S2210PB Hardware Installation Manual

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Chapter 1   S2210PB Switch Overview

The document describes the characteristics and parameters of S2210PB and gives an overview of S2210PB.

1.1   Standard Configuration

S2210PB switch has three parts: 8 IEEE802.3af/at 100M Ethernet TX ports, 2 gigabit Ethernet SFP ports and 1 Console port. See the following table:

Table 1-1 Attributes of necessary ports

Port	Features
100M PoE ports	TX port: a rate of 10/100M auto-adaptation, cable MDI/MDIX auto-identification, UTP(RJ45) port
gigabit Ethernet optical ports	Optical port: 100/1000M SFP port, with LINK/ ACT indicators
Console port	A rate of 9600bps, RJ45 interface

Figure 1-1 Front template of the S2210PB switch

Table 1-2 Parts at the front template of the S2210PB switch

No.	Abbrev.	Name	Remarks
1	PWR	power indicator	If the switch is powered on, the indicator is on.
2	RESET	RESET	Resume to the default setting.
3	SYS	System indicator	If the indicator is always on, the system is

			started up. If the indicator flickers, the system works normally.
4	PoE	PoE indicator corresponding to each port	If the indicator is always on, the PoE works normally. If the indicator is off, the PoE does not work.
5	Lnk/Act	Lnk/Act indicator corresponding to each port	Green indicator is on: 10/100M is transmitted; Red indicator is on: 1000M is transmitted; No indicator is on: no signal is transmitted.
6	/	8 RJ45 interfaces	Realizes the PoE function and forwards 10/100M Ethernet electrical signals
7	Console	Console	Manages the switch locally.
8	/	2 SFP ports	Realizes the forward of gigabit Ethernet optical signals.

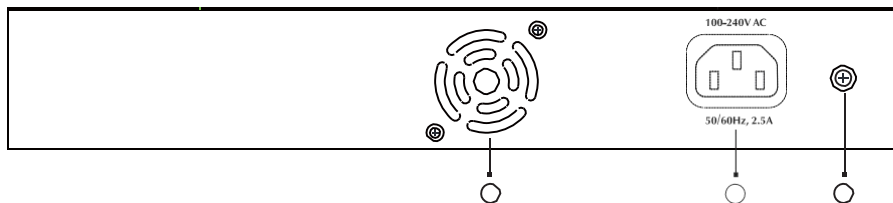Besides, S2210PB provides with a grounding column, a power socket, and a silent fan.

Figure 1-2 Back template of the S2210PB switch

Table 1-3 Parts at the rear template of the S2210PB switch

No.	Abbrev.	Name	Remarks
1	/	Fan	/
2	/	AC power socket	100~240V AC
3	/	The grounding column	The grounding must be fine.

1.2　Characteristic Parameters of S2210PB

Protocol standard	Supported standard	IEEE 802.1d Spanning Tree Protocol
		IEEE 802.1p Class of Service
		IEEE 802.1q tagged VLAN
		IEEE 802.3x Flow control
		IEEE 802.3ad Link aggregation
		IEEE 802.3af Power via Media Dependent Interface
		IEEE 802.3at DTE Power Enhancements
	IP routing protocol standard	RFC 1058 RIP
		RFC 1723 RIP v2
	Network management standard	RFC 1157 SNMP v1/v2
		RFC 1213 MIB II
		RFC 1757 RMON 1,2,3,9
Hardware features	Memory	Flash Memory: 16M Bytes;
		DDR3: 128Mbytes
	Standard configuration	2 Gigabit Ethernet SFP ports
		1 Console port
		8 100M Ethernet TX ports
	Dimensions (W×H×D) (mm)	280×180×44
	Operating temperature/humidity	0℃ to 40℃; 10%-90% non-condensing
	Storage temperature/ humidity	-40℃ to 70℃; 5%-90% non-condensing
	Power supply	Input voltage: AC100-240V; Input frequency: 50-60Hz; Input current: 2.5A/230V
	Power consumption	140W

1.3 ROHS Description

Part Name	Toxic or Hazardous Substances and Elements					
	Pb	Hg	Cd	Cr(VI)	PBB	PBDE
PCBA	O	O	O	O	O	O
Mental Parts	O	O	O	O	O	O
Plastic & Polymer Parts	O	O	O	O	O	O
Cables & Cable Assembles	O	O	O	O	O	O
Packaging Materials & Assembles	O	O	O	O	O	O

This table is prepared in accordance with the provisions of SJ/T11364.

O: Indicates that said hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement of GB/T26572

X: Indicates that said hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement of GB/T26572.

The referenced environment-friendly use period logo is determined based on the normal operating conditions (such as temperature and humidity)

(NOTE: These statements apply only to the China RoHS regulations.)

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 up the switch of S2210PB, you have to open the power on-off three or five seconds after the power is cut off.

Avoid severe collision or falling down from the height to protect the parts in the switch.

Use correct outside ports to connect the switch of S2210PB. 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 dial out the power line, keep the power line horizontal with the power socket.

2) When the lifetime of our 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

- Keep dustless and clean during or after the installation.
- Put the cover at the safe place.
- Put tools at the right place where they are not easily falling down.
- Put on relatively tight clothes, fasten the tie or scarf well and roll up the sleeve, avoiding stumbling the chassis.
- Put on the protective glasses if the environment may cause damage to your eyes.
- Avoid incorrect operations that may cause damage to human or devices.

2.2.2   Safety Notices

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

- Read the installation guide carefully before you operate the system.
- Only professionals are allowed to install or replace the switch.
- Please cut off the direct-current connection when you operate the hull or work near the power supply.
- The final configuration of products must comply with relative national laws and regulations.

2.2.3   Safety Principles for Live Working

When you work under electricity, following the following principles:

- Put off ornaments, such as ring, necklace, watch and bracelet, before you operate under live working. When metal articles connect the power to the ground, short circuit happens and components may be damaged.

- Please cut off the direct-current connection when you operate the hull or work near the power supply.

- When the power is on, do not touch the power.

- Correctly connect the device and the power socket.

- Only professionals are allowed to operate and maintain the device.

- Read the installation guide carefully before the system is powered on.

Note:

1) Check potential dangers, such as the humid floor, ungrounded extensible power line and tatty power line.

2) Install the emergent on-off at the working room for turning off the power when trouble happens.

3) Plug off the power line before installing or uninstalling the machine box or working beside the power.

4) Do not work alone if potential dangers exist.

5) Cut off the power before checkout.

6) If trouble happens, take the following measures:

    A. Cut off the system's power.

    B. Alarm.

    C. Take proper measures to help persons who are hit by the disaster. Artificial respiration is needed if necessary.

    D. Seek for medical help, or judge the loss and seek for available help.

2.2.4 Electrostatic Discharge Damage 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 machine box connects the ground. Another measure is to wear the static-proof hand ring. If there is no hand ring, use the metal clip with the metal cable to clip the unpainted metal part of the machine box. 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 the installation locations.

2.3.1   Environment

S2210PB switch adopts the wall-mounted installation mode. The switch has no fan, so an environment with good ventilation is needed for the heat cooling of the switch.

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.

- Make sure that the workshop is well-ventilated, the heat of TX devices is well-discharged and sufficient air circulation is provided for device cooling.
- Put the chassis at the 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:

- Each device on the cabinet gives off heat when it runs. Therefore, the sealed cabinet must have the heat-discharge outlet and the cooling fan. Do not put the devices too close, avoiding bad ventilation.
- When you install the chassis at the open cabinet, prevent the frame of the cabinet from blocking the airway of the chassis.
- Ensure that nice ventilation is provided for the devices installed at the bottom of the cabinet.
- 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 nice 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 even the hardware system will be damaged.

2.4 Installation Tools and Device

The tools and devices to install the S2210PB switch are not provided by the S2210PB switch. You yourself need to prepare them. The following are the tools and devices needed for the typical installation of the S2210PB switch:
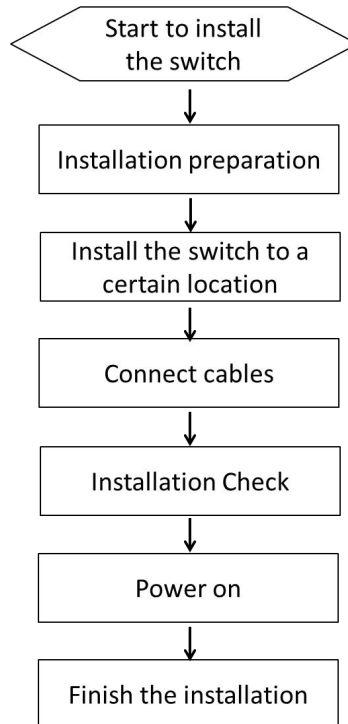
- Screwdriver
- Static armguard
- Bolt
- Ethernet cable
- Other Ethernet terminal devices
- Control terminal

Chapter 3   Installing the S2210PB Switch

Caution:

Only professionals are allowed to install or replace the devices of the switch.

3.1   Installation Procedures of S2210PB

```
┌─────────────────────┐
│   Start to install   │
│     the switch       │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│ Installation preparation │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│  Install the switch to a │
│    certain location      │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│    Connect cables    │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│  Installation Check  │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│      Power on        │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│ Finish the installation │
└─────────────────────┘
```

3.2   Installing the Chassis of S2210PB

The chassis of the switch can be put on the desk or fixed to the cabinet. 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:

- Installing the Chassis on the Desk
- Installing the Chassis on the Cabinet

3.2.1   Installing the Chassis on the Desk

The S2210PB switch can be directly put on the smooth and safe desk.

Note:

Do not put things weighing 4.5 kg or over 4.5 kg on the top of the switch.

3.2.2   Installing the Chassis on the Cabinet

The chassis of the switch is fixed to the cabinet through the fixing mouth. When operation it is enough to fix the back template of the switch through the fixing mouth to the cabinet.
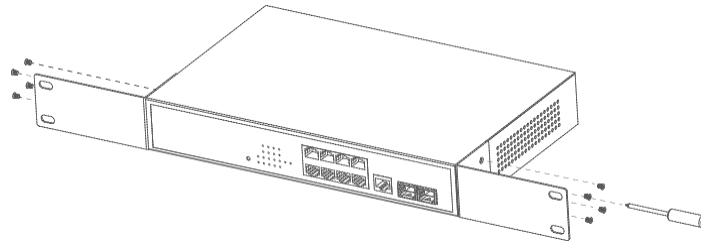
Figure 3- 1 Fixing the machine box of the switch

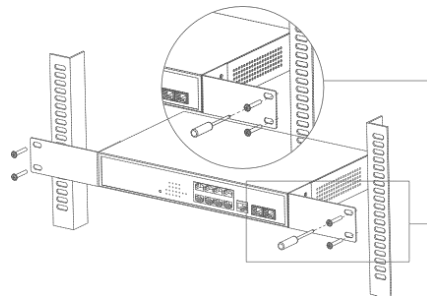After the brackets are installed, install the switch on the cabinet. See Figure 3-2.

Figure 3- 2 Installing the switch on the cabinet

3.3   Connecting the Port

3.3.1   Connecting the Console Port

The switch of S2210PB has a Console port. The rate of the console port is a value of 1200bps—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 switch of S2210PB 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.
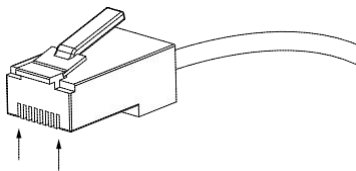

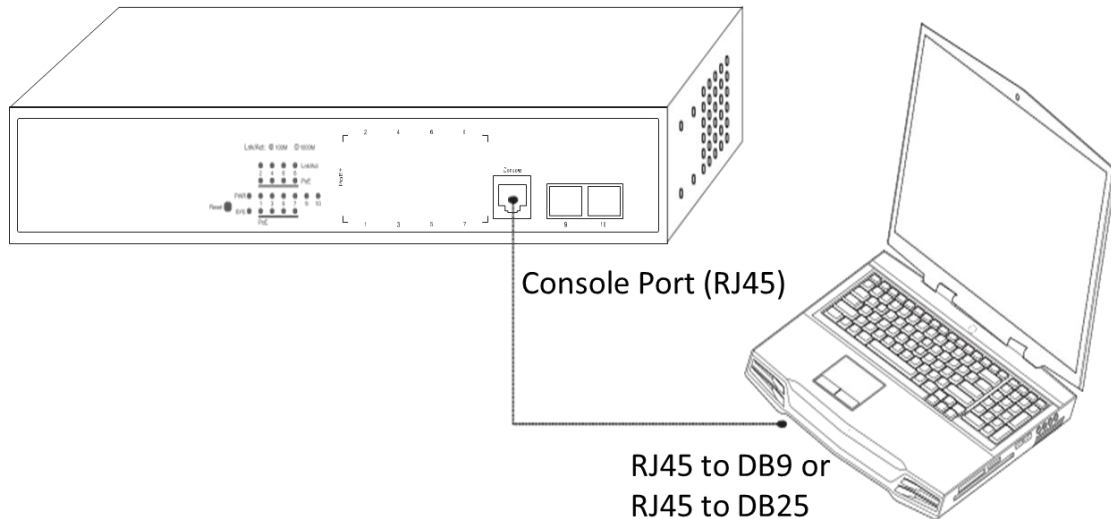Figure 3- 3 RJ-45 connector of the console port

Console Port (RJ45)

RJ45 to DB9 or
RJ45 to DB25

Figure 3-4 Connecting the console port of S2210PB and computer

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

No.	Name	Abbreviation	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:

Because the console port of S2210PB bears no flow control, you need to set Data flow control to none when using a superior terminal to manage S2210PB configurations, or the single-pass problem will arise from the superior terminal.

The cable is used to connect the console port of the S2210PB switch and the outside console terminal device. One end of the cable is a 8-pin RJ45 plug and the other end is a 25-hole plug (DB25) and a 9-hole plug (DB9). The RJ45 plug is put into the socket of the console port on the S2210PB switch. DB25 or DB9 is applied according to the requirement of the terminal serial port. The inner line connection in the cable is shown in Figure 3-5.
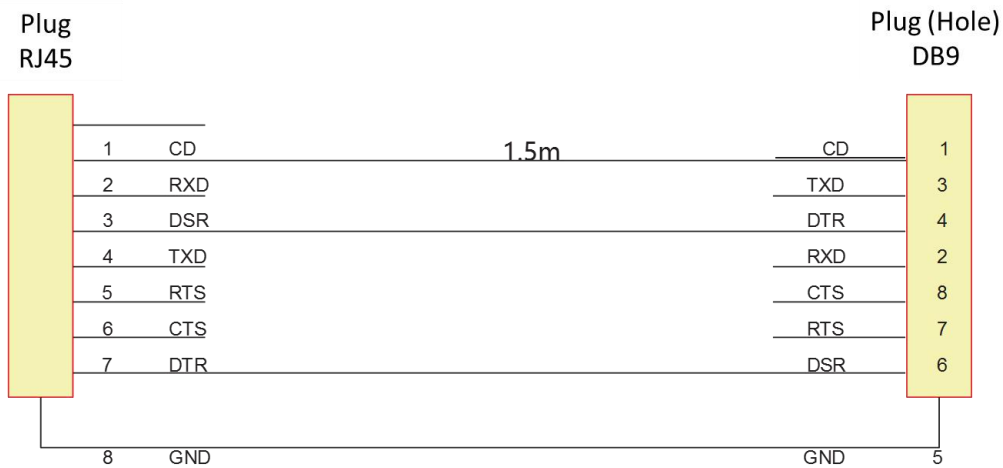
Plug
RJ45

Plug (Hole)
DB9

		1.5m		
1	CD		CD	1
2	RXD		TXD	3
3	DSR		DTR	4
4	TXD		RXD	2
5	RTS		CTS	8
6	CTS		RTS	7
7	DTR		DSR	6
8	GND		GND	5

Figure 3-5 Cable connection at the console port

3.3.2 Connecting the SFP Ports

S2210PB provides 2 gigabit SFP optical ports. Each port corresponds to one indicator respectively, which is used for indicating the port Link/ACT state. When the indicator is always on, the link is normal; when it flickers, the data receives and forwards. To use the optical port, you need connect it to the SFP optical module, and then to other Ethernet terminal devices through an optical fiber.
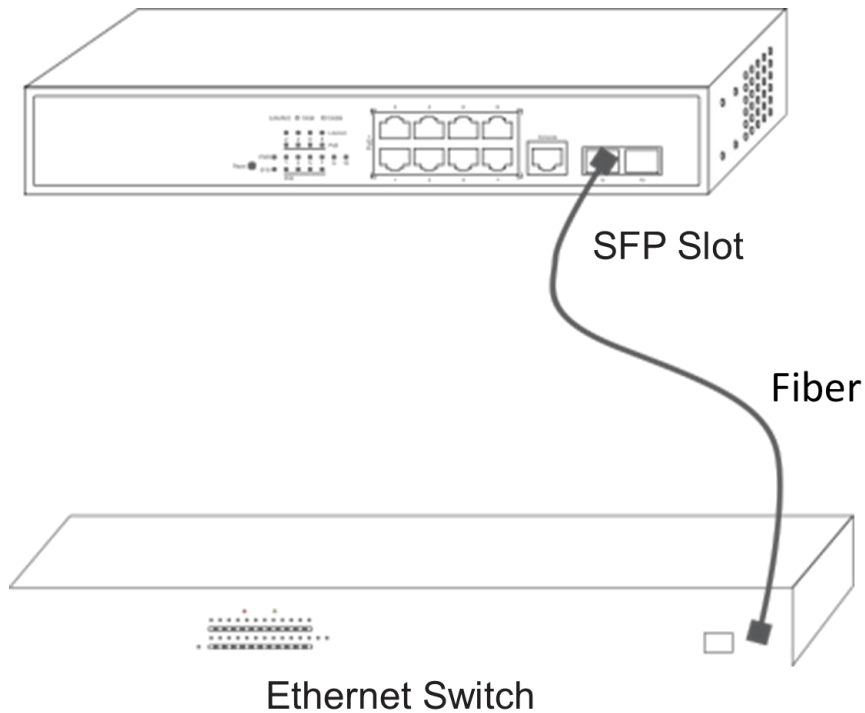

SFP Slot

Fiber

Ethernet Switch

Figure 3-6 Connecting the SFP ports and other Ethernet terminals

3.3.3   Connecting 100M Ethernet TX Ports

The S2210PB switch has 8 10/100Base-TX ports. Each port has one indicator, which indicates the state of Link/ACT. If the indicator is always on, the port is linked up; if the indicator flickers, the data is transmitted on the port. The numbering order of the pins in the UTP port is the same as the console port.
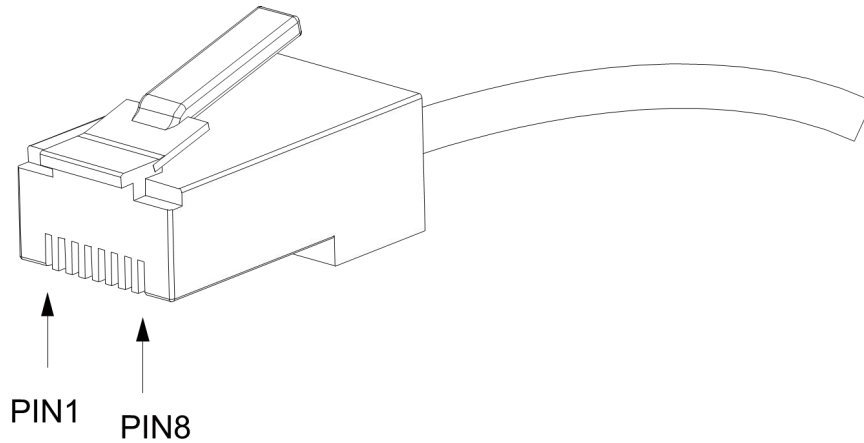

PIN1   PIN8

Figure 3-7 RJ-45 connector of the console port

Because 8 10/100Base-TX ports of S2210PB support the MDI/MDIX auto-identification of the cable, S2210PB can adopt five classes of direct-through/cross network cables when it connects other Ethernet terminals.
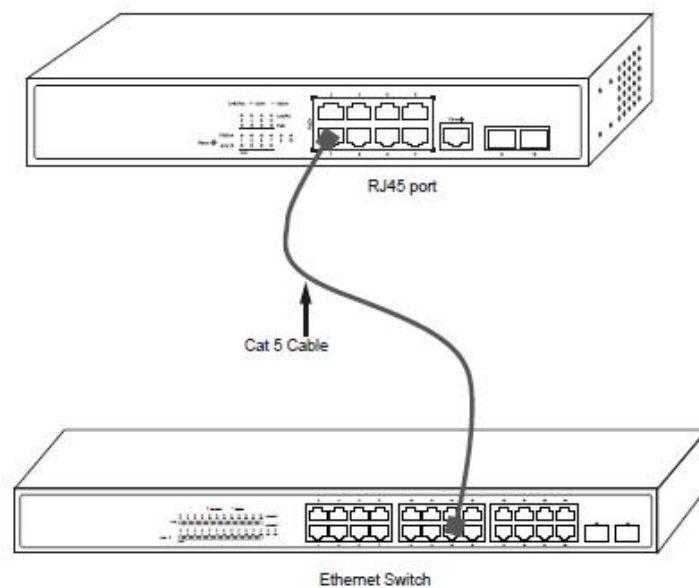

RJ45 port

Cat 5 Cable

Ethernet Switch

Figure 3-6 Connecting Base-T ports and other Ethernet terminal

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

No.	Pin name	Symbol	Note
1	Sending the normal phase of the data	TXD1+	Output

2	Sending the paraphase of the data	TXD1-	Output
3	Receiving the normal phase of the data	RXD1+	Input
4	Sending the normal phase of the data	TXD2+	Output
5	Sending the paraphase of the data	TXD2-	Output
6	Receiving the paraphase of the data	RXD1-	Input
7	Receiving the paraphase of the data	RXD2+	Input
8	Sending the paraphase of the data	RXD1-	Input

The direct-through or cross network cable has the function of auto-identification, so the five classes of direct-through/cross network cables can be used to connect other Ethernet devices.

3.4 Checkup after Installation

Before feeding power to start the switch, perform the following checkups after the switch is installed:

● If the switch is installed on the DIN rail, check whether the installation is strong. If the switch is installed on the desk, check whether there is enough space for the switch to discharge its heat and whether the desk is stable.

● Check whether the connected power supply meets the power requirements of the switch.

● Check whether the grounding line of S2210PB is correctly connected.

● Check whether S2210PB is correctly connected to other terminal devices.

Chapter 4   S2210PB Maintenance

Caution:

1)   Before opening the chassis, make sure that you have released the static you carried and then turn off the power on-off of S2210PB. Before operating any step in Appendix B, read the section "Safety Advice".

2)   Before performing operations beside the power supply or on the chassis, turn off the power on-off and plug out 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 still connects the power supply, do not touch it.

To uninstall the chassis, you need some tools which the standard configuration of S2210PB does not provide. These tools are:

- Crossed screwdriver
- Static armguard

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

(1)   Cut off the power of the switch.

(2)   Plug out all cables connected the back of the switch.

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

Note:

The chassis comprises of two parts: cover and bottom.

(4)   Open the cover by holding two sides of the cover towards the direction of the arrow key shown in the following figure:
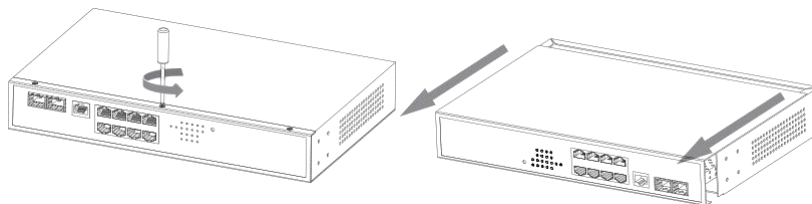
(5)   When the cover is opened, put it aside. The main board of the system appears.

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 the Chassis

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

(1)   Following the directions shown on the above-mentioned figure, install the cover and bottom of the frame box.
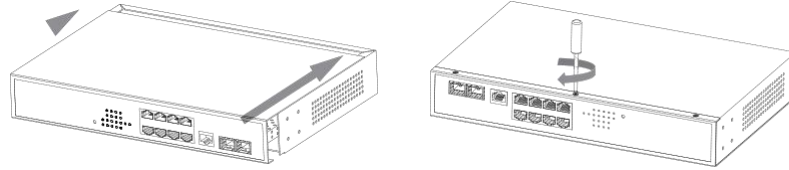
(2)   Nail the bolt and screw it tightly with the screwdriver.

(3)   Reinstall the switch on the DIN rail or on the desk.

(4)   Reconnect all cables of the switch.

Chapter 5   Hardware Fault Analysis

The part describes how to remove the faults 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:

● Connection of the power supply and the cooling system — the power supply and the fan;

● 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 checkups to help remove the fault:

● When the power on-off is at the "ON" location, check whether the fan works normally.

● 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".

● If the switch cannot be started and the PWR indicator is off, check the power.

5.1.2   Faults Relative with Port, Cable and Connection

Do the following checkups to help remove the fault:

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

● 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   LED Description

The LED shows that the switch is running. The following table shows the LEDs of the S2210PB switch and their description:

No.	Abbrev.	Name	Remarks
1	PWR	Power LED	If the switch is powered, the indicator is on.
2	SYS	System LED	If the indicator is always on, the system is being started up. If the LED flickers, the system works normally.

| 3 | LINK/ACT | port indicators | If the indicator is always on, it means that the connection is linked. If the indicator is off, the port is not linked. |
| 4 | PoE | PoE indicator corresponds to each port | If the indicator is always on, it means the PoE works. If the indicator is off, the PoE does not work. |

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