S2510-B Hardware Installation Manual

Table of Contents

Chapter 1 S2510-B Switch Introduction

The document describes the characteristics and parameters of S2510-B and gives an overview of S2510-B.

1.1 Standard Configuration

S2510-B has three parts: 8 gigabit Base-T ports and 2 gigabit SFP ports and 1 console port, as shown in the following table:

Table 1-1 Attributes of the accessory port

Port	Attribute
Gigabit RJ45 port	Base-T port: 10/100/1000M auto-adaptation, MDI/MDIX auto-identification, UTP(RJ45) port
Gigabit SFP port	SFP port: 100/1000M SFP port, Link/ACT indicators
Console port	A rate of 9600bps, RJ45 interface

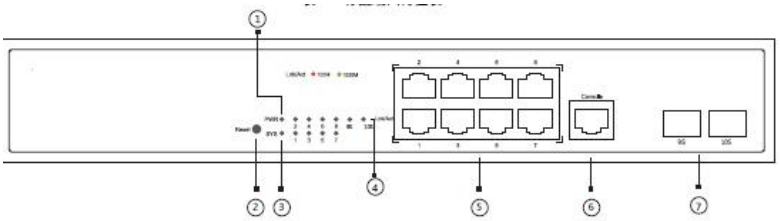


Figure 1-1 Front template of the S2510-B switch

Table 1-2 Parts at the front template of the S2510-B switch

No.	Abbrev.	Name	Remarks
1	PWR	Power LED	It is on when the power supply provides power normally.
2	RESET	RESET	Resume to the default setting
3	SYS	System indicator	If the indicator is always on, the system is being started up. If the indicator flickers, the system works normally.
4	Link/Act	Link/Act indicator	If the orange indicator is on, it means 10/100M. If the green indicator is on, it means 1000M. If the indicator is off, there is no signal

			transmission.
5	/	8 RJ45 ports	Forwards the 10/100/1000M Ethernet electric signals.
6	Console	Console port	Manages the switch locally.
7	/	2 SFP ports	Forwards the 1000M Ethernet optical signals.

Additionally, S2510-B has a grounding column, a socket and a soundless fan at its back

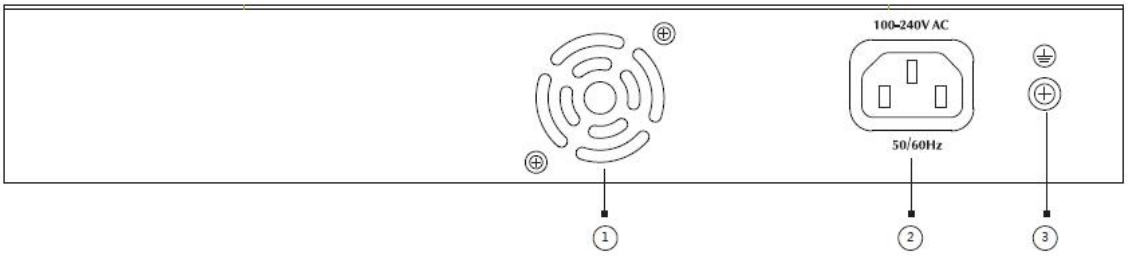


Figure 1-2 Back template of the S2510-B switch

Table 1-2 Parts at the back template of the S2510-B switch

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

1.2 Characteristic Parameters of S2510-B

Protocol standards	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
	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 Mbytes DDR3: 128 Mbytes
	Standard configuration	8 gigabit Ethernet ports 1 console port 2 SFP ports
	Dimensions (W×D×H) mm	280×180×44
	Working temperature/humidity	0℃～ 40℃; 10% ～ 90% non-condensing
	Storage temperature/ humidity	-40℃ ～ 70℃; 5% ～ 90% non-condensing
	Power Supply Characteristics	Input voltage: AC100 ～ 240V; Input frequency: 50/60Hz Input current: 1 A/12V
	Power consumption	12W

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 S2510-B, 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 S2510-B. Do not insert the Ethernet plug into the console port (RJ-45 8-line socket). Similarly, do not insert the console cable into the console port (RJ-45 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.

Caution: When you plug or dial out the power line, keep the power line horizontal with the power socket. 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 chassis 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 Chassis 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.

2.3 Requirements for Common Locations

This part describes the requirements for the installation locations.

2.3.1 Environment

S2510-B adopts the wall-mount 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 electrical 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

You must check the power supply and make sure the good grounding of the power supply system. Then you must pay attention to the range of input power, which is proper when the input power ranges from 36 to 72 VDC.

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 S2510-B are not provided by the S2510-B. You yourself need to prepare them. The following are the tools and devices needed for the typical installation of the S2510-B switch:

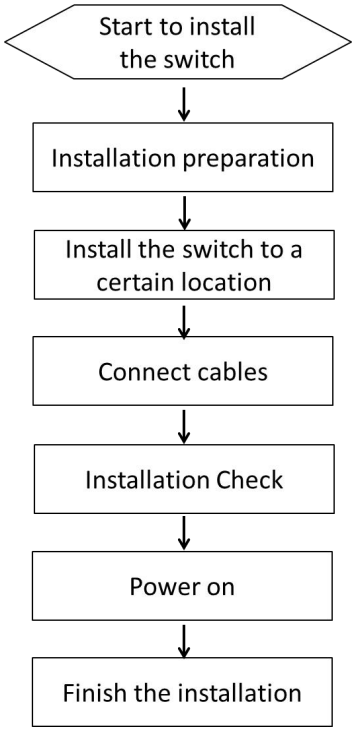
- Screwdriver
- Static armguard
- Bolt
- Ethernet cable
- Other Ethernet terminal devices
- Control terminal

Chapter 3 Installing the S2510-B Switch

Caution:

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

3.1 Installation Procedure of S2510-B



3.2 Installing the Chassis of S2510-B

The chassis of the switch can be put on the desk or fixed to the DIN slide. 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 S2510-B 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 on the cabinet through the brackets. When you fix the brackets, the front template of the router faces forward. The detailed operations are shown in the following figure.

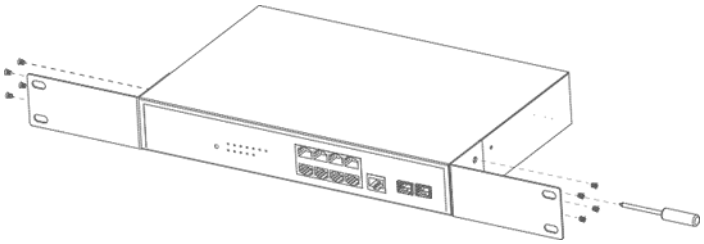


Figure 3-1 Fixing the machine box of the switch

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

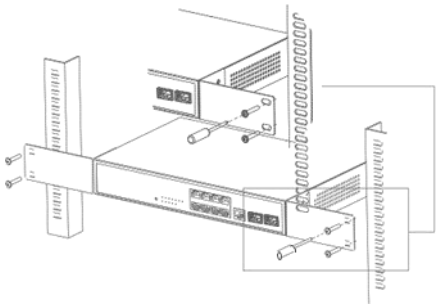


Figure 3-2 Installing the switch on the cabinet

3.3 Connecting the Port

3.3.1 Connecting the Console Port

The switch of S2510-B has a console port and its rate is a value ranging from 1200 to 115200 bps. It has a standard RJ-45 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 S2510-B 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 9600 bps, eight data bits, one stop bit, no sum check bit and traffic control.

The RJ-45 connector of the console port is shown in the following figure. The RJ-45 plug corresponds to the RJ-45 socket, whose pins can be aligned from left to right with the value between 1 and 8.

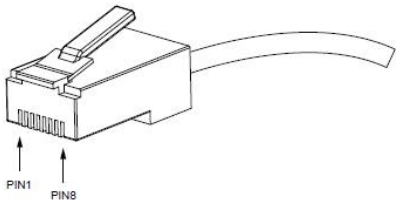


Figure 3-3 RJ-45 connector of the console port

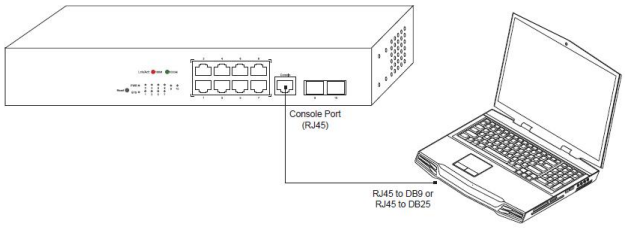


Figure 3-4 Connecting the console port of S2510-B and a computer

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

Because the console port of S2510-B bears no flow control, you need to set Data flow control to none when using a superior terminal to manage S2510-B configurations, or the single-pass problem will arise from the superior terminal.

The cable is used to connect the console port of the S2510-B switch and the outside console terminal device. One end of the cable is a 25-hole DB25 plug and the other end is a 9-hole plug (DB9). The RJ-45 plug is put into the socket of the console port on the S2510-B switch. The inner line connection in the cable is shown in figure 3-1. The console cable is numbered as RLC0301.

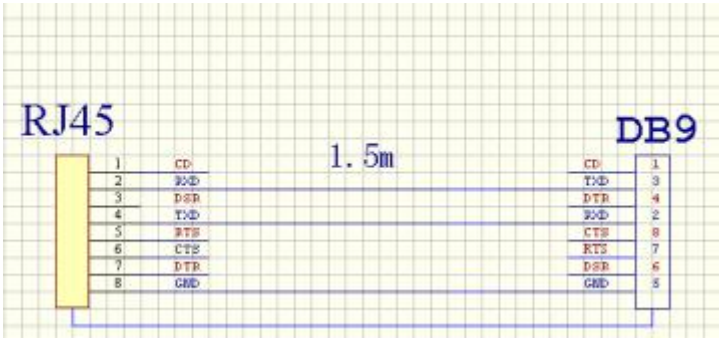
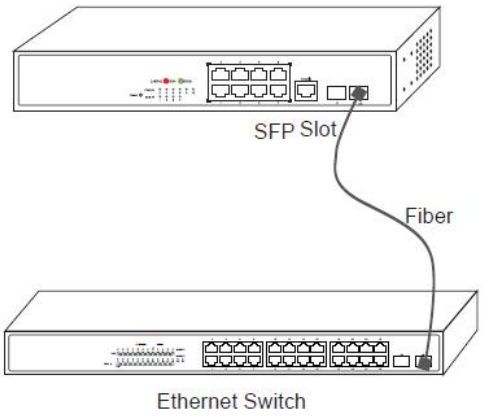


Figure 3- 5 Cable connection at the console port

3.3.2 Connecting the SFP Ports

S2510-B provides 2 gigabit SFP ports. The two ports correspond to one indicator respectively. 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.



3.3.3 Connecting Ethernet Electric Port

S2510-B has 8 10/100/1000Base-T ports. You can connect other Ethernet terminal devices to the UTP port through the cut-through or cross network cable. The numbering order of the pins in the UTP port is the same as the console port.

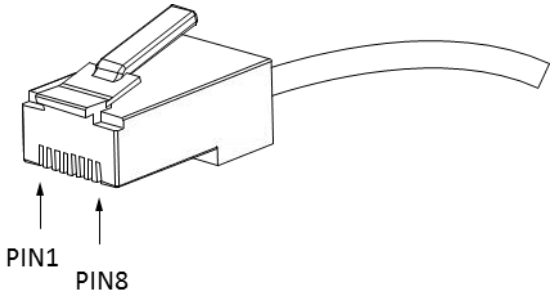


Figure 3-4 RJ-45 connector of the console port

Because 8 10/100/1000M Base-T ports of S2510-B support the MDI/MDIX auto-identification of the cable, S2510-B can adopt five classes of direct-through/cross network cables when it connects other Ethernet terminals.

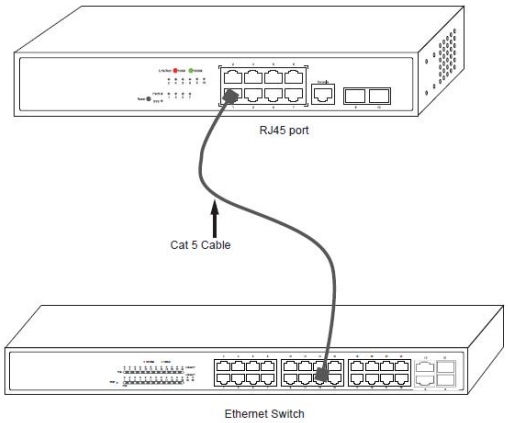


Figure 3-5 Connecting the gigabit Base-T port and any other Ethernet terminal

Table 3-3 Definition of the pins of the gigabit RJ-45 port

No.	Pin name	Symbol	Remarks
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 normal phase of the data	RXD2+	Input
8	Receiving 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 electrically starting up the switch, perform the following checkups after the switch is installed:

- If S2510-B is installed on a DIN rail, check whether the installation is strong; if S2510-B is installed on a workstation, check whether you spare enough space for S2510-B to cool itself and whether the workstation is stable.

- Check whether the connected power meets the power requirements of the switch.
- Check whether the grounding line of S2510-B is correctly connected.
- Check whether S2510-B is correctly connected to other terminal devices.

Chapter 4 S2510-B 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 S2510-B. 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 chassis of the switch, required tools and operation methods.

Caution:

When the power cable still connects the power supply, do not touch it.

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

- Crossed screwdriver
- Static armguard

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

1) Cut off the power of the switch;

2) Plug off all cables that connect the ports of S2510-B;

3) Take out the bolt from the chassis with the screwdriver;

Note:

The chassis comprises of two parts: chassis and bottom. Open the chassis by holding two sides of the chassis towards the direction of the arrow key shown in the following figure;

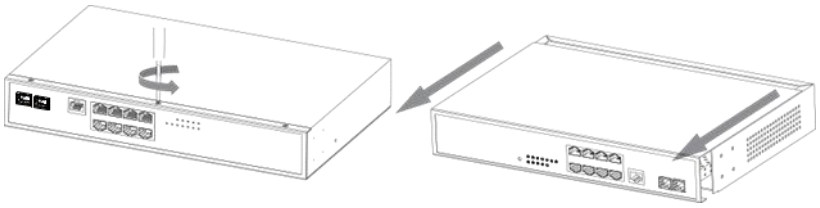


Figure 4-1 Opening the chassis of S2510-B

4) Put the chassis aside after you open it. The main board of the system appears.

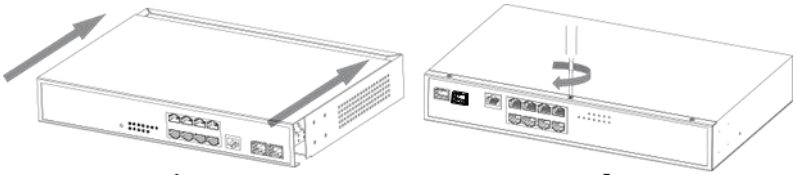
Note:

After taking off the chassis, 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 chassis and close the chassis. Do as follows:

(1) Following the directions shown on the above-mentioned figure, install the chassis and bottom of the frame box.



1 2

(2) Nail the bolt and screw it tightly with the screwdriver.

(3) Reinstall S2510-B 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 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:

- Connection of the power supply
- Port, cable and connection—ports on the front template of the switch and the cables connecting these ports

5.1.1 Power Fault

Do the following checkups to help remove the fault:

- Make sure that the power line is reliably connected and that the power supply provides power normally.
- Check the environmental conditions and make sure that the switch is put at a working location with a temperature of 0 to 45℃.
- If the power supply of S2510-B provides power normally, power indicator PWR is on, or indicator SYS flickers.

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 indicator shows that the switch is running. The following table shows the indicators of the S2510-B switch and their description:

No.	Abbrev.	Name	Remarks
1	PWR	Power LED	It is on when the power supply provides power

			normally.
2	SYS	System indicator	If the indicator flickers, the system works normally.
3	Link/Act	Link/Act indicators	If the orange indicator is on, it means 10/100M. If the green indicator is on, it means 1000M. If the indicator is off, there is no signal transmission.
3	LED Link/ACT	LED indicator	If the corresponding port is linked, the LED indicator is on. If the corresponding port is transmitting data, the LED indicator flickers.

Figure 5-1 Definition of S2510-B Switch Indicators