

# BDCOM S2928E Hardware Installation Manual



## Table of Contents

Chapter 1 BDCOM S2928E Introduction .....	1
1.1 Appearance Description for Standard Configuration .....	1
1.2 BDCOM S2928E Systematic Characteristic Parameters .....	2
1.3 ROHS Description .....	3
Chapter 2 Installation Preparation .....	4
2.1 Caution .....	4
2.2 Safety Advice .....	4
2.2.1 Safety Principles .....	4
2.2.2 Safety Notices .....	5
2.2.3 Safety Principles for Live Working .....	5
2.2.4 Electrostatic Discharge Damage Prevention .....	6
2.3 Requirements for Common Locations .....	6
2.3.1 Environment .....	6
2.3.2 Location Configuration Prevention .....	6
2.3.3 Cabinet Configuration .....	7
2.3.4 Power Requirements .....	7
2.4 Installation Tools and Device .....	7
Chapter 3 Installing the BDCOM S2928E Switch .....	8
3.1 Installation Flow of BDCOM S2928E .....	8
3.2 Installing the Machine Box of the Switch .....	8
3.2.1 Installing the Machine Box on the Desk .....	8
3.2.2 Installing the Machine Box on the Cabinet .....	9
3.3 Connecting the Port .....	9
3.3.1 Connecting the Console port .....	9
3.3.2 Connecting 10GE SFP+ Ports .....	11
3.3.3 Connecting Gigabit TX Ports .....	11
3.4 Checking after Installation .....	13

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Chapter 4 Maintaining Switch.....	14
4.1 Opening the Machine Box.....	14
4.2 Closing the Machine Box .....	15
Chapter 5 Hardware Fault Analysis.....	17
5.1 Fault Separation .....	17
5.1.1 Faults Relative with Power and Cooling System .....	17
5.1.2 Faults Relative with Port, Cable and Connection .....	17
5.2 Indicator Description .....	18
Note: Customer shall not be notified of this manual's content amendments. ....	18

# Chapter 1 BDCOM S2928E Introduction

The section describes the characteristics and parameters of BDCOM S2928E and gives an overview of BDCOM S2928E.

## 1.1 Appearance Description for Standard Configuration

The built-in ports of BDCOM S2928E are: 24 gigabit RJ45 ports, 4 10GE SFP+ ports, 1 console port. See table 1-1.

Table 1-1 Attributes of the built-in port

Port	Attribute
Gigabit Ethernet port	RJ45 interface, LINK/ACT indicators
10GE port	SFP+ port, LINK/ACT indicators
Console port	A baud rate of 9600bps, RJ45 interface

Besides, BDCOM S2928E switch has a grounding column, an AC power socket, a power on-off at its back.

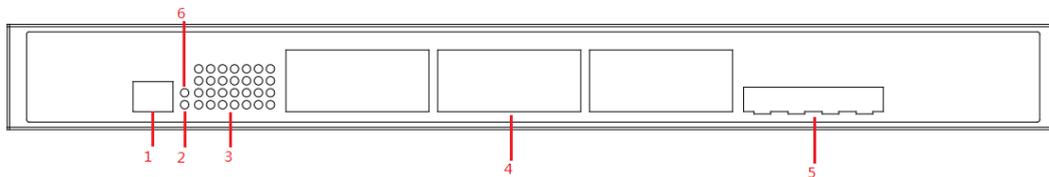


Figure 1-1 Front panel of the BDCOM S2928E switch

Table 1-2 Parts at the front panel of the BDCOM S2928E switch

No.	Name	Description
1	Console port	A baud rate of 9600bps, CLI interface
2	PWR LED	If the switch is powered on, the PWR indicator is on.
3	ACT LED	LINK/ACT
4	Gigabit Ethernet port	RJ45 interface
5	10GE port	SFP+ port
6	SYS LED	If the system is started normally, the SYS indicator flickers.

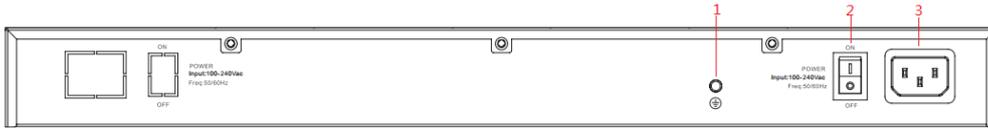


Figure 1-2 Back panel of the BDCOM S2928E switch

Table 1-3 Parts at the back panel of the BDCOM S2928E switch

No.	Abbrev.	Name	Description
1	/	Grounding column	The grounding must be fine.
2	/	Power switch	<b>ON</b> means the power is switched on, while <b>OFF</b> means the power is cut off.
3	POWER	AC power supply	Input voltage AC100-240V

## 1.2 BDCOM S2928E Systematic Characteristic Parameters

Table 1-4 BDCOM S2928E Systematic Characteristic Parameters

Hardware characteristics	Memory	Flash Memory: 32M Bytes SDRAM: 256MBytes;
	Standard configuration	24 10/100/1000BASE-T ports 4 10GE SFP+ ports 1 console port
	Dimensions (WxDxH) mm	440x180x44
	Operating temperature/humidity	-10°C~40°C; 10%~90% non-condensing
	Storage temperature/humidity	-40°C~85°C; 5%~95% non-condensing
	Power characteristics	Input voltage: AC100~240V Input frequency: 47~63Hz Input current: 1.5A (MAX) Output voltage: 12VDC Output current: 3A (MAX)
	Full-load power consumption	36W

### 1.3 ROHS Description

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

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

Similar to other electronic products, the semiconductor chip easily gets damaged if you power on or off abruptly and frequently. To restart up the switch of BDCOM S2928E, you have to open the power switch after the power is cut down for three to five seconds.

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

You should use correct outside ports to connect the switch of BDCOM S2928E. Do not insert the Ethernet plug into the console port. Similarly, do not insert the console cable into the Ethernet port (RJ45 8-line socket). The above operations and other wrong operations may cause damage to the internal components of the port.

**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, please 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 machine box.
- 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 before operating on the machine box 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, please follow 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.
- Pull out the AC power socket before operating on the machine box or working beside 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:**

- 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) Turn off the power switch and 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 correctly wear the static-proof wristband. If there is no wristband, 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

The switch can be installed on the desk or the cabinet. The location of the machine box, 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". If the device crashes frequently or errors occur, this preventive information can help you prevent the problem from recurring.

### 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.
- Avoid to damage devices by following the electrostatic discharge prevention procedure.
- Put the machine box at the place where cool air can blow off the heat inside the machine box. Make sure the machine box is sealed because the opened machine box 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 machine box at the open cabinet, prevent the frame of the cabinet from blocking the airway of the machine box.
- 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 cool air to flow in the machine box. The best location of the clapboard is decided by the air flow mode in the machine box, 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 240V, 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 BDCOM S2928E switch are not provided by the BDCOM S2928E switch. You yourself need to prepare them. The following are the tools and devices needed for the typical installation of the BDCOM S2928E switch:

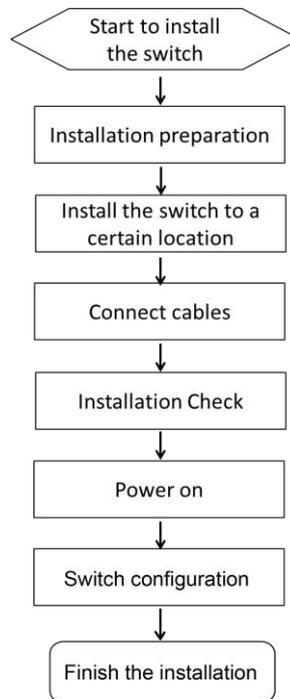
- Screwdriver
- Static-proof wristband
- Bolt
- Ethernet cable
- Other Ethernet terminal devices
- Control terminal

## Chapter 3 Installing the BDCOM S2928E Switch

### Caution:

Only professionals are allowed to install or replace the devices.

### 3.1 Installation Flow of BDCOM S2928E



### 3.2 Installing the Machine Box of the Switch

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 machine box on the desk
- Installing the machine box on the cabinet

#### 3.2.1 Installing the Machine Box on the Desk

The BDCOM S2928E 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 Machine Box on the Cabinet

The machine box of the switch is fixed on the cabinet through the brackets. When you fix the brackets, the front panel of the switch faces forward. The detailed operations are shown in Figure 3-1.

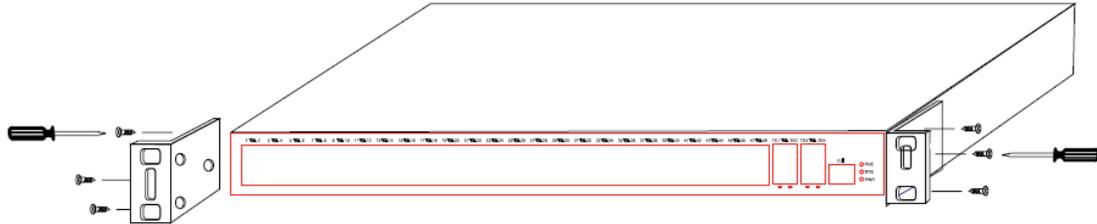


Figure 3-1 Fixing the machine box of the switch

**Caution:** The device shown in the above figure does not represent the material BDCOM S2928E.

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

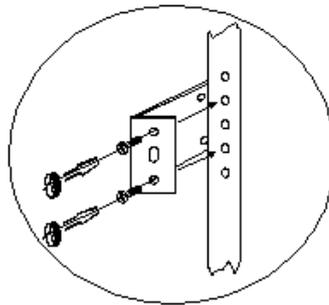


Figure 3-2 Installing the switch on the cabinet

## 3.3 Connecting the Port

### 3.3.1 Connecting the Console port

The switch of BDCOM S2928E switch has a console port. Its attributes and usage method are described in this section.

The console port has a baud rate of 9600bps and a standard RJ45 plug, without the parity check and the flow control. Before configuring and monitoring the switch, you must connect the console port and the terminal or PC's serial port through specific console cable and then run the terminal emulation software, such as Windows super-terminal. The cable is provided according to the host. The communication parameters of the terminal serial port can be set to a baud rate of 9600bps, eight data bits, one stop bit, no sum check bit and traffic control.

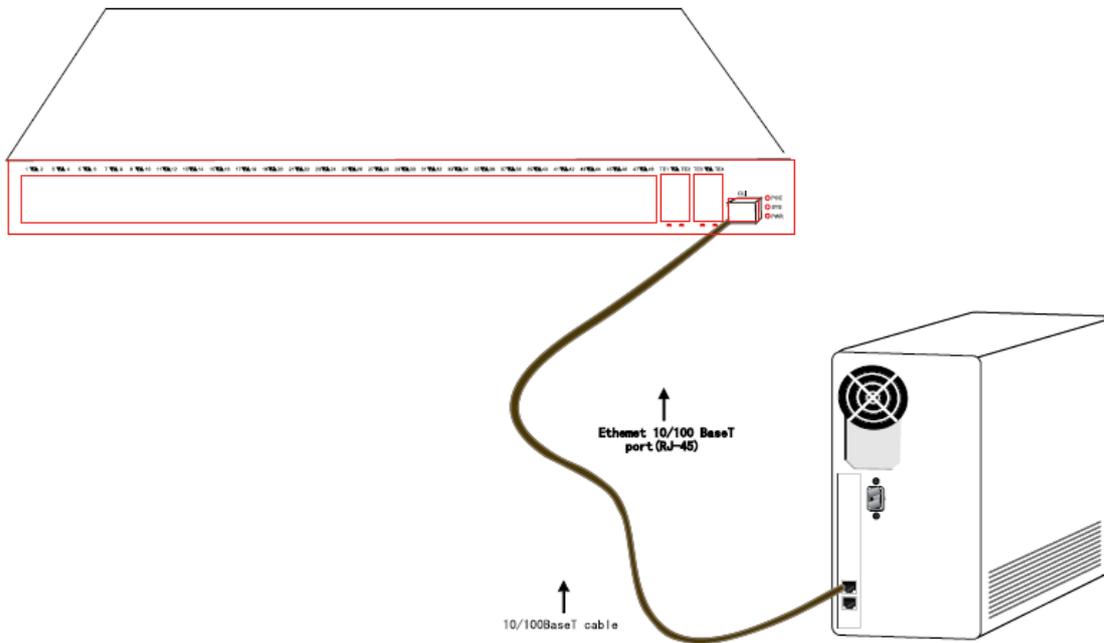


Figure 3-3 Connecting the console port of BDCOM S2928E switch and computer

**Caution:** The device shown in the above figure does not represent the material BDCOM S2928E.

Table 3-1 Pins of the console port

	Name	Abbreviation	Remarks
3	Forwarding data	TXD	Output
4, 5	Signal ground	SG	
6	Receiving data	RXD	Input

**Note:**

The console port of BDCOM S2928E 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.

The cable is used to connect the console port of the BDCOM S2928E switch and the outside monitoring terminal device. One end is RJ45 port and the other end is 9-hole plug (DB9). The plug of RJ45 is inserted into the CLI socket of BDCOM S2928E.

### 3.3.2 Connecting 10GE SFP+ Ports

BDCOM S2928E provides with 4 10GE SFP+ ports, which corresponds to TE1~TE4. 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 10GE SFP+ port.

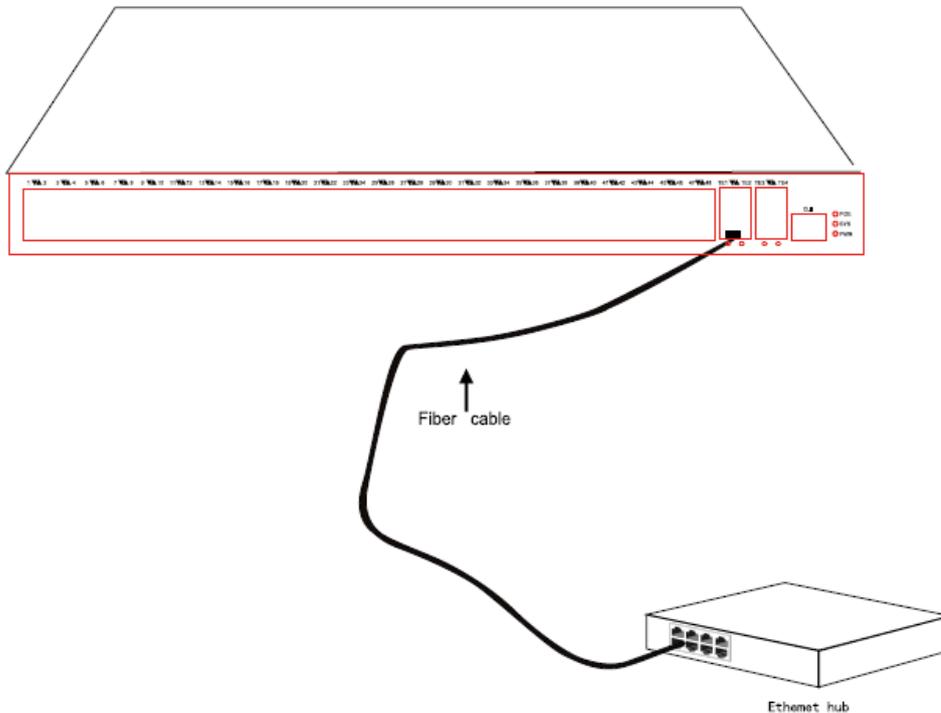


Figure 3-4 Connecting the Ethernet terminal to 10GE SFP+ ports

**Caution:** The device shown in the above figure does not represent the material BDCOM S2928E.

### 3.3.3 Connecting Gigabit TX Ports

The BDCOM S2928E switch has 24 10/100/1000Base-T ports and 24 corresponding indicators 1~24. 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.

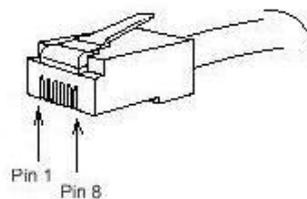


Figure 3-5 RJ-45 Connector of the Ethernet TX Port

Because 24 10/100/1000Base-T ports of BDCOM S2928E support the MDI/MDIX self-identification of the cable, 2952P can adopt 5-type direct-through/cross network cables when it connects other Ethernet terminals.

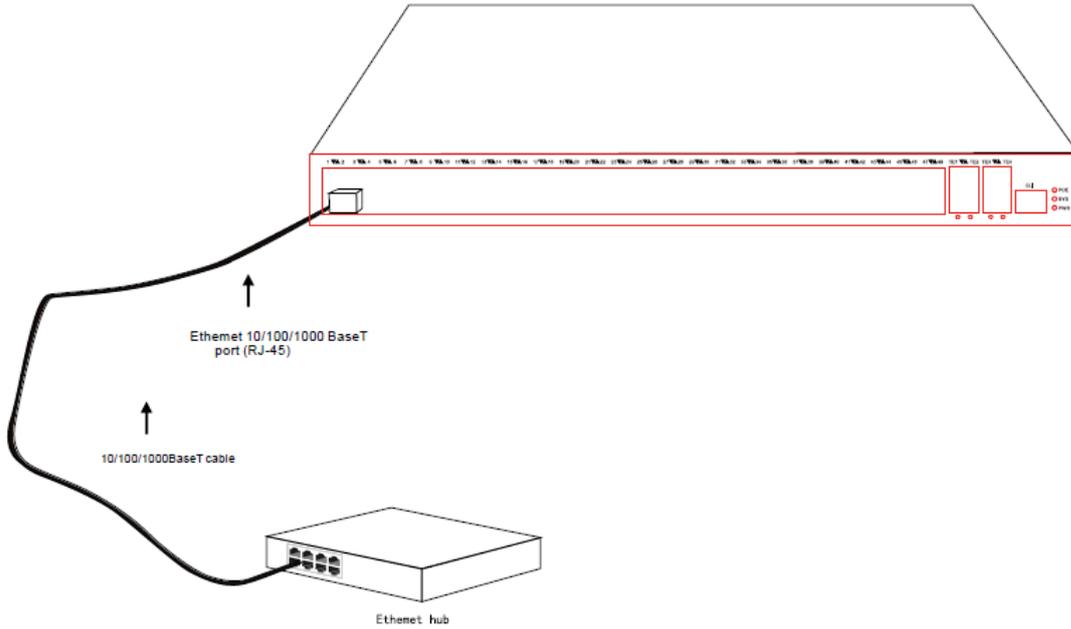


Figure 3-6 1000Base-TX ports connect to other Ethernet terminal devices

**Caution:** The device shown in the above figure does not represent the material BDCOM S2928E.

Table 3-2 Pins of gigabit RJ45

No.	Pin Name	English Name
1	Sending/receiving the normal phase of data 0	TP0+
2	Sending/receiving the paraphase of the data 0	TP0-
3	Sending/receiving the normal phase of data 1	TP1+
4	Sending/receiving the normal phase of data 2	TP2+
5	Sending/receiving the paraphase of the data 2	TP2-
6	Sending/receiving the paraphase of the data 1	TP1-
7	Sending/receiving the normal phase of data 3	TP3+
8	Sending/receiving the paraphase of the data 3	TP3-

## 3.4 Checking 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 Switch

### Caution:

- 1) Before opening the chassis, make sure you have discharged the static electricity on your body and turned off the power of the switch.
- 2) Before performing operations beside the power source or on the machine box, please plug out the power cable.

### 4.1 Opening the Machine Box

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 of the switch, you may use the following tools:

- Crossed screwdriver
- Static-proof wristband

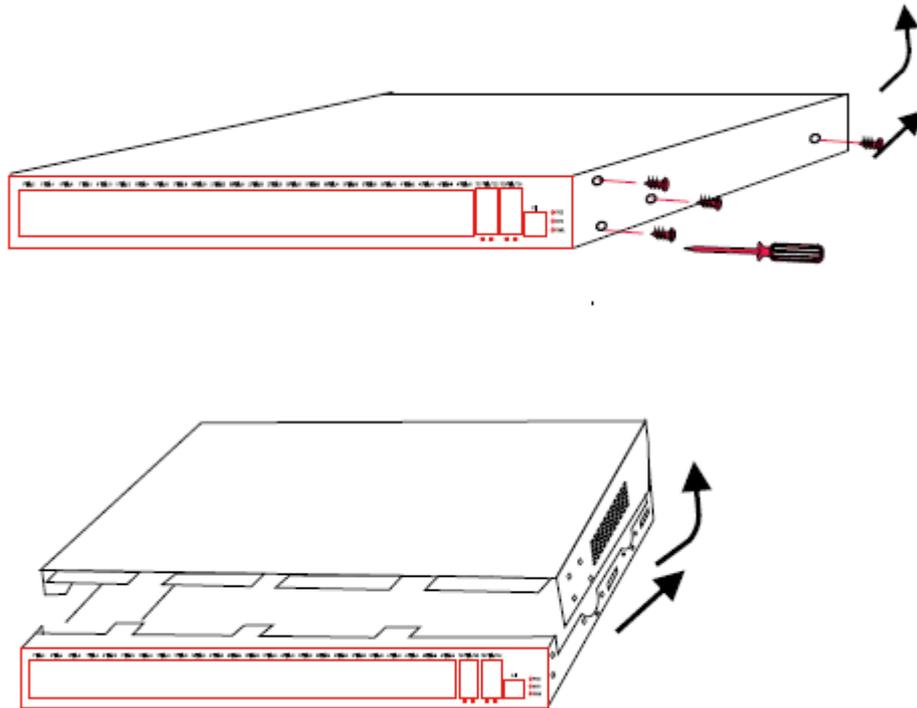
Perform the following steps to open the cover of the switch:

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

### Note:

The machine box 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:



**Caution:** The device shown in the above figure does not represent the material BDCOM S2928E.

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

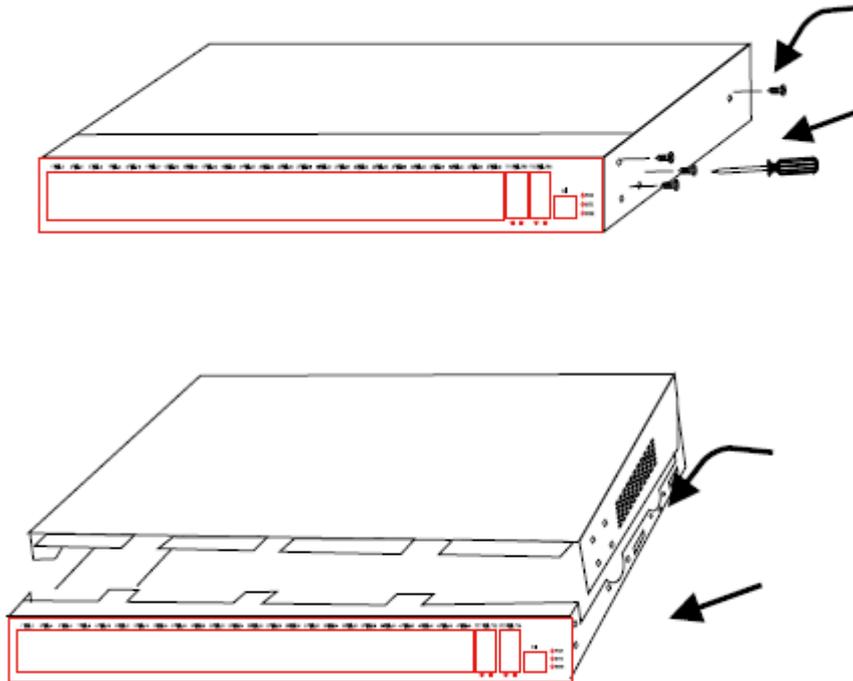
**Note:**

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

## 4.2 Closing the Machine Box

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

(1) Put them well according to their locations and joint them together along their sides. See the following figure.



- (2) According to the figure above, put close the edges of bottom shell and the cover.
- (3) When the cover and the bottom are closely tied, let the cover slide the slot of the front panel 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 panel 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 switch is at the “ON” location, check whether the fan works normally. If the fan does not work well, check the fan.
- The working temperature of the switch is from 0 to 40 Celsius degrees (32-104 Fahrenheit degrees). If the switch is too hot, check whether the air outlet and air inlet are clean and then do relative operations in section “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 power switch 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, one stop bit and no traffic control.

## 5.2 Indicator Description

The following table shows the indicators of the BDCOM S2928E switch and their description:

No.	Abbrev.	Name	Description
1	PWR	Power indicator	When the switch is powered on, the indicator is on.
2	SYS	System indicator	When the indicator is always on, the system is being started up. When the indicator flickers, the system works well.
4	LINK/A CT	indicators of each port	When the link on the port is normal, the indicator is always on. When the link on the port is failed, the indicator is off.

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