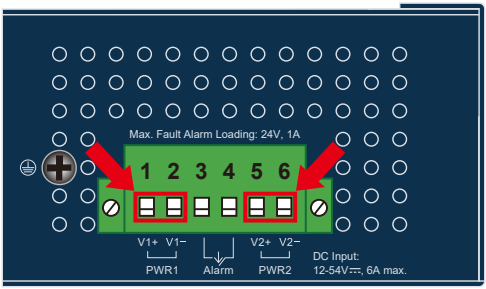
Figure 4: IPOE-470-12V Top View

3.4 Wiring the Power Inputs

The terminal block connector on the top panel of Industrial PoE++ Injector Hub is used for two DC redundant power inputs. Please follow the steps below to insert the power wire.

Caution	When performing any of the procedures like inserting the wires or tightening the wire-clamp screws, make sure the power is OFF to prevent from getting an electric shock.

1. Insert positive and negative DC power wires into contacts 1 and 2 for POWER 1, or contacts 5 and 6 for POWER 2.



2. Tighten the wire-clamp screws for preventing the wires from loosening.

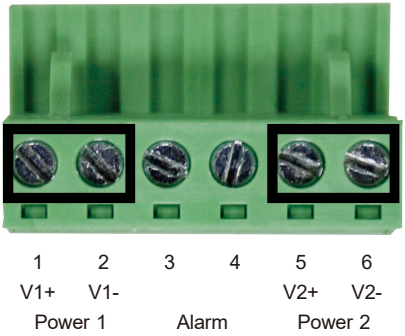


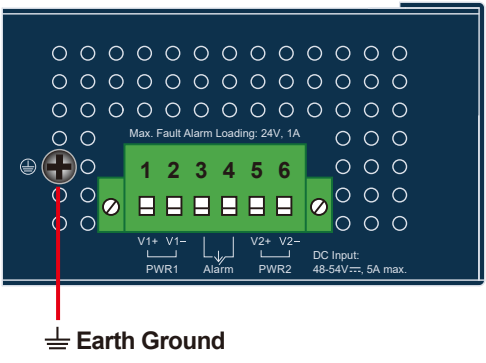
Figure 5: PWR1 & PWR2 pins of terminal block.

Caution	PWR1 and PWR2 must provide the **same DC voltage** while operating with dual power input.

Note	The wire gauge for the terminal block should be in the range between 12 and 24 AWG.

3.5 Grounding the Device

Users **MUST** complete grounding wired with the device; otherwise, a sudden lightning could cause fatal damage to the device.



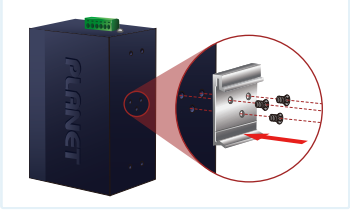
Note	EMD (Lightning) DAMAGE IS NOT COVERED UNDER WARRANTY.

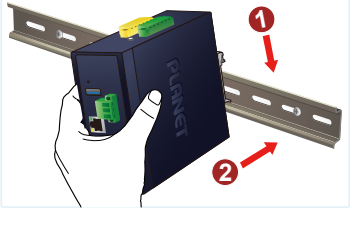
4. Installation

This section guides you to installing the Industrial PoE++ Injector Hub on the DIN rail and wall. Please read this chapter completely before continuing.

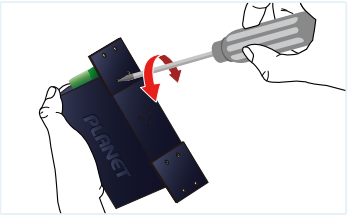
Note	In the installation steps below, this manual uses PLANET Industrial Gigabit Switch as an example. The steps for PLANET Industrial Slim-type Switch, Industrial Media/Serial Converter and Industrial PoE devices are similar.

4.1 DIN-rail Mounting Installation





4.2 Wall-mount Plate Mounting



Caution	You must use the screws supplied with the wall-mounting brackets. Damage caused to the parts by using incorrect screws would invalidate your warranty.

5. Three-View Diagram

■ IPOE-470

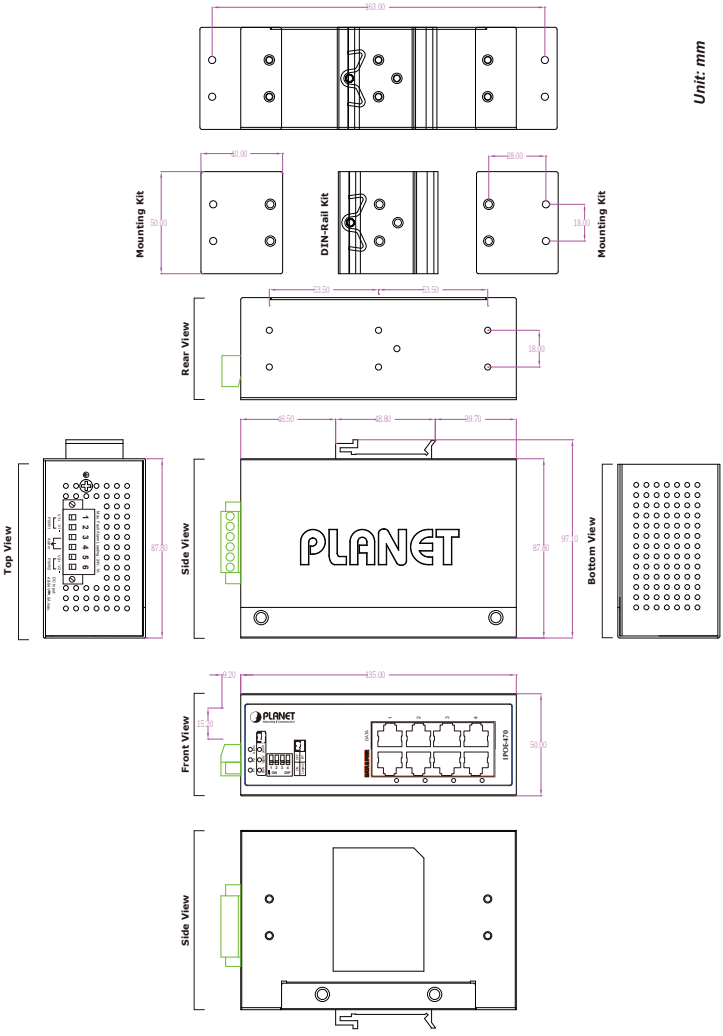


Figure 6: IPOE-470 Three-View Diagram

■ IPOE-470-12V

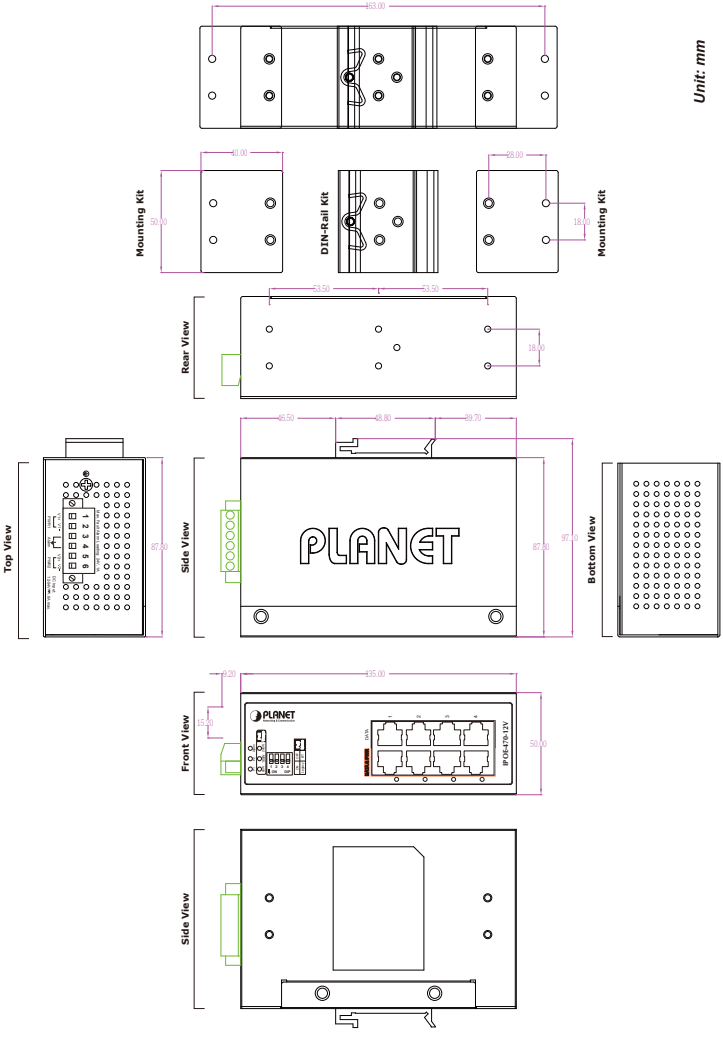


Figure 7: IPOE-470-12V Three-View Diagram

Customer Support

Thank you for purchasing PLANET products. You can browse our online FAQ resource on PLANET web site first to check if it could solve your issue. If you need more support information, please contact PLANET support team.

PLANET online FAQs :
http://www.planet.com.tw/en/support/faq

Support team mail address:
support@planet.com.tw

FCC Warning

This device 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 to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CE Mark Warning

This device is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.

WEEE Warning

To avoid the potential effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment, end users of electrical and electronic equipment should understand the meaning of the crossed-out wheeled bin symbol. Do not dispose of WEEE as unsorted municipal waste and have to collect such WEEE separately.