1. Package 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		User's Manual 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** 48V DC: 1.92 watts/ 6.6BTU 54V DC: 2.16 watts/ 7.4BTU	**System ON without loading** 12V DC: 2.52 watts/8.6BTU 24V DC: 3.6 watts/12.3BTU 48V DC: 3.36 watts/11.5BTU 54V DC: 3.24 watts/11.1BTU
Power Consumption (Ethernet Full Loading)	**Full loading** 48V DC: 241 watts/ 822.3BTU 54V DC: 244 watts/ 832.6BTU	**Full loading** 12V DC: 72 watts/245.7BTU 24V DC: 131 watts/447BTU 48V DC: 249 watts/ 849.6BTU 54V DC: 251 watts/ 856.5BTU

DIP Switch	**Per PoE port** • **Off: BT/PoH** – 802.3bt PoE++/PoH + Legacy 95W PoE output • **ON: Force** - 60w PoE output	
Dimensions	50 x 87.8 x 135 mm (W x D x H)	
Weight	537g	679g
Enclosure	IP30 metal case	
Installation	DIN-rail kit and wall-mount kit	
LED Indicator	System: Power 1 (Green) Power 2 (Green) Fault (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++/PoH/Force 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/PoH: 1/2(-), 3/6(+), 4/5(+), 7/8(-)	
PoE Power Output	Max. 90 watts to 802.3bt PoE++ PD Max. 95 watts to PoH PD Max. 60 watts to force-powered PD Max. 36 watts to 802.3at PoE+ PD	
PoE Power Budget (max.)	120W@48V DC input 240W@52V-54V DC input	60W@12V-23V DC input 120W@24V-47V DC input 240W@48-54V 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

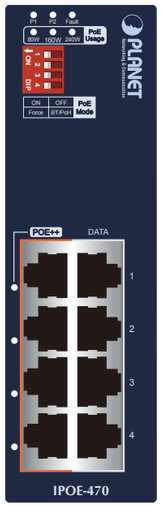


Figure 1:
IPOE-470 Front View

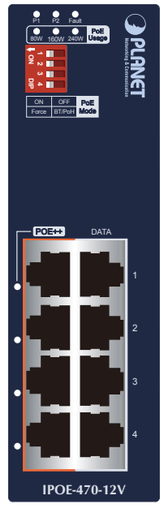


Figure 2:
IPOE-470-12V Front View

■ System LEDs

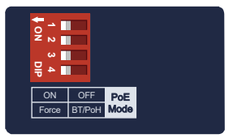
LED	Color	Function
P1	Green	Lights to indicate DC power input 1 has power.
P2	Green	Lights to indicate DC power input 2 has power.
Fault	Red	Lights to indicate either power 1 or power 2 has no power.
PoE Usage	Amber	**80W, 160W, 240W** Lights to indicate the system consumes over 80-/160-/240-watt PoE 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 three PoE operation mode options as shown in the following table.



DIP Switch Mode	Function
BT /PoH	This mode makes the PoE++ Injector Hub operate as 802.3bt PoE++ type 4 PSE and PoH (Power over HD-BASE-T) PSE with Legacy function.
Force	This mode makes the PoE++ Injector Hub operate as 4-pair 60-watt force PoE PSE.

Note	1. After adjusting the DIP switch, the PoE++ Injector Hub will stop and then work again. 2. Before connecting the "Data + Power" output port to powered device (PD), make sure that it accepts PoE input via DIP switch setting to prevent damage. 3. The legacy detection is to identify the PD devices that do not fully follow the IEEE 802.3af/at/bt standard and their unique electrical signatures to enable the PoE injector to provide the power to those PD devices.

3.3 Device Top Panel

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

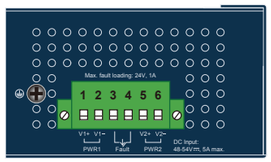


Figure 3: IPOE-470 Top View

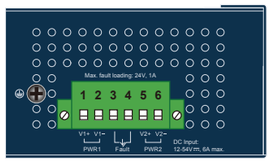


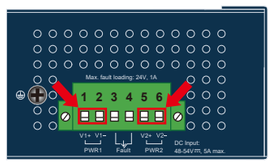
Figure 4: POE-470-12V Top View

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.

1	2	3	4	5	6
V1+	V1-			V2+	V2-
Power 1		Fault		Power 2	

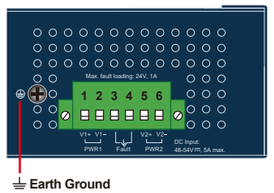
Figure 5: PWR1 & PWR2 pins of terminal block

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.



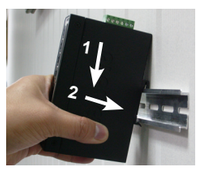
Note	EMD (Lightning) DAMAGE IS NOT CONVERED UNDER WARRANTY.

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 IGS-801 8-port 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

4.3 Side 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**

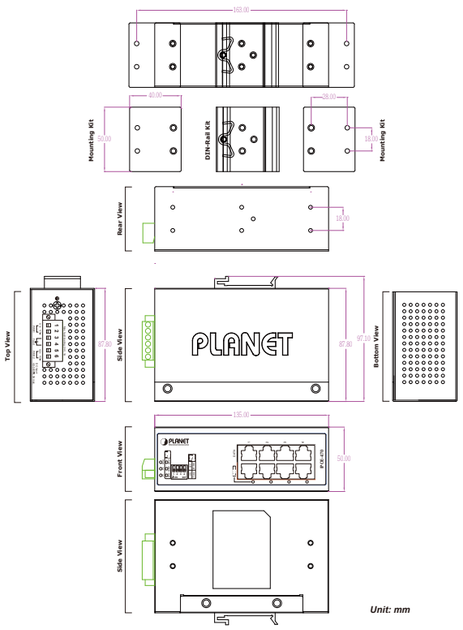


Figure 6: IPOE-470 Three-View Diagram

■ **IPOE-470-12V**

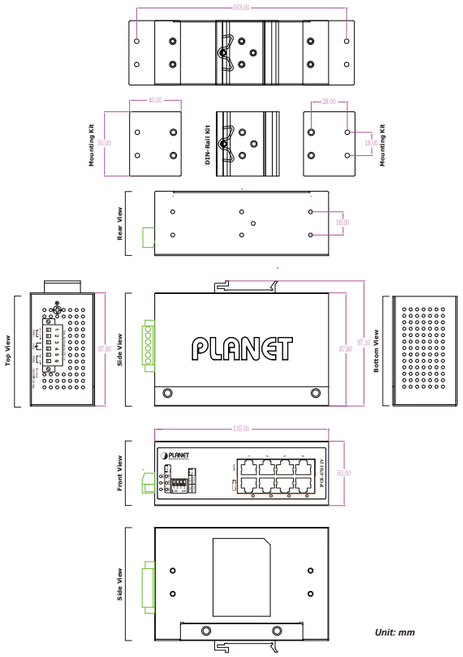


Figure 7: IPOE-470-12V Three-View Diagram

PLANET Networking & Communication

User's Manual

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Industrial 4-Port Gigabit 802.3bt PoE++ Injector Hub

IPOE-470 Series

PLANET Technology Corp.
10F., No. 96, Minquan Rd., Xindian Dist., New Taipei City 231, Taiwan

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

2350-AH8060-001

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

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.