

**24-Port 10/100TX 802.3at PoE +
1-Port Gigabit TP/SFP Combo Ethernet Switch**

FGSW-2511P

User's Manual

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This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the Instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CE Mark Warning

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

WEEE Warning



To avoid the potential effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment, end users of electrical and electronic equipment should understand the meaning of the crossed-out wheeled bin symbol. Do not dispose of WEEE as unsorted municipal waste and have to collect such WEEE separately.

Revision

PLANET 24-Port 10/100TX 802.3at PoE + 1-Port Gigabit TP/SFP Ethernet Switch
User's Manual

For Model: FGSW-2511P

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1. Introduction

1.1 Package Contents

Thank you for purchasing PLANET 24-port 10/100TX 802.3at PoE + 1-port Gigabit TP/SFP combo Ethernet Switch, FGSW-2511P. Unless specified, “**PoE+ Switch**” mentioned in this user’s manual refers to the FGSW-2511P.

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

<p>FGSW-2511P x 1</p> 	<p>User’s Manual x 1</p> 
<p>Power Cord x 1</p> 	<p>Rubber Feet x 4</p> 
<p>Rack-mounting Brackets x 2</p> 	<p>Screws x 8</p> 

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 Product Description

The FGSW-2511P, a new member in the PLANET 802.3at PoE+ Fast Ethernet Switch family, provides 24 10/100BASE-TX 802.3at Power over Ethernet Plus ports with a total of 190 watts of PoE budget, one 10/100/1000BASE-T uplink port, and one shared 1000BASE-X SFP slot. Its PoE power is more than enough for those network applications that need Fast Ethernet transmission.

The FGSW-2511P also offers a simple, cost-effective and non-blocking wire-speed performance. It comes with a compact 19-inch metal housing, suitable for desktop deployment in enterprise office or department network application.

The mini-GBIC slot built in the FGSW-2511P supports 1000BASE-SX/LX SFP (small form-factor pluggable) fiber-optic modules, meaning the administrator now can flexibly choose the suitable SFP transceiver according to the transmission distance or the transmission speed required to extend the network efficiently

1.3 Features

➤ Physical Interface

- 24 10/100BASE-TX RJ45 copper ports
- 1 10/100/1000BASE-T Gigabit RJ45 copper port
- 1 shared 1000BASE-X SFP interface
- Hardware-based DIP switch for "Standard", "VLAN", "QoS" and "Extend" mode selection

➤ Power over Ethernet

- Complies with IEEE 802.3at Power over Ethernet Plus end-span PSE
- Up to 24 IEEE 802.3af/at devices powered
- Supports PoE power up to 30 watts for each PoE port
- 190-watt PoE budget
- Each PoE port supports 52V DC power to PoE powered device
- Auto detects powered device (PD)
- Circuit protection prevents power interference between ports
- Remote power feeding up to 100m in standard mode
- The "Extend" mode features 25-watt PoE transmit distance of 250m at speed of 10Mbps

➤ Switching

- Hardware-based 10/100Mbps and 10/100/1000Mbps auto-negotiation and auto MDI/MDI-X
- Flow control for full duplex operation and back pressure for half duplex operation

- Integrates address look-up engine, supporting 16K absolute MAC addresses
 - Automatic address learning and address aging
 - Solid DIP switch to isolate ports to prevent broadcast storm and defend DHCP spoofing
- Hardware
- 19-inch rack-mount size, 1U height
 - LED indicators for PoE ready/activity and LINK/ACT
 - Internal AC power supply
 - Supports Energy-Efficient Ethernet (EEE) function (IEEE 802.3az)

1.4 Specifications

Model	FGSW-2511P
Hardware Specifications	
10/100Mbps Ports	24 10/100BASE-TX MDI/MDI-X RJ45 ports
Gigabit Ports	1 10/100/1000BASE-T MDI/MDI-X RJ45 port
SFP Slot	1 1000BASE-X SFP interface, shared with Gigabit RJ45 copper
PoE Inject Port	24-port with 802.3at PoE injector function (Port-1 to Port-24)
LED Display	System: <ul style="list-style-type: none"> ■ Power (Green) 10/100BASE-TX RJ45 Interface: <ul style="list-style-type: none"> ■ LNK/ACT (Green, Port-1 to Port-24) ■ PoE (Amber, Port-1 to Port-24) 10/100/1000BASE-T RJ45 and 1000BASE-X combo Interface: <ul style="list-style-type: none"> ■ LNK/ACT (Green, Port 25)
DIP Switch	4 operation modes: Standard/VLAN/QoS/Extend
Switch Architecture	Store and Forward
MAC Address Table	16K MAC address table with auto learning function
Switch Fabric	5.8Gbps
Switch Throughput	5.06Mpps @64bytes
Maximum Packet Size	16K bytes
Flow Control	Back pressure for half duplex; IEEE 802.3x pause frame for full duplex

Power Requirements	AC 100~240V, 3A max.
Power Consumption	205 watts, 699.5 BTU
Dimensions (W x D x H)	440 x 200 x 45 mm
Weight	1220 g
ESD Protection	Contact discharge of $\pm 6\text{KV}$ DC Air discharge of $\pm 8\text{KV}$ DC
Surge Immunity	$\pm 4\text{KV}$
Power over Ethernet	
PoE Standard	IEEE 802.3at Power over Ethernet Plus/PSE
PoE Power Supply Type	End-span
Power Pin Assignment	1/2 (+), 3/6(-)
PoE Power Output	Per Port 52V DC, 600mA. max. 30 watts (IEEE 802.3at) Per Port 52V DC, 300mA. max. 15.4 watts (IEEE 802.3af)
PoE Power Budget	190 watts
Number of PDs, 7 watts	24
Number of PDs, 15 watts	12
Number of PDs, 30 watts	6
Standard Conformance	
EMI Safety	CE, FCC
Standard Compliance	IEEE 802.3 Ethernet IEEE 802.3u Fast Ethernet IEEE 802.3ab Gigabit 1000BASE-T IEEE 802.3z Gigabit SX/LX IEEE 802.3x Flow Control IEEE 802.3af Power over Ethernet IEEE 802.3at Power over Ethernet Plus IEEE 802.3z Energy Efficient Ethernet
Environment	
Operating Environment	0 ~ 50 degrees C
Storage Environment	-10 ~ 70 degrees C
Operating Humidity	5 ~ 95%, relative humidity, non-condensing
Storage Humidity	5 ~ 95%, relative humidity, non-condensing

2. Hardware Description

This section describes the hardware features of the FGSW-2511P. For easier management and control of the FGSW-2511P, familiarize yourself with its display indicators and ports. Front panel illustrations in this chapter display the unit LED indicators. Before connecting any network device to the FGSW-2511P, please read this chapter carefully.

2.1 Front Panel

The front panel of the FGSW-2511P consists of 24 Auto-Sensing 10/100Mbps Ethernet RJ45 Ports, 1 Au-to-Sensing 10/100/1000Mbps Ethernet RJ45 Port and 1 1000 Mbps SFP port. The LED Indicators are also located on the front panel of the FGSW-2511P.

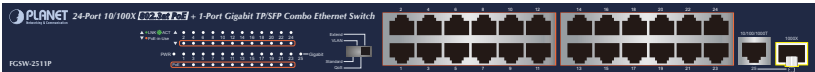
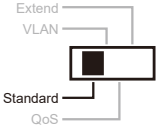
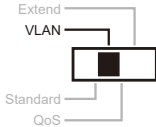
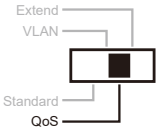
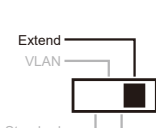


Figure 2-1: FGSW-2511P Switch Front Panel

2.1.1 Multiple Functions of DIP Switch

The front panel of FGSW-2511P provides one DIP switch for **Standard**, **QoS**, **VLAN** and **Extend** mode selections. The detailed descriptions are shown in the following table.

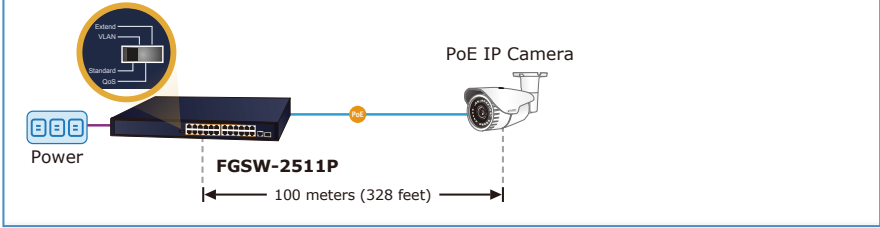
DIP Switch Mode	Function
<p>1</p> 	<p>This mode makes the FGSW-2511P operate as a general switch and all PoE ports operate at 10/100Mbps auto-negotiation. All ports can communicate with one another.</p>
<p>2</p> 	<p>This mode makes the FGSW-2511P operate as a VLAN isolation switch and</p> <ol style="list-style-type: none"> 1.Port 1 to port 24 will isolate respectively. 2.Port 1 to port 24 can only communicate with port 25 (uplink port)
<p>3</p> 	<ol style="list-style-type: none"> 1.Port 1 to Port 8 supports port priority; optimize port cache 2.All ports can communicate with one another.
<p>4</p> 	<p>This mode makes the FGSW-2511P operate as a Long Reach PoE switch and</p> <ol style="list-style-type: none"> 1.Port 1 to Port 8 support farthest transmission distance of up to 250 meters 2.Port 1 to Port 8 data rate down to 10Mbps 3.All ports can communicate with one another



Note

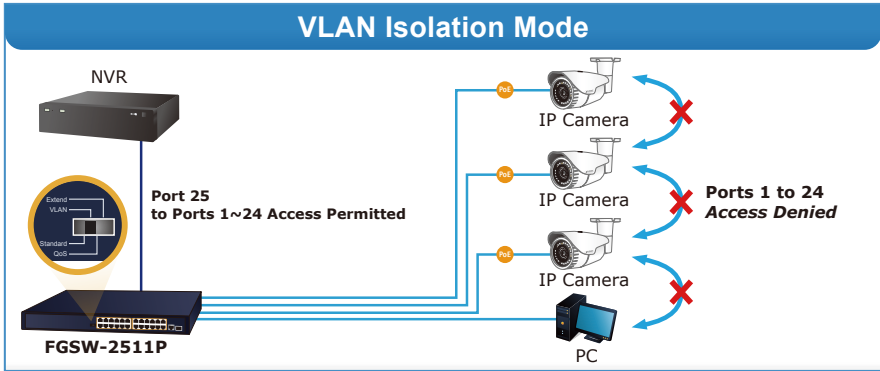
Please adjust the DIP switch before powering on the FGSW-2511P.

Standard Mode (default)



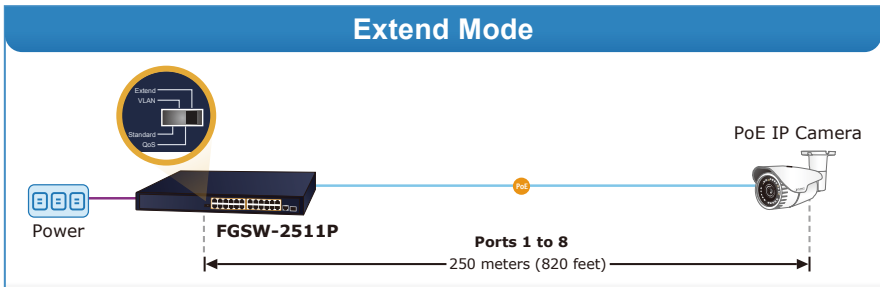
100BASE-TX UTP with PoE

VLAN Isolation Mode



100BASE-TX UTP with PoE
100BASE-T UTP

Extend Mode



10BASE-T UTP with PoE

2.1.2 LED Indicators

System

LED	Color	Function
PWR	Green	Lights to indicate that the PoE+ Switch has power.

Per 10/100BASE-TX PoE+ Port

LED	Color	Function
LNK/ACT	Green	Lights to indicate the PoE+ Switch is successfully connecting to the network at 10/100Mbps. Blinks to indicate that the Switch is actively sending or receiving data over that port.
PoE-in-use	Amber	Lights to indicate the port is providing 52V DC in-line power. (1-24 ports)

10/100/1000BASE-T and 1000BASE-X combo Port

LED	Color	Function
LNK/ACT	Green	Lights to indicate the Switch is successfully connecting to the network. Blinks to indicate that the Switch is actively sending or receiving data over that port.

2.2 Rear Panel

The rear panel of the FGSD-1011HP has an AC inlet power socket, which accepts input power of 100 to 240V AC, 50-60Hz.



Figure 2-2: FGSW-2511P Switch Rear Panel



Power Note

1. 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.
2. In some areas, installing a surge suppression device may also help to protect your FGSW-2511P from being damaged by unregulated surge or current to the FGSW-2511P.

3. Hardware Installation

Start up

Please refer to the following for your cabling:

■ 10/100BASE-TX

All 10/100BASE-TX ports come with Auto-Negotiation capability. They automatically support 100BASE-TX and 10BASE-T networks. Users only need to plug a working network device into one of the 10/100 BASE-TX ports, and then turn on the FGSW-2511P. The port will automatically run at 10Mbps, 20Mbps, 100Mbps or 200Mbps after negotiating with the connected device.

■ 10/100/1000BASE-T

The 10/100/1000BASE-T port comes with Auto-Negotiation capability, which automatically supports 1000BASE-T, 100BASE-TX and 10BASE-T networks. Users only need to plug a working network device into the 10/100/1000BASE-T port, and then turn on the PoE+ Switch. The port will automatically run at 10Mbps, 20Mbps, 100Mbps or 200Mbps and 1000Mbps or 2000Mbps after negotiating with the connected device.

■ Cabling

Both 10/100BASE-TX and 10/100/1000BASE-T ports use RJ45 sockets -- similar to the phone jacks -- for connection of unshielded twisted-pair cable (UTP). The IEEE 802.3/802.3u/802.3ab Fast/Gigabit Ethernet standard requires Category 5 UTP for 100Mbps 100BASE-TX. 10BASE-T networks can use Cat.3, 4, 5 or 1000BASE-T uses 5/5e/6 UTP (see table below). Maximum distance is 100 meters (328 feet).

Port Type	Cable Type	Connector
10BASE-T	Cat.3, 4, 5, 2-pair	RJ45
100BASE-TX	Cat.5, 5e UTP, 4-pair	RJ45
1000BASE-T	Cat.5/5e/6 UTP, 4-pair	RJ45

Any Ethernet devices like hubs/PCs can be connected to the FGSW-2511P by using straight-through wires. The whole 10/100/1000 Mbps ports are auto-MDI/MDI-X that can be used on straight-through or crossover cable.

3.1 Rack Mounting

To install the FGSW-2511P in a 19-inch standard rack, follow the instructions described below.

Step 1: Place your FGSW-2511P 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 FGSW-2511P with supplied screws attached to the package. Figure 3-1 shows how to attach brackets to one side of the FGSW-2511P.

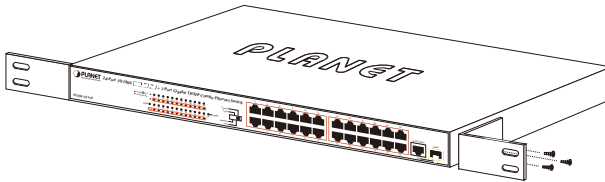


Figure 3-1: Attaching the Brackets to the FGSW-2511P.



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 FGSW-2511P, use suitable screws to securely attach the brackets to the rack, as shown in Figure 3-2.

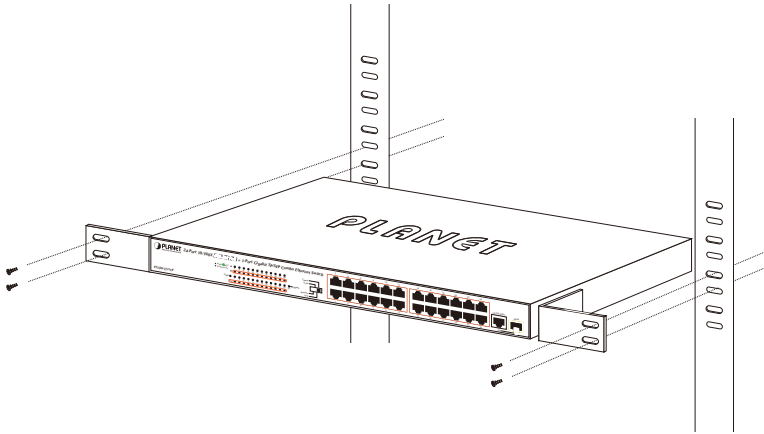


Figure 3-2: Mounting the FGSW-2511P in a Rack

Step 6: Connect your FGSW-2511P to 802.3af/802.3at complied power devices (PDs) and other network devices.

- Connect one end of a standard network cable to the 10/100BASE-TX RJ45 ports on the front panel of the FGSW-2511P.
- Connect the other end of the cable to the PoE PD devices such as PoE IP cameras, PoE wireless Access points, PoE VoIP Phones, etc.



Note

Connection to the Switch requires UTP Category 5e, 6 network cabling with RJ45 tips.

Step 7: Supply power to the FGSW-2511P.

- Connect one end of the power cable to the FGSW-2511P.
- Connect the power plug of the power cable to a standard wall outlet.

When the FGSW-2511P receives power, the Power LED should remain solid Green.

3.2 Desktop Installation

To install the FGSW-2511P on desktop, simply follow the following steps:

Step 1: Attach the rubber feet to the recessed areas on the bottom of the FGSW-2511P, as shown in Figure 3-3.

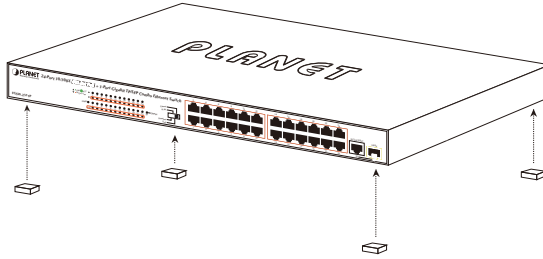


Figure 3-3: Attaching the Rubber Feet to the FGSW-2511P

Step 2: Place the FGSW-2511P on desktop near an AC power source.

Step 3: Keep enough ventilation space between the FGSW-2511P and the surrounding objects.



Note

When choosing a location, please keep in mind the environmental restrictions discussed in Chapter 1, Section 4, under Specifications.

Step 4: Proceed with Steps 6 and 7 of session 3.1 Rack-mount Installation to connect the network cabling and supply power to your PoE+ Switch.

3.3 Grounding the Device

Uses **MUST** complete grounding wired with the device; otherwise, a sudden lightning could cause fatal damage to the device. EMD (Lightning) DAMAGE IS NOT COVERED UNDER WARRANTY.

4. Troubleshooting

This chapter contains information to help you solve issues. If the FGSW-2511P is not functioning properly, make sure the FGSW-2511P was set up according to instructions in this manual.

Q1: The Link LED is not lit.

Solution:

Check the cable connection and also try to swap one new cable.

Q2: 100BASE-TX port link LED is lit, but the traffic is irregular.

Solution:

Make sure the attached device is not set to full duplex. Some devices use a physical or software switch to change duplex modes. Auto-negotiation may not recognize this type of full-duplex setting.

Q3: Why the Switch isn't connected to the network.

Solution:

Check the LNK/ACT LED on the FGSW-2511P. Try another port on the FGSW-2511P. Make sure the cable is installed properly. Make sure the cable is the right type. Turn off the power. After a while, turn on the power again.

Q4: Why the FGSW-2511P, connected to PoE device, cannot be powered on.

Solution:

Please check the cable type of the connection from the FGSW-2511P to the other end. The cable should be an 8-wire UTP, Category 5e or above and EIA568 cable within 100 meters. A cable with only 4-wire, short loop or over 100 meters will affect the power supply.

Please make sure the device is fully complied with IEEE 802.3af/IEEE 802.3at standard.

Q5: What is the power output of each PoE port?

Solution:

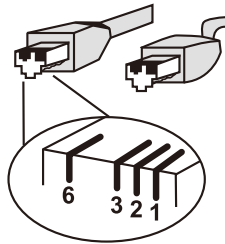
1. Each PoE port supports 51-52V DC, 600mA and a maximum of 30 watts of power output. Detect and inject by the standard of IEEE 802.3at.
2. Each PoE port supports 51-52V DC, 300mA and a maximum of 15.4 watts of power output. Detect and inject by the standard of IEEE 802.3af.

Appendix A - 10/100Mbps, 10/100BASE-TX

When connecting the Switch to another Fast Ethernet switch, a straight-through or crossover cable might be necessary. Each port of the Switch supports auto-MDI/MDI-X detection, meaning you can directly connect the Switch to any Ethernet devices without making a crossover cable. The following table and diagram show the standard RJ45 receptacle/connector and their pin assignments:

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	Not used	
6	Rx - (receive)	Tx - (transmit)
7, 8	Not used	

The standard cable, RJ45 pin assignment



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 straight-through cable and crossover cable connection:

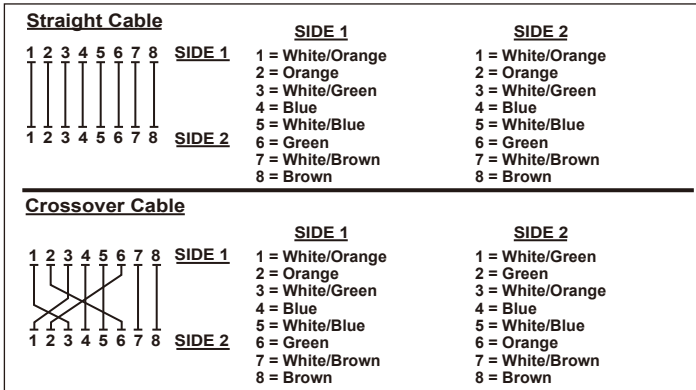


Figure A-1: Straight-through and Crossover Cable

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

