IP-POE8M Hardware Installation Manual

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Chapter 1 IP-POE8M Switch

The document describes the characteristics and parameters of the IP-POE8M and gives an overview of operation and installation.

1.1 Standard Configuration

The standard port settings of IP-POE8M consists of 8 100M-Ethernet RJ45 ports, 2 gigabit-Ethernet RJ45 ports, 2 gigabit-Ethernet SFP optical ports and 1 Console port. For details, see table 1-1.

Table 1-1 Attributes of the necessary port

Port	Attribute
100M-Ethernet port	UTP (RJ45) port with the LINK/ACT LED, which can be powered through the PoE mode and has the PoE LED
1000M Ethernet port	SFP port and UTP port (RJ45), having LINK/ACT LEDs
Console port	An RJ45 port with a rate of 9600 bps

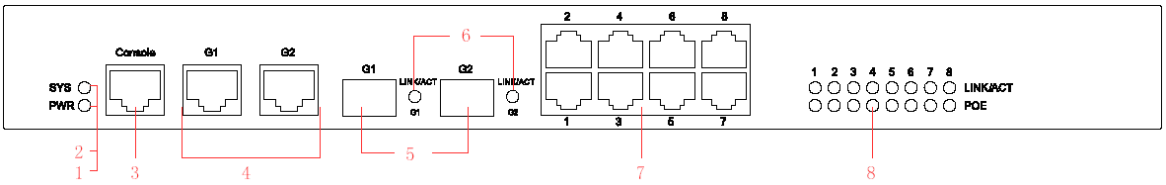


Figure 1-1 Front faceplate of the IP-POE8M switch

Table 1-2 Parts at the front faceplate of the IP-POE8M switch

No.	Abbrev.	Name	Remarks
1	PWR	Power LED	If the switch is powered on, the LED is on.
2	SYS	System LED	If the LED is always on, the system is starting up. If the LED flickers, the system is working normally.
3	CONSOLE	Console port	Manages the switch locally.
4		2 gigabit electric ports	
5		2 gigabit optical ports	

6	LINK/ACT	LED of the gigabit port	If the LED is always on, the link on the port is normal.
7		8 100M electrical ports	
8	LINK/ACT POE	LEDs of 8 100M electrical ports 8 PoE LEDs	If the LEDs are always on, the links of these ports are normal. If the PoE LED is on, Poe voltage is present.

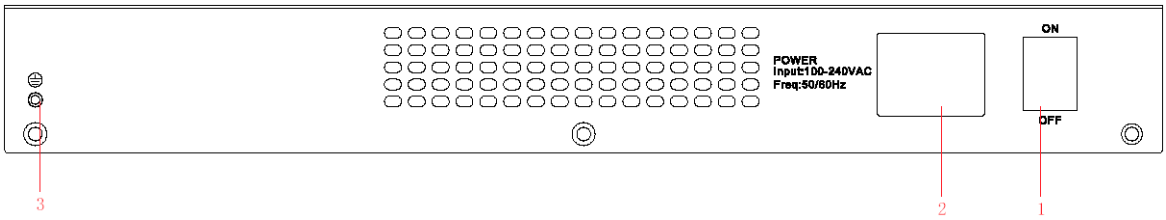


Figure 1-2 Back faceplate of the IP-POE8M switch

Table 1-3 Parts at the back faceplate of the IP-POE8M switch

No.	Abbrev.	Name	Remarks
1	None	Power switch	"ON" means the power source is turned on, while “OFF” means the power source disconnected.
2	None	AC power socket	AC100-240V
3	None	Grounding column	Ensure proper grounding.

1.2 Characteristic Parameters of IP-POE8M

Protocol standard	**Supported standard**	IEEE 802.1d Spanning Tree Protocol IEEE 802.1s multiple spanning trees IEEE 802.1p Class of Service IEEE 802.1q tagged VLAN IEEE 802.3x Flow control IEEE 802.3z asymmetric flow control IEEE 802.3ad Link aggregation IEEE 802.3af Power via Media Dependent Interface IEEE 802.3at DTE Power Enhancements
	Standard of IP routing protocol	RFC 1058 RIP RFC 1723 RIP v2 RFC 1583 OSPF v2

	Network management standard	RFC 1157 SNMP v1/v2 RFC 1213 MIB II RFC 1757 RMON 1,2,3,9
Hardware characteristics	**Memory**	EPROM: 512K Bytes Flash Memory: 8M Bytes SDRAM: 64MBytes
	Standard configuration	8 10/100BASE-T/PoE ports 2 10/100/1000 Base-T ports 2 1000M SFP optical ports One Console port
	Specifications	340mm*200mm*44mm
	Working temperature/humidity	0℃-60℃; 10%-85% no condensation
	Storage temperature/ humidity	-40℃-80℃; 5%-95% no condensation
	Power source's characteristics	Input voltage: AC100-240V Input frequency: 47-63Hz
	Power consumption	170W

1.3 ROHS Description

Parts	Toxic or harmful substances or elements					
	Pb	Hg	Cd	Cr(VI)	PBB	PBDE
Chasis	O	O	O	O	O	O
Rack	O	O	O	O	O	O
Baseboard	O	O	O	O	O	O
Module	O	O	O	O	O	O
Interface Card	O	O	O	O	O	O

O: The toxic or harmful substances' levels in each homogeneous materials of each part, are under the limitation of SJ/T 11363—2006 regulation

X: The toxic or harmful substances' levels at least in one homogeneous materials of one part, exceed the limitation of SJ/T 11363—2006 regulation

Chapter 2 Installation Preparation

2.1 Cautions

Similar to other electronic products, the semiconductor chip easily gets damaged if you power on and off abruptly and frequently. To restart the IP-POE8M, you have to turn the power on/off three or five seconds after the power is toggled.

Avoid severe collision or dropping to protect the components in the switch.

Use correct outside ports to connect the switch interfaces of the IP-POE8M. Do not insert the Ethernet plug into the console port (RJ45 8-line socket). Similarly, do not insert the console cable into the console port (RJ45 8-line socket).

Note:

1) When you plug or remove the power cord, keep the power cable horizontal with the power socket.

2) When the lifetime of this products ends, handle them according to national laws and regulations, or send these products to our company for collective processing.

2.2 Safety Advice

2.2.1 Safety Principles

(1) Keep dust free and clean during and after the installation.

(2) Ensure the power connections cannot be tampered with.

(3) Ensure tools/ equipment do not fall on the chassis.

(4) Put on relatively tight clothes, fasten the tie or scarf well and roll up sleeves, to avoid snagging the equipment.

(5) Be sure to use protective glasses if the environment may cause damage to your eyes.

(6) Avoid incorrect operations that may cause injury or hardware damage.

2.2.2 Safety Notices

The safety notices mentioned here means that improper operation may lead to bodily damage.

(7) Read the installation guide carefully before you operate the system.

(8) Only professionals are allowed to install or replace the switch.

(9) Pull out the AC power socket and close the direct-current power before operating on the chassis or working beside the power source.

(10) The final configuration of products must comply with relative national laws and regulations.

2.2.3 Safety Principles during operation

When you work under electricity, following the following principles:

(11) Put off ornaments, such as rings, necklaces, watches and bracelets, before you operate under live conditions. When metal articles contact the power to the ground, short circuit happens and components may be damaged.

(12) Pull out the AC power socket and turn the switch power OFF before operating on the chassis or working beside the power source.

(13) When the power is on, do not touch the power.

(14) Correctly connect the device and the power socket.

(15) Only professionals are allowed to operate and maintain the device.

(16) Read the installation guide carefully before the system is powered on.

Note:

(17) Check potential dangers, such as humid floor, frayed power cables, or other improper electrical configurations.

(18) Turn off the power on-off of the switch and plug off the power line before installing or uninstalling the chassis or working beside the power.

(19) Do not work alone if potential dangers exist.

(20) Cut off the power before checkout.

(21) If trouble happens, take the following measures:

A. Turn off the system's power.

B. Notify appropriate personnel.

C. Take proper measures to help persons who are injured. Artificial respiration is needed if necessary.

D. Seek medical help.

2.2.4

2.2.5 Electrostatic Discharge Prevention

Electrostatic discharge may damage devices and circuits. Improper treatment may cause the switch to malfunction completely or discontinuously.

Move or locate the devices according to the measures of electrostatic discharge prevention, ensuring the chassis connects to ground. Another measure is to wear static-proofing equipment. If there is none, use the metal clip with the metal cable to clip the unpainted metal part of the chassis. In this case, the static is discharged to the ground through the metal cable of the clip. You can also discharge the static to the ground through your body.

2.3 Requirements for Common Locations

This part describes the requirements for installation locations.

2.3.1 Environment

The switch can be installed on a desk or a cabinet. The location of the chassis, cabinet planning and indoor cabling are very important for normal system function. Short distances between devices, bad ventilation and untouchable control plate will cause maintenance problems, and possibly breakdown.

For location planning and device locating, refer to section 2.3.2 “Location Configuration Prevention”.

2.3.2 Location Configuration Prevention

The following preventive measures assist you to design the proper environment for the switch.

(22) Make sure that the workshop is well-ventilated, the heat of electrical devices is well-discharged and sufficient air circulation is provided for device cooling.

(23) Avoid to damage devices by following the electrostatic discharge prevention procedure.

(24) Put the chassis at a place where cool air can blow off the heat inside the chassis. Make sure the chassis is sealed because the opened chassis will reverse the cool air flow.

2.3.3 Cabinet Configuration

The following content assists you to make a proper cabinet configuration:

(25) Each device on a cabinet gives off heat when it runs. Therefore, the sealed cabinet must have a heat-discharge outlet and a cooling fan. Do not put the devices too close, avoiding bad ventilation.

(26) When you install the chassis in an open cabinet, prevent the frame of the cabinet from blocking the airway of the chassis.

(27) Ensure that proper ventilation is provided for the devices installed at the bottom of the cabinet.

(28) The clapboard separates exhaust gas and inflow air, and boost the cool air to flow in the chassis. The best location of the clapboard is decided by the air flow mode in the chassis, which can be obtained through different location tests.

2.3.4 Power Requirements

Make sure that the power supply has good grounding and the power at the input side of the switch is reliable. The voltage control can be installed if necessary. At least a 240 V, 10A fuse or a breaker is provided in the phase line if you prepare the short-circuit prevention measures for a building.

Caution:

If the power supply system does not have good grounding, or the input power disturbs too much and excessive pulses exist, the error code rate of communication devices increases and could potentially lead to hardware damage.

2.4 Installation Tools and Device

The tools and devices to install the IP-POE8M switch are not provided with the IP-POE8M switch. You yourself need to prepare them. The following are the tools and devices needed for a typical installation of the IP-POE8M switch:

(29) Screwdriver

(30) Static armguard

(31) Bolts

(32) Ethernet cable

(33) Other Ethernet terminal devices

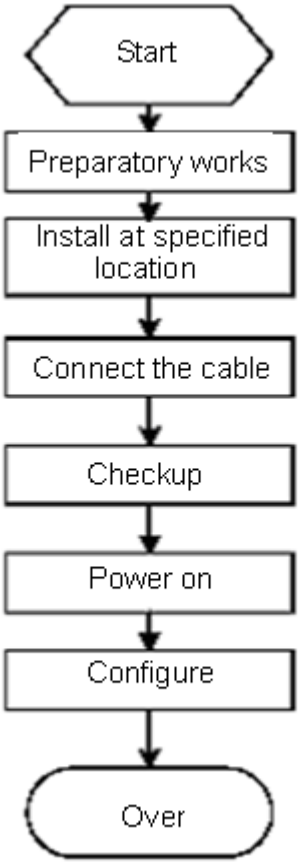
(34) Control terminal

Chapter 3 Installing the IP-POE8M Switch

Caution:

Only professionals are allowed to install or replace network hardware.

3.1 Installation Flow of IP-POE8M



3.2 Installing the Chassis of the Switch

The IP-POE8M can be installed on a desk or can be fixed to an equipment rack. Your network installation requirements can be met if you conduct the operations according to the following procedure. It can be described in the following two parts:

(35) Installing the switch on the Desk

(36) Installing the switch in an equipment rack or cabinet.

3.2.1 Installing the IP-POE8M on a Desk

The IP-POE8M switch can be directly put on a smooth and safe desk.

Note:

Do not put things weighing 4.5 kg (10lbs) or over on the top of the switch.

3.2.2 Installing the IP-POE8M on an equipment rack/ cabinet

The chassis of the switch is fixed to an equipment rack via brackets. When you fix the brackets, the front template of the switch faces forward. The detailed operations are shown in Figure 3-1.

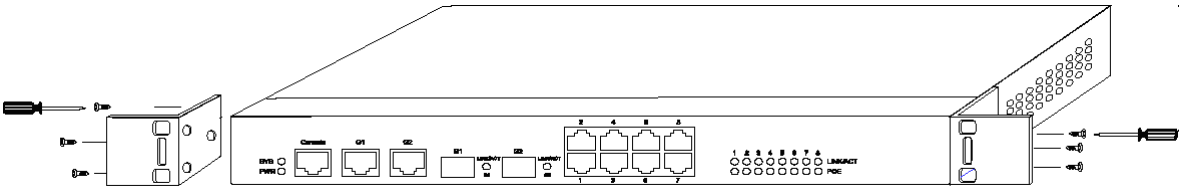


Figure 3-1 Attaching rack ears to the switch

After the rack ears are installed, install the switch on the cabinet. See Figure 3-2.

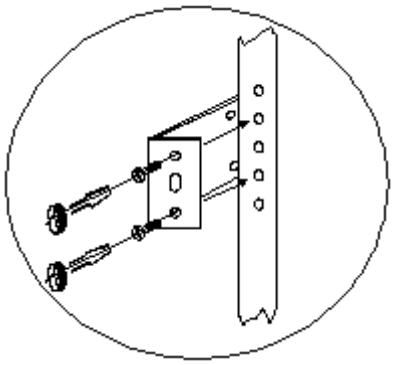


Figure 3-2 Installing the switch on the cabinet

3.3 Connecting the Port

3.3.1 Connecting the Console Port

The switch of IP-POE8M has a Console port.

The rate of the console port is a value ranging from 1200bps to 115200bps. It has a standard RJ45 plug. After you connect the console port to the serial port of PC through a console cable, you can configure and monitor the IP-POE8M by running a terminal emulation software, such as super Windows terminal. The cable is provided according

to the host. The communication parameters of the terminal serial port can be set to a rate of 9600bps, eight data bits, one stop bit, no sum check bit and traffic control.

The RJ45 connector of the console port is shown in the following figure. The RJ45 plug corresponds to the RJ45 socket, whose pins can be aligned from left to right with the value from 1 to 8.

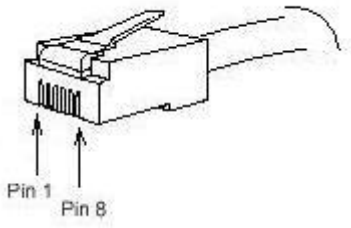


Figure 3-3 RJ-45 connector of the console port

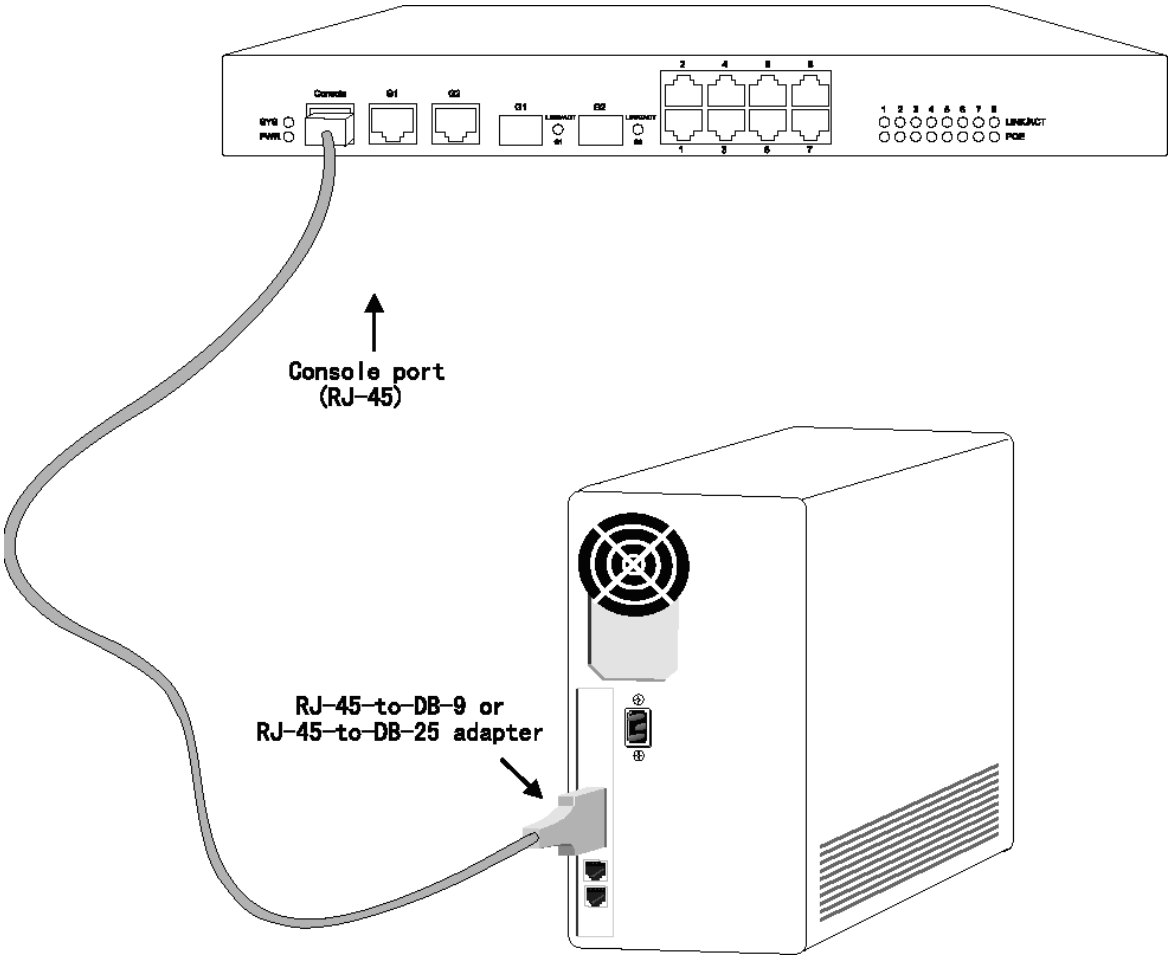


Figure 3-4 Connecting the console port of IP-POE8M and computer

Table 3-1 Definition of the pins of the UTP port

No.	Name	Symbol	Remarks
1	Carrier Detecting	CD	No connect
2	Data receiving	RXD	Input
3	Data-line device ready	DSR	No connect
4	Data transmitting	TXD	Output
5	Transmission requesting	RTS	No connect
6	Response transmitting	CTS	No connect
7	Data terminal ready	DTR	No connect
8	Signal ground	SG	GND

Note:

The console port of the IP-POE8M switch does not support traffic control. Therefore, you must set the option **data traffic control** to **none** when you configure the switch with the super terminal. Otherwise, the single-pass problem will arise on the super terminal.

Otherwise, the single-pass problem will arise on the super terminal. The cable is used to connect the console port of the IP-POE8M switch and the outside console terminal device. One end of the cable is a 8-pin RJ45 plug and the other end is a 9-hole plug (DB9). The RJ45 plug is put into the socket of the console port on the IP-POE8M switch. The inner line connection in the cable is shown in figure 3-1. The console cable is numbered as RLC0301.

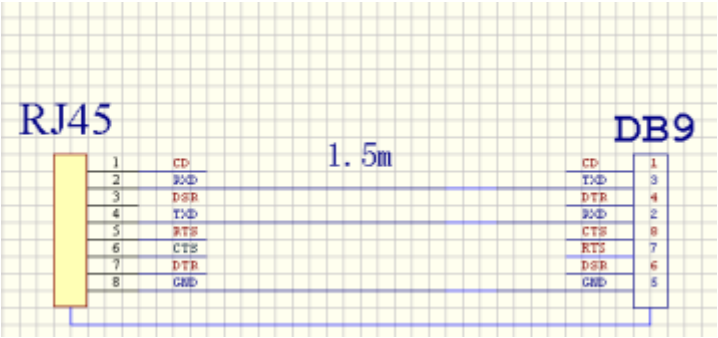


Figure 3-5 Cable connection at the console port

3.3.2 Connecting Ethernet 100M Port

The IP-POE8M switch has 8 10/100Base-T ports. The LEDs are labeled with numbers 1-8, indicating the link/ACT state of the port. You can connect other Ethernet terminal devices to the UTP port through the straight-through or crossover network cable. The numbering order of the pins in the UTP port is the same as the console port.

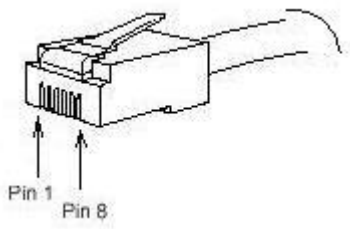


Figure 3-6 RJ-45 connector of the console port

Because 8 10/100Base-T ports of IP-POE8M support the MDI/MDIX auto-identification of the cable, IP-POE8M can adopt five classes of direct-through/crossover network cables when it connects other Ethernet terminals.

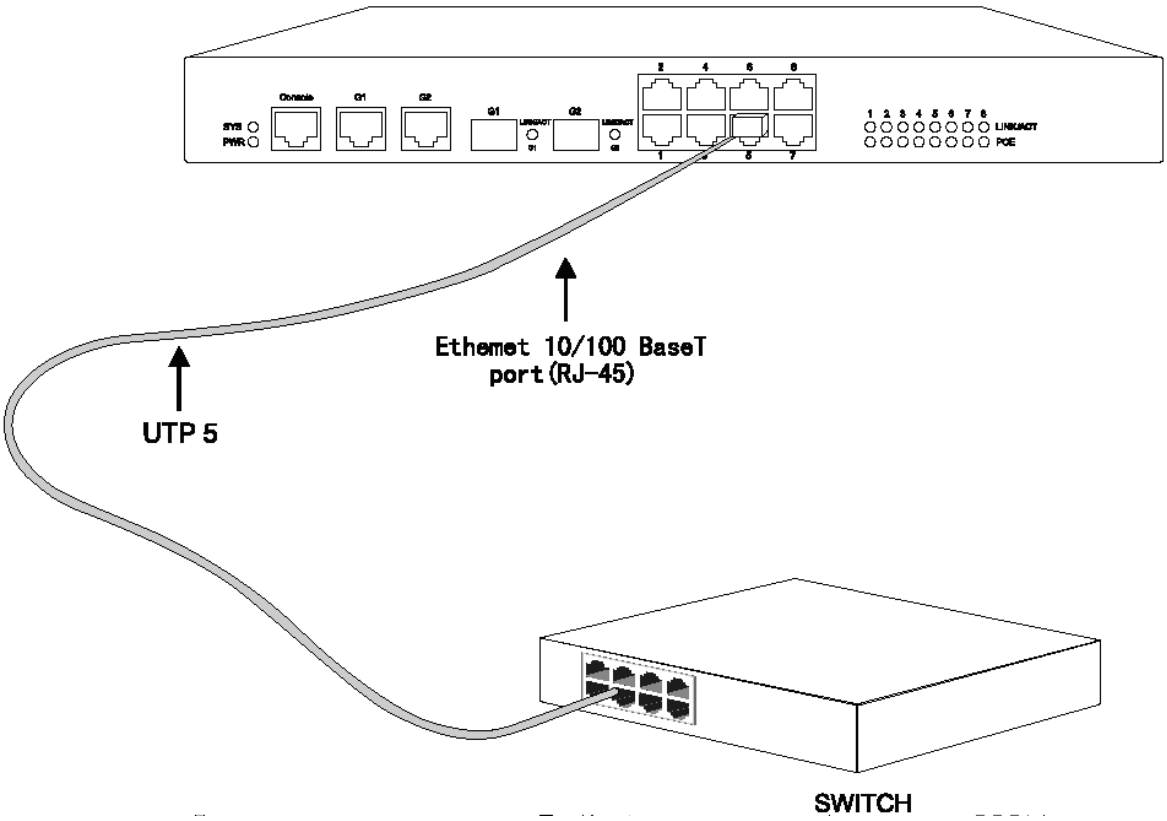


Figure 3-7 Connecting the 10/100Base-T port and other Ethernet terminals

Table 3-2 Definition of the pins of the RJ45 port

No.	Pin Name	Symbol
1	Sending the normal phase of the data	TX+
2	Sending the paraphase of the data	TX-

3	Receiving the normal phase of the data	RX+
6	Receiving the paraphase of the data	RX-

3.3.3 Connecting the 1000M-Ethernet Port

IP-POE8M provides 2 10/100/1000MBase-T ports, each of which corresponds to an LED that shows the link/ACT state of each port. If the LED is always on, it means the port is linked. If the LED flickers, it means that data is transmitted through the port.

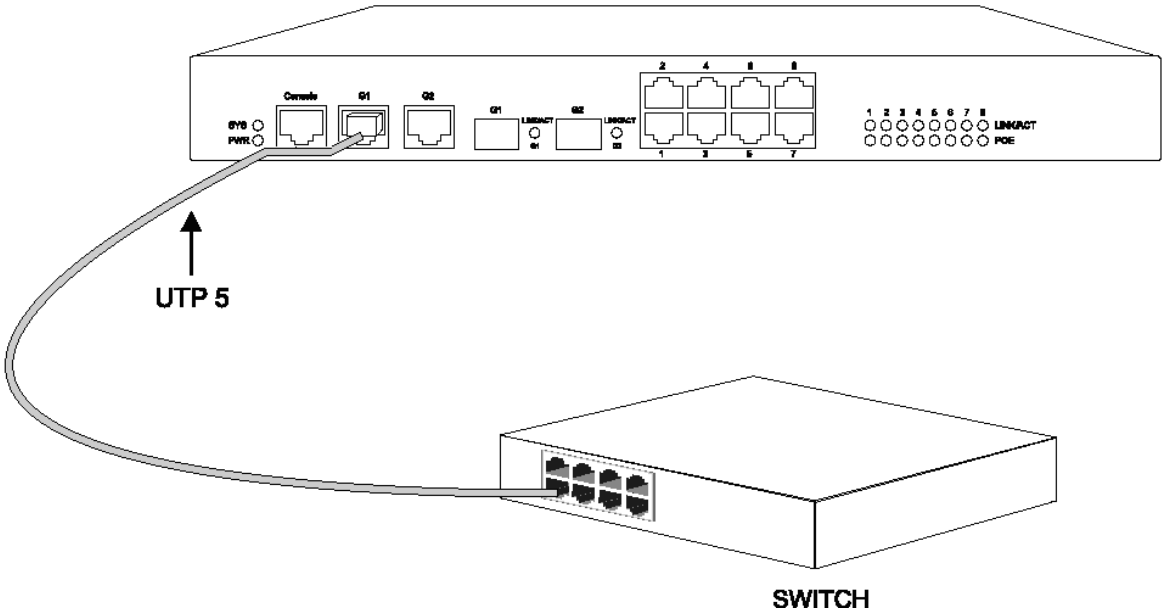


Figure 3-8 Connecting the 1000Base-T port and other Ethernet terminals

Both the connection method and the connection diagram of the 1000M-Ethernet port are the same as the 100M-Ethernet port, but the definition of the RJ45 signal of the 1000M port has to be distinguished.

Table 3-3 Definition of the pins of the 1000M RJ45 port

No.	Pin Name	Symbol
1	Sending and receiving the normal phase of data 0	TP0+
2	Sending and receiving the paraphase of data 0	TP0-
3	Sending and receiving the normal phase of data 1	TP1+
4	Sending and receiving the paraphase of data 1	TP1-
5	Sending and receiving the normal phase of data 2	TP2+
6	Sending and receiving the	TP2-

	paraphase of data 2	
7	Sending and receiving the normal phase of data 3	TP3+
8	Sending and receiving the paraphase of data 3	TP3-

3.3.4 Connecting the 1000M Ethernet SFP Port

IP-POE8M provides 2 1000M SFP optical ports. You can insert the SFP module and then connect it to other Ethernet terminal devices through the optical fiber if you want to use the 1000M SFP port.

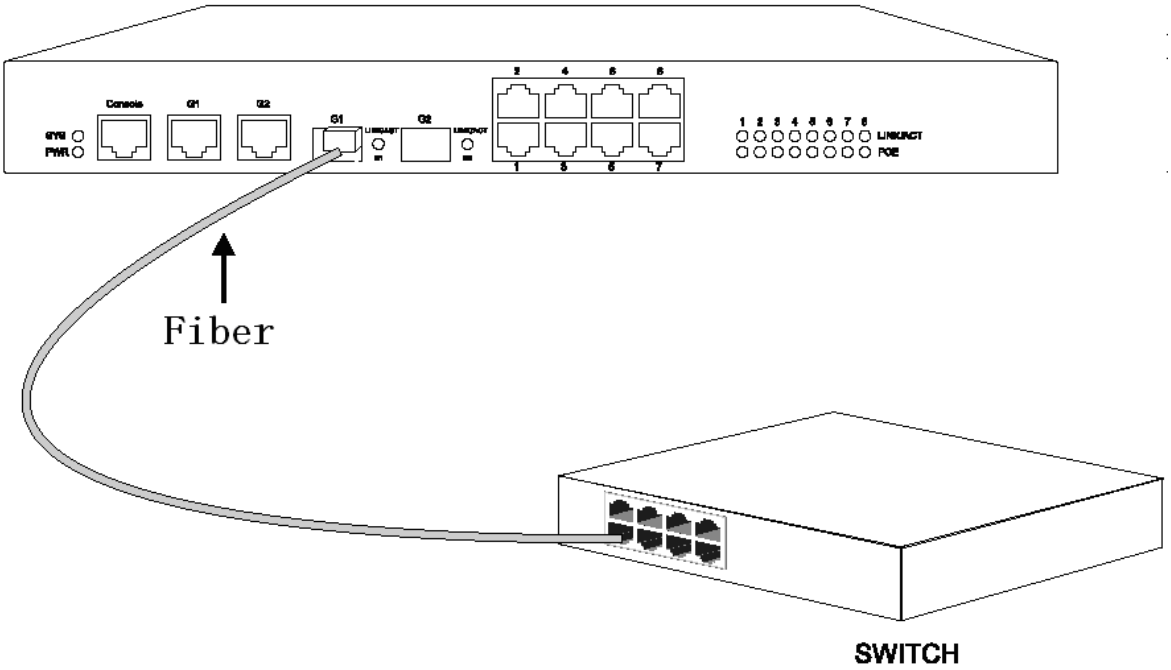


Figure 3-9 Connecting the 1000M optical port and other switches

3.4 Checking after Installation

Before powering on the switch, perform the following after the switch is installed and turned on:

(37) If the switch is installed on a cabinet, check whether the installation point between the cabinet and the switch is strong. If the switch is installed on a desk, check whether there is enough space for the switch to discharge its heat and whether the desk is stable.

(38) Check whether the connected power meets the power requirements of the switch.

(39) Check whether the grounding line is correctly connected.

(40) Check whether the switch is correctly connected to other terminal devices.

Chapter 4 Maintaining the Switch

Caution:

(41) Before opening the case, make sure that you have released the static you carried and then turn off the power switch. Before operating any step in Appendix B, read the section “Safety Advice”.

(42) Before performing operations beside the power source or on the chassis, turn off the switch, and unplug the power cable.

4.1 Opening the Chassis

This section describes how to open the cover of the switch, required tools and operation methods.

Caution:

When the power cable is still connected to a power source, do not touch it.

When you open the switch cover, you may use the following tools: These tools are:

(43) Screwdriver

(44) Static armguard

Perform the following steps to open the cover of the switch:

(45) Turn off the switch.

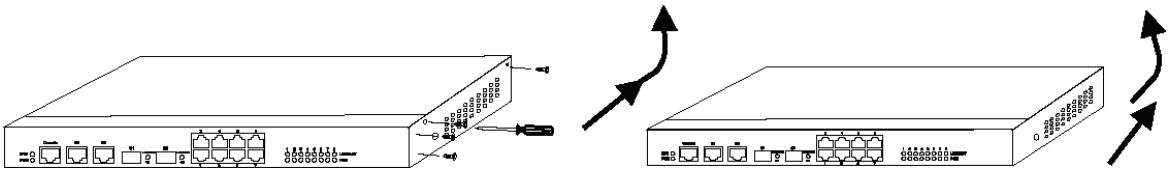
(46) Remove all cables connected the back of the switch.

(47) Take out the bolt from the chassis with the screwdriver.

Note:

The chassis comprises of two parts: cover and bottom.

(48) Open the cover by holding two sides of the cover towards the direction of the arrow key shown in the following figure:



Note: The switch shown in the previous figure does not represent real IP-POE8M switch.

(49) When the cover is opened, put it aside. The mainboard of the system appears.

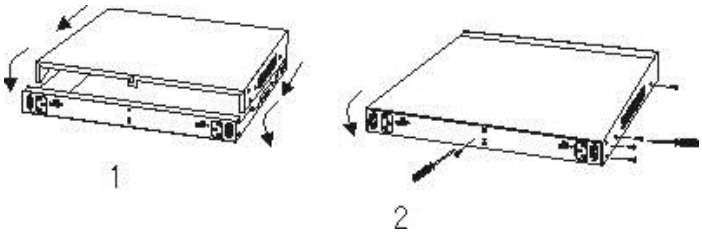
Note:

After taking off the cover, put it horizontally and avoid it to be crushed or collided. Otherwise, the chassis is hard to install.

4.2 Closing Chassis

The section mainly describes how to put the cover and close the chassis. Do as follows:

(1) Put them well according to their locations and join them together along their sides.



(2) See the following figure.

(3) When the cover and the bottom are tightly closed, let the cover slide in the slot of the front.

(4) Set the bolt and screw it tightly with the screwdriver.

(5) Reinstall the switch on the cabinet or the desk.

(6) Reconnect all cables.

4.3 Memory Upgrade

4.3.1 SDRAM Expansion

SDRAM expansion is not available with this model of managed switch.

Chapter 5 Hardware Fault Analysis

This part describes how to remove the fault from the switch.

5.1 Fault Separation

The key for resolving the systematic faults is to separate the fault from the system. You can compare what the system is doing with what the system should do to detect the fault. You need to check the following subsystems:

(7) Power and cooling systems—power and fan

(8) Port, cable and connection—ports on the front template of the switch and the cables connecting these ports

5.1.1 Faults Relative with Power and Cooling System

Do the following checks to help remove the fault:

(9) When the power switch is at the “ON” location, check whether the fan works normally. If the fan does not work well, check the fan.

(10) If the switch is too hot, check whether the air outlet and air inlet are clean and then do relative operations in section 2.3 “Requirements for Common Locations”. The working temperature of the switch is from 0 to 40 Celsius degrees.

(11) If the switch cannot be started and the PWR LED is off, check the power.

5.1.2 Faults Relative with Port, Cable and Connection

Do the following checkups to help remove the fault:

(12) If the port of the switch cannot be linked, check whether the cable is correctly connected and whether the peer connection is normal.

(13) If the power is at the “ON” position, check the power source and the power cable.

(14) If the console port does not work after the system is started up, check whether the console port is set to a baud rate of 9600 bps, eight data bits, no sum check bit, one stop bit and no traffic control.

5.2

5.3 LED Description

The LED shows that the switch is running. The following table shows the LEDs of the IP-POE8M switch and their description:

No.	Abbrev.	Name	Remarks
1	PWR	Power LED	If the switch is powered on, the LED is on.
2	SYS	System LED	If the LED is always on, the system is being started. If the LED flickers, the system is working normally.
3	LINKACT	LED at the top of each port	If the LED is always on, the link on the port is normal. If the LED is off, the port is not connected.