

Ruijie RG-S7600 Series Switches

Hardware Installation and Reference Guide

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Preface

Intended Audience

This document is intended for:

- Network engineers
- Technical support and servicing engineers
- Network administrators

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- Documentation feedback: doc@ruijie.com.cn

Conventions

1. Signs

The signs used in this document are described as follows:

Danger

An alert that contains important safety instructions. Before you work on any equipment, be aware of the hazards involved and be familiar with standard practices in case of accidents.

Warning

An alert that calls attention to important rules and information that if not understood or followed can result in data loss or equipment damage.

Caution

An alert that calls attention to essential information that if not understood or followed can result in function failure or performance degradation.

Note

An alert that contains additional or supplementary information that if not understood or followed will not lead to serious consequences.

Specification

An alert that contains a description of product or version support.

2. Note

The manual provides configuration information, including models, port types, and command line interfaces, for reference purposes only. In the event of any discrepancy or inconsistency between the manual and the actual version, the actual version shall take precedence.

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1 Product Overview

RG-S7600 series switches are next-generation and ultra-high-density core switches developed by Ruijie Networks for all-optical network scenarios. By leveraging CWDM technology, the RG-S7610 series switch integrates 10 SFG/SFX ports in a 1 RU space (equivalent to 80 1GE logical channels or 80 10GE logical channels), and the RG-S7620 series switch integrates 20 SFG/SFX ports in a 2 RU space (equivalent to 160 1GE logical channels or 160 10GE logical channels).

The RG-S7600 series switches are available in four models and support two expansion modules.

Table 1-1 Host Configuration

Model	RG-S7610-10SFG2CQ	RG-S7610-10SFX2CQ	RG-S7620-20SFG2CQ	RG-S7620-20SFX2CQ
SFG port (1GE logical channel)	10	0	20	0
SFX port (10GE logical channel)	0	10	0	20
40GE/100GE QSFP28 port (supporting 4 x 10GE/4 x 25GE)	2	2	2	2
MGMT port	1	1	1	1
Console port	1	1	1	1
USB port	1	1	1	1
Expansion module slot	1	1	1	1
Power module redundancy	1+1	1+1	1+1	1+1
Fan redundancy	3+1	3+1	2+1	2+1

Table 1-2 Expansion Module Configuration

Model	M7600-4GT4VS	M7600-2CQ
10/100/1000Base-T port	4	0
1GE/10GE/25GE SFP28 port	4	0
40GE/100GE QSFP28 port	0	2

Note

- The 10GE SFX module is backward compatible with 1000M.
- SFP28 ports support 25G/10Gbase-R and 1000base-X, but do not support FEC-RS.
- The QSFP28 ports on the RG-S7600 series switches support both 100GE/40GE mode and 4 x 25GE/4 x 10GE mode.
- The QSFP28 ports on the M7600-2CQ expansion module do not support 4 x 25GE/4 x 10GE mode.

- The RG-S7600 series switches do not support the V-03281042-620 optical module.
- 25GE/100GE Ethernet ports of the RG-S7600 do not support Direct Attach Copper (DAC) cables.

**Caution**

In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

This device is not suitable for use in locations where children are likely to be present.

The device has the lithium battery:

- Replacing the battery with the incorrect type may cause explosion or danger. If the battery is damaged, replace it with the same type.
- Exposing the battery to extremely high temperatures and/or extremely low air pressure may cause the battery to explode or leak flammable liquids or gases.
- Throwing the battery into a fire or oven, or mechanically crushing or cutting it may cause the battery to explode.

1.1 RG-S7610-10SFG2CQ

1.1.1 Specifications

Model	RG-S7610-10SFG2CQ
Fixed service port	10 x SFG ports (80 x 1GE logical channels) 2 x 40GE/100GE QSFP28 ports (supporting 4 x 10GE/4 x 25GE)
Transmission Medium	SFG-LR-SM 40GBASE-LSR (850 nm) 40GBASE-LR4 (1310 nm) 40GBASE-iLR4 (1310 nm) 40GBASE-LX4 (1310 nm) 40GBASE QSFP+ active optical cable (AOC) 100GBASE-SR (850 nm) 100GBASE-LR4(1310 nm) 100GBASE QSFP28 active optical cable (AOC)
Module slot	2 x power module slots 4 x fan module slots 1 x expansion module slot
Expansion module	M7600-2CQ M7600-4GT4VS
Power module	RG-PA550I II-F
Fan module	S7610-FAN I-F

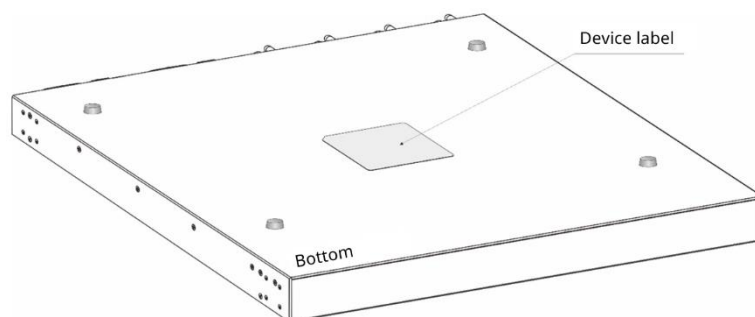
Fixed management port	1 x RJ45 console port 1 x RJ45 MGMT port
USB	1 x USB 2.0 port
Button	1 x LED mode button
Status LED	1 x system status LED 1 x power status LED 1 x fan status LED 1 x MGMT port LED 2 x port breathing LEDs 80 x SFG port channel LEDs (40 LEDs multiplexed) 2 x 40GE/100GE QSFP28 port LEDs
CPU	Quad-core CPU, each core with the clock speed of 2.0 GHz
BootROM	16 MB
Flash memory	8 GB
Memory	4 GB DDR4
Power supply	2 x pluggable power modules
Maximum output power	RG-PA550I II-F: 550 W
Module power consumption	270 W
Unit dimensions (W x D x H)	442 mm x 388 mm x 44 mm (17.40 in. x 15.28 in. x 1.73 in.)
Rack height	1 RU
Unit weight	6.88 kg (15.17 lbs, with 4 fan modules)
Temperature	Operating temperature: 0°C to 45°C (32°F to 113°F) Storage temperature: –40°C to +70°C (–40°F to +158°F) Note: At an altitude between 1,800 m (5,905.51 ft.) and 5,000 m (16,404.20 ft.), every time the altitude increases by 220 m (721.78 ft.), the maximum temperature decreases by 1°C (1.8°F).
Humidity	Operating humidity: 10% to 90% RH (non-condensing) Storage humidity: 5% to 95% RH (non-condensing)
Altitude	Operating altitude: 0 m to 5000 m (0 ft. to 16,404.20 ft.) Storage altitude: 0 m to 5000 m (0 ft. to 16,404.20 ft.)
Mean time between failure (MTBF)	683,104.8 hours (about 78 years)

Fan	4 x pluggable fan modules (pre-installed)
Acoustic noise	27°C (80.6°F): 56 dB 45°C (113°F): 72 dB
Power module redundancy	1+1 redundancy
Fan redundancy	3+1 redundancy, and at least three fan modules required
Module hot swapping	Supported
Power module hot swapping	Supported
Fan module hot swapping	Supported
Cable hot swapping	Supported
Fan monitoring	Fan speed adjustment: 256 levels (Only automatic adjustment is supported.) Fan failure alarm
Safety regulation	IEC 62368-1: 2018 EN 62368-1: 2014+A11:2017
EMC regulation	EN 55032:2015+A1:2020 EN 61000-3-2013+A1:2019+A2:2021 EN IEC 61000-3-2:2019+A1:2021 EN 55035:2017+A11:2020 EN 300386 V2.2.1
RoHS	European RoHS Directive 2011/65/EU & Amendment(EU) 2015/863

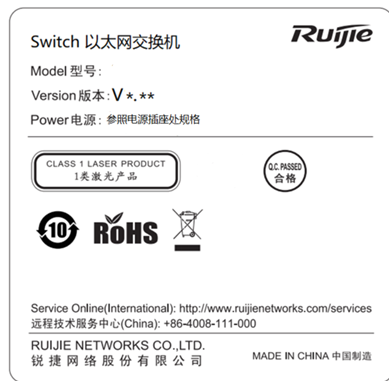
Warning

In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

The nameplate is on the bottom of the chassis.



Nameplate style:

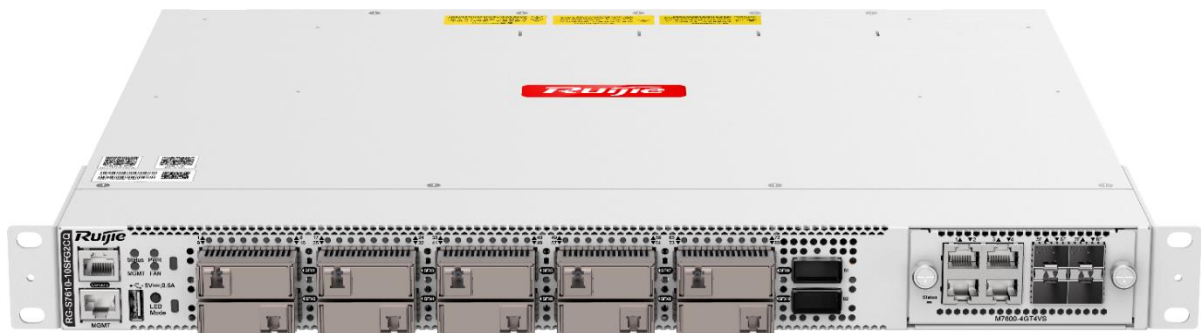


1.1.2 Appearance

The RG-S7610-10SFG2CQ consists of the chassis, power supply system, and cooling system.

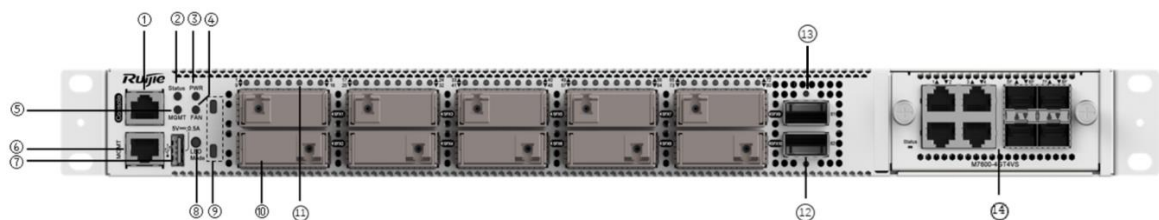
- The power supply system has two power module slots and supports 1+1 redundancy. You are advised to configure power redundancy.
- The cooling system has four fan module slots and supports 3+1 fan redundancy. You are advised to configure fan redundancy.

Figure 1-2 Appearance of the RG-S7610-10SFG2CQ



Front Panel

Figure 1-3 Front Panel of the RG-S7610-10SFG2CQ



Note:	1. Console Port	8. Breathing LED Switching Control Button
	2. System Status LED	9. Port Breathing LED
	3. Power Status LED (PWR)	10. SFG Port
	4. Fan Status LED	11. SFG Port Channel LED
	5. MGMT Port LED	12. 40GE/100GE QSFP28 Port
	6. MGMT Port	13. 40GE/100GE QSFP28 Port LED
	7. USB 2.0 Port	14. Expansion Module Slot

**Note**

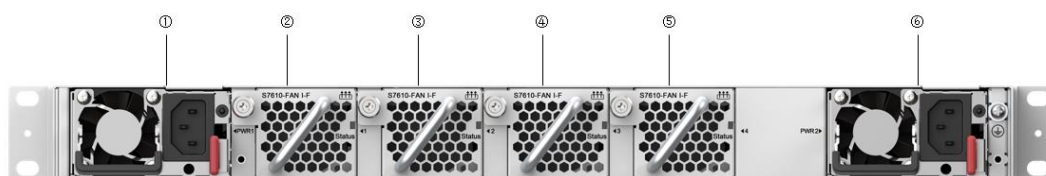
Breathing LED switching control button (**LED Mode**):

You can press the **LED Mode** button to switch the port status indicator mode, which is used with the upper and lower row port breathing LEDs. When the device is powered on, the upper row port breathing LED is on by default, indicating the status of ports in the upper row. Press the **LED Mode** button to switch to the lower row port breathing LED, indicating the status of ports in the lower row. Press the **LED Mode** button again to switch to the upper row port breathing LED.

Press the **LED Mode** button for at least two seconds to ensure that the port status indicator mode is successfully switched.

Rear Panel

Figure 1-4 Rear Panel of the RG-S7610-10SFG2CQ



Note:	① Power Module Slot 1	④ Fan Module Slot 3
	② Fan Module Slot 1	⑤ Fan Module Slot 4
	③ Fan Module Slot 2	⑥ Power Module Slot 2

External Ports

The RG-S7610-10SFG2CQ provides the following ports:

- **USB port:** The USB port is used to connect a USB flash drive to store logs, software versions, alarms, and other diagnostic information, which can be easily used for online upgrade of device software and storage of log information.
- **Console port:** The console port is an RS-232 port that uses an RJ45 connector. The console port is used to connect to the serial port of the background computer for commissioning, configuration, maintenance, management, and program loading.
- **MGMT port:** The MGMT port is an out-of-band Ethernet port that uses an RJ45 connector. This port can be connected to an Ethernet port of a PC to download programs. You can manage and maintain the device remotely by connecting the management port to the Ethernet port of a PC with an Ethernet cable.

- SFG port: There are 10 SFG ports. Each SFG port supports 8 x 1GE logical channels.
- QSFP28 port: There are two 40GE/100GE QSFP28 ports that support optical modules and AOC cables. It can work in 100GE or 40GE mode. The 100GE port can be split into four 25GE ports, and the 40GE port can be split into four 10GE ports.

**Caution**

- To ensure data security and prevent damage to your device, use USB flash drives of well-known brands and good quality. The USB port is compatible with most USB controllers and may not recognize some models of USB flash drives.
- The RG-S7610-10SFG2CQ supports configuration, maintenance, management, program loading, and system debugging through the console.

Table 1-3 LEDs

LED	Panel Identification	Status	Description
System Status LED	Status	Off	The system is not powered on.
		Solid red	A fault occurs in the system (any module). There are fewer than three fan modules. When the internal temperature of the device exceeds the dangerous operating temperature, the device is reset. When the device is equipped with dual power modules, one power module is not connected to AC cables.
		Blinking green	The system is being initialized.
		Solid green	The system is operating normally.
		Solid yellow	The temperature reaches the alarm threshold. The system detects that only three out of four fan modules are working properly.
MGMT Port LED	MGMT	Off	No link is set up on the port.
		Green	A link is set up on the port and the port works at the rate of 1000 Mbps.
		Yellow	A link is set up on the port and the port works at the rate of 10/100 Mbps.

LED	Panel Identification	Status	Description
		Blinking	The port is receiving or sending data.
Power Status LED	PWR	Solid green	The power module is seated and provides power for the device.
		Solid yellow	The model of the power module can be read but cannot be identified.
		Solid red	The power module is not functioning properly or not connected to the AC power cord.
Fan Status LED	FAN	Solid green	All fan modules are seated and functioning properly.
		Solid red	One fan module is faulty. The model of the fan module is not supported. One fan module is not seated.
Port Breathing LED	N/A	Upper-row: on	The SFX port channel LED represents the upper-row port status.
		Lower-row: on	The SFX port channel LED represents the upper-row port status.
SFG Port Channel LED	1–80	Off	No link is set up on the port.
		Solid green	A link is set up on the port.
		Blinking green	The port is receiving or sending data.
40GE/100GE QSFP28 Port LED	81F–82F	Off	No link is set up on the port.
		Solid green	A link is set up on the port.
		Blinking green	The port is receiving or sending data.

1.1.3 Power Module

The RG-S7610-10SFG2CQ supports the RG-PA550I II-F power module. The RG-PA550I II-F is an intelligent power module that can obtain information such as the output power, output current, and operating temperature in real time. The power module supports hot swapping.



Note

- The RG-S7610-10SFG2CQ supports power modules in 1+1 redundancy mode. To improve system stability and reliability, you are advised to configure power modules in 1+1 redundancy mode. If two power modules are used, the device works in current-sharing mode.

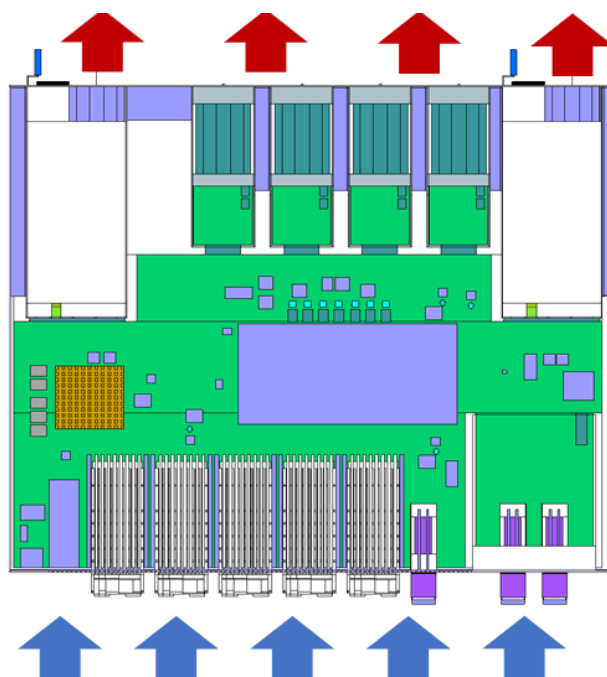
- At least one power module is required. If any slot is unoccupied, install a filler panel to enable proper airflow and to keep dust out of the chassis.

1.1.4 Cooling

The operating temperature of the RG-S7610-10SFG2CQ ranges from 0°C to 45°C (32°F to 113°F). The cooling design must ensure system reliability, safety, and maintainability. The RG-S7610-10SFG2CQ uses fan modules to draw air for forced convection. This ensures that the switch works properly in the specified environment. Dust the device every three months to avoid blocking the ventilation openings on the housing.

The RG-S7610-10SFG2CQ supports the S7610-FAN II-F fan module. The fan module supports hot swapping, fan speed adjustment, and alarms on faults.

Figure 1-5 Airflow Direction



Caution

- Maintain a minimum clearance of 200 mm (7.87 in.) around the device for air circulation.
- At least three fan modules are required. If any slot is unoccupied, install a filler panel to enable proper airflow and to keep dust out of the chassis.

1.2 RG-S7610-10SFX2CQ

1.2.1 Specifications

Model	RG-S7610-10SFX2CQ
Fixed service port	10 x SFX ports (80 x 10GE logical channels)

	2 x 40GE/100GE QSFP28 ports (supporting 4 x 10GE/4 x 25GE)
Transmission Medium	SFG-LR-SM SFX-LR-SM 40GBASE-LSR (850 nm) 40GBASE-LR4 (1310 nm) 40GBASE-iLR4 (1310 nm) 40GBASE-LX4 (1310 nm) 40GBASE QSFP+ active optical cable (AOC) 100GBASE-SR (850 nm) 100GBASE-LR4(1310 nm) 100GBASE QSFP28 active optical cable (AOC)
Module slot	2 x power module slots 4 x fan module slots 1 x expansion module slot
Expansion module	M7600-2CQ M7600-4GT4VS
Power module	RG-PA550I II-F
Fan module	S7610-FAN I-F
Fixed management port	1 x RJ45 console port 1 x RJ45 MGMT port
USB	1 x USB 2.0 port
Button	1 x LED mode button
Status LED	1 x system status LED 1 x power status LED 1 x fan status LED 1 x MGMT port LED 2 x port breathing LEDs 80 x SFX port channel LEDs (40 LEDs multiplexed) 2 x 40GE/100GE QSFP28 port LEDs
CPU	Quad-core CPU, each core with the clock speed of 2.0 GHz
BootROM	16 MB
Flash memory	8 GB
Memory	4 GB DDR4

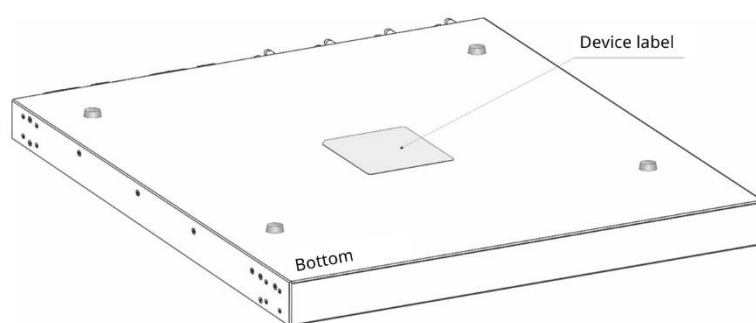
Power supply	2 x pluggable power modules
Maximum output power	RG-PA550I II-F: 550 W
Module power consumption	270 W
Unit dimensions (W x D x H)	442 mm x 388 mm x 44 mm (17.40 in. x 15.28 in. x 1.73 in.)
Rack height	1 RU
Unit weight	6.88 kg (15.17 lbs, with 4 fan modules)
Temperature	Operating temperature: 0°C to 45°C (32°F to 113°F) Storage temperature: –40°C to +70°C (–40°F to +158°F) Note: At an altitude between 1,800 m (5,905.51 ft.) and 5,000 m (16,404.20 ft.), every time the altitude increases by 220 m (721.78 ft.), the maximum temperature decreases by 1°C (1.8°F).
Humidity	Operating humidity: 10% to 90% RH (non-condensing) Storage humidity: 5% to 95% RH (non-condensing)
Altitude	Operating altitude: 0 m to 5000 m (0 ft. to 16,404.20 ft.) Storage altitude: 0 m to 5000 m (0 ft. to 16,404.20 ft.)
Mean time between failure (MTBF)	683,104.8 hours (about 78 years)
Fan	4 x pluggable fan modules
Acoustic noise	27°C (80.6°F): 56 dB 45°C (113°F): 72 dB
Power module redundancy	1+1 redundancy
Fan redundancy	3+1 redundancy, and at least three fan modules required
Module hot swapping	Supported
Power module hot swapping	Supported
Fan module hot swapping	Supported
Cable hot swapping	Supported
Fan monitoring	Fan speed adjustment: 256 levels (Only automatic adjustment is supported.) Fan failure alarm
Safety regulation	IEC 62368-1: 2018 EN 62368-1: 2014+A11:2017
EMC regulation	EN 55032:2015+A1:2020 EN 61000-3-2013+A1:2019+A2:2021

	EN IEC 61000-3-2:2019+A1:2021 EN 55035:2017+A11:2020 EN 300386 V2.2.1
RoHS	European RoHS Directive 2011/65/EU & Amendment(EU) 2015/863

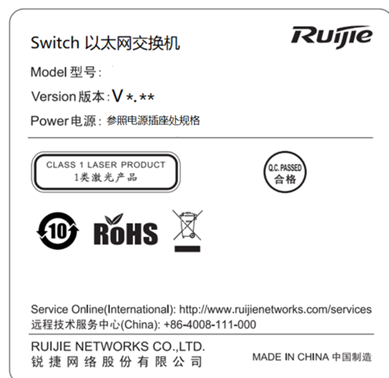
Warning

In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

The nameplate is on the bottom of the chassis.



Nameplate style:

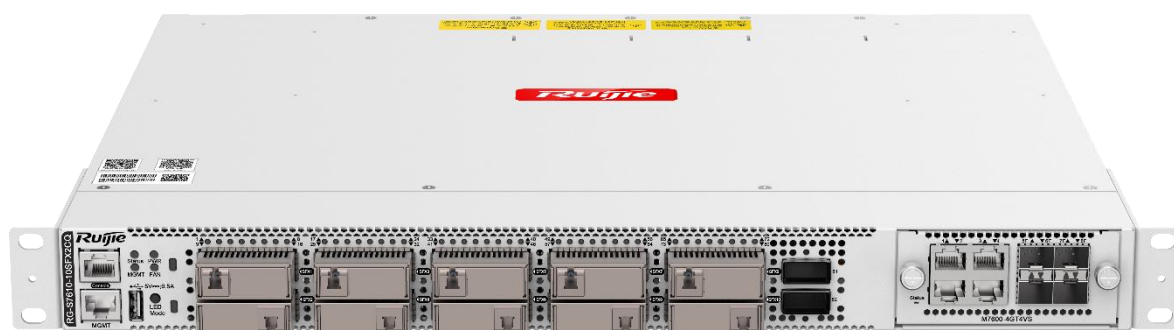


1.2.2 Appearance

The RG-S7610-10SFX2CQ consists of the chassis, power supply system, and cooling system.

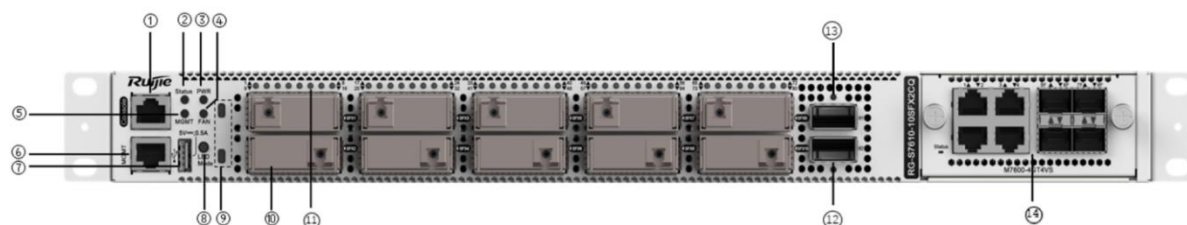
- The power supply system has two power module slots and supports 1+1 redundancy. You are advised to configure power module redundancy.
- The cooling system has four fan module slots and supports 3+1 redundancy. You are advised to configure fan module redundancy.

Figure 1-6 Appearance of the RG-S7610-10SFX2CQ



Front Panel

Figure 1-7 Front Panel of the RG-S7610-10SFX2CQ



- | | |
|--|---|
| <p>Note:</p> <ol style="list-style-type: none"> 1. Console Port 2. System Status LED 3. Power Status LED 4. Fan Status LED 5. MGMT Port LED 6. MGMT Port 7. USB 2.0 Port | <ol style="list-style-type: none"> 8. Breathing LED Switching Control Button 9. Port Breathing LED 10. SFX Port 11. SFX Port Channel LED 12. 40GE/100GE QSFP28 Port 13. 40GE/100GE QSFP28 Port LED 14. Expansion Module Slot |
|--|---|

Note

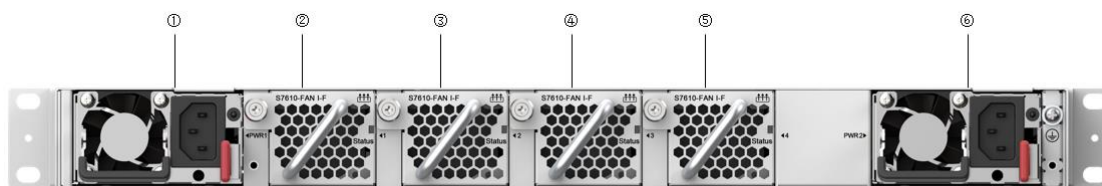
Breathing LED switching control button (**LED Mode**):

You can press the **LED Mode** button to switch the port status indicator mode, which is used with the upper and lower row port breathing LEDs. When the device is powered on, the upper row port breathing LED is on by default, indicating the status of ports in the upper row. Press the **LED Mode** button to switch to the lower row port breathing LED, indicating the status of ports in the lower row. Press the **LED Mode** button again to switch to the upper row port breathing LED.

Press the **LED Mode** button for at least two seconds to ensure that the port status indicator mode is successfully switched.

Rear Panel

Figure 1-8 Rear Panel of the RG-S7610-10SFX2CQ



Note:	1. Power Module Slot 1	4. Fan Module Slot 3
	2. Fan Module Slot 1	5. Fan Module Slot 4
	3. Fan Module Slot 2	6. Power Module Slot 2

External Ports

The RG-S7610-10SFX2CQ provides the following ports:

- **USB port:** The USB port is used to connect a USB flash drive to store logs, software versions, alarms, and other diagnostic information, which can be easily used for online upgrade of device software and storage of log information.
- **Console port:** The console port is an RS-232 port that uses an RJ45 connector. The console port is used to connect to the serial port of the background computer for commissioning, configuration, maintenance, management, and program loading.
- **MGMT port:** The MGMT port is an out-of-band Ethernet port that uses an RJ45 connector. This port can be connected to an Ethernet port of a PC to download programs. You can manage and maintain the device remotely by connecting the management port to the Ethernet port of a PC with an Ethernet cable.
- **SFX port:** The device provides 10 SFX ports which are compatible with SFG modules. Each SFX port supports eight 10GE logical channels and is compatible with SFG modules.
- **QSFP28 port:** There are two 40GE/100GE QSFP28 ports that support optical modules and AOC cables. It can work in 100GE or 40GE mode. The 100GE port can be split into four 25GE ports, and the 40GE port can be split into four 10GE ports.



Caution

- To ensure data security and prevent damage to your device, use USB flash drives of well-known brands and good quality. The USB port is compatible with most USB controllers and may not recognize some models of USB flash drives.
- The RG-S7610-10SFX2CQ supports configuration, maintenance, management, program loading, and system debugging through the console.

Table 1-4 LEDs

LED	Panel Identification	Status	Description
System Status LED	Status	Off	The system is not powered on.
		Solid red	A fault occurs in the system (any module). There are fewer than three fan modules. When the internal temperature of the device exceeds the hazardous operating temperature, the device is reset. When the device is equipped with dual power modules, one power module is not connected to AC cables.
		Blinking green	The system is being initialized.
		Solid green	The system is operating normally.
		Solid yellow	The temperature reaches the alarm threshold. The system detects that only three out of four fan modules are working properly.
MGMT Port LED	MGMT	Off	No link is set up on the port.
		Green	A link is set up on the port and the port works at the rate of 1000 Mbps.
		Yellow	A link is set up on the port and the port works at the rate of 10/100 Mbps.
		Blinking	The port is receiving or sending data.
Power Status LED	PWR	Solid green	The power module is seated and provides power for the device.
		Solid yellow	The model of the power module can be read but cannot be identified.
		Solid red	A power module is not functioning properly or not connected to the AC power cord.
Fan Status LED	FAN	Solid green	All fan modules are seated and functioning properly.
		Solid red	One fan module is faulty. The model of the fan module is not supported. One fan module is not seated.

LED	Panel Identification	Status	Description
Port Breathing LED	N/A	Upper-row: on	The SFX port channel LED represents the upper-row port status.
		Lower-row: on	The SFX port channel LED represents the lower-row port status.
SFX Port Channel LED	1–80	Off	No link is set up on the port.
		Solid green	A link is set up on the port.
		Blinking green	The port is receiving or sending data.
40GE/100GE QSFP28 Port LED	81F–82F	Off	No link is set up on the port.
		Solid green	A link is set up on the port.
		Blinking green	The port is receiving or sending data.

1.2.3 Power Module

The RG-S7610-10SFX2CQ supports the RG-PA550I II-F power module. The RG-PA550I II-F is an intelligent power module that can obtain information such as the output power, output current, and operating temperature in real time. The power module supports hot swapping.



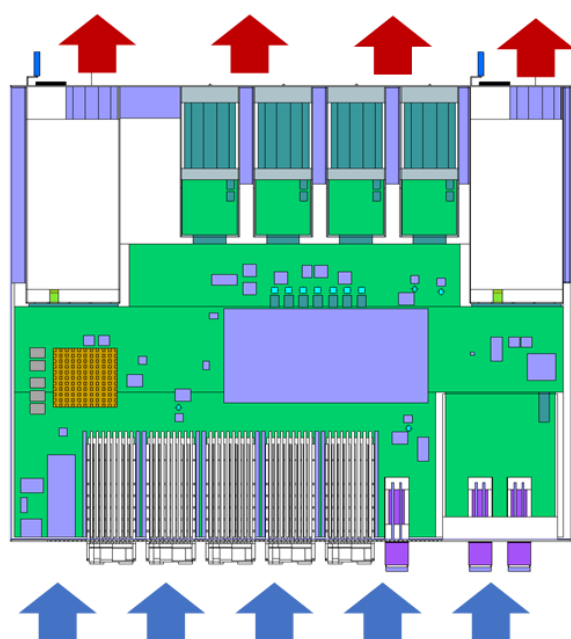
Caution

- The RG-S7610-10SFX2CQ supports power modules in 1+1 redundancy mode. To improve system stability and reliability, you are advised to configure power modules in 1+1 redundancy mode. If two power modules are used, the device works in current-sharing mode.
- At least one power module is required. If any slot is unoccupied, install a filler panel to enable proper airflow and to keep dust out of the chassis.

1.2.4 Cooling

The operating temperature of the RG-S7610-10SFX2CQ ranges from 0°C to 45°C (32°F to 113°F). The cooling design must ensure system reliability, safety, and maintainability. The RG-S7610-10SFX2CQ uses fan modules to draw air for forced convection. This ensures that the switch works properly in the specified environment. Dust the device every three months to avoid blocking the ventilation openings on the housing.

The RG-S7610-10SFX2CQ supports the S7610-FAN II-F fan module. The fan module supports hot swapping, fan speed adjustment, and alarms on faults.

Figure 1-9 Airflow of the RG-S7610-10SFX2CQ**Caution**

- Maintain a minimum clearance of 200 mm (7.87 in.) around the device for air circulation.
- At least three fan modules are required. If any slot is unoccupied, install a filler panel to enable proper airflow and to keep dust out of the chassis.

1.3 RG-S7620-20SFG2CQ

1.3.1 Specifications

Model	RG-S7620-20SFG2CQ
Fixed service port	20 x SFG ports (160 x 1GE logical channels) 2 x 40GE/100GE QSFP28 ports (supporting 4 x 10GE/4 x 25GE)
Transmission Medium	SFG-LR-SM 40GBASE-LSR (850 nm) 40GBASE-LR4 (1310 nm) 40GBASE-iLR4 (1310 nm) 40GBASE-LX4 (1310 nm) 40GBASE QSFP+ active optical cable (AOC) 100GBASE-SR (850 nm) 100GBASE-LR4(1310 nm) 100GBASE QSFP28 active optical cable (AOC)
Module slot	2 x power module slots

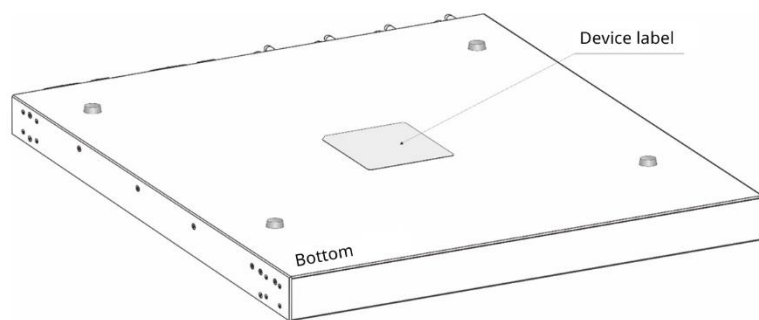
	3 x fan module slots 1 x expansion module slot
Expansion module	M7600-2CQ M7600-4GT4VS
Power module	RG-PA550I II-F
Fan module	S7620-FAN I-F
Fixed management port	1 x RJ45 console port 1 x RJ45 MGMT port
USB	1 x USB 2.0 port
Button	1 x LED mode button
Status LED	1 x system status LED 1 x power status LED 1 x fan status LED 1 x MGMT port LED 3 x port breathing LEDs 160 x SFG port channel LEDs (48 LEDs multiplexed) 2 x 40GE/100GE QSFP28 port LEDs
CPU	Quad-core CPU, each core with the clock speed of 2.0 GHz
BootROM	16 MB
Flash memory	8 GB
Memory	4 GB DDR4
Power supply	2 x pluggable power modules
Maximum output power	RG-PA550I II-F: 550 W
Module power consumption	450 W
Unit dimensions (W x D x H)	442 mm x 388 mm x 88 mm (17.40 in. x 15.28 in. x 3.46 in.)
Rack height	2 RU
Unit weight	11.02 kg (24.29 lbs, with 3 fan modules)
Temperature	Operating temperature: 0°C to 45°C (32°F to 113°F) Storage temperature: -40°C to +70°C (-40°F to +158°F) Note: At an altitude between 1,800 m (5,905.51 ft.) and 5,000 m (16,404.20 ft.), every time the altitude increases by 220 m (721.78 ft.), the maximum temperature decreases by 1°C (1.8°F).

Humidity	Operating humidity: 10% to 90% RH (non-condensing) Storage humidity: 5% to 95% RH (non-condensing)
Altitude	Operating altitude: 0 m to 5000 m (0 ft. to 16,404.20 ft.) Storage altitude: 0 m to 5000 m (0 ft. to 16,404.20 ft.)
Mean time between failure (MTBF)	360,474 hours (about 41 years)
Fan	3 x pluggable fan modules
Acoustic noise	27°C (80.6°F): 56 dB 45°C (113°F): 72 dB
Power module redundancy	1+1 redundancy
Fan redundancy	2+1 redundancy, and at least two fan modules required
Module hot swapping	Supported
Power module hot swapping	Supported
Fan module hot swapping	Supported
Cable hot swapping	Supported
Fan monitoring	Fan speed adjustment: 256 levels (Only automatic adjustment is supported.) Fan failure alarm
Safety regulation	IEC 62368-1: 2018 EN 62368-1: 2014+A11:2017
EMC regulation	EN 55032:2015+A1:2020 EN 61000-3-2013+A1:2019+A2:2021 EN IEC 61000-3-2:2019+A1:2021 EN 55035:2017+A11:2020 EN 300386 V2.2.1
RoHS	European RoHS Directive 2011/65/EU & Amendment(EU) 2015/863

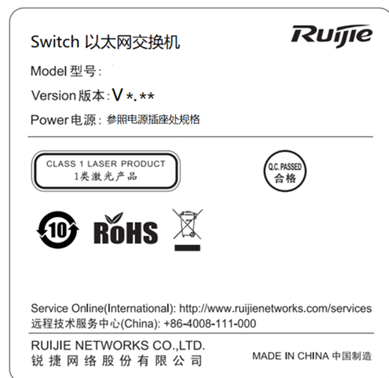
Warning

In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

The nameplate is on the bottom of the chassis.



Nameplate style:

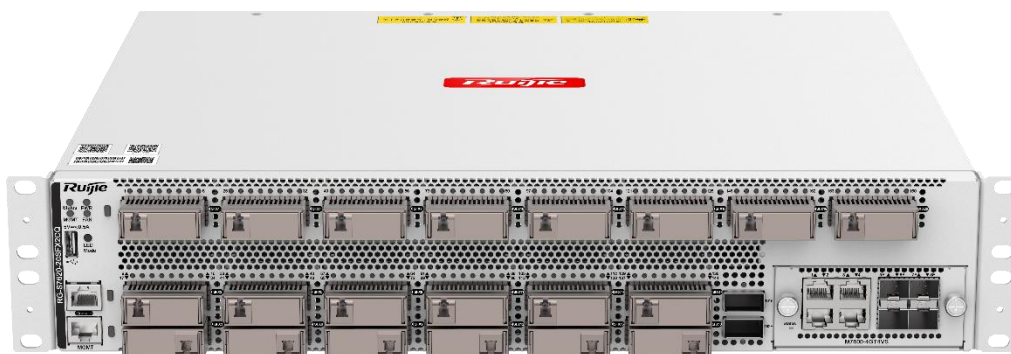


1.3.2 Appearance

The RG-S7620-20SFG2CQ consists of the chassis, power supply system, and cooling system.

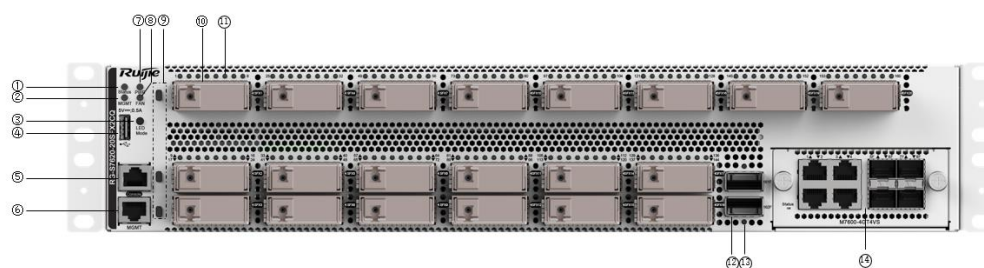
- The power supply system has two power module slots and supports 1+1 redundancy. You are advised to configure power module redundancy.
- The cooling system has three fan module slots and supports 2+1 redundancy. You are advised to configure fan module redundancy.

Figure 1-10 Appearance of the RG-S7620-20SFG2CQ



Front Panel

Figure 1-11 Front Panel of the RG-S7620-20SFG2CQ



Note:	1. System Status LED	8. Fan Module LED
	2. MGMT Port LED	9. Port Breathing LED
	3. Breathing LED Switching Control Button	10. SFG Port
	4. USB 2.0 Port	11. SFG Port Channel LED
	5. Console Port	12. 40GE/100GE QSFP28 Port
	6. MGMT Port	13. 40GE/100GE QSFP28 Port LED
	7. Power Module LED	14. Expansion Module Slot

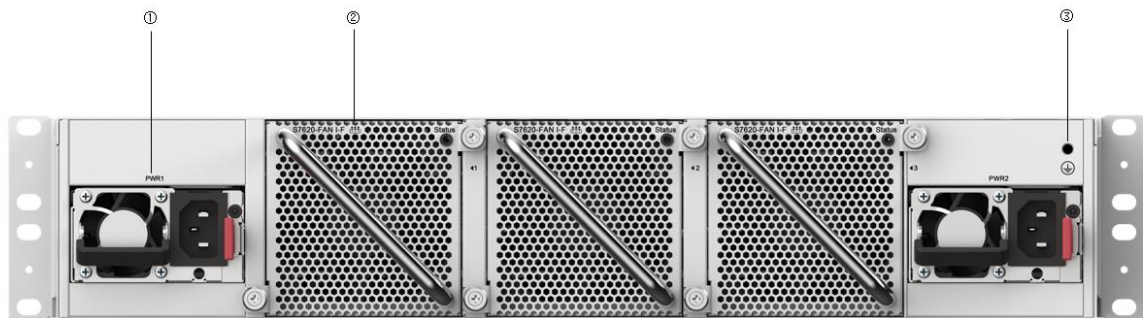
Note

Breathing LED switching control button (**LED Mode**):

You can press the **LED Mode** button to switch the combination of LEDs. This button works in coordination with port breathing LEDs. By default, the status of the upper-row and medium-row ports is shown through port LEDs when the device is started. That is, the upper-row and medium-row port breathing LEDs are on, and the port LEDs indicate the status of the upper-row and medium-row ports. Press the **LED Mode** button to switch to the upper-row and lower-row port status display mode. In this mode, the upper-row and lower-row port breathing LEDs are on, and the port LEDs indicate the status of upper-row and lower-row ports. Press the **LED Mode** button again to switch to the default port LED display mode. Each time the **LED Mode** button is pressed, the combination mode of LEDs changes. When you press the button, hold down it for more than 2 seconds to ensure a successful switching.

Rear Panel

Figure 1-12 Rear Panel of the RG-S7620-20SFG2CQ



Note :

1. Power Module Slot
2. Fan Module Slot
3. Grounding Stud

External Ports

The RG-S7620-20SFG2CQ provides the following ports:

- **USB port:** The USB port is used to connect a USB flash drive to store logs, software versions, alarms, and other diagnostic information, which can be easily used for online upgrade of device software and storage of log information.
- **Console port:** The console port is an RS-232 port that uses an RJ45 connector. The console port is used to connect to the serial port of the background computer for commissioning, configuration, maintenance, management, and program loading.
- **MGMT port:** The MGMT port is an out-of-band Ethernet port that uses an RJ45 connector. This port can be connected to an Ethernet port of a PC to download programs. You can manage and maintain the device remotely by connecting the management port to the Ethernet port of a PC with an Ethernet cable.
- **SFG port:** The device provides 20 SFG ports, and each SFG supports eight SFP channels.
- **QSFP28 port:** There are two 40GE/100GE QSFP28 ports that support optical modules and AOC cables. It can work in 100GE or 40GE mode. The 100GE port can be split into four 25GE ports, and the 40GE port can be split into four 10GE ports.



Caution

- To ensure data security and prevent damage to your device, use USB flash drives of well-known brands and good quality. The USB port is compatible with most USB controllers and may not recognize some models of USB flash drives.
- The RG-S7620-20SFG2CQ supports configuration, maintenance, management, program loading, and system debugging through the console.

Table 1-5 LEDs

LED	Panel Identification	Status	Description
System Status LED	Status	Off	The system is not powered on.
		Solid red	A fault occurs in the system (any module). There are fewer than three fan modules. When the internal temperature of the device exceeds the hazardous operating temperature, the device is reset. When the device is equipped with dual power modules, one power module is not connected to AC cables.
		Blinking green	The system is being initialized.
		Solid green	The system is operating normally.
		Solid yellow	The temperature reaches the alarm threshold. The system detects that only two out of three fan modules are working properly.
MGMT Port LED	MGMT	Off	No link is set up on the port.
		Green	A link is set up on the port and the port works at the rate of 1000 Mbps.
		Yellow	A link is set up on the port and the port works at the rate of 10/100 Mbps.
		Blinking	The port is receiving or sending data.
Power Status LED	PWR	Solid green	The power module is seated and provides power for the device.
		Solid yellow	The model of the power module can be read but cannot be identified.
		Solid red	A power module is not functioning properly or not connected to the AC power cord.
Fan Status LED	FAN	Solid green	All fan modules are seated and functioning properly.
		Solid red	One fan module is faulty. The model of the fan module is not supported. One fan module is not seated.

LED	Panel Identification	Status	Description
Port Breathing LED	N/A	Upper-row: on	The SFG port channel LED represents the upper-row port status.
		Medium-row: on	The SFG port channel LED represents the medium-row port status.
		Lower-row: on	The SFG port channel LED represents the lower-row port status.
SFG Port Channel LED	1–160	Off	No link is set up on the port.
		Solid green	A link is set up on the port.
		Blinking green	The port is receiving or sending data.
40GE/100GE QSFP28 Port LED	161F–162F	Off	No link is set up on the port.
		Solid green	A link is set up on the port.
		Blinking green	The port is receiving or sending data.

1.3.3 Power Module

The RG-S7620-20SFG2CQ supports the RG-PA550I II-F power module. The RG-PA550I II-F is an intelligent power module that can obtain information such as the output power, output current, and operating temperature in real time. The power module supports hot swapping.



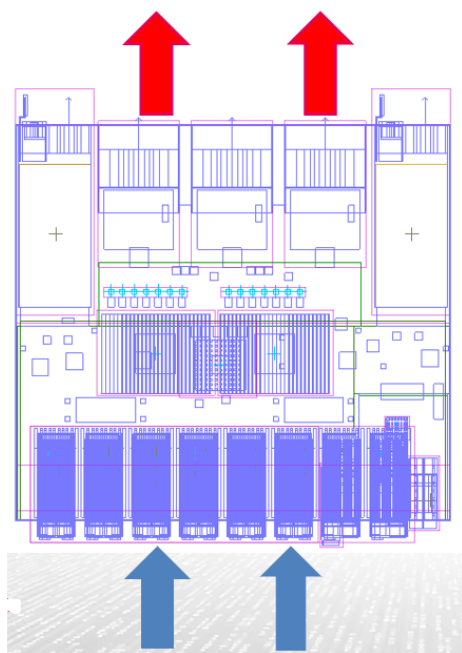
Caution

- The RG-S7620-20SFG2CQ supports power modules in 1+1 redundancy mode. To improve system stability and reliability, you are advised to configure power modules in 1+1 redundancy mode. If two power modules are used, the device works in current-sharing mode.
- At least one power module is required. If any slot is unoccupied, install a filler panel to enable proper airflow and to keep dust out of the chassis.

1.3.4 Cooling

The operating temperature of the RG-S7620-20SFG2CQ ranges from 0°C to 45°C (32°F to 113°F). The cooling design must ensure system reliability, safety, and maintainability. The RG-S7620-20SFG2CQ uses fan modules to draw air for forced convection. This ensures that the switch works properly in the specified environment. Dust the device every three months to avoid blocking the ventilation openings on the housing.

The RG-S7620-20SFG2CQ supports the S7620-FAN II-F fan module. The fan module supports hot swapping, fan speed adjustment, and alarms on faults.

Figure 1-13 Airflow of the RG-S7620-20SFG2CQ**Caution**

- Maintain a minimum clearance of 200 mm (7.87 in.) around the device for air circulation.
- At least two modules are required. If any slot is unoccupied, install a filler panel to enable proper airflow and to keep dust out of the chassis.

1.4 RG-S7620-20SFX2CQ

1.4.1 Specifications

Model	RG-S7620-20SFX2CQ
Fixed service port	20 x SFX ports (160 x 10GE logical channels) 2 x 40GE/100GE QSFP28 ports (supporting 4 x 10GE/4 x 25GE)
Transmission Medium	SFG-LR-SM SFX-LR-SM 40GBASE-LSR (850 nm) 40GBASE-LR4 (1310 nm) 40GBASE-iLR4 (1310 nm) 40GBASE-LX4 (1310 nm) 40GBASE QSFP+ active optical cable (AOC) 100GBASE-SR (850 nm) 100GBASE-LR4(1310 nm)

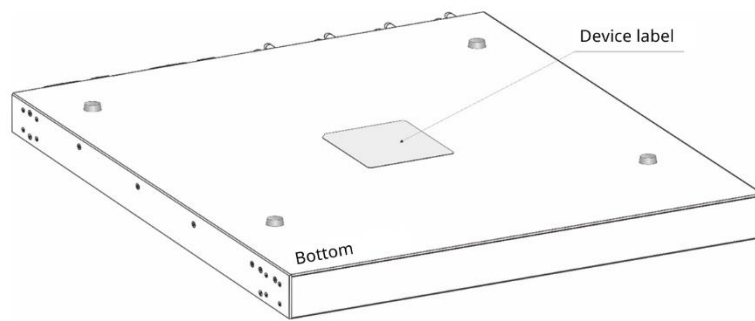
	100GBASE QSFP28 active optical cable (AOC)
Module slot	2 x power module slots 3 x fan module slots 1 x expansion module slot
Expansion module	M7600-2CQ M7600-4GT4VS
Power module	RG-PA550I II-F
Fan module	S7620-FAN I-F
Fixed management port	1 x RJ45 console port 1 x RJ45 MGMT port
USB	1 x USB 2.0 port
Button	1 x LED mode button
Status LED	1 x system status LED 1 x power status LED 1 x fan status LED 1 x MGMT port LED 3 x port breathing LEDs 160 x SFX port channel LEDs (48 LEDs multiplexed) 2 x 40GE/100GE QSFP28 port LEDs
CPU	Quad-core CPU, each core with the clock speed of 2.0 GHz
BootROM	16 MB
Flash memory	8 GB
Memory	4 GB DDR4
Power supply	2 x pluggable power modules
Maximum output power	RG-PA550I II-F: 550 W
Module power consumption	450 W
Unit dimensions (W x D x H)	442 mm x 388 mm x 88 mm (17.40 in. x 15.28 in. x 3.46 in.)
Rack height	2 RU
Unit weight	11.02 kg (24.29 lbs, with 3 fan modules)
Temperature	Operating temperature: 0°C to 45°C (32°F to 113°F) Storage temperature: -40°C to +70°C (-40°F to +158°F)

	Note: At an altitude between 1,800 m (5,905.51 ft.) and 5,000 m (16,404.20 ft.), every time the altitude increases by 220 m (721.78 ft.), the maximum temperature decreases by 1°C (1.8°F).
Humidity	Operating humidity: 10% to 90% RH (non-condensing) Storage humidity: 5% to 95% RH (non-condensing)
Altitude	Operating altitude: 0 m to 5000 m (0 ft. to 16,404.20 ft.) Storage altitude: 0 m to 5000 m (0 ft. to 16,404.20 ft.)
Mean time between failure (MTBF)	360,474 hours (about 41 years)
Fan	3 x pluggable fan modules
Acoustic noise	27°C (80.6°F): 56 dB 45°C (113°F): 72 dB
Power module redundancy	1+1 redundancy
Fan redundancy	2+1 redundancy, and at least two fan modules required
Module hot swapping	Supported
Power module hot swapping	Supported
Fan module hot swapping	Supported
Cable hot swapping	Supported
Fan monitoring	Fan speed adjustment: 256 levels (Only automatic adjustment is supported.) Fan failure alarm
Safety regulation	IEC 62368-1: 2018 EN 62368-1: 2014+A11:2017
EMC regulation	EN 55032:2015+A1:2020 EN 61000-3-2013+A1:2019+A2:2021 EN IEC 61000-3-2:2019+A1:2021 EN 55035:2017+A11:2020 EN 300386 V2.2.1
RoHS	European RoHS Directive 2011/65/EU & Amendment(EU) 2015/863

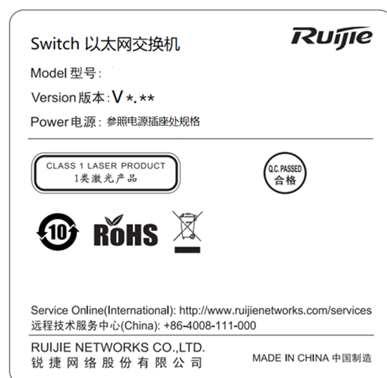
Warning

In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

The nameplate is on the bottom of the chassis.



Nameplate style:

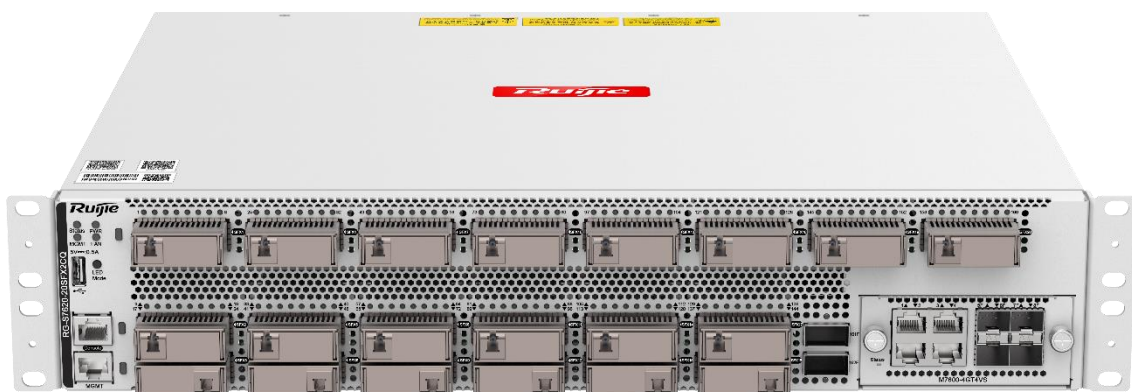


1.4.2 Appearance

The RG-S7620-20SFX2CQ consists of the chassis, power supply system, and cooling system.

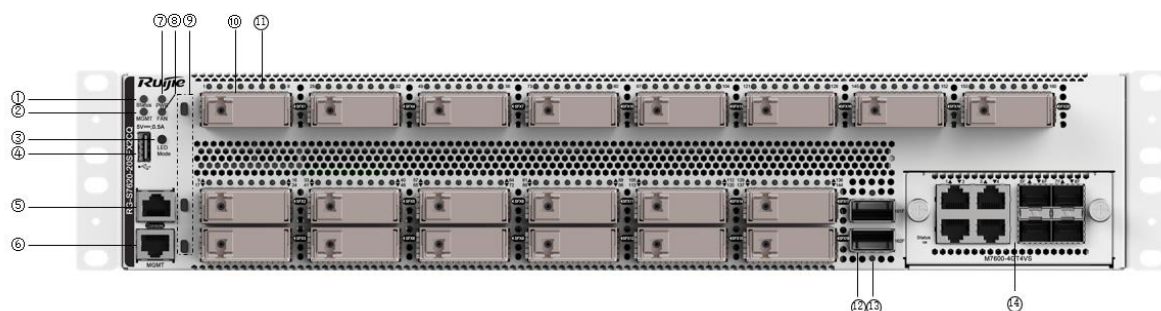
- The power supply system has two power module slots and supports 1+1 redundancy. You are advised to configure power module redundancy.
- The cooling system has three fan module slots and supports 2+1 redundancy. You are advised to configure fan module redundancy.

Figure 1-14 Appearance of the RG-S7620-20SFX2CQ



Front Panel

Figure 1-15 Front Panel of the RG-S7620-20SFX2CQ



Note:	1. System Status LED	8. Fan Status LED
	2. MGMT Port LED	9. Port Breathing LED
	3. Breathing LED Switching Control Button	10. SFX Port
	4. USB 2.0 Port	11. SFX Port Channel LED
	5. Console Port	12. 40GE/100GE QSFP28 Port
	6. MGMT Port	13. 40GE/100GE QSFP28 Port LED
	7. Power Status LED	14. Expansion Module Slot

Note

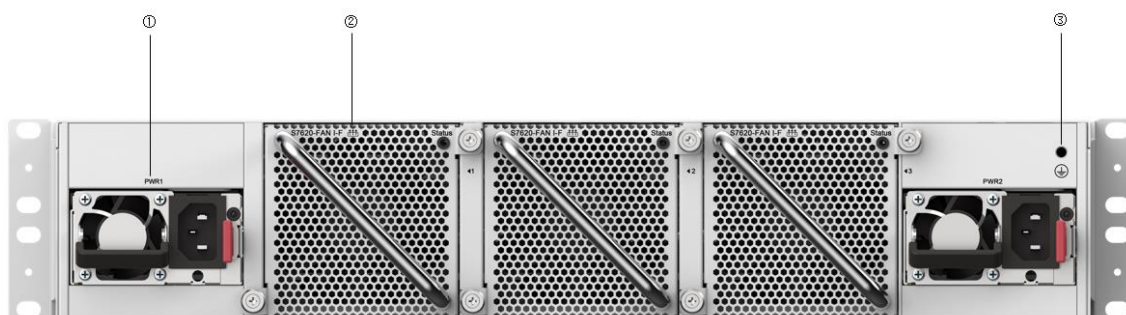
Breathing LED switching control button (**LED Mode**):

You can press the **LED Mode** button to switch the combination of LEDs. This button works in coordination with port breathing LEDs. By default, the status of the upper-row and medium-row ports is shown through port LEDs when the device is started. That is, the upper-row and medium-row port breathing LEDs are on, and the port LEDs indicate the status of the upper-row and medium-row ports. Press the **LED Mode** button to switch to the upper-row and lower-row port status display mode. In this mode, the upper-row and lower-row port breathing LEDs are on, and the port LEDs indicate the status of upper-row and lower-row ports. Press the **LED Mode** button again to switch to the default port LED display mode. Each time the **LED Mode** button is pressed, the combination mode of LEDs changes.

When you press the button, hold down it for more than 2 seconds to ensure a successful switching.

Rear Panel

Figure 1-16 Rear Panel of the RG-S7620-20SFX2CQ



- Note :**
1. Power Module Slot
 2. Fan Module Slot
 3. Grounding Stud

External Ports

The RG-S7620-20SFX2CQ provides the following ports:

- **USB port:** The USB port is used to connect a USB flash drive to store logs, software versions, alarms, and other diagnostic information, which can be easily used for online upgrade of device software and storage of log information.
- **Console port:** The console port is an RS-232 port that uses an RJ45 connector. The console port is used to connect to the serial port of the background computer for commissioning, configuration, maintenance, management, and program loading.
- **MGMT port:** The MGMT port is an out-of-band Ethernet port that uses an RJ45 connector. This port can be connected to an Ethernet port of a PC to download programs. You can manage and maintain the device remotely by connecting the management port to the Ethernet port of a PC with an Ethernet cable.
- **SFX port:** The device provides 20 SFX ports which are compatible with SFG modules. Each SFX port supports eight SFP+ channels and is compatible with SFG modules.
- **QSFP28 port:** There are two 40GE/100GE QSFP28 ports that support optical modules and AOC cables. It can work in 100GE or 40GE mode. The 100GE port can be split into four 25GE ports, and the 40GE port can be split into four 10GE ports.



Caution

- To ensure data security and prevent damage to your device, please use USB flash drives of well-known brands and good quality. The USB port is compatible with most USB controllers and may not recognize some models of USB flash drives.
- The RG-S7620-20SFX2CQ supports configuration, maintenance, management, program loading, and system debugging through the console.

Table 1-6 LEDs

LED	Panel Identification	Status	Description
System Status LED	Status	Off	The system is not powered on.
		Solid red	A fault occurs in the system (any module). There are fewer than three fan modules. When the internal temperature of the device exceeds the hazardous operating temperature, the device is reset. When the device is equipped with dual power modules, one power module is not connected to AC cables.
		Blinking green	The system is being initialized.
		Solid green	The system is operating normally.
		Solid yellow	The temperature reaches the alarm threshold. The system detects that only 2 out of 3 fan modules are working properly.
MGMT Port LED	MGMT	Off	No link is set up on the port.
		Green	A link is set up on the port and the port works at the rate of 1000 Mbps.
		Yellow	A link is set up on the port and the port works at the rate of 10/100 Mbps.
		Blinking	The port is receiving or sending data.
Power Status LED	PWR	Solid green	The power module is seated and provides power for the device.
		Solid yellow	The model of the power module can be read but cannot be identified.
		Solid red	A power module is not functioning properly or not connected to the AC power cord.
Fan Status LED	FAN	Solid green	All fan modules are seated and functioning properly.
		Solid red	One fan module is faulty. The model of the fan module is not supported. One fan module is not seated.

LED	Panel Identification	Status	Description
Port Breathing LED	N/A	Upper-row: on	The SFX port channel LED represents the upper-row port status.
		Medium-row: on	The SFX port channel LED represents the medium-row port status.
		Lower-row: on	The SFX port channel LED represents the lower-row port status.
SFX Port Channel LED	1–160	Off	No link is set up on the port.
		Solid green	A link is set up on the port.
		Blinking green	The port is receiving or sending data.
40GE/100GE QSFP28 Port LED	161F–162F	Off	No link is set up on the port.
		Solid green	A link is set up on the port.
		Blinking green	The port is receiving or sending data.

1.4.3 Power Module

The RG-S7620-20SFX2CQ supports the RG-PA550I II-F power module. The RG-PA550I II-F is an intelligent power module that can obtain information such as the output power, output current, and operating temperature in real time. The power module supports hot swapping.



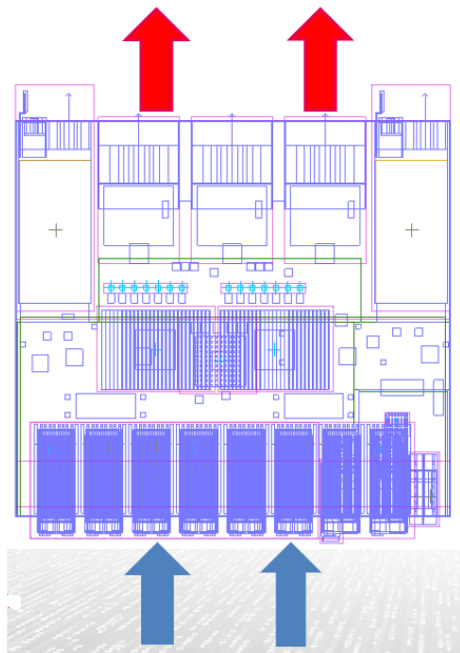
Caution

- The RG-S7620-20SFX2CQ supports power modules in 1+1 redundancy mode. To improve system stability and reliability, you are advised to configure power modules in 1+1 redundancy mode. If two power modules are used, the device works in current-sharing mode.
- At least one power module is required. If any slot is unoccupied, install a filler panel to enable proper airflow and to keep dust out of the chassis.

1.4.4 Cooling

The operating temperature of the RG-S7620-20SFX2CQ ranges from 0°C to 45°C (32°F to 113°F). The cooling design must ensure system reliability, safety, and maintainability. The RG-S7620-20SFX2CQ uses fan modules to draw air for forced convection. This ensures that the switch works properly in the specified environment. Dust the device every three months to avoid blocking the ventilation openings on the housing.

The RG-S7620-20SFX2CQ supports the S7620-FAN II-F fan module. The fan module supports hot swapping, fan speed adjustment, and alarms on faults.

Figure 1-17 Airflow of the RG-S7620-20SFX2CQ**Caution**

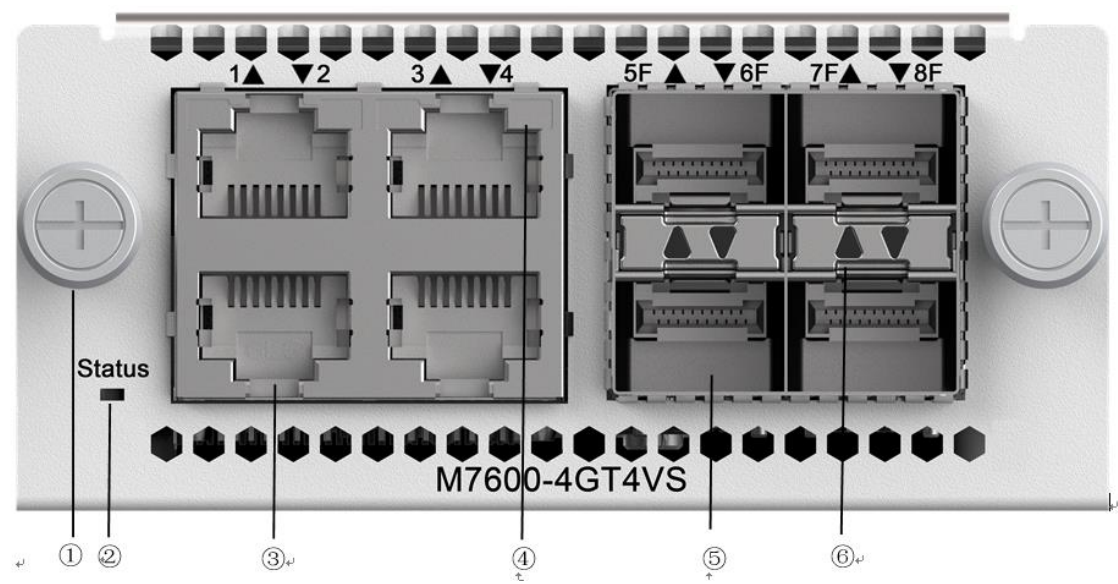
- Maintain a minimum clearance of 200 mm (7.87 in.) around the device for air circulation.
- At least two modules are required. If any slot is unoccupied, install a filler panel to enable proper airflow and to keep dust out of the chassis.

1.5 Modules

1.5.1 M7600-4GT4VS

The M7600-4GT4VS is an expansion module of the RG-S7600. It provides four 1000M RJ45 ports and four 25GE QSFP ports. The 1000M RJ45 port supports 10/100/1000BASE-T, and the 25GE SFP28 port supports 25GE/10GBASE-R and 1000BASE-X.

Figure 1-18 Appearance of the M7600-4GT4VS



- Note :
1.

Captive Screw
2.

System Status LED
3.

10/100/1000Base-T Port
4.

10/100/1000Base-T Port LED
5.

1GE/10GE/25GE SFP28 Port
6.

1GE/10GE/25GE SFP28 Port LED

LED

LED	Panel Identification	Status	Description
System Status LED	Status	Off	The expansion module is not powered on.
		Blinking green	The expansion module is being initialized.
		Solid green	The expansion module works properly.
		Solid red	The expansion module is not functioning properly.
10/100/1000Base-T port LED	1-4	Off	No link is set up on the port.
		Solid green	A link is set up on the port.

LED	Panel Identification	Status	Description
		Blinking green	The port is receiving or sending data.
1GE/10GE/25GE SFP28 port LED	5F–8F	Off	No link is set up on the port.
		Solid green	A link is set up on the port.
		Blinking green	The port is receiving or sending data.

Specifications

Model	M7600-4GT4VS
Module service port	4 x 10/100/1000BASE-T ports 4 x 1GE/10GE/25GE SFP28 ports
Transmission Medium	10/100/1000BASE-T Cat 5 UTP 1000BASE-X to 1000BASE-T CAT5e/6/6a 1000BASE-SX (850 nm) 1000BASE-LX (1310 nm) 1000BASE-LH (1310 nm) 1000BASE-ZX (1550 nm) 1000BASE-LX (1310 nm, 1550 nm) 10GBASE-SR (850 nm) 10GBASE-LR (1310 nm) 10GBASE-ER (1550 nm) 10GBASE-ZR (1550 nm) 10GBASE SFP+ active optical cable (AOC) 25GBASE-SR (850 nm) 25GBASE-LR (1310 nm) 25GBASE SFP28 active optical cable (AOC)
Status LED	1 x system status LED 4 x 10/100/1000BASE-T port LEDs 2 x 1GE/10GE/25GE SFP28 port LEDs
Module power consumption	13.06 W

Module dimensions (W x D x H)	130 mm x 90.5 mm x 40 mm (5.12 in. x 3.56 in. x 1.57 in.)
Module weight	0.3 kg (0.66 lbs)
Temperature	Operating temperature: 0°C to 45°C (32°F to 113°F) Storage temperature: -40°C to +70°C (-40°F to +158°F) Note: At an altitude between 1,800 m (5,905.51 ft.) and 5,000 m (16,404.20 ft.), every time the altitude increases by 220 m (721.78 ft.), the maximum temperature decreases by 1°C (1.8°F).
Humidity	Operating humidity: 10% to 90% RH (non-condensing) Storage humidity: 5% to 95% RH (non-condensing)
Acoustic noise	< 78dB
Module hot swapping	Supported
Cable hot swapping	Supported
Safety regulation	IEC 62368-1: 2018 EN 62368-1: 2014+A11:2017
EMC regulation	EN 55032:2015+A1:2020 EN 61000-3-2013+A1:2019+A2:2021 EN IEC 61000-3-2:2019+A1:2021 EN 55035:2017+A11:2020 EN 300386 V2.2.1
RoHS	European RoHS Directive 2011/65/EU & Amendment(EU) 2015/863

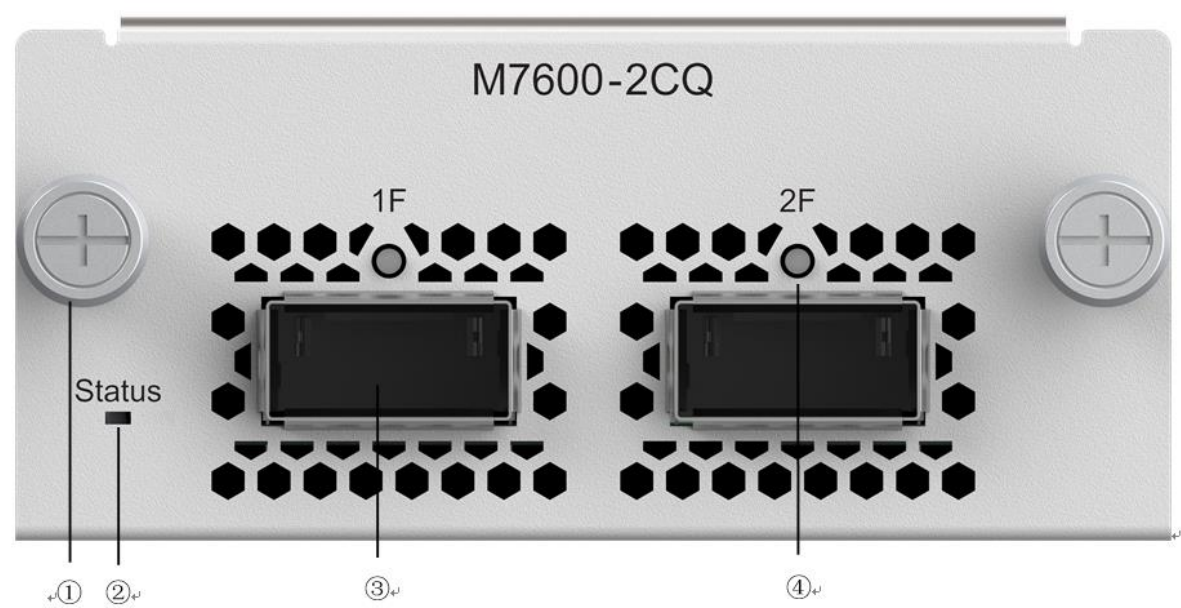
**Caution**

When installing the expansion module, tighten screws on both sides to ensure long-term operation stability.

1.5.2 M7600-2CQ

The M7600-2CQ is an expansion module of the S7600. It provides two 40GE/100GE QSFP28 ports. The port can work in 100GE or 40GE mode.

Figure 1-19 Appearance of the M7600-2CQ



- Note :**
- 1. Captive Screw
 - 2. System Status LED
 - 3. 40GE/100GE QSFP28 Port
 - 4. 40GE/100GE QSFP28 Port LED

LED

LED	Panel Identification	Status	Description
System Status LED	Status	Off	The expansion module is not powered on.
		Blinking green	The expansion module is being initialized.
		Solid green	The expansion module works properly.
		Solid red	The expansion module fails.
40GE/100GE QSFP28 port LED	1F–2F	Off	No link is set up on the port.
		Solid green	A link is set up on the port.
		Blinking green	The port is receiving or sending data.

Specifications

Model	M7600-2CQ
Module service port	2 x 40GE/100GE QSFP28 ports
Transmission Medium	40GBASE-LSR (850 nm) 40GBASE-LR4 (1310 nm) 40GBASE-iLR4 (1310 nm) 40GBASE-LX4 (1310 nm) 40GBASE QSFP+ active optical cable (AOC) 100GBASE-SR (850 nm) 100GBASE-LR4 (1310 nm) 100GBASE QSFP28 active optical cable (AOC)
Status LED	1 x system status LED 2 x 40GE/100GE QSFP28 port LEDs
Module power consumption	13.06 W
Module dimensions (W x D x H)	130 mm x 90.5 mm x 40 mm (5.12 in. x 3.56 in. x 1.57 in.)
Module weight	0.2 kg (0.44 lbs)
Temperature	Operating temperature: 0°C to 45°C (32°F to 113°F) Storage temperature: -40°C to +70°C (-40°F to +158°F) Note: At an altitude between 1,800 m (5,905.51 ft.) and 5,000 m (16,404.20 ft.), every time the altitude increases by 220 m (721.78 ft.), the maximum temperature decreases by 1°C (1.8°F).
Humidity	Operating humidity: 10% to 90% RH (non-condensing) Storage humidity: 5% to 95% RH (non-condensing)
Acoustic noise	< 78dB
Module hot swapping	Supported
Cable hot swapping	Supported
Safety regulation	IEC 62368-1: 2018 EN 62368-1: 2014+A11:2017
EMC regulation	EN 55032:2015+A1:2020 EN 61000-3-2013+A1:2019+A2:2021 EN IEC 61000-3-2:2019+A1:2021 EN 55035:2017+A11:2020

	EN 300386 V2.2.1
RoHS	European RoHS Directive 2011/65/EU & Amendment(EU) 2015/863

 Caution

When installing the expansion module, tighten screws on both sides to ensure long-term operation stability.

1.5.3 S7610-FAN I-F

The S7610-FAN II-F is the fan module of the RG-S7610. It provides a good cooling mechanism to ensure stable operation. It supports hot swapping, fan speed adjustment, and alarms on faults.

Figure 1-20 Appearance of the S7610-FAN I-F



- Note :**
- 1. Captive Screw
 - 2. Handle
 - 3. FAN Status LED

LED

LED	Panel Identification	Status	Description
FAN Status LED	Status	Off	The fan module is not powered on.
		Blinking green	The fan module is being initialized.
		Solid green	The fan module works properly.
		Solid red	The fan module is not functioning properly.

Functions

Function	Description
Status monitoring	Fan speed monitoring and alarms on faults
Automatic fan speed adjustment	Automatic fan speed adjustment based on the temperature
Hot swapping	Supported
Airflow	Fan module panel side

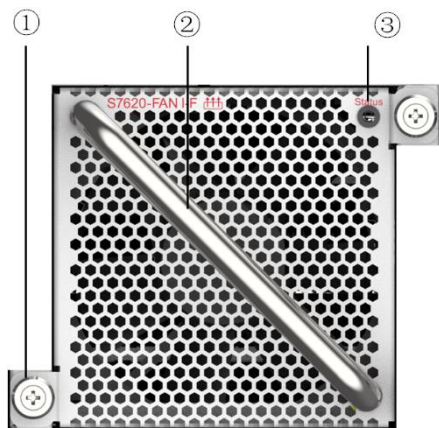
Specifications

Model	S7610-FAN I-F
Status LED	1 x fan status LED
Module power consumption	15.6 W
Module dimensions (W x D x H)	131.9 mm x 46.4 mm x 81.2 mm (5.19 in. x 0 in. x 0 in.)
Weight of fan module	0.20 kg (0.44 lbs)
Acoustic noise	< 78dB
Fan redundancy	Supported
Fan module hot swapping	Supported
Fan monitoring	Fan speed adjustment: 256 levels (Only automatic adjustment is supported.) Fan failure alarm

1.5.4 S7620-FAN I-F

The S7620-FAN II-F is the fan module of the RG-S7620. It provides a good cooling mechanism to ensure stable operation. It supports hot swapping, fan speed adjustment, and alarms on faults.

Figure 1-21 Appearance of the S7620-FAN I-F



- Note :**
- 1. Captive Screw
 - 2. Handle
 - 3. FAN Status LED

LED

LED	Panel Identification	Status	Description
FAN Status LED	Status	Off	The fan module is not powered on.
		Blinking green	The fan module is being initialized.
		Solid green	The fan module works properly.
		Solid red	The fan module is not functioning properly.

Functions

Function	Description
Status monitoring	Fan speed monitoring and alarms on faults
Automatic fan speed adjustment	Automatic fan speed adjustment based on the temperature
Hot swapping	Supported
Airflow	Fan module panel side

Specifications

Model	S7620-FAN I-F
-------	---------------

Status LED	1 x fan status LED
Module power consumption	46 W
Module dimensions (W x D x H)	153.7 mm x 103.7 mm x 82.4 mm (6.05 in. x 4.08 in. x 3.24 in.)
Weight of fan module	0.54 kg (1.19 lbs)
Acoustic noise	< 78dB
Fan redundancy	Supported
Fan module hot swapping	Supported
Fan monitoring	Fan speed adjustment: 256 levels (Only automatic adjustment is supported.) Fan failure alarm

1.5.5 RG-PA550I II-F

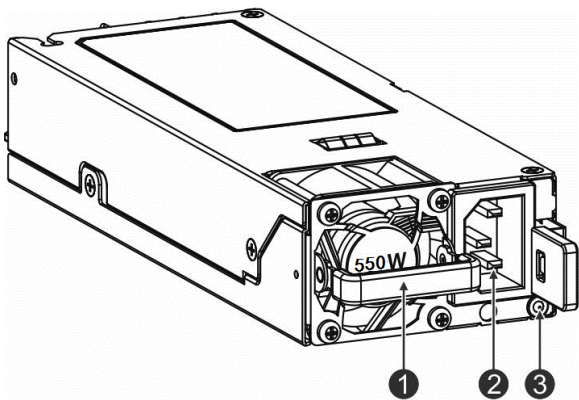
The RG-PA550I II-F is the power module of the RG-S7600. The RG-PA550I II-F is an intelligent power module that can obtain information such as the power status, output power, output current, and operating temperature in real time. It supports hot swapping, and AC input.



Caution

- The RG-S7600 supports power modules in 1+1 redundancy mode. To improve system stability and reliability, you are advised to configure power modules in 1+1 redundancy mode. If two power modules are used, the device works in current-sharing mode.
- At least one power module is required. If any slot is unoccupied, install a filler panel to enable proper airflow and to keep dust out of the chassis.
- The power module is sold separately. You need to place a separate order for it. The device package does not include a power module. To ensure that the device can be used, you have to order the power module simultaneously.

Figure 1-22 Appearance of the RG-PA550I II-F



- Note :**
- 1. Handle
 - 2. Power cord interface (10 A)
 - 3. Power Status LED

The front panel has a three-pin AC power connector for connecting a standard 10 A power cord.

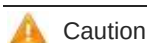
LED

LED	Panel Identification	Status	Description
Power Status LED	N/A	Off	There is no power input or the power module is not functioning properly.
		Solid green	The power module is outputting power normally.
		Blinking green at 1 Hz	The power module is off and has 12 VBS output. The power module in cold backup state is not outputting power.
		Solid red	1. Power faults: overcurrent, overvoltage, fan module fault, and so on 2. The AC power module in redundancy mode is removed.
		Blinking red at 1 Hz	The system can continue to work with an alarm generated, for example, high voltage, high current, high temperature, or low fan speed.

Specifications

Model	RG-PA550I II-F
Power input	AC input: ● Rated input voltage: 100 V AC to 240 V AC, 50/60 Hz ● Maximum input voltage: 90 V AC to 264 V AC, 47 Hz to 63 Hz ● Rated input current: 3.5 A to 7.2 A ● Maximum input current: 7.2 A
Power output	12 V DC, 0 A to 45 A Standby: 12 V DC, 0 A to 2.1 A
Maximum output power	550 W
Leakage current	≤ 1.75 mA
Power cord	10 A power cord
Module dimensions (W x D x H)	185.0 mm x 73.5 mm x 39.0 mm (7.28 in. x 2.89 in. x 1.54 in.)
Shipping dimensions (W x D x H)	425 mm x 205 mm x 85 mm (16.73 in. x 8.07 in. x 3.35 in.)
Weight of power module	0.74 kg (1.63 lbs)
Shipping weight	1.25 kg (2.76 lbs)

The HONOTO power module is available in V.20 and later versions. Here is an example of the barcode for version identification.



Unplug power cords before removing the power module.

1.6 Pluggable Modules

The following table describes the compatibility between switches and optical transceivers.

For more information, visit Ruijie Networks official website at <https://www.ruijienetworks.com/>. Choose **Support > Documentation and Download > Products > Switches > Accessories > Optics and Transceivers**. Click on the optical transceiver model to access related documents, or use keywords to search for required documents.

Models	Matching Optical Transceivers
M7600-4GT4VS : ● 4 x 1GE/10GE/25GE SFP28 ports	1GE Optical Transceiver ● Mini-GBIC-GT

Models	Matching Optical Transceivers
	● MINI-GBIC-SX-MM850 ● MINI-GBIC-LX-SM1310 ● MINI-GBIC-LH40-SM1310 ● MINI-GBIC-ZX80-SM1550 ● GE-SFP-LX20-SM1310-BIDI ● GE-SFP-LX20-SM1550-BIDI 10GE Optical Transceiver ● XG-SFP-SR-MM850 ● XG-SFP-LR-SM1310 ● XG-SFP-ER-SM1550 ● XG-SFP-ZR-SM1550 ● XG-SFP-AOC1M ● XG-SFP-AOC5M 25GE Optical Transceiver ● VG-SFP-SR-MM850 ● VG-SFP-LR-SM1310 ● VG-SFP-AOC5M
RG-S7610-10SFG2CQ ● 2 x 40GE/100GE QSFP28 ports (supporting 4 x 10GE/4 x 25GE) RG-S7620-20SFG2CQ ● 2 x 40GE/100GE QSFP28 ports (supporting 4 x 10GE/4 x 25GE) RG-S7610-10SFX2CQ ● 2 x 40GE/100GE QSFP28 ports (supporting 4 x 10GE/4 x 25GE) RG-S7620-20SFX2CQ ● 2 x 40GE/100GE QSFP28 ports (supporting 4 x 10GE/4 x 25GE) M7600-2CQ : ● 2 x 40GE/100GE QSFP28 ports	40GE Optical Transceiver ● 40G-QSFP-LSR-MM850 ● 40G-QSFP-LR4-SM1310 ● 40G-QSFP-iLR4-SM1310 ● 40G-QSFP-LX4-SM1310 ● 40G-AOC-5M 100GE Optical Transceiver ● 100G-QSFP-SR-MM850 ● 100G-QSFP-LR4-SM1310 ● 100G-AOC-10M
RG-S7610-10SFG2CQ ● 10 x SFG ports (80 x 1GE logical channels) RG-S7620-20SFG2CQ ● 20 x SFG ports (160 x 1GE logical channels)	CWDM Transceiver ● SFG-LR-SM
RG-S7610-10SFX2CQ ● 10 x SFX ports (80 x 10GE logical channels) RG-S7620-20SFX2CQ ● 20 x SFX ports (160 x 10GE logical channels)	CWDM Transceiver ● SFG-LR-SM ● SFX-LR-SM

1.7 Package Contents

Item	RG-S7610-10SFG2CQ	RG-S7620-20SFG2CQ
	RG-S7610-10SFX2CQ	RG-S7620-20SFX2CQ
Chassis	1	1
Fan module	4 (S7610-FAN I-F, pre-installed)	3 (S7620-FAN I-F, pre-installed)
Grounding wire	1	1
Mounting bracket	2	2
Rear mounting bracket	2	2
Guide rail	2	2
M4x8 cross recessed countersunk head screw, GB819-85	14	18
M6x16 screw	8	8
M6 cage nut	8	8
<i>Network Product Warranty Manual and Hazardous Substance Statement</i>	1	1
Ruijie management software of centralized modular devices Management Software	1 (pre-installed)	1 (pre-installed)

2 Preparing for Installation

2.1 Safety Precautions

**Note**

- To avoid personal injury and device damage, carefully read the safety precautions before you install the RG-S7600.
 - The following safety precautions may not cover all possible dangers.
-

2.1.1 General Safety Precautions

- Keep the chassis clean and dust-free.
- Do not place the device in a walking area.
- During installation and maintenance, do not wear loose clothes, ornaments, or any other things that may be hooked by the chassis.
- Cut off all power supplies and unplug all power cords and cables before moving or handling the device.
- Avoid handling the bare device. Instead, handle the device with its packing materials.
- When handling devices, do not stack more layers than the value indicated on the shipping container. Do not place the device sideways or upside down.
- When unpacking devices, do not remove the foam pads attached to the devices and stack bare devices. Do not stack over three layers (each layer cannot exceed 1 meter (39.37 in.)). The foam pads must be placed in a stable alignment.

2.1.2 Movement

- Do not frequently move the device.
- Cut off all power supplies and unplug all power cords and cables before moving the device.
- When moving the device, pay attention to the balance and avoid hurting legs and feet or straining the waist.

**Warning**

- When moving the device, do not grab the handle of the power module, fan module, or chassis. Grabbing the handle may cause damage or even injury to your body.
 - Remove all supervisor modules, line cards, and power modules before you move the device, to reduce the chassis weight.
 - The device must be installed and used in the location where movement is restricted.
-

2.1.3 Electricity

- Observe local regulations and specifications when performing electric operations. Only qualified personnel can perform such operations.
- Check whether there are potential risks in the working area. For example, check whether the power supply is grounded properly and whether the ground is wet.
- Find out the position of the indoor emergency power switch before installation. Cut off the power switch in

case of accidents.

- Make sure that the device is powered off when you cut off the power supply.
- Do not place the device in a wet position and keep the device away from liquid.

**Warning**

- Improper electric operations may cause a fire, electric shock, and other accidents, and lead to severe and fatal personal injury and device damage.
 - Direct or indirect touch through a wet object on high-voltage and mains supply can bring a fatal danger.
-

2.1.4 ESD

The RG-S7600 uses various ESD prevention measures. However, when the static electricity exceeds a specified value, it will damage the circuit and device. The electrostatic induction mainly comes from outdoor high voltage power lines, lightning, other external electric fields, indoor floor materials, and internal structure of the device.

To prevent damage from static electricity, pay attention to the following points:

- Properly ground the device and floor.
- Keep the indoor installation environment clean and free of dust.
- Maintain appropriate humidity conditions.
- Before installing various pluggable modules, wear an anti-ESD wrist strap and make sure that it is well grounded.
- Do not directly touch the components and printed circuit board (PCB) of the module with your hands.
- Use an anti-ESD bag to keep the module.
- Avoid clothing and other items in contact with the circuit board. The anti-ESD wrist strap can only prevent damage to the circuit board caused by static electricity on the body. Static electricity on clothing cannot be prevented.

2.1.5 Laser

The RG-S7600 supports varying models of optical modules (Class I laser products).

Pay attention to the following points:

- When an optical transceiver is working, ensure that the port has been connected to an optical cable or covered with a dust cap, to keep out dust and prevent it from burning your eyes.
- Do not stare into any optical port.

**Warning**

Do not stare into any optical port under any circumstances because this may cause permanent damage to your eyes.

2.1.6 Storage

To ensure proper working of the RG-S7600, store the RG-S7600 in an environment based on the storage temperature or humidity requirements in specifications.

**Caution**

If the RG-S7600 has been powered off for more than 18 months, power on the device and run it for consecutive 24 hours to activate the device.

2.2 Installation Site Requirements

The RG-S7600 must be used indoors. The installation site must meet the following requirements to ensure the normal operation and prolonged service life of the device.

2.2.1 Cabinet Installation Requirements

If the device is installed inside a cabinet, the following conditions must be met:

- The device must be installed in an open cabinet. If the device is installed in a closed cabinet, ensure that the cabinet has proper ventilation and heat dissipation.
- The cabinet must be sturdy enough to support the weight of the device and its accessories.
- You are advised to install the device into a standard cabinet and maintain a proper clearance around the air vents for heat dissipation.
- The cabinet must be properly grounded.

2.2.2 Ventilation

Maintain a minimum clearance of 20 cm (7.87 in.) around air inlet and outlet for ventilation. After connecting various cables, you should bundle the cables or place them in the cable management bracket to avoid blocking air inlets.

2.2.3 Temperature and Humidity

To ensure the normal operation and prolonged service life of the RG-S7600, maintain an appropriate temperature and humidity in the equipment room. The equipment room with improper temperature and humidity for a long period may damage the device.

- In an environment with a high humidity, insulating materials may have bad insulation or even leaking electricity.
- In an environment with low relative humidity, the insulating strip may dry and shrink, resulting in screw loosening.
- A high temperature can accelerate the aging of insulation materials, greatly reducing the reliability of the device and severely affecting its service life.

Table 2-1 Temperature and Humidity Requirements of the RG-S7600

Device Model	Operating Temperature	Operating Humidity
RG-S7600 series	0°C to 45°C (32°F to 113°F)	10% to 90% RH (non-condensing)

**Note**

The ambient temperature and humidity are measured at the point that is 1.5 m (59.06 in.) above the floor and 0.4 m (15.75 in.) before the device rack when there is no protective plate in front or at the back of the rack.

2.2.4 Cleanliness

Dust poses a severe threat to the running of the device. The indoor dust falling on the device may be absorbed by the static electricity, causing bad contact of the metallic joint. Such electrostatic absorption may occur more easily when the relative humidity is low. This affects the device lifecycle and causes communication faults.

Table 2-2 Requirements for the Dust Content and Granularity in the Equipment Room

Dust	Unit	Content
Dust particles (diameter $\geq 0.5 \mu\text{m}$)	Particles/m ³	$\leq 3.5 \times 10^6$
Dust particles (diameter $\geq 5 \mu\text{m}$)	Particles/m ³	$\leq 3 \times 10^4$

Apart from dust, the salt, acid, and sulfide in the air in the equipment room must meet strict requirements. These harmful substances will accelerate metal corrosion and component aging. Therefore, the equipment room should be properly protected against the intrusion of harmful gases, such as sulfur dioxide, hydrogen sulfide, nitrogen dioxide, and chlorine gas.

Table 2-3 Limit Values for Harmful Gases

Gas	Average (mg/m ³)	Maximum (mg/m ³)
Sulfur dioxide (SO ₂)	0.2	1.5
Hydrogen sulfide (H ₂ S)	0.006	0.03
Nitrogen dioxide (NO ₂)	0.04	0.15
Chlorine (Cl ₂)	0.01	0.3



Note

Average refers to the average value of harmful gases measured in one week. **Maximum** is the upper limit of the harmful gas measured in one week for up to 30 minutes every day.

2.2.5 Grounding

A good grounding system is the basis for stable and reliable operation of the device, preventing lightning strokes and resisting interference. Carefully check the grounding conditions at the installation site according to the grounding requirements, and perform grounding operations properly as required.

- Safety grounding

Ensure that the cabinet and power distribution device are securely grounded when the device uses the AC or power supply. Otherwise, electric shock may occur when the insulation resistance between the power supply inside the device and the chassis becomes small.

⚠ Caution

The building should provide a protective ground connection to ensure that the device is connected to a protective earth.

- Surge protection

The surge protection system of a facility is an independent system that consists of the lightning rod, down conductor, and connector to the grounding system, which usually shares the power reference ground and ground cable. The lightning discharge ground is targeted for the facility.

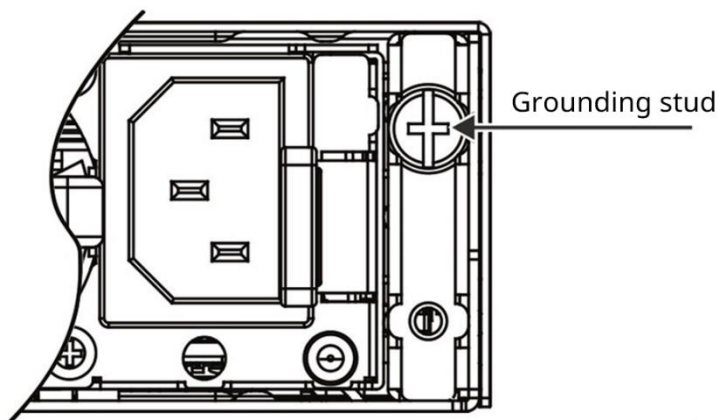
⚠ Caution

For details about surge protection, see Appendix B.

- EMC grounding

The grounding required for EMC design includes the shielding ground, filter ground, noise and interference suppression, and level reference, which contribute to the overall grounding requirements. The grounding resistance should be smaller than 1 ohm. The RG-S7600 chassis has one grounding terminal located at the bottom right corner on the back of the chassis. The grounding terminal is indicated by the Warning label.

Figure 2-1 Grounding of the S7600



2.2.6 EMI

Electro-Magnetic Interference (EMI), from either outside or inside the device or application system, affects the system in the conductive ways such as capacitive coupling, inductive coupling, and electromagnetic radiation. There are two types of electromagnetic interference: radiated interference and conducted interference, depending on the type of the transmission path. When the energy, often RF energy, from a component arrives at a sensitive component through the space, the energy is known as radiated interference. The interference source can be either a part of the interfered system or a completely electrically isolated unit. Conducted interference results from an electromagnetic wire or signal cable connection between the source and the sensitive component, along which cable the interference conducts from one unit to another. Conducted

interference often affects the power supply of the device, but can be controlled by a filter. Radiated interference may affect any signal path in the device and is difficult to shield.

- Take interference prevention measures for the power supply system.
- Keep the device far away from the surge protection and grounding system of the power device.
- Keep the device far away from high-frequency current devices such as the high-power radio transmitting station and radar launcher.
- Take electromagnetic shielding measures when necessary.

2.3 Fiber Connections

Before connecting optical cables, ensure that the model of the optical transceiver and fiber type match the optical port. The transmit port on the local device should be connected to the receive port on the peer device and vice versa.

Table 2-4 Tools

Common Tools	Phillips screwdriver, related Ethernet and optical cables, fastening bolts, diagonal pliers, cable ties
Special Tools	Anti-ESD gloves, wire stripper, common crimping plier, RJ45 crimping plier, and wire cutter
Cleaning Tools	Dust-free paper and fiber end-face microscope
Meters	Multimeter, bit error rate tester (BERT), optical power meter



Caution

The RG-S7600 series switches are delivered without a tool kit. The tool kit is customer-supplied

2.4 Unpacking

Table 2-5 Goods Checklist

Chassis Carton	Chassis, yellow/green grounding cables, quick installation guide, packing list, and delivered documentation
Module Carton	Modules, packing list, and quick installation guide



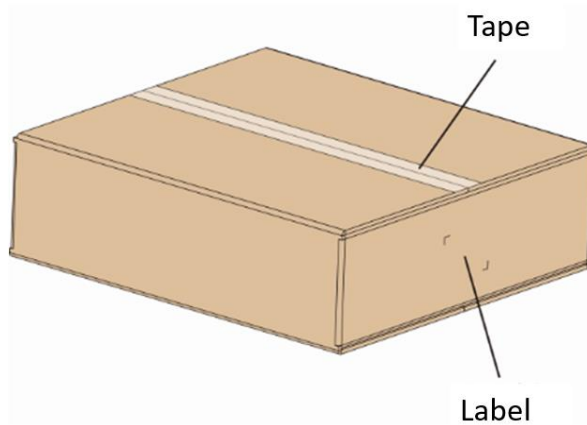
Caution

The preceding items are delivered in most situations, which may differ from the actual delivery, depending on purchase contracts. Check your goods carefully against the packing list or purchase contract. If you have any questions or there are any errors, contact your distributor.

Device Unpacking

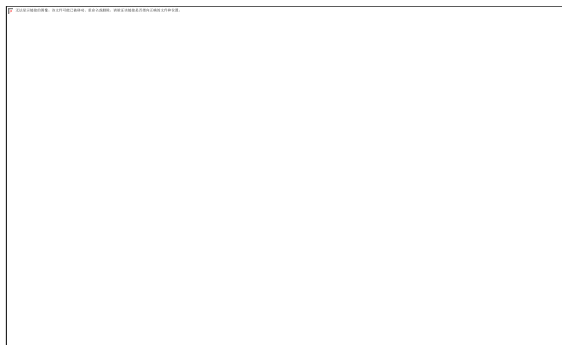
- (1) Cut off the packing tape of the shipping container with scissors, place it on a flat surface with the shipping container facing upward, and check whether the seal on its top surface is intact.

Figure 2-2 Schematic Diagram



- (2) Use a paper cutter to cut the tape along the joint between the side and top of the shipping box lid, and then open the lid of the shipping box.

Figure 2-3 Schematic Diagram



- (3) Take out the accessory kit and check that there are no accessories missing from the accessory kit.

Figure 2-4 Schematic Diagram

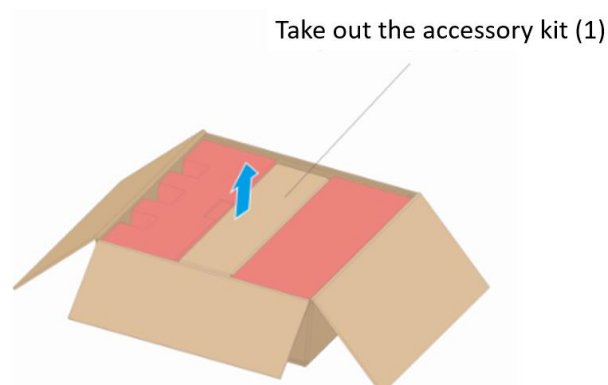
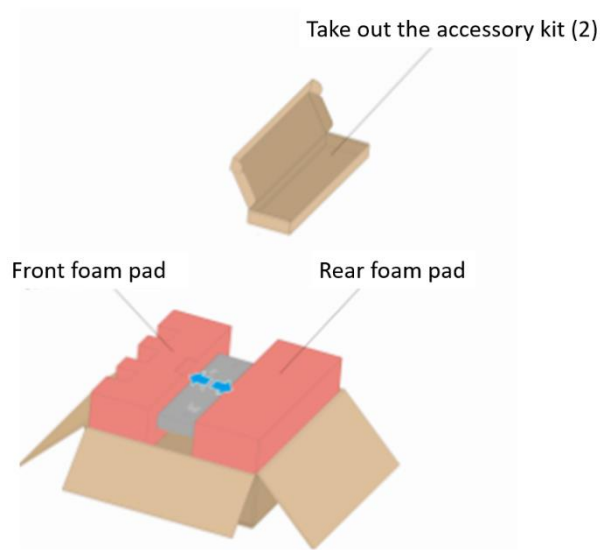
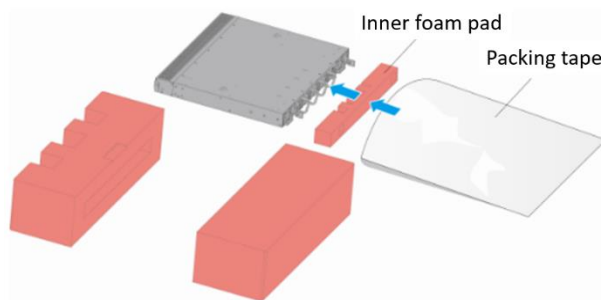


Figure 2-5 Schematic Diagram

- (4) Stand the switch upright with the foam block facing upward.
- (5) Remove the foam block.
- (6) Carry the switch with both hands to the shipping container of another product and remove the foam block at the other side of the switch.
- (7) Cut the tape on the ESD bag, remove the switch from the ESD bag with both hands and place it on the ESD workbench.

Figure 2-6 Schematic Diagram

- (8) Press the power supply inward to ensure that the power supply is fully seated into the system.

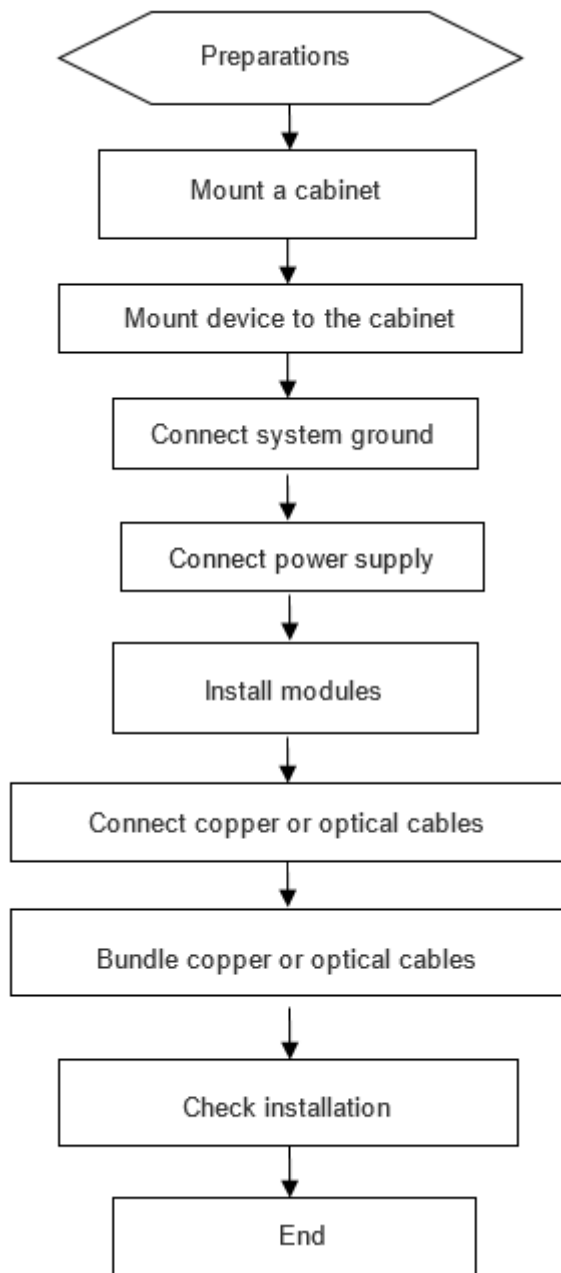
3 Product Installation

The RG-S7600 must be used indoors.



Ensure that requirements in Chapter 2 are all met.

3.1 Installation Procedure



3.2 Before You Begin

Carefully plan and arrange the installation position, networking mode, power supply, and cabling before installation. Confirm the following requirements before installation:

- The installation site provides sufficient space for heat dissipation.
- The installation site meets temperature and humidity requirements of the device.
- The power supply and required current are available at the installation site.
- The selected power module meets requirements of the system power.

3.3 Mounting a Cabinet

3.3.1 Precautions

When mounting the cabinet, ensure that the following conditions are met:

- All expansion bolts for fastening the cabinet base to the ground are installed and tightened in sequence from bottom to up (large flat washer, spring washer, and nut), and installation holes on the base and expansion bolts are properly aligned.
- The installed cabinet is steady.
- The installed cabinet is vertical to the ground.
- When multiple cabinets are placed side by side in the equipment room, they are aligned with each other, with an error less than 5 mm (0.20 in.).
- The front and rear doors of the cabinet are installed to allow you open and close them smoothly. The locks work normally, and all keys are complete.
- There are no unnecessary or informal labels inside the cabinet and on cards.
- Filler panels are installed in empty slots.
- The screws in the cabinet are fastened tightly and be of the same model.
- The device is securely installed, and the screws on the panel are fastened tightly.
- All wiring outlets at the top and bottom of the cabinet are installed with rodent-resistant nets with clearance of no more than 15 mm (0.59 in.) in the diameter to prevent rodents and other small animals from entering the cabinet.
- Anti-ESD wrist straps are provided in the cabinet.

3.3.2 Installation Steps

- (1) Plan the available space before installing the cabinet. Reserve enough space for the front and rear doors for device maintenance.
- (2) Install and fasten the cabinet in the designed position as planned.
- (3) Install the appropriate cable troughs and cables.
- (4) Install the tray and cable management brackets on the rack according to the number of devices installed into the cabinet.

3.4 Mounting the Switch to the Cabinet

3.4.1 Precautions

Before mounting the RG-S7600 into a cabinet, verify that the front and rear brackets of the cabinet are properly positioned. If the bracket is too far forward, the front panel of the device may be too close to the front door. In this case, the front door cannot be closed when the device is connected to network cables and pigtail fibers. Typically, you must reserve space of at least 10 mm (0.39 in.) between the front panel of the device and that of the cabinet after installation. Confirm the following before installing the device:

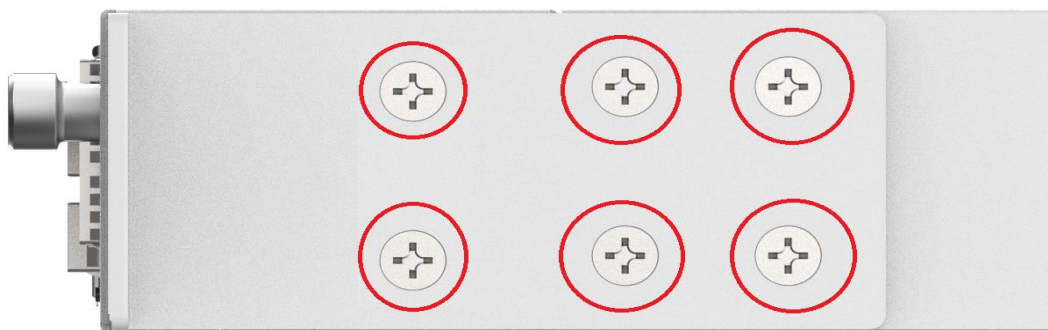
- The cabinet is secured.
- Modules in the cabinet are installed.
- There are no obstructions in and around the cabinet.
- The device is prepared and transported to a location close to the cabinet.

3.4.2 Mounting Brackets

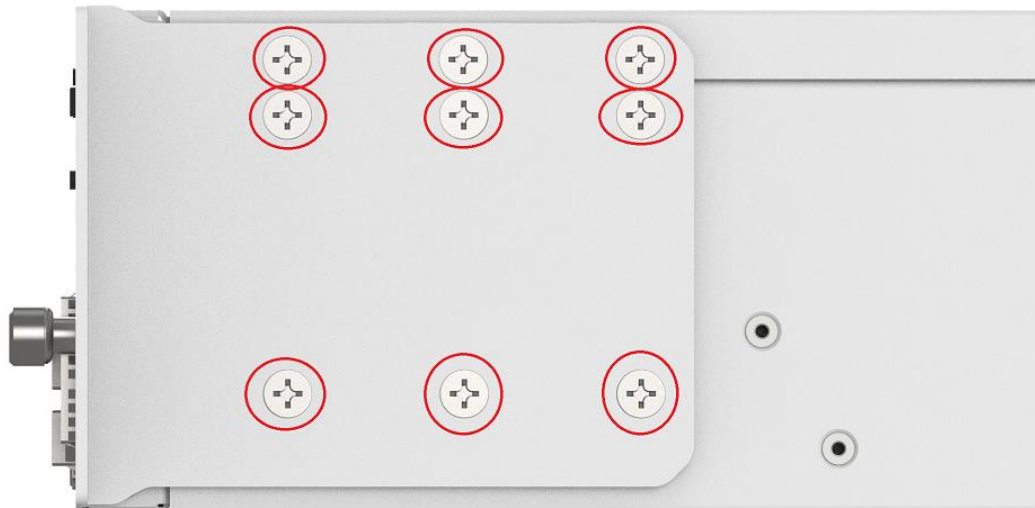
- (1) Take out two L-shaped brackets and countersunk screws from the plastic bag.
- (2) Place the bracket against the side wall of the switch and secure it with countersunk screws. The installation method is the same on both sides.

Figure 3-1 Mounting Brackets

The RG-S7610-10SFG2CQ or RG-S7610-10SFX2CQ is equipped with mounting brackets on both sides, and each mounting bracket is fixed with six M4 x 8 mm countersunk screws.



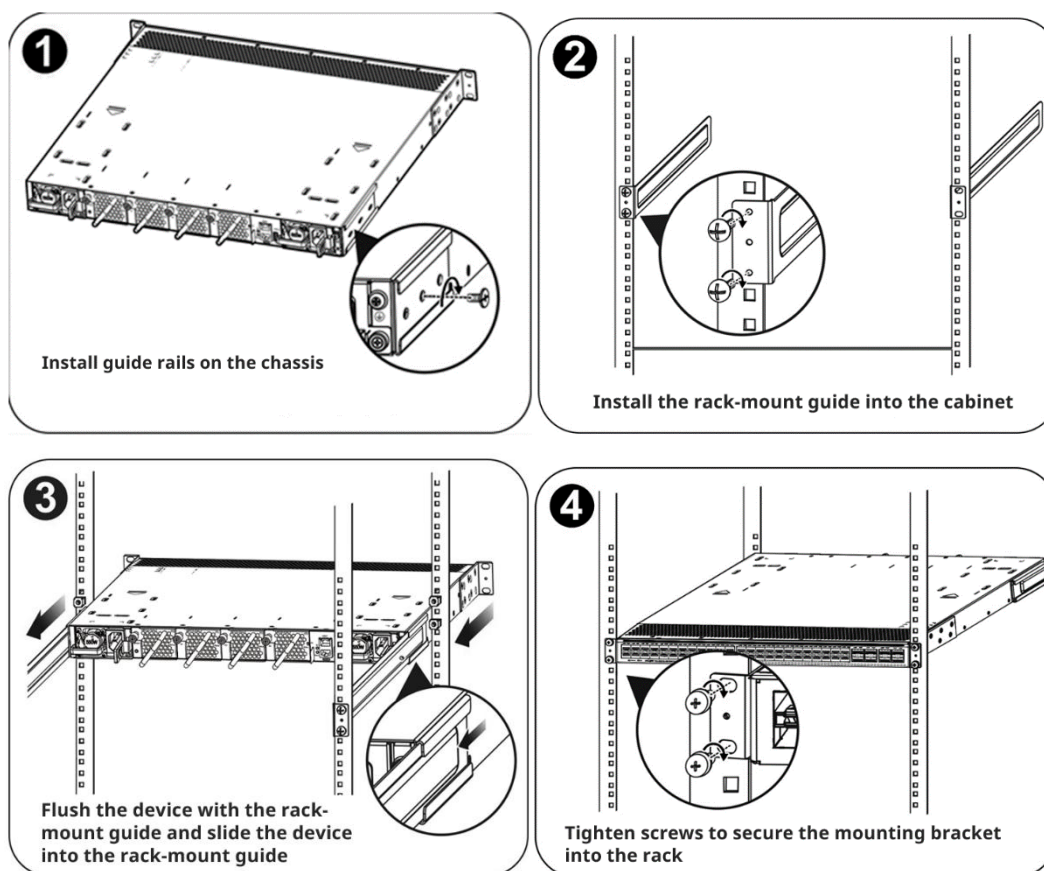
The RG-S7620-20SFG2CQ or RG-S7620-20SFX2CQ is equipped with mounting brackets on both sides, and each mounting bracket is fixed with nine M4 x 8 mm countersunk screws.



3.4.3 Installing the Device into a Rack

The RG-S7600 complies with the EIA standard, and can be installed in a 19-inch rack. During installation, place the switch on the rack with the front panel facing forward. You are advised to install the RG-S7600 using shelf bracket rails, and then secure the device to the brackets in the cabinet. Or, you can use the delivered shelf bracket rails to secure the device.

Figure 3-2 Installing the S7600 in a Rack



**Caution**

- The mounting bracket is secured with four screw holes on the left and right sides of six screw holes on the rear panel of the device.
- Distinguish left and right guide rails according to the mark on the guide rails.
- The guide rails delivered with the device are applicable to a cabinet with a depth less than 800 mm (31.50 in.).

3.5 Connecting the Device to the Earth Ground

The RG-S7600 has a grounding stud on the rear panel. Connect the grounding stud to the grounding lug of the cabinet and then connect the grounding lug the cabinet to the grounding bar of the equipment room.

Precautions:

- Determine the sectional area of a grounding cable according to the possible maximum current, and use grounding cables with good conductors.
- Do not have bare wires exposed.
- The resistance between the chassis and ground should be less than 1 ohm.

**Caution**

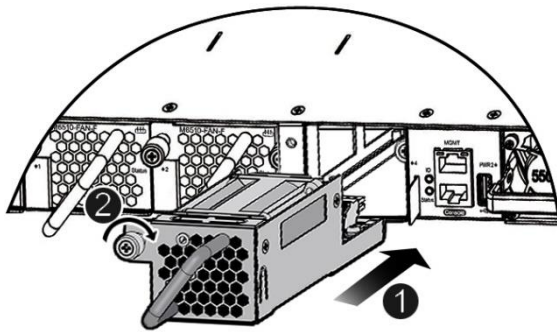
- To avoid personal injury and device damage, connect the switch to the earth ground properly. The grounding resistance between the chassis and the ground should be less than 1 ohm.
- The O&M personnel should check whether the AC socket is reliably connected to the protective ground of the building. If not, the O&M personnel should use a protective earth conductor from the AC outlet protective earth terminal to the building protective earth.
- The power socket should be installed near the device and easily accessible.
- During device installation, the ground connection must always be made first and disconnected last.
- The cross-sectional area of a protective ground cable should be at least 2.5 mm² (14 AWG).

3.6 Installing and Removing a Fan Module

Wear an anti-ESD wrist strap before performing the following operations.

3.6.1 Installing a Fan Module

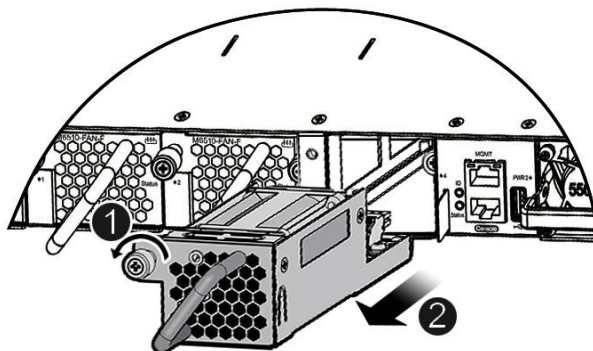
- (1) Remove the fan module from its package.
- (2) Hold the handle at the end of the fan module. Insert the fan module to the chassis slowly along the guide rail until it is fully seated, and make sure that it is in good contact with the slot.
- (3) Tighten captive screws with a screwdriver to fix the fan module in the chassis.

Figure 3-3 Installing the S7610-FAN I-F (S7620-FAN I-F Installation Is Similar)**Caution**

- Slide the fan module into the slot. Verify that the fan module is in the correct orientation.
- If it is difficult to fully insert the fan module, pull the fan module out and slide it into the slot again.
- If screws cannot be tightened, the fan module may be not fully inserted into the chassis. Check the fan module carefully.

3.6.2 Removing a Fan Module

- (1) Tighten the captive screws on the fan module with a screwdriver.
- (2) Hold the fan module latch and pull the fan module out gently.
- (3) Install the filler panel in the unoccupied slot. Put the removed fan module back into its package.

Figure 3-4 Removing the S7610-FAN I-F (S7620-FAN I-F Removal Is Similar)**Caution**

- Ensure that the fan module is pulled out of the slot gently.
- Install the filler panel in the unoccupied slot to allow for adequate airflow.

3.7 Installing and Removing a Power Module

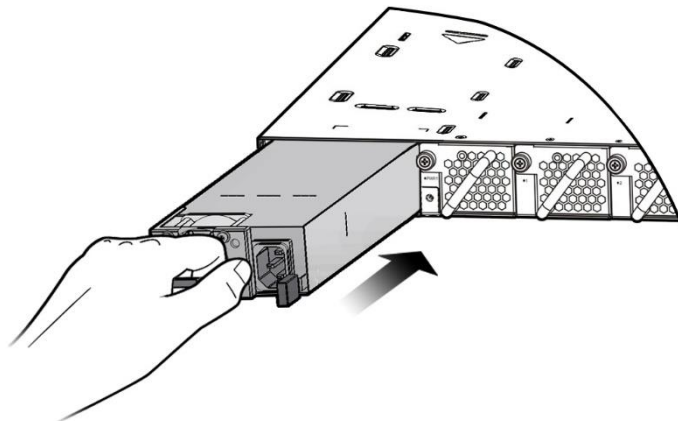
Wear an anti-ESD wrist strap before performing the following operations.

3.7.1 Installing a Power Module

- (1) Unpack the power module and ensure the input specifications meet requirements.

- (2) Remove the filler panel in the unoccupied slot. Keep the module nameplate face upward. Grasp the handle with one hand and place your other hand under the module to support its weight. Slide the module all the way into the slot along the guide rail until you feel the connector snap into place.

Figure 3-5 Removing the RG-PA550I II-F

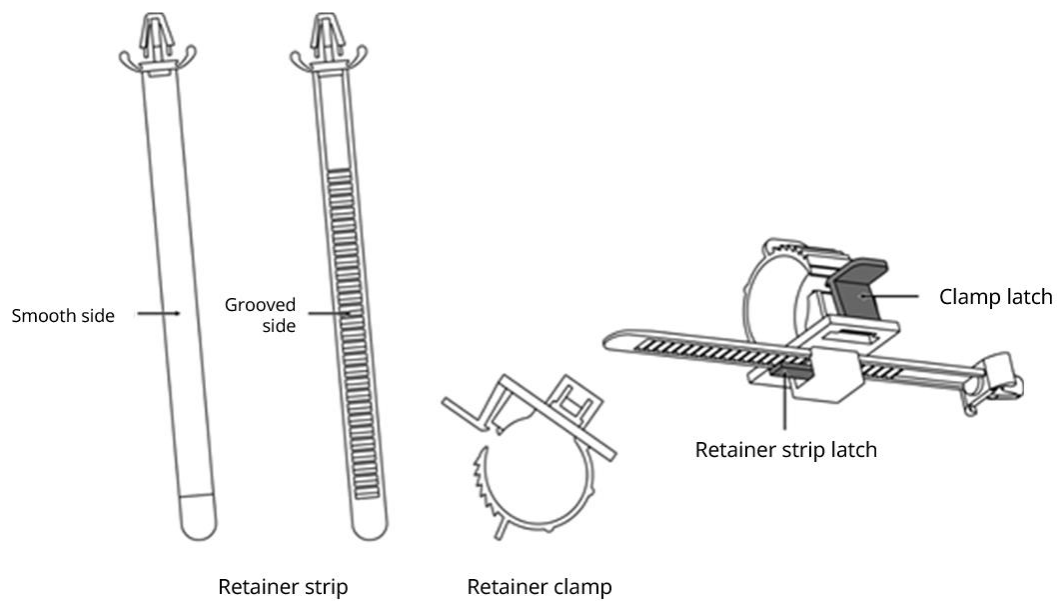


Caution

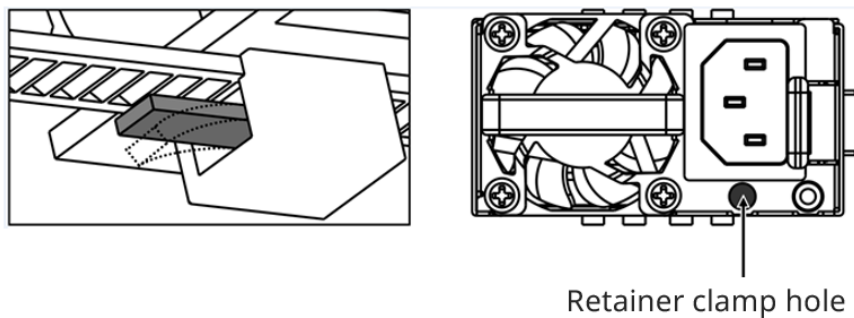
- Slide the power module into the slot gently. Verify that the power module is installed in the correct orientation.
- During installation, ensure that the power module is aligned properly. If the position is not aligned or it is difficult to install the power module, pull back the installed power module. Check whether the power module aligns with the guide rail and then reinstall it.

3.7.2 Installing a Power Cord Retainer

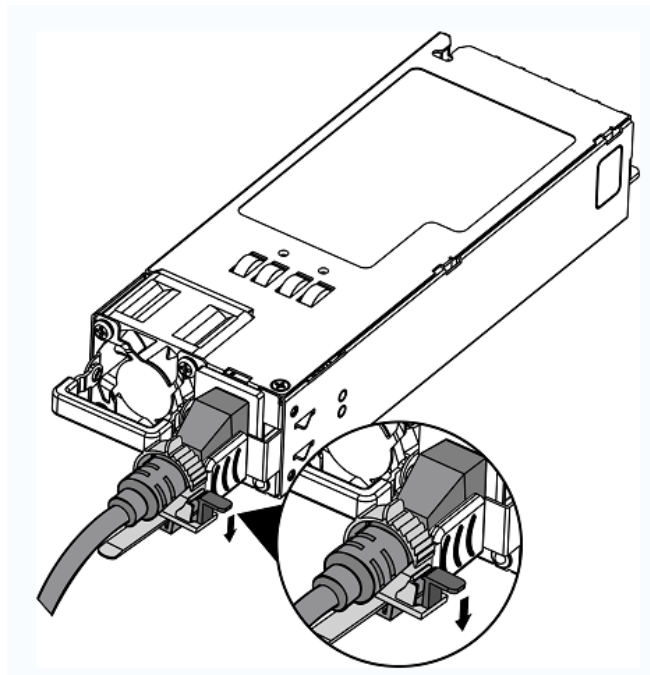
- (1) Remove the power cord retainer from its packing materials. The power cord retainer consists of a retainer strip and a flexible retainer clamp. Both the strip and the clamp have two sides, one side smooth and the other side grooved. The power cord retainer has two latches. If you want to remove the retainer strip, press the retainer strip latch first. If you want to loosen or remove the retainer clamp, press the clamp latch first.

Figure 3-6 Retainer Strip, Retainer Clamp, and Latches

- (2) Thread the retainer strip through the hole at the bottom of the clamp and lock it into place. If you want to remove the strip, press the retainer strip latch and pull the strip out.

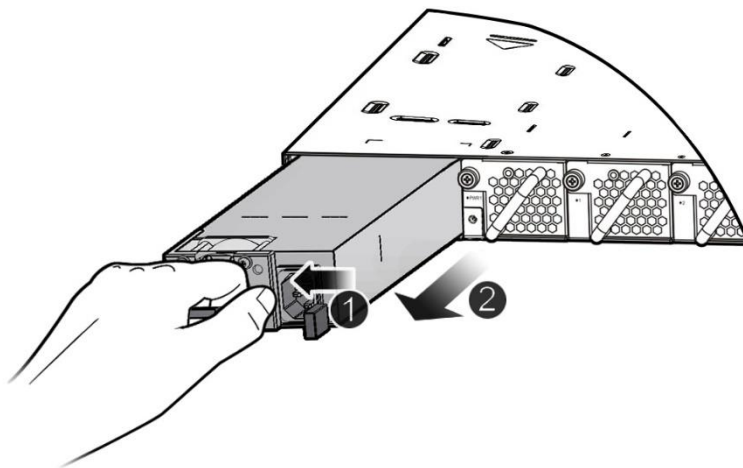
Figure 3-7 Retainer Strip

- (3) Check whether the retainer strip is seated securely. If you can remove the strip without pressing the retainer strip latch, the strip is not installed properly. Try the other side of the strip.
- (4) Fix the strap in the power cord retainer to the power module, to hold the clamp in place.
- (5) Slide the retainer clamp around the AC power cord. If you want to adjust the clamp to secure the AC power cord, press the retainer clamp latch first.

Figure 3-8 Retainer Clamp

3.7.3 Removing a Power Module

- (1) Press the latch on the module and grasp the handle with one hand. Place your other hand under the module to support its weight. Pull the module fully out of the slot.
- (2) Install a filler panel in the power module slot and put the removed power module into its package.

Figure 3-9 Removing the RG-PA550I II-F

 Caution

- Pull the RG-PA550I II-F out of the slot gently.
 - Install a filler panel in the location where the power module is removed to ensure proper airflow and keep the dust out of the chassis.
-

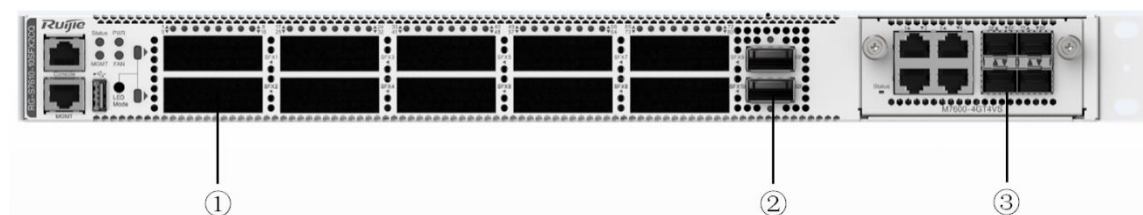
3.8 Installing and Removing Swappable Interface Modules



Caution

To avoid device damage caused by improper installation, ensure that the device has been installed in the rack before installing the optical module. For details on how to mount the device to a rack, see 3.4 Mounting the Switch to the Cabinet.

Figure 3-10 Position of the Optical Module (RG-S7610-10SFX2CQ Equipped with the M7600-4GT4VS Is Used as an Example)



Note :

- ① SFP port
- ② 40GE/100GE QSFP28 port
- ③ 1GE/10GE/25GE SFP28 port

3.8.1 Installing SFP+ and SFP28 Optical Modules

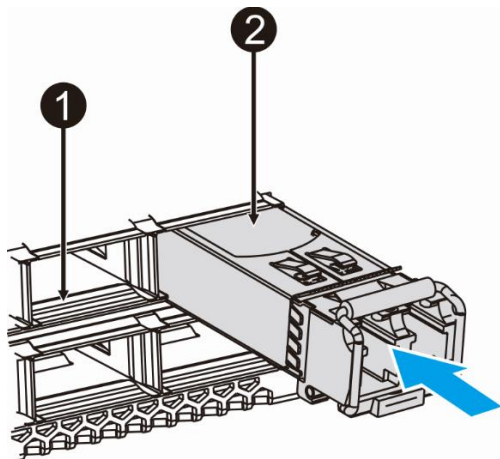


Caution

To avoid device damage caused by improper installation, check the position of the SFP+ optical module (Figure 3-10) before install it.

3.8.2 Installing the SFP+ Optical Module

- (1) Pivot the bail of the SFP+ optical module to secure the optical module with the top clasp. Hold the SFP+ optical module on both sides with your hands and gently push it horizontally into the optical module slot until you feel the module snap into place.

Figure 3-11 Installing the SFP+ Optical Module**Note :**

- ① SFP+ port
- ② SFP+ optical module

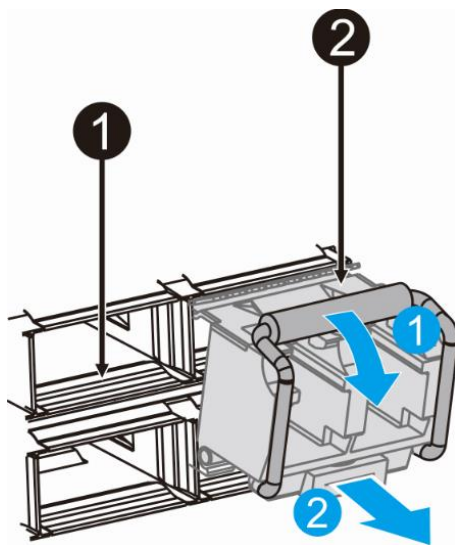
- (2) Use the optical patch cord to connect the SFP+ optical module to the optical network. Select the optical patch cord based on the connector corresponding to the port.
- (3) After the optical patch cord is connected, the Link/ACT LED is on. If the Link/ACT LED is not on, check whether the optical patch cord is correctly connected.

**Caution**

- The optical module cannot be inserted in reverse. Figure 3-11 shows the direction of installing the SFP+ optical module. When the SFP+ optical module cannot be inserted to the bottom in one direction, do not push it with excessive force. Insert the module along the other direction.
- Do not remove the protective rubber plug from the SFP+ optical module before connecting optical fibers.
- Do not insert the SFP+ optical module with an optical fiber into a slot. Unplug the optical fiber before installing the module.
- Do not touch the connecting finger on the module.
- Do not squeeze, bend, or fold the optical fiber, which may cause system performance to deteriorate or data loss.

3.8.3 Removing the SFP+ Optical Module

- (1) Remove optical fibers.
- (2) Pull down the bail of the SFP+ optical module until it is at a horizontal position, and gently pull the module pull-tab to smoothly remove the SFP+ optical module.

Figure 3-12 Removing the SFP+ Optical Module**Note :**

- ① SFP+ port
- ② SFP+ optical module

**Caution**

- Remove the optical cable before removing the optical module.
- Do not forcefully remove the module without unlatching the bail because this may cause damage to the module.
- Once the module is removed, promptly cover the module port and the device's optical port with dust plugs to keep out of dust.

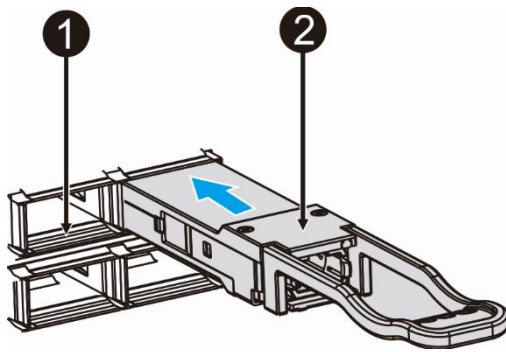
3.8.4 Installing the 40GE QSFP+ Optical Module

**Caution**

To avoid device damage caused by improper installation, check the position of the 40G QSFP+ optical module (Figure 3-10) before installing it.

Installing the 40GE QSFP+ Optical Module

- (1) Flush the module with the optical module slot, and smoothly push it inward until you feel the module snap into place.

Figure 3-13 Installing the QSFP+ Optical Module**Note :**

- ① QSFP+ port
- ② QSFP+ optical module

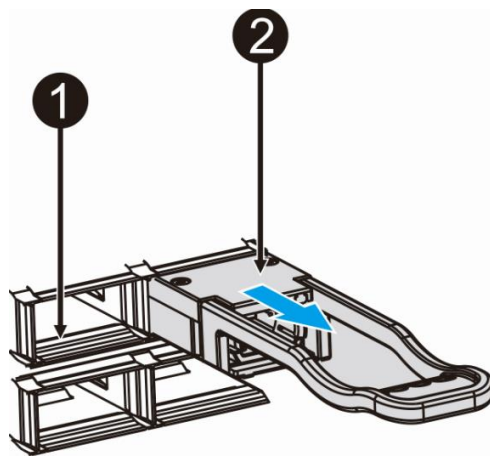
- (2) Use the optical patch cord to connect the 40GE QSFP+ optical module to the optical network. Select the optical patch cord based on the connector corresponding to the port.
- (3) After the optical patch cord is connected, the Link/ACT LED is on. If the Link/ACT LED is not on, check whether the optical patch cord is correctly connected.

**Caution**

- The optical module cannot be inserted in reverse. Figure 3-13 shows the direction of installing the QSFP+ optical module. When the QSFP+ optical module cannot be inserted to the bottom in one direction, do not push it with excessive force. Insert the module along the other direction.
- Do not remove the protective rubber plug from the QSFP+ optical module before connecting optical fibers.
- Do not insert the QSFP+ optical module with an optical fiber into a slot. Unplug the optical fiber before installing the module.
- Do not touch the connecting finger on the module.
- Do not squeeze, bend, or fold the optical fiber, which may cause system performance to deteriorate or data loss.

Removing the QSFP+ Optical Module

- (1) Remove optical fibers.
- (2) Gently pull the module pull-tab to smoothly remove the QSFP+ optical module.

Figure 3-14 Removing the QSFP+ Optical Module**Note:**

- ① QSFP+ port
- ② QSFP+ optical module

**Caution**

- Remove the optical cable before removing the optical module.
- Do not forcefully remove the module without unlatching the bail because this may cause damage to the module.
- Once the module is removed, promptly cover the module port and the device's optical port with dust plugs to keep out of dust.

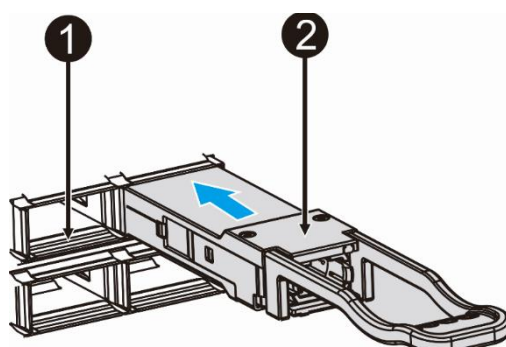
3.8.5 Installing the 100GE QSFP28 Optical Module

**Caution**

To avoid device damage caused by improper installation, check the position of the 100GE QSFP28 optical module (Figure 3-10) before install it.

Installing the 100GE QSFP28 Optical Module

- (1) Flush the module with the optical module slot, and smoothly push it inward until you feel the module snap into place.

Figure 3-15 Installing the 100GE QSFP28 Optical Module

- Note :**
- ① QSFP28 port
 - ② QSFP28 optical module

- (2) Use the optical patch cord to connect the 100GE QSFP28 optical module to the optical network. Select the optical patch cord based on the connector corresponding to the port.
- (3) After the optical patch cord is connected, the Link/ACT LED is on. If the Link/ACT LED is not on, check whether the optical patch cord is correctly connected.

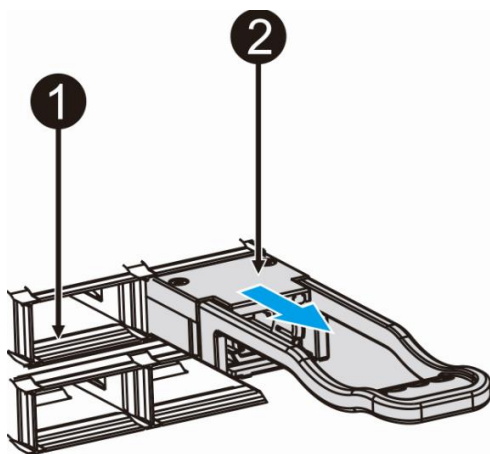
**Caution**

- The optical module cannot be inserted in reverse. Figure 3-15 shows the direction of installing the 100GE QSFP28 optical module. When the 100GE QSFP28 optical module cannot be inserted to the bottom in one direction, do not push it with excessive force. Insert the module along the other direction.
- Do not remove the protective rubber plug from the QSFP28 optical module before connecting optical fibers.
- Do not insert the QSFP28 optical module with an optical fiber into a slot. Unplug the optical fiber before installing the module.
- Do not touch the connecting finger on the module.
- Do not squeeze, bend, or fold the optical fiber, which may cause system performance to deteriorate or data loss.

3.8.6 Removing the QSFP28 Optical Module

- (1) Remove optical fibers.
- (2) Gently pull the module pull-tab to smoothly remove the QSFP28 optical module.

Figure 3-16 Removing the QSFP28 Optical Module



- Note:**
- ① QSFP28 port
 - ② QSFP28 optical module

**Caution**

- Remove the optical cable before removing the optical module.

- Do not forcefully remove the module without unlatching the bail because this may cause damage to the module.
 - Once the module is removed, promptly cover the module port and the device's optical port with dust plugs to keep out of dust.
-

3.9 Connecting the Console Port

Connect the RJ45 connector to the console interface of the device with shipped Ethernet cable, and connect the DB9 connector to the NMS or control terminal.

Note

By default, the value of **Bits per second** is **9600**, the value of **Data bits** is **8**, the value of **Parity** is **None**, the value of **Stop bits** is **1**, and the value of **Flow control** is **None**.

3.10 Connecting External Interface Cables

3.10.1 Precautions

- Correctly distinguish single-mode and multimode fibers and ports.
- Avoid a small bend radius at the connector.

3.10.2 Steps

- (1) Connect the RJ-45 connector of the delivered Ethernet cable to the management port of the switch and the other end to the NMS or control terminal.
- (2) Plug the single-mode and multimode optical fibers into the corresponding ports according to the panel identification, and distinguish the transmitting and receiving ends of the optical fibers.
- (3) Insert the twisted pair cable with the RJ45 connector into the corresponding ports according to the panel identification, and distinguish the crossover cable and the straight-through cable.

3.11 Bundling Cables

3.11.1 Precautions

- Bundle power cords and cables neatly.
- Ensure that the fibers at the connectors have natural bends or bends of large radius.
- Do not bind fibers and twisted pair cables too tightly because this may press the fibers and affect their service life and transmission performance.

3.11.2 Bundling Steps

- (1) Bind the drooping part of the optical cables and twisted pairs, and lead them to both sides of the chassis for convenience.
- (2) On both sides of the chassis, fasten the optical fibers and twisted pair cables to the cable management ring or cabling chute.
- (3) Bundle power cords closely along the bottom of the chassis and in a straight line wherever possible.

3.12 Checking After Installation

3.12.1 Checking the Cabinet

- Verify that the external power supply matches the distribution panel of the cabinet.
- After installing the device, verify that the front or rear cabinet doors can be closed.
- Verify that the cabinet has been fastened completely, and does not move or tilt.
- Verify that the device has been installed in the cabinet, and all the cables have been fastened to the cabinet.
- Maintain a minimum clearance of 200 mm (7.87 in.) around the device for air circulation.

3.12.2 Checking Cable Connections

- Verify that optical fibers and twisted pair cables match port types.
- Verify that cables are properly bundled.
- Verify that the grounding cables are connected properly.
- Verify that interface cables are routed indoors. If not, check whether the power supply and interfaces are protected from lightning strikes.

3.12.3 Checking Power Supply

- Verify that the power cord is properly connected and compliant with safety requirements.



Caution

Turn off the power to avoid personal injury and damage to components caused by incorrect connections.

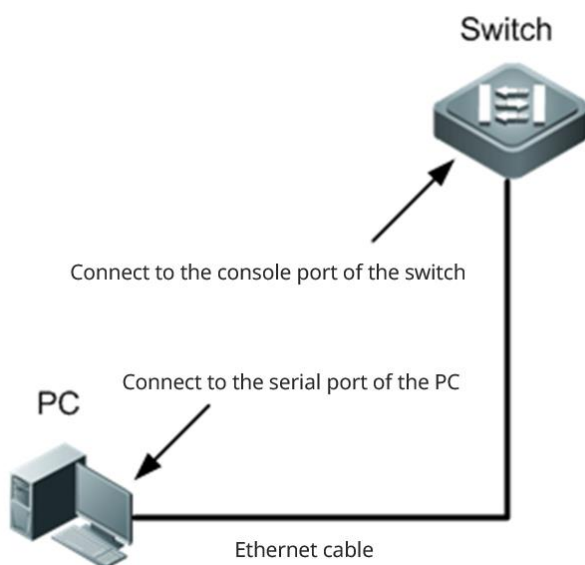
4 Verifying the Operating Status

4.1 Establishing the Configuration Environment

4.1.1 Connecting the Device to a PC

A PC is connected to the console port of the switch through the Ethernet cable, as shown in [Figure 4-1](#).

Figure 4-1 Connecting a PC to the Switch



4.1.2 Connecting the Ethernet Cable

- (1) Connect one end of the DB-9 jack of the Ethernet cable to the serial port of the PC.
- (2) Connect the RJ-45 end to the console port of the switch.

4.1.3 Setting Terminal Parameters

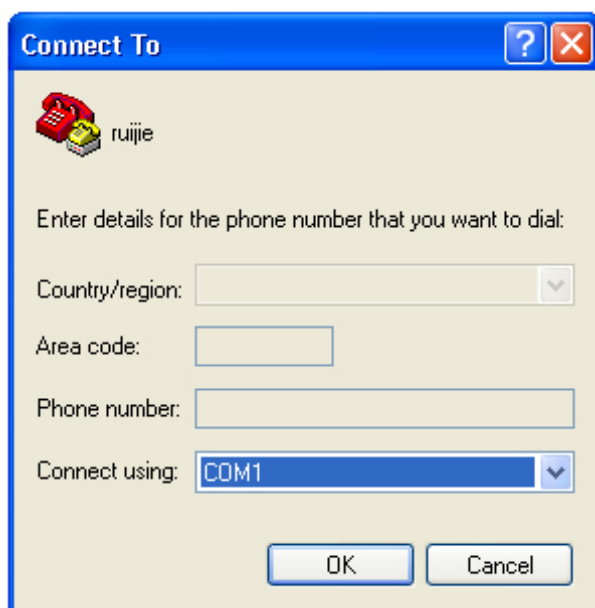
- (1) Start the PC and run the terminal simulation program on the PC, such as Terminal on Windows 3.1 or HyperTerminal on Windows 95/98/NT/2000/XP.
- (2) Set Bits per second to 9600, Data bits to 8, Parity to None, Stop bits to 1, and Flow control to None.
 - a Choose **Start > Programs > Accessories > Communications > Hyperterminal**. The **Hyperterminal** window appears.
 - b Click **Cancel**. The **Connection Description** dialog box will appear.

Figure 4-2 Connection Description Dialog Box



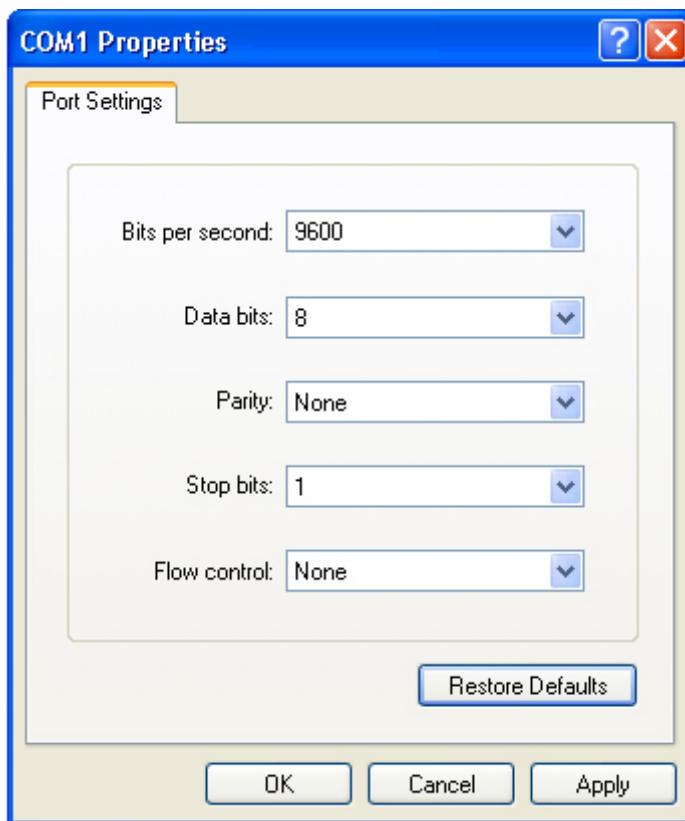
- c In the **Connection Description** dialog box, set the name of the new connection and click **OK**. A window appears. In the **Connect Using** field, select the serial port you want to use.

Figure 4-3 Connect To Interface



- d After selecting the serial port, click **OK**. The Port Settings window is displayed. Set **Bits per second** to **9600**, **Data bits** to **8**, **Parity** to **None**, **Stop bits** to **1**, and **Flow control** to **None**.

Figure 4-4 COM1 Properties Interface



e After setting the serial port parameters, click **OK**. The **Hyperterminal** window will appear.

4.2 Powering On the Device

4.2.1 Checklist Before Power-on

- The switch is fully grounded.
- The fan modules and power modules are correctly installed.
- The power cord is correctly connected.
- The power supply voltage complies with the requirement of the device.
- The console cable is correctly connected; the terminal (such as a PC) used for configuration is already started; the parameters are already configured.

4.2.2 Checklist After Power-on

- Check that information is displayed on the terminal interface.
- Check that the device LEDs are normal.

5 Monitoring and Maintenance

5.1 Monitoring

5.1.1 LEDs

When the RG-S7600 is running, you can monitor the status of each module by observing the status LED of the corresponding module:

- When the status LED of the device is red, a fault occurs in the system, in which case you can log in to the management software to perform troubleshooting.
- When the status LED of the device is yellow, the system temperature exceeds the alarm temperature, affecting the system operation performance. However, the system can continue running. In this case, you can log in to the management software to perform troubleshooting.
- When the status LED of the fan tray is red, a fan module fails. However, the system can continue running. In this case, you can log in to the management software to perform troubleshooting.
- When the status LED of the device or expansion module is blinking or red, a fault occurs. In this case, you need to locate the cause, and turn off the power when necessary.
- When the PWR LED of the device is red, the power module fails. You need to replace the faulty power module immediately.

5.1.2 CLI Commands

The RG-S7600 allows you to monitor various system statuses by executing CLI commands, including:

- Working status of the device
- Port configuration and status
- Working status of fan and power modules
- Temperature status

Note

For details about monitoring commands, see *RG-S7600 Series Configuration Guide*.

5.2 Maintenance

Caution

This device is not suitable for use in locations where children are likely to be present.

5.2.1 Expansion Module

When the expansion module fails and needs to be replaced, remove and reinstall the expansion module according to the instructions.

5.2.2 Heat Dissipation System

- If the fan module fails, an alarm will be generated.

- Replace the faulty fan module with a qualified fan module.
- Tighten captive screws of the fan module.

5.2.3 Power Module

A power cord with a grounding wire is required for the device. When a power module is faulty, unplug the power cord, replace the power module, plug the power cord again, and close the cable retention clip to secure the power cord to the power module.

5.2.4 Replacing the Lithium Battery

The RG-S7600 has a built-in lithium battery to maintain the real-time clock without external power.

To replace the lithium battery, contact Ruijie technical support personnel.



Caution

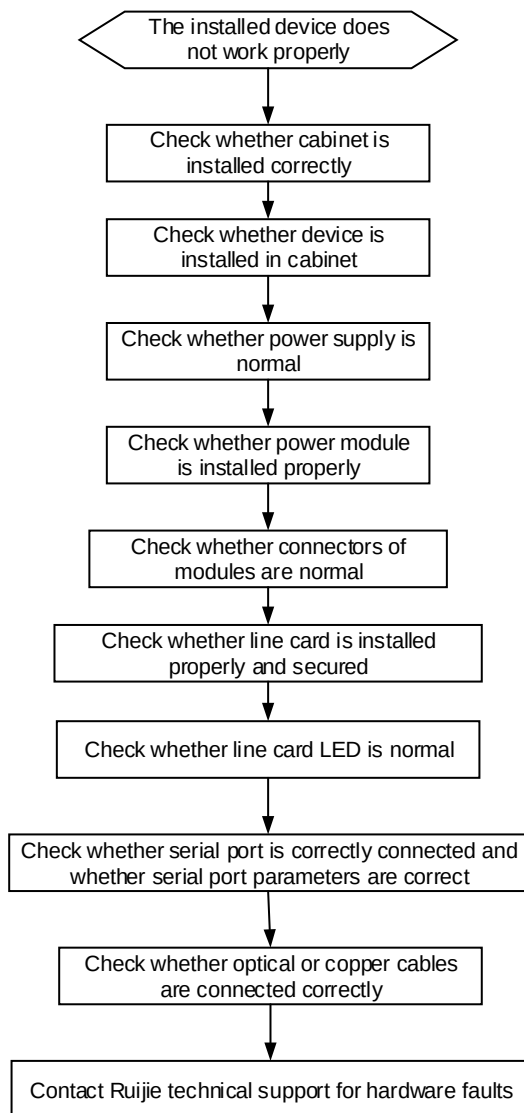
- The device has the lithium battery:
 - 1. Replacing the battery with the incorrect type may cause explosion or danger. If the battery is damaged, replace it with the same type.
 - 2. Exposing the battery to extremely high temperatures and/or extremely low air pressure may cause the battery to explode or leak flammable liquids or gases.
 - 3. Throwing the battery into a fire or oven, or mechanically crushing or cutting it may cause the battery to explode.
-

5.2.5 Replacing Fuses

To replace fuses, contact Ruijie technical support personnel.

6 Troubleshooting

6.1 Troubleshooting Flowchart



6.2 Common Troubleshooting Cases

6.2.1 Fault 1: The System Login Password Is Lost

1. Fault Symptom

The system login password is forgotten or lost, resulting in a failure to configure data.

2. Handling Method

Contact Ruijie technical support personnel.

6.2.2 Fault 2: The AC Power Module Does Not Work

1. Fault Symptom

The status LED of each line card is off, the power LED of the fan tray is off, the fan module does not work, and the LED on the panel of the power module is off.

2. Handling Method

- (1) First unplug all the power cords from power modules.
- (2) Check whether the cabinet is correctly connected.
- (3) Check whether the power socket of the cabinet is tightly connected to the power cord.
- (4) Check whether the power cord is tightly connected to both the power socket and the power module.
- (5) Check whether the power module is properly installed. If necessary, remove the power module and check whether connectors on the power system backplane are loose.

6.2.3 Fault 3: The Fan Module Does Not Work

1. Fault Symptom

After the device starts up, the fan module does not work or the Status LED is off.

2. Handling Method

Check whether the fan module is correctly connected to the device and whether connectors are loose. If the fan module is correctly connected to the device, replace the fan tray.

6.2.4 Fault 4: The Serial Port Console Has No Output

1. Fault Symptom

After the system is started, the serial port console does not display any information.

2. Handling Method

- (1) Check whether serial port cables are connected correctly and whether the connected serial port is the same as that configured on the HyperTerminal.
- (2) Check whether the configuration of the serial port on the HyperTerminal is the same as that of the device. If not, change serial port configuration parameters.
- (3) If there is still no serial port information, contact Ruijie technical support personnel.

6.2.5 Fault 5: Information of the Serial Port Console Contains Garbled Characters

1. Fault Symptom

Information of the serial port console contains garbled characters.

2. Handling Method

Check whether settings of parameters such as the baud rate of the serial port are the same as those in *RG-SG7008 Configuration Guide*.

6.2.6 Fault 6: The Newly Inserted Expansion Module Fails to Be Powered On

1. Fault Symptom

The system is running, but all LEDs on the panel of the newly inserted expansion module are off, and the port is faulty.

2. Handling Method

Check whether the expansion module is connected correctly. If the expansion module is connected correctly, contact Ruijie technical support personnel.

6.2.7 Fault 7: The Link Cannot Be Set Up on the Optical Port

1. Fault Symptom

When the optical module is inserted into the optical port and the fiber cable is installed, the link cannot be set up on the optical port.

2. Handling Method

- (1) Check whether the receiving end and transmitting end are reversed. The transmitting end of an optical port must be connected to the corresponding receiver at the other end. You can confirm both ends by exchanging the connection order of two fiber cables.
- (2) Check whether the wavelength of the optical modules on the two sides are consistent. For example, an optical module with a wavelength of 1310 nm cannot be connected to an optical module of 1550 nm.
- (3) Check whether the distance between the two sides exceeds the maximum length marked on the optical module.
- (4) Check whether the speeds of the two sides match and whether the fiber type meets requirements. If ports support different rates, check whether rates are configured correctly.

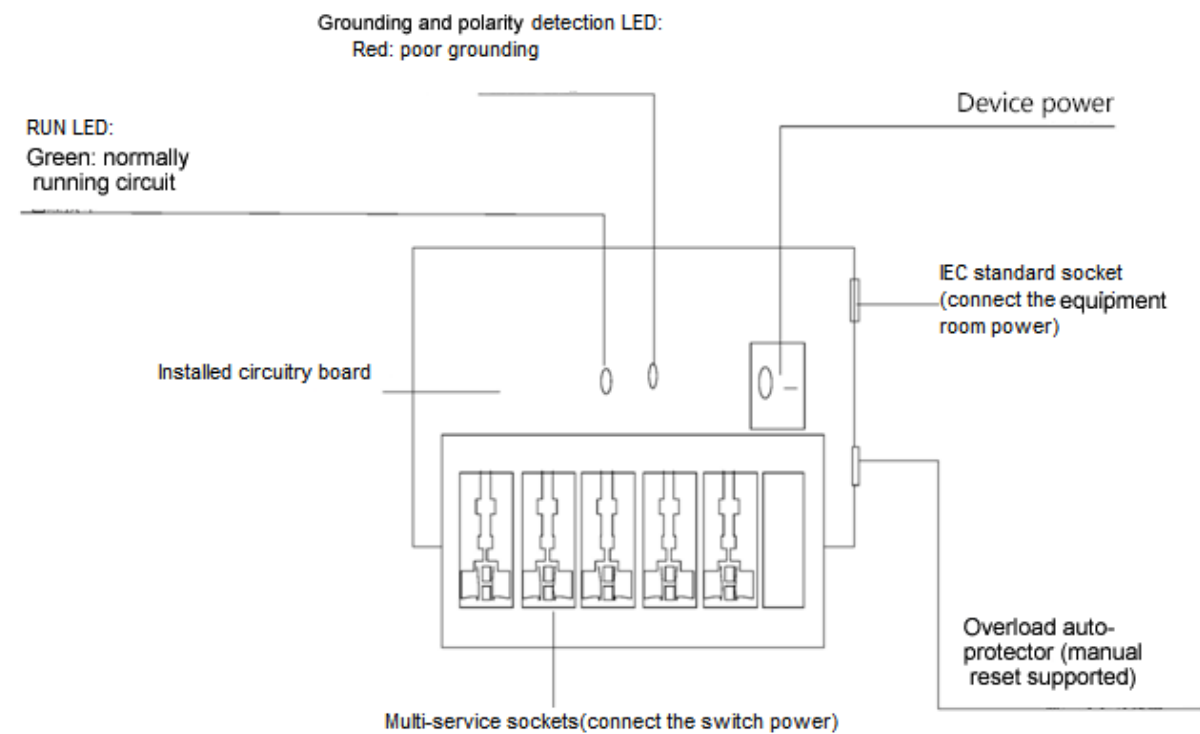
7 Appendix

7.1 Surge Protection

7.1.1 Installing the AC Power Arrester (Surge Protection Power Strip)

The AC power port must be connected to an external surge protection power strip. This prevents the device from being struck by lightning when the AC power cord is introduced from the outdoor and directly connected to the power port of the device. The surge protection power strip can be fixed on the cabinet, workbench, or wall in the equipment room by using cable ties and screws. The AC power enters the surge protection power strip and then enters the device.

Figure 7-1 Power Arrester



Caution

The power arrester is not delivered with the device. Purchase it as needed.

Pay attention to the following points during installation:

- Ensure that the PE terminal of the power arrester is well grounded.
- After the AC power plug of the device is connected to the socket of the power arrester (surge protection power strip), the surge protection function is implemented only if the RUN indicator is green and the ALARM indicator is OFF.
- If the ALARM indicator on the power arrester is red, check whether it is caused by the poor grounding connection or reversed connection of null and live lines. You can use a multimeter to measure the polarity of

the power socket for the arrester when the indicator is red. If the N line is on the left and the L line is on the right (facing the socket), the arrester's PE terminal is not grounded. If not, the polarity of the arrester power cord should be reversed. In this case, you should open the power arrester and rectify the polarity of the connection. If the indicator is still red, the arrester's PE terminal has not been grounded.

7.1.2 Installing the Ethernet Port Arrester

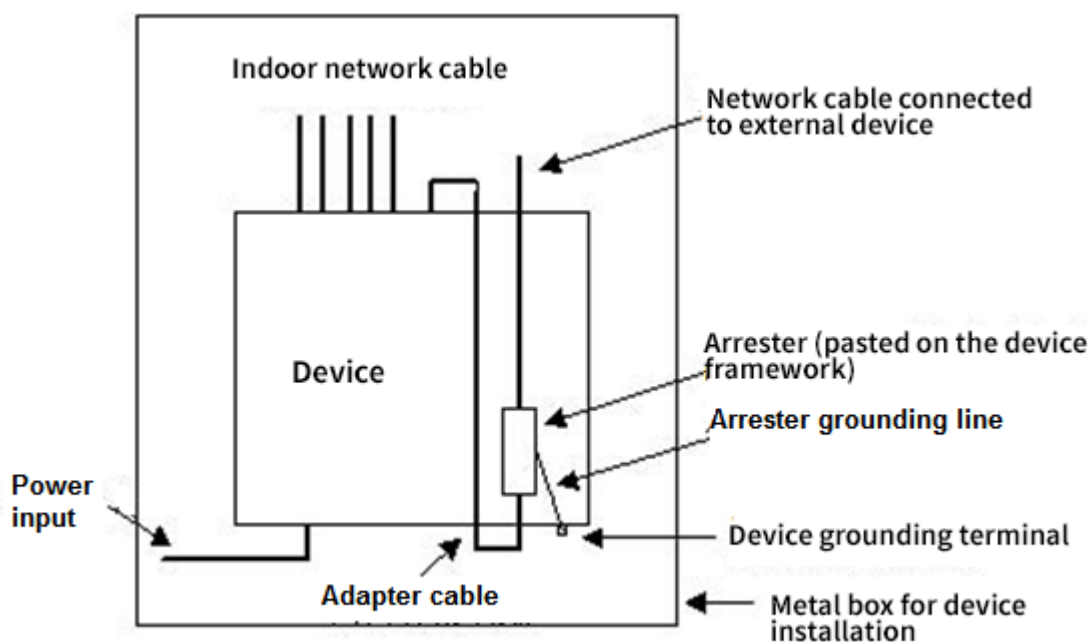
If an external network cable connects to the device, connect an Ethernet port arrester to the device to prevent the damage by lightning before connecting an outdoor network cable to the device.

Required tools include the Phillips screwdrivers or flat-head screwdriver, multimeter, and diagonal pliers.

Installation steps:

- (1) Tear one side of the protective paper for the double-sided adhesive tape and paste the tape to the housing of the Ethernet port arrester. Tear the other side of the protective paper for the double-sided adhesive tape and paste the Ethernet port arrester to the device housing. The paste position for the Ethernet port arrester should be close to the ground terminal of the device as much as possible.
- (2) Based on the distance between the device ground terminal and the Ethernet port arrester, cut the ground cable for the Ethernet port arrester and firmly tighten the ground cable to the ground terminal of the device.
- (3) Use a multimeter to check whether the ground cable for the arrester is in good contact with the ground terminal and the housing of the device.
- (4) Connect the arrester by using an adapter cable (note that the external network cable is connected to the IN end, while the adapter cable connected to the device is connected to the OUT end) and check whether the service module indicator is normal.
- (5) Use a nylon cable tie to bundle the power cords.

Figure 7-2 Ethernet Port Arrester Installation



**Caution**

- The Ethernet port arrester is only for the 10M/100M copper ports with an RJ-45 connector.
- The Ethernet port arrester is not delivered with the device. Purchase it as needed.

7.1.3 Precautions

The arrester performance is affected in the following situations:

- Reversed installation direction of the arrester: Connect the external network cable to the IN end and connect the Ethernet port of the device to the OUT end.
- Poor grounding of the arrester: The ground cable of the arrester should be as short as possible to ensure that it is in good contact with the ground terminal of the device. Use a multimeter to confirm the contact condition after the grounding.
- Incomplete arrester installation: If there is more than one port connected to the peer device on the device, arresters need to be installed on all connection ports for surge protection.

7.2 Cabling

When the RG-S7600 is installed in a standard 19-inch cabinet, route cable bundles upward or downward along the sides of the rack depending on the actual situation in the equipment room. All cable connectors should be placed at the bottom of the cabinet, and cannot be exposed outside the cabinet. Power cords should be routed upward or downward beside the cabinet close to the location of the DC power distribution cabinet, AC power outlet, or surge protection box.

7.2.1 Requirement for the Minimum Cable Bend Radius

- The bend radius of a fixed power cord, network cable, or flat cable should be over five times greater than its diameter. The bend radius of these cables that are often bent or plugged should be over seven times greater than its diameter.
- The bend radius of a fixed common coaxial cable should be over seven times greater than its diameter. The bend radius of the common coaxial cable that is often bent or plugged should be over 10 times greater than its diameter.
- The minimum bend radius of a high-speed cable such as an SFP+ cable should be over five times its diameter. If the cable is constantly bent, plugged, or unplugged, the bend radius should be over 10 times greater than its diameter.

7.2.2 Requirement for the Minimum Bend Radius of an Optical Fiber

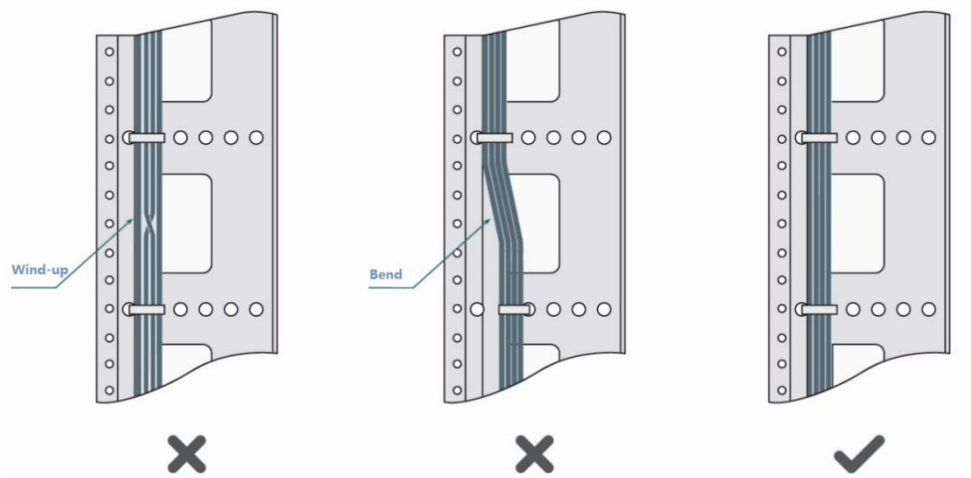
- The diameter of a fiber tray to hold fibers should be over 25 times greater than the diameter of the fiber.
- When an optical fiber is moved, the bend radius of the fiber should be over 20 times greater than the diameter of the fiber.
- During cabling of an optical fiber, the bend radius of the fiber should be over 10 times greater than the diameter of the fiber.

7.2.3 Precautions for Cable Bundling

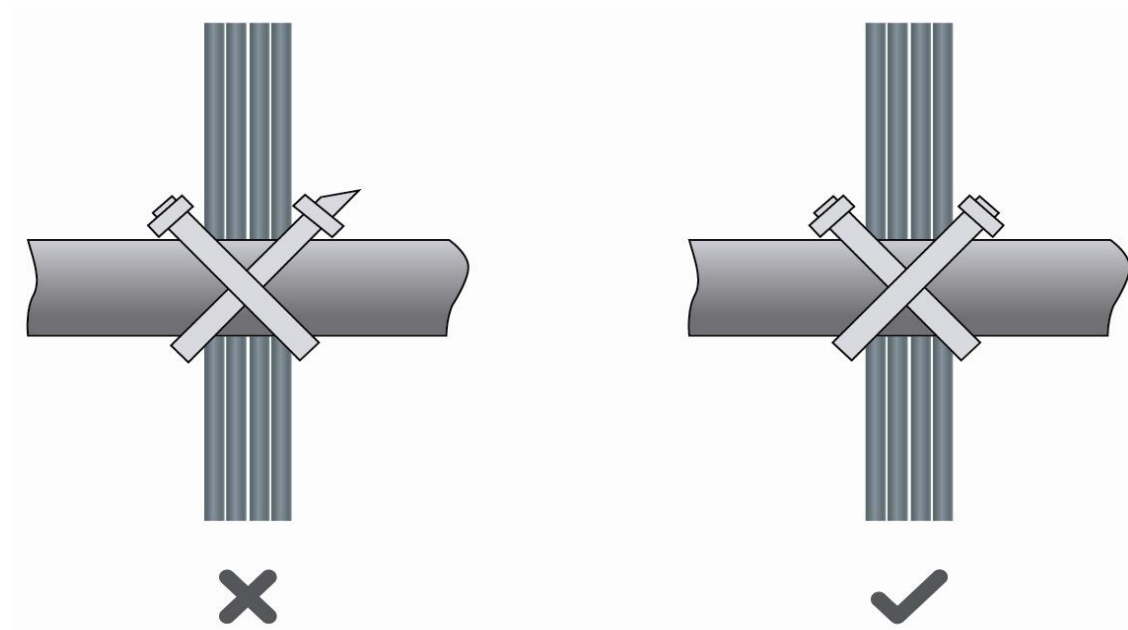
- Before cables are bundled, mark labels and stick the labels to cables wherever appropriate.

- Cables should be neatly and properly bundled in the cabinet without twisting or bending.

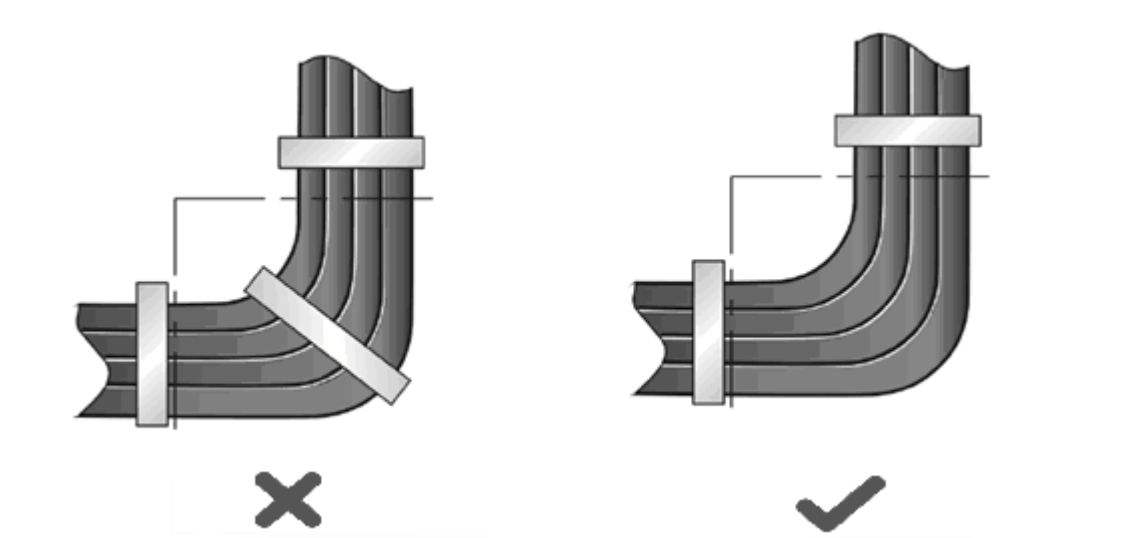
Figure 7-3 Bundling Up Cables (1)



- Route and bundle power, signal, and grounding cables separately. When the cables are close to each other, cross them. Mixed bundling is not allowed. When they are close to each other, crossover cabling is recommended. In the case of parallel cabling, maintain a minimum distance of 30 mm (1.18 in.) between power cords and signal cables.
- The cable management brackets and cabling troughs inside and outside the cabinet should be smooth without sharp corners.
- The metal hole traversed by cables should have a smooth and fully rounding surface or an insulated lining.
- Use cable ties to bundle up cables properly. Please do not connect two or more cable ties to bundle up cables.
- After bundling up cables with cable ties, cut off the remaining part. The cut should be smooth and trim, without sharp corners.

Figure 7-4 Bundling Up Cables (2)

- When cables need to be bent, bundle them up but do not tie them where the cables will be bent. When cables need to be bent, bundle them up but do not tie them where the cables will be bent.

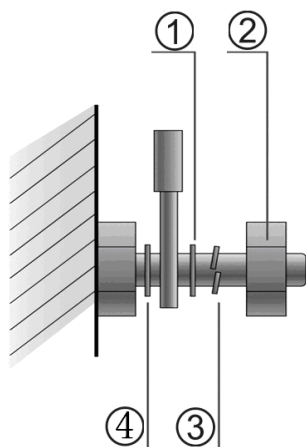
Figure 7-5 Bundling Up Cables (3)

- Cables that are not assembled or remaining parts of cables should be folded and placed in a proper position of the cabinet or cable trough. The proper position refers to a position that does not affect device running or damage the device or cable.
- Do not bind power cords to rails for moving parts.
- Leave a certain length of the power cord connecting moving parts such as grounding cables, to avoid stress on the cable. When moving parts are installed, the remaining cable part should not touch heat sources, sharp corners, or sharp edges. If heat sources cannot be avoided, high-

temperature cables should be used.

- When screw threads are used to fasten cable terminals, the bolt or screw must be tightly fastened, and cable retention measures should be taken.

Figure 7-6 Cable Fastening



Note :

① Flat washer

② Nut

③ Spring washer

④ Flat washer

- When using a stiff cable, fix it near the cable lug to avoid stress on the lug and cable.
- Do not use self-tapping screws to fasten terminals.
- Power cords of the same type and in the same cabling direction should be bundled up into cable bunches, with cables in cable bunches clean and straight.
- Cables should be tied according to [Table 7-1](#).

Table 7-1 Cable Bundling

Cable Bunch Diameter	Distance Between Every Binding Point
10 mm (0.39 in.)	80 mm to 150 mm (3.15 in. to 5.91 in.)
10 mm to 30 mm (0.39 in. to 1.18 in.)	150 mm to 200 mm (5.91 in. to 7.87 in.)
30 mm (1.18 in.)	200 mm to 300 mm (7.87 in. to 11.81 in.)

- No knot is allowed in cabling or bundling.

For wiring terminal blocks (such as circuit breakers) with cord end terminals, the metal part of the cord end terminal should not be exposed outside the terminal block when assembled.

7.3 Site Selection

- The equipment room should be at least 5 km away from heavy pollution sources, such as the smelter works, coal mine, and thermal power plant. The equipment room should be at least 3.7 km away from medium

pollution sources, such as the chemical factory, rubber factory, and electroplating factory. The equipment room should be at least 2 km away from light pollution sources, such as the food factory and leather plant. If the pollution source is unavoidable, the equipment room should be located on the windward side of the pollution source perennially with advanced protection.

- The equipment room should be at least 3.7 km away from the sea or salt lake. Otherwise, the equipment room must be sealed, with the air conditioner installed for temperature control. Saline soil cannot be used for construction. Otherwise, you should select devices with advanced protection against severe environment.
- Do not build the equipment room in the proximity of livestock farms. Otherwise, the equipment room should be located on the windward side of the pollution source perennially. The previous livestock house or fertilizer warehouse cannot be used as the equipment room.
- The equipment room should be firm enough to withstand severe weather conditions such as windstorm and heavy rain as well as away from dust. If the dust is unavoidable, keep the door and window away from the pollution source.
- The equipment room should be away from the residential area. Otherwise, the equipment room should meet the construction standard in terms of noise.
- Make sure that the air vent of the equipment room is away from the sewage pipe, septic tank, and sewage treatment tank. Keep the equipment room under positive pressure to prevent corrosive gas from entering the equipment room to corrode components and circuit boards.
- Keep the equipment room away from industrial boiler and heating boiler.
- The equipment room should be on the second floor or above. Otherwise, the equipment room floor should be 600 mm (23.62 in.) higher than the highest flood level ever recorded.
- Make sure that there are no cracks or holes in the wall and floor. If there are cable entries in the wall or window, take proper sealing measures. Ensure that the wall is flat, wear-resistant, and dust-free, which must meet requirements of flame retarding, soundproofing, heat absorption, dust reduction, and electromagnetic shielding.
- Keep the door and the window closed to make the equipment room sealed.
- The steel door is recommended for soundproofing.
- Sulfur-containing materials are forbidden.
- Keep the air conditioner from blowing wind straight toward the device or blowing water drops from the window or air vent toward the device.