

## 1. Package Contents

Thank you for purchasing PLANET 16-Port 10/100/1000T 802.3at PoE+ Ethernet Switch, GSD-2022P. "802.3at PoE+ Switch" mentioned in this Guide refers to the GSD-2022P.

Open the box of the 802.3at PoE+ Switch and carefully unpack it. The box should contain the following items:

The 802.3at PoE+ Switch x 1		User's Manual x 1	Power Cord x 1
			
SFP Dust Cap x 2	Screws x 8	Rack-mounting Brackets x 2	Rubber Feet x 4
			

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.

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## 2. Product Features

- Physical Port
  - 16-port 10/100/1000BASE-T Gigabit RJ45 copper with IEEE 802.3at PoE+ injector function
  - 2 10/100/1000BASE-T Gigabit RJ45 copper interfaces
  - 2 1000BASE-X SFP slot interfaces
- Power over Ethernet
  - Complies with IEEE 802.3at Power over Ethernet Plus end-span PSE
  - Up to 16 ports of IEEE 802.3af/802.3at devices powered (ports 1~16)
  - Supports PoE power up to 32 watts for each PoE port, with a total PoE budget of 185W
  - Each port supports 54V DC power to PoE powered device
  - Auto detects powered device (PD)
  - Supports PD alive function
  - Circuit protection prevents power interference between ports
  - Remote power feeding up to 100m in standard mode with 250m in extend mode
- Switching
  - Hardware-based 10/100/1000Mbps auto-negotiation and auto MDI/MDI-X
  - Supports IEEE802.3x flow control in full-duplex mode and back-pressure in half-duplex mode
  - Integrates address look-up engine, supporting 8K absolute MAC addresses
  - 9K jumbo frame supports all speeds (10/100/1000Mbps)

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- Hardware-based DIP switch for **Standard, VLAN** or **Extend** mode selection;
  - VLAN mode: Ports 1 to 16 cannot communicate with each other, but can communicate with the uplink ports 17 to 18 and SFP ports 19 to 20
  - Extend mode: Ports 1 to 8 have data rate of 10Mbps. The farthest transmission distance is up to 250 meters and all ports can communicate with each other.
- VLAN mode is to isolate ports to prevent broadcast storm and defend DHCP spoofing
- Automatic address learning and address aging
- Supports Energy-Efficient Ethernet (EEE) function (IEEE 802.3az)
- Hardware
  - 12-inch desktop size, 1U height
  - LED indicators for system power, per port PoE ready and PoE activity, speed, Link/Act
  - 1 silent fan to provide stable and efficient power performance
  - Supports contact discharge of ±6KV DC and air distance discharge of ±8KV DC for Ethernet ESD protection
  - Supports ±6KV surge immunity

## 3. Product Specifications

Model	GSD-2022P
Hardware Specifications	
10/100/1000BASE-T Copper Ports	18 auto MDI/MDIX

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1000BASE-X SFP Slots	2
DIP Switch	Selectable operation mode <ul style="list-style-type: none"> <li>➢ Standard</li> <li>➢ VLAN</li> <li>➢ Extend</li> </ul>
LED	<ul style="list-style-type: none"> <li>➢ <b>System:</b> Power (Green)</li> <li>➢ <b>10/100/1000T RJ45 Interfaces</b> 10/100/1000 LNK/ACT (Green), PoE-in-Use (Amber)</li> <li>➢ <b>1000X SFP Interfaces</b> 1000 LNK/ACT (Green)</li> </ul>
Dimensions (W x D x H)	280 x 180 x 44 mm (1U height)
Enclosure	Metal
Weight	1810g
Power Requirements	100~240V AC, 50/60Hz, 5A max.
Power Consumption/Dissipation	Max. 201 watts/686 BTU
Thermal Fan	1
ESD Protection	Contact discharge of ±6KV DC, Air discharge of ±8KV DC
Surge Protection	±6KV
Installation	Desktop or rack-mount installation
Switching	
Switch Architecture	Store-and-Forward
Switch Fabric	40Gbps/non-blocking

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Switch Throughput@64bytes	29.76Mpps
MAC Address Table	8K entries
Jumbo Frame	9216 bytes
Flow Control	IEEE 802.3x pause frame for full duplex; back pressure for half duplex
Power over Ethernet	
PoE Standard	IEEE 802.3at Power over Ethernet Plus/PSE
PoE Injector Ports	16
PoE Power Supply Type	End-span/Mid-span: 1/2/4/5 (+), 3/6/7/8 (-)
PoE Power Output	Per port 54V DC, 300mA. max. 15.4 watts (IEEE 802.3af) Per port 54V DC, 600mA. max. 32 watts (IEEE 802.3at)
PoE Power Budget	185 watts
Number of PDs, 7 watts	16
Number of PDs, 15.4 watts	12
Number of PDs, 30 watts	6
Standards Conformance	
Regulatory Compliance	FCC Part 15 Class A, CE

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Standards Compliance	IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX IEEE 802.3ab Gigabit 1000BASE-T IEEE 802.3z Gigabit SX/LX IEEE 802.3x flow control and back pressure IEEE 802.3af Power over Ethernet IEEE 802.3at Power over Ethernet Plus IEEE 802.3az Energy-Efficient Ethernet
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)

## 4. Hardware Introduction

### 4.1 Front Panel

The Front Panel of the 802.3at PoE+ Switch consists of 18 auto-sensing 10/100/1000Mbps Ethernet RJ45 ports and 2 1000BASE-X SFP slots. The LED Indicators are also located on the front panel of the 802.3at PoE+ Switch.



Figure 4-1: GSD-2022P Switch Front Panel

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## 4.2 LED Indicators

### ■ System

LED	Color	Function
PWR	Green	<b>Lights</b> to indicate the Switch has power.

### ■ Per 10/100/1000BASE-T Port

LED	Color	Function
10/100/1000 LNK/ACT	Green	<b>Lights</b> to indicate the link through that port is successfully established. <b>Blinks</b> to indicate that the Switch is actively sending or receiving data over that port.
PoE in Use	Amber	<b>Lights</b> to indicate the port is providing PoE DC in-line power.

### ■ Per 1000BASE-X SFP Interface

LED	Color	Function
1000 LNK/ACT	Green	<b>Lights</b> to indicate the link through that port is successfully established at 1000Mbps. <b>Blinks</b> to indicate that the Switch is actively sending or receiving data over that port.

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## 4.3 Multiple Functions of DIP Switch

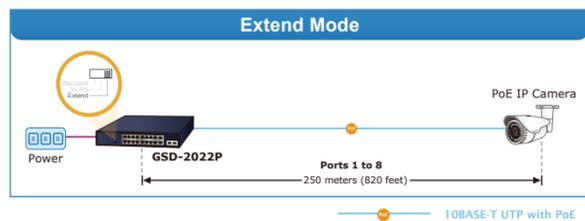
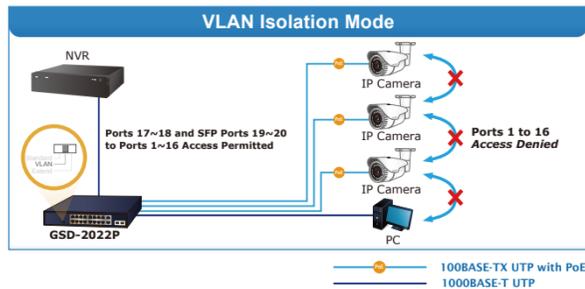
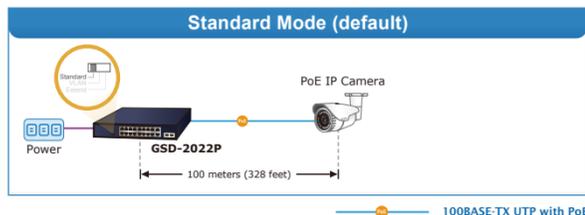
The front panel of the 802.3at PoE+ Switch provides one DIP switch for **Standard, VLAN** or **Extend** mode selection. The detailed descriptions are shown in the following table.

DIP Switch Mode	Function
	This mode makes the 802.3at PoE+ Switch operate as a general switch and all PoE ports operate at 10/100/1000Mbps auto-negotiation. All ports can communicate with one another.
	This mode makes the 802.3at PoE+ Switch operate as a <b>VLAN isolation</b> switch and <ol style="list-style-type: none"> <li>Ports 1 to 16 will isolate respectively.</li> <li>Ports 1 to 16 can only communicate with ports 17~18 (uplink ports) and SFP ports 19~20</li> </ol>
	This mode makes the 802.3at PoE+ Switch operate as a Long Reach PoE switch and <ol style="list-style-type: none"> <li>Ports 1 to 8 support farthest transmission distance of up to 250 meters</li> <li>Ports 1 to 8 have a data rate of 10Mbps</li> <li>All ports can communicate with one another.</li> </ol>



Please adjust the DIP switch before powering on the 802.3at PoE+ Switch.

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#### 4.4 Rear Panel

The rear panel of the 802.3at PoE+ Switch indicates an AC power socket, which accepts input power from 100 to 240V AC, 50-60Hz, 5A.



Figure 4-2: GSD-2022P Switch Rear Panel

##### AC Power Receptacle

**Power Notice**  
The device is a power-required device, which means it will not work till it is powered. If your networks should be active all the time, please consider using UPS (Uninterrupted Power Supply) for your device. It will prevent you from network data loss or network downtime.

**Power Notice**  
In some areas, installing a surge suppression device may also help to protect your 802.3at PoE+ Switch from being damaged by unregulated surge or current to the 802.3at PoE+ Switch or the power adapter.

## 5. Hardware Installation

### 5.1 Rack Mounting

To install the 802.3at PoE+ Switch in a 19-inch standard rack, follow the instructions described below.

**Step 1:** Place your 802.3at PoE+ Switch on a hard flat surface, with the front panel positioned towards your front side.

**Step 2:** Attach a rack-mount bracket to each side of the 802.3at PoE+ Switch with supplied screws attached to the package. Figure 5-1 shows how to attach brackets to one side of the 802.3at PoE+ Switch.



Figure 5-1: Attaching the Brackets to the 802.3at PoE+ Switch.



**Caution**  
You must use the screws supplied with the mounting brackets. Damage caused to the parts by using incorrect screws would invalidate the warranty.

**Step 3:** Secure the brackets tightly.

**Step 4:** Follow the same steps to attach the second bracket to the opposite side.

**Step 5:** After the brackets are attached to the 802.3at PoE+ Switch, use suitable screws to securely attach the brackets to the rack, as shown in Figure 5-2.

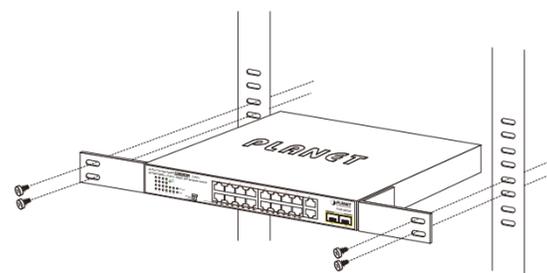


Figure 5-2: Mounting the 802.3at PoE+ Switch in a Rack

**Step 6:** Connect your 802.3at PoE+ Switch to 802.3af/802.3at complied PDs and other network devices.

- Connect one end of a standard network cable to the 10/100/1000BASE-T RJ45 ports on the front panel of the 802.3at PoE+ Switch.
- Connect the other end of the cable to the network devices such as printer servers, workstations or routers, etc.

**Step 7:** Supply power to the 802.3at PoE+ Switch.

- Connect one end of the power cable to the 802.3at PoE+ Switch.
- Connect the power plug of the power cable to a standard wall outlet.

When the 802.3at PoE+ Switch receives power, the power LED should remain solid Green.



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2351-AK3340-001

**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.

### 5.2 Installing the SFP Transceiver

The sections describe how to insert an SFP transceiver into an SFP slot of the 802.3at PoE+ Switch.

The SFP transceivers are hot-pluggable and hot-swappable. You can plug in and out the transceiver to/from any SFP port without having to power down the 802.3at PoE+ Switch, as the Figure 5-3 shows.

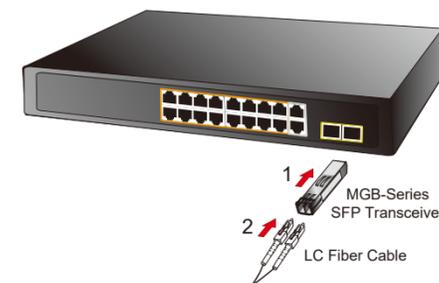


Figure 5-3: Plug In the SFP Transceiver

#### Approved PLANET SFP Transceivers

PLANET 802.3at PoE+ Switch supports both single mode and multi-mode SFP transceivers. The website link of approved PLANET SFP transceivers is shown below:

<https://www.planet.com.tw/en/product/mgb-series-transceiver>



**Note**  
It is recommended to use PLANET SFP on the 802.3at PoE+ Switch. If you insert an SFP transceiver that is not supported, the 802.3at PoE+ Switch will not recognize it.

- Before we connect the 802.3at PoE+ Switch to the other network device, we have to make sure both sides of the SFP transceivers are with the same media type, for example, 1000BASE-SX to 1000BASE-SX; 1000BASE-LX to 1000BASE-LX.
- Check whether the fiber-optic cable type matches with the SFP transceiver requirement.
  - To connect to 1000BASE-SX SFP transceiver, please use the multi-mode fiber cable with one side being the male duplex LC connector type.
  - To connect to 1000BASE-LX SFP transceiver, please use the single-mode fiber cable with one side being the male duplex LC connector type.

## Customer Support

Thank you for purchasing PLANET products. You can browse our online FAQ resource on 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>

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

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