Industrial IEEE 802.3at/af

Gigabit PoE+ Injector

IPOE-162

User's Manual

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1. Package Contents

Thank you for purchasing PLANET Industrial IEEE 802.3at High Power over Ethernet Injector, IPOE-162. The **"802.3at PoE+ Injector"** mentioned in this User's Manual refers to the IPOE-162.

Open the box of the Industrial IEEE 802.3at High Power over Ethernet Injector and carefully unpack it. The box should contain the following items:

IPOE-162:

- Industrial IEEE 802.3at Gigabit High Power over Ethernet Injector x 1
- User's Manual x 1
- DIN-rail Kit x 1
- Wall-mount Kit x 1
- Dust Cap x 2

If any of these are missing or damaged, please contact your dealer immediately; if possible, retain the carton including the original packing material, and use them again to repack the product in case there is a need to return it to us for repair.

2. Product Features

■ Interface

- 2 RJ45 interfaces
  - ♦ 1-port **Data + Power** output
  - ♦ 1-port **Data input**
- One terminal block for master and slave power input. (Power Range: 12 ~ 48V DC / 24V AC redundant power.)

■ PoE

- Gigabit High Power over Ethernet mid-span PSE
- IEEE 802.3at/802.3af PoE compliant
- IEEE 802.3at/802.3af splitter devices compatible
- Supports PoE Power up to 30 watts for the PoE port
- Provides DC 56V power over RJ45 Ethernet cable to device with Ethernet port
- Auto-detection of PoE IEEE 802.3at/802.3af devices
- Remote power feeding up to 100m

■ Hardware

- IP30 slim metal case
- LED indicators for power LED and PoE-in-use

■ Industrial Case and Installation

- DIN-rail and wall-mount design
- Supports 6000 VDC EFT protection for power line
- Supports 6000 VDC Ethernet ESD protection
- -40 to 75 degrees C operating temperature

Note

PDs (powered devices) are PoE-enabled terminals, such as IP phones, network cameras, wireless access points, etc., powered by PSE.

PSE (power sourcing equipment) is a device (switch, or hub for instance) that provides power in a PoE setup. The allowed maximum continuous output power per device is 15.4W for the IEEE 802.3af standard, and 30W for the IEEE 802.3at standard.

3. Product Specifications

Product		IPOE-162
Hardware Specifications		
Hardware Version		2
Interface	Input Port	1 x RJ45 STP (Data In)
	Output Port	1 x RJ45 STP (Data + Power Out)
	Input Power Terminal Block	1
LED Indicator		System: Power 1 (Green), Power 2 (Green), Fault (Red) PoE Port: PoE-in-use x 1 (Orange)
Network Cable		10BASE-T: UTP Cat. 3, 4, 5, up to 100m (328ft) 100BASE-TX: UTP Cat. 3, 4, 5, up to 100m (328ft) 1000BASE-T: UTP Cat. 5, 5e, 6 up to 100m (328ft) EIA/TIA- 568 100-ohm STP (100m)
Data Rate		10/100/1000Mbps
Dimensions (W x D x H)		135 x 97 x 32 mm
Weight		473g
Unit Input Voltage		12 ~ 48V DC / 24V AC
Power Consumption		30 watts max.
Number of devices can be powered		1
Installation		DIN-rail kit and wall-mount ear
Alarm		Provides one relay output for power failure; alarm relay current carry ability: 3A @ DC 24V
Enclosure		IP30 slim metal case

Power over Ethernet		
PoE Standard		IEEE 802.3at High Power over Ethernet / mid-span PSE
PoE Power Output	DC 24~48V Input	30 watts
	DC 12V Input	25 watts
PoE Power Supply Type		Mid-span
Power Pin Assignment		4/5(+), 7/8(-)
Standards Conformances		
Standards Compliance		IEEE 802.3 10BASE-T Ethernet IEEE 802.3u 100BASE-TX Fast Ethernet IEEE 802.3ab 1000BASE-T Gigabit Ethernet IEEE 802.3af Power over Ethernet IEEE 802.3at Power over Ethernet Plus
FCC		FCC Part 15B Class A
CE	EMI	EN 55022 EN 61000-3-2 EN 61000-3-3
	EMS	EN 61000-4-2 (ESD) EN 61000-4-3 (RS) EN 61000-4-4 (EFT) EN 61000-4-5 (Surge) EN 61000-4-6 (CS) EN 61000-4-8 (PFMF)
Stability Testing		IEC60068-2-32 (Free fall) IEC60068-2-27 (Shock) IEC60068-2-6 (Vibration)
Environment		
Operating Temperature		-40 ~ 75 degrees C
Storage Temperature		-40 ~ 85 degrees C
Humidity		5 ~ 95% (non-condensing)

Note

The PoE power output ability will depend on the distance.

4 Hardware Description

4.1 Physical Dimensions

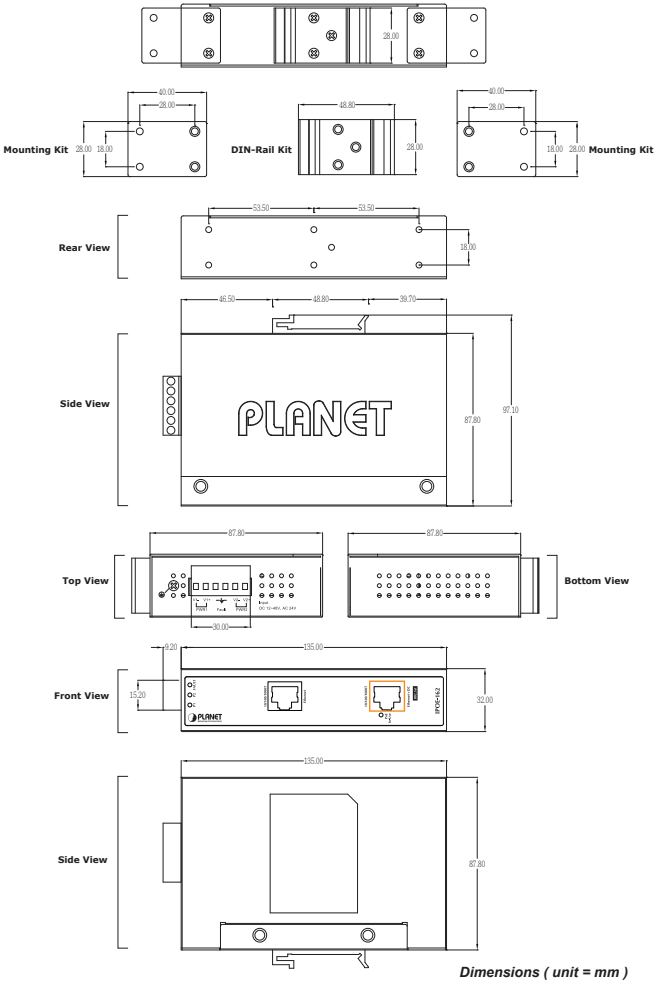


Figure 4-1 IPOE-162 dimensions

4.2 Product Outlook

Figure 4-2 IPOE-162 outlook

LED Indicators

LED	Color	Function
P1	Green	Indicates Power 1 has power.
P2	Green	Indicates Power 2 has power.
FAULT	Red	Indicates either Power 1 or Power 2 has no power.
PoE in-Use	Orange	Indicates the port is providing 56V DC in-line power.

4.3 Industrial PoE+ Injector Upper Panel

The upper panel of the Industrial PoE+ Injector consists of one terminal block connector within two DC/AC power inputs. Figure 1 shows the upper panel of the Industrial PoE+ Injector.

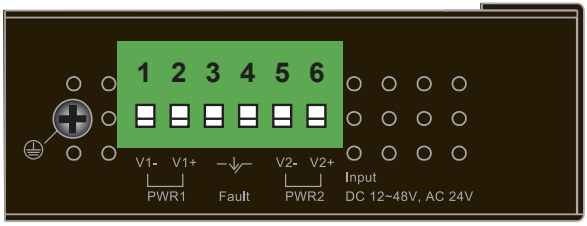


Figure 4-3: Industrial PoE+ Injector Upper Panel

4.4 Wiring the Power Inputs

The 6-contact terminal block connector on the top panel of Industrial PoE+ Injector is used for two DC/AC redundant power inputs. Please follow the steps below to insert the power wire.

1. Insert the positive and negative DC power wires or neutral/Line AC power wires into Contacts 1 and 2 for Power 1, or 5 and 6 for Power 2.

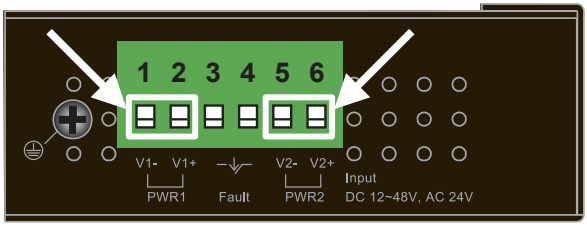
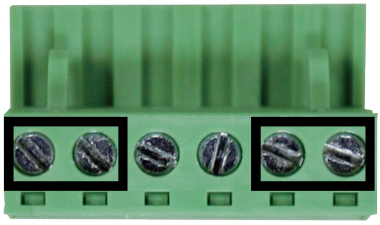


Figure 4-4: Power Input Pins

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



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

Figure 4-5: PWR1 & PWR2 Pin of Terminal Block

Note

The wire gauge for the terminal block should be in the range of 12 to 24 AWG.

4.5 Wiring the Fault Alarm Contact

The fault alarm contacts are in the middle of the terminal block connector as the picture shows below. Inserting the wires, the Industrial PoE+ Injector will detect the fault status of the power failure and then forms an open circuit. The following illustration shows an application example for wiring the fault alarm contacts.

Insert the wires into the fault alarm

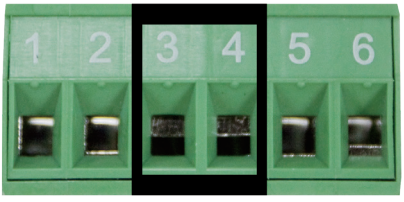


Figure 4-6: Fault Pin of Terminal Block

Note

1. The wire gauge for the terminal block should be in the range of 12 to 24 AWG.
2. Alarm relay circuit accepts up to a maximum of 30V, 3A currents.

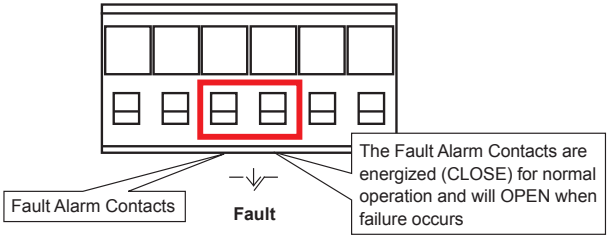


Figure 4-7: Fault Alarm Contact

5. Mounting Installation

This section describes how to install the Industrial Equipment and make connections to it. Please read the following topics and perform the procedures in the order being presented.

Note	In the installation steps below, this Manual uses the IGS-801 (PLANET 8-port Industrial Gigabit Switch) as an example. However, the steps for PLANET industrial slim switch, industrial media/serial converter and Industrial PoE equipment are similar.

5.1 DIN-rail Mounting

The DIN rail is already screwed on the industrial device. Please refer to the following figures for hanging the device:

Step 1: Place the upper DIN-rail bracket into the track first.

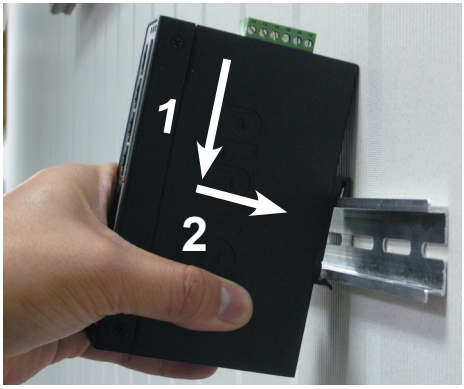


Figure 5-1: DIN-rail mounting

Step 2: The lower DIN-rail bracket is then placed into the track.

Figure 5-2: Complete DIN-rail mounting

5.2 Removal of Device

Step 1: Please refer to following procedure to remove the device from the track.

Figure 5-3: Removal of Device from Track

Step 2: Reverse the mounting steps to remove the device from the track.

5.3 Wall-mount Plate Mounting

To install the industrial device on the wall, please follow the instructions described below:

Step 1: Remove the DIN-rail bracket from the industrial device by using a screwdriver.

Step 2: Then screw the wall-mount plate on the rear panel of the industrial device.

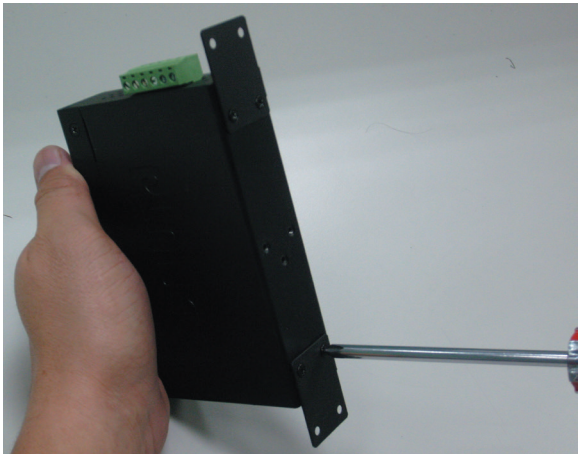


Figure 5-4: Placing Wall-mount Plate on Industrial Device

Step 3: Use the holes in the corners of the wall-mount plate to hang the industrial device on the wall.

Step 4: To remove the wall mount plate, reverse steps above.

6. Hardware Installation

This Industrial IEEE 802.3at Gigabit High Power over Ethernet Injector provides three different running speeds – 10Mbps, 100Mbps and 1000Mbps in the same device and automatically distinguishes the speed of the incoming connection. Please refer to following sections for detailed information about Industrial IEEE 802.3at Gigabit High Power over Ethernet Injector.

Before Installation

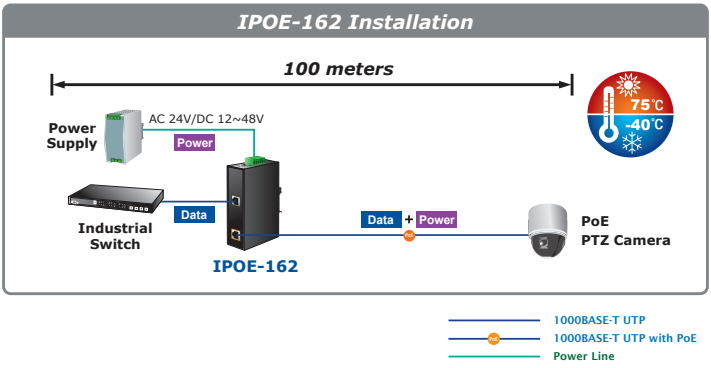
Before your installation, it is recommended to check your network environment. If there is no electrical outlet in a remote setting, the IPOE-162 injector is available to solve the problem. If a longer distance is needed to install PDs, PLANET POE-162S/IPOE-162S splitter can be used to supply power to the PDs conveniently.


Note

The IPOE-162 with IPOE-162S/POE-162S is installed in pair. However, the use of the third-party device is allowed if the device is compliant with the IEEE 802.3at Power over Ethernet.

IPOE-162 Injector Installation

1. Connect the power (AC 24V or DC 12 ~ 48V) to the 6-pin terminal block of the IPOE-162. The power LED will be steadily on.
2. Connect a standard network cable from a switch / workstation to **"Ethernet"** port of the IPOE-162.
3. Then connect the long cable to the **"Ethernet + DC"** port of a remote device.
4. Due to the capability of the IEEE 802.3at Power over Ethernet, the IPOE-162 can directly connect with any IEEE 802.3at/IEEE 802.3af end-nodes such as PTZ (Pan, Tilt & Zoom) network cameras, PTZ speed dome cameras, color touch- screen Voice over IP (VoIP) telephones and multi- channel wireless LAN access points.



Once the IPOE-162 detects the existence of an IEEE 802.3at device, the POE-in-use LED indicator will be steadily on to show it is providing power.

Note

1. As the IPOE-162 PoE port supports 56V DC PoE power output, make sure PDs accept DC power ranging from 52 to 56V DC. Otherwise, it will damage the PDs.
2. If the connected PDs do not fully comply with IEEE 802.3at Power over Ethernet or in-line power device, the IPOE-162 might encounter the incompatible issue and thus fails to power up the devices

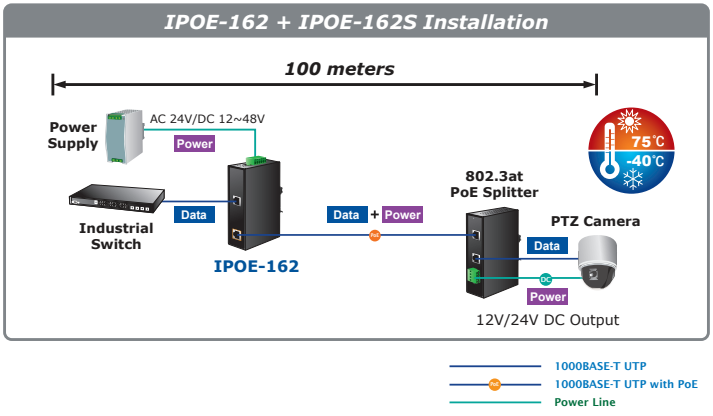
IPOE-162 Injector and IPOE-162S Splitter Installation

1. Connect the power (AC 24V or DC 12 ~ 48V) to the 6-pin terminal block of the IPOE-162. The power LED will be steadily on.
2. Connect a standard network cable from the **"Ethernet+DC"** port of IPOE-162 to the **"PoE In"** port of the IPOE-162S. The POE-in-use LED of the IPOE-162/IPOE-162S will then light up continuously.
3. Connect a standard network cable from a switch/workstation to the **"Ethernet"** port of the IPOE-162.

4. Then connect the UTP cable from the **"Ethernet"** port of the IPOE-162S to the RJ45 port of a remote device.

5. Adjust the proper DC voltage power output and connect the DC plug from the **"Power Output"** of the IPOE-162S to a remote device.

6. Power on the remote device and its power LED indicator will remain on.



Note

1. The IPOE-162 injector will not inject power over the cable to non-IEEE 802.3at devices.
2. Please ensure the output voltage is correct before applying power to a remote device. Otherwise, it will damage the PD.

7. Customer Support

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

PLANET online FAQs:
http://www.planet.com.tw/en/support/faq.php?type=2

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

PLANET
Networking & Communication

EC Declaration of Conformity

For the following equipment:

*Type of Product : Industrial IEEE 802.3at High Power over Ethernet Injector

*Model Number : IPOE-162
* Produced by:
Manufacturer's Name : **Planet Technology Corp.**
Manufacturer's Address : 10F., No.96, Minquan Rd., Xindian Dist.,
New Taipei City 231, Taiwan, R.O.C.

is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility Directive on (2014/30/EU).

For the evaluation regarding the EMC, the following standards were applied:

EN 55032	(2015 + AC:2016)
EN61000-3-2	(2014)
EN61000-3-3	(2013)
EN 55035	(2017)

Responsible for marking this declaration if the:

☒ **Manufacturer** ☐ **Authorized representative established within the EU**

Authorized representative established within the EU (if applicable):

Company Name: **Planet Technology Corp.**

Company Address: **10F., No.96, Minquan Rd., Xindian Dist., New Taipei City 231, Taiwan, R.O.C.**

Person responsible for making this declaration

Name, Surname **Kent Kang**

Position / Title : **Director**

Taiwan	**June 12, 2018**	Kent Kang
Place	*Date*	*Legal Signature*