H3C S5560X-EI Switch Series

Installation Guide

Preface

H3C S5560X-EI Switch Series Installation Guide describes the appearance, installation, power-on, maintenance, and troubleshooting of the H3C S5560X-EI Switch Series.

This preface includes the following topics about the documentation:

- Audience.
- Conventions.
- Documentation feedback.

Audience

This documentation is intended for:

- Network planners.
- Field technical support and servicing engineers.
- Network administrators working with the S5560X-EI switch series.

Conventions

The following information describes the conventions used in the documentation.

Command conventions

Convention	Description
Boldface	**Bold** text represents commands and keywords that you enter literally as shown.
Italic	Italic text represents arguments that you replace with actual values.
[ ]	Square brackets enclose syntax choices (keywords or arguments) that are optional.
{ x	y	... }	Braces enclose a set of required syntax choices separated by vertical bars, from which you select one.
[x	y	...]	Square brackets enclose a set of optional syntax choices separated by vertical bars, from which you select one or none.
{ x	y	... } *	Asterisk marked braces enclose a set of required syntax choices separated by vertical bars, from which you select a minimum of one.
[x	y	...] *	Asterisk marked square brackets enclose optional syntax choices separated by vertical bars, from which you select one choice, multiple choices, or none.
&<1-n>	The argument or keyword and argument combination before the ampersand (&) sign can be entered 1 to n times.
#	A line that starts with a pound (#) sign is comments.

GUI conventions

Convention	Description
Boldface	Window names, button names, field names, and menu items are in Boldface. For example, the **New User** window opens; click **OK**.
>	Multi-level menus are separated by angle brackets. For example, **File** > **Create** > **Folder**.

Symbols

Convention	Description
⚠ WARNING!	An alert that calls attention to important information that if not understood or followed can result in personal injury.
△ CAUTION:	An alert that calls attention to important information that if not understood or followed can result in data loss, data corruption, or damage to hardware or software.
① IMPORTANT:	An alert that calls attention to essential information.
NOTE:	An alert that contains additional or supplementary information.
˙Ọ˙ TIP:	An alert that provides helpful information.

Network topology icons

Convention	Description
	Represents a generic network device, such as a router, switch, or firewall.
	Represents a routing-capable device, such as a router or Layer 3 switch.
	Represents a generic switch, such as a Layer 2 or Layer 3 switch, or a router that supports Layer 2 forwarding and other Layer 2 features.
	Represents an access controller, a unified wired-WLAN module, or the access controller engine on a unified wired-WLAN switch.
	Represents an access point.
	Represents a wireless terminator unit.
	Represents a wireless terminator.
	Represents a mesh access point.
	Represents omnidirectional signals.
	Represents directional signals.
	Represents a security product, such as a firewall, UTM, multiservice security gateway, or load balancing device.
	Represents a security module, such as a firewall, load balancing, NetStream, SSL VPN, IPS, or ACG module.

Examples provided in this document

Examples in this document might use devices that differ from your device in hardware model, configuration, or software version. It is normal that the port numbers, sample output, screenshots, and other information in the examples differ from what you have on your device.

Documentation feedback

You can e-mail your comments about product documentation to info@h3c.com.

We appreciate your comments.

Contents

1 Preparing for installation

This document is applicable to the following Ethernet switches:

- S5560X-30C-EI
- S5560X-30C-PWR-EI
- S5560X-54C-EI
- S5560X-54C-PWR-EI
- S5560X-30F-EI
- S5560X-30F-EIF
- S5560X-54F-EI
- S5560X-34S-EI
- S5560X-54S-EI

Safety recommendations

To avoid any equipment damage or bodily injury caused by improper use, read the following safety recommendations before installation. Note that the recommendations do not cover every possible hazardous condition.

- Before cleaning the switch, remove all power cords from the switch. Do not clean the switch with wet cloth or liquid.
- Do not place the switch near water or in a damp environment. Prevent water or moisture from entering the switch chassis.
- Do not place the switch on an unstable case or desk. The switch might be severely damaged in case of a fall.
- Ensure good ventilation of the equipment room and keep the air inlet and outlet vents of the switch free of obstruction.
- Connect the yellow-green protection grounding cable before powering on the switch.
- Make sure the operating voltage is as required by the power modules.
- To avoid electrical shocks, do not open the chassis while the switch is operating or when the switch is just powered off.
- When replacing field replaceable units (FRUs), including expansion cards, power modules, and fan trays, wear an ESD wrist strap to avoid damaging the units.

Examining the installation site

The switch must be used indoors. You can mount your switch in a rack or on a workbench, but make sure:

- Adequate clearance is reserved at the air inlet and outlet vents for ventilation.
- The rack or workbench has a good ventilation system.
- Identify the hot aisle and cold aisle at the installation site, and make sure ambient air flows into the switch from the cold aisle and exhausts to the hot aisle.
- Identify the airflow designs of neighboring devices, and prevent hot air flowing out of the neighboring device from entering the device.
- The rack is sturdy enough to support the switch and its accessories.

- The rack or workbench is reliably grounded.

To ensure correct operation and long service life of your switch, install it in an environment that meets the requirements described in the following subsections.

Temperature/humidity

For correct operation and long service life of your switch, maintain the temperature and humidity in the equipment room at acceptable ranges.

- Lasting high relative humidity can cause poor insulation, electricity leakage, mechanical property change of materials, and metal corrosion.
- Lasting low relative humidity can cause washer contraction and ESD and cause problems including loose mounting screws and circuit failure.
- High temperature can accelerate the aging of insulation materials and significantly lower the reliability and lifespan of the switch.

For the temperature and humidity requirements of the switch, see technical specifications in *Hardware Information and Specifications.*

Cleanliness

Dust buildup on the chassis might cause electrostatic adsorption and dust corrosion, resulting in poor contact of metal connectors and contact points. This might shorten the device's lifetime and even cause device failure in the worst case. Table1-1 describes the dust concentration limits in the equipment room.

Table1-1 Dust concentration limits in the equipment room

Substance	Particle diameter	Concentration limit
Dust particles	≥ 0.5 μm	≤ 3.5×10^6 particles/m^3
Dust particles	≥ 5 μm	≤ 3×10^4 particles/m^3
Dust (suspension)	≤ 75 μm	≤ 0.2 mg/m^3
Dust (sedimentation)	75 μm to 150 μm	≤ 1.5 mg/(m^{2}h)

To maintain cleanliness in the equipment room, follow these guidelines:

- Keep the equipment room away from pollution sources. Do not smoke, eat, or drink in the equipment room.
- Use double-layer glass in windows and seal doors and windows with dust-proof rubber strips. Use screen doors and window screens for doors and windows open to the outside and make sure the external windows are air tight.
- Use dustproof materials for floors, walls, and ceilings and use wallpaper or matt paint that does not produce powders.
- Clean the equipment room regularly and clean the air filters of the rack each month.
- Wear ESD clothing and shoe covers before entering the equipment room, keep the ESD clothing and shoe covers clean, and change them frequently.

Corrosive gas limit

Corrosive gases can accelerate corrosion and aging of metal components. Make sure the corrosive gases in the equipment room do not exceed the concentration limits as shown in Table1-2.

Table1-2 Corrosive gas concentration limits in the equipment room

Gas	Average concentration (mg/m^3)	Maximum concentration (mg/m^3)
SO_2	0.3	1.0
H_2S	0.1	0.5
Cl_2	0.1	0.3
HCl	0.1	0.5
HF	0.01	0.03
NH_3	1.0	3.0
O_3	0.05	0.1
NO_X	0.5	1.0

△ **CAUTION:**

As a best practice, control the corrosive gas concentrations in the equipment room at their average values. Make sure the corrosive gas concentrations do not exceed 30 minutes per day at their maximum values.

To control corrosive gases, use the following guidelines:

- As a best practice, do not build the equipment room in a place with a high concentration of corrosive gases.
- Make sure the equipment room is not connected to sewer, vertical shaft, or septic tank pipelines and keep it far away from these pipelines. The air inlet of the equipment room must be away from such pollution sources.
- Use environmentally friendly materials to decorate the equipment room. Avoid using organic materials that contains harmful gases, such as sulfur or chlorine-containing insulation cottons, rubber mats, sound-proof cottons, and avoid using plasterboards with high sulfur concentration.
- Place fuel (diesel or gasoline) engines separately. Do not place them in the same equipment room with the device. Make sure the exhausted air of the engines will not flow into the equipment room or towards the air inlet of the air conditioners.
- Place batteries separately. Do not place them in the same room with the device.
- Employ a professional company to monitor and control corrosive gases in the equipment room regularly.

EMI

All electromagnetic interference (EMI) sources, from outside or inside of the switch and application system, adversely affect the switch in the following ways:

- A conduction pattern of capacitance coupling.
- Inductance coupling.
- Electromagnetic wave radiation.
- Common impedance (including the grounding system) coupling.

To prevent EMI, use the following guidelines:

- If AC power is used, use a single-phase three-wire power receptacle with protection earth (PE) to filter interference from the power grid.
- Keep the switch far away from radio transmitting stations, radar stations, and high-frequency devices.

- Use electromagnetic shielding, for example, shielded interface cables, when necessary.
- To prevent signal ports from getting damaged by overvoltage or overcurrent caused by lightning strikes, route interface cables only indoors.

Laser safety

⚠ **WARNING!**

The switch is Class 1 laser device. Do not stare into any fiber port when the switch has power. The laser light emitted from the optical fiber might hurt your eyes.

Installation tools

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

All these installation tools are user supplied.

2 Installing the switch

⚠ CAUTION:

Keep the tamper-proof seal on a mounting screw on the chassis cover intact, and if you want to open the chassis, contact H3C for permission. Otherwise, H3C shall not be liable for any consequence.

Figure2-1 Hardware installation flow

```
                        ┌──────────────────┐
                        │      Start       │
                        └──────────────────┘
                                 │
                                 ▼
                    ╱─────────────────────────╲
                    │     Install the switch    │
                    ╲─────────────────────────╱
                                 │
                                 ▼
                    ┌─────────────────────────┐
                    │ Connect the grounding    │
                    │        cable             │
                    └─────────────────────────┘
                                 │
         Yes                     ▼
      ┌──────────◄──────  ◇ With fan tray ◇
      │                    ◇    slots?    ◇
      ▼                         │
 ┌──────────────┐              No
 │ Install fan  │
 │    trays     │
 └──────────────┘
      │                          │
      └─────────────►────────────▼
                          ◇ With power ◇
         Yes              ◇ module slots? ◇
      ┌──────────◄──────       │
      ▼                        No
 ┌──────────────────┐
 │ Install power    │
 │    modules       │
 └──────────────────┘          │
      │                         ▼
      └───────────►──  ┌──────────────────┐
                       │ Connect power    │
                       │     cords        │
                       └──────────────────┘
                                 │
                                 ▼
                       ┌──────────────────┐
                       │ Verify the       │
                       │ installation     │
                       └──────────────────┘
                                 │
                                 ▼
          ┌──────────────────┐        ┌──────────────┐
          │ Turn on the      │◄───────│ Resolve the  │
          │ circuit breakers │        │   problem    │
          └──────────────────┘        └──────────────┘
                   │                         ▲
                   ▼          No    ┌──────────────┐
         ◇ Operating correctly? ◇──►│ Turn off the │
                   │                │ circuit breakers│
                  Yes               └──────────────┘
          No       ▼
      ┌───◄── ◇ With expansion slots? ◇◄────────┐
      │            │                             │
      │           Yes                            │
      │            ▼                             │
      │    ┌──────────────────┐                  │
      │    │ Install expansion│                  │
      │    │     cards        │                  │
      │    └──────────────────┘                  │
      │            │                             │
      │            ▼         No    ┌──────────────┐
      │   ◇ Operating correctly ◇──►│ Resolve the  │
      │            │               │   problem    │
      │           Yes              └──────────────┘
      │            ▼
      │    ┌──────────────────┐
      └───►│ Connect interface│
           │ connectors and   │
           │     cables       │
           └──────────────────┘
                    │
                    ▼
           ┌──────────────────┐
           │       End        │
           └──────────────────┘
```

Installing the switch in a 19-inch rack

Installation methods

Table2-2 Installation methods for the S5560X-EI switches

Chassis	Installation methods	Installation requirements	Installation procedure
S5560X-30C-EI S5560X-54C-EI S5560X-30F-EI S5560X-30F-EIF S5560X-54F-EI S5560X-34S-EI S5560X-54S-EI	Using front mounting brackets	Install the front mounting brackets at the port side or power module side.	See "Rack-mounting the switch by using front mounting brackets."
S5560X-30C-PWR-EI S5560X-54C-PWR-EI	Using front and rear mounting brackets	• Install the front mounting brackets at the port side or power module side. • Install the rear mounting brackets based on the rack depth. ○ If the rack depth is in the range of 429 to 595 mm (16.89 to 23.43 in), orient the bracket with the wide flange inside the rack. ○ If the rack depth is in the range of 274 to 440 mm (10.79 to 17.32 in) and the distance from the rear rack posts to the inner surface of the cabinet door is longer than 153 mm (6.02 in), orient the bracket with the wide flange outside the rack.	See "Rack-mounting the switch by using front and rear mounting brackets."

Figure2-2 Procedure for rack-mounting the switch by using the front mounting brackets

Determine the front mounting bracket installation position (port side or power module side) → Attach the front mounting brackets to the switch → Mount the switch in the rack
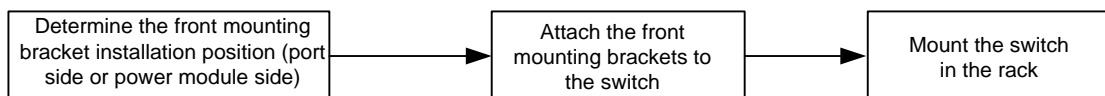
Figure2-3 Procedure for rack-mounting the switch by using the front and rear mounting brackets

Determine the front mounting bracket installation position (port side or power module side) → Attach the front mounting brackets to the switch → Attach the shoulder screws to the switch → Attach the rear mounting brackets to the rack → Mount the switch in the rack
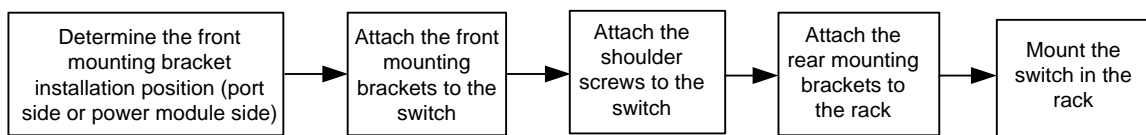
NOTE:

If a rack shelf is available, you can put the switch on the rack shelf, slide the switch to an appropriate location, and attach the switch to the rack by using the mounting brackets.

Installation accessories

Table2-3 Installation accessories for the S5560X-EI switches

Switch model	Front mounting brackets (Figure2-4)	Rear mounting brackets and shoulder screws (Figure2-5)
S5560X-30C-EI S5560X-54C-EI S5560X-30F-EI S5560X-30F-EIF S5560X-54F-EI S5560X-34S-EI S5560X-54S-EI	Provided	N/A
S5560X-30C-PWR-EI S5560X-54C-PWR-EI	Provided	Provided

Figure2-4 Front mounting bracket
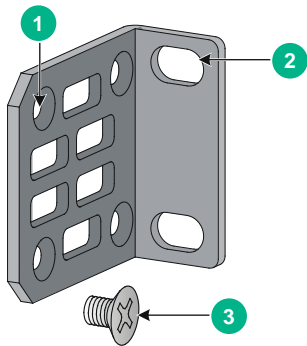
(1) Screw hole for attaching the bracket to the switch　　(2) Screw hole for attaching the bracket to the rack

(3) M4 screw

Figure2-5 Rear mounting bracket and shoulder screw
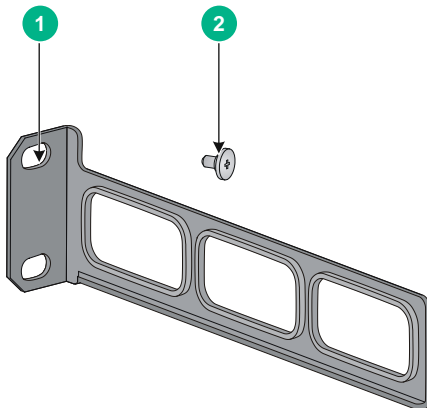
(1) Screw hole for attaching the bracket to the rack　　(2) Shoulder screw

Rack-mounting the switch by using front mounting brackets

Attaching the front mounting brackets to the switch

The S5560X-30C-EI, S5560X-54C-EI, S5560X-30F-EI, S5560X-30F-EIF, S5560X-54F-EI, S5560X-34S-EI, and S5560X-54S-EI switches provide two installation positions on the side panels for the front mounting brackets. One is near the power module side and one is near the port side.

To attach the front mounting brackets to the switch:

1. Determine the mounting position for the front mounting brackets.
2. Align the round holes in the wide flange of one front mounting bracket with the screw holes in the chassis. See Figure2-6 and Figure2-7.
3. Use M4 screws (provided with the switch) to attach the mounting bracket to the chassis.
4. Repeat the proceeding two steps to attach the other mounting bracket to the chassis.

Figure2-6 Attaching the front mounting bracket to the port side
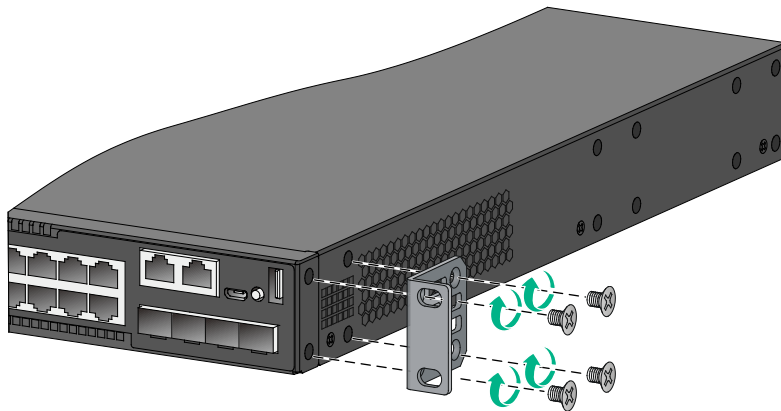
Figure2-7 Attaching the front mounting bracket to the power module side
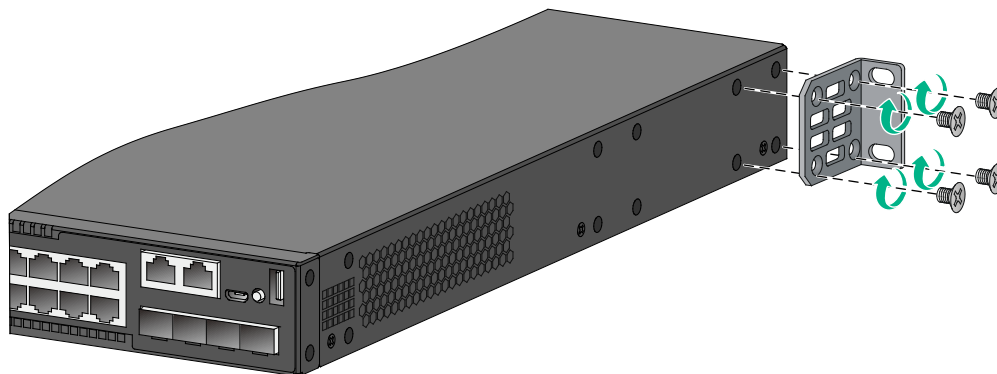
Mounting the switch in the rack

1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.
2. Make sure the front mounting brackets have been attached securely to the two sides of the switch.
3. Install cage nuts (user-supplied) in the mounting holes in the rack posts. Make sure the corresponding cage nuts on the left and right front rack posts are at the same height.
4. One person holds the switch chassis and aligns the installation holes on the mounting brackets with the cage nuts on the rack posts.
5. The other person attaches the mounting brackets with M6 screws (user-supplied) to the rack.

Figure2-8 Mounting the switch in the rack (front mounting brackets at the port side)
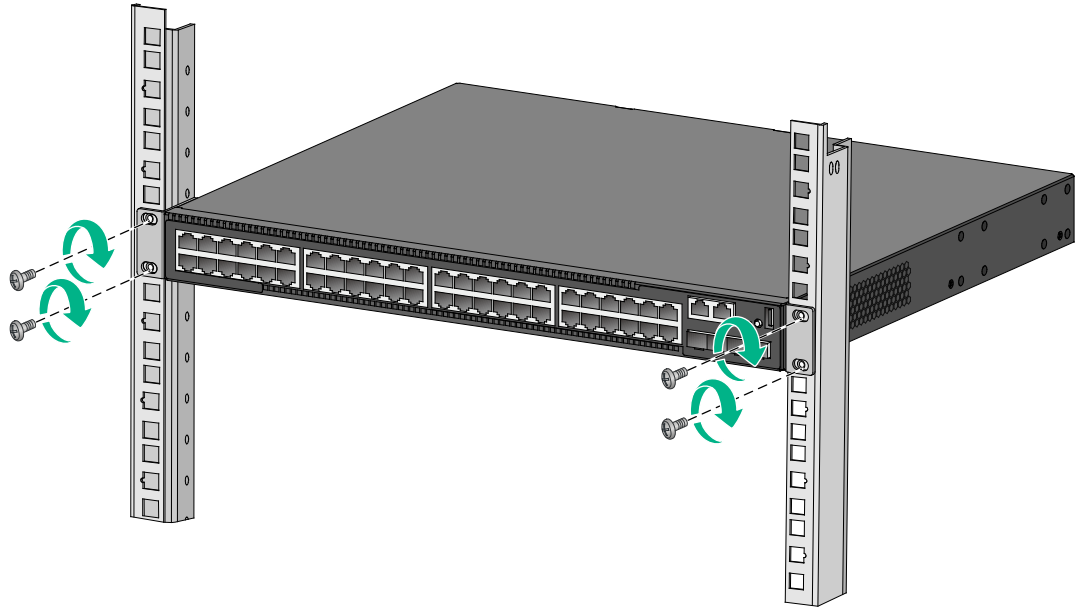
Figure2-9 Mounting the switch in the rack (front mounting brackets at the power module side)
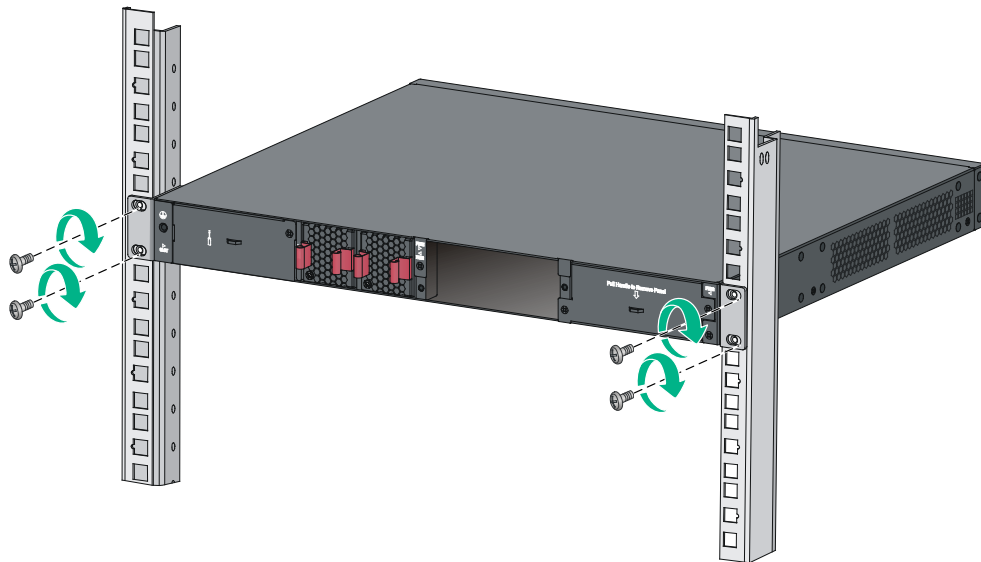
Rack-mounting the switch by using front and rear mounting brackets

Attaching the front mounting brackets and shoulder screws to the switch

To rack-mount the S5560X-30C-PWR-EI and S5560X-54C-PWR-EI switches by using the front and rear mounting brackets, you can install the front mounting brackets at the port-side or power module-side mounting position. The following uses port-side mounting as an example. The power-side mounting is similar.

To attach the front mounting brackets and shoulder screws to the switch:

1. Align the round holes in the wide flange of one front mounting bracket with the screw holes in the port-side mounting position on one side of the chassis. See Figure2-10.
2. Use M4 screws (supplied with the switch) to attach the mounting bracket to the chassis.
3. Repeat the proceeding two steps to attach the other mounting bracket to the chassis.
4. Unpack the shoulder screws. Attach the shoulder screw to one of the two installation positions as red-marked in Figure2-10.

Figure2-10 Attaching the front mounting brackets and shoulder screws to the chassis
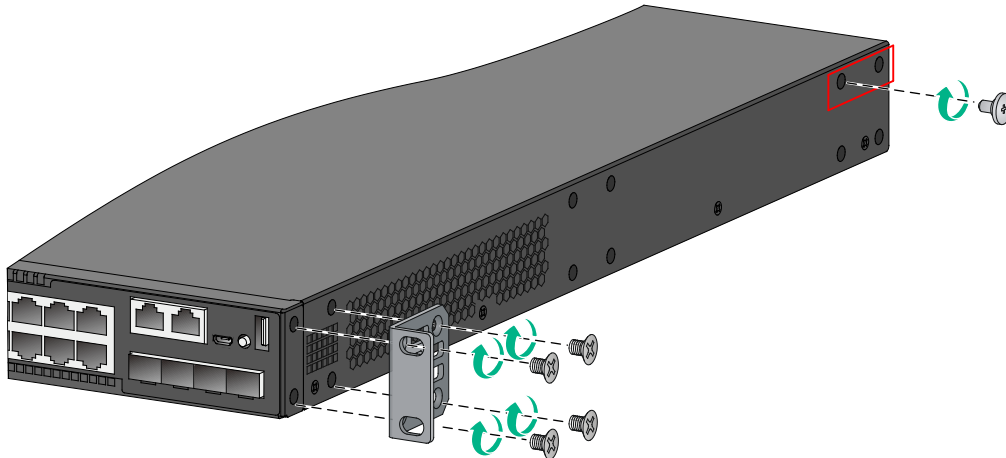
Attaching the rear mounting brackets to the rack

1. Determine the switch installation position in the rack.
2. Install cage nuts in the rack posts. Make sure the corresponding cage nuts on the left and right rear rack posts are at the same height.
3. Orient the rear mounting brackets with the wide flange inside or outside the rack as required.
4. Use M6 screws to attach the rear mounting brackets to the rear posts, as shown in Figure2-11.
Do not fully tighten the M6 screws before mounting the switch in the rack.

Figure2-11 Attaching the rear mounting brackets to a rack with the wide flange inside the rack
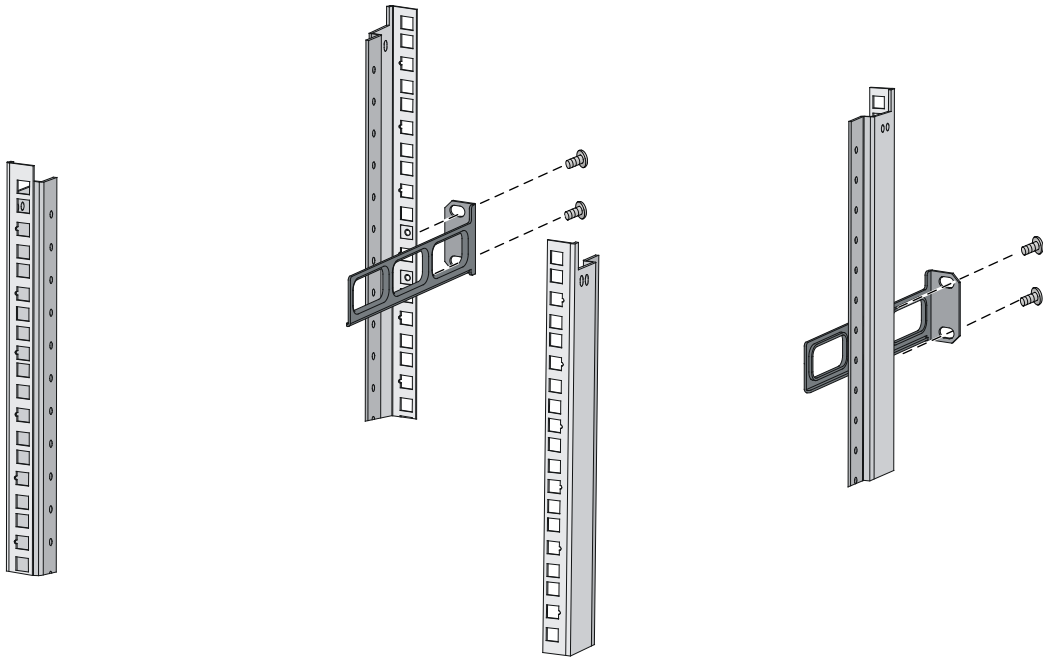
Figure2-12 Attaching the rear mounting brackets to a rack with the wide flange outside the rack
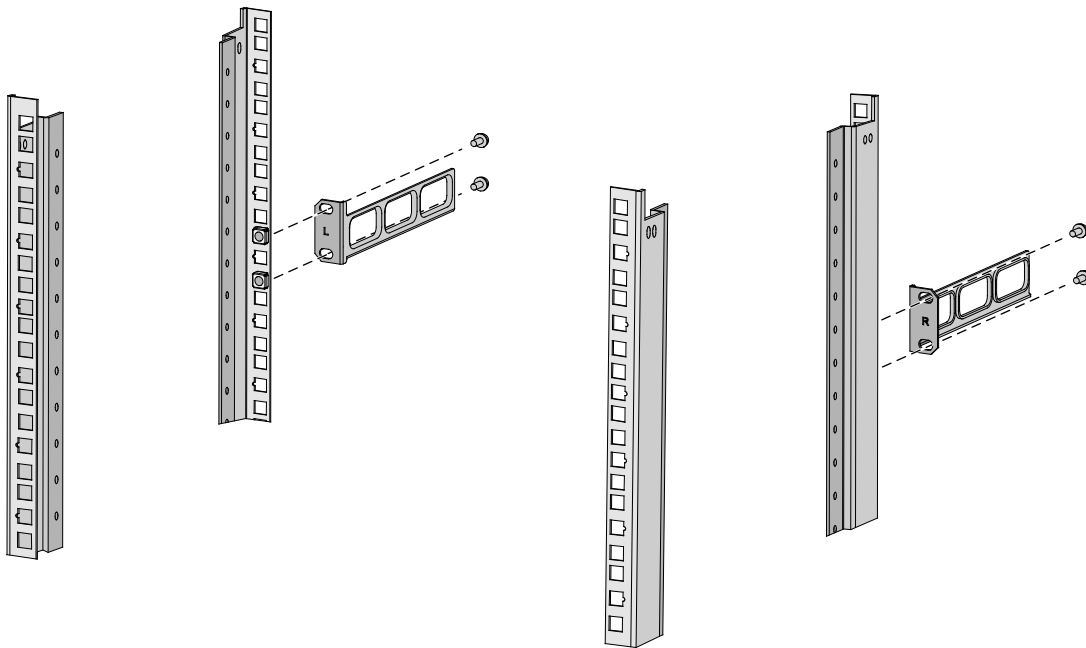
Mounting the switch in the rack

1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.
2. Make sure the front mounting brackets and shoulder screws are securely attached to the two sides of the switch.
3. Attach cage nuts to the front rack posts. Make sure the corresponding cage nuts on the left and right front rack posts are at the same height.

4. One person supports the chassis bottom with one hand, holds the front part of the chassis with the other hand, and pushes the chassis into the rack gently.

Make sure the shoulder screws make close contact with the upper edges of the rear mounting brackets, as shown in Figure2-13.

5. The other person attaches the front mounting brackets with M6 screws (user-supplied) to the front rack posts.

Make sure the switch is installed securely in the rack.

Figure2-13 Mounting the switch in the rack (with the wide flange of the rear mounting brackets inside the rack)
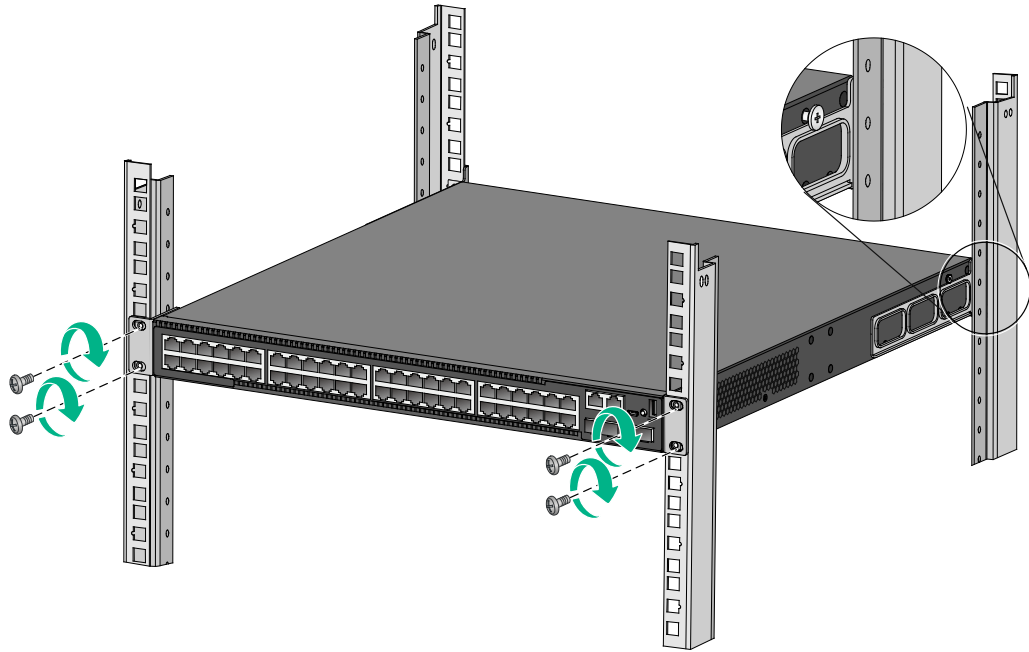
Figure2-14 Mounting the switch in the rack (with the wide flange of the rear mounting brackets outside the rack)
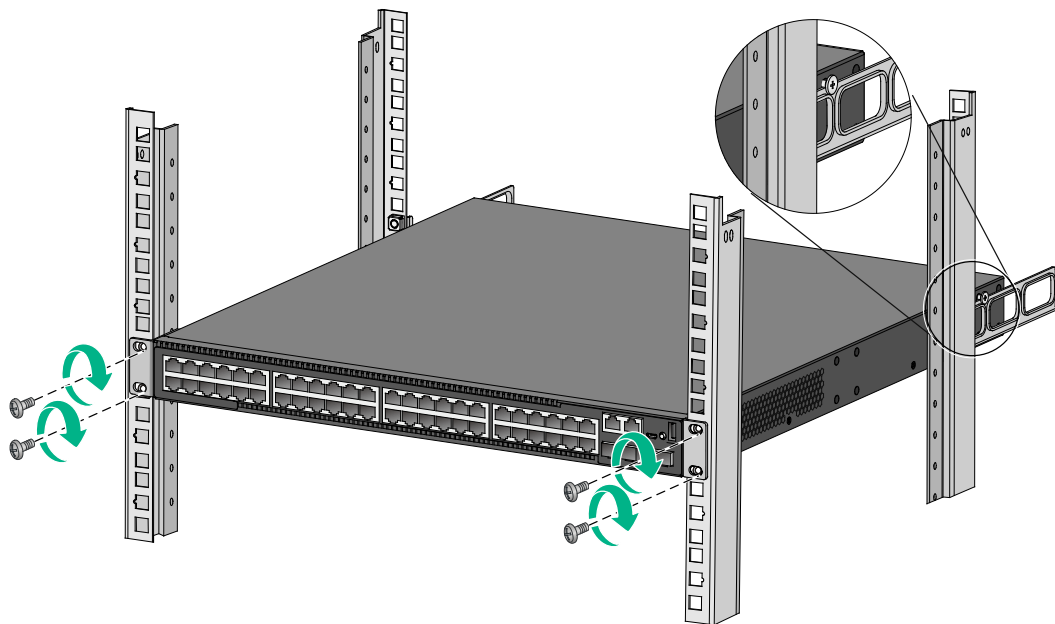
Mounting the switch on a workbench

To mount the switch on a workbench:

1. Verify that the workbench is sturdy and reliably grounded.
2. Place the switch with bottom up, and clean the round holes in the chassis bottom with dry cloth.
3. Attach the rubber feet to the four round holes in the chassis bottom.
4. Place the switch with upside up on the workbench.

Grounding the switch

⚠ **WARNING!**
Correctly connecting the grounding cable is crucial to lightning protection and EMI protection.

The power input end of the switch has a noise filter, whose central ground is directly connected to the chassis to form the chassis ground (commonly known as PGND). You must securely connect this chassis ground to the earth to minimize the potential for system damage, maximize the safety at the site, and minimize EMI susceptibility of the system.

You can ground the switch in one of the following ways, depending on the grounding conditions available at the installation site:

- Grounding the switch with a grounding strip
- Grounding the switch with a grounding conductor buried in the earth ground

NOTE:
The power and grounding terminals in this section are for illustration only.

Grounding the switch with a grounding strip

⚠ **WARNING!**

- Connect the grounding cable to the grounding strip in the equipment room. Do not connect it to a fire main or lightning rod.
- To guarantee the grounding effect and avoid switch damage, use the grounding cable provided with the switch to connect the switch to a grounding strip in the equipment room.

If a grounding strip is available at the installation site, connect the grounding cable to the grounding strip.

Connecting the grounding cable to the chassis

1. Remove the grounding screw from the rear panel of the switch chassis.
2. Use the grounding screw to attach the ring terminal of the grounding cable to the grounding screw hole. Fasten the screw.

Figure2-15 Connecting the grounding cable to the chassis
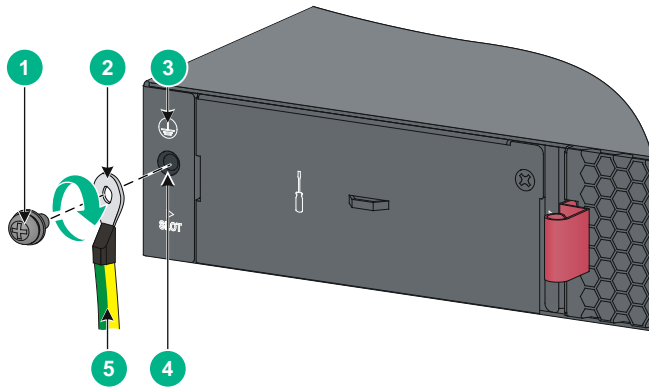
(1) Grounding screw	(2) Ring terminal
(3) Grounding sign	(4) Grounding hole
(5) Grounding cable	

Connecting the grounding cable to a grounding strip (1)

This method is applicable to the S5560X-30C-PWR-EI and S5560X-54C-PWR-EI switches.

To connect the grounding cable to a grounding strip:

1. Remove the hex nut of a grounding post on the grounding strip.

2. Cut the grounding cable to a length required for connecting to the grounding strip.

3. Attach a ring terminal to the grounding cable:

    a. Use a wire stripper to strip 5 mm (0.20 in) of insulation off the end of the grounding cable.

    b. Slide the heat-shrink tubing onto the cable and insert the bare metal part into the end of the ring terminal.

    c. Use a crimper to secure the metal part of the cable to the ring terminal.

    d. Slide the heat-shrink tubing down the cable until the tube covers the joint.

    e. Use a heat gun to shrink the tubing around the cable.

Figure2-16 Attaching a ring terminal to the grounding cable
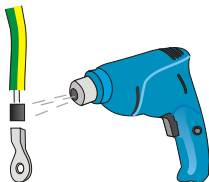
4. Connect the ring terminal of the grounding cable to the grounding post of the grounding strip, and fasten it with the removed hex nut.

Figure2-17 Connecting the grounding cable to a grounding strip
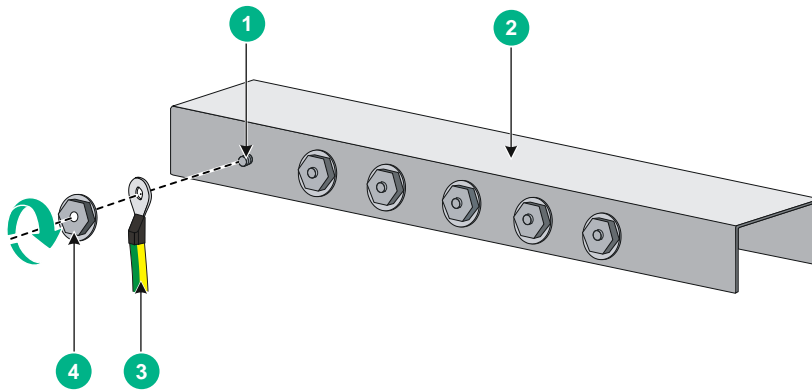
(1) Grounding post	(2) Grounding strip
(3) Grounding cable	(4) Hex nut

Connecting the grounding cable to a grounding strip (2)

This method is applicable to the S5560X-30C-EI, S5560X-54C-EI, S5560X-30F-EI, S5560X-30F-EIF, S5560X-54F-EI, S5560X-34S-EI, and S5560X-54S-EI switches.

To connect the grounding cable to a grounding strip:

1. Cut the grounding cable to a length required for connecting to the grounding strip.

2. Use a wire stripper to strip 20 mm (0.79 in) of insulation off the end of the grounding cable. Then use needle-nose pliers to bend the bare metal part to the shape as shown in Figure2-18. Make sure the bended part can securely attached to the grounding post on the grounding strip.

3. Attach the bended part of the grounding cable to the grounding post and use the hex nut to fasten the bended part to the post.

Figure2-18 Connecting the grounding cable to the grounding strip
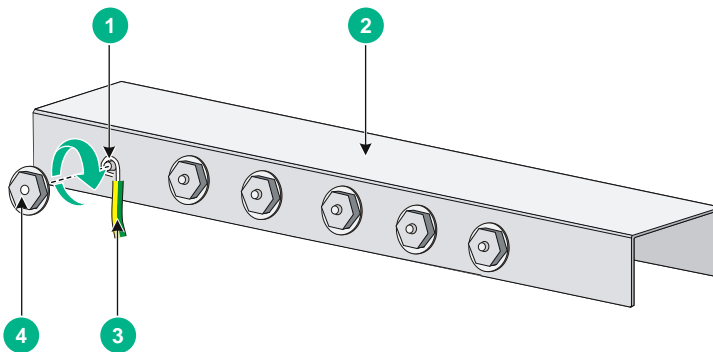
(1) Grounding post	(2) Grounding strip
(3) Grounding cable	(4) Hex nut

Grounding the switch with a grounding conductor buried in the earth ground

If the installation site does not have any grounding strips, but earth ground is available, hammer a 0.5 m (1.64 ft) or longer angle iron or steel tube into the earth ground to serve as a grounding conductor.

The dimensions of the angle iron must be a minimum of 50 × 50 × 5 mm (1.97 × 1.97 × 0.20 in). The steel tube must be zinc-coated and its wall thickness must be a minimum of 3.5 mm (0.14 in).

Weld the yellow-green grounding cable to the angel iron or steel tube and treat the joint for corrosion protection.

Figure2-19 Grounding the switch by burying the grounding conductor into the earth ground

(1) Grounding screw	(2) Chassis rear panel	(3) Grounding cable
(4) Earth	(5) Joint	(6) Grounding conductor
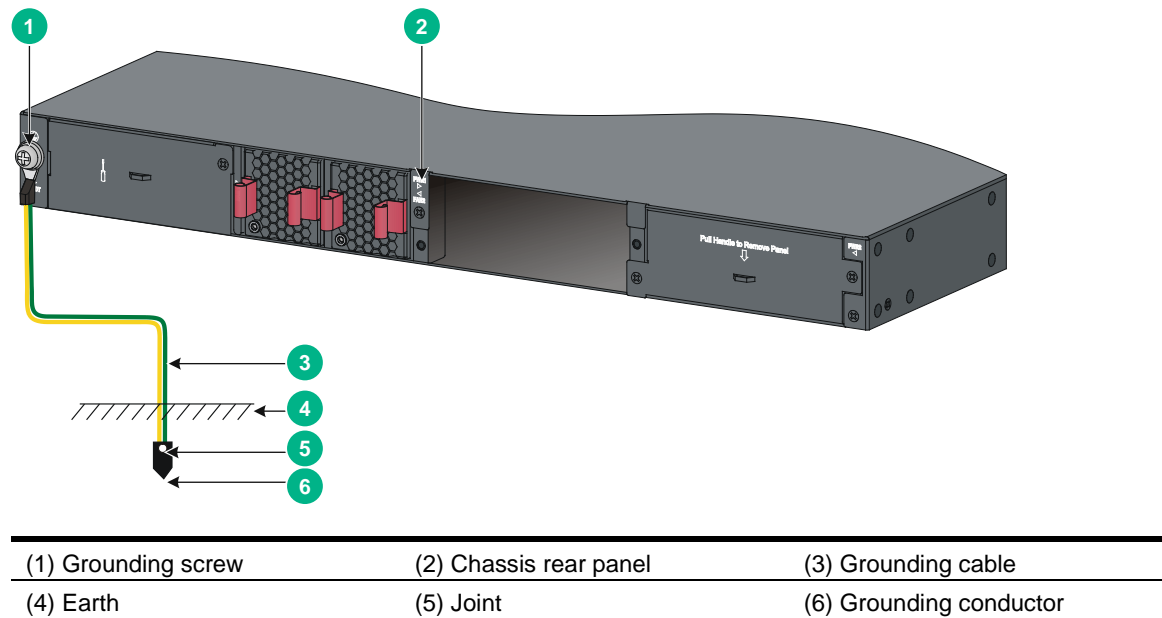
Installing/removing a fan tray

△ **CAUTION:**

- Install two fan trays of the same model on the switch. Do not power on the switch when it does not have fan trays or has only one fan tray installed.
- Do not leave any slots empty when the switch is operating. Install a module or filler panel in the slots.
- If both fan trays fail while the switch is operating, replace them within 2 minutes while the switch is operating.
- If one fan tray fails while the switch is operating, perform either of the following tasks:
  - If the ambient temperature is not higher than 27°C (80.6°F), replace the fan tray within 24 hours and make sure the failed fan tray is in position before the replacement.
  - If the ambient temperature is higher than 27°C (80.6°F), replace the fan tray immediately.
- If you power cycle the switch after a fan tray fails, the switch will fail to start up.

S5560X-EI switches except the S5560X-34S-EI and S5560X-54S-EI provides fan tray slots and support hot swapping of fan trays.

The switch comes with empty fan tray slots. Choose fan tray models for the switch based on the ventilation requirement of the site. The air flow direction varies by fan tray model.

- The LSPM1FANSA fan tray draws ambient air into the chassis from the power module side and exhausts the air through the port side and chassis sides. The fan tray handle is blue.
- The LSPM1FANSB fan tray draws ambient air into the chassis from the port side and chassis sides and exhausts the air through the power module side. The fan tray handle is red.

For more information about the fan trays, see *Hardware Information and Specifications*.

Installing a fan tray

⚠ **CAUTION:**

To prevent damage to the fan tray or the connectors in the chassis, insert the fan tray gently. If you encounter a hard resistance while inserting the fan tray, pull out the fan tray and insert it again.

To install a fan tray:

1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.

2. Unpack the fan tray and verify that the fan tray model is correct.

3. Grasp the two handles of the fan tray with the side marked **TOP** facing up, and slide the fan tray along the guide rails into the slot until the fan tray seats in the slot and has a firm contact with the backplane.

Figure2-20 Installing a fan tray
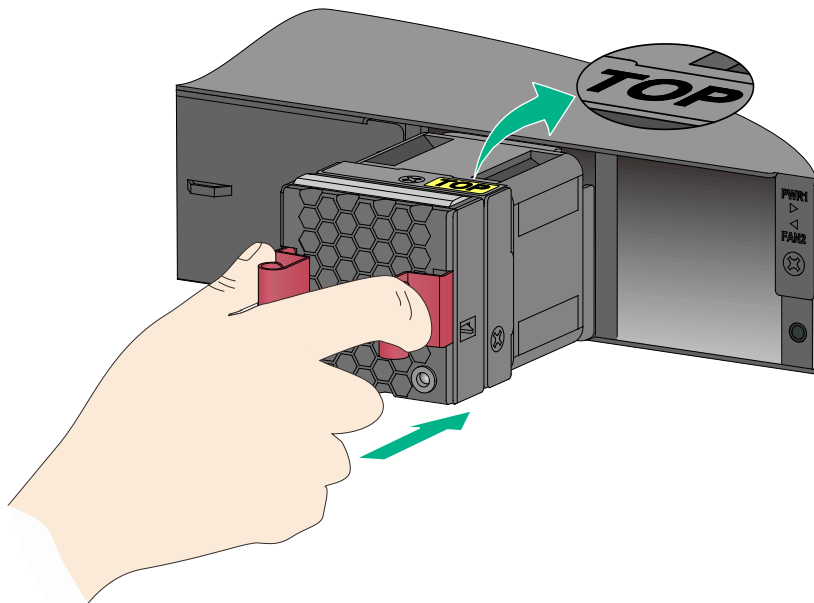
ⓘ **IMPORTANT:**

- At the first login to the switch, use the `fan prefer-direction` command to set the airflow direction of the switch to be the same as the airflow direction of the fan tray. If the fan tray has a different airflow direction than the switch, the system outputs traps and logs to notify you to replace the fan tray.

- By default, the switch uses the same airflow direction (port-to-power) as the LSPM1FANSB fan tray.

Removing a fan tray

⚠ **WARNING!**

- To avoid bodily injury, disturbing the dynamic balance of the fan tray, and causing loud noises, do not touch the rotation axis, or any bare wires, fan blades, or terminals on the fan tray.

- Do not place the fan tray in a moist place. Prevent liquid from entering the fan tray.

- Fan trays with faulty internal wiring and conductors require maintenance from maintenance engineers. Do not disassemble the faulty fan trays.

To remove a fan tray:

1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.
2. Grasp the two handles of the fan tray, as shown by callout 1 in Figure2-21, and pull out the fan tray slowly along the guide rails.
3. Put the removed fan tray in an antistatic bag.

Figure2-21 Removing a fan tray
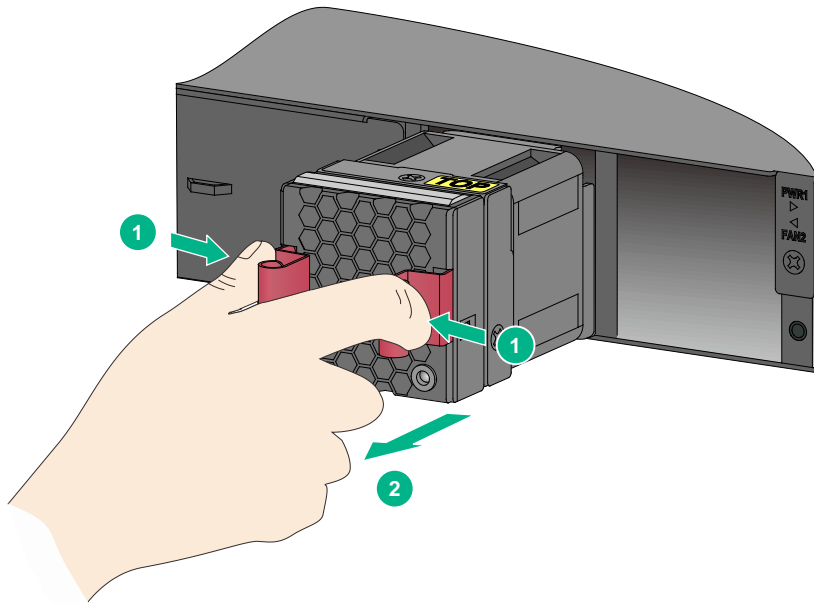
Installing/removing a power module

⚠ **WARNING!**

In power redundancy mode, you can replace a power module without powering off the switch but you must strictly follow the installation and removal procedures in Figure2-22 and Figure2-23 to avoid any bodily injury or damage to the switch.

⚠ **CAUTION:**

Provide a circuit breaker for each power module.

Figure2-22 Installation procedure

Install the power module	→	Connect the power cord	→	Turn on the circuit breaker
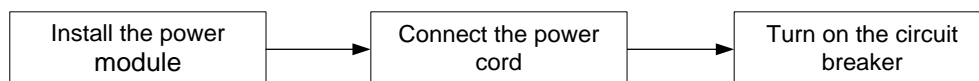
Figure2-23 Removal procedure
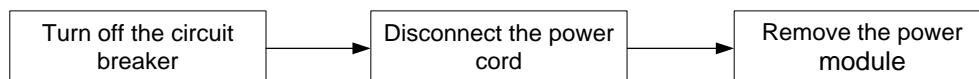
Turn off the circuit breaker	→	Disconnect the power cord	→	Remove the power module

S5560X-EI switches except the S5560X-34S-EI and S5560X-54S-EI provide power module slots and come with power module slot 1 empty and power module slot 2 installed with a filler panel. You can install one or two power modules for the switch as required.

For the power modules available for the switch and their specifications, see *Hardware Information and Specifications.*

Installing a PSR150-A1/PSR150-A2/PSR150-D1 power module

△ **CAUTION:**

To prevent damage to the power module or the connectors on the backplane, insert the power module gently. If you encounter a hard resistance when inserting the power module, pull out the power module and insert it again.

The installation procedure is the same for PSR150-A1, PSR150-A2, and PSR150-D1 power modules. The following procedure uses the PSR150-A1 power module as an example.

To install a PSR150-A1 power module:

1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.
2. Remove the filler panel, if any, from the target power module slot as follows:
    a. Remove the screws on the filler panel.
    b. Use a flathead screwdriver to remove the filler panel.

Figure2-24 Removing the filler panel
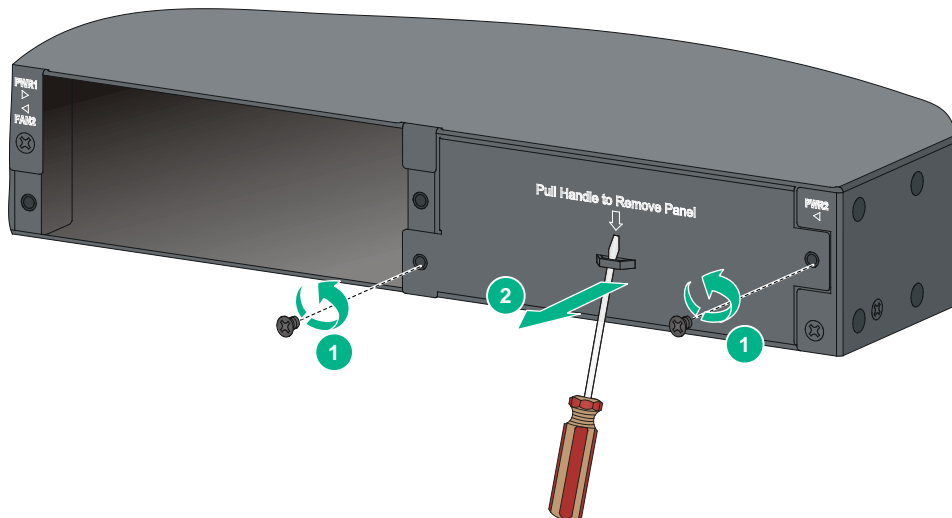
3. Unpack the power module and verify that the power module model is correct.
4. Correctly orient the power module with the power module slot (use the letters on the power module faceplate for orientation), grasp the handle of the power module with one hand and support its bottom with the other, and slide the power module slowly along the guide rails into the slot (see callout 1 in Figure2-25).
5. Fasten the captive screws on the power module with a Phillips screwdriver to secure the power module in the chassis (see callout 2 in Figure2-25). If the captive screw cannot be tightly fastened, verify the installation of the power module.
6. Install the filler panel over the empty power module slot to prevent dust and ensure good ventilation if you install only one power module.

Figure2-25 Installing a PSR150-A1 power module
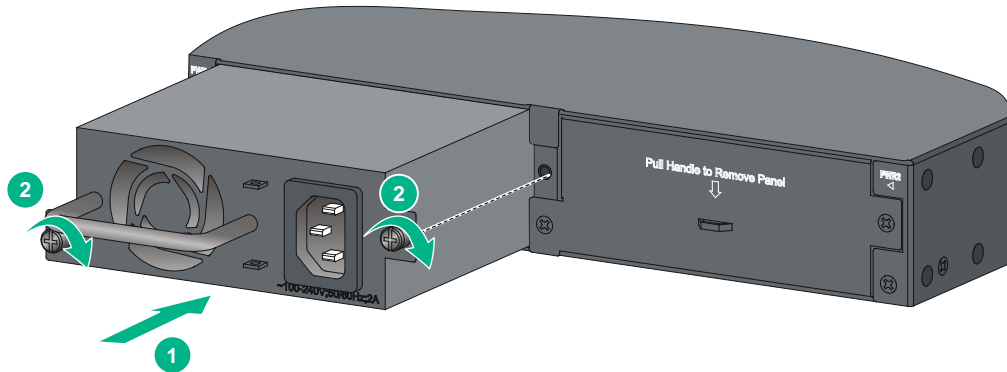
Removing a PSR150-A1/PSR150-A2/PSR150-D1 power module

The removal procedure is the same for PSR150-A1, PSR150-A2, and PSR150-D1 power modules. The following procedure uses the PSR150-A1 power module as an example.

To remove a PSR150-A1 power module:

1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.
2. Disconnect the power cord.
3. Loosen the captive screws of the power module with a Phillips screwdriver until they are completely disengaged.
4. Grasp the handle of the power module with one hand and pull it out a little, support the bottom with the other hand, and pull the power module slowly along the guide rails out of the slot.

   Put away the removed power module in an antistatic bag or the power module package bag for future use.
5. Install the filler panel to prevent dust and ensure good ventilation if no power module is installed in the slot.

Installing a PSR360-56A/PSR560-56D/PSR720-56A/PSR1110-56A power module

△ **CAUTION:**

To prevent damage to the power module or the connectors on the backplane, insert the power module gently. If you encounter a hard resistance when inserting the power module, pull out the power module and insert it again.

The installation procedure is the same for the PSR360-56A, PSR560-56D, PSR720-56A and PSR1110-56A power modules. The following procedure uses the PSR720-56A power module as an example.

To install a PSR720-56A power module:

1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.
2. Put your forefinger into the hole in the filler panel, if any, in the target power module slot, and pull out it gently.

Figure2-26 Removing the filler panel
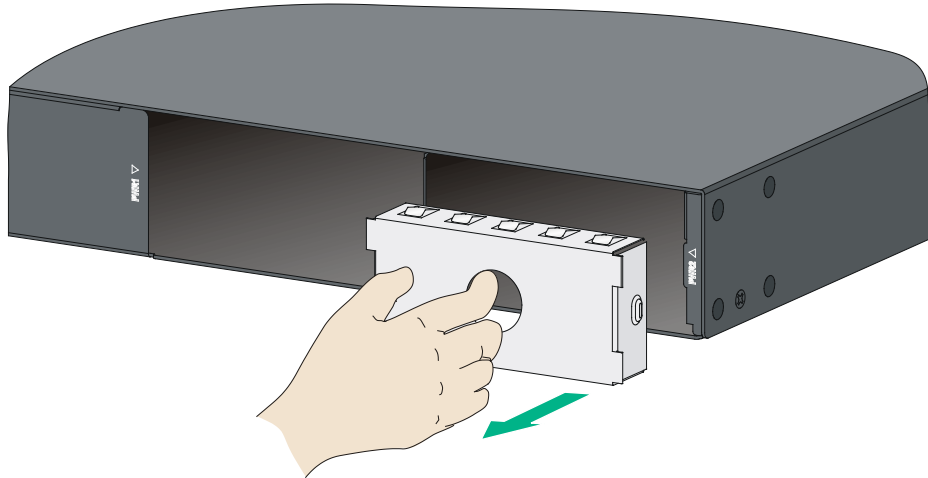
3. Unpack the power module and verify that the power module model is correct.

   Put away the packaging box and packaging bag of the power module for future use.

4. Correctly orient the power module with the power module slot (use the letters on the power module faceplate for orientation), grasp the handle of the power module with one hand and support its bottom with the other, and slide the power module slowly along the guide rails into the slot until you hear that the latch of the power module clicks into the slot.

   When you insert the power module into the slot, you can do that through slight inertia so that the terminals of the power module can have a good contact with the backplane.

5. Install the filler panel over the empty power module slot to prevent dust and ensure good ventilation if you install only one power module.

Figure2-27 Installing the power module
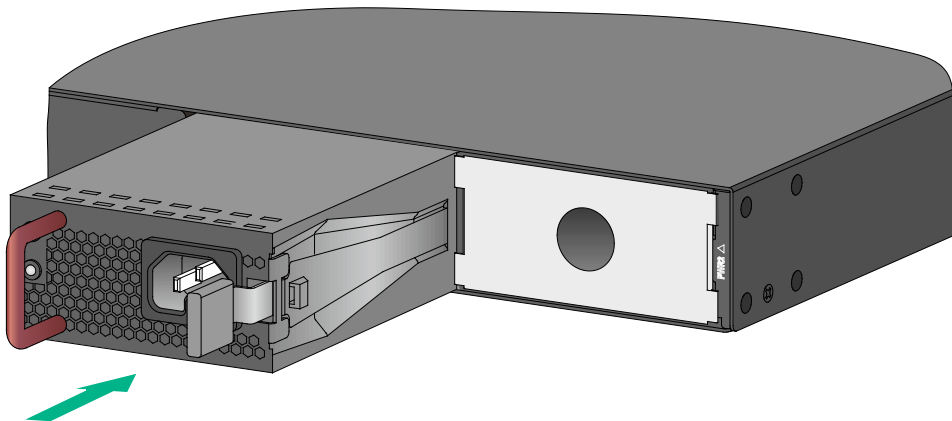
Figure2-28 PSR1110-56A power module installed in the chassis
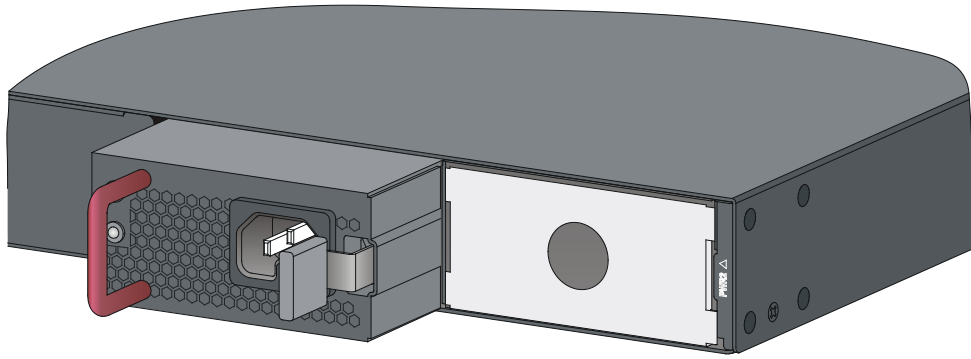
NOTE:

The PSR1110-56A power module adds 64 mm (2.52 in) to chassis depth, which includes the handle of the power module.

Removing a PSR360-56A/PSR560-56D/PSR720-56A/PSR1110-56A power module

The removal procedure is the same for the PSR360-56A, PSR560-56D, PSR720-56A, and PSR1110-56A power modules. The following procedure uses the PSR720-56A power module as an example.

To remove a PSR720-56A power module:

1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.
2. Disconnect the power cord.
3. Press the latch towards the handle, and pull the power module along the guide rails until it is part-way out.
4. Grasp the handle of the power module with one hand, support the bottom with the other hand, and pull the power module slowly along the guide rails out of the slot.

   Put away the removed power module in an antistatic bag or the power module package bag for future use.
5. Install the filler panel to prevent dust and ensure good ventilation if no power module is installed in the slot.

Figure2-29 Removing the power module
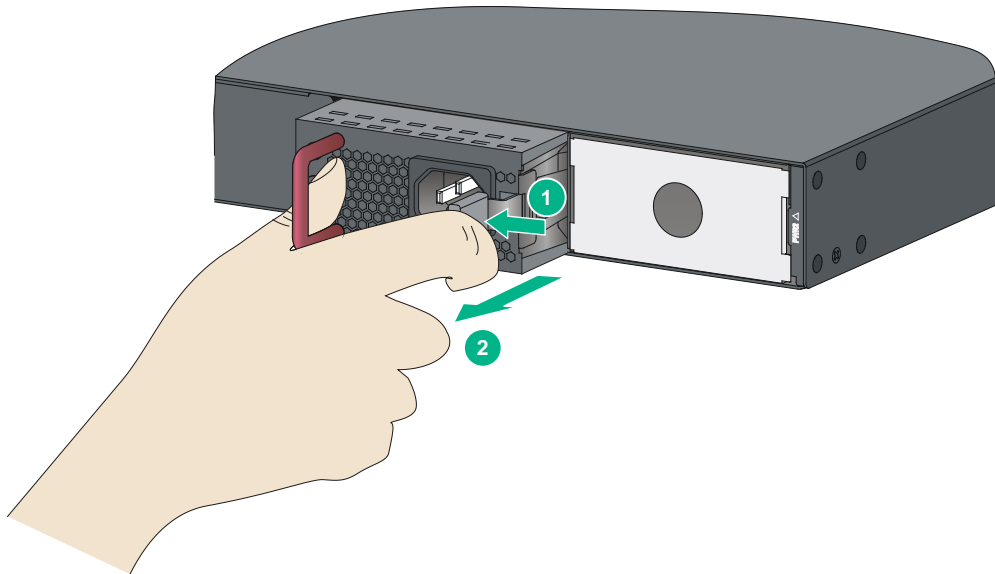
Connecting the power cord

Table2-4 Power source options and power cord connection procedures for the power modules

Power module model	Power source option	Power cord connection procedure
Fixed power module	AC power source	• S5560X-34S-EI and S5560X-54S-EI switches: Connecting the power cord for the built-in AC power module (1) • S5560X-30F-EIF switch: Connecting the power cord for the built-in AC power module (2)
	–48 VDC power source in the equipment room or an RPS (RPS800-A or RPS1600-A)	Connecting a power cord for the built-in DC power module
PSR150-A1/PSR150-A2	AC power source	Connecting the PSR150-A1/PSR150-A2
PSR150-D1	–48 VDC power source in the equipment room or an RPS (RPS800-A or RPS1600-A)	Connecting the PSR150-D1/PSR560-56D
PSR560-56D	–48 VDC power source in the equipment room or an RPS (RPS1600-A)	Connecting the PSR150-D1/PSR560-56D
PSR360-56A/PSR720-56A/PSR1110-56A	AC power source	Connecting the PSR360-56A/PSR720-56A/PSR1110-56A

Connecting the power cord for the built-in AC power module (1)

The following procedure applies to the S5560X-34S-EI and S5560X-54S-EI switches.

To connect the power cord for the built-in AC power module:

1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.
2. Attach two ends of the bail latch into the holes on the two sides of the AC power receptacle, and pull the bail latch upwards (see Figure2-30).
3. Connect the female connector of the AC power cord to the AC-input power receptacle on the power module (see callout 1 in Figure2-31).
4. Pull the bail latch down to secure the connector to the AC-input power receptacle (see callout 2 in Figure2-31).
5. Connect the other end of the power cord to an AC power source.

Figure2-30 Connecting the power cord for the built-in AC power module (1)
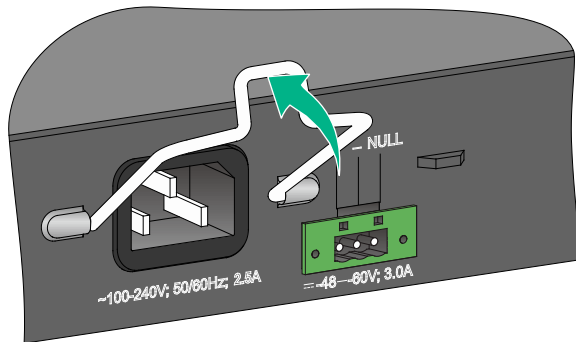
Figure2-31 Connecting the power cord for the built-in AC power module (2)
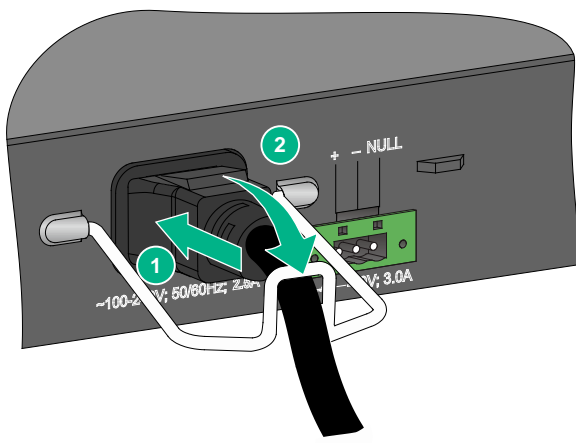
Connecting the power cord for the built-in AC power module (2)

The following procedure applies to the S5560X-30F-EIF switch.

To connect the power cord for the built-in AC power module:

1. Connect the female connector of the AC power cord to the AC-input power receptacle on the power module, as shown in Figure2-32.

2. Use a cable tie to secure the power cord to the cable holder near the AC-input power receptacle on the power module, as shown in Figure2-33.

3. Connect the other end of the power cord to an AC power source.

Figure2-32 Connecting the power cord for the built-in AC power module
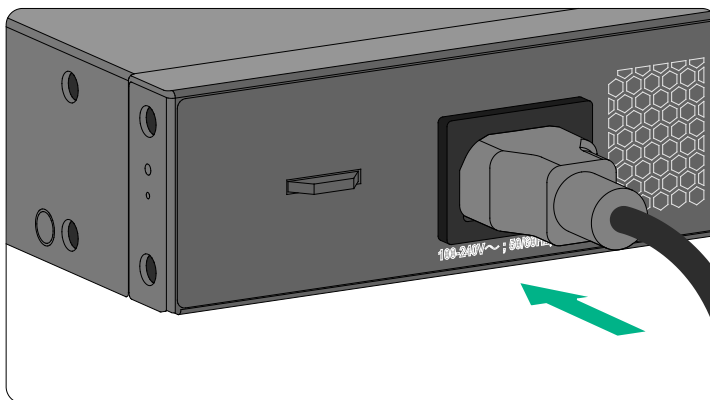
Figure2-33 Securing the power cord
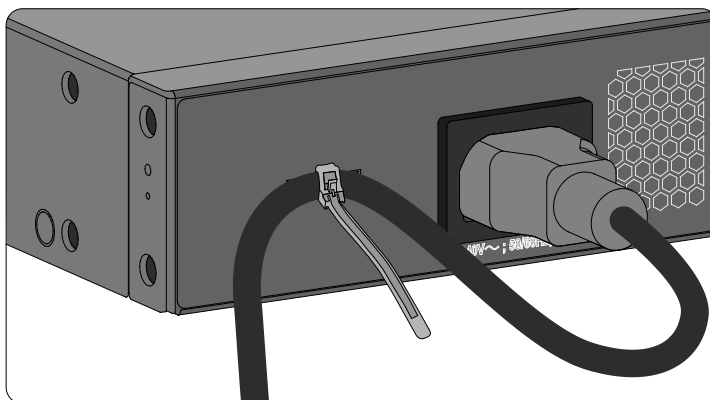
Connecting a power cord for the built-in DC power module

⚠ **WARNING!**

- The DC-input power receptacle on the switch requires a DC power cord with a JD5-A connector.
- To use a –48 VDC power source for power supply, purchase an H3C recommended DC power cord yourself.
- To use an RPS for power supply, purchase a power cord compatible with the RPS yourself.
- To connect a DC power cord to the –48 VDC power source, identify the positive (+) and negative (-) marks on the two wires of the power cord to avoid connection mistakes.

To connect a power cord for the built-in DC power module:

1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.
2. Use a screwdriver to remove the cover from the DC-input power receptacle.
3. Correctly orient the power cord connector and insert the connector into the DC-input power receptacle. See callout 1 in Figure2-34.

   If you cannot insert the connector into the receptacle, re-orient the connector rather than use excessive force to push it in.
4. Tighten the screws on the connector with a flat-blade screwdriver to secure the connector in the DC-input power receptacle. See callout 2 in Figure2-34.
5. Connect the other end of the power cord to the –48 VDC power source or an RPS.

Figure2-34 Connecting a power cord for the built-in DC power module
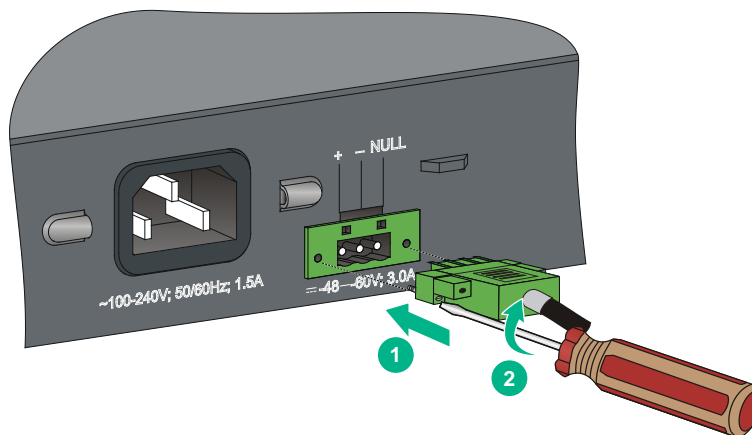
Connecting the PSR150-A1/PSR150-A2

The power cord connection procedure is the same for the PSR150-A1 and PSR150-A2 power modules. The following procedure uses the PSR150-A1 power module as an example.

To connect the PSR150-A1:

1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.
2. Attach two ends of the bail latch (supplied with the power module) into the two holes next to the AC-input power receptacle on the power module, and pull the bail latch leftwards (see Figure2-35).
3. Connect one end of the AC power cord supplied with the power module to the AC-input power receptacle (see callout 1 in Figure2-36).

4. Pull the bail latch rightwards to secure the connector to the power receptacle (see callout 2 in Figure2-36).

5. Connect the other end of the power cord to an AC power source.

Figure2-35 Connecting the PSR150-A1 (1)
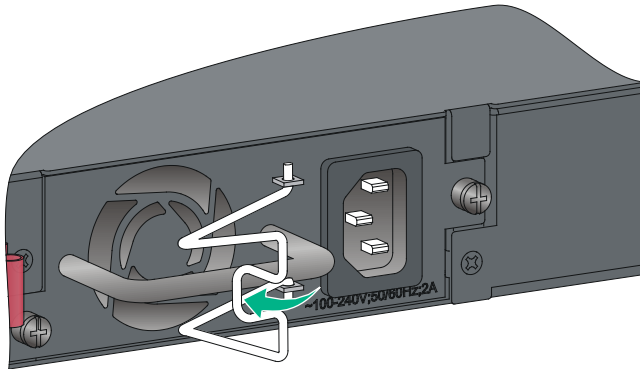
Figure2-36 Connecting the PSR150-A1 (2)
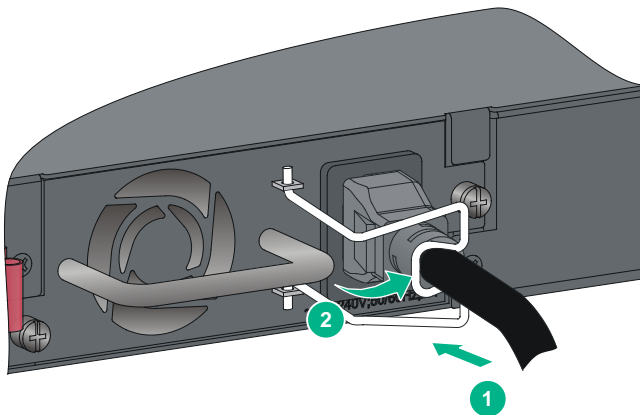
Connecting the PSR150-D1/PSR560-56D

△ **CAUTION:**

- To use a –48 VDC power source for power supply, purchase an H3C recommended DC power cord yourself.

- To use an RPS for power supply, purchase a power cord compatible with the RPS yourself.

- To connect the power cord to a –48 VDC power source, identify the positive (**+**) and negative (**-**) marks on the two wires of the power cord to avoid connection mistakes.

To connect the PSR150-D1/PSR560-56D:

1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.

2. Use a screwdriver to remove the cover from the DC-input power receptacle.

3. Unpack the DC power cord, correctly orient the connector at one end of the cable with the DC-input power receptacle on the power module, and insert the connector into the power receptacle (see callout 1 in Figure2-37).

The power receptacle is foolproof. If you cannot insert the connector into the receptacle, re-orient the connector rather than use excessive force to push it in.

4. Tighten the screws on the connector with a flat-blade screwdriver to secure the connector in the DC-input power receptacle (see callout 2 in Figure2-37).

5. Connect the two wires at the other end of the power cord to a –48 VDC power source or an RPS.

Figure2-37 Connecting the PSR150-D1
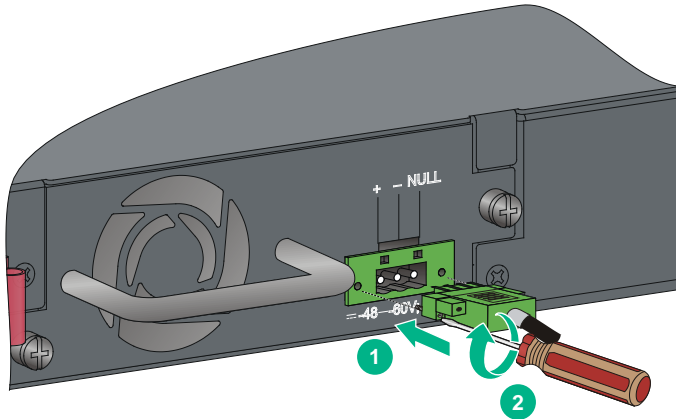
Figure2-38 Connecting the PSR560-56D
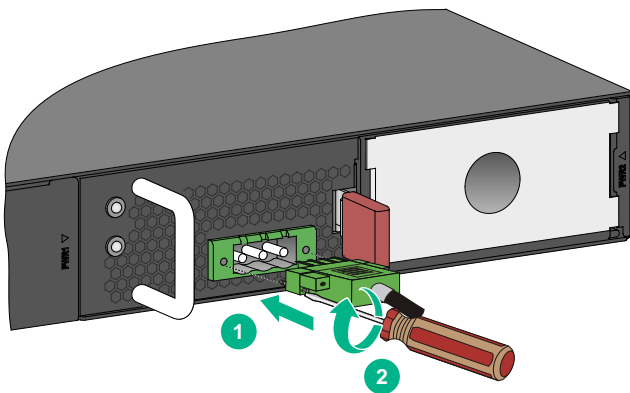
Connecting the PSR360-56A/PSR720-56A/PSR1110-56A

The power cord connection procedure is the same for the PSR360-56A, PSR720-56A, and PSR1110-56A power modules. The following procedure uses the PSR720-56A power module as an example.

To connect the PSR720-56A:

1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.

2. Plug the female connector end of the AC power cord into the AC-input power receptacle of the power module (see callout 1 in Figure2-39).

3. Use a cable tie to secure the power cord to the handle of the power module (see callout 2 and callout 3 in Figure2-39).

4. Connect the other end of the AC power cord to an AC power source.

Figure2-39 Connecting the PSR720-56A
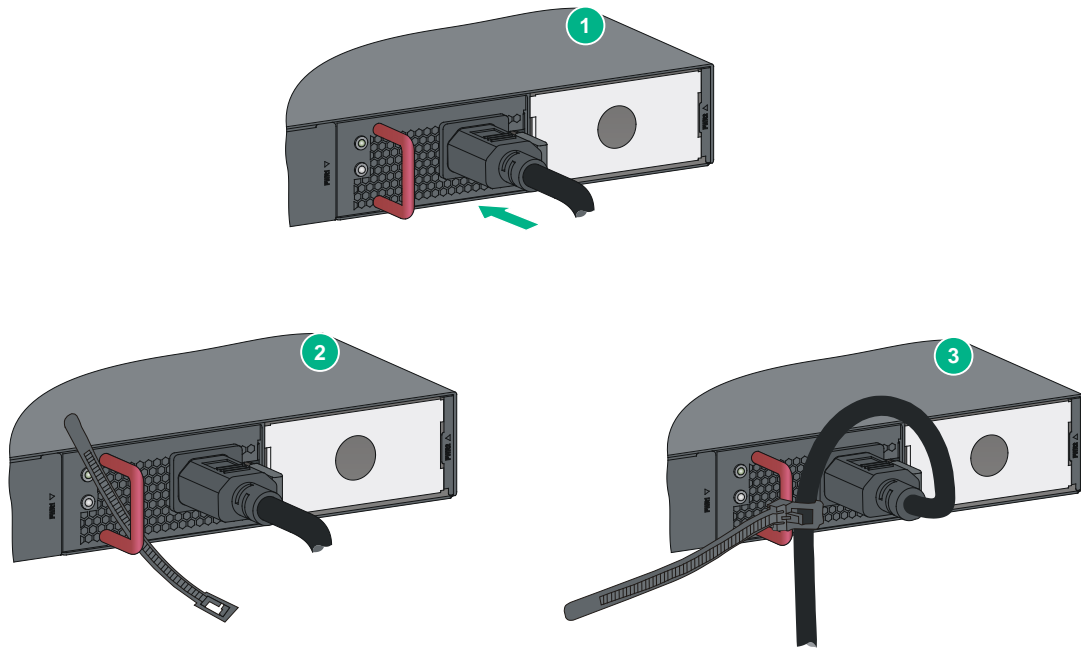
Installing/removing an expansion card

⚠ **CAUTION:**

- Do not touch the surface-mounted components directly with your hands.
- Do not use excessive force when you install or remove an expansion card.
- Do not install or remove an expansion card on a starting switch.

S5560X-EI switches except the S5560X-34S-EI and S5560X-54S-EI each provide an expansion slot at the rear. For the expansion cards available for the switch, see *Hardware Information and Specifications*.

The installation and removal procedure is similar for expansion cards. The following procedure uses the LSWM2SP2PM card (with an ejector lever) and the LSPM6FWD card (without an ejector lever) as examples.

Installing an expansion card

1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.
2. Use a Phillips screwdriver to remove the mounting screw on the filler panel over the expansion slot. Then remove the filler panel.

    Keep the filler panel for future use.

Figure2-40 Removing the filler panel over the expansion slot
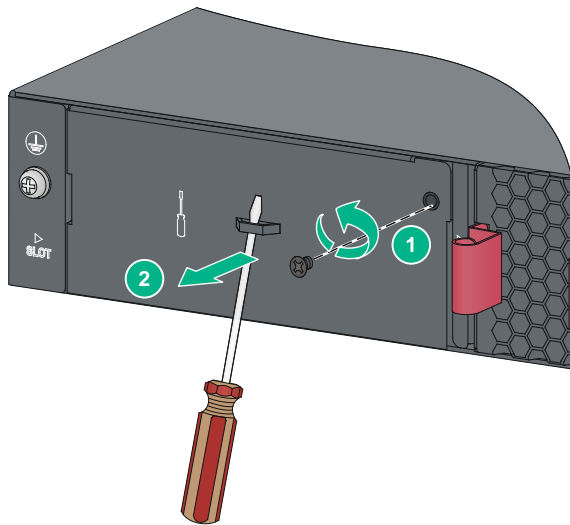
3. Unpack the expansion card.
4. If the expansion card has an ejector lever, follow these steps to install it:
   a. Rotate out the ejector lever, as shown by callout 1 in Figure2-41.
   b. Gently push the expansion card into the slot along the guide rails until the expansion card has good contact with the chassis. See callout 2 in Figure2-41.
   c. Rotate in the ejector lever, as shown by callout 3 in Figure2-41.
   d. Use a Phillips screwdriver to tighten the captive screws on the expansion card to secure it in the slot. See callout 4 in Figure2-41.
5. If the expansion card does not have an ejector lever, follow these steps to install it:
   a. Gently push the expansion card into the slot along the guide rails until the expansion card has good contact with the chassis. See callout 1 Figure2-42.
   b. Use a Phillips screwdriver to tighten the captive screws on the expansion card to secure it in the slot. See callout 2 Figure2-42.

Figure2-41 Installing an expansion card with an ejector lever (LSWM2SP2PM)
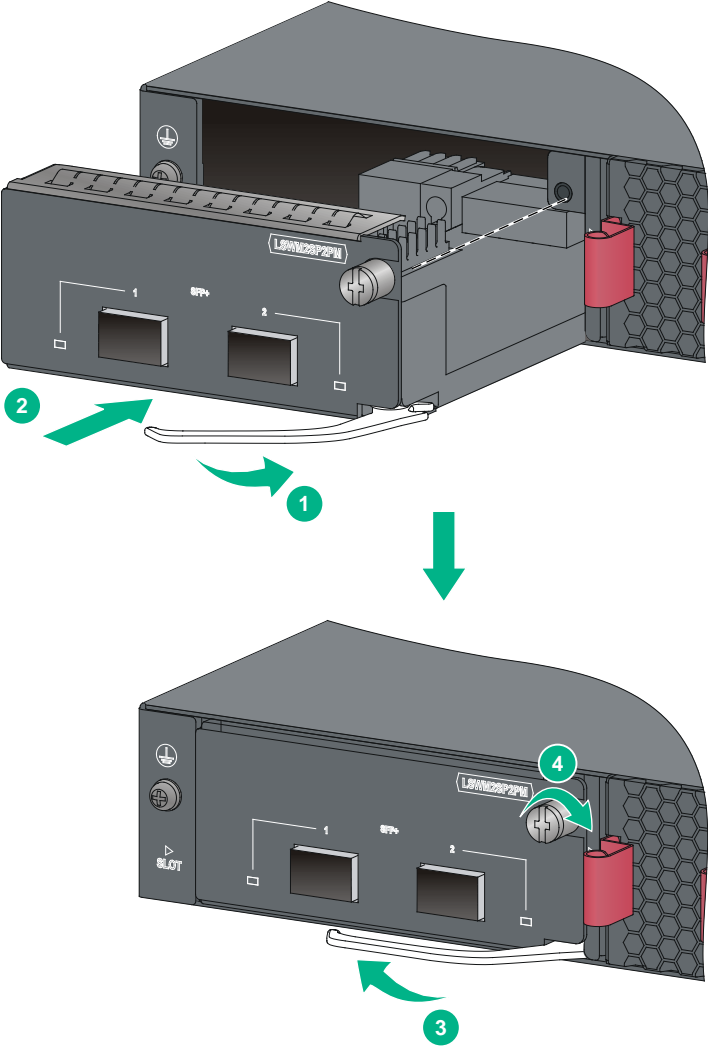
Figure2-42 Installing an expansion card without an ejector lever (LSPM6FWD)
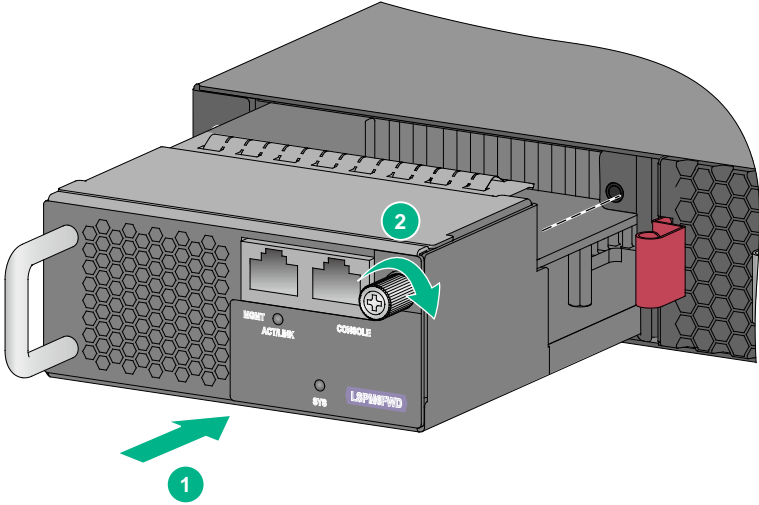
Figure2-43 LSPM6FWD firewall card installed in the switch
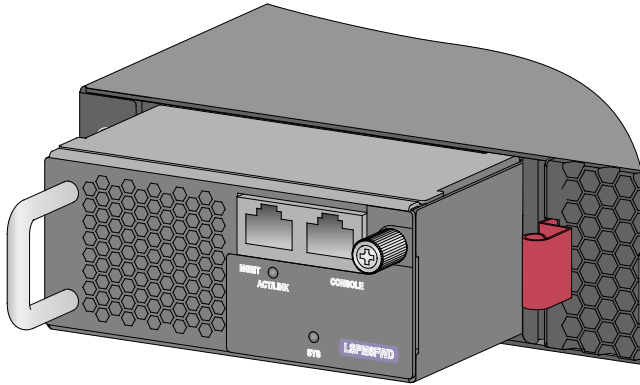
NOTE:

An LSPM6FWD or LSPM6FWD8 firewall card (including its handle) adds 75 mm (2.95 in) to the chassis depth when installed on the device.

Removing an expansion card

1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.
2. Use a Phillips screwdriver to remove the captive screw on the expansion card.
3. (Optional.) If the expansion card has an ejector lever, rotate out the ejector lever.

   Skip this step if the expansion card does not have an ejector lever.
4. Gently pull the expansion card out of the chassis along the guide rails.
5. If you are not to install a new expansion card after removing the original one, install a filler panel in the slot to prevent dust and ensure good ventilation in the switch.

Verifying the installation

After you complete the installation, verify the following information:

- There is enough space for heat dissipation around the switch, and the rack or workbench is stable.
- The grounding cable is securely connected.
- The correct power source is used.
- The power cords are correctly connected.
- All the interface cables are cabled indoors. If any cable is routed outdoors, verify that the socket strip with lightning protection and lightning arresters for network ports have been correctly connected.

3 Accessing the switch for the first time

Connecting the switch to a configuration terminal

You can connect the switch to a configuration terminal by using the serial console port or the micro USB console port. Only the micro USB console port takes effect if you connect both the serial console port and micro USB console port.

In Figure3-1, the switch is connected to a configuration terminal (PC as an example) from the serial console port.

Figure3-1 Connecting the switch to a configuration terminal
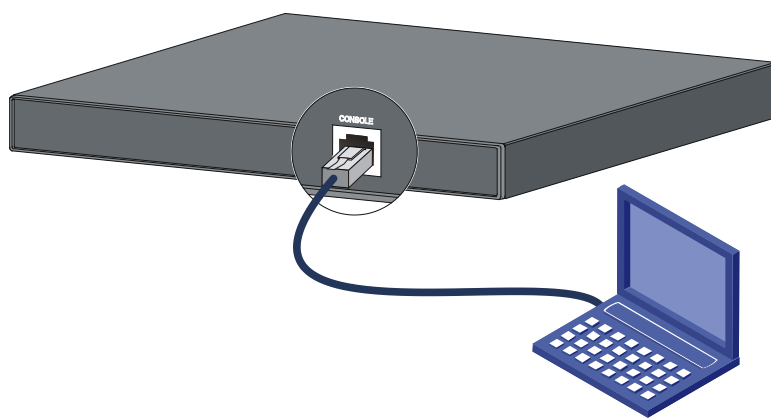
As shown in Table3-1, three console cables can be used for connecting the switch to a configuration terminal. As a best practice, use a serial console cable for connection. The switch is not provided with a serial console cable or a micro USB console cable. Prepare an H3C console cable or prepare a micro USB console cable yourself.

Table3-1 Connection methods and console cables

Connection method	Console cable type	Configuration terminal-side connector	Switch-side connector
Using the serial console port for connection	DB9-to-RJ45 console cable	DB-9 female connector	RJ-45 connector
	USB-to-RJ45 console cable	USB connector	RJ-45 connector
Using the micro USB console port for connection	Micro USB console cable	USB connector	Micro USB connector

Connecting a DB9-to-RJ45 console cable

> △ **CAUTION:**
>
> Follow these guidelines when you connect a DB9-to-RJ45 console cable:
>
> - Identify the mark on the serial console port and make sure you are connecting to the correct port.
> - The serial ports on PCs do not support hot swapping. To connect a PC to an operating switch, first connect the PC end. To disconnect a PC from an operating switch, first disconnect the switch end.

A DB9-to-RJ45 serial console cable is an 8-core shielded cable, with a crimped RJ-45 connector at one end for connecting to the serial console port of the switch, and a DB-9 female connector at the other end for connecting to the serial port on the console terminal.

Figure3-2 DB9-to-RJ45 console cable
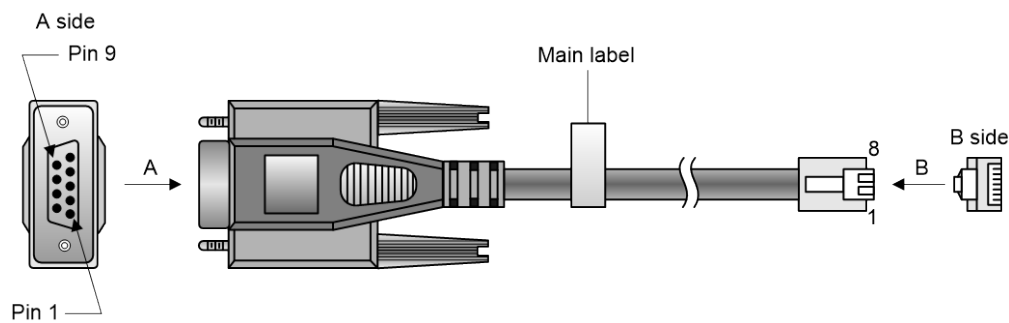
Table3-2 DB9-to-RJ45 console cable signal pinout

RJ-45	Signal	DB-9	Signal
1	RTS	8	CTS
2	DTR	6	DSR
3	TXD	2	RXD
4	SG	5	SG
5	SG	5	SG
6	RXD	3	TXD
7	DSR	4	DTR
8	CTS	7	RTS

To connect to a configuration terminal (for example, a PC) through a DB9-to-RJ45 console cable:

1. Plug the DB-9 female connector of the DB9-to-RJ45 console cable to the serial port on the PC.
2. Connect the RJ-45 connector to the serial console port on the switch.

Connecting a USB-to-RJ45 console cable

> **! IMPORTANT:**
> - To use a USB-to-RJ45 console cable to connect the switch to a configuration terminal, first download and install the USB-to-RJ45 console driver on the configuration terminal and then connect the USB-to-RJ45 console cable to the configuration terminal.
> - If you have connected a USB-to-RJ45 console cable to the configuration terminal before driver installation, you must remove and reconnect the USB-to-RJ45 console cable to the configuration terminal.

Figure3-3 USB-to-RJ45 console cable
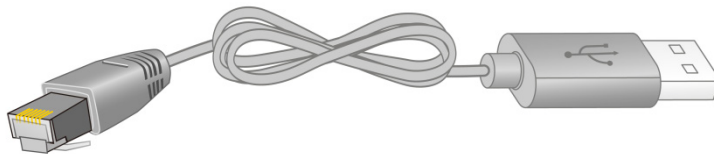
The following installs the driver on the Windows system. To install the driver on other operating systems, see the installation guide in the driver compression package named by the corresponding operating system.

To connect the switch to the configuration terminal through a USB-to-RJ45 console cable:

1. Click the following link, or copy it to the address bar on your browser and download the USB-to-RJ45 console driver.

   http://www.h3c.com/en/home/USB_to_RJ45_Console/

2. View the TXT file **Read me** in the Windows folder to check whether the Windows system of the configuration terminal supports the driver.

3. If the Windows system supports the driver, install **PL23XX-M_LogoDriver_Setup_v200_20190815.exe**.

4. Click **Next** on the welcome page of the driver installation wizard.

Figure3-4 Driver installation wizard
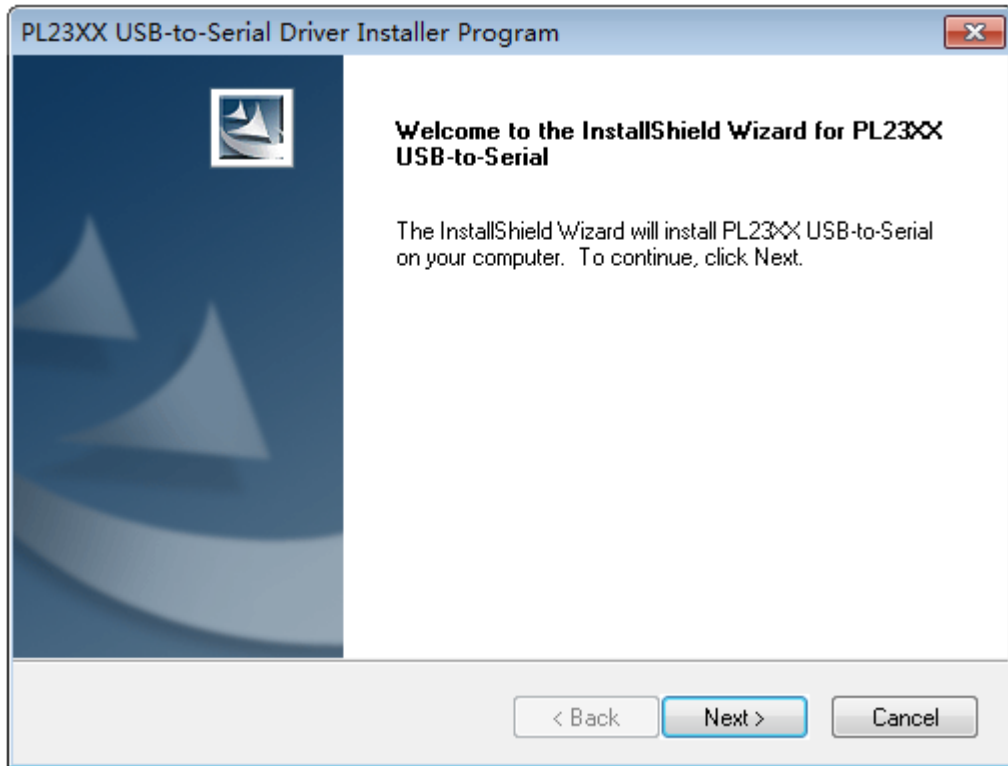
5.   Click **Finish** after the drive installation is completed.

Figure3-5 Finishing the driver installation
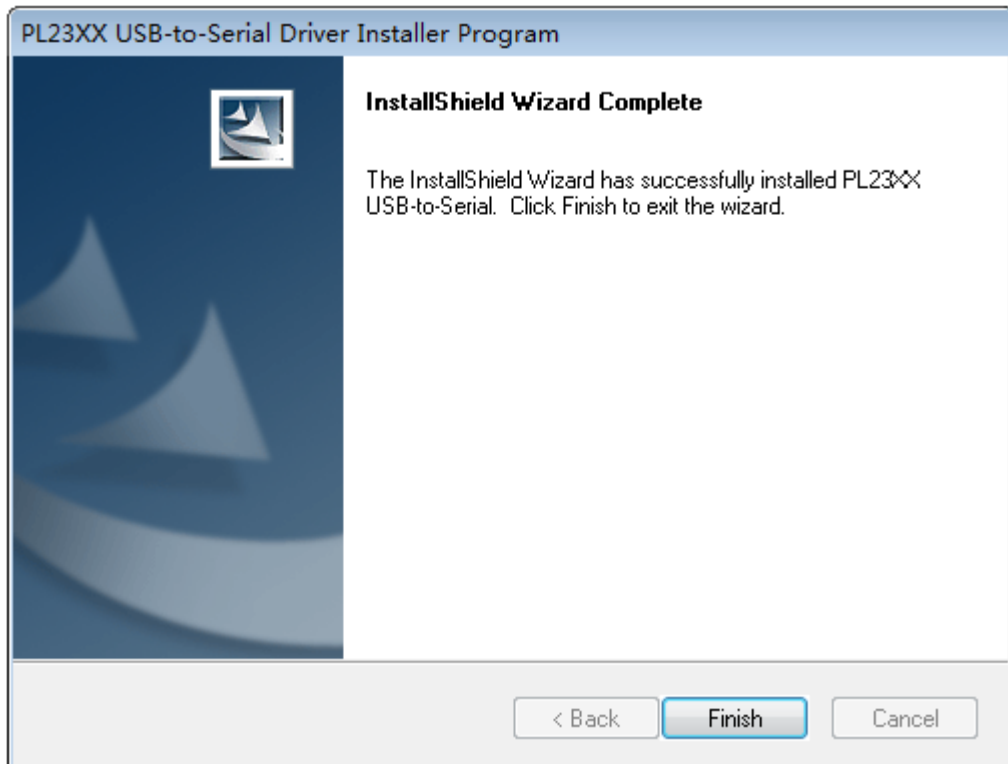
6.   Connect the standard USB connector of the cable to the USB port of the configuration terminal.

7. Connect the RJ-45 connector of the cable to the console port of the switch.

Connecting a micro USB console cable

A micro USB console cable has a micro USB Type B connector at one end to connect to the micro USB console port of the switch, and a standard USB Type A connector at the other end to connect to the USB port on the configuration terminal.

Figure3-6 Micro USB console cable
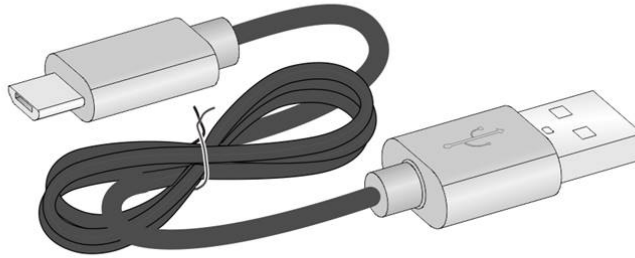
To connect to the PC through the micro USB console cable:

1. Connect the standard USB Type A connector to the USB port of the PC.

2. Connect the micro USB Type B connector to the micro USB console port of the switch.

3. Click the following link, or copy it to the address bar on the browser to log in to download and install the USB console driver on the configuration terminal.

http://www.h3c.com/en/home/USB_Console/

4. Select a driver program according to the operating system you use:

   ○ **XR21V1410_XR21B1411_Windows_Ver1840_x86_Installer.EXE**—32-bit operating system.

   ○ **XR21V1410_XR21B1411_Windows_Ver1840_x64_Installer.EXE**—64-bit operating system.

5. Click **Next** on the installation wizard.

Figure3-7 Device Driver Installation Wizard

6.   Click **Continue Anyway** if the following dialog box appears.

Figure3-8 Software Installation
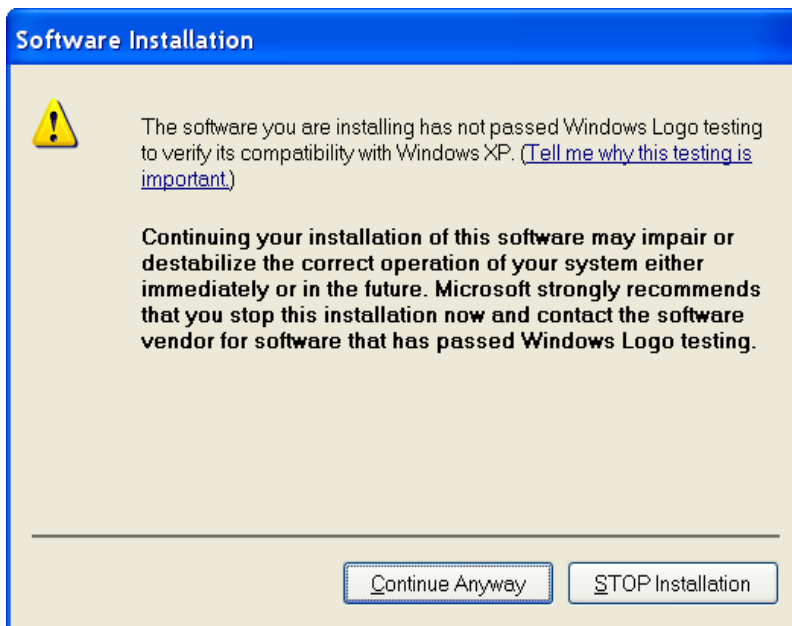
7.   Click **Finish**.

Figure3-9 Completing the device driver installation wizard
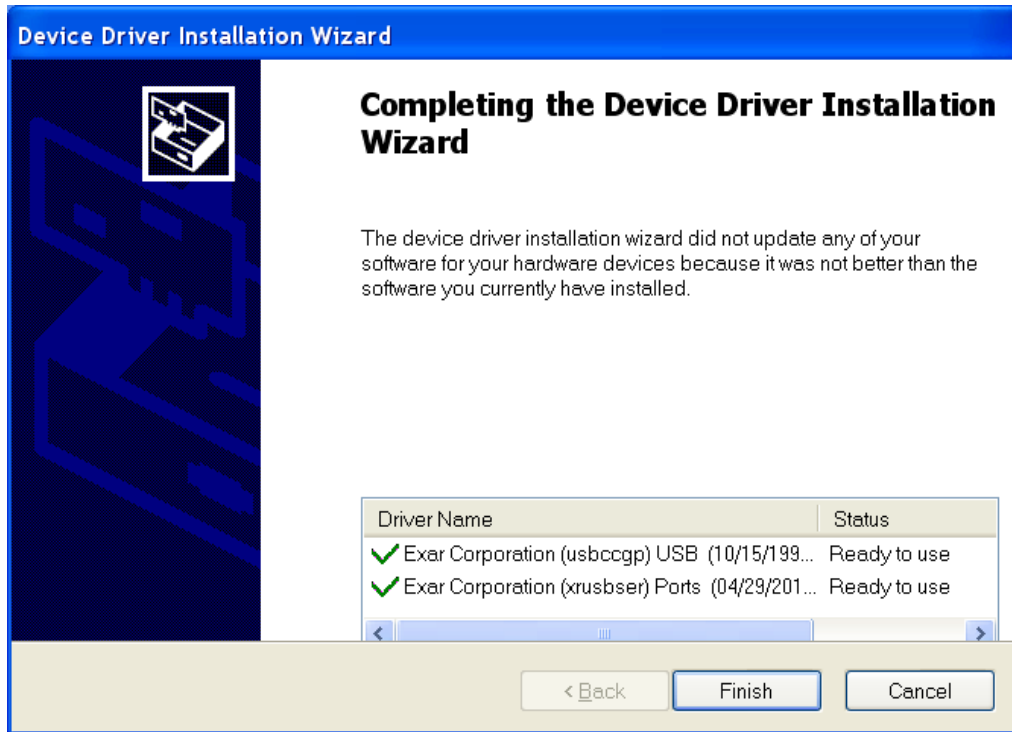
Setting terminal parameters

To configure and manage the switch through the console port, you must run a terminal emulator program, such as TeraTermPro, on your configuration terminal. You can use the emulator program to connect a network device, a Telnet site, or an SSH site. For more information about the terminal emulator programs, see the user guides for these programs.

Configure the terminal parameters as follows:

- **Bits per second**—9,600.
- **Data bits**—8.
- **Parity**—None.
- **Stop bits**—1.
- **Flow control**—None.

Powering on the switch

Before powering on the switch, verify that the following conditions are met:

- The power cord is correctly connected.
- The input power voltage meets the requirement of the switch.
- The console cable is correctly connected.
- The PC has started, and its serial port settings are consistent with the console port settings on the switch.

Power on the switch. During the startup process, you can access Boot ROM menus to perform tasks such as software upgrade and file management. The Boot ROM interface and menu options differ

with software versions. For more information about Boot ROM menu options, see the software-matching release notes for the device.

After the startup completes, you can access the CLI to configure the switch.

For more information about the configuration commands and CLI, see *H3C S5560X-EI Switch Series Configuration Guides* and *H3C S5560X-EI Switch Series Command References*.

4 Setting up an IRF fabric

You can use H3C IRF technology to connect and virtualize S5560X-EI switches into a large virtual switch called an "IRF fabric" for flattened network topology, and high availability, scalability, and manageability.

IRF fabric setup flowchart

Figure4-1 IRF fabric setup flowchart

```
                    ┌──────────────┐
                    │    Start     │
                    └──────┬───────┘
                           │
                    ◁──────┴───────▷
                    Plan IRF fabric setup
                    ◁──────┬───────▷
                           │
                    ┌──────┴───────┐
                    │ Install IRF  │
                    │ member       │
                    │ switches     │
                    └──────┬───────┘
                           │
                    ┌──────┴───────────┐
                    │ Connect the      │
                    │ grounding cable  │
                    │ and power cords  │
                    └──────┬───────────┘
                           │
                    ┌──────┴───────────┐
                    │ Power on the     │
                    │ switches         │
                    └──────┬───────────┘
                           │
                    ┌──────┴───────────┐
                    │ Configure basic  │
                    │ IRF settings     │
                    └──────┬───────────┘
                           │
                    ┌──────┴───────────┐
                    │ Connect the      │
                    │ physical IRF     │
                    │ ports            │
                    └──────┬───────────┘
                           │
                    ┌──────┴───────────────┐
                    │ Standby switches     │
                    │ reboot and the IRF   │
                    │ fabric is            │
                    │ automatically        │
                    │ established          │
                    └──────┬───────────────┘
                           │
                    ┌──────┴───────┐
                    │     End      │
                    └──────────────┘
```
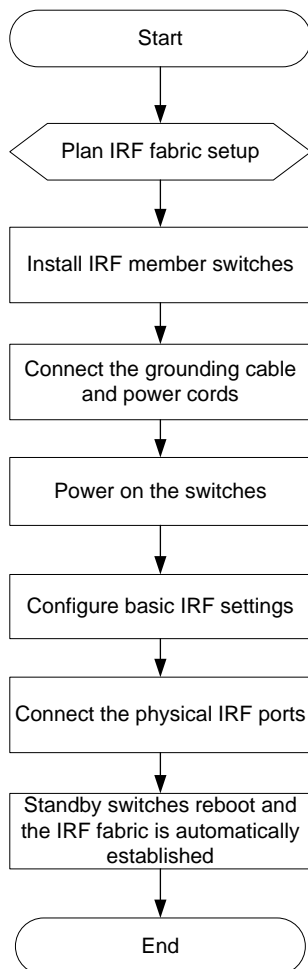
To set up an IRF fabric:

Step	Description
1. Plan IRF fabric setup	Plan the installation site and IRF fabric setup parameters: • Planning IRF fabric size and the installation site • Identifying the master switch and planning IRF member IDs • Planning IRF topology and connections • Identifying physical IRF ports on the member switches • Planning the cabling scheme

Step		Description
2.	Install IRF member switches	See "Installing the switch in a 19-inch rack" or "Mounting the switch on a workbench."
3.	Connect ground wires and power cords	See "Grounding the switch" and "Connecting the power cord."
4.	Power on the switches	N/A
5.	Configure basic IRF settings	See *H3C S5560X-EI Switch Series IRF Configuration Guide* or *H3C S5560X-EI Switch Series Virtual Technologies Configuration Guide*, depending on the software version.
6.	Connect the physical IRF ports	Connect physical IRF ports on switches. All switches except the master switch automatically reboot, and the IRF fabric is established.

Planning IRF fabric setup

This section describes issues that an IRF fabric setup plan must cover.

Planning IRF fabric size and the installation site

Choose switch models and identify the number of required IRF member switches, depending on the user density and upstream bandwidth requirements. The switching capacity of an IRF fabric equals the total switching capacities of all member switches.

Plan the installation site depending on your network solution, as follows:

- Place all IRF member switches in one rack for centralized high-density access.
- Distribute the IRF member switches in different racks to implement the ToR access solution for a data center.

NOTE:

For the maximum IRF member devices supported by the S5560X-EI, see the release notes that come with the switch.

Identifying the master switch and planning IRF member IDs

Determine which switch you want to use as the master for managing all member switches in the IRF fabric.

An IRF fabric has only one master switch. You configure and manage all member switches in the IRF fabric at the CLI of the master switch. IRF member switches automatically elect a master.

You can affect the election result by assigning a high member priority to the intended master switch. For more information about master election, see *H3C S5560X-EI Switch Series IRF Configuration Guide* or *H3C S5560X-EI Switch Series Virtual Technologies Configuration Guide*, depending on the software version.

Prepare an IRF member ID assignment scheme. An IRF fabric uses member IDs to uniquely identify and manage its members, and you must assign each IRF member switch a unique member ID.

Planning IRF topology and connections

You can create an IRF fabric in daisy chain topology or more reliable ring topology. In ring topology, the failure of one IRF link does not cause the IRF fabric to split as in daisy chain topology. Instead, the IRF fabric changes to a daisy chain topology without interrupting network services.

You connect the IRF member switches through IRF ports, the logical interfaces for the connections between IRF member switches. Each IRF member switch has two IRF ports: IRF-port 1 and IRF-port 2. To use an IRF port, you must bind a minimum of one physical port to it.

When connecting two neighboring IRF member switches, you must connect the physical ports of IRF-port 1 on one switch to the physical ports of IRF-port 2 on the other switch.

The S5560X-EI switches provide 5-GE/10-GE/25-GE/40-GE IRF connections through multiple types of ports (see Table4-1 for the port types). You can bind several IRF physical ports to an IRF port for increased bandwidth and availability.

Figure4-2 and Figure4-3 show the topologies of an IRF fabric made up of three S5560X-30C-EI switches. The IRF port connections in the two figures are for illustration only, and more connection methods are available.

Figure4-2 IRF fabric in daisy chain topology
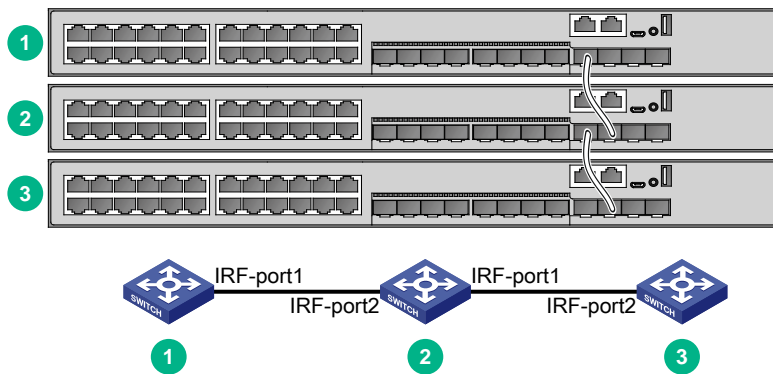
Figure4-3 IRF fabric in ring topology
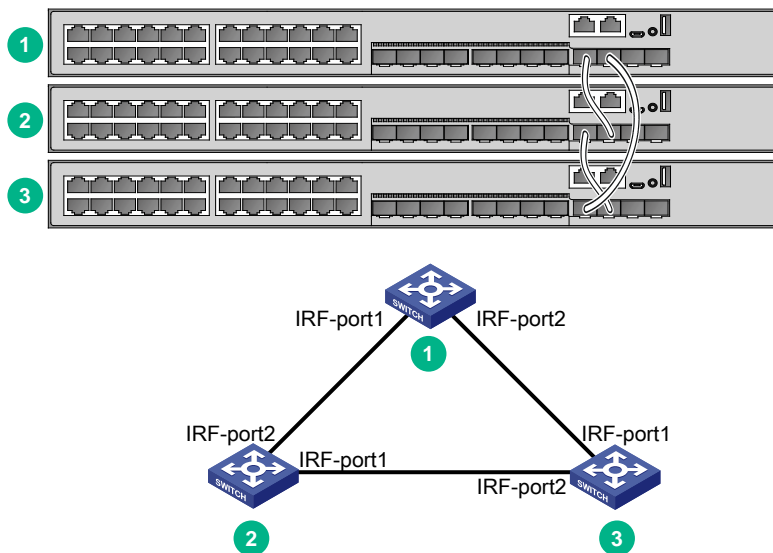
Identifying physical IRF ports on the member switches

Identify the physical IRF ports on the member switches according to your topology and connection scheme.

Table4-1 shows the physical ports that can be used for IRF connection and the port use restrictions.

Table4-1 Physical IRF port requirements

Chassis	Candidate physical IRF ports	Requirements
S5560X-34S-EI S5560X-54S-EI	• Four SFP+ ports on the front panel • Two QSFP+ ports on the rear panel	• All physical ports to be bound to an IRF port must have the same data rate. • Physical ports on interface cards and the front panel can be bound to the same IRF port. • If a QSFP+ port is split into four virtual SFP+ ports, the QSFP+ port cannot be used as a physical IRF port.

S5560X-30C-EI
S5560X-30C-PWR-EI
S5560X-54C-EI
S5560X-54C-PWR-EI
S5560X-30F-EI
S5560X-54F-EI
	• Four fixed SFP+ ports on the front panel
	• Ports on the interface cards on the rear panel:
	  ○ 1/10GBASE-T autosensing Ethernet ports
	  ○ 5G/2.5G/1000BASE-T autosensing Ethernet ports
	  ○ 10G/5G/2.5G/1000BASE-T autosensing Ethernet ports
	  ○ SFP+ ports
	  ○ SFP28 ports
	  ○ QSFP+ ports	

S5560X-30F-EIF	All SFP+ ports and QSFP+ ports on the front panel	

Planning the cabling scheme

The cables available for connecting two peer IRF physical ports vary by port type:

- **1/10GBASE-T, 5G/2.5G/1000BASE-T, and 10G/5G/2.5G/1000BASE-T autosensing Ethernet ports**—For the available cables, see ports in *Hardware Information and Specifications*.
- **SFP+ ports**—SFP+ transceiver modules and optical fibers or SFP+ cables. For the available transceiver modules and cables, see ports in *Hardware Information and Specifications*.
- **SFP28 ports**—SFP28 transceiver modules and optical fibers or SFP28 cables. For the available transceiver modules and cables, see ports in *Hardware Information and Specifications*.
- **QSFP+ ports**—QSFP+ transceiver modules and optical fibers or QSFP+ cables. For the available transceiver modules and cables, see ports in *Hardware Information and Specifications*.

For a short-distance IRF connection in an equipment room, use a twisted-pair cable, SFP+ cable, SFP28 cable, or QSFP+ cable.

For a long-distance IRF connection, use SFP+/SFP28/QSFP+ transceiver modules and optical fibers.

The following subsections describe several H3C recommended IRF connection schemes. All these schemes use a ring topology.

Connecting the IRF member switches in one rack

Use twisted pair/SFP+/SFP28/QSFP+ cables to connect the IRF member switches (9 switches in this example) in a rack as shown in Figure4-4. The switches in the ring topology (see Figure4-5) are in the same order as connected in the rack.

Figure4-4 Connecting the switches in one rack
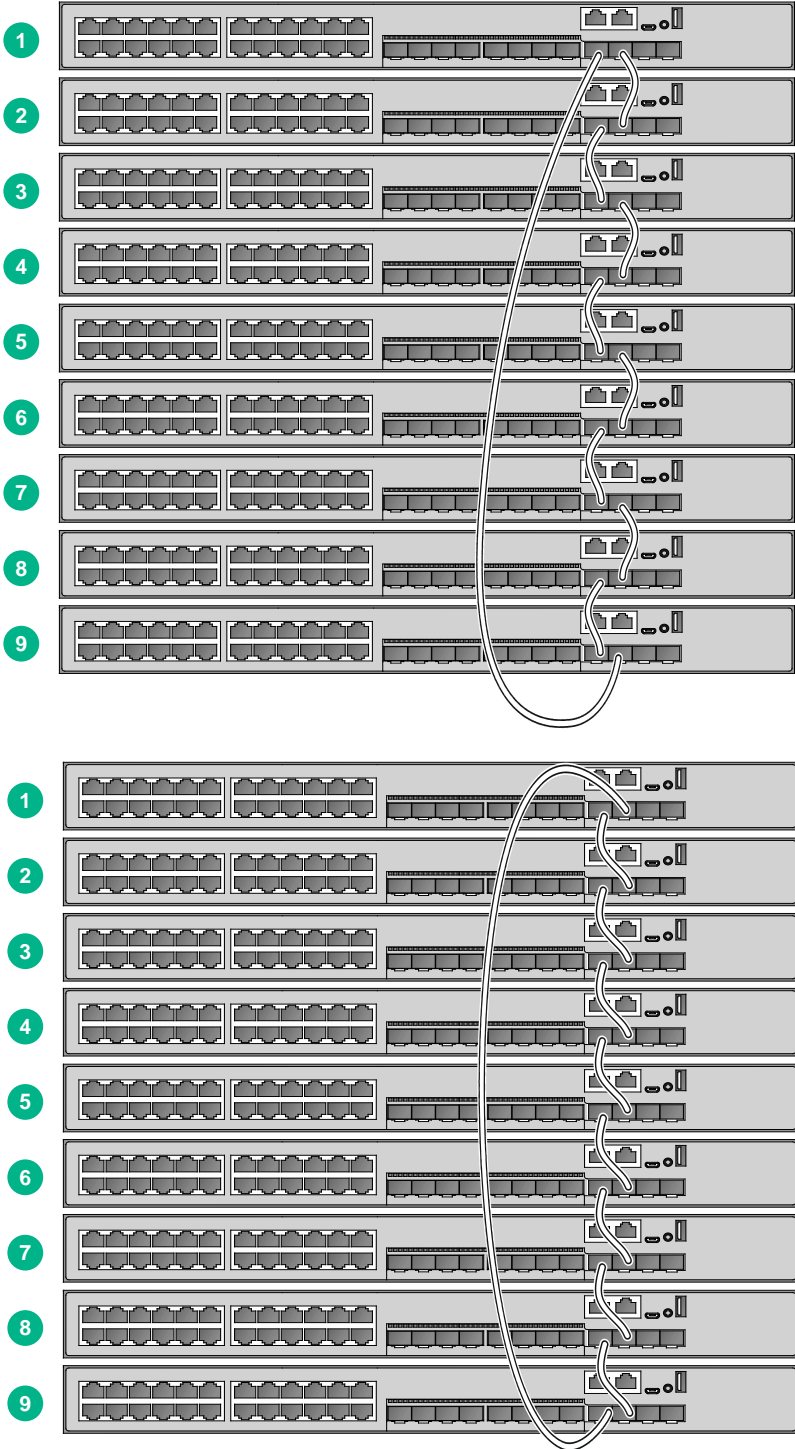
Figure4-5 IRF fabric topology
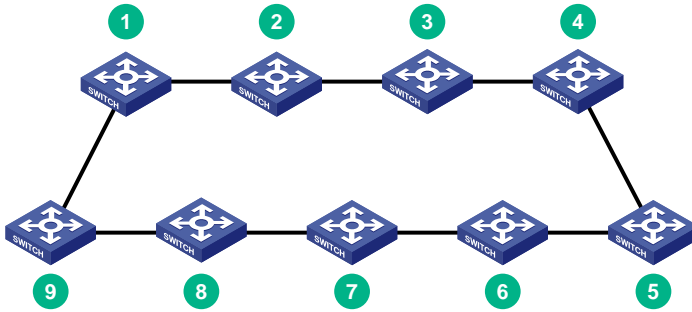
Connecting the IRF member switches in a ToR solution

You can install IRF member switches in different racks side by side to deploy a top of rack (ToR) solution.

Figure4-6 shows an example for connecting 9 top of rack IRF member switches by using SFP+/ SFP28/QSFP+ transceiver modules and optical fibers. The topology is the same as Figure4-5.

Figure4-6 ToR cabling
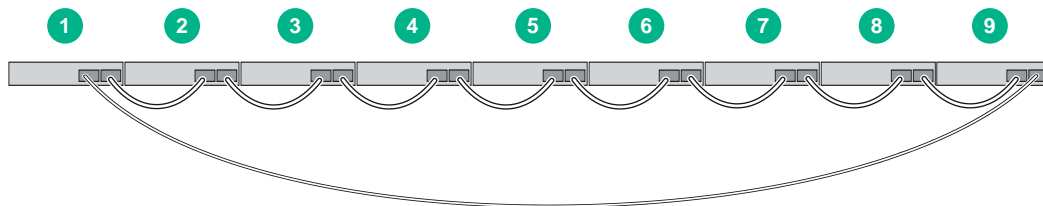
Configuring basic IRF settings

After you install the IRF member switches, power on the switches, and log in to each IRF member switch (see *H3C S5560X-EI Switch Series Fundamentals Configuration Guide*) to configure their member IDs, member priorities, and IRF port bindings.

Follow these guidelines when you configure the switches:

- Assign the master switch higher member priority than any other switch.

- Bind physical ports to IRF port 1 on one switch and to IRF port 2 on the other switch. You perform IRF port binding before or after connecting IRF physical ports depending on the software release.

- To bind the ports on an interface card to an IRF port, you must install the interface card first. For how to install an interface card, see *H3C S5560X-EI Switch Series Interface Cards User Guide*.

- Execute the `display irf configuration` command to verify the basic IRF settings.

For more information about configuring basic IRF settings, see *H3C S5560X-EI Switch Series IRF Configuration Guide* or *H3C S5560X-EI Switch Series Virtual Technologies Configuration Guide*, depending on the software version.

Connecting the physical IRF ports

Use twisted pair/SFP+/SFP28/QSFP+ cables, or SFP+/SFP28/QSFP+ transceiver modules and fibers to connect the IRF member switches as planned.

Wear an ESD wrist strap when you connect twisted pair/SFP+/SFP28/QSFP+ cables or SFP+/SFP28/QSFP+ transceiver modules and fibers. For the connection methods and precautions, see *H3C Transceiver Modules and Network Cables Installation Guide.*

Verifying the IRF fabric setup

To verify the basic functionality of the IRF fabric after you finish configuring basic IRF settings and connecting IRF ports:

1. Log in to the IRF fabric through the console port of any member switch.
2. Create a Layer 3 interface, assign it an IP address, and make sure the IRF fabric and the remote network management station can reach each other.
3. Use Telnet, web, or SNMP to access the IRF fabric from the network management station. (See *H3C S5560X-EI Switch Series Fundamentals Configuration Guide.*)
4. Verify that you can manage all member switches as if they were one node.
5. Display the running status of the IRF fabric by using the commands in Table4-2.

Table4-2 Displaying and maintaining IRF configuration and running status

Task	Command
Display information about the IRF fabric.	`display irf`
Display all members' IRF configurations that take effect at a reboot.	`display irf configuration`
Display IRF fabric topology information.	`display irf topology`

NOTE:

To avoid IP address collision and network problems, configure a minimum of one multi-active detection (MAD) mechanism to detect the presence of multiple identical IRF fabrics and handle collisions. For more information about MAD detection, see *H3C S5560X-EI Switch Series IRF Configuration Guide* or *H3C S5560X-EI Switch Series Virtual Technologies Configuration Guide*, depending on the software version.

5 Maintenance and troubleshooting

Fixed power module failure

The S5560X-30F-EIF, S5560X-34S-EI, and S5560X-54S-EI switches use fixed power modules and support AC power input, DC power input, and concurrent AC and DC power inputs.

- **S5560X-34S-EI and S5560X-54S-EI switches**—To identify a fixed power module failure, examine the system status LED and the RPS status LED on the switch.
- **S5560X-30F-EIF switch**—To identify a fixed power module failure, examine the system status LED, AC power input status LED, and DC power input status LED.

Table5-1 Description of LEDs for fixed power modules

LED	Mark	Status	Description
System status LED	SYS	Off	The switch is powered off.
RPS status LED	RPS	Steady green	Both the DC input and the AC input are normal.
		Steady yellow	Normal DC input, no or abnormal AC input.
		Off	No or abnormal DC input.
AC input power status LED	AC PWR	Steady green	Normal AC input.
		Off	No or abnormal AC input.
DC input power status LED	DC PWR	Steady green	Normal DC input.
		Off	No or abnormal DC input.

AC input failure

Symptom

The switch uses only AC power input. The system status LED is off.

Solution

To resolve the issue:

1. Verify that the AC power cord connects the switch to an AC power source correctly, and the AC power receptacle on the switch and the AC power outlet are in good condition.
2. Verify that the AC power source is operating correctly.
3. Verify that the ambient temperature of the switch is in the acceptable range and ensure good ventilation for the power module. Overtemperature can cause the power module to stop working and enter the protection state.
4. If the issue persists, contact H3C Support.

DC input failure

Symptom

The switch uses only DC power input. The system status LED is off.

Solution

To resolve the issue:

1. Verify that the switch is connected correctly to the DC power source.
2. Verify that the DC power source is operating correctly.
3. Verify that the ambient temperature of the switch is in the acceptable range and ensure good ventilation for the power module. Overtemperature can cause the power module to stop working and enter the protection state.
4. If the issue persists, contact H3C Support.

AC and DC concurrent input failure

Symptom 1

The switch uses concurrent AC and DC power inputs. The system status LED is off.

Solution

To resolve the issue:

1. Verify that the AC power cord connects the switch to the power source correctly, and the AC-input power receptacle on the switch and the AC power outlet are in good condition.
2. Verify that the AC power source is operating correctly.
3. Verify that the switch is connected correctly to the DC power source.
4. Verify that the DC power source is operating correctly.
5. Verify that the ambient temperature of the switch is in the acceptable range and ensure good ventilation for the power module. Overtemperature can cause the power module to stop working and enter the protection state.
6. If the issue persists, contact H3C Support.

Symptom 2

- On an S5560X-30F-EIF switch that uses concurrent AC and DC power inputs, the system status LED is on, the DC PWR LED is steady green, but the AC PWR LED is off.
- On an S5560X-34S-EI or S5560X-54S-EI switch that uses concurrent AC and DC power inputs, the system status LED is on but the RPS status LED is steady yellow.

Solution

To resolve the issue:

1. Verify that the AC power cord is securely connected to the switch, and the AC-input power receptacle on the switch and the connected AC power outlet are in good condition.
2. Verify that the AC power source is operating correctly.
3. Verify that the ambient temperature of the switch is in the acceptable range.
4. If the issue persists, contact H3C Support.

Symptom 3

- On an S5560X-30F-EIF switch that uses concurrent AC and DC power inputs, the system status LED is on, the AC PWR LED is steady green, but the DC PWR LED is off.
- On an S5560X-34S-EI or S5560X-54S-EI switch that uses concurrent AC and DC power inputs, the system status LED is on but the RPS status LED is off.

Solution

To resolve the issue:

1. Verify that the switch is connected to the DC power source correctly.
2. Verify that the DC power source is operating correctly.

3. Verify that the ambient temperature of the switch is in the acceptable range.

4. If the issue persists, contact H3C Support.

Removable power module failure

Symptom

S5560X-EI switches except the S5560X-34S-EI and S5560X-54S-EI use removable power modules.

- To identify the operating status of a power module on the S5560X-30C-EI, S5560X-54C-EI, S5560X-30F-EI, and S5560X-54F-EI switches, observe the PWR LED on the front panel of the switch. For more information about the power module status LED on the front panel of the switch, see LEDs in *Hardware Information and Specifications*.

- To identify the operating status of a power module on the S5560X-30C-PWR-EI and S5560X-54C-PWR-EI switches, observe the LEDs on the power module and the PWR LED on the front panel of the switch. For more information about the LEDs on a power module, see *H3C PSR360-56A Power Module User Manual, H3C PSR560-56D Power Module User Manual, H3C PSR720-56A Power Module User Manual*, or *H3C PSR1110-56A Power Module User Manual*.

Solution

To resolve the issue:

1. Verify that the power cord is correctly connected.

2. Verify that the power source meets the requirement.

3. Verify that the operating temperature of the switch is in an acceptable range and the power module has good ventilation.

4. If the issue persists, contact H3C Support.

To replace a removable power module, see "Installing/removing a power module."

Fixed fan tray failure

The S5560X-30F-EIF, S5560X-34S-EI, and S5560X-54S-EI switches each use a fixed fan tray. If the fan tray fails, contact H3C Support.

Removable fan tray failure

> ⚠ **WARNING!**
> - If both fan trays fail during switch operation, replace them within 2 minutes.
> - If one fan tray fails, perform either of the following tasks:
>   - If the ambient temperature is not higher than 27°C (80.6°F), replace the fan tray within 24 hours and make sure the failed fan tray remains in position before the replacement.
>   - If the ambient temperature is higher than 27°C (80.6°F), replace the fan tray immediately.

The S5560X-EI switches except the S5560X-34S-EI and S5560X-54S-EI use removable fan trays. If a fan tray fails, see "Installing/removing a fan tray" to replace the fan tray.

Configuration terminal display problems

If the configuration environment setup is correct, the configuration terminal displays booting information when the switch is powered on. If the setup is incorrect, the configuration terminal displays nothing or garbled text.

No display

Symptom

The PC displays nothing when the switch is powered on.

Solution

To resolve the issue:

1. Verify that the power module is supplying power to the switch.
2. Verify that the console cable is correctly connected.
3. Verify that the console cable does not have any problems and the PC settings are correct.
4. If the issue persists, contact H3C Support.

Garbled display

Symptom

The display on the PC is garbled.

Solution

To resolve the issue:

1. Verify that the following settings are configured for the terminal:
   o **Baud rate**—9,600.
   o **Data bits**—8.
   o **Stop bits**—1.
   o **Parity**—None.
   o **Flow control**—None.
2. If the issue persists, contact H3C Support.

1 Product models and technical specifications

Product models

H3C S5560X-EI switch series includes the following models:

- S5560X-30C-EI
- S5560X-30C-PWR-EI
- S5560X-54C-EI
- S5560X-54C-PWR-EI
- S5560X-30F-EI
- S5560X-30F-EIF
- S5560X-54F-EI
- S5560X-34S-EI
- S5560X-54S-EI

Technical specifications

Non-PoE switch models

Table1-1 Technical specifications for non-PoE switch models (1)

Item	S5560X-30C-EI	S5560X-54C-EI	S5560X-30F-EI	S5560X-54F-EI
Dimensions (H × W × D)	43.6 × 440 × 360 mm (1.72 × 17.32 × 14.17 in)	43.6 × 440 × 360 mm (1.72 × 17.32 × 14.17 in)	43.6 × 440 × 360 mm (1.72 × 17.32 × 14.17 in)	43.6 × 440 × 360 mm (1.72 × 17.32 × 14.17 in)
Weight	≤ 6.7 kg (14.77 lb)	≤ 7.0 kg (15.43 lb)	≤ 6.6 kg (14.55 lb)	≤ 6.7 kg (14.77 lb)
Console port	• 1 × micro USB console port • 1 × serial console port Only the micro USB console port is available when you connect both ports.			
USB port	1	1	1	1
Management Ethernet port	1	1	1	1
SFP+ port	4	4	4	4
SFP port	8 (Each and its corresponding 10/100/1000BASE-T port form a combo interface.)	N/A	24 (The rightmost eight SFP ports and their corresponding 10/100/1000BASE-T autosensing Ethernet ports form combo interfaces.)	48
10/100/1000 BASE-T	24	48	8 (Each and its corresponding SFP	N/A

Item	S5560X-30C-EI	S5560X-54C-EI	S5560X-30F-EI	S5560X-54F-EI
autosensing Ethernet port			port form a combo interface.)	
Expansion slot	1, on the rear panel	1, on the rear panel	1, on the rear panel	1, on the rear panel
Power module slot	2, on the rear panel	2, on the rear panel	2, on the rear panel	2, on the rear panel
Fan tray slot	2, on the rear panel	2, on the rear panel	2, on the rear panel	2, on the rear panel
Input voltage	- AC input for the PSR150-A1 or PSR150-A2 power module: - Rated voltage range: 100 VAC to 240 VAC @ 50 Hz or 60 Hz - Max voltage range: 90 VAC to 264 VAC @ 47 Hz to 63 Hz - DC input for the PSR150-D1 power module: You can use a –48 VDC power source in the equipment room or an RPS (RPS800-A or RPS1600-A). - Rated voltage range: –48 VDC to –60 VDC - Max voltage range: –36 VDC to –72 VDC\			
Minimum power consumption	- Single AC input: 24 W - Single DC input: 24 W - Dual AC inputs: 29 W - Dual DC inputs: 28 W	- Single AC input: 27 W - Single DC input: 24 W - Dual AC inputs: 31 W - Dual DC inputs: 29 W	- Single AC input: 24 W - Single DC input: 24 W - Dual AC inputs: 29 W - Dual DC inputs: 30 W	- Single AC input: 30 W - Single DC input: 30 W - Dual AC inputs: 37 W - Dual DC inputs: 36 W
Maximum power consumption	- Single AC input: 87 W - Single DC input: 88 W - Dual AC inputs: 91 W - Dual DC inputs: 95 W	- Single AC input: 88 W - Single DC input: 89 W - Dual AC inputs: 93 W - Dual DC inputs: 96 W	- Single AC input: 112 W - Single DC input: 113 W - Dual AC inputs: 116 W - Dual DC inputs: 122 W	- Single AC input: 130 W - Single DC input: 132 W - Dual AC inputs: 134 W - Dual DC inputs: 140 W
Chassis leakage current compliance	UL 62368-1/EN 62368-1/IEC 62368-1/UL 60950-1/EN 60950-1/IEC 60950-1/GB4943.1			
Melting current of power module fuse	- PSR150-A1/PSR150-A2 power module: 5 A, 250 V - PSR150-D1 power module: 8 A, 250 V			
Operating temperature	-5°C to 45°C (23°F to 113°F)			
Humidity	5% RH to 95% RH, noncondensing			
Fire resistance compliance	UL 62368-1/EN 62368-1/IEC 62368-1/UL 60950-1/EN 60950-1/IEC 60950-1/GB4943.1			

Table1-2 Technical specifications for non-PoE switch models (2)

Item	S5560X-30F-EIF	S5560X-34S-EI	S5560X-54S-EI
Dimensions (H × W × D)	43.6 × 440 × 220 mm (1.72 × 17.32 × 8.66 in)	43.6 × 440 × 260 mm (1.72 × 17.32 × 10.24 in)	43.6 × 440 × 260 mm (1.72 × 17.32 × 10.24 in)

Item	S5560X-30F-EIF	S5560X-34S-EI	S5560X-54S-EI
Weight	≤ 3.2 kg (7.05 lb)	≤ 3.6 kg (7.94 lb)	≤ 3.9 kg (8.60 lb)
Console port	• 1 × micro USB console port • 1 × serial console port Only the micro USB console port is available when you connect both ports.		
USB port	1	1	1
Management Ethernet port	1	1	1
QSFP+ port	2	2	2
SFP+ port	4	4	4
SFP port	24	4 (Each and its corresponding 10/100/1000BASE-T port form a combo interface)	N/A
10/100/1000BASE-T autosensing Ethernet port	N/A	28	48

Input voltage	• AC input:
	    ○ Rated voltage range: 100 VAC to 240 VAC @ 50 Hz or 60 Hz
	    ○ Max voltage range: 90 VAC to 264 VAC @ 47 Hz to 63 Hz
	• DC input:
	    You can use a –48 VDC power source in the equipment room or an RPS (RPS800-A or RPS1600-A).
	    ○ Rated voltage range: –48 VDC to –60 VDC
	    ○ Max voltage range: –36 VDC to –72 VDC		

Minimum power consumption	• AC: 20 W • DC: 23 W	• AC: 19 W • DC: 19 W	• AC: 22 W • DC: 22 W
Maximum power consumption	• AC: 71 W • DC: 72 W	• AC: 56 W • DC: 57 W	• AC: 66 W • DC: 68 W
Chassis leakage current compliance	UL 62368-1/EN 62368-1/IEC 62368-1/UL 60950-1/EN 60950-1/IEC 60950-1/GB4943.1		
Melting current of power module fuse	• AC: 3.15 A, 250 V • DC: 8 A, 250 V		
Operating temperature	-5°C to 45°C (23°F to 113°F)		
Humidity	5% RH to 95% RH, noncondensing		
Fire resistance compliance	UL 62368-1/EN 62368-1/IEC 62368-1/UL 60950-1/EN 60950-1/IEC 60950-1/GB4943.1		

PoE switch models

Table1-3 Technical specifications for PoE switch models

Item	S5560X-30C-PWR-EI	S5560X-54C-PWR-EI
Dimensions (H × W × D)	43.6 × 440 × 460 mm (1.72 × 17.32 × 18.11 in)	43.6 × 440 × 460 mm (1.72 × 17.32 × 18.11 in)

Item	S5560X-30C-PWR-EI	S5560X-54C-PWR-EI
Weight	≤ 9.2 kg (20.28 lb)	≤ 9.6 kg (21.16 lb)
Console port	• 1 × micro USB console port • 1 × serial console port Only the micro USB console port is available when you connect both ports.	
USB port	1	1
Management Ethernet port	1	1
SFP+ port	4	4
10/100/1000BASE-T autosensing Ethernet port	24	48
Expansion slot	1, on the rear panel	1, on the rear panel
Power module slot	2, on the rear panel	2, on the rear panel
Fan tray slot	2, on the rear panel	2, on the rear panel

Input voltage	• AC input for the PSR360-56A/PSR720-56A power module:
	  ○ Rated voltage range: 100 VAC to 240 VAC @ 50 Hz or 60 Hz
	  ○ Max voltage range: 90 VAC to 264 VAC @ 47 Hz to 63 Hz
	• AC input for the PSR1110-56A power module:
	  ○ Rated voltage range: 115 VAC to 240 VAC @ 50 Hz or 60 Hz
	  ○ Max voltage range: 102.5 VAC to 264 VAC @ 47 Hz to 63 Hz
	• DC input for the PSR560-56D power module:
	  You can use a –48 VDC power source in the equipment room or an RPS (RPS1600-A).
	  ○ Rated voltage range: –48 VDC to –60 VDC
	  ○ Max voltage range: –36 VDC to –72 VDC	

PoE power capacity	Depends on the power module configurations. For more information, see Table1-4.	
Minimum power consumption	• Single AC input: 31 W • Single DC input: 43 W • Dual AC inputs: 31 W • Dual DC inputs: 60 W	• Single AC input: 33 W • Single DC input: 48 W • Dual AC inputs: 40 W • Dual DC inputs: 66 W
Maximum power consumption (including PoE power consumption)	• Single AC input: 926 W • Single DC input: 486 W • Dual AC inputs: 928 W • Dual DC inputs: 876 W	• Single AC input: 1090 W • Single DC input: 502 W • Dual AC inputs: 1742 W • Dual DC inputs: 1003 W
Chassis leakage current compliance	UL 62368-1/EN 62368-1/IEC 62368-1/UL 60950-1/EN 60950-1/IEC 60950-1/GB4943.1	
Melting current of power module fuse	15 A, 250 V	
Operating temperature	-5°C to 45°C (23°F to 113°F)	
Humidity	5% RH to 95% RH, noncondensing	
Fire resistance compliance	UL 62368-1/EN 62368-1/IEC 62368-1/UL 60950-1/EN 60950-1/IEC 60950-1/GB4943.1	

Table1-4 PoE power capacity of the S5560X-30C-PWR-EI and S5560X-54C-PWR-EI switches

Power module configuration	S5560X-30C-PWR-EI		S5560X-54C-PWR-EI	
	Total PoE power capacity	Max PoE power capacity per port	Total PoE power capacity	Max PoE power capacity per port
2 × PSR1110-56A	810 W	30 W	1680 W	30 W
1 × PSR1110-56A and 1 × PSR720-56A	810 W	30 W	1560 W	30 W
1 × PSR1110-56A and 1 × PSR560-56D	810 W	30 W	1440 W	30 W
1 × PSR1110-56A and 1 × PSR360-56A	810 W	30 W	1200 W	30 W
2 × PSR720-56A	810 W	30 W	1200 W	30 W
1× PSR720-56A and 1 × PSR560-56D	810 W	30 W	1200 W	30 W
1 × PSR1110-56A	810 W	30 W	810 W	30 W
2 × PSR560-56D	810 W	30 W	810 W	30 W
1 × PSR720-56A and 1 × PSR360-56A	810 W	30 W	810 W	30 W
1 × PSR560-56D and 1 × PSR360-56A	720 W	30 W	720 W	30 W
1 × PSR720-56A	450 W	30 W	450 W	30 W
2 × PSR360-56A	450 W	30 W	450 W	30 W
1 × PSR560-56D	360 W	30 W	360 W	30 W
1 × PSR360-56A	180 W	30 W	180 W	30 W

2 Chassis views

S5560X-30C-EI

Figure2-1 Front panel

(1) 10/100/1000BASE-T autosensing Ethernet port

(2) 10/100/1000BASE-T autosensing Ethernet port LED

(3) Management Ethernet port	(4) Console port (CONSOLE)
(5) Micro USB console port	(6) Mode button
(7) USB port	(8) System status LED (SYS)
(9) SFP+ port	(10) Mode LED (MODE)
(11) Expansion card status LED (SLOT)	(12) Power module 2 status LED (PWR2)
(13) Power module 1 status LED (PWR1)	(14) SFP+ port LED
(15) Management Ethernet port LED (ACT/LINK)	(16) SFP port LED
(17) SFP port	

Figure2-2 Rear panel

(1) Grounding screw	(2) Fan tray 1
(3) Expansion card	(4) Fan tray 2
(5) Power module 1	(6) Power module 2

The S5560X-30C-EI switch comes with power module slot 1 empty and power module slot 2 installed with a filler panel. You can install one or two power modules for the switch as required. In this figure, two PSR150-A1 AC power modules are installed in the power module slots.

The S5560X-30C-EI switch comes with the two fan tray slots empty. You must install two fan trays of the same model for the switch. In this figure, two LSPM1FANSB fan trays are installed in the fan tray slots.

The S5560X-30C-EI switch comes with a filler panel in the expansion slot. You can select an expansion card for the switch as required. In this figure, an LSWM2SP2PM interface card is installed in the expansion slot.

S5560X-30C-PWR-EI

Figure2-3 Front panel

(1) 10/100/1000BASE-T autosensing Ethernet port	
(2) 10/100/1000BASE-T autosensing Ethernet port LED	
(3) Management Ethernet port	(4) Console port (CONSOLE)
(5) Micro USB console port	(6) Mode button
(7) USB port	(8) System status LED (SYS)
(9) SFP+ port	(10) Mode LED (MODE)
(11) Expansion card status LED (SLOT)	(12) Power module 2 status LED (PWR2)
(13) Power module 1 status LED (PWR1)	(14) SFP+ port LED
(15) Management Ethernet port LED (ACT/LINK)	

Figure2-4 Rear panel

(1) Grounding screw	(2) Fan tray 1
(3) Expansion card	(4) Fan tray 2
(5) Power module 1	(6) Power module 2

The S5560X-30C-PWR-EI switch comes with power module slot 1 empty and power module slot 2 installed with a filler panel. You can install one or two power modules for the switch as required. In this figure, two PSR720-56A AC power modules are installed in the power module slots.

The S5560X-30C-PWR-EI switch comes with the two fan tray slots empty. You must install two fan trays of the same model for the switch. In this figure, two LSPM1FANSB fan trays are installed in the fan tray slots.

The S5560X-30C-PWR-EI switch comes with a filler panel in the expansion slot. You can select an expansion card for the switch as required. In this figure, an LSWM2SP2PM interface card is installed in the expansion slot.

S5560X-54C-EI

Figure2-5 Front panel

(1) 10/100/1000BASE-T autosensing Ethernet port	
(2) 10/100/1000BASE-T autosensing Ethernet port LED	
(3) Management Ethernet port	(4) Console port (CONSOLE)
(5) Micro USB console port	(6) Mode button
(7) USB port	(8) System status LED (SYS)
(9) SFP+ port	(10) Mode LED (MODE)
(11) Expansion card status LED (SLOT)	(12) Power module 2 status LED (PWR2)
(13) Power module 1 status LED (PWR1)	(14) SFP+ port LED
(15) Management Ethernet port LED (ACT/LINK)	

Figure2-6 Rear panel

(1) Grounding screw	(2) Expansion card
(3) Fan tray 1	(4) Fan tray 2
(5) Power module 1	(6) Power module 2

The S5560X-54C-EI switch comes with power module slot 1 empty and power module slot 2 installed with a filler panel. You can install one or two power modules for the switch as required. In this figure, two PSR150-A1 AC power modules are installed in the power module slots.

The S5560X-54C-EI switch comes with the two fan tray slots empty. You must install two fan trays of the same model for the switch. In this figure, two LSPM1FANSB fan trays are installed in the fan tray slots.

The S5560X-54C-EI switch comes with a filler panel in the expansion slot. You can select an expansion card for the switch as required. In this figure, an LSWM2SP2PM interface card is installed in the expansion slot.

S5560X-54C-PWR-EI

Figure2-7 S5560X-54C-PWR-EI front panel

(1) 10/100/1000BASE-T autosensing Ethernet port	
(2) 10/100/1000BASE-T autosensing Ethernet port LED	
(3) Management Ethernet port	(4) Console port (CONSOLE)
(5) Micro USB console port	(6) Mode button
(7) USB port	(8) System status LED (SYS)
(9) SFP+ port	(10) Mode LED (MODE)
(11) Expansion card status LED (SLOT)	(12) Power module 2 status LED (PWR2)
(13) Power module 1 status LED (PWR1)	(14) SFP+ port LED
(15) Management Ethernet port LED (ACT/LINK)	

Figure2-8 Rear panel

(1) Grounding screw	(2) Expansion card
(3) Fan tray 1	(4) Fan tray 2
(5) Power module 1	(6) Power module 2

The S5560X-54C-PWR-EI switch comes with power module slot 1 empty and power module slot 2 installed with a filler panel. You can install one or two power modules for the switch as required. In this figure, two PSR720-56A AC power modules are installed in the power module slots.

The S5560X-54C-PWR-EI switch comes with the two fan tray slots empty. You must install two fan trays of the same model for the switch. In this figure, two LSPM1FANSB fan trays are installed in the fan tray slots.

The S5560X-54C-PWR-EI switch comes with a filler panel in the expansion slot. You can select an expansion card for the switch as required. In this figure, an LSWM2SP2PM interface card is installed in the expansion slot.
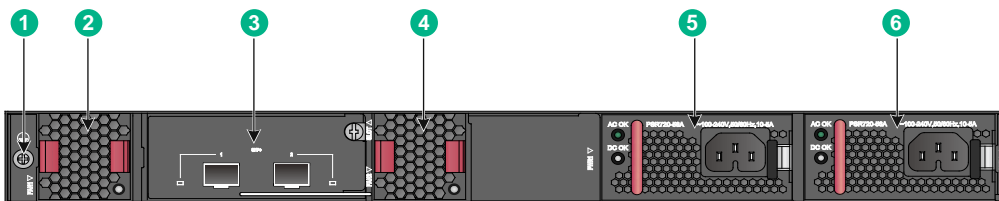
S5560X-30F-EI

Figure2-9 Front panel

(1) SFP port	(2) SFP port LED
(3) 10/100/1000BASE-T autosensing Ethernet port	
(4) 10/100/1000BASE-T autosensing Ethernet port LED	
(5) Management Ethernet port	(6) Console port (CONSOLE)
(7) Micro USB console port	(8) Mode button
(9) USB port	(10) System status LED (SYS)
(11) SFP+ port	(12) Mode LED (MODE)
(13) Expansion card status LED (SLOT)	(14) Power module 2 status LED (PWR2)
(15) Power module 1 status LED (PWR1)	(16) SFP+ port LED
(17) Management Ethernet port LED (ACT/LINK)	

Figure2-10 Rear panel

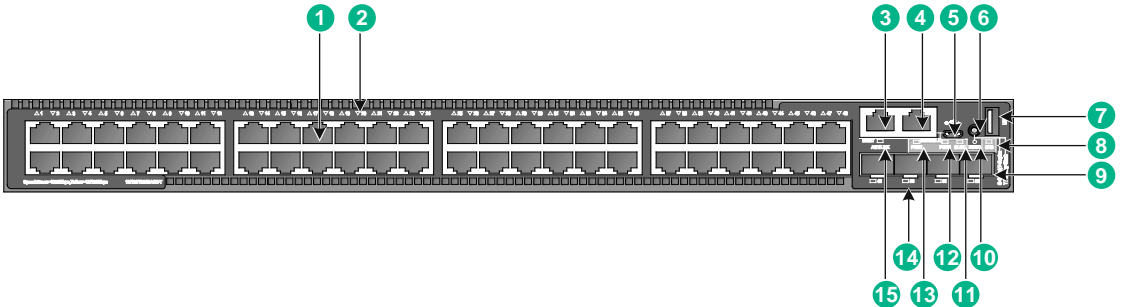| (1) Grounding screw	(2) Fan tray 1
(3) Expansion card	(4) Fan tray 2
(5) Power module 1	(6) Power module 2

The S5560X-30F-EI switch comes with power module slot 1 empty and power module slot 2 installed with a filler panel. You can install one or two power modules for the switch as required. In this figure, two PSR150-A1 AC power modules are installed in the power module slots.

The S5560X-30F-EI switch comes with the two fan tray slots empty. You must install two fan trays of the same model for the switch. In this figure, two LSPM1FANSB fan trays are installed in the fan tray slots.

The S5560X-30F-EI switch comes with a filler panel in the expansion slot. You can select an expansion card for the switch as required. In this figure, an LSWM2SP2PM interface card is installed in the expansion slot.
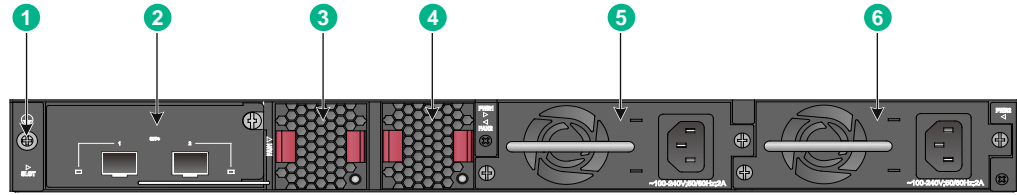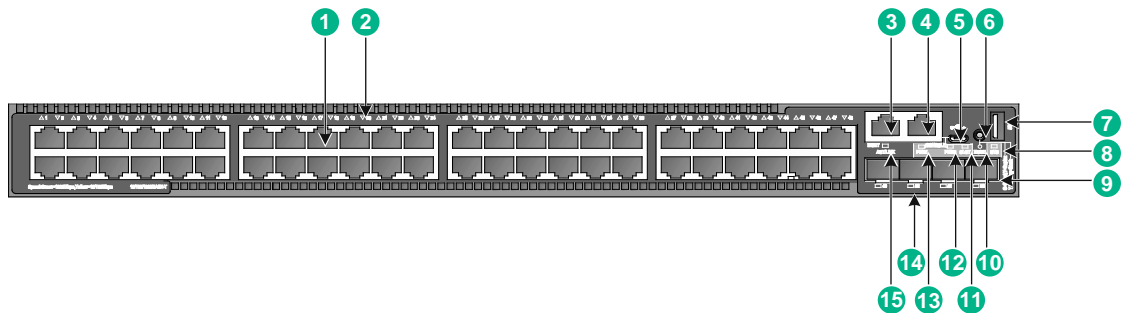
S5560X-30F-EIF

Figure2-11 Front panel
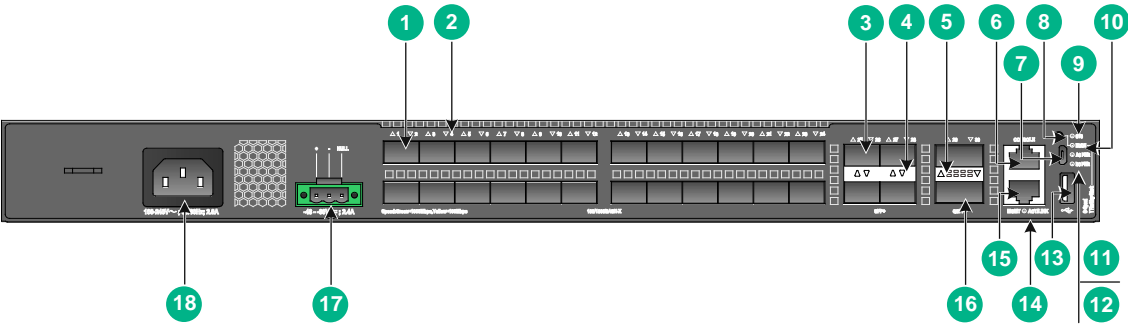
(1) SFP port	(2) SFP port LED
(3) SFP+ port	(4) SFP+ port LED
(5) QSFP+ port LED	(6) Console port (CONSOLE)
(7) Micro USB console port	(8) Mode button
(9) System status LED (SYS)	(10) Mode LED (MODE)
(11) AC power input status LED (AC PWR)	(12) DC power input status LED (DC PWR)
(13) USB port	(14) Management Ethernet port LED (ACT/LINK)
(15) Management Ethernet port	(16) QSFP+ port
(17) DC-input power receptacle	(18) AC-input power receptacle

Figure2-12 Rear panel

(1) Grounding screw

S5560X-54F-EI

Figure2-13 Front panel
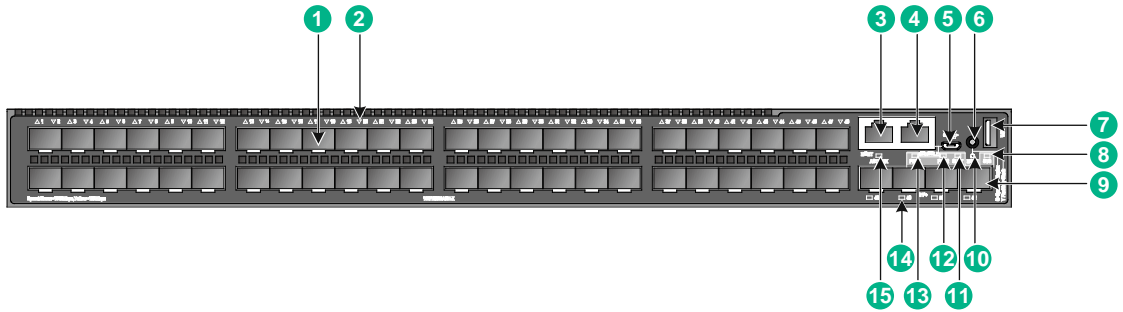
(1) SFP port	(2) SFP port LED
(3) Management Ethernet port	(4) Console port (CONSOLE)
(5) Micro USB console port	(6) Mode button
(7) USB port	(8) System status LED (SYS)
(9) SFP+ port	(10) Mode LED (MODE)
(11) Expansion card status LED (SLOT)	(12) Power module 2 status LED (PWR2)
(13) Power module 1 status LED (PWR1)	(14) SFP+ port LED
(15) Management Ethernet port LED (ACT/LINK)	

Figure2-14 Rear panel

(1) Grounding screw	(2) Expansion card
(3) Fan tray 1	(4) Fan tray 2
(5) Power module 1	(6) Power module 2

The S5560X-54F-EI switch comes with power module slot 1 empty and power module slot 2 installed with a filler panel. You can install one or two power modules for the switch as required. In this figure, two PSR150-A1 AC power modules are installed in the power module slots.

The S5560X-54F-EI switch comes with the two fan tray slots empty. You must install two fan trays of the same model for the switch. In this figure, two LSPM1FANSB fan trays are installed in the fan tray slots.

The S5560X-54F-EI switch comes with a filler panel in the expansion slot. You can select an expansion card for the switch as required. In this figure, an LSWM2SP2PM interface card is installed in the expansion slot.
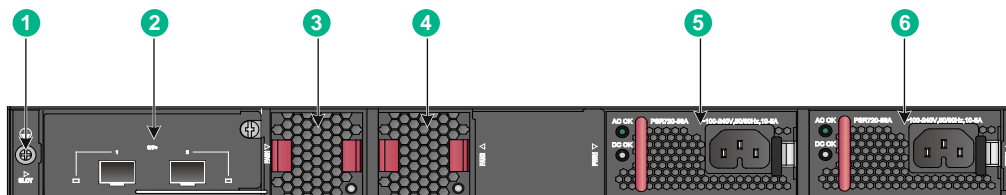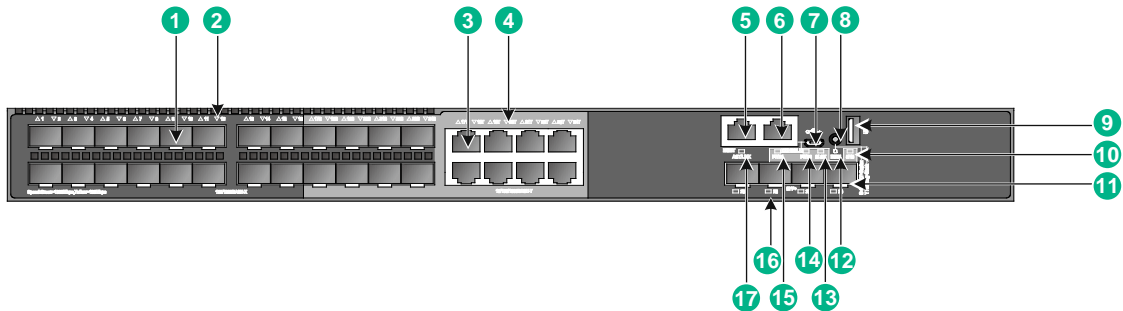
S5560X-34S-EI

Figure2-15 Front panel

(1) 10/100/1000BASE-T autosensing Ethernet port	
(2) 10/100/1000BASE-T autosensing Ethernet port LED	
(3) Management Ethernet port	(4) Console port (CONSOLE)
(5) Micro USB console port	(6) Mode button
(7) USB port	(8) System status LED (SYS)
(9) SFP+ port	(10) Mode LED (MODE)
(11) RPS status LED (RPS)	(12) SFP+ port LED
(13) Management Ethernet port LED (ACT/LINK)	(14) SFP port LED
(15) SFP port	

Figure2-16 Rear panel
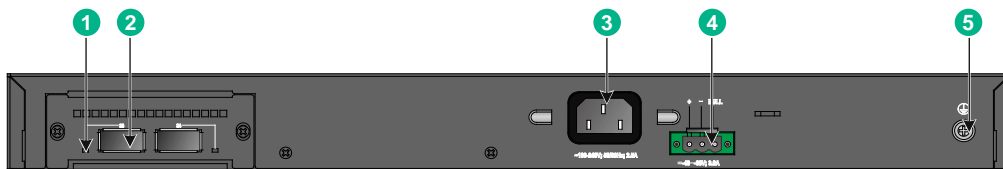
(1) QSFP+ port LED	(2) QSFP+ port
(3) AC power receptacle	(4) DC power receptacle
(5) Grounding screw	

S5560X-54S-EI

Figure2-17 Front panel

(1) 10/100/1000BASE-T autosensing Ethernet port	
(2) 10/100/1000BASE-T autosensing Ethernet port LED	
(3) Management Ethernet port	(4) Console port (CONSOLE)
(5) Micro USB console port	(6) Mode button
(7) USB port	(8) System status LED (SYS)
(9) SFP+ port	(10) Mode LED (MODE)
(11) RPS status LED (RPS)	(12) SFP+ port LED
(13) Management Ethernet port LED (ACT/LINK)	

Figure2-18 Rear panel

(1) QSFP+ port LED	(2) QSFP+ port
(3) AC power receptacle	(4) DC power receptacle
(5) Grounding screw	

3 FRUs and compatibility matrixes

S5560X-EI switches except the S5560X-30F-EIF, S5560X-34S-EI, and S5560X-54S-EI use modular design and support FRUs.

Table3-1 FRUs and compatibility matrixes

FRUs	S5560X-30C-EI S5560X-54C-EI S5560X-30F-EI S5560X-54F-EI	S5560X-30C-PWR-EI S5560X-54C-PWR-EI
Removable power modules		
PSR150-A1	Supported	Not supported
PSR150-A2	Supported	Not supported
PSR150-D1	Supported	Not supported
PSR360-56A	Not supported	Supported
PSR560-56D	Not supported	Supported
PSR720-56A	Not supported	Supported
PSR1110-56A	Not supported	Supported
Removable fan trays		
LSPM1FANSA	Supported	Supported
LSPM1FANSB	Supported	Supported
Expansion cards		
LSWM2QP2P	Supported	Supported
LSWM2SP2PM	Supported	Supported
LSWM4SP8PM	Supported	Supported
LSWM2XGT2PM	Supported	Supported
LSWM2SP8P	Supported	Supported
LSPM4G4T6P	Supported	Supported
LSPM6FWD	Supported	Supported
LSPM6FWD8	Supported	Supported
LSWM2XMGT8P	Supported	Supported
LSWM2MGT8P	Supported	Supported
LSWM2ZSP2P	Supported	Supported
LSWM2SP2PB	Supported	Supported
LSWM2SP4PB	Supported	Supported

The power modules support asset management. You can use the **display device manuinfo** command to view the name, sequence number, and vendor of the power modules you have installed on the device.

You can install one power module, or two power modules for redundancy on the S5560X-30C-EI, S5560X-54C-EI, S5560X-30F-EI, and S5560X-54F-EI switches. These switches support mix of an AC power module and a DC power module.

You can install one power module, or two power modules for redundancy on the S5560X-30C-PWR-EI and S5560X-54C-PWR-EI switches. The PoE capabilities of these switches vary by power module configuration. For more information, see Table1-3.

S5560X-EI switches except the S5560X-30F-EIF, S5560X-34S-EI, and S5560X-54S-EI use removable fan trays. Do not power on the switch if it does not have two fan trays of the same model installed.

Removable power modules

S5560X-EI switches except the S5560X-30F-EIF, S5560X-34S-EI, and S5560X-54S-EI provide power module slots and use removable power modules. Select power modules for the switches as required.

Table3-2 Removable power modules

Power module	Specifications	Reference
PSR150-A1	• Rated input voltage range: 100 VAC to 240 VAC @ 50 Hz or 60 Hz • Max input voltage range: 90 VAC to 264 VAC @ 47 Hz to 63 Hz • Max output power: 150 W	*H3C PSR150-A & PSR150-D Series Power Modules User Manual*
PSR150-A2	• Rated input voltage range: 100 VAC to 240 VAC @ 50 Hz or 60 Hz • Max input voltage range: 90 VAC to 264 VAC @ 47 Hz to 63 Hz • Max output power: 150 W	
PSR150-D1	• Rated input voltage range: –48 VDC to –60 VDC • Max input voltage range: –36 VDC to –72 VDC • Max output power: 150 W	
PSR360-56A	• Rated input voltage range: 100 VAC to 240 VAC @ 50 Hz or 60 Hz • Max input voltage range: 90 VAC to 264 VAC @ 47 Hz to 63 Hz • Max output power: 360 W	*H3C PSR360-56A Power Module User Manual*
PSR560-56D	• Rated input voltage range: –48 VDC to –60 VDC • Max input voltage range: –36 VDC to –72 VDC • Max output power: 560 W	*H3C PSR560-56D Power Module User Manual*
PSR720-56A	• Rated input voltage range: 100 VAC to 240 VAC @ 50 Hz or 60 Hz • Max input voltage range: 90 VAC to 264 VAC @ 47 Hz to 63 Hz • Max output power: 720 W	*H3C PSR720-56A Power Module User Manual*
PSR1110-56A	• Rated input voltage range: 115 VAC to 240 VAC @ 50 Hz or 60 Hz • Max input voltage range: 102.5 VAC to 264 VAC @ 47 Hz to 63 Hz	*H3C PSR1110-56A Power Module User Manual*

Power module	Specifications	Reference
	• Max output power: 1110 W	

NOTE:

The PSR1110-56A power module adds 64 mm (2.52 in) to the total depth of the switch, which includes the power module handle.

Removable fan trays

S5560X-EI switches except the S5560X-30F-EIF, S5560X-34S-EI, and S5560X-54S-EI support the LSPM1FANSA and LSPM1FANSB fan trays.

Table3-3 Removable fan trays

Item	Specifications
LSPM1FANSA fan tray	
Dimensions	40 × 40 × 104 mm (1.57 × 1.57 × 4.09 in)
Fan speed	20000 R.P.M
Max airflow	20 CFM
Airflow direction	Back to front (from the power module side to the network port side)
Input voltage	12 V
Maximum power consumption	9.8 W
Reference	*H3C LSPM1FANSA & LSPM1FANSB Fan Trays User Guide*
LSPM1FANSB fan tray	
Dimensions	40 × 40 × 104 mm (1.57 × 1.57 × 4.09 in)
Fan speed	20000 R.P.M
Max airflow	20 CFM
Airflow direction	Front to back (from the network port side to the power module side)
Input voltage	12 V
Maximum power consumption	9.8 W
Reference	*H3C LSPM1FANSA & LSPM1FANSB Fan Trays User Guide*

Expansion cards

S5560X-EI switches except the S5560X-30F-EIF, S5560X-34S-EI, and S5560X-54S-EI each provide an expansion slot at the rear. Select expansion cards for the switches as required.

Table3-4 Expansion cards

Item	Specifications
LSWM2QP2P	
Description	2-port 40GE QSFP+ interface card

Item	Specifications
Port type and quantity	2 × 40 Gbps QSFP+ fiber ports
Available transceiver modules and cables	See Table4-14, Table4-15, and Table4-16.
Reference	*H3C LSWM2QP2P Interface Card User Manual*
LSWM4SP8PM and LSWM2SP8P	
Description	8-port 10GE SFP+ interface card
Port type and quantity	8 × 10 Gbps SFP+ fiber ports
Available transceiver modules and cables	See Table4-9 and Table4-10.
Reference	*H3C LSWM4SP8PM Interface Card User Manual* and *H3C LSWM2SP8PM & LSWM2SP8P Interface Cards User Manual*
LSWM2SP2PM	
Description	2-port 10GE SFP+ interface card
Port type and quantity	2 × 1/10 Gbps SFP+ fiber ports
Available transceiver modules and cables	See Table4-9 and Table4-10.
Reference	*H3C LSWM2SP2PM Interface Card User Manual*
LSWM2XGT2PM	
Description	2-port 1/10GBASE-T interface card
Port type and quantity	2 × 1/10GBASE-T Ethernet ports
Available cables	See Table4-3.
Reference	*H3C LSWM2XGT2PM & LSWM2XGT8PM Interface Cards User Manual*
LSPM4G4T6P	
Description	4-port 10/100/1000BASE-T + 6-port SFP interface card
Port type and quantity	• 4 ×10/100/1000BASE-T autosensing Ethernet ports • 6 × SFP fiber ports SFP ports 5S and 6S form combo interfaces with 10/100/1000BASE-T autosensing Ethernet ports 5T and 6T, respectively.
Available transceiver modules and cables	SFP ports 5S and 6S support FE SFP modules in Table4-7 and GE SFP modules and cables in Table4-8. The other SFP ports support GE SFP modules and cables in Table4-8.
Reference	*H3C LSPM4G4T6P Interface Card User Manual*
LSPM6FWD	
Description	The card is a fourth-generation high performance firewall card. It provides features including firewall, VPN, content filtering, content identification, URL filtering, and NAT. By using this card on a switch, you can enhance the switch security capabilities without changing the network topology.
Reference	*H3C LSPM6FWD Card Manual*
LSPM6FWD8	
Description	The card is a fourth-generation high performance firewall card. It provides

Item	Specifications
	features including firewall, VPN, content filtering, content identification, URL filtering, and NAT. By using this card on a switch, you can enhance the switch security capabilities without changing the network topology.
Reference	*H3C LSPM6FWD8 Card Manual*
LSWM2XMGT8P	
Description	8-port 1/2.5/5/10GBASE-T interface card
Port type and quantity	8 × 10G/5G/2.5G/1000BASE-T autosensing Ethernet ports
Available cables	See Table4-6.
Reference	*H3C LSWM2MGT8P & LSWM2XMGT8P Interface Cards User Manual*
LSWM2MGT8P	
Description	8-port 1/2.5/5GBASE-T interface card
Port type and quantity	8 × 5G/2.5G/1000BASE-T autosensing Ethernet ports
Available cables	See Table4-5.
Reference	*H3C LSWM2MGT8P & LSWM2XMGT8P Interface Cards User Manual*
LSWM2ZSP2P	
Description	2-port 25G SFP28 interface card
Port type and quantity	2 × SFP28 ports
Available transceiver modules and cables	See Table4-12 and Table4-13.
Reference	*H3C LSWM2ZSP2P Interface Card User Manual*
LSWM2SP2PB	
Description	2-port 10GE SFP+ interface card
Port type and quantity	2 × 1/10GE SFP+ ports
Available transceiver modules and cables	See Table4-8, Table4-9 and Table4-10.
Reference	*H3C LSWM2SP2PB & LSWM2SP4PB Interface Cards User Manual*
LSWM2SP4PB	
Description	4-port 10GE SFP+ interface card
Port type and quantity	4 × 1/10GE SFP+ ports
Available transceiver modules and cables	See Table4-8, Table4-9 and Table4-10.
Reference	*H3C LSWM2SP2PB & LSWM2SP4PB Interface Cards User Manual*

For more information about these expansion cards, see user manuals for the expansion cards.

NOTE:

- The ports on an LSWM2SP2PM or LSWM2XGT2PM interface card can operate only at 10 Gbps when the interface card is installed on the device.
- An LSPM6FWD or LSPM6FWD8 firewall card (including its handle) adds 75 mm (2.95 in) to the chassis depth when installed on the device.

Connecting cables to the copper ports on the interface cards

The LSWM2XGT2PM interface card provides copper ports. To connect cables to the copper ports on the LSWM2XGT2PM interface card, follow these guidelines:

- Use Category-6A or above cables and connectors. The max transmission distance varies by cable type:
  - **Category-6 UTP**—55 m (180.45 ft).
  - **Category-6 STP**—100 m (328.084 ft), no interference.
  - **Category-6 SFTP**—100 m (328.084 ft).
  - **Category-6A and above twisted pair**—100 m (328.084 ft).
- Do not bundle cables in their first 20 m (65.62 ft).
- Separate power cords and twisted pair cables at and around the distribution frame.
- For ports adjacent to one another on the device, the peer ports on the distribution frame is preferably not adjacent, for example:
  - If the device connects to one distribution frame, connect port 1 on the device to port 1 on the distribution frame and port 2 on the device to port 3 on the distribution frame.
  - If the device connects to two distribution frames, connect port 1 on the device to port 1 on distribution frame 1 and port 2 on the device to port 1 on distribution frame 2.
- Keep the device and twisted pair cables away from the interference source, such as a two-way radio and a high-power variable-frequency drive.

4 Ports and LEDs

Ports

Console port

The switch has two console ports: a serial console port and a micro USB console port.

Table4-1 Console port specifications

Item	Serial console port	Micro USB console port
Connector type	RJ-45	Micro USB Type B
Compliant standard	EIA/TIA-232	USB 2.0
Transmission baud rate	9600 bps (default) to 115200 bps	
Services	• Provides connection to an ASCII terminal. • Provides connection to the serial port of a local PC running terminal emulation program.	Provides connection to the USB port of a local PC running terminal emulation program.

Management Ethernet port

The switch provides a management Ethernet port on the front panel. You can connect this port to a PC or management station for loading and debugging software or remote management.

Table4-2 Management Ethernet port specifications

Item	Specification
Connector type	RJ-45
Connector quantity	1
Port transmission rate	10/100/1000 Mbps, half/full duplex
Transmission medium and max transmission distance	100 m (328.08 ft) over category-5 twisted pair cable
Functions and services	Switch software and Boot ROM upgrade, network management

USB port

The switch has one OHC-compliant USB2.0 port that can upload and download data at a rate up to 480 Mbps. You can use this USB port to access the file system on the flash of the switch, for example, to upload or download application and configuration files.

NOTE:

USB devices from different vendors vary in compatibilities and drivers. H3C does not guarantee the correct operation of USB devices from all vendors on the switch. If a USB device fails to operate on the switch, replace it with one from another vendor.

1/10BASE-T autosensing Ethernet port

The LSWM2XGT2PM interface card provides 1/10BASE-T autosensing Ethernet ports.

Table4-3 1/10BASE-T autosensing Ethernet port specifications

Item	Specification
Connector type	RJ-45
Interface attributes	1/10 Gbps, full duplex, MDI/MDI-X auto-sensing
Max transmission distance	• **Category-6 UTP**—55 m (180.45 ft) • **Category-6 STP**—100 m (328.08 ft) • **Category-6 SFTP**—100 m (328.08 ft) • **Category-6 and above twisted pair**—100 m (328.08 ft)
Transmission medium	Category-6 (or above) twisted pair cable
Standards	IEEE 802.3an, 802.3ab

10/100/1000BASE-T autosensing Ethernet port

All the S5560X-EI switch models, except the S5560X-54F-EI and S5560X-30F-EIF switches, provide 10/100/1000BASE-T autosensing Ethernet ports.

Table4-4 10/100/1000BASE-T autosensing Ethernet port specifications

Item	Specification
Connector type	RJ-45
Interface attributes	• 10 Mbps, half/full duplex • 100 Mbps, half/full duplex • 1000 Mbps, full duplex • MDI/MDI-X, auto-sensing
Max transmission distance	100 m (328.08 ft)
Transmission medium	Category-5 (or above) twisted pair cable
Standards	IEEE 802.3i, 802.3u, 802.3ab

5G/2.5G/1000BASE-T autosensing Ethernet port

The LSWM2MGT8P interface card provides 5G/2.5G/1000BASE-T autosensing Ethernet ports.

Table4-5 5G/2.5G/1000BASE-T autosensing Ethernet port specifications

Item	Specification
Connector type	RJ-45
Port speed, duplex mode, MDIX mode	1/2.5/5 Gbps, full duplex, auto-MDI/MDIX
Transmission medium and max transmission distance	• 5G mode: 100 m (328.08 ft) over a Category-5e or above twisted pair cable. • 2.5G mode: 200 m (656.17 ft) over a Category-5e or above twisted

Item	Specification
	pair cable. • 1G mode: 140 m (459.32 ft) over a Category-5e or above twisted pair cable.
Standards	IEEE 802.3ab, 802.3an

10G/5G/2.5G/1000BASE-T autosensing Ethernet port

The LSWM2XMGT8P interface card provides 10G/5G/2.5G/1000BASE-T autosensing Ethernet ports.

Table4-6 10G/5G/2.5G/1000BASE-T autosensing Ethernet port specifications

Item	Specification
Connector type	RJ-45
Speed, duplex mode, and MDIX mode	1/2.5/5/10 Gbps, full duplex, auto-MDI/MDIX

Transmission medium and max transmission distance	• 10G mode:
	  ○ 100 m (328.08 ft) over a Category-6 or above shielded twisted pair (STP) cable.
	  ○ 55 m (180.45 ft) over a Category-5e twisted pair or Category-6 unshielded twisted pair (UTP) cable.
	• 5G mode: 100 m (328.08 ft) over a Category-5e or above twisted pair cable.
	• 2.5G mode: 200 m (656.17 ft) over a Category-5e or above twisted pair cable.
	• 1G mode: 140 m (459.32 ft) over a Category-5e or above twisted pair cable.

Standards	IEEE 802.3ab, 802.3an

SFP port

The S5560X-30C-EI, S5560X-30F-EI, S5560X-30F-EIF, S5560X-54F-EI, and S5560X-34S-EI switches provide 8, 24, 24, 48, and 4 fixed SFP ports on the front panel, respectively.

You can install the FE SFP modules in Table4-7 and GE SFP transceiver modules and cables in Table4-8 in the SFP ports.

Table4-7 FE SFP transceiver modules available for the SFP ports

FE SFP module	Central wavelength (nm)	Connector	Fiber diameter (µm)	Max transmission distance
SFP-FE-SX-MM1310-A	1310	LC	Multi-mode, 50/125	2 km (1.24 miles)
			Multi-mode, 62.5/125	
SFP-FE-LX-SM1310-A	1310	LC	Single-mode, 9/125	15 km (9.32 miles)
SFP-FE-LX-SM1310-D	1310	LC	Single-mode, 9/125	15 km (9.32 miles)
SFP-FE-LH40-SM1310	1310	LC	Single-mode, 9/125	40 km (24.86 miles)
SFP-FE-LH80-SM1550	1550	LC	Single-mode, 9/125	80 km (49.71 miles)

FE SFP module	Central wavelength (nm)	Connector	Fiber diameter (μm)	Max transmission distance
SFP-FE-LX-SM1310-BIDI	• TX: 1310 • RX: 1550	LC	Single-mode, 9/125	15 km (9.32 miles)
SFP-FE-LX-SM1550-BIDI	• TX: 1550 • RX: 1310			

ⓘ **IMPORTANT:**

The SFP-FE-LX-SM1310-BIDI and SFP-FE-LX-SM1550-BIDI modules must be used in pairs.

Table4-8 GE SFP transceiver modules and cables available for the SFP ports

GE SFP transceiver module and cable	Central wavelength (nm)	Connector	Cable/Fiber type and diameter (μm)	Modal bandwidth (MHz × km)	Max transmission distance
SFP copper transceiver module					
SFP-GE-T	N/A	RJ-45	Twisted pair cable	N/A	100 m (328.08 ft)
SFP-GE-T-D	N/A	RJ-45	Twisted pair cable	N/A	100 m (328.08 ft)
SFP fiber transceiver module					
SFP-GE-SX-MM850-A	850	LC	Multi-mode, 50/125	500	550 m (1804.46 ft)
				400	500 m (1640.42 ft)
			Multi-mode, 62.5/125	200	275 m (902.23 ft)
				160	220 m (721.78 ft)
SFP-GE-SX-MM850-D	850	LC	Multi-mode, 50/125	500	550 m (1804.46 ft)
				400	500 m (1640.42 ft)
			Multi-mode, 62.5/125	200	275 m (902.23 ft)
				160	220 m (721.78 ft)
SFP-GE-SX-MM850-S	850	LC	Multi-mode, 50/125	500	550 m (1804.46 ft)
				400	500 m (1640.42 ft)
			Multi-mode, 62.5/125	200	275 m (902.23 ft)
				160	220 m (721.78 ft)
SFP-GE-LX-SM1310-A	1310	LC	Single-mode, 9/125	N/A	10 km (6.21 miles)
			Multi-mode, 50/125	500 or 400	550 m (1804.46 ft)
			Multi-mode, 62.5/125	500	550 m (1804.46 ft)
SFP-GE-LX-SM1310-D	1310	LC	Single-mode, 9/125	N/A	10 km (6.21 miles)
SFP-GE-LX-SM1310-S	1310	LC	Single-mode, 9/125	N/A	10 km (6.21 miles)

GE SFP transceiver module and cable	Central wavelength (nm)	Connector	Cable/Fiber type and diameter (µm)	Modal bandwidth (MHz × km)	Max transmission distance
SFP-GE-LH40-SM1310	1310	LC	Single-mode, 9/125	N/A	40 km (24.86 miles)
SFP-GE-LH40-SM1310	1310	LC	Single-mode, 9/125	N/A	40 km (24.86 miles)
SFP-GE-LH40-SM1550	1550	LC	Single-mode, 9/125	N/A	40 km (24.86 miles)
SFP-GE-LH80-SM1550	1550	LC	Single-mode, 9/125	N/A	80 km (49.71 miles)
SFP-GE-LH80-SM1550-D	1550	LC	Single-mode, 9/125	N/A	80 km (49.71 miles)
SFP-GE-LH100-SM1550	1550	LC	Single-mode, 9/125	N/A	100 km (62.14 miles)
SFP-GE-LX-SM1310-BIDI	TX: 1310 RX: 1490	LC	Single-mode, 9/125	N/A	10 km (6.21 miles)
SFP-GE-LX-SM1490-BIDI	TX: 1490 RX: 1310	LC	Single-mode, 9/125	N/A	10 km (6.21 miles)
SFP-GE-LH40-SM1310-BIDI	TX: 1310 RX: 1550	LC	Single-mode, 9/125	N/A	40 km (24.86 miles)
SFP-GE-LH40-SM1550-BIDI	TX: 1550 RX: 1310	LC	Single-mode, 9/125	N/A	40 km (24.86 miles)
SFP-GE-LH70-SM1490-BIDI	TX: 1490 RX: 1550	LC	Single-mode, 9/125	N/A	70 km (43.50 miles)
SFP-GE-LH70-SM1550-BIDI	TX: 1550 RX: 1490	LC	Single-mode, 9/125	N/A	70 km (43.50 miles)
SFP cable					
SFP-STACK-Kit	N/A				1.5 m (4.92 ft)

(!) **IMPORTANT:**

- The SFP-GE-LX-SM1310-BIDI and SFP-GE-LX-SM1490-BIDI transceiver modules, the SFP-GE-LH40-SM1310-BIDI and SFP-GE-LH40-SM1550-BIDI transceiver modules, and the SFP-GE-LH70-SM1490-BIDI and SFP-GE-LH70-SM1550-BIDI transceiver modules must be used in pairs. For example, if one end uses an SFP-GE-LX-SM1310-BIDI transceiver module, the other end must uses an SFP-GE-LX-SM1490-BIDI transceiver module.
- To install multiple SFP-GE-LH100-SM1550 transceiver modules on the S5560X-30C-EI, S5560X-30F-EI, S5560X-30F-EIF, and S5560X-54F-EI switches, separate these transceiver modules by other types of transceiver modules. For example, you can install SFP-GE-LH100-SM1550 transceiver modules in ports 1 and 2, other types of transceiver modules in ports 3 and 4, and SFP-GE-LH100-SM1550 transceiver modules in ports 5 and 6.

SFP+ port

The switch provides four fixed SFP+ ports on the front panel. To connect peer SFP+ ports over a long distance, use SFP/SFP+ transceiver modules and fibers. To connect peer SFP+ ports over a short distance, use SFP/SFP+ cables. You can install the GE SFP transceiver module and cables in Table4-8, 10-GE SFP+ transceiver modules in Table4-9, and 10-GE SFP+ cables in Table4-10 in the SFP+ ports.

Table4-9 10-GE SFP+ transceiver modules available for the SFP+ ports

10-GE SFP+ transceiver module	Central wavelength (nm)	Connector	Fiber diameter (µm)	Multimode fiber modal bandwidth (MHz × km)	Max transmission distance
SFP-XG-SX-MM850-D	850	LC	Multi-mode, 50/125	2000	300 m (984.25 ft)
				500	82 m (269.03 ft)
				400	66 m (216.54 ft)
			Multi-mode, 62.5/125	200	33 m (108.27 ft)
				160	26 m (85.30 ft)
SFP-XG-SX-MM850-E	850	LC	Multi-mode, 50/125	2000	300 m (984.25 ft)
				500	82 m (269.03 ft)
				400	66 m (216.54 ft)
			Multi-mode, 62.5/125	200	33 m (108.27 ft)
				160	26 m (85.30 ft)
SFP-XG-SX-MM850-S	850	LC	Multi-mode, 50/125	2000	300 m (984.25 ft)
				500	82 m (269.03 ft)
				400	66 m (216.54 ft)
			Multi-mode, 62.5/125	200	33 m (108.27 ft)
				160	26 m (85.30 ft)
SFP-XG-LX-SM1310-D	1310	LC	Single-mode, 9/125	N/A	10 km (6.21 miles)
SFP-XG-LX-SM1310-E	1310	LC	Single-mode, 9/125	N/A	10 km (6.21 miles)
SFP-XG-LX-SM1310-S	1310	LC	Single-mode, 9/125	N/A	10 km (6.21 miles)
SFP-XG-LH40-SM1550	1550	LC	Single-mode, 9/125	N/A	40 km (24.86 miles)
SFP-XG-LH40	1550	LC	Single-mode,	N/A	40 km (24.86 miles)

10-GE SFP+ transceiver module	Central wavelength (nm)	Connector	Fiber diameter (μm)	Multimode fiber modal bandwidth (MHz × km)	Max transmission distance
-SM1550-D			9/125		
SFP-XG-LH80 -SM1550	1550	LC	Single-mode, 9/125	N/A	80 km (49.71 miles)
SFP-XG-LH80 -SM1550-D	1550	LC	Single-mode, 9/125	N/A	80 km (49.71 miles)
SFP-XG-LX-S M1270-BIDI	TX: 1270 RX: 1330	LC	Single-mode, 9/125	N/A	10 km (6.21 miles)
SFP-XG-LX-S M1330-BIDI	TX: 1330 RX: 1270	LC	Single-mode, 9/125	N/A	10 km (6.21 miles)
SFP-XG-LH40 -SM1270-BIDI	TX: 1270 RX: 1330	LC	Single-mode, 9/125	N/A	40 km (24.86 miles)
SFP-XG-LH40 -SM1330-BIDI	TX: 1330 RX: 1270	LC	Single-mode, 9/125	N/A	40 km (24.86 miles)

(!) **IMPORTANT:**

The SFP-XG-LX-SM1270-BIDI and SFP-XG-LX-SM1330-BIDI transceiver modules and the SFP-XG-LH40-SM1270-BIDI and SFP-XG-LH40-SM1330-BIDI transceiver modules must be used in pairs. For example, if one end uses an SFP-XG-LX-SM1270-BIDI transceiver module, the other end must use an SFP-XG-LX-SM1330-BIDI transceiver module.

Table4-10 SFP+ copper cables available for the SFP+ ports

SFP+ copper cable	Cable length
LSWM1STK	0.65 m (2.13 ft)
LSWM2STK	1.2 m (3.94 ft)
LSWM3STK	3 m (9.84 ft)
LSTM1STK	5 m (16.40 ft)

Table4-11 SFP+ fiber cables available for the SFP+ ports

SFP+ fiber cable	Cable length
SFP-XG-D-AOC-7M	7 m (22.97 ft)
SFP-XG-D-AOC-10M	10 m (32.81 ft)
SFP-XG-D-AOC-20M	20 m (65.62 ft)

Figure4-1 SFP+ cable

(1) Connector	(2) Pull latch

NOTE:

- As a best practice, use H3C transceiver modules and cables for the switch.
- The H3C transceiver modules and cables are subject to change over time. For the most recent list of H3C transceiver modules and cables, contact your H3C Support or marketing staff.
- For more information about H3C transceiver modules and cables, see *H3C Transceiver Modules User Guide*.

SFP28 port

The LSWM2ZSP2P interface card provides two SFP28 ports. To connect peer SFP28 ports over a long distance, use SFP28 transceiver modules and fibers. To connect peer SFP28 ports over a short distance, use SFP28 cables. The SFP28 transceiver modules in Table4-12 and SFP28 cables in Table4-13 are available for the SFP28 ports.

Table4-12 SFP28 transceiver modules available for the SFP28 ports

SFP28 transceiver module	Central wavelength (nm)	Connector	Cable/Fiber type and diameter (μm)	Modal bandwidth (MHz × km)	Max transmission distance
SFP-25G-SR-MM850	850	LC	Multi-mode, 50/125	2000	70 m (229.66 ft)
				4700	100 m (328.08 ft)
SFP-25G-LR-SM1310	1310	LC	Single-mode, 9/125	N/A	10 km (6.21 miles)

Table4-13 SFP28 cables available for the SFP28 ports

SFP28 cable	Cable length
SFP-25G-D-CAB-1M	1 m (3.28 ft)
SFP-25G-D-CAB-3M	3 m (9.84 ft)
SFP-25G-D-CAB-5M	5 m (16.40 ft)
SFP-25G-D-AOC-3M	3 m (9.84 ft)

SFP28 cable	Cable length
SFP-25G-D-AOC-5M	5 m (16.40 ft)
SFP-25G-D-AOC-7M	7 m (22.97 ft)
SFP-25G-D-AOC-10M	10 m (32.81 ft)
SFP-25G-D-AOC-20M	20 m (65.62 ft)

Figure4-2 SFP28 cable

(1) Connector	(2) Pull latch

NOTE:

- As a best practice, use H3C transceiver modules and cables for the switch.
- The H3C transceiver modules and cables are subject to change over time. For the most recent list of H3C transceiver modules and cables, contact your H3C Support or marketing staff.
- For more information about H3C transceiver modules and cables, see *H3C Transceiver Modules User Guide*.

QSFP+ port

The S5560X-30F-EIF, S5560X-34S-EI, and S5560X-54S-EI switches each provide two QSFP+ ports. You can install the QSFP+ transceiver modules in Table4-14, the QSFP+ cables in Table4-15, and the QSFP+ to SFP+ cables in Table4-16 in the QSFP+ ports.

Table4-14 QSFP+ transceiver modules available for the QSFP+ ports

QSFP+ transceiver module	Central wavelength (nm)	Connector	Fiber type and diameter (μm)	Modal bandwidth (MHz × km)	Max transmission distance
QSFP-40G-SR4-MM850	850	MPO	Multi-mode, 50/125	2000	100 m (328.08 ft)
				4700	150 m (492.12 ft)
QSFP-40G-CSR4-MM850	850	MPO	Multi-mode, 50/125	2000	300 m (984.25 ft)
				4700	400 m (1312.33 ft)
QSFP-40G-LR4-PSM1310	1310	MPO	Single-mode, 9/125	N/A	10 km (6.21 miles)

QSFP+ transceiver module	Central wavelength (nm)	Connector	Fiber type and diameter (μm)	Modal bandwidth (MHz × km)	Max transmission distance
QSFP-40G-BIDI-SR-MM850	850	LC	Multi-mode, 50/125	2000	100 m (328.08 ft)
				4700	150 m (492.12 ft)
QSFP-40G-BIDI-WDM850	Four lanes: • 850 • 880 • 910 • 940	LC	Multi-mode, 50/125	2000	240 m (787.40ft)
				4700	350 m (1148.29 ft)
QSFP-40G-LR4-WDM1300	Four lanes: • 1271. • 1291. • 1311. • 1331.	LC	Single-mode, 9/125	N/A	10 km (6.21 miles)
QSFP-40G-LR4L-WDM1300	Four lanes: • 1271 • 1291 • 1311 • 1331	LC	Single-mode, 9/125	N/A	2 km (1.24 miles)

Table4-15 QSFP+ copper cables available for the QSFP+ ports

QSFP+ copper cable	Max transmission distance
LSWM1QSTK0	1 m (3.28 ft)
LSWM1QSTK1	3 m (9.84 ft)
LSWM1QSTK2	5 m (16.40 ft)

Table4-16 QSFP+ to SFP+ copper cables available for the QSFP+ ports

QSFP+ to SFP+ copper cable	Max transmission distance
LSWM1QSTK3	1 m (3.28 ft)
LSWM1QSTK4	3 m (9.84 ft)
LSWM1QSTK5	5 m (16.40 ft)

Table4-17 QSFP+ fiber cables available for the QSFP+ ports

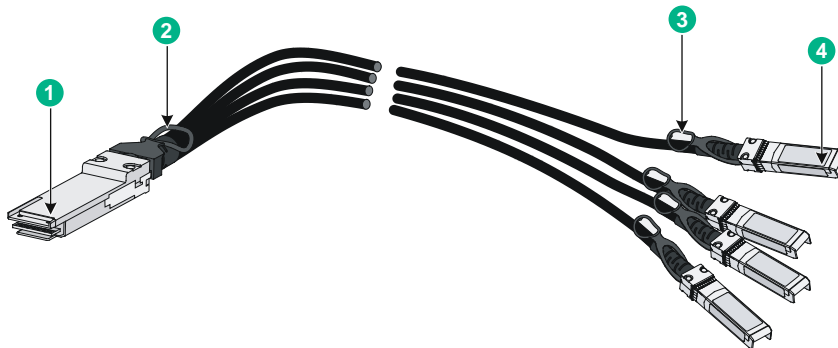| QSFP+ fiber cable	Max transmission distance
QSFP-40G-D-AOC-3M	3 m (9.84 ft)
QSFP-40G-D-AOC-7M	7 m (22.97 ft)
QSFP-40G-D-AOC-10M	10 m (32.81 ft)
QSFP-40G-D-AOC-20M	20 m (65.62 ft)

Figure4-3 40G QSFP+ cable
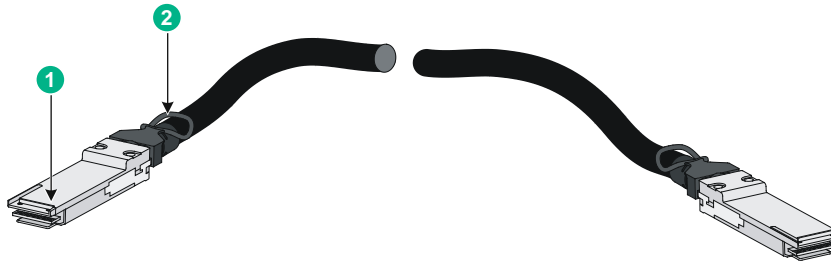
(1) Connector	(2) Pull tab

Figure4-4 40G QSFP+ to SFP+ cable

(1) QSFP+ module	(2) QSFP+ side pull tab
(3) SFP+ side pull tab	(4) SFP+ module

NOTE:

- As a best practice, use H3C transceiver modules and cables for the switch.

- You can use a QSFP-40G-SR4-MM850, QSFP-40G-CSR4-MM850, or QSFP-40G-LR4-PSM1310 transceiver module to connect a QSFP+ port to four SFP+ ports. The QSFP+ transceiver module and SFP+ transceiver modules to be connected must be the same in specifications, including central wavelength and fiber type.

- The H3C transceiver modules and cables are subject to change over time. For the most recent list of H3C transceiver modules and cables, contact your H3C Support or marketing staff.

- For more information about H3C transceiver modules and cables, see *H3C Transceiver Modules User Guide.*

Combo interface

The S5560X-30C-EI and S5560X-30F-EI switches each provide eight combo interfaces. The S5560X-34S-EI switch provides four combo interfaces. A combo interface contains an SFP port and a 10/100/1000BASE-T autosensing Ethernet port. Only one of these two ports can operate at a time.

LEDs

System status LED

The system status LED shows the operating state of the switch.

Table4-18 System status LED description

LED mark	Status	Description
SYS	Steady green	The switch is operating correctly.
	Flashing green (1 Hz)	The switch is performing power-on self test (POST).
	Steady red	The switch has failed the POST or is faulty.
	Off	The switch is powered off.

Power module status LED

The S5560X-EI switches except the S5560X-34S-EI and S5560X-54S-EI each provide two power module slots at the rear. For each power module, the switch provides a power module status LED on the front panel.

Table4-19 Power module status LED description

LED mark	Status	Description
PWR1/PWR1	Steady green	A power module is installed in the power module slot, and the power module is outputting power correctly.
	Steady yellow	A power module is installed in the power module slot, but the power module has failed or no power is input to the power module.
	Off	No power module is installed in the power module slot.

AC/DC power input status LED

The S5560X-30F-EIF switch supports AC and DC power inputs and use an AC and a DC power input status LED to indicate the AC and DC power input status.

Table4-20 AC/DC power input status LED

LED mark	Status	Description
AC PWR	Steady green	Normal AC input
	Off	Abnormal or no AC input
DC PWR	Steady green	Normal DC input
	Off	Abnormal or no DC input

RPS status LED

The S5560X-34S-EI and S5560X-54S-EI switches support RPS power input and use an RPS status LED to indicate the AC and DC power input status.

Table4-21 RPS status LED description

LED mark	Status	Description
RPS	Steady green	Normal AC and DC input
	Steady yellow	Normal DC input but abnormal or no AC input

LED mark	Status	Description
	Off	Abnormal or no DC input

MODE LED

To show more information about the switch through the port status LEDs, the switch provides a MODE LED to indicate the type of information that the port status LEDs are showing.

You can use the mode button to change the indication of the MODE LED.

Table4-22 Description for the MODE LED

LED mark	Status	Description
MODE	Steady green	The port status LEDs indicate port rates.
	Steady yellow	The port status LEDs indicate the duplex mode of the ports.
	Flashing green (1 Hz) (available only for S5560X-30C-PWR-EI and S5560X-54C-PWR-EI switches)	The port status LEDs indicate the PoE power supply status of the ports.
	Flashing yellow	The port status LEDs indicates the IRF member ID of the switch. For example, if the LEDs for ports 1 to 5 are steady green and the other LEDs are off, the IRF member ID of the switch is 5.

10/100/1000BASE-T autosensing Ethernet port LED

The switch provides a status LED for each 10/100/1000BASE-T autosensing Ethernet port. The port LED and the mode LED work in conjunction to indicate the operating status of the 10/100/1000BASE-T autosensing Ethernet port.

Table4-23 10/100/1000BASE-T autosensing Ethernet port LED description

Mode LED status	10/100/1000BASE-T autosensing Ethernet port LED status	Description
Steady green (rate mode)	Steady green	A link is present on the port and the port is operating at 1000 Mbps.
	Flashing green	The port is sending or receiving data at 1000 Mbps
	Steady yellow	The port is operating at 10/100 Mbps.
	Flashing yellow	The port is sending or receiving data at 10/100 Mbps
	Off	No link is present on the port.
Steady yellow (duplex mode)	Steady green	The port is operating at full-duplex mode and a link is present on the port.
	Flashing green	The port is sending and receiving data at full-duplex mode.
	Steady yellow	The port is operating at half-duplex mode and a link

Mode LED status	10/100/1000BASE-T autosensing Ethernet port LED status	Description
		is present on the port.
	Flashing yellow	The port is sending and receiving data at half-duplex mode.
	Off	No link is present on the port.
Flashing green (1 Hz) (PoE mode, available only for S5560X-30C-PWR-EI and S5560X-54C-PWR-EI switches)	Steady green	PoE power supply is normal.
	Flashing green (1 Hz)	The device attached to the port requires power higher than the maximum or currently available PoE output power on the port.
	Steady yellow	The port is experiencing a PoE failure.
	Off	The port is not supplying power through PoE.
Flashing yellow (IRF mode)	• The S5560X-30C-EI, S5560X-54C-EI, S5560X-34S-EI, S5560X-54S-EI, S5560X-30C-PWR-EI, and S5560X-54C-PWR-EI switches use the 10/100/1000BASE-T autosensing Ethernet port LEDs to indicate the IRF member ID. For example, if the LEDs for ports 1 to 5 are steady green and the other port LEDs are off, the IRF member ID of the switch is 5. • An S5560X-30F-EI switch uses SFP port LEDs to indicate the IRF member ID. When the Mode LED is flashing yellow (IRF mode), the 10/100/1000BASE-T autosensing Ethernet port LEDs are off.	

SFP port LED

The SFP port LED and the mode LED work in conjunction to indicate the operating status of the SFP port.

Table4-24 SFP port LED description

Mode LED status	SFP port LED status	Description
Steady green (rate mode)	Steady green	A link is present on the port and the port is operating at 1000 Mbps.
	Flashing green	The port is sending or receiving data at 1000 Mbps.
	Steady yellow	A link is present on the port and the port is operating at 100 Mbps.
	Flashing yellow	The port is sending or receiving data at 100 Mbps.
	Off	No link is present on the port.
Steady yellow (duplex mode)	Steady green	The port is operating at full-duplex mode and a link is present on the port.
	Flashing green	The port is sending and receiving data at full-duplex mode.
	Steady yellow	The port is operating at half-duplex mode and a link is present on the port.
	Flashing yellow	The port is sending and receiving data at half-duplex mode.
	Off	No link is present on the port.

Mode LED status	SFP port LED status	Description
Flashing yellow (IRF mode)	• The S5560X-30F-EI, S5560X-30F-EIF, and S5560X-54F-EI switches use the SFP port LEDs to indicate the IRF member ID. For example, if the LEDs for ports 1 to 5 are steady green and the other port LEDs are off, the IRF member ID of the switch is 5. • The S5560X-30C-EI and S5560X-34S-EI switches use 10/100/1000BASE-T autosensing Ethernet port LEDs to indicate the IRF member ID. When the Mode LED is flashing yellow (IRF mode), the SFP port LEDs are off.	

SFP+ port LED

Table4-25 SFP+ port LED description

Mode LED status	SFP+ port LED status	Description
Steady green (rate mode)	Steady green	A link is present on the port and the port is operating at 10 Gbps.
	Flashing green	The port is sending or receiving data at 10 Gbps.
	Steady yellow	A link is present on the port and the port is operating at 1 Gbps.
	Flashing yellow	The port is sending or receiving data at 1 Gbps.
	Off	No link is present on the port.
Steady yellow (duplex mode)	Steady green	The port is operating at full-duplex mode and a link is present on the port.
	Flashing green	The port is sending and receiving data at full-duplex mode.
	Steady yellow	The port is operating at half-duplex mode and a link is present on the port.
	Flashing yellow	The port is sending and receiving data at half-duplex mode.
	Off	No link is present on the port.
Flashing yellow (IRF mode)	Off	When the Mode LED is flashing yellow (IRF mode), the port LEDs are off.

QSFP+ port LED

The S5560X-30F-EIF, S5560X-34S-EI, and S5560X-54S-EI switches each provide two QSFP+ ports on the rear panel.

Table4-26 QSFP+ port LED description

Mode LED status	QSFP+ port LED status	Description
Steady green (rate mode)	Steady green	A link is present on the port and the port is operating at 40 Gbps.
	Flashing green	The port is sending or receiving data at 40 Gbps.

Mode LED status	QSFP+ port LED status	Description
	Steady yellow	A link is present on the port and the port is operating at 10 Gbps.
	Flashing yellow	The port is sending or receiving data at 10 Gbps.
	Off	No link is present on the port.
Steady yellow (duplex mode)	Steady green	The port is operating at full-duplex mode and a link is present on the port.
	Flashing green	The port is sending and receiving data at full-duplex mode.
	Steady yellow	The port is operating at half-duplex mode and a link is present on the port.
	Flashing yellow	The port is sending and receiving data at half-duplex mode.
	Off	No link is present on the port.
Flashing yellow (IRF mode)	Off	When the Mode LED is flashing yellow (IRF mode), the port LEDs are off.

Management Ethernet port LED

Table4-27 Management Ethernet port LED description

Management Ethernet port LED (ACT/LINK) status	Description
Steady green	A link is present on the port.
Flashing yellow	The port is sending or receiving data.
Off	No link is present on the port.

Expansion card status LED

The S5560X-EI switches except the S5560X-34S-EI and S5560X-54S-EI each provide an expansion slot at the rear. The expansion card status LED on the front panel indicates the operating state of the expansion card.

Table4-28 Expansion card status LED description

LED mark	Status	Description
SLOT	Steady green	The expansion card is in position and is operating correctly.
	Flashing yellow	The switch does not support the card model, or the card has failed.
	Off	The expansion slot is empty.

Port status LED on the expansion card

The expansion cards provide a port status LED for each port. For more information about the LEDs, see the manuals for the expansion cards.

Input status LED and output status LED on the power module

The PSR360-56A, PSR560-56D, PSR720-56A, and PSR1110-56A power modules each have an input status LED and an output status LED. For more information about the LEDs, see the manuals for the power modules.

Fan tray status LED on the fan tray

The LSPM1FANSA and LSPM1FANSB fan trays each have a fan tray status LED. The fan tray status LED on the fan tray indicates the operating state of the fan tray.

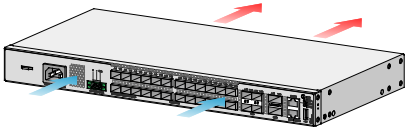**Table4-29 Fan tray status LED description**

LED mark	Status	Description
FAN	Steady yellow	The fan tray is operating correctly.
	Flashing yellow (1 Hz)	The fan tray is faulty.
	Off	The fan tray is not installed securely or has no power input.

5 Cooling system

The switch uses a high-performance cooling system for fast heat dissipation and system stability. Consider the site ventilation design when you plan the installation site for the switch.

Some switch models use removable fan trays. You can choose fan tray models for these switches to provide airflow directions that match the heat dissipation requirements at the installation site. You must fully configure fan trays for these switches, and the fan trays on a switch must be the same model.

Table5-1 Cooling system

Device model	Fan tray type and model	Airflow direction
S5560X-30C-EI S5560X-54C-EI S5560X-30F-EI S5560X-54F-EI S5560X-30C-PWR-EI S5560X-54C-PWR-EI	Removable fan tray LSPM1FANSA	From the power module side to the port side and side panels (S5560X-54C-EI switch as an example)
	Removable fan tray LSPM1FANSB	From the port side and side panels to the power module side (S5560X-54C-EI switch as an example)
S5560X-30F-EIF	Fixed fan tray	From the port side to the grounding screw side (S5560X-30F-EIF switch as an example)
S5560X-34S-EI S5560X-54S-EI	Fixed fan tray	From the left side to the right side (face the port side of the device to identify the left and right sides) (S5560X-34S-EI switch as an example)