SFC4254T Hardware Installation Manual

Chapter 1   SFC4254T Switch Intro

The document describes the characteristics and parameters of SFC4254T and gives an overview of SFC4254T .

1.1   Standard Configuration

The accessory ports of SFC4254T are formed of 48 1000M-Ethernet RJ45 ports, 8 10G SFP+ ports and one console port. See table 1-1.

Table 1-1 Attributes of the necessary ports

Port	Features
Gigabit Ethernet port	UTP (RJ45) port with the LINK/ACT indicators
Gigabit Ethernet port	SFP+ port: having LINK/ACT indicators
Console port	An Mini-USB port with a rate of 9600 bps

Additionally, SFC4254T has a grounding column, a socket and a power on-off at its back.

Figure 1-1 Front template of the SFC4254T switch

Table 1-2 Parts at the front template of the SFC4254T switch

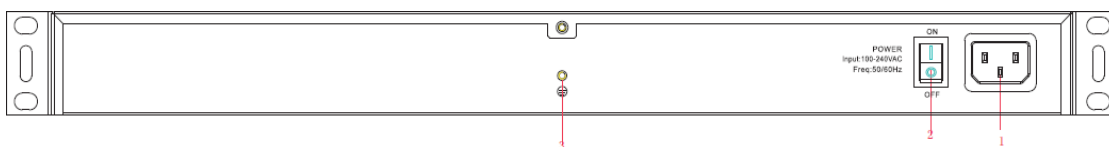| No.	Abbrev.	Name	Remarks
1	PWR	Power LED	If the switch is powered on, the indicator is on.
2	SYS	System LED	If the LED is always on, the system is being started. If the LED flickers, the system works normally.
3	CONSOLE	Console port	Manages the switch locally.
4		8 10G SFP+ optical ports	
5		48 gigabit TX ports	

Figure 1-2 Back template of the SFC4254T switch

Table 1-3 Parts at the back template of the SFC4254T switch

No.	Abbrev.	Name	Remarks
1	N/A	AC power socket	100 to 240V AC
2	N/A	AC power switch	ON: means it is powered on; OFF: means it is powered off.
3	N/A	Grounding column	The grounding must be fine.

1.2 Characteristic Parameters of SFC4254T

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
	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 SDRAM: 256MBytes
	Standard configuration	48 10/100/1000 Base-T ports 8 10G optical SFP+ ports One console port
	Dimensions	442.50*315*44mm
	Working temperature/humidity	0℃-40℃; 10%-85% non-condensing
	Storage temperature/humidity	-40℃-80℃; 5%-95% non-condensing
	Power Source's Characteristics	Input voltage: AC100-240V Input frequency: 47-63Hz Input current: 1.5A Output voltage: 12VDC Output current: 6A
	Power consumption in full-Load	55W
	Net weight	4.2Kg

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 SFC4254T, 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 SFC4254T.

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

- Check potential dangers, such as the humid floor, ungrounded extensible power line and tatty power line.
- Install the emergent on-off at the working room for turning off the power when trouble happens.
- 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.
- Do not work alone if potential dangers exist.
- Cut off the power before checkout.
- 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 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 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 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 the installation locations.

2.3.1 Environment

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

- 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.
- Avoid to damage devices by following the electrostatic discharge prevention procedure.
- 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 and 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 SFC4254T switch are not provided by the SFC4254T switch. You yourself need to prepare them. The following are the tools and devices needed for the typical installation of the SFC4254T switch:

- Screwdriver

- Static armguard

- Bolt

- Ethernet cable

- Other Ethernet terminal devices

- Control terminal

Chapter 3 Installing SFC4254T

3.1 Installing the Chassis of the Switch

The chassis of the router can be installed on the desk or can be fixed to other cabinets. Your net work installation requirements can be met if you conduct the operations according to the followin g procedure. It can be described in the following two parts:

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

3.1.1 Installing the Chassis on the Desk

SFC4254T 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.

3.1.2 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 switch faces forward. The detailed operations are shown in Figure 3-1.
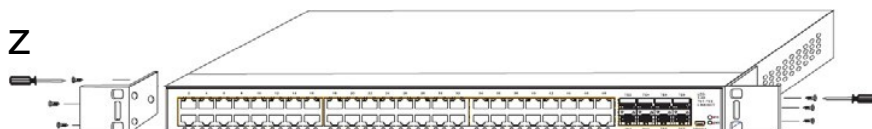

Figure 3-1 Fixing the chassis of the switch

Note: The switch shown in the previous figure does not represent real SFC4254T. After the brackets are installed, install the switch on the cabinet. See Figure 3-2.
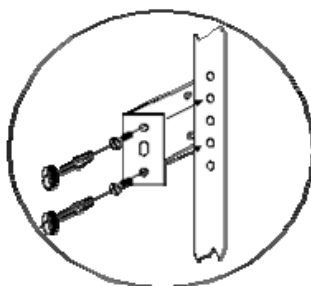

Figure 3-2 Installing the switch on the cabinet

3.2 Connecting the Port

3.2.1 Connecting the Console Port

The switch of SFC4254T has a Console port.

The rate of the console port is a value ranging from 1200bps to 115200bps. It has a standard Mini-USB Jack. After you connect the console port to the serial port of PC through a console cable, you can configure and monitor the switch of SFC4254T 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.
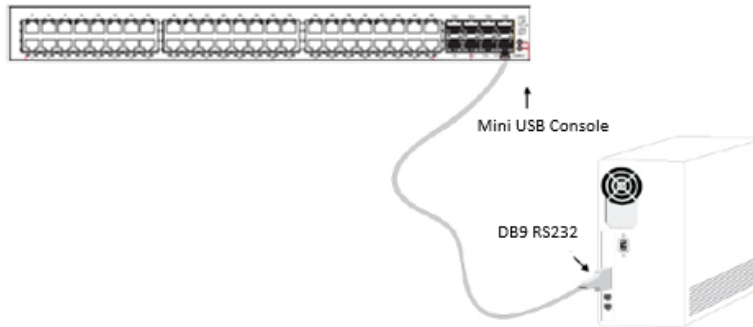
Figure 3-3 Connecting the console port of SFC4254T and computer

Note: The switch shown in the previous figure does not represent real SFC4254T switch.

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

No.	Name	Symbol	Remarks
1	Data receiving	RXD	Input
2			No connect
3	Signal ground	SG	GND
4			No connect
5	Data transmitting	TXD	Output

Note:

Because the console port of SFC4254T bears no flow control, you need to set Data flow control to none when using a superior terminal to manage SFC4254T configurations, or the single-pass problem will arise from the superior terminal.

Otherwise, the single-pass problem will arise on the super terminal. The cable is used to connect the console port of the SFC4254T switch and the outside console terminal device. One end of the cable is a mini-USB plug and the other end is a 9-hole plug (DB9). The Mini-USB plug is put into the socket of the console port on the SFC4254T switch. The inner line connection in the cable is shown in figure 3-4. The console cable is numbered as RLC0301.
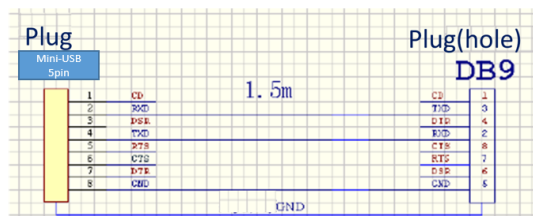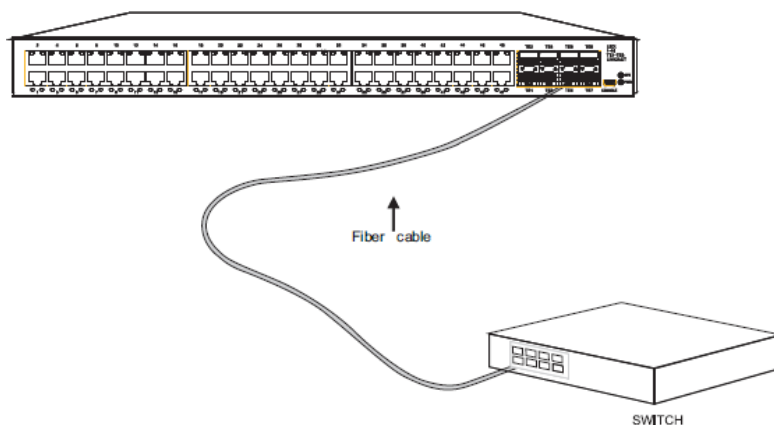
Figure 3-4 External wiring of the console port

3.2.2 Connecting the 1000M Ethernet SFP Port

SFC4254T provides 8 10G SFP+ ports. You can insert the SFP+ optical module into the port an
d then connect the module to other Ethernet terminal devices through the optical fiber if you want
to use the SFP+ port.

Note: The switch shown in the previous figure does not represent real SFC4254T

3.2.3 Connecting Ethernet Electric Port

The SFC4254T switch has 48 10/100/1000Base-T ports. The indicators are labeled with number
s 1-48, indicating the link/ACT state of the port. 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
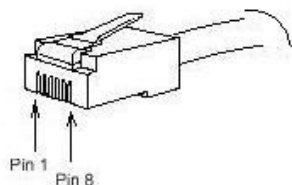in the UTP port is the same as the console port.

Figure 3-5   RJ-45 connector of Ethernet TX port

Because 48 10/100/1000Base-T ports of SFC4254T support the MDI/MDIX auto-identification of
the cable, SFC4254T can adopt five classes of direct-through/cross network cables when it con
nects other Ethernet terminals.

Table 3-2 Definition of the pins of the 1000M RJ45 port

No.	Pin name	Symbol
1	Receiving and transmitting the normal phase of data 0	TP0+
2	Receiving and transmitting the paraphase of data 0	TP0-
3	Receiving and transmitting the normal phase of data 1	TP1+
4	Receiving and transmitting the normal phase of data 2	TP2+
5	Receiving and transmitting the paraphase of data 2	TP2-
6	Receiving and transmitting the paraphase of data 1	TP1-
7	Receiving and transmitting the normal phase of data 3	TP3+
8	Receiving and transmitting the paraphase of data 3	TP3-

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.

3.3 Checkup After Installation

Before electrically starting up the switch, perform the following checkups after the switch is installed:

- If the switch is installed on the cabinet, check whether the installation point between the cabinet and the switch 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 meets the power requirements of the switch.
- Check whether the grounding line is correctly connected.
- Check whether the switch is correctly connected to other terminal devices.

Chapter 4   Maintaining the Switch

Caution:

- Before opening the chassis, make sure that you have released the static you carried and the n turn off the power on-off of the switch. Before operating any step in Appendix B, read the s ection "Safety Advice".
- Before performing operations beside the power source 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 source, do not touch it.

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

- Crossed screwdriver
- Static armguard

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

1) Turn off the power on-off of the switch.
2) Plug out all cables connected the back of the switch.
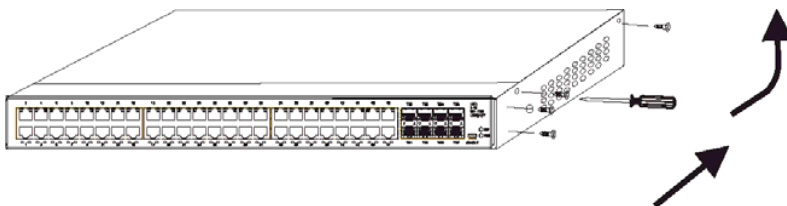3) Take out the bolt from the chassis with the screwdriver.

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:

Note: The switch shown in the previous figure does not represent real SFC4254T switch.
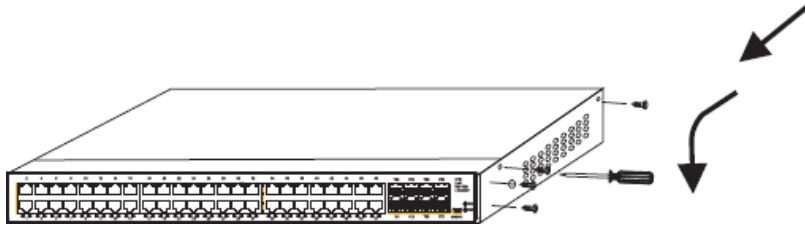5) When the cover is opened, put it aside. The mainframe of the system appears.

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)   Put them well according to their locations and joint them together along their sides.

2) See the following figure.

3) When the cover and the bottom are closely tied, let the cover slide the slot of the front template at the bottom.

4) Nail the bolt and screw it tightly with the screwdriver.

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

6) 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:

- Power and cooling systems—power and 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 fan does not work well, check the fan.
- 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.
- 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:

- 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 power on-off is at the "ON" location, check the power source and the power cable.
- 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 and one stop bit.

5.2   LED Description

The LED indicator shows that the switch is running. The following table shows the indicators of the SFC4254T switch and their description:

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