

1. Introduction

1.1 Checklist

Thank you for purchasing PLANET HPOE-460 4-port Gigabit IEEE 802.3at Power over Ethernet Plus Injector Hub

Check your package for the following items:

- IEEE 802.3at PoE+ Injector Hub x 1
- User's Manual x 1
- Power Adapter x 1
- Power Cord x 1

If any of these pieces 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.

1.2 About the Power over Ethernet Injector Hub

PLANET HPOE-460 is a 4-port Gigabit IEEE 802.3at PoE+ Injector Hub, featuring both IEEE 802.3af and IEEE 802.3at Power over Ethernet Plus (PoE+) that deliver up to 30-watt power output and data per port over one Cat 5/5e/6 Ethernet cable. It is designed specifically to satisfy the growing demand of higher power consuming network PDs (powered devices) such as PTZ (pan, tilt, zoom)/speed dome network cameras, multi-channel (802.11ac/b/g/n/a) wireless LAN access points and other network devices by providing the double amount of PoE power, more than the conventional 802.3af PoE PSE.

- Full power support for each PoE port
 - Automatically detects powered device (PD)
 - Circuit protection prevents power interference between ports
- Hardware
- Desktop palm size, wall mountable
 - Power input LED
 - FCC Part 15 Class B, CE
 - 100~240V AC, 50/60Hz, 2A universal power supply adapter with DC 52V~56V power output
 - Plug and Play
- Standard Compliance
- IEEE 802.3 10BASE-T
 - IEEE 802.3u 100BASE-TX
 - IEEE 802.3ab 1000BASE-T
 - IEEE 802.3af Power over Ethernet
 - IEEE 802.3at Power over Ethernet Plus

Power over Ethernet	
PoE Power Supply Type	Mid-span
PoE Power Output	IEEE 802.3af per port DC 52V~56V 15.4 watts IEEE 802.3at per port DC 52V~56V 30.8 watts
Power Pin Assignment	4/5(+), 7/8(-)
PoE Power Budget	120 watts
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 Plus
Regulatory Compliance	FCC Part 15 Class B, CE
Environment	
Operating Temperature	0 ~ 50 degrees C
Storage Temperature	-10 ~ 70 degrees C
Humidity	5 ~ 95% (non-condensing)

2. Hardware Installation

This product provides three different running speeds - 10Mbps, 100Mbps and 1000Mbps - in the same device and automatically distinguishes the speed of the incoming connection.

This section describes the hardware features of the HPOE-460. Before connecting any network device to the HPOE-460, read this chapter carefully.

2.1. Before Installation

Before your installation, it is recommended to check your network environment. If there is any IEEE 802.3af/802.3at device which needs power, the HPOE-460 can supply power to this Ethernet device conveniently and easily. The HPOE-460 is equipped with an AC-DC adapter with DC 52V~56V input and injects this DC power into the pin of the twisted-pair cable (pair 4, 5 and pair 7, 8).

If there is no power socket for the AC-DC adapter of your non-IEEE 802.3af/802.3at networked device, the HPOE-460 and POE-162S/IPOE-162S can provide you with DC power for this Ethernet device conveniently and easily.

The 10Mbps, 100Mbps or 1000Mbps speed in duplex mode from data port of the HPOE-460 depends on which Ethernet device is attached to.

The HPOE-460 is installed between a regular Ethernet switch and the powered devices; it injects power to the PDs without affecting data transmission performance. It offers a cost-effective and quick solution to upgrading network system to IEEE 802.3af/IEEE 802.3at Power over Ethernet system without replacing the existing Ethernet switch. There are 8 RJ45 STP ports on the HPOE-460, of which half of the ports on the right panel function as "Data input" and the other half on the left panel function as "PoE (Data and Power) output". The 4 "PoE (Data and Power) output" ports are also the power injectors that transmit DC voltage to the Cat 5/5e/6 cable and transfer data and power simultaneously between the injectors and splitters.

1.3 Features

- 8-port RJ45
- 4-port 10/100/1000Mbps "Data Input"
- 4-port 10/100/1000Mbps "Data + Power Output"
- Power over Ethernet
- IEEE 802.3at and IEEE 802.3af Power over Ethernet mid-span PSE
- Up to 4 IEEE 802.3at/802.3af devices powered
- DC 52V~56V power over RJ45 Ethernet cable to devices with Ethernet port
- PoE power up to 30.8 watts (802.3at PoE+)/15.4 watts (802.3af PoE) for each PoE port
- Remote power feeding up to 100m

1.4 Specifications

Product	HPOE-460	
Hardware		
Interface	"Data" Input Ports	4 x RJ45
	"Data + Power" Output Ports	4 x RJ45
Data Rate	10/100/1000Mbps	
LED	System: Power x 1 (Green) Per PoE Port: PoE ready/in-use x 4 (Amber)	
Network Cable	10BASE-T: 4-pair UTP Cat. 5, up to 100m (328ft) 100BASE-TX: 4-pair UTP Cat. 5, up to 100m (328ft) 1000BASE-T: 4-pair UTP Cat. 5e/6, up to 100m (328ft) EIA/TIA-568 100-ohm STP (100m or 328ft)	
Dimensions (W x H x D)	26 x 70 x 97mm	
Weight	208g	
Power Requirements	DC 52V~56V	

1.5 Product Outlook



LED Definition:

LED	Color	Function
Power	Green	Lights to indicate that the HPOE-460 has power.
PoE Ready/In-Use	Amber	Lights to indicate the port is providing DC 52V~56V in-line power.

2.2 Installation of HPOE-460 and POE-162S

For the places hard to find the power inlet, the HPOE-460 and IEEE 802.3at Power over Ethernet Splitter (POE-162S/IPOE-162S) provide the easiest way to power your Ethernet devices such as IP cameras on the ceiling and wireless access point installed on the top of the building. With 4 10/100/1000BASE-T Gigabit Ethernet ports, the HPOE-460 supports full DC 52V~56V power for any remote IEEE 802.3af/802.3at powered device (PD).

To control the power system of your networking devices, the HPOE-460 can directly co-work with PoE IP phone to build VoIP telephony network in the office. Furthermore, the HPOE-460 can be directly connected to any third-party IEEE 802.3af/802.3at compliant devices installed 100 meters away.

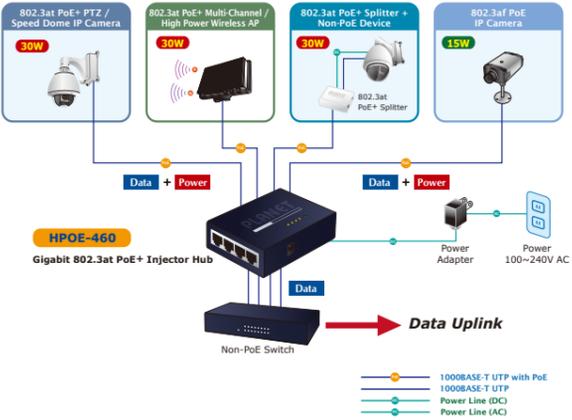


Figure 2-1: HPOE-460 Application Topology



1. According to IEEE 802.3af and IEEE 802.3at standard, the HPOE-460 will not inject power to the cable if not connected to IEEE 802.3af and IEEE 802.3at standard devices.
2. With IEEE 802.3af and IEEE 802.3at standard, the HPOE-460 can directly connect with any IEEE 802.3af or IEEE 802.3at standard compliant end nodes.

Appendix A Networking Connection

RJ45 Pin Assignments

1000Mbps, 1000BASE-T

RJ45 Connector Pin Assignment		
Contact	MDI	MDI-X
1	BI_DA+	BI_DB+
2	BI_DA-	BI_DB-
3	BI_DB+	BI_DA+
4	BI_DC+	BI_DD+
5	BI_DC-	BI_DD-
6	BI_DB-	BI_DA-
7	BI_DD+	BI_DC+
8	BI_DD-	BI_DC-

Implicit implementation of the crossover function within a twisted-pair cable, or at a wiring panel, while not expressly forbidden, is beyond the scope of this standard.

10/100Mbps, 10/100BASE-TX

RJ45 Connector Pin Assignment		
Contact	MDI Media Dependent Interface	MDI-X Media Dependent Interface - Cross
1	Tx + (transmit)	Rx + (receive)
2	Tx - (transmit)	Rx - (receive)
3	Rx + (receive)	Tx + (transmit)
4, 5	IEEE 802.3af/802.3at DC 48V/52V	
6	Rx - (receive)	Tx - (transmit)
7, 8	IEEE 802.3af/802.3at DC 0V	

3. Troubleshooting

This chapter contains information to help you solve your issues. If the Power over Ethernet Plus Injector Hub is not functioning properly, make sure the Power over Ethernet Plus Injector Hub was set up according to instructions in this manual.

How to let my non IEEE 802.3af/802.3at network devices work with HPOE-460

Solution:

You can use PLANET Power over Ethernet Splitter, such as PLANET POE-162S/IPOE-162S to work as a power transformer between the HPOE-460 and non IEEE 802.3af/802.3at devices. The POE-162S and IPOE-162S provide 12V DC and 24V DC voltage output through DIP switch.

The HPOE-460 PoE LED is not lit

Solution:

Check the cable connection between the HPOE-460 and IEEE 802.3af/802.3at devices.

Why my PoE device cannot be powered when connected with the HPOE-460

Solution:

1. Please check the cable type of the connection from the HPOE-460 to the other end. The cable should be an 8-wire UTP, Category 5/5e/6, EIA568 cable within 100 meters. A cable with only 4-wire, short loop or over 100 meters all will affect the power supply.
2. Please check to make sure the device is fully complied with IEEE 802.3af and IEEE 802.3at standard.

The Standard RJ45 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 the straight cable and crossover cable connection:

Straight Cable		SIDE 1	SIDE 2
1		1 = White/Orange	1 = White/Orange
2		2 = Orange	2 = Orange
3		3 = White/Green	3 = White/Green
4		4 = Blue	4 = Blue
5		5 = White/Blue	5 = White/Blue
6		6 = Green	6 = Green
7		7 = White/Brown	7 = White/Brown
8		8 = Brown	8 = Brown
Crossover Cable		SIDE 1	SIDE 2
1		1 = White/Orange	1 = White/Green
2		2 = Orange	2 = Green
3		3 = White/Green	3 = White/Orange
4		4 = Blue	4 = Blue
5		5 = White/Blue	5 = White/Blue
6		6 = Green	6 = Orange
7		7 = White/Brown	7 = White/Brown
8		8 = Brown	8 = Brown

Figure A-1: Straight-through and Crossover Cables

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



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4-Port 802.3at PoE+ Injector Hub

HPOE-460



PLANET Technology Corp.

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

2350-AF0320-005

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



Energy Saving Note of the Device
This power required device does not support Standby mode operation. For energy savings, please remove the power cable to disconnect the device from the power circuit. Without removing the power cable, the device will still consume power from the power source. In view of Saving the Energy and reducing the unnecessary power consumption, it is strongly suggested to remove the power cable from the device if this device is not intended to be active.

Energy Saving Note of the Device

This power required device does not support Standby mode operation. For energy savings, please remove the power cable to disconnect the device from the power circuit.

Without removing power cable, the device can still consume power from the power source. In view of Saving the Energy and reducing the unnecessary power consumption, it is strongly suggested to remove the power connection from the device if this device is not intended to be active.



EC Declaration of Conformity

For the following equipment:

*Type of Product : 4-Port IEEE 802.3at High Power over Ethernet Injector Hub

*Model Number : HPOE-460

* 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)
EN 61000-3-2	(2014)
EN 61000-3-3	(2013)
EN 55024	(2010 + A1:2015)
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
Place

Oct. 19, 2018
Date

Legal Signature

PLANET TECHNOLOGY CORPORATION

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