

**1-Port Ultra PoE to 4-Port 802.3af/at Gigabit
PoE Extender**

IPOE-E174
User's Manual

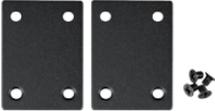
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1. Introduction

1.1 Package Contents

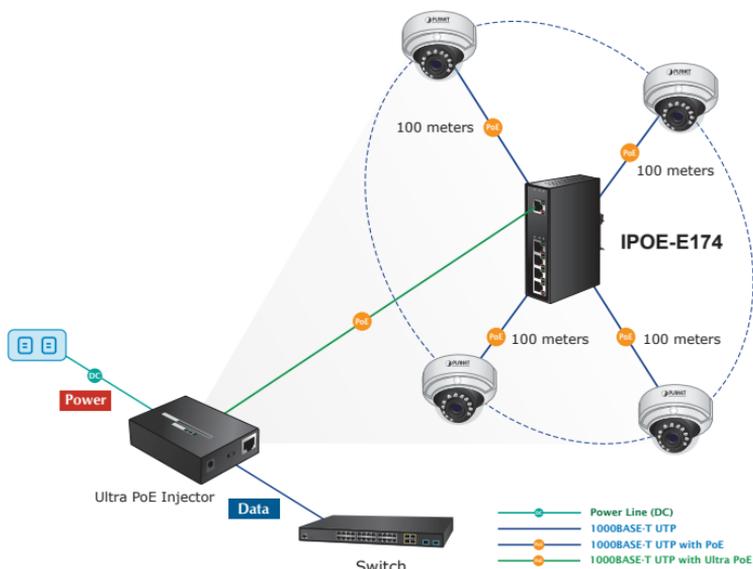
Thank you for purchasing **PLANET IPOE-E174 1-Port Ultra PoE to 4-Port 802.3af/at Gigabit PoE Extender**. Open the box of the IPOE-E174 and carefully unpack it. The box should contain the following items:

Industrial Power over Ethernet Extender x 1	User's Manual x 1
	
RJ45 Dust Cap x 5	Wall Mounting Kit 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.

1.2 Application Diagram

The IPOE-E174 is designed as a repeater to forward both Gigabit Ethernet data and IEEE 802.3at PoE power, thus extending the range of PoE installation. With just plug and play and without additional power supply and setup, one single IPOE-E174 can increase the PoE range to 200m and drive up four remote PoE IP cameras or wireless access point.



1.3 Key Features

> Physical Port

- **5-port 10/100/1000BASE-T** Gigabit RJ45 interface
 - ◆ 1-port **data + power input**
 - ◆ 4-port **data + power output**

> Power over Ethernet

- 1-port data + power input
 - ◆ Complies with ultra Power over Ethernet end-span and mid-span PD
 - ◆ Complies with IEEE 802.3at Power over Ethernet Plus end-span/mid-span PD
 - ◆ Supports PoE input power up to 75 watts
- 4-port data + power output
 - ◆ Complies with IEEE 802.3af/at PoE/end-span PSE
 - ◆ Up to 4 IEEE 802.3af/802.3at devices powered
 - ◆ Supports PoE power up to 30 watts for each PoE port
 - ◆ Auto detects powered device (PD)
- Extends the range of PoE to an additional 100 meters (328ft.)
- Forwards both Ethernet **data** and **PoE** power to remote device

> Layer 2 Features

- Features Store-and-Forward mode with wire-speed filtering and forwarding rates
- Integrates address look-up engine, supporting 2K absolute MAC addresses
- 9K jumbo frame support in 1000Mbps duplex mode
- Automatic address learning and address aging

► Industrial Case and Installation

- IP30 metal case
- DIN rail and wall-mount design
- Supports 6000V DC Ethernet ESD protection
- -40 to 75 degrees C operating temperature
- No external power cable required for installation
- **Plug and Play** installation



Note

PSE (Power Sourcing Equipment) is a device (switch, or hub for instance) that provides power in a PoE setup. Maximum allowed continuous output power per such device in IEEE 802.3af is 15.4W, and in IEEE 802.3at is 30W and in IEEE 802.3bt is 75W.

PD (Powered Device) is a PoE-enabled terminal by PSE and thus consumes energy, such as PoE IP phones, PoE IP cameras, PoE wireless access points, etc.

1.4 Technical Specifications

Model	IPOE-E174
Hardware Specifications	
Network Connector	<p>PoE In Port 1 x 10/100/1000BASE-T Ethernet with ultra PoE "Data + DC" in, auto MDI/MDI-X, auto-negotiation RJ45 connector</p> <p>PoE Out Port 4 x 10/100/1000BASE-T Ethernet with IEEE 802.3af/at PoE "Data + DC" out, auto MDI/MDI-X, auto-negotiation RJ45 connector</p>
Switch Architecture	Store-and-Forward switch architecture
MAC Address Table	2K MAC address table with auto learning function
Switch Fabric	10Gbps
Switch Throughput	7.44Mpps @ 64Bytes
Flow Control	IEEE 802.3x pause frame for full duplex Back pressure for half duplex
Jumbo Frame	9Kbytes
ESD Protection	6KV DC
Enclosure	IP30 metal case
Installation	DIN rail kit and wall-mount ear
Cable	Twisted-pair cable: 10BASE-T: 2-pair UTP Cat. 3,4,5, up to 100 meters 100BASE-TX: 2-pair UTP Cat. 5, 5e up to 100 meters 1000BASE-T: 4-pair UTP Cat. 5e,6 up to 100 meters
Dimensions (W x D x H)	32 x 87.8 x 135 mm
Weight	424g

Power Consumption	<p>4.1 watts/13.98 BTU (Power On) 5.3 watts/18.1 BTU (Full loading without PoE function) 64 watts/218.3 BTU (Full loading with PoE function)</p>
LED Display	<p>System: PWR (Green) Power Input: 30W, 2-pair 802.3at PoE in (Green) Power Input: 60W+, 4-pair 802.3bt, UltraPoE or UPOE in (Green) PoE Power usage: 20W, 40W and 60W PoE Input Port: PoE In (Orange) PoE Input Port: LNK/ACT (Green) Per PoE Output Port: LNK/ACT (Green) Per PoE Output Port: PoE-in-Use (Orange)</p>
Power over Ethernet	
PoE Standard	<p>PoE in Port IEEE 802.3at High Power over Ethernet end-span / mid-span PD class 4 PD Per PoE out Port IEEE 802.3at High Power over Ethernet end-span PSE IEEE 802.3af Power over Ethernet end-span PSE</p>
PoE Power	<p>PoE in Port 50~57V DC, max. 72 watts Per PoE out Port 44~55V DC, max. 30.8 watts</p>
Power Pin Assignment	<p>PoE in Port 1/2(-), 3/6(+); 4/5(+), 7/8(-) Per PoE out Port 1/2(+), 3/6(-)</p>

PoE Power Budget	64 watts (max.) @ PoE Type 3 input (Ultra PoE input) 30 watts (max.) @ PoE Type 2 input (802.3at input) 15 watts (max.) @ PoE Type 1 input (802.3af input)
Standards Conformance	
Regulatory Compliance	FCC Part 15 Class A, CE
Stability Testing	IEC60068-2-32 free fall IEC60068-2-27 shock IEC60068-2-6 vibration
Standards Compliance	IEEE 802.3 Ethernet IEEE 802.3u Fast Ethernet IEEE 802.3ab Gigabit Ethernet IEEE 802.3x Flow Control IEEE 802.3af Power over Ethernet IEEE 802.3at Power over Ethernet Plus IEEE 802.3bt Higher Power over Ethernet
Environment	
Operating	Temperature: -40 ~ 75 degrees C Relative Humidity: 5 ~ 95% (non-condensing)
Storage	Temperature: -40 ~ 85 degrees C Relative Humidity: 5 ~ 95% (non-condensing)

1.5 Power over Ethernet Budget

The following table lists how many PoE devices can be powered by the IPOE-E174:

Power Source	PoE Output Budget*	Max. Number of PDs supported	
PLANET Ultra PoE PSE	64 watts max.	Class 4 PD@25 watts	2 units
		Class 3 PD@15 watts	4 units
		Class 2 PD@7 watts	4 units
IEEE 802.3at PoE+ PSE	30 watts max.	Class 3 PD@15 watts	2 units
		Class 2 PD@7 watts	4 units
IEEE 802.3af PoE PSE	15 watts max.	Class 2 PD@7 watts	2 units

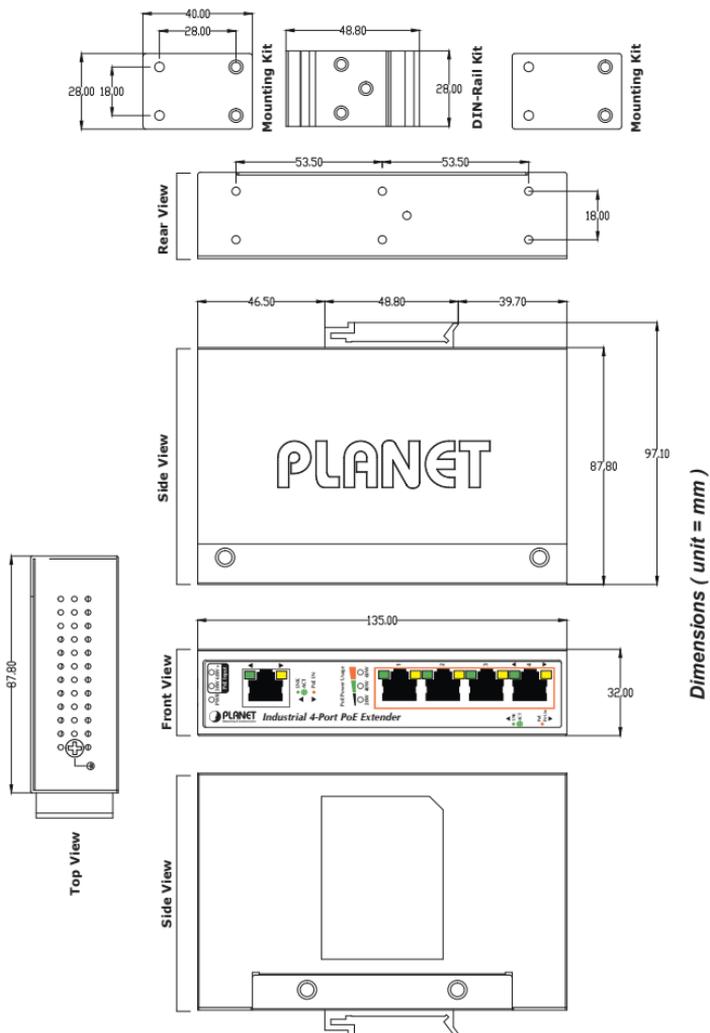
Remarks

1. The PoE Output Budget means the 4-port PD aggregated power output. The aggregated power consumption will be below 64 watts if with 802.3bt or ultra PoE PSE.
2. Please check the power input LED for optimal power output.

2. Installation

2.1 Physical Dimensions

The IPOE-E174's dimensions (W x D x H) are 32 x 87.8 x 135 mm.



2.2 Front Panel

Figure 2-1 shows the front panel of Industrial Power over Ethernet Extender

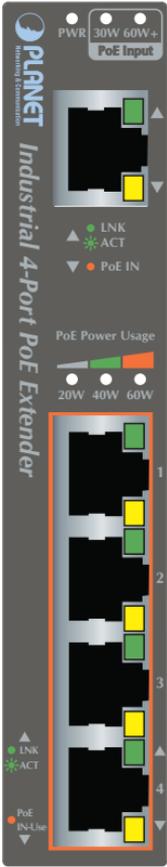


Figure 2-1: IPOE-E174 Front Panel

> System

LED	Color	Function
PWR	Green	Lights to indicate above 48VDC input
		Blinks for 2 seconds to indicate > 44VDC, ≤ 48VDC
		Blinks for 4 seconds to indicate > 40VDC, ≤ 44VDC
		Blinks for 4 seconds and TP ports flash orange for 1 second to indicate the input power is lower than 40VDC
30W IN	Green	Lights to indicate IPOE-E174 is working in 2-pair mode and offers up to 30-watt power.
60W+ IN	Green	Lights to indicate IPOE-E174 is working in 4-pair mode and offers more than 60-watt power.

> PoE Power Usage

LED	Color	Function
20W	Green	Blinks to indicate the system is providing 10W ~ 20W PoE power usage.
		Lights to indicate the system is providing 20W ~ 30W PoE power usage.
40W	Green	Blinks to indicate the system is providing 30W ~ 40W PoE power usage.
		Lights to indicate the system is providing 40W ~ 50W PoE power usage.
60W	Green	Blinks to indicate the system is providing 50W ~ 60W PoE power usage.
		Lights to indicate the system is providing 60W+ PoE power usage.

> Per PoE Output Port (Port 1 ~ 4)

LED	Color	Function
LNK/ACT	Green	Lights to indicate the port is linked up.
		Blinks to indicate that the IPOE-E174 is actively sending or receiving data over that port.
PoE-in-Use	Orange	Lights to indicate the port is providing PoE power.
		OFF to indicate the connected device is not a PoE Powered Device (PD).

2.3 Mounting Installation

This section describes how to install the Industrial Power over Ethernet Extender 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 IGS-801 (PLANET 8 Port Industrial Gigabit Switch) as an example. However, the steps for PLANET Industrial Power over Ethernet Extender are similar.

2.3.1 DIN-rail Mounting

Place the Industrial Power over Ethernet Extender on the DIN rail, which is mounted on the wall, and screw it. Just follow the steps below to install the Extender.

Step 1: Lightly insert the bottom of the switch into the track.



Step 2: Check if the DIN rail is tightly on the track.



Please refer to the following procedures to remove the Industrial Power over Ethernet Extender from the track.

Step 3: Lightly remove the DIN rail from the track.



2.3.2 Wall-mount Plate Mounting

To mount the Industrial Power over Ethernet Extender on the wall, please follow the instructions described below.

Step 1: To remove the DIN rail from the Industrial Power over Ethernet Extender, loosen the screws.



Step 2: Place the wall-mount plate on the rear panel of the Industrial Power over Ethernet Extender.



Step 3: Use the screws to screw the wall-mount plate on the Industrial Power over Ethernet Extender.

Step 4: Use the hook holes in the corners of the wall-mount plate to hang the Industrial Gigabit Ethernet Switch on the wall.

Step 5: To remove the wall-mount plate, reverse the steps above.

2.4 Connecting IPOE-E174 to Power Source Equipment (PSE)

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

There are five RJ45 ports in the Industrial Power over Ethernet Extender, of which the **"PoE IN"** port functions as **"PoE (Data and Power) input"** and the **"PoE-in-Use"** port on the other side functions as **"PoE (Data and Power) output"**.

Step 1: Connect a standard Cat.5e/6 UTP cable from **Power Source Equipment (PSE)**, such as PoE Switch, PoE injector hub or single port PoE injector, to the **"PoE IN"** port of the IPOE-E174.



Step 2: The PSE delivers both Ethernet Data and PoE power over UTP cable to the IPOE-E174 and the **“PoE IN”** LED will be lit steadily.

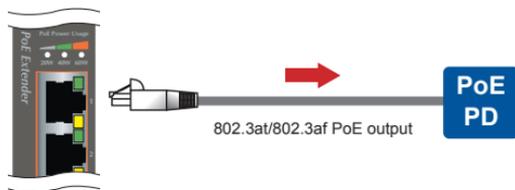


Note

1. When the LED turns steady green, it means the IPOE-E174 is being powered successfully with PoE.
2. If the LED is not lit, please check the remote PSE or the cable connecting to a PC or a network device to see if the cable is correct. Or with an 802.3at device such as the target PD, check whether the power injection is correct.
3. Never connect any **non-standard** POE PSE to the IPOE-E174; it will damage the device permanently.
4. Please reference Chapter 2.2 for more information about LED function.

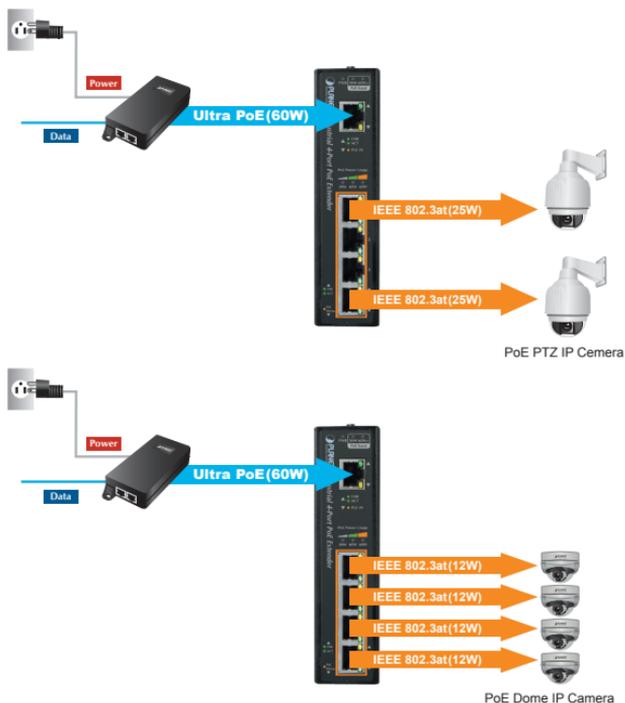
2.5 Connecting IPOE-E174 to Powered Device (PD)

Step 1: Connect the additional Cat.5e/6 cable that will be used to connect to the remote **Powered Device (PD)** to the **“PoE-in-Use”** port of the IPOE-E174.



Step 2: The **“PoE-in-Use”** port is also the power injector which transmits DC voltage to the Cat.5e/6 cable and transfer data and power simultaneously between the PSE and PD.

Step 3: Once the IPOE-E174 detects the existence of an IEEE 802.3at/af device, the “PoE-in-Use” LED indicator will be lit steadily, showing it is providing power.



Note

1. If the connected device is not fully complying with IEEE 802.3af/at standard or in-line power device, the PoE-in-Use LED indicator of the IPOE-E174 will not be lit steadily.
2. According to IEEE 802.3af/at standard, the IPOE-E174 will not inject power to the cable if not connecting to a standard IEEE 802.3af/at device.
3. **DO NOT** connect any PSE to port 1 ~ port 4 of the IPOE-E174; it may damage the device permanently.

3. Customer Support

Thank you for purchasing PLANET products. You can browse our online FAQ resource and user's manual on PLANET Web site first to check if it could solve your 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=1>

Switch support team mail address:

support_switch@planet.com.tw

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