

## 1. Package Contents

Thank you for purchasing PLANET IEEE 802.3at Power over Ethernet plus Injector, POE-163/POE-165.

Model	LAN Port Speed	PoE Standard	PoE Budget
POE-163	10/100/1000Mbps	802.3at/ 802.3af	30 watts
POE-165	10/100/1000Mbps/ 2.5Gbps/5Gbps		

“802.3at PoE+ Injector” used in this user’s manual refers to the POE-163/POE-165.

Unpack the box of the IEEE 802.3at Power over Ethernet plus Injector carefully and the box should contain the following items:

- The IEEE 802.3at Power over Ethernet plus Injector x 1
- User’s Manual x 1
- AC Power Cord x 1

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.

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## 2. Product Features

- Interface
  - 2 RJ45 interfaces
    - 1-port **Data + Power** output
    - 1-port **Data input**
  - 1 AC 100-240V input power socket
- Power over Ethernet
  - Power over Ethernet Mid-span PSE
  - IEEE 802.3at PoE Plus compliant
  - Backward compatible with IEEE 802.3af PD device
  - Supports PoE Power up to 30 watts for PoE+ port
  - Auto-detects PoE IEEE 802.3at/802.3af equipment and devices for preventing damage from incorrect installation
  - Remote power feeding up to 100m
- Hardware
  - Plastic case
  - LED indicators for Power LED and Active LED (PoE ready-in-use)
- Standard Compliance
  - IEEE 802.3 10BASE-T
  - IEEE 802.3u 100BASE-TX
  - IEEE 802.3ab 1000BASE-T
  - IEEE 802.3bz 2.5Gbps/5GbpsBASE-T **(POE-165 only)**

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- IEEE 802.3af Power over Ethernet (802.3at Type 1)
- IEEE 802.3at Power over Ethernet (802.3at Type 2)
- FCC Part 15 Class B, CE



**PSE (Power Sourcing Equipment)** is a device (switch or hub for instance) that will provide power in a PoE setup. The maximum continuous output power allowed for each IEEE 802.3at/IEEE 802.3af device is 30W/15.4W.

**PDs (Powered Devices)** like IP phones, network cameras and wireless access points, etc. are PoE-enabled terminals and thus they are power sourcing equipment (PSE).

## 3. Product Specifications

Product	POE-163	POE-165
Hardware Specifications		
Interface	“Data” Input Port	1 x RJ45 STP
	“PoE (Data + Power)” Output Port	1 x RJ45 STP
	AC Input Power Socket	1

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LED Indicator	System: Power x 1 (Green) PoE Port: Active, PoE ready/ In Use x 1 (Green)	
Network Cable	10BASE-T: 2-pair UTP Cat. 3, 4, 5, up to 100m (328ft) 100BASE-TX: 2-pair UTP Cat. 3, 4, 5, up to 100m (328ft) 1000BASE-T: 2-pair UTP Cat. 5, 5e, 6 up to 100m (328ft) 2.5Gbps/5GbpsBASE-T: 2-pair UTP Cat. 5e, 6, 7 up to 100m (328ft)* EIA/TIA- 568 100-ohm STP (100m)	
Data Rate	10/100/ 1000Mbps	10/100/ 1000Mbps/ 2.5Gbps/5Gbps
Dimensions (W x D x H)	115 x 62.5 x 31 mm	
Weight	185g	204g
Unit Output Voltage	DC 50-54V, 0.6A	
Power Requirements	100-240V AC, 50/60Hz, 0.75A	
Power Consumption	30 watts max.	
Number of devices that can be powered	1	
Operating Temperature	0 ~ 50 degrees C	
Storage Temperature	-10 ~ 70 degrees C	

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Operating Humidity	5 ~ 95%, relative humidity, non-condensing
Storage Humidity	5 ~ 95%, relative humidity, non-condensing
Power over Ethernet	
PoE Standard	IEEE 802.3at Power over Ethernet Plus/Mid-span PSE
PoE Power Output	DC 50-54V/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 802.3bz 2.5Gbps/5Gbps BASE-T Gigabit Ethernet* IEEE 802.3af Power over Ethernet (802.3at Type 1) IEEE 802.3at Power over Ethernet (802.3at Type 2)
Regulatory Compliance	FCC Part 15 Class B, CE

\* Remark: For model POE-165 only

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## 4. Product Outlook

Figures 1 & 2 show an overview of the 802.3at PoE+ Injector

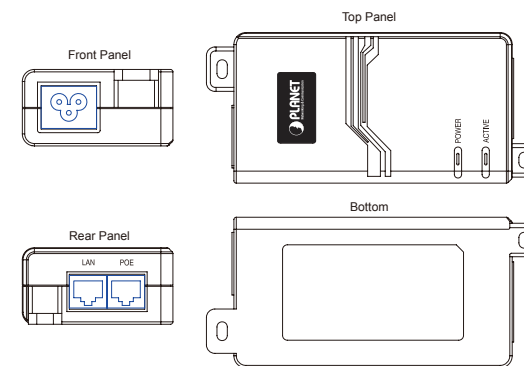


Figure 1: POE-163 Outlook

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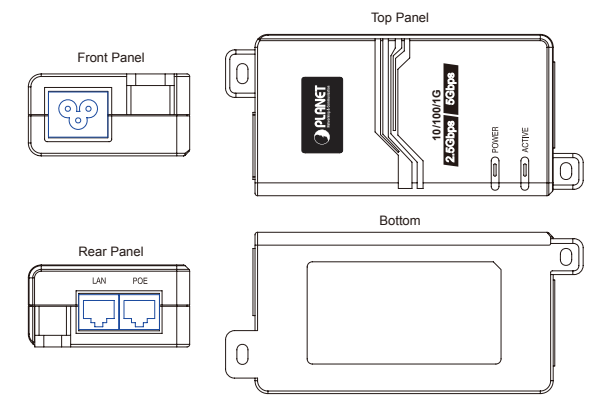


Figure 2: POE-165 Outlook

### LED Indicators

LED	Color	Function
POWER	Green	Lights to indicate that the 802.3at PoE+ Injector has power.
ACTIVE	Green	Lights off to indicate the port is not providing 50-54V DC in-line power. Lights to indicate the port is providing 50-54V DC in-line power.

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## 5. Hardware Installation

The following section describes the hardware features of the 802.3at PoE+ Injector. Before connecting any network device to the 802.3at PoE+ Injector, read this chapter carefully.

This POE-163 provides three different running speeds – 10Mbps/100Mbps/1000Mbps and the POE-165 provides five different running speeds – 10Mbps/100Mbps/1000Mbps/2.5Gbps/5Gbps in the same device for automatically distinguishing the speed of the incoming connection. Please refer to following sections for detailed information about the IEEE 802.3at Power over Ethernet plus Injector.

### 5-1 Before Installation

Before your installation, it is recommended to check your network environment. If there is any IEEE 802.3at devices that need higher power to power on and work normally, the 802.3at PoE+ Injector can provide you with power for this Ethernet device easily. The 802.3at PoE+ Injector is equipped with an AC power cord with 100-240V AC input and injects DC 50-54V power into the pin of the twisted-pair cable (pair 4, 5 [+] and pair 7, 8 [-]).

If a power socket for the AC-DC adapter of your non IEEE 802.3at networked device is not available, the 802.3at PoE+ Injector and POE-162S can provide you with DC power for this Ethernet device easily.

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The 802.3at PoE+ Injector and POE-162S can be installed in pair. However, the use of third-party device is allowed if the device complies with IEEE 802.3at Power over Ethernet.

### The 802.3at PoE+ Injector Installation

1. Connect the AC power cord to the "AC slot" of the 802.3at PoE+ Injector; the "POWER" LED will be steadily on.
2. Connect a standard network cable from a switch/workstation to the "LAN" port of the 802.3at PoE+ Injector.
3. And connect the Injector to a remote device like a PoE PTZ IP camera over the UTP cable.

\*\* The 802.3at PoE+ Injector can directly connect with any IEEE 802.3at/802.3af end-nodes, such as PTZ IP and speed dome cameras, color touch-screen Voice over IP (VoIP) telephones, multi-channel wireless LAN access points, etc. The installation is shown in Figure 3 below.

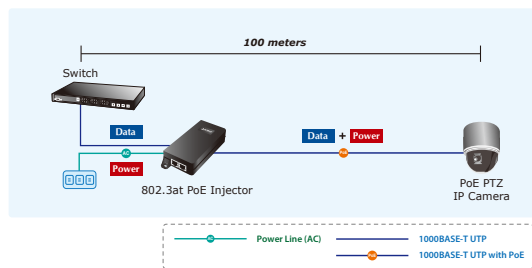


Figure 3: Connection to IEEE 802.3at/802.3af Devices

When the 802.3at PoE+ Injector detects the existence of an IEEE 802.3at/802.3af device, the ACTIVE LED indicator will be steadily on to show it is providing power.



1. Since the 802.3at PoE+ Injector PoE port supports 50-54V DC PoE power output, please check and assure the powered device's (PD) acceptable DC power range is 50-54V DC. Otherwise, it will damage the PD.
2. If the connected device is not fully complying with IEEE 802.3at/802.3af Power over Ethernet or in-line power device, the LED indicator of the 802.3at PoE+ Injector will not be steadily on.

### The 802.3at PoE+ Injector and POE-162S, the IEEE 802.3at Injector Splitter Installation

1. Connect the AC power cord to "AC slot" of the 802.3at PoE+ Injector; the "POWER" LED will be steadily on.
2. Connect a standard network cable from the "POE" port of the 802.3at PoE+ Injector to the "PoE In" port of the POE-162S. The "ACTIVE" LED of the 802.3at PoE+ Injector and PoE-in-use LED of the POE-162S will continue to be lit.
3. Connect a standard network cable from a switch/workstation to the "LAN" port of the 802.3at PoE+ Injector.

4. Connect the UTP cable in the package from the "Ethernet" port of the POE-162S to the RJ45 port of a remote device.
5. Adjust the proper DC power output and connect the DC plug from the "DC OUT" of the POE-162S to a remote device.
6. Power on the remote device and its power LED indicator will remain on.

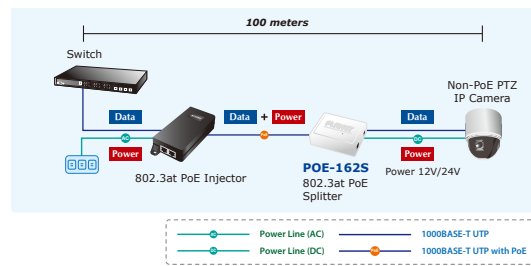


Figure 4: Connection architecture over 802.3at PoE+ Injector/POE-162S



1. Owing to IEEE 802.3at/802.3af Power over Ethernet standards, the 802.3at PoE+ Injector will not inject power over the cable if not connected to IEEE 802.3at/802.3af devices.
2. Please ensure the POE-162S output voltage is correct before applying power to remote devices.

### The 802.3at PoE+ Injector and POE-E201 IEEE 802.3at PoE+ Extender Installation

1. Connect the AC power cord to the "AC slot" of the 802.3at PoE+ Injector; the "POWER" LED will be steadily on.
2. Connect a standard network cable from the "POE" port of the 802.3at PoE+ Injector to the "IN" port of the POE-E201.
3. The 802.3at PoE+ Injector delivers both Ethernet Data and PoE power over UTP cable to the POE-E201 and the "ACTIVE" LED of the 802.3at PoE+ Injector and the "PoE IN" LED of the POE-E201 will continue to be lit.
4. Connect an additional standard network cable that will be used to connect from the "OUT" port of the POE-E201 to a remote Powered Device (PD).
5. The "OUT" port of the power injector transmits DC voltage over the standard network cable and transfers data and power simultaneously between the 802.3at PoE+ Injector and the PD.
6. Once the POE-E201 detects the existence of an IEEE 802.3at/802.3af device, the "PoE OUT" LED indicator will be steadily on to show it is providing power.

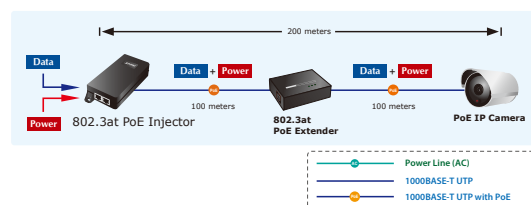


Figure 5: Connection architecture over 802.3at PoE+ Injector/POE-E201



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1. If the connected device is not fully complying with IEEE 802.3at/802.3af standards or in-line power device, the PoE OUT LED indicator of the POE-E201 will not be steadily on.
2. Owing to IEEE 802.3at/802.3af standards, the POE-E201 will not inject power over the cable if a standard IEEE 802.3at/802.3af device is not connected.

### Customer Support

Thank you for purchasing 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 support team.

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

Support team mail address:  
[support@planet.com.tw](mailto:support@planet.com.tw)