

**8-Port 10/100/1000T 802.3at PoE +
1-Port 10/100/1000T Desktop Switch**

GSD-908HP

User's Manual

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FCC Warning

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 is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

Energy Saving Note of the Device

This power required device does not support Standby mode operation.

For energy saving, please remove the power cable to disconnect the device from the power circuit.

Without removing power cable, the device will still consuming power from the power source. In the view of Saving the Energy and reduce the unnecessary power consuming, it is strongly suggested to remove the power connection for the device if this device is not intended to be active.

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; WEEE has to be collected separately.

Revision

PLANET 8-Port 10/100/1000T 802.3at PoE + 1-Port 10/100/1000T Desktop Switch
User's Manual

For Model: GSD-908HP

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1. Introduction

1.1 Checklist

Check the contents of your package for the following parts:

- GSD-908HP x 1
- User's Manual x 1
- External AC to DC Adapter x 1
- Power Cord x 1
- Wall Mount Kit x 1
- Magnet/Screw x 4
- 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.

The term "**PoE Ethernet Switch**" mentioned in this user's manual also means the GSD-908HP.

1.2 Product Description

Centralized Power Distribution for Ethernet Networking

The GSD-908HP, a member in the PLANET 802.3af/802.3at PoE Unmanaged Gigabit Ethernet Switch family, is an **8-port 10/100/1000T 802.3at Power over Ethernet + 1-port 10/100/1000T Desktop Switch** with a total of 100 watts of PoE budget, which is an ideal solution to fulfilling the demand of sufficient PoE power for network applications with Gigabit Ethernet speed transmission. The eight 802.3af/802.3at PoE Gigabit ports provides PoE power injector function which is able to drive 8 IEEE 802.3af compliant powered devices or 3 IEEE 802.3at compliant powered devices. The GSD-908HP also provides a simple, cost-effective and non-blocking Gigabit wire-speed performance. It comes with a metal compact housing, suitable for desktop deployment in SOHO office or department network application

Perfectly Integrated Solution for IP PoE Camera and NVR System

Different from the general IT industrial PoE Switch which usually comes with 12 or 24 PoE ports, the GSD-908HP provides eight 802.3af/802.3at PoE Gigabit ports for catering to small scale of IP Surveillance networks at a lower total cost. The GSD-908HP comes with high performance switch architecture and 100-watt PoE power budget. The recorded video files from 8 PoE IP Cameras can be powered by the GSD-908HP and saved in the 8-channel NVR system or surveillance software to perform comprehensive security monitoring. For instance, one GSD-908HP can be combined with one 8-channel NVR and 8 PoE IP cameras as a kit for the administrators to centrally and efficiently manage the surveillance system in the local LAN and the remote site via Internet.

Stable and High Performance Switch Architecture

The GSD-908HP has a 4K MAC address table, featuring high performance switch architecture capable of providing the non-blocking 18Gbps switch fabric and wire-speed throughput as high as 13.3Mpps, which greatly simplifies the tasks of upgrading the LAN for catering to increasing bandwidth demands. Besides, the 802.3x Full-Duplex flow control function of the GSD-908HP enables PD devices and servers to be directly connected to the switch for wire-speed packet transfer performance without the risk of packet loss.

The GSD-908HP RJ45 copper interfaces support 10/100/1000Mbps Auto-Negotiation at port 1 to port 9 for optimal speed detection through RJ45 Category 6, 5 or 5e cables. It also supports standard Auto-MDI/MDI-X that can detect the type of connection to any Ethernet device without requiring special straight or crossover cables.

Easy Cable Connection

With data and power over Ethernet from one unit, the GSD-908HP reduces cabling requirements and eliminates the need for dedicated electrical outlets on the wall, ceiling or any unreachable place. A wire that carries both data and power can lower the installation costs, simplify the installation effort and eliminate the need for electricians or extension cords. Providing 8 PoE interfaces, the GSD-908HP is ideal for small businesses and workgroups requiring deploying the PoE for the wireless access points, IP-based surveillance camera or IP phones in any places easily, efficiently and cost-effectively.

1.3 Features

- RJ45 Interface
 - Complies with IEEE 802.3, 10BASE-T, IEEE 802.3u, 100BASE-TX, IEEE 802.3ab, 1000BASE-T
 - 9-Port 10/100/1000Mbps Gigabit Ethernet Switch
 - 8-Port supports 51V DC power to PoE Powered Device (Port 1 to port 8)
- Power over Ethernet
 - Complies with IEEE 802.3af/802.3at Power over Ethernet End-Span PSE
 - Up to 8 IEEE 802.3af devices powered
 - Supports PoE Power up to 15.4 watts for each PoE port
 - Up to 3 IEEE 802.3at devices powered
 - Supports PoE Power up to 30 watts for each PoE port
 - 100-watt PoE budget
 - Auto detects powered device (PD)
 - Circuit protection prevents power interference between ports
 - Remote power feeding up to 100m
- Switching
 - Hardware based 10/100Mbps, Half/Full Duplex and 1000Mbps Full Duplex mode, Flow Control and Auto-negotiation and Auto MDI/MDI-X
 - 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
 - Integrates address look-up engine, supporting 4K absolute MAC addresses
 - 192 KB packet buffer
 - 9K Jumbo frame supports at 1000Mbps speed duplex mode
 - Automatic address learning and address aging
 - Supports CSMA/CD protocol
- Hardware
 - Made of metal and desktop size and wall-mount design
 - LED indicators for system power, PoE usage 100%, per port PoE In-Use (Port 1 to port 8), per port Link/Act (10/100/1000Mbps, port 1 to port 9).
 - 51V DC, 2A external power adapter
 - FCC, CE Class A compliant

1.4 Specifications

Model	GSD-908HP	
Hardware Specifications		
Network Connector	9-port RJ45 for 10/100/1000BASE-T	
PoE Inject Port	8 ports with 802.3af/802.3at PoE injector function	
LED Display	System: Power (Green), PoE Usage 100% (Green) Per PoE Port: PoE (Green), port 1 to port 8 LNK/ACT (Orange), port 1 to port 9	
Switch Architecture	Store and forward	
MAC Address Table	4K MAC address table with auto learning function	
Data Buffer	192 KB	
Switch Fabric	18Gbps	
Switch Throughput	13.3Mpps@64 bytes	
Flow Control	Back pressure for half-duplex. IEEE 802.3x pause frame for full-duplex	
Power Requirements	51V DC, 2A max.	
Power Consumption	100 watts, 341BTU	
Dimensions (W x D x H)	103 x 235 x 27 mm	
Weight	628g	
Power over Ethernet		
PoE Standard	IEEE 802.3af/802.3at Power over Ethernet PSE	
PoE Power Supply Type	End-span	
PoE Power Output	Per port 51V DC, 350mA. Max. 15.4 watts Per port 51V DC, 600mA. Max. 30 watts	
Power Pin Assignment	1/2(+), 3/6(-)	
PoE Power Budget	100 watts	
Max. Number of Class 2 PDs	8	
Max. Number of Class 3 PDs	7	
Max. Number of Class 4 PDs	3	
Standard Conformance		
EMI Safety	FCC Class A, CE	
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)	
Standard 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

2. Hardware Description

This product provides three different running speeds –10/100/1000Mbps at port 1 to port 9 and automatically distinguishes the speed of incoming connection.

This section describes the hardware features of the GSD-908HP. For easier management and control of the switch, 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 GSD-908HP, please read this chapter carefully.

2.1 Front Panel

The front panel of the GSD-908HP PoE Ethernet Switch consists of 9x Auto-Sensing 10/100/1000Mbps Ethernet RJ45 Ports. The LED Indicators are also located on the RJ45 ports of the PoE Ethernet Switch.

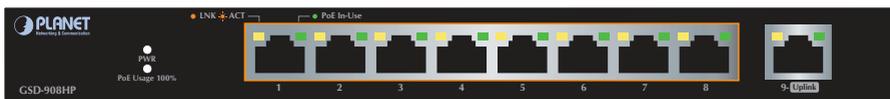


Figure 2-1: GSD-908HP Switch Front Panel

2.1.1 LED Indicators

■ System

LED	Color	Function
PWR	Green	When lit, it indicates the switch has power.
PoE Usage 100%	Green	When lit, it indicates the system has 100% PoE power usage.

■ Per 10/100/1000T Port

LED	Color	Function
LNK/ACT	Orange	When lit, it indicates the link through that port is successfully established at 10/100/1000Mbps. When blinking, it indicates that the switch is actively sending or receiving data over that port.
PoE-in-Use	Green	When lit, it indicates the port is providing 51V DC in-line power (1-8 ports).

2.2 Rear Panel

The rear panel of the PoE Ethernet Switch comes with a DC power socket that accepts 51V DC input power; a security slot that uses an anti-theft lock to attach the PoE Ethernet Switch to a fixed object to prevent theft; and a grounding terminal that protects the PoE Ethernet Switch against lightning strikes.

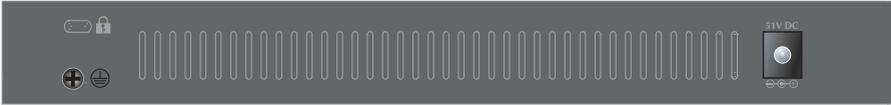


Figure 2-2: GSD-908HP Switch Rear Panel



The device is a power-required device, meaning 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. In some areas, installing a surge suppression device may also help to protect your GSD-908HP from being damaged by unregulated surge or current to the GSD-908HP or the power adapter.

Power Notice

Before startup

Before your installation begins, please refer to the following for your cabling:

10/100/1000BASE-T (Port 1 to Port 9)

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 Ethernet Switch. The port will automatically run in 10Mbps, 20Mbps, 100Mbps or 200Mbps and 1000Mbps or 2000Mbps after negotiating with the connected device.

Cabling

Each 10/100/1000BASE-T port uses RJ45 sockets -- similar to phone jacks -- for connection of unshielded twisted-pair cable (UTP). The IEEE 802.3/802.3u/802.3ab Fast/Gigabit Ethernet standard requires Cat5 UTP for 100Mbps 100BASE-TX. 10BASE-T networks can use Cat3, 4, 5 or 1000BASE-T uses Cat.5/5e/6 UTP (see table below). Maximum distance is 100 meters (328 feet).

Port Type	Cable Type	Connector
10BASE-T	Cat3, 4, 5, 2-pair	RJ45
100BASE-TX	Cat5 UTP, 2-pair	RJ45
1000BASE-T	Cat5/5e/6 UTP, 4-pair	RJ45

Any Ethernet devices like hubs/PCs can connect to the GSD-908HP PoE Ethernet Switch by using straight-through wires. The nine RJ45 ports are auto-MDI/MDI-X, which can be used on straight-through or crossover cable.

3. Installation

3.1 Desktop Installation

To install the PoE Ethernet Switch on desktop, simply follow the steps below:

Step 1: Attach the rubber feet to the recessed areas on the bottom of the PoE Ethernet Switch, as shown in Figure 3-1.

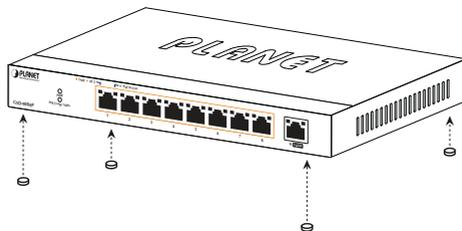


Figure 3-1: Place the PoE Ethernet Switch on the Desktop

Step 2: Place the PoE Ethernet Switch on desktop near an AC power source.

Step 3: Keep enough ventilation space between the PoE Ethernet Switch 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: Connect your PoE Ethernet Switch to 802.3af/802.3at complied Powered Devices (PD) and other network devices.

- A.** Connect one end of a standard network cable to the 10/100/1000 RJ45 ports on the front panel of the PoE Ethernet Switch.
- B.** Connect the other end of the cable to the network devices such as printer servers, workstations, router, etc.



Note

Connection to the PoE Ethernet Switch requires UTP Category 6/5e/5 network cabling with RJ45 tips. For more information, please see the Cabling Specifications in Appendix A.

Step 5: Supply power to the PoE Ethernet Switch.

- A.** Connect one end of the power cable to the DC power adapter and connect its DC plug connector to the PoE Ethernet Switch.
- B.** Connect the power plug of the power cable to a standard wall outlet.

When the PoE Ethernet Switch receives power, the Power LED should remain solid Green.

3.2 Magnet Installation

To install the PoE Ethernet Switch on magnetic surface, simply follow the steps below:

- Step 1:** Attach the 4 magnets to the recessed areas on the bottom of the PoE Ethernet Switch.
- Step 2:** Use 4 screws from the package to secure the magnets to the PoE Ethernet Switch, as shown in Figure 3-2.

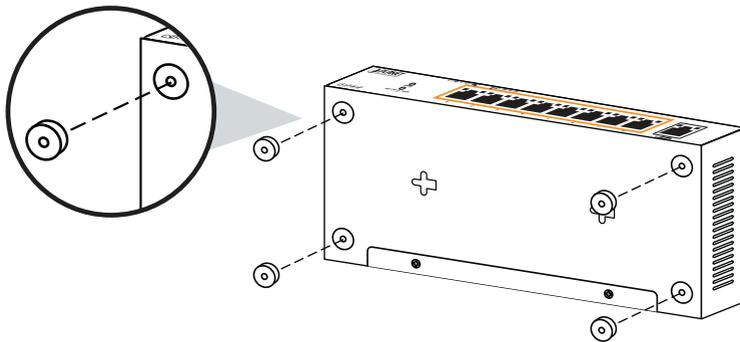


Figure 3-2: Installation of PoE Ethernet Switch Magnets

Step 3: Place the PoE Ethernet Switch (installed with magnets) on a magnetic surface in a proper way.



When installing the PoE Ethernet Switch on a magnetic surface, please be careful with your fingers.

Step 4: Proceed with Step 4 and Step 5 of **session 3.1 Desktop Installation** to connect the network cabling and supply power to your PoE Ethernet Switch.



1. Select the installation surface carefully. If the magnetic surface is not providing enough magnetism, the reliability of this installation will be influenced.
2. Please do not choose higher installation position and note vibration might cause PoE Ethernet Switch to fall down and damage or personal injury.
3. Please do not move the PoE Ethernet Switch often to avoid damage to the coated surface.
4. For connecting Ethernet cable to the PoE Ethernet Switch easily, please place the PoE Ethernet Switch with RJ45 interface at a lower position. We also must pay attention to the weight of the installed Ethernet cables to prevent PoE Ethernet Switch from falling down.
5. Keep magnets away from specific objects such as magnetic card, computer and computer monitor, which are easy to be magnetized. Otherwise, the PoE Ethernet Switch malfunctions might happen.

3.3 Wall Mount Installation

To install the PoE Ethernet Switch on the wall, simply follow the steps below:

Step 1: There are 2 holes with 5mm diameter on the wall; the distance between the 2 holes is 110mm and the line through them must be kept horizontal, as shown in Figure 3-3.

Step 2: Install a conductor pipe inside the board hole and flush the edge of the conductor pipe with the wall surface.

Step 3: Screw the bolts into the conductor pipe; the distance between the inside surface of the screw header and edge of conductor pipe should not be less than 2.5mm to make sure the PoE Ethernet Switch can be hung on the bolt tightly.

Step 4: Align two wall type holes at the bottom of the PoE Ethernet Switch with screws and hang the PoE Ethernet Switch on it.

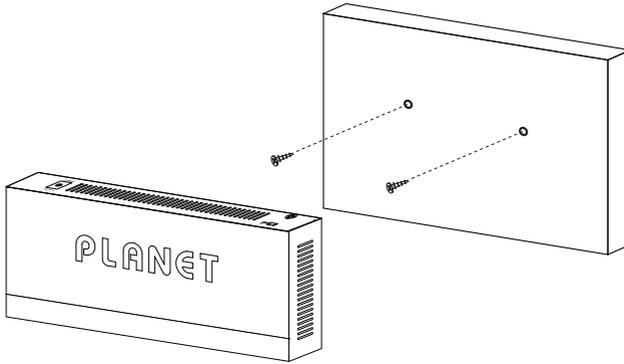


Figure 3-3: PoE Ethernet Switch Wall Mount Installation

3.4 Protective Grounding Cable Installation

The proper connection of the protective grounding cable is not only for quickly releasing the over voltage and over current from lightning strike, it also provides necessary protection for users' body security.

3.4.1 Installation Environment with Grounding Bar

Connect one end of the protective grounding cable to the binding post on the grounding bar and fix the screws, as shown in Figure 3-4.

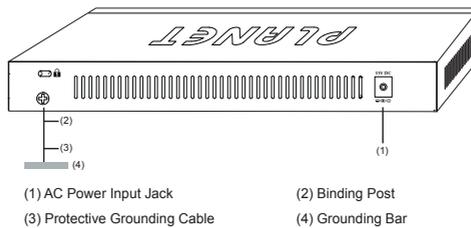


Figure 3-4: Grounding Bar Installation



The PoE Ethernet Switch grounding cable should be connected to the engineering land in the IT room because the water hoses and lightning rods are not proper for grounding.

3.4.2 Installation Environment without Grounding Bar

3.4.2.1 With mud land nearby and allowed to bury grounding bar

Bury an angle iron or steel pipe ($\geq 0.5\text{m}$) into the mud land. The protective grounding cable should be welded to the angle iron or steel pipe and the welding point should be embalmed, as shown in Figure 3-5.

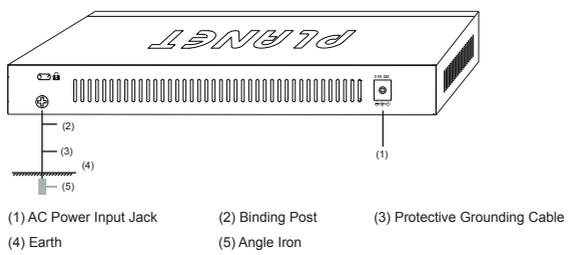


Figure 3-5: Ground Conductor Installation

3.4.2.2 Not allowed to bury grounding bar.

If not allowed to bury the grounding bar, directly connect the PoE Ethernet Switch to the grounding bar through the power cord. Please ensure the provided adapter that you use has a triplex plug and the power cord in the switchgear room or beside the AC power supply transformer is well-grounded, as shown in Figure 3-6.

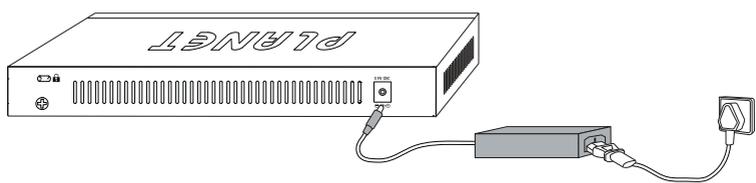


Figure 3-6: Ground Power Cord Installation

3.5 Hardware Connection

The PoE Ethernet Switch provides flexibility to build a standard network application or PoE network application quickly and easily. Simply follow the steps below:

Standard Network Application: connecting end node or switch

Step 1: Supply power to the PoE Ethernet Switch.

- A.** Connect one end of the power cable to the DC power adapter and connect its DC plug connector to the PoE Ethernet Switch.
- B.** Connect the power plug of the power cable to a standard wall outlet.

When the PoE Ethernet Switch receives power, the Power LED should remain solid Green.

Step 2: Connect PC or laptop to one port of the PoE Ethernet Switch using Category 5/5e/6 UTP cabling.

Step 3: Use an Ethernet cable to connect one upstream network device (such as another switch or router) to the uplink port on the switch, as shown in Figure 3-7.

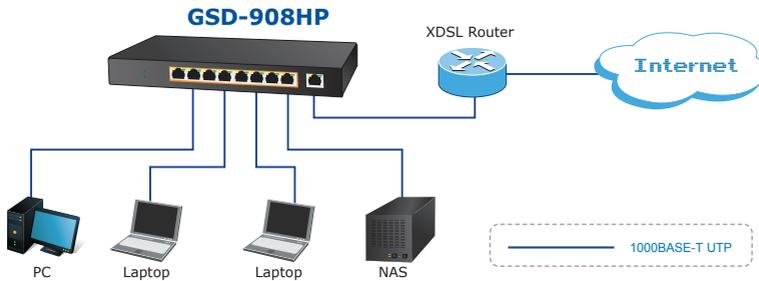


Figure 3-7: End Node or Switch Connection

PoE Network Application: department/workgroup PoE switch

Step 1: Supply power to the PoE Ethernet Switch.

- A.** Connect one end of the power cable to the DC power adapter and connect its DC plug connector to the PoE Ethernet Switch.
- B.** Connect the power plug of the power cable to a standard wall outlet.

When the PoE Ethernet Switch receives power, the Power LED should remain solid Green.

Step 2: Providing up to eight 802.3at/802.3af PoE in-line interfaces, use an Ethernet cable to connect various 802.3at/802.3af PD devices, such as wireless AP, IP phone and IP camera devices, as shown in Figure 3-8.

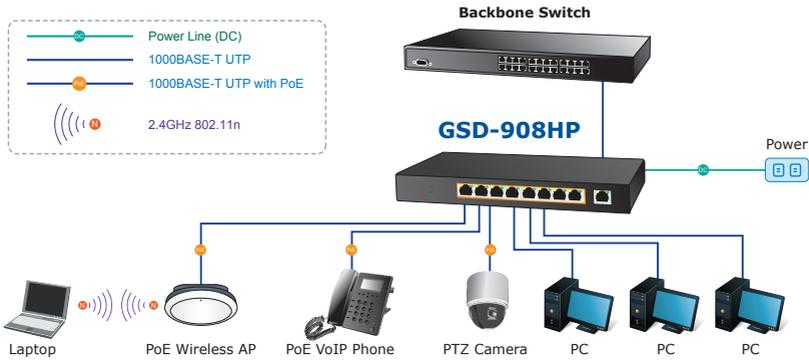


Figure 3-8: Department/Workgroup PoE Switch Connection



Since the GSD-908HP per PoE port supports 51V DC PoE power output, please check and assure the Powered Device's (PD's) acceptable DC power range is 51V DC. Otherwise, it will damage the PD.

4. Troubleshooting

This chapter contains information to help you solve issues. If the PoE Ethernet Switch is not functioning properly, make sure the PoE Ethernet Switch is set up according to instructions in this manual.

The Link/Act LED is not lit

Solution:

Check the cable connection and remove duplex mode of the PoE Ethernet Switch.

Performance is bad

Solution:

Check the speed duplex mode of the partner device. The PoE Ethernet Switch is run in auto-negotiation mode and if the partner is set to half duplex, then the performance will be poor.

100BASE-T port link LED is lit, but the traffic is irregular

Solution:

Check that the attached device is not set to dedicate 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.

Why the PoE Ethernet Switch doesn't connect to the network

Solution:

Check the LNK/ACT LED on the PoE Ethernet Switch. Try another port on the PoE Ethernet Switch. Make sure the cable is installed properly and make sure the cable is the right type. Turn off the power. After a while, turn on power again.

Why I connect my PoE device to PoE Ethernet Switch and it cannot power on

Solution:

1. Please check the cable type of the connection from the PoE Ethernet Switch (port 1 to port 8) to the other end. The cable should be an 8-wire UTP, Category 5 or above, EIA568 cable within 100 meters. A cable with only 4-wire, short loop or over 100 meters will affect the power supply.
2. Please check and assure the device is fully complied with IEEE 802.3af/802.3at standard.

What is the power output of each PoE port?

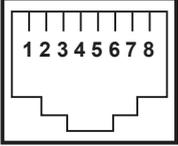
Solution:

Each PoE port supports **51V DC, 350mA** with maximum power output of **15.4 watts**. Detect and inject by the standard IEEE 802.3af.

Each PoE port supports **51V DC, 600mA** with a maximum power output of **30 watts**. Detect and inject by the standard IEEE 802.3at.

Appendix: A Networking Connection

A.1 PoE RJ45 Port Pin Assignments

	PIN NO	RJ45 POWER ASSIGNMENT
	1	Power +
	2	Power +
	3	Power -
	6	Power -

A.2 Switch's Data RJ45 Pin Assignments -- 1000Mbps, 1000BASE-T

PIN NO	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-

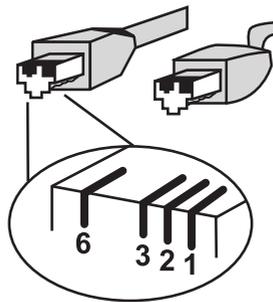
Implicit implementation of the crossover function within a twisted-pair cable, or at a wiring panel, while not expressly forbidden, is beyond the scope of this standard.

A.3 10/100Mbps, 10/100BASE-TX

When connecting your PoE Ethernet Switch to another Fast Ethernet switch, a bridge or a hub a straight-through or crossover cable is necessary. Each port of the Switch supports auto-MDI/MDI-X detection. That means 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		
PIN NO	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