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Revision

User's Manual for PLANET Power over Ethernet Adapter:

Model: POE-150/POE-150S

Part No. 2010-000037-001 / EM-POE150v2

Table of Contents

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Chapter 1
Introduction

Thank you for purchasing our POE-150/ 150S, IEEE802.3af Power over Ethernet Adapter. This user's manual is to provide the installation and usage of this adapter for network installers and users.

The POE-150 and POE-150S is an IEEE802.3af Power over Ethernet devices that provide 48V DC over Ethernet cables.

The POE-150 / 150S product includes are an Injector and a splitter. An injector inserts DC Voltage into the CAT 5 cable allowing the cable between the Injector and Splitter to transfer data and power simultaneously. The maximum distance between the Injector and Splitter is 100 meters.

With POE-150 installed, it is combines the Ethernet digital data with power over the twisted pair cables as an injector. And POE-150S, the splitter, shall separate the digital data and the power into two outputs.

With IEEE802.3af Power over Ethernet devices installed, the system administrator only have to use a single RJ-45 Ethernet cable to carries both power and date to each devices. Besides, to connect through POE-150/ 150S, you could also have following benefit that, cost saving, ease for networking planning and higher reliability. What's more, upon any IEEE802.3af installed, the POE-150 or POE-150S all can make the connection while migrating or splitting the power and the Ethernet digital packets, such as connecting the POE-150 to an 802.3af complied devices, AP or IP phone; connecting the POE-150S to the 802.3af complied injector or switches.

Providing three kind of DC output, the POE-150S shall provide DC current at 2 A, 1.3A and 1A from model POE-150S-5V, 150S-9V and 150S-12V.

Chapter 2
Package Contents

Your Power over Ethernet package shall contains one of the following contents:

- **POE-150 – the power Injector**

  Power over Ethernet Injector x 1

  Power Adapter x 1

  User's Manual x 1

  Reminder Paster x 1

- **POE-150S – the power Splitter**

  Power over Ethernet Splitter x 1

  DC plug cable x 3

  15cm UTP Straight Network Cable x 1

  User's Manual x 1

Please consult your local dealer if any of the part is missed.

Chapter 3
Features & Specifications

(1) Features

- Provide low-voltage DC power over existing Category 5 cabling to a device with an Ethernet port
- Comply with IEEE802.3af, Power over Ethernet, IEEE802.3/802.3u 10/100Base-TX
- Distance up to 100 meters
- LED indicators for power input indication
- Protect devices from possible damages due to power-surges
- Three different output models (5V, 9V, 12V) to fit various devices
- Work with EIA568, category 5, 4-pair cable for 10Base-T or 100Base-TX.

(2) Technical Specification

Product	Power over Ethernet Injector
Model	POE-150
Standard	IEEE802.3, IEEE802.3u, 10/100Base-TX IEEE802.3af
Ethernet connector	2 x RJ-45 (1 for Data in, 1 for Data+DC out)
Ethernet data rate	10/100Mbps (vary on Ethernet device attached)

Input voltage	48VDC, 0.4A
Number of devices that can be powered	1
Ethernet data cable	TIA/EIA-568, Category 5/5e cable
LED Indicator	1 x power 1 x POE ready / in-use
Dimensions (L x W x H)	93 x 69 x 25 mm
Emission	FCC class B, CE-mark

Product	Power over Ethernet Splitter
Model	POE-150S
Standard	IEEE802.3, IEEE802.3u, 10/100Base-TX IEEE802.3af
Ethernet connector	2 x RJ-45 (1 for Data + DC in, 1 for Data out)
Ethernet data rate	10/100Mbps (vary on Ethernet device attached)
Output voltage / current	POE-150S-5V: 5VDC, 2A max. POE-150S-9V: 9VDC, 1.3A max POE-150S-12V: 12VDC, 1A max.
Number of devices that can be powered	1
Ethernet data cable	TIA/EIA-568, Category 5/5e cable
LED indicator	1 x POE ready/ in-use

Dimensions (L x W x H)	93 x 69 x 25 mm
Emission	FCC class B, CE-mark

(3) Product Outlook

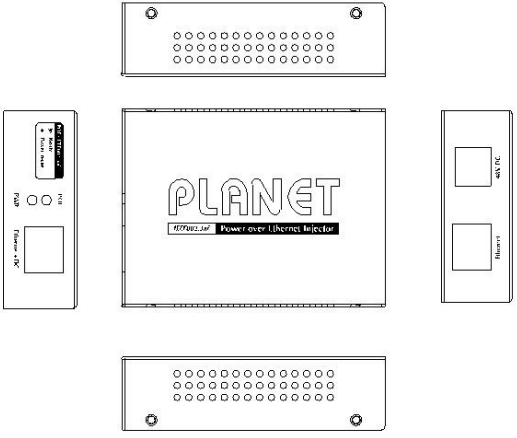


Figure 1: POE-150

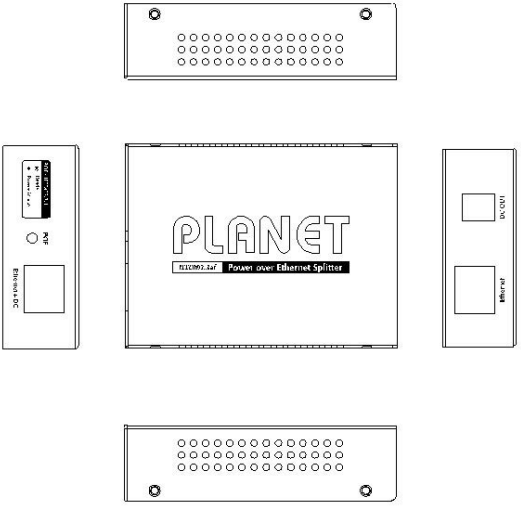


Figure 2: POE-150S

Chapter 4
Hardware Installation

4.1 Prior Installation

Before your installation, it is recommended to check your network environment. If there is problem for you to install a networked device where it is very difficult to find a power socket for your AC-DC Adapter, POE-150 and POE-150S should provide you a way to provide DC power for this Ethernet Device conveniently and easily.

The POE-150 comes with an AC-DC adapter with 48VDC output and injects this DC power into the un-used pin of the twisted pair cable (pair 4, 5 and pair 7, 8).

✍ NOTE:

1. Power over Ethernet (POE-150 and POE-150S) will only work under Category 5 UTP/STP cable with 4-pair. Please refer to appendix A for more.
2. Gigabit Ethernet device cannot be used to work with POE-150 and POE-150S since 1000Base-T will use the 4-pair for data transmission (refer to appendix A). Co-work with POE-150/150S, the speed will change to 100Mbps follow the port's auto-negotiation.

The POE-150S separates the power out and will provide three kind of power output by different model,, i.e. 5VDC/2A (model: POE-150S-5V), 9VDC/ 1.3A (model: POE-150S-9V) and 12VDC/ 1A (model:POE-150S-12V).

Hint

1. Please check the power requirement of the device that is going to get the power from POE-150S. If the power requirement is higher than POE-150/150S can supply, current overload will shutdown the POE-150S itself. Those will shutdown your device as well.

POE-150 and POE-150S can be installed in pair. However, the use of third-party device is allowed if the device complied with 802.3af.

4.2 POE-150, the Injector installation

1. Connect a standard network cable from Hub/Switch to "Ethernet" port of POE-150.
2. Connect the long cable that will be used to connect to the remote device to the port "Ethernet + DC".
3. In the other end of the cable, place the paster to the RJ-45 cable as the figure below.
4. Connect the AC adapter to "48V DC" of POE-150. The power LED will be steady on.

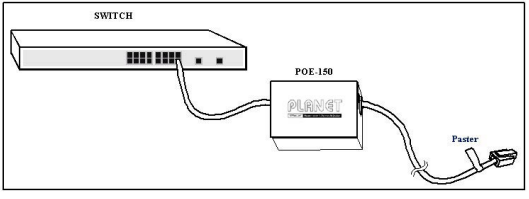


Figure 3: Warning paster location

4.3 POE-150S, the Splitter installation

1. Connect a standard network cable from "Ethernet+DC" of POE-150 to "Ethernet+DC" of POE-150S. The POE

LED of POE-150S / POE-150 will start to flash continuously.

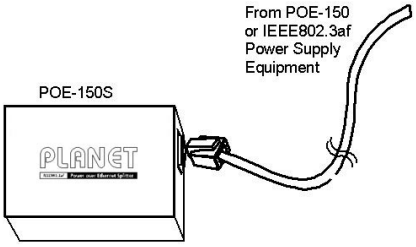


Figure 5: Connection to POE-150S

✍ NOTE: Supporting IEE802.3af, POE-150 will not inject power to the cable if you are not connecting to an 802.3af device.

Warning: POE-150S only accepts IEEE802.3af power supply equipment, any other in-line power device not comply to 802.3af sending power through UTP wire to POE-150S may cause the POE-150S malfunction.

2. Connect the UTP cable in the package from "Ethernet" of POE-150S to the RJ-45 port of remote device.
3. Connect proper DC plug from "DC OUT" of POE-150S to remote device.

Caution: Please ensure the output voltage is correct before applying power to remote device.

4. Power on the remote device and the LED indicator on POE-150S will remain on.

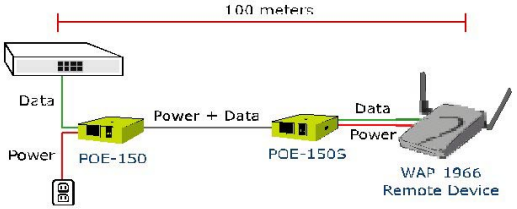


Figure 6: Connection architecture over POE-150/150S

4.4 Connect with 802.3af devices

The above two sections describe the connection of using POE-150 and POE-150S as a pair. However, due to the capability of IEEE802.3af, POE-150 can directly connect with any IEEE802.3af end-nodes like Wireless Access Point, VoIP phones, Internet Camera where support 802.3af In-line power Ethernet port. Please find the figure below for the connection.

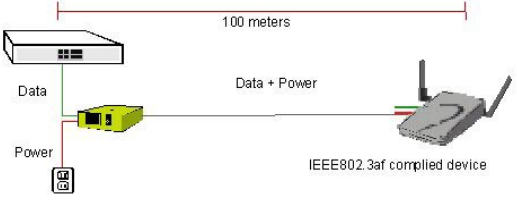


Figure 7: Connection to 802.3af device

Once POE-150 detects is the existence of an IEEE802.3af device, the LED indicator will be steady ON to shows it is providing power.

Hint	If the connected device is not fully complying with IEEE802.3af, say, a proprietary in-line power device, the LED indicator of POE-150 will not be steady on.

The POE-150S can also provide the alternative way to make the

non-802.3af devices connecting to an IEEE802.3af in-line power device like Power over Ethernet Switch. The figure is as below.

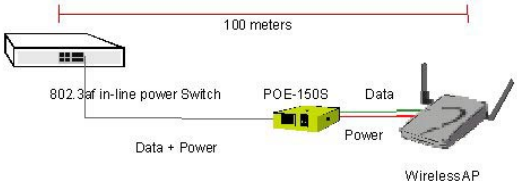


Figure 8: Connection to 802.3af in-line power switch

Hint	Comply with IEEE802.3af, POE-150S also can co-work with IEEE802.3af end-span switch that feeding power over pin 1, 2, and 3, 6.

Appendix A
RJ-45 pin assignment and cable system

A.1 Pin assignment

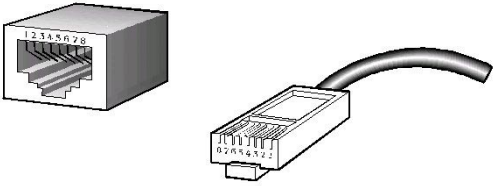
The following table and diagram show the standard RJ-45 receptacle/ connector and their pin assignments:

RJ-45 Connector pin assignment		
Contact	MDI Media Dependant Interface	MDI-X Media Dependant Interface -Cross
1	TX + (transmit)	Rx + (receive)
2	TX - (transmit)	Rx - (receive)
3	Rx + (receive)	TX + (transmit)
4, 5	DC current*	
6	Rx - (receive)	TX - (transmit)
7, 8	Ground	

Remark: Gigabit Ethernet is not allowed to use POE-150 since pair 4,5 and pair 7, 8 wires are all being used. Only 10Base-T and 100Base-TX can apply with POE-150.

A.2 Cable system

The standard cable, RJ-45 pin assignment



The standard RJ-45 receptacle/connector

There are 8 wires on a standard UTP/STP cable and each wire is color-coded. The following shows the pin allocation and color of straight cable and crossover cable connection:

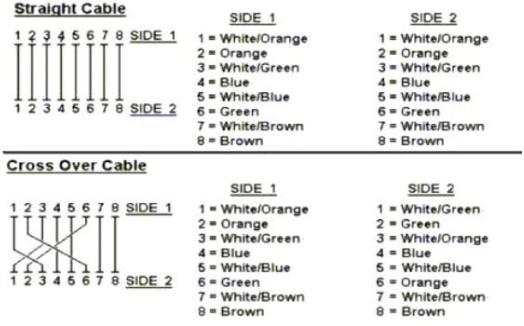


Figure A-1: Straight-Through and Crossover Cable

Please make sure your connected cable is with same pin assignment and color as above picture before deploying the cables into your network.

Appendix B
Troubleshooting

1. The device connected to POE-150S cannot be powered.

Answer:

a. Please check the POE-150S if it is connected with an IEEE 802.3af complied in-line device like POE-150, and check if the POE LED indicator at POE-150S is steady blink once attached to the 802.3af in-line power device. Then connect the DC plug cable to the device you would like to power on.

b. Please check the cable type of the connection from one end to the other end. The cable should be an 8-wire UTP, Category 5 or above, EIA568 cable within 100 meters. A cable with only 4-wire, short loop or over 100 meters, all will effect the power supply.

c. Please check the power requirement of the device you would like to power and check the label of the POE-150S if it meets the requirement. There are three models of POE-150S for different power output, DC 5V, DC 9V and DC 12V.

d. Please check the specification of the powered device. If the device is over the specification of POE-150S, the LED indicator of POE-150S will blink instead of steady green. The maximum currents that POE-150S can supply are: 2A (5V DC), 1.3A (9V DC) and 1A (12V DC).

2. Can device only work at 100Mbps when it is connected to Gigabit Ethernet device?

Answer:

POE-150/150S will use 4-wire for data transmission (pair 1, 2, pair 3, 6) and 4-wire for power supply (pair 4, 5, pair 7, 8), thus Gigabit Ethernet device connect to POE-150/150S will not send data over the power wire and the transmit speed shall change to 100Mbps.

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Part No.:2010-000037-001