



H3C S3100-SI Series Ethernet Switches

Quick Start

Hangzhou H3C Technologies Co., Ltd.

<http://www.h3c.com>




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About This Manual

Related Documentation

In addition to this manual, each H3C S3100-SI Series Ethernet Switches documentation set includes the following:

Manual	Content
H3C S3100-SI Series Ethernet Switches Operation Manual	It is used for assisting the users in data configurations and typical applications.
H3C S3100-SI Series Ethernet Switches Command Manual	It is used for assisting the users in using various commands.
H3C S3100-SI Series Ethernet Switches Installation Manual	It is used for assisting the users in switch installation, booting up, hardware and software maintenance.

Organization

H3C S3100-SI Series Ethernet Switches Quick Start is organized as follows:

Chapter	Contents
1 Product Overview	Introduces the characteristics and technical specifications of S3100-SI Series Ethernet Switches.

Chapter	Contents
2 Installation Preparation	Introduces the installation preparation and precaution of S3100-SI Series Ethernet Switches.
3 Installation	Introduces the procedures to install an S3100-SI Series Ethernet Switch, including the setup of the mainframe, cards and cables.
4 Lightning Protection of the Switch	Introduces lightning protection of S3100-SI Series Ethernet Switches.




Conventions

The manual uses the following conventions:

I. GUI conventions

Convention	Description
< >	Button names are inside angle brackets. For example, click <OK>.
[]	Window names, menu items, data table and field names are inside square brackets. For example, pop up the [New User] window.
/	Multi-level menus are separated by forward slashes. For example, [File/Create/Folder].

II. Symbols

Convention	Description
 Warning	Means reader be extremely careful. Improper operation may cause bodily injury.
 Caution	Means reader be careful. Improper operation may cause data loss or damage to equipment.
 Note	Means a complementary description.

Environmental Protection

This product has been designed to comply with the requirements on environmental protection. For the proper storage, use and disposal of this product, national laws and regulations must be observed.

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Chapter 1 Product Overview

1.1 S3100-26T-SI Ethernet Switch

1.1.1 Appearance

As shown in the following figure, the S3100-26T-SI Ethernet Switch provides 24 x 10/100Base-TX Ethernet ports, two 10/100/1000Base-T Ethernet ports, and one Console port.

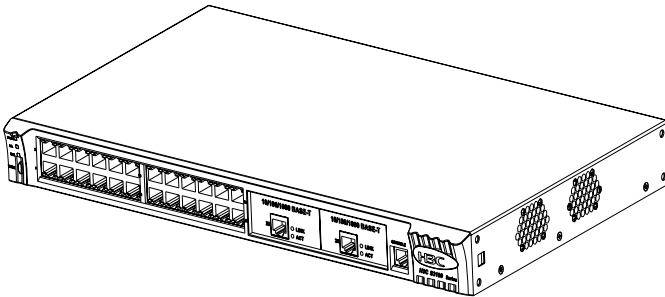
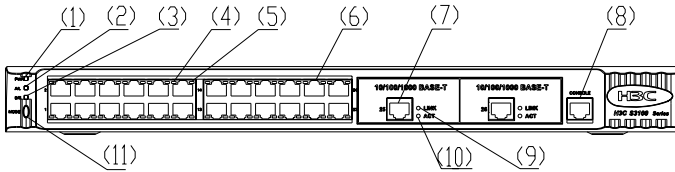


Figure 1-1 S3100-26T-SI Ethernet Switch

1.1.2 Front Panel

The following figure shows the front panel of the S3100-26T-SI Ethernet Switch.



- | | |
|-----------------------------|----------------------------|
| (1) Power LED | (2) A/L mode LED |
| (3) D/S mode LED | (4) Port left LED (yellow) |
| (5) Port right LED (green) | (6) 10/100 Base-TX port |
| (7) 10/100/1000 Base-T port | (8) Console port |
| (9) Link LED (green) | (10) Active LED (yellow) |
| (11) Mode switch button | |

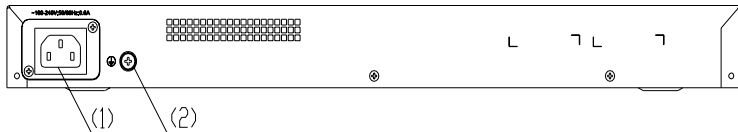
Figure 1-2 Front panel of the S3100-26T-SI Ethernet Switch

Note:

For details about the LEDs on the front panel, refer to [SECC 1.7 S3100-SI Series Front Panel LEDs](#).

1.1.3 Rear Panel

The following figure shows the rear panel of the S3100-26T-SI Ethernet Switch.



- | | |
|---------------------|---------------------|
| (1) AC power socket | (2) Grounding screw |
|---------------------|---------------------|

Figure 1-3 Rear panel of the S3100-26T-SI Ethernet Switch

1.1.4 Power System

The S3100-26T-SI Ethernet Switch supports AC input power module.

- Rated voltage range: 100 VAC to 240 VAC, 50/60 Hz
- Max voltage range: 90 VAC to 264 VAC, 47 Hz to 63 Hz

1.1.5 Cooling System

The S3100-SI Series Ethernet Switches (hereinafter referred to as S3100-SI series) cool off in nature way.

1.2 S3100-16T-SI Ethernet Switch

1.2.1 Appearance

As shown in the following figure, the S3100-16T-SI Ethernet Switch provides 16 x 10/100Base-TX Ethernet ports, one 10/100/1000Base-T Ethernet port, and one Console port.

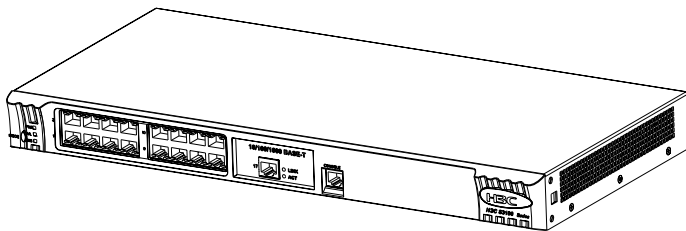
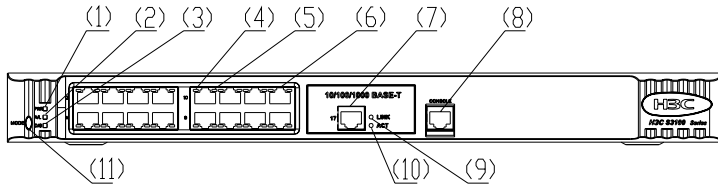


Figure 1-4 S3100-16T-SI Ethernet Switch

1.2.2 Front Panel

The following figure shows the front panel of the S3100-16T-SI Ethernet Switch.



- (1) Power LED
- (2) A/L mode LED
- (3) D/S mode LED
- (4) Port left LED (yellow)
- (5) Port right LED (green)
- (6) 10/100 Base-TX port
- (7) 10/100/1000 Base-T port
- (8) Console port
- (9) Link LED (green)
- (10) Active LED (yellow)
- (11) Mode switch button

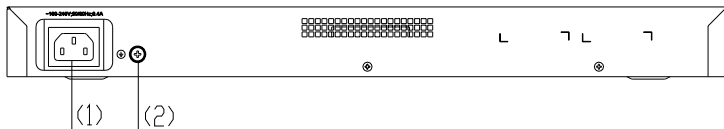
Figure 1-5 Front panel of the S3100-16T-SI Ethernet Switch

Note:

For details about the LEDs on the front panel, refer to section 1.7 S3100-SI Series Front Panel LEDs.

1.2.3 Rear Panel

The following figure shows the rear panel of the S3100-16T-SI Ethernet Switch.



- (1) AC power socket
- (2) Grounding screw

Figure 1-6 Rear panel of the S3100-16T-SI Ethernet Switch

1.2.4 Power System

The S3100-16T-SI Ethernet Switch supports AC input power module.

- Rated voltage range: 100 VAC to 240 VAC, 50/60 Hz
- Max voltage range: 90 VAC to 264 VAC, 47 Hz to 63 Hz

1.2.5 Cooling System

The S3100-SI series cool off in nature way.

1.3 S3100-8T-SI Ethernet Switch

1.3.1 Appearance

As shown in the following figure, the S3100-8T-SI Ethernet Switch provides 8 x 10/100Base-TX Ethernet ports, one 10/100/1000Base-T Ethernet port, and one Console port.

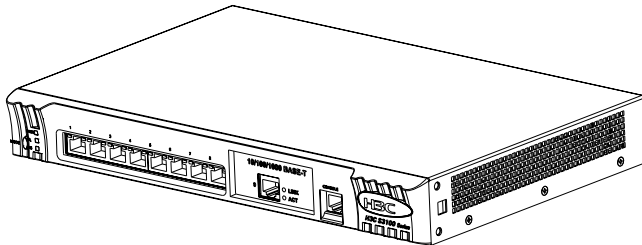
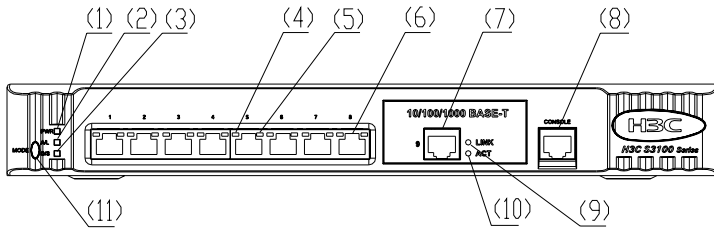


Figure 1-7 S3100-8T-SI Ethernet Switch

1.3.2 Front Panel

The following figure shows the front panel of the S3100-8T-SI Ethernet Switch.



- | | |
|-----------------------------|----------------------------|
| (1) Power LED | (2) A/L mode LED |
| (3) D/S mode LED | (4) Port left LED (yellow) |
| (5) Port right LED (green) | (6) 10/100 Base-TX port |
| (7) 10/100/1000 Base-T port | (8) Console port |
| (9) Link LED (green) | (10) Active LED (yellow) |
| (11) Mode switch button | |

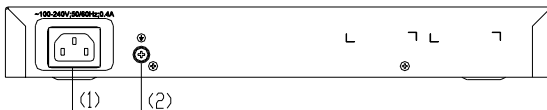
Figure 1-8 Front panel of the S3100-8T-SI Ethernet Switch

Note:

For details about the LEDs on the front panel, refer to section 1.7 S3100-SI Series Front Panel LEDs.

1.3.3 Rear Panel

The following figure shows the rear panel of the S3100-8T-SI Ethernet Switch.



- | | |
|---------------------|---------------------|
| (1) AC power socket | (2) Grounding screw |
|---------------------|---------------------|

Figure 1-9 Rear panel of the S3100-8T-SI Ethernet Switch

1.3.4 Power System

The S3100-8T-SI Ethernet Switch supports AC input power module.

- Rated voltage range: 100 VAC to 240 VAC, 50/60 Hz
- Max voltage range: 90 VAC to 264 VAC, 47 Hz to 63 Hz

1.3.5 Cooling System

The S3100-SI series cool off in nature way.

1.4 S3100-26C-SI/S3100-26C-SI-DC Ethernet Switch

1.4.1 Appearance

As shown in the following figure, the S3100-26C-SI/S3100-26C-SI-DC Ethernet Switch provides 24 x 10/100Base-TX Ethernet ports, two expansion slots, and one Console port.

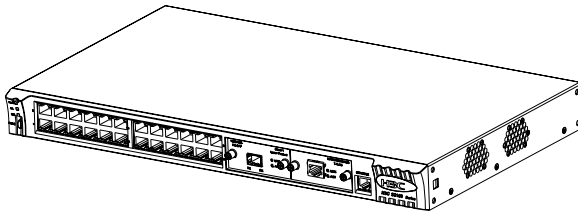
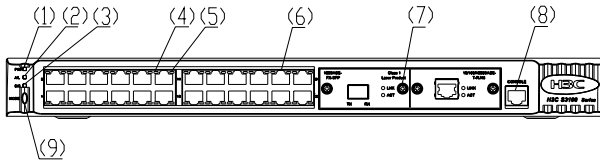


Figure 1-10 S3100-26C-SI/S3100-26C-SI-DC Ethernet Switch

1.4.2 Front Panel

S3100-26C-SI and S3100-26C-SI-DC Ethernet Switch have the same front panel, show as Figure 1-11.



- | | |
|----------------------------|----------------------------|
| (1) Power LED | (2) A/L mode LED |
| (3) D/S mode LED | (4) Port left LED (yellow) |
| (5) Port right LED (green) | (6) 10/100 BASE-TX port |
| (7) Expansion slot | (8) Console port |
| (9) Mode switch button | |

Figure 1-11 Front panel of the S3100-26C-SI/S3100-26C-SI-DC Ethernet Switch

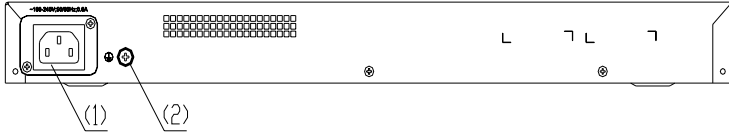
Note:

For details about the LEDs on the front panel, refer to section 1.7 S3100-SI Series Front Panel LEDs.

1.4.3 Rear Panel

The S3100-26C-SI Ethernet Switch has two models: one supports AC input, and another supports DC input.

I. Rear panel of the S3100-26C-SI model supporting AC input:

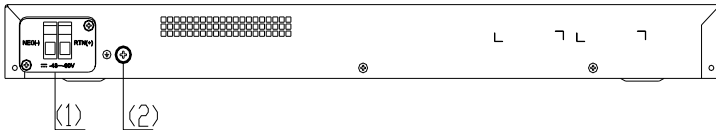


(1) AC power socket

(2) Grounding screw

Figure 1-12 Rear panel of the S3100-26C-SI model supporting AC input

II. Rear panel of the S3100-26C-SI model supporting DC input:



(1) DC power socket

(2) Grounding screw

Figure 1-13 Rear panel of the S3100-26C-SI-DC model supporting DC input

1.4.4 Power System

I. AC input:

- Rated voltage range: 100 VAC to 240 VAC, 50/60 Hz
- Max voltage range: 90 VAC to 264 VAC, 47 Hz to 63 Hz

II. DC input:

- Rated voltage range: -48 VDC to -60 VDC

- Max voltage range: -36 VDC to -72 VDC

1.4.5 Cooling System

The S3100-SI series cool off in nature way.

1.5 S3100-16C-SI/S3100-16C-SI-DC Ethernet Switch

1.5.1 Appearance

As shown in the following figure, the S3100-16C-SI/S3100-16C-SI-DC Ethernet Switch provides 16 x 10/100Base-TX Ethernet ports, two expansion slots, and one Console port.

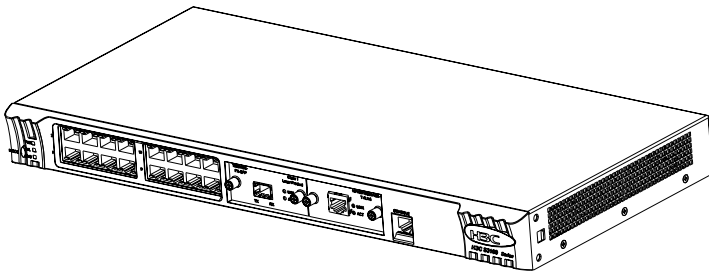
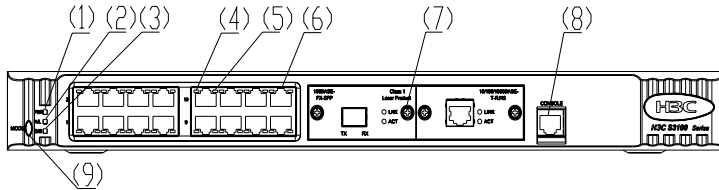


Figure 1-14 S3100-16C-SI/S3100-16C-SI-DC Ethernet Switch

1.5.2 Front Panel

S3100-16C-SI and S3100-16C-SI-DC Ethernet Switch have the same front panel, show as Figure 1-15.



- | | |
|----------------------------|----------------------------|
| (1) Power LED | (2) A/L mode LED |
| (3) D/S mode LED | (4) Port left LED (yellow) |
| (5) Port right LED (green) | (6) 10/100 BASE-TX port |
| (7) Expansion slot | (8) Console port |
| (9) Mode switch button | |

Figure 1-15 Front panel of the S3100-16C-SI Ethernet Switch

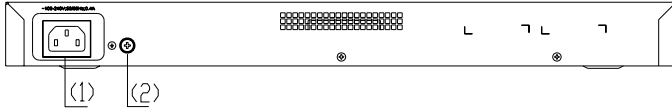
Note:

- When a PoE card is inserted in one of the expansion slots of the S3100-16C-SI Ethernet Switch, the switch becomes a powered device. In this case, the other expansion slot cannot be used.
- For details about the LEDs on the front panel, refer to section 1.7 S3100-SI Series Front Panel LEDs.

1.5.3 Rear Panel

The S3100-16C-SI Ethernet Switch has two models: one supports AC input, and another supports DC input.

I. Rear panel of the S3100-16C-SI model supporting AC input:

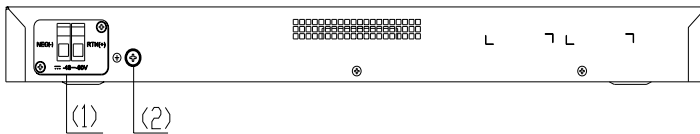


(1) AC power socket

(2) Grounding screw

Figure 1-16 Rear panel of the S3100-16C-SI model supporting AC input

II. Rear panel of the S3100-16C-SI model supporting DC input:



(1) DC power socket

(2) Grounding screw

Figure 1-17 Rear panel of the S3100-16C-SI-DC model supporting DC input

1.5.4 Power System

I. AC input:

- Rated voltage range: 100 VAC to 240 VAC, 50/60 Hz
- Max voltage range: 90 VAC to 264 VAC, 47 Hz to 63 Hz

II. DC input:

- Rated voltage range: -48 VDC to -60 VDC
- Max voltage range: -36 VDC to -72 VDC

1.5.5 Cooling System

The S3100-SI series cool off in nature way.

1.6 S3100-8C-SI/S3100-8C-SI-DC Ethernet Switch

1.6.1 Appearance

As shown in the following figure, the S3100-8C-SI/S3100-8C-SI-DC Ethernet Switch provides 8 x 10/100Base-TX Ethernet ports, one expansion slot, and one Console port.

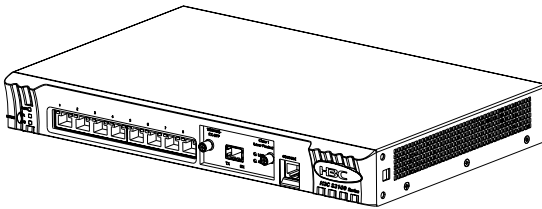
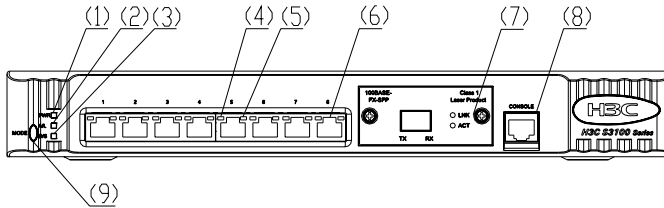


Figure 1-18 S3100-8C-SI/S3100-8C-SI-DC Ethernet Switch

1.6.2 Front Panel

S3100-8C-SI and S3100-8C-SI-DC Ethernet Switch have the same front panel, show as Figure 1-19.



- | | |
|----------------------------|----------------------------|
| (1) Power LED | (2) A/L mode LED |
| (3) D/S mode LED | (4) Port left LED (yellow) |
| (5) Port right LED (green) | (6) 10/100 BASE-TX port |
| (7) Expansion slot | (8) Console port |
| (9) Mode switch button | |

Figure 1-19 Front panel of the S3100-8C-SI Ethernet Switch

Note:

For details about the LEDs on the front panel, refer to section 1.7 S3100-SI Series Front Panel LEDs.

1.6.3 Rear Panel

The S3100-8C-SI Ethernet Switch has two models: one supports AC input, and another supports DC input.

I. Rear panel of the S3100-8C-SI model supporting AC input:



(1) AC power socket

(2) Grounding screw

Figure 1-20 Rear panel of the S3100-8C-SI model supporting AC input

II. Rear panel of the S3100-8C-SI model supporting DC input:



(1) DC power socket

(2) Grounding screw

Figure 1-21 Rear panel of the S3100-8C-SI model supporting DC input

1.6.4 Power System

I. AC input:

- Rated voltage range: 100 VAC to 240 VAC, 50/60 Hz
- Max voltage range: 90 VAC to 264 VAC, 47 Hz to 63 Hz

II. DC input:

- Rated voltage range: -48 VDC to -60 VDC
- Max voltage range: -36 VDC to -72 VDC

1.6.5 Cooling System

The S3100-SI series cool off in nature way.

1.7 S3100-SI Series Front Panel LEDs

1.7.1 Power LED

Table 1-1 Description of the power LED on S3100-SI series

LED	Mark on the panel	Status	Description
Power LED	PWR	ON	The switch is powered on.
		OFF	The switch is powered off.

1.7.2 Mode LEDs and Port Status LEDs

The A/L mode LED and the D/S mode LED are used to indicate the mode of the port status LEDs. Only one of the two mode LEDs is on at one time. When the A/L mode LED is on, it implies that the port status LEDs are indicating the Active and Link status of the corresponding ports. When the D/S mode LED is on, it implies that the port status LEDs are indicating the Duplex and Speed status of the corresponding ports.

Table 1-2 Description of the port status LEDs on the S3100-SI series

Mode LED status	Port status LEDs and their status		Description
A/L mode LED is on	Yellow LED (left)	Flashing	Data is passing through the port.
		OFF	No data is passing through the port.
	Green LED (right)	ON	The port is connected properly
		OFF	The port is not connected or wrongly connected.
D/L mode LED is on	Yellow LED (left)	ON	The port operates in full duplex mode.
		OFF	The port operates in half duplex mode.
	Green LED (right)	ON	The port operates at 100 Mbps.
		OFF	The port operates at 10 Mbps.

1.7.3 MODE button

The MODE button is a mode switch button for the status LEDs of 100 Mbps Ethernet ports. You can toggle between the A/L LED and the D/S LED by pressing this button.

After the switch is powered on, the A/L LED lights up initially. If you press the MODE button, the D/S LED lights up. After that, if you press the MODE button again within 45 seconds, the A/L LED lights up again, or else the A/L LED automatically lights up after 45 seconds.

The MODE button is convenient for you to check the current status of the ports as required. For example, if you want to learn the Duplex and the Speed status of a port, you can first press the MODE button to switch to the D/S LED, then observe the status (OFF, ON, or flashing) of the two LEDs beside the port, and finally determine the current status of the port according to the above table.

1.8 S3100-SI Series Technical Specifications

1.8.1 S3100-26T-SI/S3100-16T-SI/S3100-8T-SI Ethernet Switch Technical Specifications

Table 1-3 S3100-26T-SI/S3100-16T-SI/S3100-8T-SI Ethernet Switch technical specifications

Item	S3100-26T-SI	S3100-16T-SI	S3100-8T-SI
Physical dimensions (H x W x D)	42 x 436 x 240 mm (1.7 x 17.2 x 9.4 in)	42 x 436 x 200 mm (1.7 x 17.2 x 7.9 in)	42 x 326 x 200 mm (1.7 x 12.8 x 7.9 in)
Weight	≤ 3.2 kg (7.1 lb)		

Item	S3100-26T-SI	S3100-16T-SI	S3100-8T-SI
Number of fixed ports	24 x 10/100Base-TX auto-sensing ports 2 x 10/100/1000 Base-T ports	16 x 10/100Base-TX auto-sensing ports 1 x 10/100/1000Base-T port	8 x 10/100Base-TX auto-sensing ports 1 x 10/100/1000 Base-T port
Management port	One Console port		
Power supply	Only AC input is supported. Rated voltage range: 100 VAC to 240 VAC, 50/60 Hz Max voltage range: 90 VAC to 264 VAC, 47 Hz to 63 Hz		
PoE (as powered device)	Not supported	Not supported	Not supported
System power consumption (full load)	20 W	12 W	10 W
Fan	None	None	None
Operating temperature	0°C to 45°C		
Relative humidity (noncondensing)	10% to 90%		

1.8.2 S3100-26C-SI/S3100-16C-SI/S3100-8C-SI Ethernet Switch Technical Specifications

Table 1-4 S3100-26C-SI/S3100-16C-SI/S3100-8C-SI Ethernet Switch technical specifications

Item	S3100-26C-SI	S3100-16C-SI	S3100-8C-SI
Physical dimension (H x W x D)	42 x 436 x 240 mm (1.7 x 17.2 x 9.4 in)	42 x 436 x 200 mm (1.7 x 17.2 x 7.9 in)	42 x 326 x 200 mm (1.7 x 12.8 x 7.9 in)
Weight	≤ 3.2 kg (7.1 lb)		
Number of fixed ports	24 x 10/100Base-T X auto-sensing ports	16 x 10/100Base-T X auto-sensing ports	8 x 10/100Base-T X auto-sensing ports
Number of expansion slots	2	2	1

Item	S3100-26C-SI	S3100-16C-SI	S3100-8C-SI
Supported expansion interface module type	10/100/1000BASE-T interface module with max transmission distance of 100 m (328.1 feet) 100BASE-SX (SC, 2 km (1.2 mi)) 100BASE-LX (SC, 15 km (9.3 mi)) 100BASE-LH40 (SC, 40 km (24.9 mi)) 1000BASE-SX (SC, 0.5 km (0.3 mi)) 1000BASE-LX (SC, 10 km (6.2 mi)) 1000BASE-LH40 (LC, 40 km (24.9 mi)) 1000BASE-LH70 (LC, 70 km (43.5 mi)) 1000BASE-STACK (not supported by S3100-8C-SI) 100BASE-TX PD (powered device) interface module (not supported by S3100-26C-SI) 1000Base-PX10 (SC connector, 10 km (6.2 mi)) 1000Base-PX20 (SC connector, 20 km (12.4 mi)) 100Base-LX-SM1310-BIDI (SC, 15 km (9.3 mi)) 100Base-LX-SM1550-BIDI (SC, 15 km (9.3 mi))		
Management port	One Console port		
Power supply	Both AC input switch model and DC input switch model are available. AC input: Rated voltage range: 100 VAC to 240 VAC, 50/60Hz Max voltage range: 90 VAC to 264 VAC, 47 Hz to 63 Hz DC input: Rated voltage range: -48 VDC to -60 VDC Max voltage range: -36 VDC to -72 VDC		

Item	S3100-26C-SI	S3100-16C-SI	S3100-8C-SI
PoE (as powered device)	Not supported	Supported	Supported
System power consumption (full load)	20 W	12 W	10 W
Fan	None	None	None
Operating temperature	0°C to 45°C		
Relative humidity (noncondensing)	10% to 90%		

Note:

- Only S3100-16C-SI or S3100-8C-SI switch supports 100BASE-TX PD interface module.
 - The PoE configuration is on the remote power source device, on the powered device (S3100-16C-SI or S3100-8C-SI), you only need to insert the cable into the interface of 100BASE-TX PD.
 - BIDI interface card must be used in couple, i.e., if the local end uses 100Base-LX-SM1310-BIDI, the remote end needs to use 100Base-LX-SM1550-BIDI.
 - An S3116C or S3126C switch can accommodate only one ONU card (000Base-PX10/20)
-

Chapter 2 Installation Preparation

2.1 Precautions

To avoid any device impairment and bodily injury because of improper use, please take the following precautions:

- Before cleaning the switch, pull out the power plug of the switch. Do not clean the switch with wet cloth or liquid.
- Do not place the switch near water or in a damp area. Prevent water or moisture from entering the switch chassis.
- Do not place the switch on an unstable case or desk, because the switch might be damaged severely in case of a fall.
- Keep the switch room drafty and the switch ventilation hole free of obstruction.
- The switch can operate normally only under correct voltage input. Make sure that the operating voltage is consistent with that labeled on the switch.
- To prevent electric shock, do not open the chassis while the switch is operating, and do not open the chassis arbitrarily even when the switch is powered off.
- Before changing interface board, wear ESD-preventive wrist strap to prevent the board from being damaged by electrostatic discharge.

2.2 Requirements on Environment

S3100-SI series must be used indoors. When you install your switch in a cabinet or install it directly on a workbench, you must ensure:

- Enough space is left near the air-intake hole and the ventilation hole of the switch for the heat dissipation of the switch chassis.
- The cabinet or the workbench takes good ventilation and heat dissipation system.
- The cabinet or the workbench is solid enough to bear the weight of the switch and the accessories.
- The cabinet or the workbench is well grounded.

To ensure normal operation and to prolong the life span of the switch, the following requirements on the installation site must also be satisfied.

2.2.1 Temperature/Humidity Requirements

You should keep your equipment room within the proper temperature and humidity ranges to ensure the normal operation and working life of your switch. If the humidity in the equipment room is too high for a long time, it may decrease the insulation attribute of insulating material or even cause electric leakage of insulating material, and, sometimes, may change the mechanical performance of material and cause the rustiness and corrosion of metal parts. If the relative humidity is too low, the captive screws may become loose due to the shrinking of insulation washers; in addition, electrostatic is more likely to be produced in a dry environment, which may damage the circuit of the switch. High temperature may cause even greater

damage to the switch. High temperature for a long time will speed up the aging of insulation material, greatly lower the reliability of the switch and greatly reduce the life span of the switch.

2.2.2 Cleanness Requirements

Dust is a potential hazard to the safe operation of the switch. Falling on the equipment, it may cause electrostatic adsorption, and hence result in poor contact of the metal connectors or connection points. This is more likely to happen when the indoor relative humidity is low; in this case, it may not only shorten the device's working life, but also incur communication failure. The requirements on dust content and particle diameter in the equipment room are shown in the following table:

Table 2-1 Requirements on dust content in the equipment room

Physical active substance	Unit	Content
Dust particle	particle/m ³	$\leq 3 \times 10^4$ (No visible dust on desk in three days)
Note: Dust particle diameter $\geq 5\mu\text{m}$		

Besides the requirements on dust, rigorous requirements are also set on the content of chloride, acid, and sulfide in the air of the equipment room. These kinds of harmful gas will accelerate metal corrosion and aging of certain parts. The equipment room should be protected from the intrusion of harmful gases such as SO₂, H₂S, NH₃ and Cl₂. The limits of these kinds of harmful gas are shown in the following Table.

Table 2-2 Limits on harmful gas in the equipment room

Gas	Max content (mg/m ³)
SO ₂	0.2
H ₂ S	0.006
NH ₃	0.05
Cl ₂	0.01

2.2.3 Anti-interference Requirements

A switch in use may be affected by the interference from outside the system by way of capacitance coupling, inductance coupling, electromagnetic radiation, public impedance (including the grounding system) coupling or conducting line (power line, signaling line and transmission line etc.). Therefore, you should pay attention to the following:

- If AC supply system is TN system, AC power socket should be a single-phase three-line power socket with Protection Earth (PE) so that the filter circuit on the equipment can effectively filter out the interference coming from the power supply system.
- Keep the switch far away from high-power radio transmitters, radars, and high-frequency heavy-current devices.
- Adopt electromagnetic shielding measure if necessary. For example, you can adopt shielded interface cable.
- Wire interface cables indoors. Do not wire cables outdoors in case that overvoltage and overcurrent damage the device.

2.2.4 Laser Usage Security

S3100-SI series are category-1 laser equipment.

When an optional optical interface card of the S3100-SI series is operating, it is prohibited to stare into the optical interface because the laser beam emitted from the optical fiber takes high energy and may hurt your retina.



Caution:

Staring at the laser beam inside the fiber could hurt your eyes.

2.3 Installation Tools

- Phillips screwdriver
- Flat-blade screwdriver
- ESD-preventive wrist strap



Caution:

These installation tools are not shipped with S3100-SI series. You will have to prepare them beforehand.

Chapter 3 Installation



Caution:

On a mounting screw of the chassis of any H3C Series Switches, there is a seal which must be kept intact before the agent maintains the switch for you. You must get the permission of your local agent before you can open the chassis. Otherwise, you will be responsible for irreversible damages caused by your operations.

3.1 Installation of the Switch

3.1.1 Mounting the Switch into a 19-Inch Cabinet

Follow these steps to mount your switch into a 19-inch standard cabinet:

Step 1: Check the grounding and stability of the cabinet. Install a mount ear on each side of the front panel of the switch with screws.



Caution:

Use long mount ears when installing the S3100-8T-SI or S3100-8C-SI Ethernet Switch. (The long mount ears are optional components).

Step 2: Place the switch on a shelf of the cabinet, and slide the switch into the cabinet along the guides in the cabinet to an appropriate position.

Step 3: Insert screws through the mount ears into the front mounting posts of the cabinet and tighten them, ensuring the switch is fixed steadily in the cabinet.

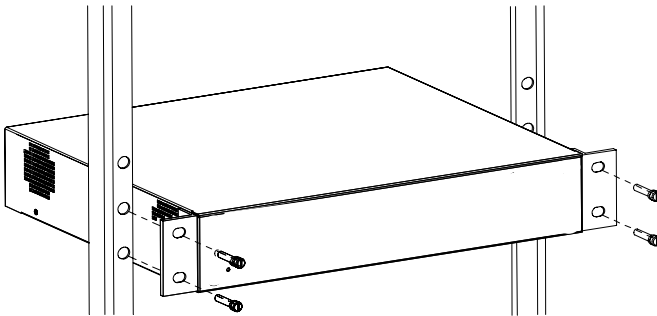


Figure 3-1 Mounting the switch into a 19-inch cabinet

Note:

The mount ears are used for fixing instead of weight bearing. In a 19-inch standard cabinet, the switch is supported by the shelf beneath it.

3.1.2 Mounting the Switch on a Workbench

When a 19-inch standard cabinet is not available, you can simply place the switch on a clean workbench. When doing so, you should ensure:

- The workbench is stable and well grounded.
- A clearance of about 10 cm is reserved around the switch for heat dissipation.
- No heavy object is placed on the switch.
- The S3100-SI series are designed with no fan. Therefore, you should install them in a drafty environment, and keep at least 1.5 cm vertical distances between the neighboring devices if you need to stack the switches one upon another.

3.1.3 Wall-Mount

You can hang the S3100-8T-SI and S3100-8C-SI Ethernet Switches against walls.

The wall can be made of cement, wood, or drywall.

Figure 3-2 and Figure 3-3 shows the recommended sizes (in mm) of the screws and anchor kits used for mounting:

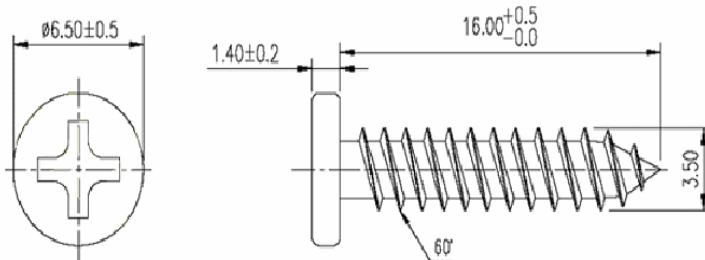


Figure 3-2 Screw

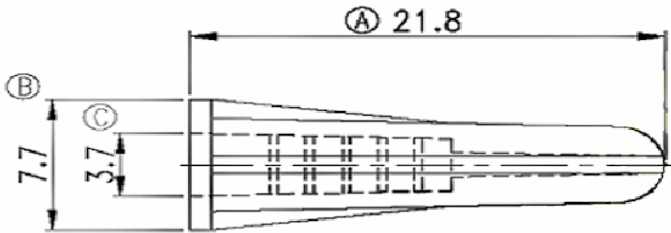


Figure 3-3 Anchor kit illustration

The wall-mount procedure is as follows (see Figure 3-4):

- 1) Drill two holes in the wall on the same horizontal line, with a distance of 169 mm.
- 2) Insert anchor kits into the holes.
- 3) Drive the screws into the anchor kits, keeping the screws 1.5 mm out of the wall.

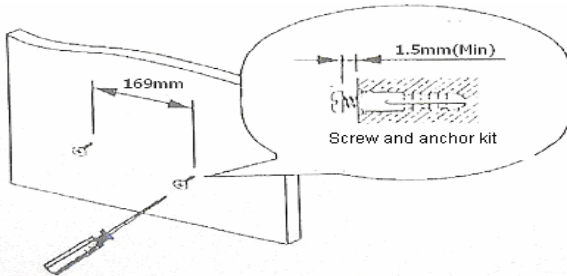


Figure 3-4 Wall-mount illustration

- 4) Aiming at the two screws, hook the two mounting holes of the switch on the screws.



Caution:

When mounting the switch, keep the Ethernet ports of the switch facing downwards and the two sides with ventilation holes vertical to the ground.

3.2 Installation of Expand Card



Note:

The following section describes the procedures to install an ONU card. The procedures also apply to the installation of other cards.

I. Appearance

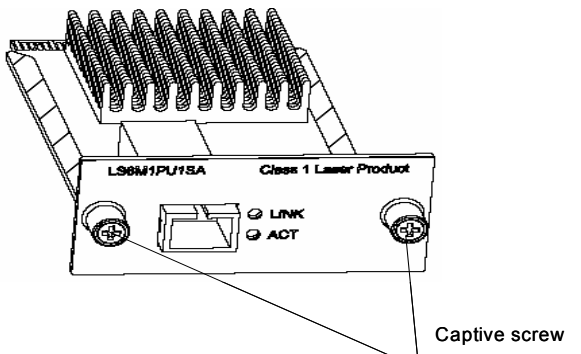


Figure 3-5 An ONU card

II. Installation of an ONU subcard

Step 1: Dismount the dummy panel of an expansion slot of the switch.

Step 2: Insert the ONU card into the expansion slot to the place.

Step 3: Fix the ONU card firmly with captive screws.

3.3 Connection of Power Cord and Grounding Wire

3.3.1 Connecting AC Power Cord

I. AC power socket (recommended)

You are recommended to use a mono-phase three-wire power socket with a neutral point or a multi-function power socket for computers. The neutral point of the power in your building must be well grounded. Normally, the neutral point of the power supply system in your building has already been grounded during the construction and wiring; but you should make sure this is the fact.

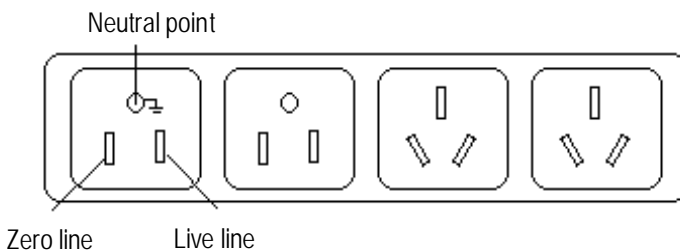


Figure 3-6 Recommended AC power socket

II. Connecting AC power cord

Step 1: Connect one end of the chassis grounding wire (coming with the switch) to the grounding screw on the rear of the chassis and the other end to the ground nearby.

Step 2: Connect one end of the power cord to the power socket on the rear panel of the chassis and the other end to an outside AC power socket.

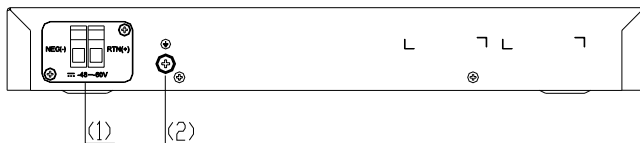
Step 3: Check whether the PWR LED on the front panel of the switch is ON. If the LED is ON, it shows the power cord is properly connected.



Caution:

Before powering on the switch, you should properly connect the grounding wire.

3.3.2 Connecting DC Power Cord



- (1) DC power input. NEG (-): -48V; RTN (+): -48V working ground
- (2) Grounding screw

Figure 3-7 DC power socket

Step 1: Connect one end of the chassis grounding wire (coming with the switch) to the grounding screw on the rear of the chassis and the other end to the ground nearby.

Step 2: Connect the DC power terminals of the switch to –48 VDC power supply through DC power cords, with NEG (-) connected to the –48V output and RTN (+) connected to the working ground of the –48 VDC power supply.

 **Note:**

To connect the power cord to the DC power terminals on the chassis, loosen the screws on the terminals first, insert the connectors of the power cord into the terminals, and tighten the screws.

Step 3: Check whether the PWR LED on the front panel of the switch is ON. If the LED is ON, it shows the power cord is properly connected.



Caution:

Before powering on the switch, you should properly connect the grounding wire.

3.3.3 Connecting Grounding wire



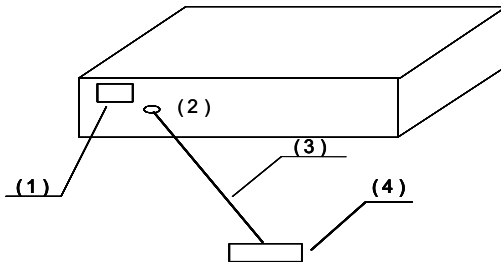
Caution:

You should properly connect the switch grounding wire since it is crucial to the lightning protection and electromagnetic shield (EMS) of your switch.

The power input end of the switch is connected with a noise filter, whose central ground is directly connected to the chassis, forming the so-called chassis ground (commonly known as PGND). This chassis ground must be securely connected to the earth so that the faradism and leakage electricity can be safely released to the earth, enhancing the EMS capability of the switch.

Ground your switch as follows:

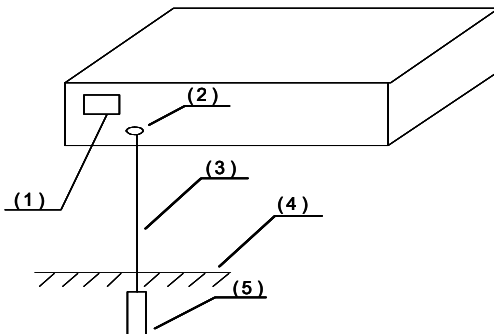
- When a grounding strip is available at the installation site, attach one end of the yellow-green grounding wire of the switch to the grounding screw on the grounding strip and fasten the captive nut. (Note that the fire main and lightning rod of your building are not suitable for grounding the switch. The grounding wire of the switch should be connected to the construction engineering ground of the equipment room.)



- | | |
|--------------------|---------------------|
| (1) Power input | (2) Grounding screw |
| (3) Grounding wire | (4) Grounding strip |

Figure 3-8 Grounding the switch through a grounding strip

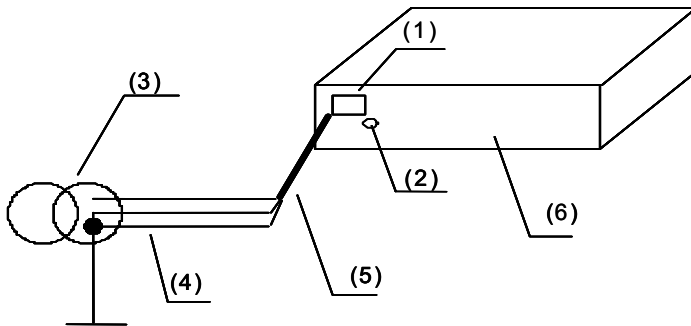
- When there is no grounding strip but there is cement floor nearby where a grounding body is allowed to be buried, hammer an angle steel/steel pipe no shorter than 0.5 m into the earth, with the yellow-green grounding wire of the switch welded onto the angle steel/steel pipe and the jointing point being processed against erosion.



- | | |
|--------------------|---------------------|
| (1) Power input | (2) Grounding screw |
| (3) Grounding wire | (4) Earth |
| (5) Angle steel | |

Figure 3-9 Grounding the switch by burying the grounding body into the earth

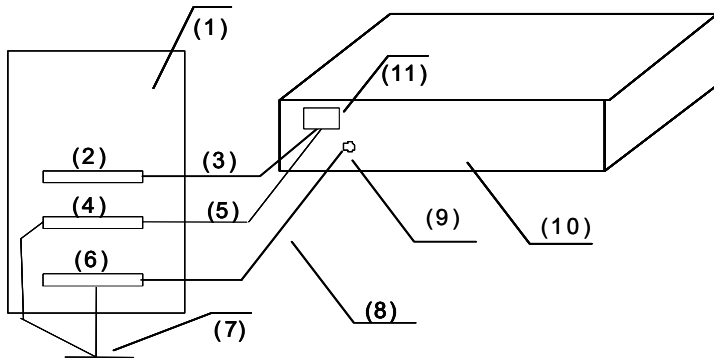
- For an AC-powered switch, if none of the above two conditions is available, ground it through the PE wire of the AC power supply. In this case, make sure this PE wire is well connected to the ground at the power distribution room or AC transformer.



- | | |
|-------------------------------------|---------------------|
| (1) AC power input | (2) Grounding screw |
| (3) Power transformer | (4) PE wire |
| (5) 3-wire cable for AC power input | (6) Ethernet switch |

Figure 3-10 Grounding the switch through AC PE wire

- For a DC-powered switch (–48 VDC), if none of the first two conditions is available, ground it through the return wire (RTN) of the DC power supply. In this case, make sure this RTN wire is well connected to the ground at the DC output of the DC power cabinet.



- | | | |
|----------------------------|---------------------|----------------|
| (1) AC/DC power cabinet | (2) -48V strip | (3) -48V |
| (4) RTN strip | (5) RTN | (6) PGND strip |
| (7) Grounding to the earth | (8) Grounding wire | (9) screw |
| (10) Ethernet switch | (11) DC power input | |

Figure 3-11 Grounding the switch through the PGND of the power cabinet

3.4 Connecting Optical Fiber



Caution:

- After a switch starts, the PON interface may emit invisible radial when there is no optical connector connected to it and the protective cap is removed from it. Therefore, do not stare into the optical interface.
 - Be sure to cover the protective cap within 10 seconds if an optical connector is not in use to keep the optical connector clean.
 - Be sure to cover the protective cap if a PON interface has no optical connector attached.
 - Place the protective caps in a safe place when a PON interface has fiber connected to prepare for the cases the fiber is pulled out.
-



Note:

The following section describes the procedures to connect optical fiber to an ONU card. The procedures also apply to other subcards.

Step 1: Remove the protective cap from the optical connector of the fiber.

Step 2: Remove the protective cap from the PON interface of the ONU card.

Step 3: Plug the optical connector into the PON interface of the ONU subcard.

3.5 Connection of Console Cable

3.5.1 Console Cable

Console cable is an 8-core shielded cable. At one end of the cable is a crimped RJ45 connector to be connected to the Console port of the switch; at the other end of the cable is a DB-9 (female) connector to be connected to the 9-core (pin) serial port on the Console terminal. See the following figure.

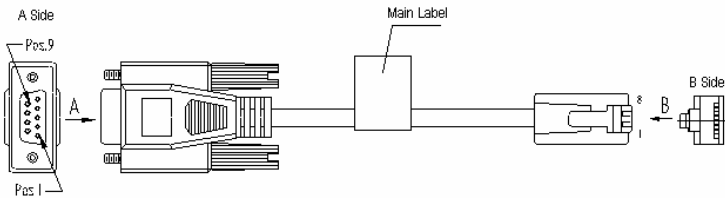


Figure 3-12 Console cable

Table 3-1 Console cable connector pinouts and mapping relation

RJ-45	Signal	Direction	DB-9
1	RTS	←	7
2	DTR	←	4
3	TXD	←	3
4	CD	→	1
5	GND	-	5
6	RXD	→	2

RJ-45	Signal	Direction	DB-9
7	DSR	→	6
8	CTS	→	8

3.5.2 Connecting Console Cable

Follow these steps to connect a terminal device, a PC for example, to the switch:

Step 1: Connect the DB-9 female connector of the Console cable to the serial port of the PC or the terminal device used to configure the switch.

Step 2: Connect the RJ-45 connector of the Console cable to the Console port of the switch.



Caution:

Identify the label of the port before connecting a connector.

 **Note:**

When connecting a PC to a powered-on switch, you are recommended to connect the DB-9 connector of the Console cable to the PC before connecting the RJ45 connector to the switch. When disconnecting a PC from a powered-on switch, you are recommended to disconnect the DB-9 connector of the Console cable from the PC after disconnecting the RJ45 connector from the switch.

3.6 Installation Verification

After completing the installation, check that:

- The correct power is used.
- The grounding wire is connected.
- Both Console cable and power cord are properly connected.
- All the interface cables are wired indoors. If there is any cable wired outdoors, verify that socket strip with lightning protection and lightning arresters for network ports have been properly connected.

Chapter 4 Lightning Protection of the Switch

4.1 Installation of Lightning Arrester for AC Power (Socket Strip with Lightning Protection)



Caution:

Lightning arrester will not be shipped with the switch. You should purchase it by yourself if needed.

If an outdoor AC power cord should be directly led to the switch, please serially connect the lightning arrester for AC power (Socket Strip with Lightning Protection) before you plug AC power cord into the switch, thus to prevent the possible damage to the switch due to lightning strike. You can use cable clips and screws to fasten the lightning arrester for AC power on the cabinet, workbench or the wall of equipment room.

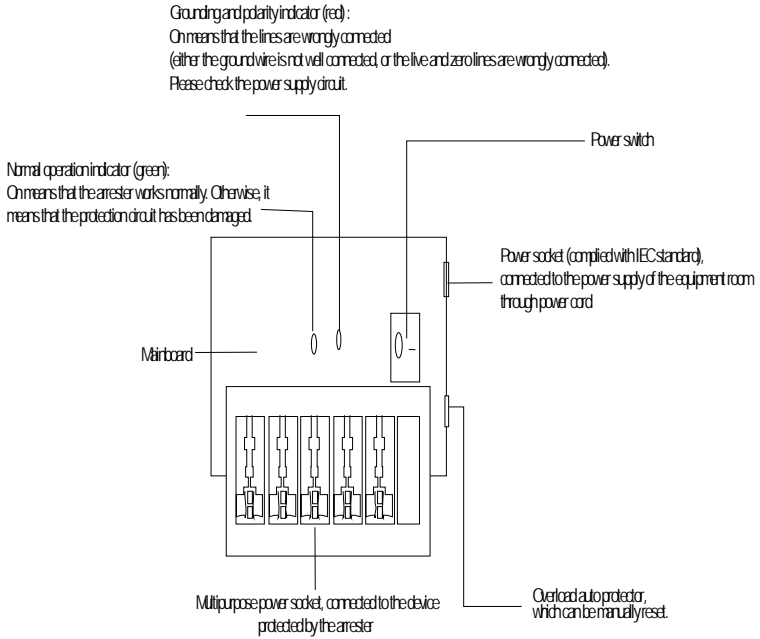


Figure 4-1 Diagram of lightning arrester



Caution:

- Make sure that the arrester is well grounded before using the lightning arrester for power.
 - After inserting AC power cord plug of switch into the socket of lightning arrester, if the green LED is on and the red LED does not alarm, it means that the lightning arrester of power is running and the function of lightning protection has taken effect.
 - Pay adequate attention if the red LED is on. You should correctly locate the problem, whether it is caused because the ground wire of the arrester is not well grounded or because the live and zero wires are connected in reverse direction. You may check that in the following way. When the red LED is on, use a multimeter to examine polarity at the power socket of the arrester. If it is same to that of the power socket in the equipment room, it means that arrester is not well grounded. If it is adverse to that of the power socket in the equipment room, it means that the power socket of the arrester is set to the reverse polarity. In this case, you should open the power socket of arrester to correct polarity. After that, if the red LED still alarms, it means that the arrester is not well grounded yet.
-

4.2 Installation of Lightning Arrester for Network Port

 **Note:**

Lightning arrester for network port is specially designed for the Ethernet port of 10/100M electrical interface (RJ-45 connector is adopted in this case).



Caution:

Lightning arrester for network port will not be provided along with the switch, and you should purchase it by yourself if needed.

If an outdoor network cable should be led to the switch, please serially connect the lightning arrester for network port before you plug this cable into the interface on the switch, in case of the possibility that the switch may be damaged due to lightning strike.

I. Required tools

- Phillips screwdriver or Flat-blade screwdriver
- Multimeter
- Tilted wire cutter

II. Installation procedure

Step 1: Tear the protection paper at one side of the double faced adhesive tape apart from the tape, and stick the tape on the surface of the arrester. Tear the protection paper at another side apart from the tape, and stick the arrester onto the chassis of the switch. The arrester should be attached on the chassis as close to the grounding screw as possible.

Step 2: According to the distance to the grounding screw of the switch, cut the ground wire of the arrester, and securely tightening its ground wire to the grounding screw of the switch.

Step 3: Use the multimeter to measure whether the ground wire of the arrester contacts well with the grounding screw of chassis.

Step 4: According to the instruction of arrester for network port, connect the arrester with switch by the cables (be carefully with the cable direction. Outdoor network cable should be inserted into the arrester's IN end, and the cable connected to the switch should be inserted into the arrester's OUT end). When you do that, observe whether the arrester indicators normally display.

Note:

The instruction of lightning arrester for network port contains the technical specifications, installation and maintenance guide of the arrester. Please carefully read it before installing the arrester.

Step 5: Use the nylon ties to bundle the cables neatly.

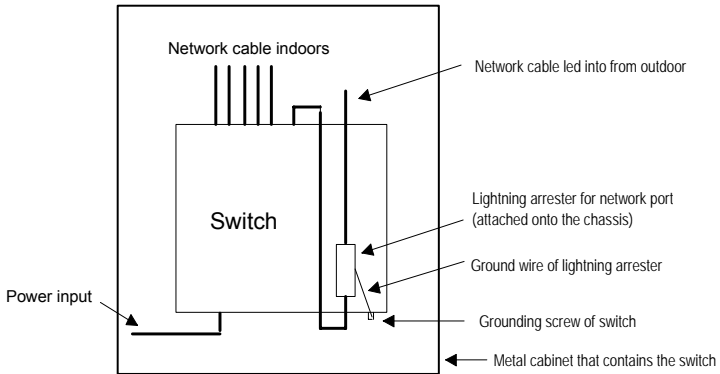


Figure 4-2 Installation diagram of lightning arrester for network port

III. Installation precautions

Fully consider the following items in the installation process, otherwise, the performance of the lightning arrester for network port will be affected:

- Lightning arrester for network port is installed in reverse direction. In practice, the “IN” end should be connected to the outdoor network cable and the “OUT” end to the network port on the switch.
- Lightning arrester for the network port is not well grounded. The ground wire for the arrester should be as short as possible, so to ensure its good contact with the grounding screw of the switch. After the connection, use the multimeter to confirm that.
- The lightning arrester for the network port is not installed completely. If the switch has more than one network ports to

interconnect with other devices via cables outdoor, you should install lightning arresters for all these network ports for protection.

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