Industrial IEEE 802.3at/af

Gigabit PoE+ Injector

IPOE-162

User's Manual

Table of Contents

1. Package Content

Thank you for purchasing PLANET Industrial IEEE 802.3at High Power over Ethernet Injector, IPOE-162. Terms of **"802.3at PoE+ Injector"** in following section of this User's Manual means the IPOE-162.

Upon 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

- Dusty 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 against to repack the product in case there is a need to return it to us for repair.

2. Product Features

■ **Interface**

- 2-Port RJ-45 interfaces

  ♦ 1-Port **Data + Power** output

  ♦ 1-Port **Data input**

- One terminal block for master and slave power input. (Power Range: 24 ~ 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

- Support PoE Power up to 30 Watts for PoE port

- Provides DC 56V power over RJ-45 Ethernet cable to device with Ethernet port

- Auto-detect of PoE IEEE 802.3at / 802.3af equipment and devices from being damaged by incorrect installation

- Remote power feeding up to 100m

■ **Hardware**

- IP30 Slim Type Metal Case

- LED indicators for Power LED and PoE In-Use

■ Industrial Case / Installation

- DIN Rail and Wall Mount Design

- Supports EFT protection 6000 VDC for power line

- Supports 6000 VDC Ethernet ESD protection

- -40 to 75 Degree C operation temperature

Note	**PD (Powered Device)** is a PoE-enabled terminal by PSE and thus consumes energy, such as IP Phones, network cameras and Wireless access points, etc. **PSE (Power Sourcing Equipment)** is a device (switch, or hub for instance) that will provide power in a PoE setup. Maximum allowed continuous output power per such device in IEEE 802.3af is 15.4W, 30W in IEEE 802.3at.

3. Product Specification

Product		IPOE-162
Hardware Specification		
Interface	"Data" Input Port	1 x RJ-45 STP
	"PoE (Data+Power)" Output Port	1 x RJ-45 STP
	Input power terminal block	1
LED Indicator		System: Power 1, Power 2, Fault (Green) PoE Port: PoE In-Use x 1 (Green)
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
Dimension (W x D x H)		135 x 97 x 32 mm
Weight		473g
Unit Input Voltage		24 ~ 48V DC 24V AC
Power Consumption		30 Watts max.
Number of device can be powered		1
Installation		DIN Rail kit and Wall Mount ear
Alarm		Provides one relay output for power fail, Alarm Relay current carry ability: 3A @ DC 30V
Enclosure		IP30 Slim Type Metal Case

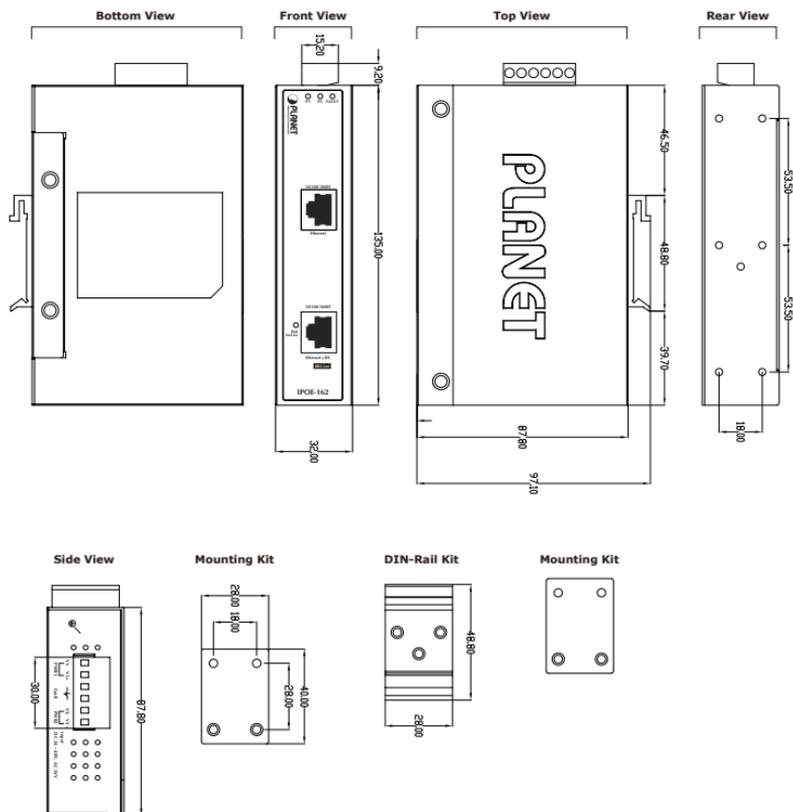| Power over Ethernet		
PoE Standard	IEEE 802.3at High Power over Ethernet / Mid-Span PSE	
PoE Power Output	DC 56V / 30 Watts	
PoE Power supply Type	Mid-Span	
Power Pin Assignment	4/5(+), 7/8(-)	
Standards Conformance		
Standards Compliance	IEEE 802.3 10Base-T Ethernet IEEE 802.3u 100Base-TX Fast Ethernet IEEE 802.3ab 1000Base-T Gigabit Ethernet IEEE 802.3af Power over Ethernet IEEE 802.3at Power over Ethernet enhancement standard	
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 Degree C	
Storage Temperature	-40 ~ 85 Degree C	
Humidity	5 ~ 95% (Non-condensing)	

4 Hardware Description

4.1 Physical Dimension

Bottom View	Front View	Top View	Rear View

Figure 4-1

4.2 Product Outlook
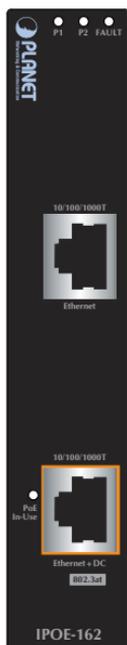
Figure 4-2

LED Indicators

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

4.3 Industrial PoE+ Injector Upper Panel

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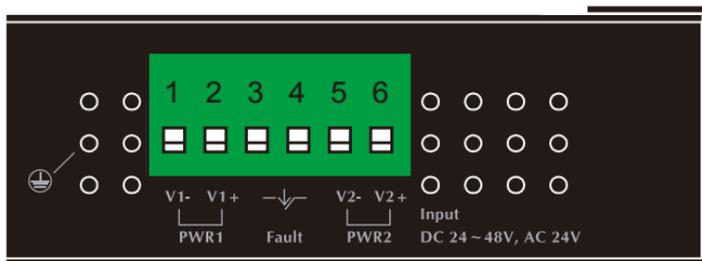

**Figure 1**: Industrial PoE+ Injector Upper Panel.

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 powers input. Please follow the steps below to insert the power wire.

1. Insert Positive / Negative DC power wires or Neutral / Line AC power wires into the contacts 1 and 2 for POWER 1, or 5 and 6 for POWER 2.
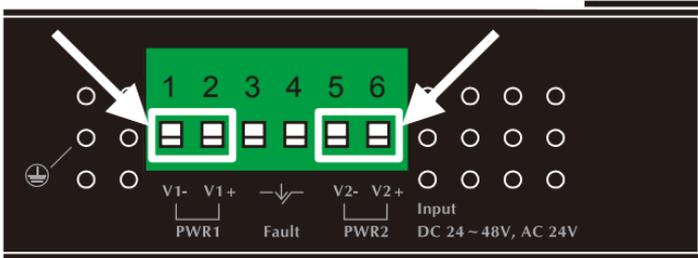
Figure 2: Power input PINs.

2. Tighten the wire-clamp screws for preventing the wires from loosing.
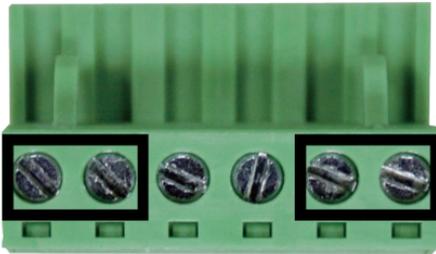
1	2	3	4	5	6
Power 1		Fault		Power 2	
-	+			-	+

Figure 3: PWR1 & PWR2 Pin of Terminal Block.

Note	The wire gauge for the terminal block should be in the range between 12 ~ 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 contacts

Figure 4: Fault Pin of Terminal Block.

| Note | 1. The wire gauge for the terminal block should be in the range between 12 ~ 24 AWG. |
| | 2. Alarm relay circuit accepts up to 30V, max. 3A currents. |

Fault Alarm Contacts

Fault

The Fault Alarm Contacts are energized (CLOSE) for normal operation and will OPEN when failure occurs
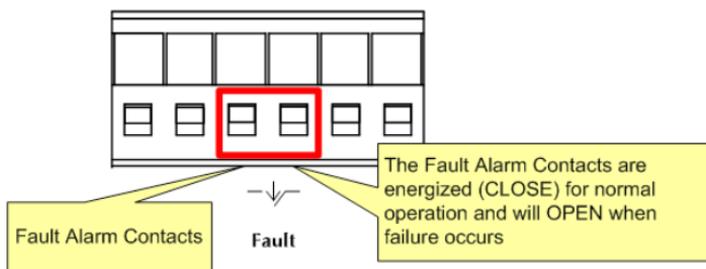
Figure 5: Fault Alarm Contact.

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 use IGS-801 (PLANET 8 Port Industrial Gigabit Switch) as the example. However, the steps for PLANET Industrial slim type 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 Equipment. Please refer to following figures and know how to hang the Industrial Equipment:

Step 1: Lightly press the button of DIN-Rail into the track.
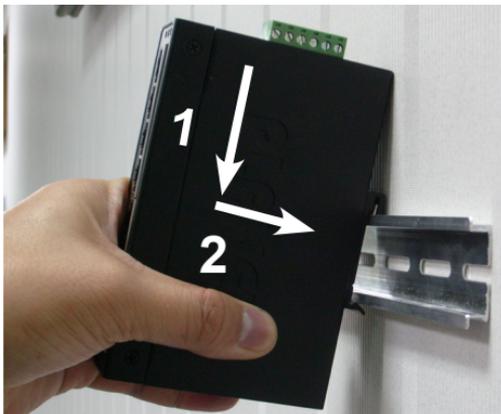
Figure 6: Install Industrial Equipment in DIN-Rail mount.

Step 2: Check the DIN-Rail is tightly on the track.

Figure 7: Industrial Equipment installed in DIN-Rail mount.

5.2 Remove DIN-Rail Mounting

Step 1: Please refer to following procedures to remove the Industrial Equipment from the track.

Figure 8: Remove Industrial Equipment in DIN-Rail mount.

Step 2: Lightly press the button of DIN-Rail for remove it from the track.

5.3 Wall Mount Plate Mounting

To install the Industrial Equipment on the wall, please follows the instructions described below.

Step 1: Remove the DIN-Rail from the Industrial Equipment; loose the screws to remove the DIN-Rail.

Step 2: Place the wall mount plate on the rear panel of the Industrial Equipment.

Figure 9: Attach Brackets to the Industrial Equipment.

Step 3: Use the screws to screw the wall mount plate on the Industrial Equipment.

Step 4: Use the hook holes at the corners of the wall mount plate to hang the Industrial Equipment on the wall.

Step 5: 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 incoming connection. Please refer to following sections for detail 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 has any IEEE 802.3at devices need to power on, the IPOE-162 can provide you a way to supply power for this Ethernet device conveniently and easily.
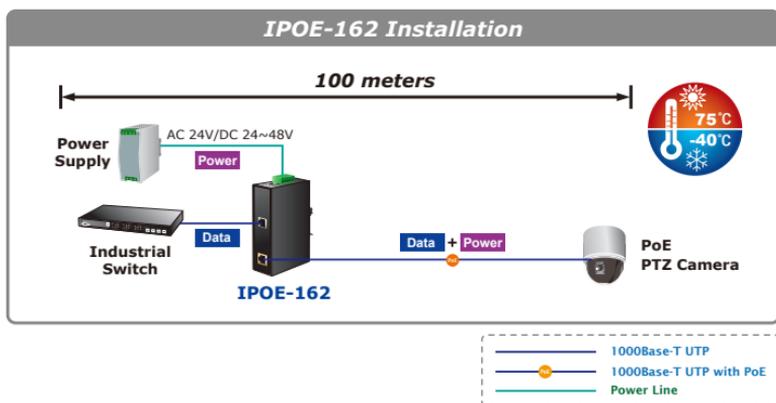
If there is very difficult to find a power socket for AC-DC Adapter to your Non-IEEE 802.3at networked device, the IPOE-162 with POE-162S / IPOE-162S can provide you a way to supply DC power for this Ethernet device conveniently and easily.

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

IPOE-162 Injector Installation

1. Connect the Power (Range from AC 24V or DC 24 ~ 48V) to 6-pin terminal block of IPOE-162. The power LED will be steady on.

2. Connect a standard network cable from Switch / workstation to **"Ethernet"** port of IPOE-162.

3. Connect the long cable that will be used to connect to the remote device to the port **"Ethernet + DC"**.

4. Due to the capability of 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, color touch- screen Voice over IP (VoIP) telephones, multi-channel wireless LAN access points.

IPOE-162 Installation

100 meters

Power Supply

AC 24V/DC 24~48V

Power

Industrial Switch

Data

IPOE-162

Data + Power

PoE PTZ Camera

75℃ / -40℃

1000Base-T UTP
1000Base-T UTP with PoE
Power Line

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

Note	1. Due to the IPOE-162 PoE port supports 56V DC PoE power output, please check and assure the Powered Device (PD) acceptable DC power range is from 52 to 56V DC. Otherwise, it will damage the Powered Device (PD).
	2. If the connected device (PD) is not fully complying with IEEE 802.3at Power over Ethernet or in-line power device, the IPOE-162 might encounter incompatible issue which fails to power up the devices.

IPOE-162 and IPOE-162S, the IEEE 802.3at Injector Splitter Installation

1. Connect the Power (Range from AC 24V or DC 24 ~ 48V) to 6-pin terminal block of IPOE-162. The power LED will be steady on.

2. Connect a standard network cable from **"Ethernet+DC"** port of IPOE-162 to **"PoE In"** port of IPOE-162S. The POE In-use LED of IPOE-162 / IPOE-162S will light on continuance.

3. Connect a standard network cable from Switch/workstation to **"Ethernet"** port of IPOE-162.

4. Connect the UTP cable from **"Ethernet"** port of IPOE-162S to the RJ-45 port of remote device.

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

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

IPOE-162 + IPOE-162S Installation
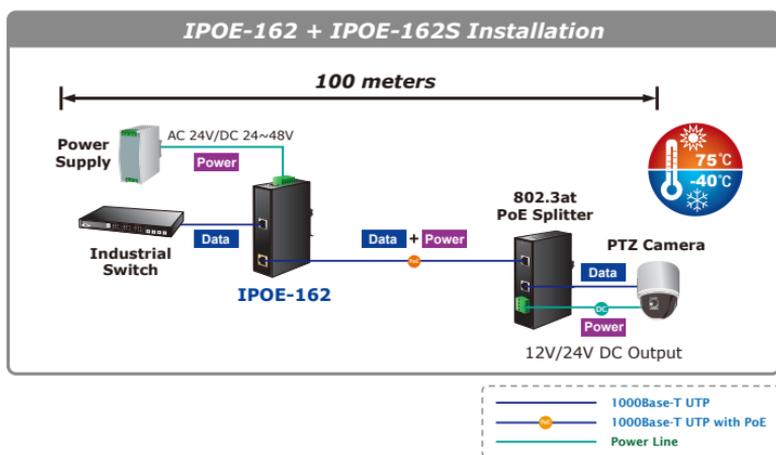
	1. According to IEEE 802.3at Power over Ethernet, the IPOE-162 will not inject power to the cable if not connecting to IEEE 802.3at devices.
Note	2. Please ensure the output voltage is correct before applying power to remote device. Otherwise, it will damage the Powered Device (PD).

Customer Support

Thank you for purchase PLANET products. You can browse our online FAQ resource at the 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 FAQ :
http://www.planet.com.tw/en/support/faq.php?type=2

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

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EC Declaration of Conformity

For the following equipment:

*Type of Product: Industrial IEEE 802.3at High Power over Ethernet Injector (30 Watts)
*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 (2004/108/EC).
For the evaluation regarding the EMC, the following standards were applied:

EN 55022   (Class A: 2010)

EN 55024   (2010)
   IEC 61000-4-2   (2008)
   IEC 61000-4-3   (2006 + A1: 2007 + A2: 2010)
   IEC 61000-4-4   (2004 + A1: 2010)
   IEC 61000-4-5   (2005)
   IEC 61000-4-6   (2008)
   IEC 61000-4-8   (2009)

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 :   **Product Manager**

Taiwan   **17 Aug., 2012**
Place   *Date*   *Legal Signature*

PLANET TECHNOLOGY CORPORATION