1. Package Contents

Thank you for purchasing PLANET 1-port IEEE 802.3bt PoE++ to 4-port IEEE 802.3af/at Gigabit PoE Extender, POE-E304. **"Gigabit PoE Extender"** mentioned in this manual refers to the POE-E304.

Open the box of the Gigabit PoE Extender and carefully unpack it. The box should contain the following items:

Gigabit PoE Extender x 1

User's Manual x 1	Rubber Feet x 4

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

➢ **Physical Port**

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

➢ **Power over Ethernet**

■ 1-port data + power input
  - Complies with IEEE 802.3bt PoE++ PD
  - Supports PoE input power up to 95 watts

■ 4-port data + power output
  - Complies with IEEE 802.3af/IEEE 802.3at PoE+/end-span PSE
  - Up to 4 IEEE 802.3af/802.3at devices powered
  - Supports PoE power up to 32 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**

■ Hardware-based 10/100/1000Mbps auto-negotiation and auto MDI/MDI-X
■ Integrates address look-up engine, supporting 2K absolute MAC addresses
■ 9K jumbo packet support
■ Features Store-and-Forward mode with wire-speed filtering and forwarding rates
■ IEEE 802.3x flow control for full duplex operation and backpressure for half duplex operation

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■ Automatic address learning and address aging

➢ **Case and Installation**

■ No external power cable installation required
■ Made of metal, desktop size design
■ Wall-mountable, Plug-and-Play installation
■ 0 ~ 50 degrees C operating Temperature

> **Note**
>
> **PSE (power sourcing equipment)** is a device (switch or hub for instance) that will provide power in a PoE setup. The maximum allowed continuous output power per such device in IEEE 802.3af is 15.4 watts and in IEEE 802.3at is 30 watts.
>
> **PD (powered device)** such as IP phone, network camera or wireless access point is a PoE-enabled terminal that consumes energy supplied by PSE.

3. Product Specifications

Model	POE-E304
Hardware Specifications	
Network Connector	**PoE In Port** 1 x 10/100/1000BASE-T Ethernet with IEEE 802.3bt PoE++ **"Data + DC"** in, auto MDI/MDI-X, auto-negotiation RJ45 connector **PoE Out Port** 4 x 10/100/1000BASE-T Ethernet with IEEE 802.3af/802.3at PoE **"Data + DC"** out, auto MDI/MDI-X, auto-negotiation RJ45 connector

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Data Rate	10/100/1000Mbps
Switch Architecture	Store-and-Forward
MAC Address Table	2K
Data Buffer	1Mbits
Switch Fabric	10Gbps
Switch Throughput	7.44Mpps @ 64 bytes
Jumbo Frame	9K
Flow Control	IEEE 802.3x pause frame for full duplex Back pressure for half duplex

LED Indicators	PoE In Port
	  10/100/1000 LNK/ACT (green)
	PoE Out Port 1 to Port 4
	  10/100/1000 LNK/ACT (green)
	PoE-in-Use (orange)
	PWR (orange)

Protection	ESD: Contact 4KV, Air 6KV
	Surge: 4KV
Enclosure	Metal
Installation	Desktop/Wall mountable
Dimensions (W x D x H)	168 x 93 x 32mm
Weight	403g

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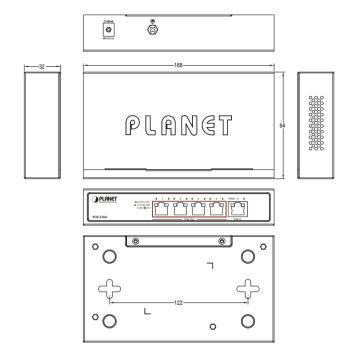| Power Requirements	PoE In: IEEE 802.3bt or 4-pair 802.3at PoE+ compliant with voltage within 50-56V DC
	External DC: 50~56V DC
Power Consumption	0.9 watts/3.1BTU (System on) 74 watts/252.4BTU (Full loading with PoE function)
Network Cable	10BASE-T: 4-pair UTP Cat5 up to 100m (328ft) 100BASE-TX: 4-pair UTP Cat5 up to 100m (328ft) 1000BASE-T: 4-pair UTP Cat5e, 6, up to 100m (328ft) EIA/TIA-568 100-ohm STP (100m, 328ft)
Power over Ethernet	
PoE Standard	**PoE In Port** IEEE 802.3bt Power over Ethernet Plus Plus end-span and mid-span PD class 4 PD **Per PoE Out Port** IEEE 802.3at Power over Ethernet Plus end-span PSE IEEE 802.3af Power over Ethernet end-span PSE
PoE Power	**PoE In Port** 50~56V DC, max. 95 watts input **Per PoE Out Port** 50~55V DC, max. 32 watts output
Power Pin Assignment	**PoE In Port** 1/2 (-), 3/6 (+); 4/5 (+), 7/8 (-) **Per PoE Out Port** 1/2 (-), 3/6 (+), end-span (Type A)
PoE Power Budget	65 watts (max.) @ IEEE 802.3bt PoE++ Type 4 PSE input 32 watts (max.) @ IEEE 802.3at PoE+ PSE input

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Standard Conformance	
Regulatory Compliance	FCC Part 15 Class A, CE
Standard 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 IEEE 802.3bt Power over Ethernet Plus Plus IEEE 802.3x Flow Control
Environment	
Operating	Temperature: 0 ~ 50 degrees C Relative Humidity: 5 ~ 95% (non-condensing)
Storage	Temperature: -10 ~ 70 degrees C Relative Humidity: 5 ~ 95% (non-condensing)

> **Note**
>
> The maximum distance that data and power can transmit depends on the quality of the UTP cable and environment.

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4. Hardware Introduction

4.1 Three-View Diagram

The three-view diagram of the Gigabit PoE Extender consists of one auto-sensing 10/100/1000BASE-T 802.3bt PoE In port, and four auto-sensing 10/100/1000BASE-T 802.3af/802.3at PoE Out ports. The LED Indicators are also located on the port of Gigabit PoE Extender front panel.

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4.2 Ports Connection

PoE IN Port	Connect the **PoE IN** port from the following 802.3bt PoE++ **PSE** devices through a Cat5/5e/6 UTP cable: ● 802.3bt PoE++/UPOE/PoH injector ● 802.3bt PoE++/UPOE/PoH injector hub ● 802.3bt PoE++/UPOE/PoH Ethernet switch
PoE OUT Port	Connect the **PoE OUT** port to the following 802.3at/af **PD** devices through a Cat5/5e/6 UTP cable: ● PoE IP camera ● PoE VoIP phone ● PoE wireless AP ● PoE splitter

4.3 LED Indicators

■ 802.3bt PoE IN Port

LED	Color	Function
10/100/1000 LNK/ACT	Green	**Lights** to indicate the link through that port is successfully established at 10/100/1000Mbps. **Blinks** to indicate that the port is actively sending or receiving data.

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■ 802.3af/at PoE Out Ports

LED	Color	Function
10/100/1000 LNK/ACT	Green	**Lights** to indicate the link through that port is successfully established at 10/100/1000Mbps. **Blinks** to indicate that the port is actively sending or receiving data.
PoE-in-Use	Orange	**Lights** to to indicate the port is providing 55V DC in-line power output.

■ Power

LED	Color	Function
PWR	Orange	**Lights** to indicate the device is powered on.

5. Hardware Installation

5.1 Before Installation

The POE-E304 is installed between the PSE and the PD; it is powered by PSE and forwards the Ethernet data and remaining PoE power or an external power supply to the PD. It can be installed easily by just Plug and Play without affecting the data transmission performance.

> **Note**
> 1. To provide you with better PoE power and data extension quality, we strongly recommend that you use **"Solid UTP Cable"** when installing the POE-E304.
> 2. The POE-E304 can be installed with a third-party device if the device complies with IEEE 802.3af/at standard.
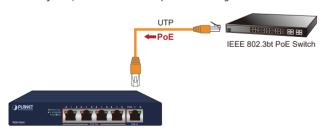
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5.2 Connecting POE-E304 to PSE

This section describes how to install Gigabit PoE Extender and make connection to it. Please read the following descriptions and perform the procedures in the order being presented.

There are 5 RJ45 ports in the Gigabit PoE Extender, of which the **"PoE IN"** port functions as **"PoE (Data and Power) input"** and the four **"PoE Out"** ports function as **"PoE (Data and Power) output"**.

Step 1: Connect a standard Cat5e/6 UTP cable from **PSE**, such as PoE++ switch, PoE++ injector hub and single port PoE++ injector, to the **"PoE IN"** port of the Gigabit PoE Extender.

Step 2: The PSE delivers both Ethernet data and PoE power over UTP cable to the Gigabit PoE Extender.
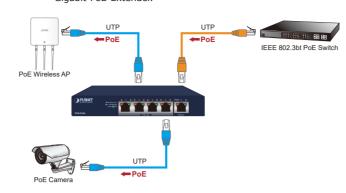
> **Note**
> 1. When the PoE-in-Use LED turns steady orange, it means the Gigabit PoE OUT is supplying power successfully from PSE.
> 2. If the PoE-in-use LED is not lit, please check the remote PSE or the cable connecting to a PC or a network device to see if the cable is correct.

> **⚠ Caution**
> Never connect any **non-standard** PoE PSE to the Gigabit PoE Extender or else it will damage the device permanently.

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5.3 Connecting POE-E304 to PD

Step 1: Connect the additional Cat5e/6 cable that will be used to connect to the remote **PD** to the **"PoE Out"** port of the Gigabit PoE Extender.

Step 2: The **"PoE Out"** port is also the power injector which transmits DC voltage to the Cat5e/6 cable and transfer data and power simultaneously between the PSE and PD.

Step 3: Once the Gigabit PoE Extender detects the existence of an IEEE 802.3af/at device, the **"PoE-in-Use"** LED indicator will be lit steadily, showing it is providing power.
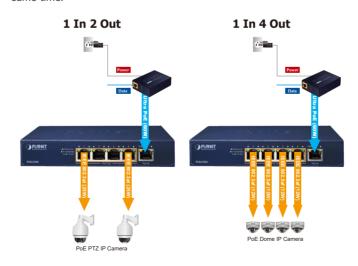
> **Note**
> 1. If the connected device is not fully complying with IEEE 802.3af/at standard or in-line power device, the PoE-in-Use LED indicator of the Gigabit PoE Extender will not be lit steadily.
> 2. According to IEEE 802.3af/at standard, the Gigabit PoE Extender will not inject power to the cable if not connected to a standard IEEE 802.3af/at device.

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5.4 PoE Power Distribution

The POE-E304 can obtain a maximum of 95-watt PoE power from IEEE 802.3bt PoE++ input port and supplies a maximum of 65-watt PoE power budget to four PoE output ports, extending both the reach of **Gigabit Ethernet Data** and IEEE 802.3af/802.3at PoE over the standard 100m (328 ft.) Cat 5/5e/6 UTP cable to up to 200m at the same time.

1 In 2 Out   **1 In 4 Out**

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User's Manual

1-Port 802.3bt PoE++ to 4-Port 802.3af/at Gigabit PoE Extender

▶ POE-E304

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

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

2351-AF0580-001

6. Power Over Ethernet Budget

The following table lists how many PoE devices can be powered by POE-E304:

Power Source	PoE Output Budget*	Max. Number of PDs supported	
IEEE 802.3at PoE+ PSE	25 watts max.	Class 4 PD@25-watt	1 unit
		Class 3 PD@15-watt	1 unit
		Class 2 PD@7-watt	3 units
IEEE 802.3bt PoE PSE	65 watts max.	Class 4 PD@25-watt	2 units
		Class 3 PD@15-watt	4 units
		Class 2 PD@7-watt	4 units
External Power Adapter – 56V DC, 74W	65 watts max.	Class 4 PD@25-watt	2 units
		Class 3 PD@15-watt	4 units
		Class 2 PD@7-watt	4 units

> **Note**
> 1. The PoE Output Budget means the 4-port PD aggregated power output. The aggregated power consumption will be below 65 watts if with **IEEE 802.3bt PoE++** PSE.
> 2. If the PoE output, whose power source is **IEEE 802.3at PoE+**, is more than 25 watts, the device will be shut down.

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7. Customer Support

Thank you for purchasing PLANET products. You can browse our online FAQ resource at PLANET web site first to check if it could solve your issue. If you need more support information, please contact PLANET support team.

PLANET online FAQs:
https://www.planet.com.tw/en/support/faq.php?method=category&c1=2

PLANET support team mail address:
support@planet.com.tw

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