

Ruijie RG-IS5200 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

Technical Support

- Ruijie Networks website: <https://www.ruijie.com/>
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- Email support: service_rj@ruijie.com
- Live chat: <https://www.ruijie.com/rita>
- 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 Overview

RG-IS5200 series switches are next-generation high-performance, high-security, and multi-service layer 3 Ethernet switches developed by Ruijie Networks. They are mainly applied to the access layer to provide line-rate switching and complete QoS policies, prioritizing some traffic over others to ensure important data transmission without latency. They also support a wide variety of interfaces with flexible media options for network construction. The RG-IS5200 series switch adopts natural cooling and is applicable to scenarios where a DIN rail is used. A mounting bracket is delivered with the switch.

Table 1-1 The RG-IS5200 series switches come into four models.

Model	GE Port	SFP+ Port	DI/DO	RS-485	USB	Console	Power Module	Extended PoE	Protection Enclosure	Main Installation Scenario
RG-IS5200-8GT4XS	8	4	1 x DI port 1 x DO port	1	1	1	Sing AC/HVDC input	N/A	IS52-shield	DIN rail mounting
RG-IS5200-8GT4XS-DC	8	4	1 x DI port 1 x DO port	1	1	1	DC input (1+1 redundancy)	N/A	IS52-shield	DIN rail mounting
RG-IS5200-8GT4XS-UP-DC	8 (PoE++ capable)	4	1 x DI port 1 x DO port	1	1	1	DC input (1+1 redundancy)	Ports 5–8	IS52-shield	DIN rail mounting
RG-IS5200-24GT4XS-UP-DC	24 (PoE++ capable)	4	1 x DI port 1 x DO port	1	1	1	DC input (1+1 redundancy)	Ports 21–24	N/A	Rack mounting



Caution:

- In a domestic environment, this product may cause radio interference.
- This equipment is not suitable for use in locations where children are likely to be present.
- To use a power adapter for power supply, the power adapter must pass safety standard certification and meet safety standard requirements.



Note:

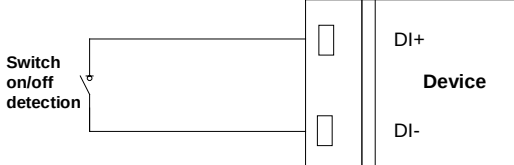
- The PoE+ port is backward compatible with PoE+ and PoE.
- The GE Ethernet electrical port supports 10/100/1000BASE-T auto-negotiation.
- The SFP+ port supports both 10GBASE-R and 1000BASE-X.

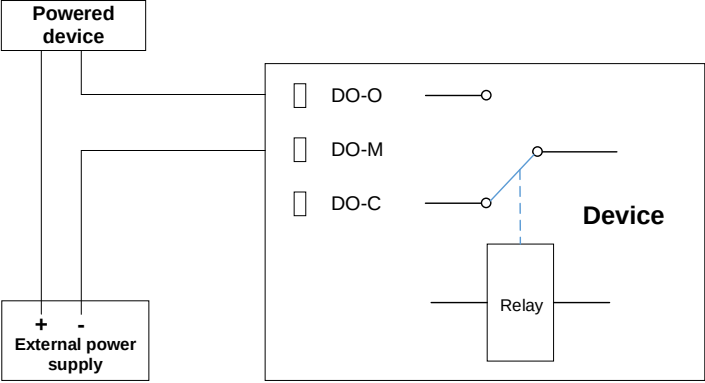
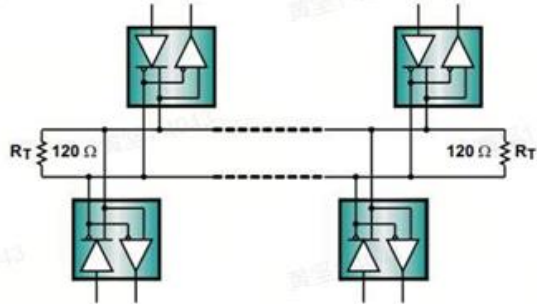
The RG-IS5200 also provides the following ports for management:

- USB port: connects to the USB storage device to store logs, host version, alarms, and diagnostic information, making it easy for online upgrade of the switch software and log storage.
- Console port: is an RS-232 port that uses an RJ45 connector. It connects a PC directly to the management system for debugging, configuration, maintenance, management, and program loading.

1.2 RG-IS5200-8GT4XS

1.2.1 Specifications

Fixed service port	8 x 10/100/1000BASE-T ports 4 x 1GE/10GE SFP+ ports
Transmission medium	100/1000BASE-T Cat 5 UTP 1000BASE-X to 1000BASE-T Cat 5e/6/6a 1000BASE-SR (850 nm) (recommended) 1000BASE-LR (1310 nm) (recommended) 1000BASE-SX (850 nm) 1000BASE-LX (1310 nm) 1000BASE-LH (1310 nm) 1000BASE-ZX (1550 nm) 1000BASE-LX (1310 nm, 1550 nm) 1000BASE-LH (1310 nm, 1550 nm) 10GBASE-SR (850 nm) (recommended) 10GBASE-LR (1310 nm) (recommended) 10GBASE-ER (1550 nm) 10GBASE-ZR (1550 nm) 10GBASE-SR (1270 nm, 1330 nm) 10GBASE-LR (1270 nm, 1330 nm) 10GBASE SFP+ active optical cable (AOC)
Fixed management port	1 x RJ45 console port
USB	1 x USB 2.0 port
DI	Port type: dry contact Signal definitions: + or - Detection method: passive switch on/off detection; on: short-circuit, off: open circuit (default) 
DO	Port type: relay output

	Signal definitions: O, C, and M. By default, M is disconnected from O and connected to C. Rated load of DO: 2 A/30 V DC Maximum switching current of DO: 4 A  Note: Note that the inrush current during relay switching must be less than the preceding maximum switching current.
RS-485	Standard: TIA/EIA-485-A Mode: half-duplex RS-485 Signal definitions: D+, D-, SGND Typical baud rate: 300–115,200 bps Typical distances: 900 m (2,952.75 ft.) for 115,200 bps, 1,200 m (3,937.01 ft.) for 9,600 bps Termination method: No R_T is connected between D+ and D- ends within the device. Instead, termination resistors are typically placed on external links, as shown in the following figure. 
Status LED	1 x system status LED 8 x 10/100/1000BASE-T port LEDs 4 x 1GE/10GE SFP+ port LEDs

CPU	Two-core CPU, ARM Cortex™ A55, each core with the clock speed of 1.0GHz
BootROM	16 MB (2 flash chips for 1+1 boot redundancy)
Flash memory	512 MB
Memory	1GB DDR4
Power supply	1 x fixed power supply
Power connector type	Terminal block
Power input	AC input: • Rated voltage: 100V~240V AC, 50/60Hz • Maximum voltage: 90V~264V AC, 50/60Hz • Rated current: 0.6A HVDC input: • Rated voltage: 240V DC • Maximum voltage: 204V~288V DC • Rated current: 0.3A
Maximum power consumption	110 V AC: 16.7W 220 V AC: 16.8W 240 V AC: 16.8W
Leakage current	≤3.5mA
Energy saving	Energy Efficient Ethernet (EEE)
Unit dimensions (W x D x H)	150 mm x 133 mm x 86 mm (5.91 in. x 5.24 in. x 3.39 in.)
Unit weight	1.49 kg (3.28 lbs)
Mounting	Desktop mounting, DIN rail mounting, and wall mounting
Temperature	Operating temperature: (at an altitude below 1,800 m [5,905.51 ft.], with industrial optical transceivers installed) • -40°C to +65°C (-40°F to +149°F) (installed in an enclosed cabinet)

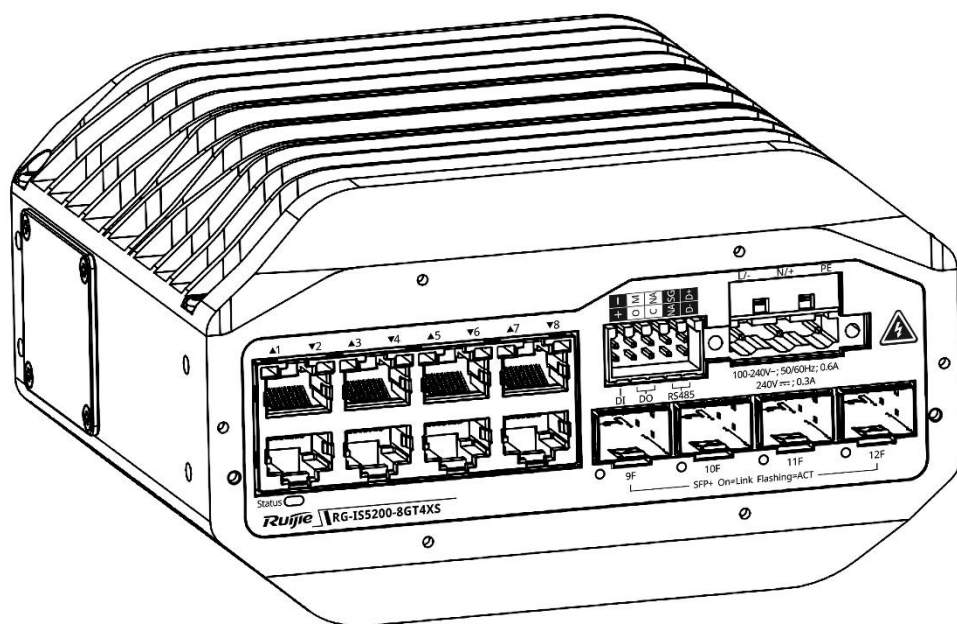
	• –40°C to +70°C (–40°F to +158°F) (installed in a ventilated cabinet with a minimum air velocity of 80 Line Feet Minute [LFM]) • –40°C to +75°C (–40°F to +167°F) (installed in a fan-equipped cabinet with a minimum air velocity of 200 LFM)  Note: At an altitude between 1,800 m (5,905.51 ft.) and 5,000 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). Storage temperature: –40°C to +85°C (–40°F to +185°F)
Humidity	Operating humidity: 5% to 95% RH Storage humidity: 5% to 95% RH
Altitude	Storage altitude: 0 m to 5,000 m (0 ft. to 16,404.20 ft.) Operating altitude: 0 m to 5,000 m (0 ft. to 16,404.20 ft.)
Mean time between failure (MTBF)	Below 40°C (104°F): at least 300,000 hours (about 34 years)
Heat dissipation	Fanless design, natural cooling
IP rating	IP41 by default. When the IS52-shield protection enclosure is installed, the IP rating reaches IP55.  Note: Without any protection enclosure, the front panel of the switch should not be installed upward to meet the IP41 protection requirements.
Surge protection	AC power port: • Common mode: 6 kV/Differential mode: 6 kV, 1.2/50, criterion B Service ports: • Common mode: 10 kV (1.2/50), criterion R • Common mode: 6 kV (1.2/50), criterion B • Differential mode: 500 V (between positive and negative ends, 1.2/50 criterion R)

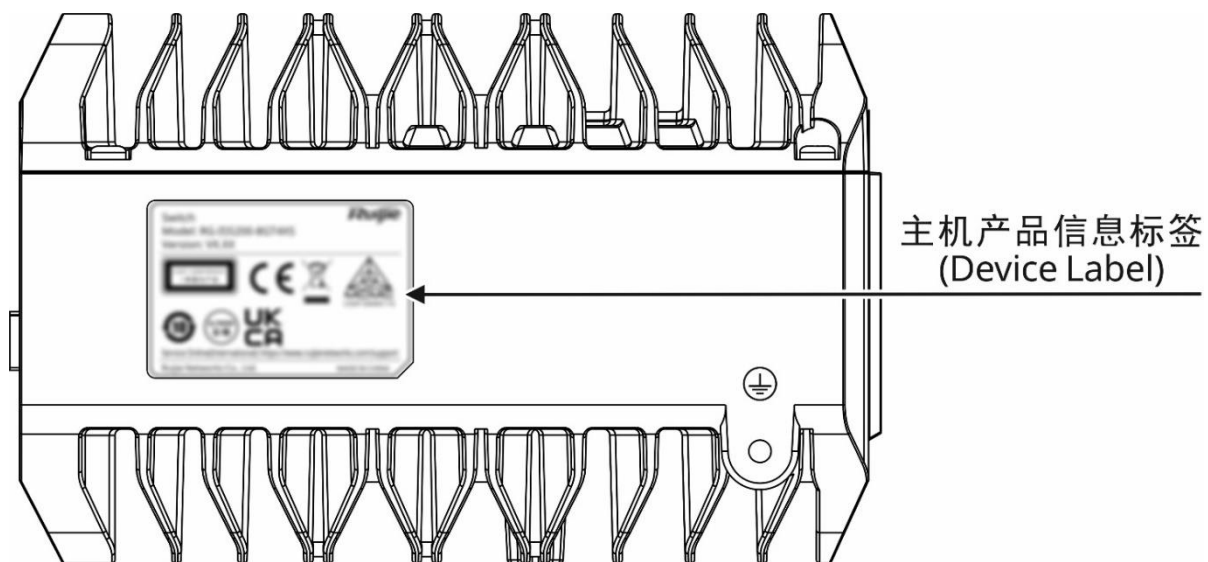
	DI/DO/RS-485 port: • Common mode: 4 kV (1.2/50), criterion B • Differential mode: 1 kV (1.2/50), criterion B
Safety regulation	EN 62368-1, BS EN 62368-1, IEC 62368-1
EMC regulation	EN 55032, EN 55035, EN 300386, BS EN 55032, BS EN 55035

1.2.2 Appearance

The RG-IS5200-8GT4XS Ethernet switch provides 1 x AC power ports, 1 x DI port, 1 x DO port, 1 x RS-485 port, 8 x 10/100/1000BASE-T RJ45 ports with auto-negotiation, and 4 x 10GE SFP+ ports on the front panel. The side panel has one RJ45 console port and one USB port. When the USB port is not in use, you can lock the baffle plate to adapt to a dusty environment.

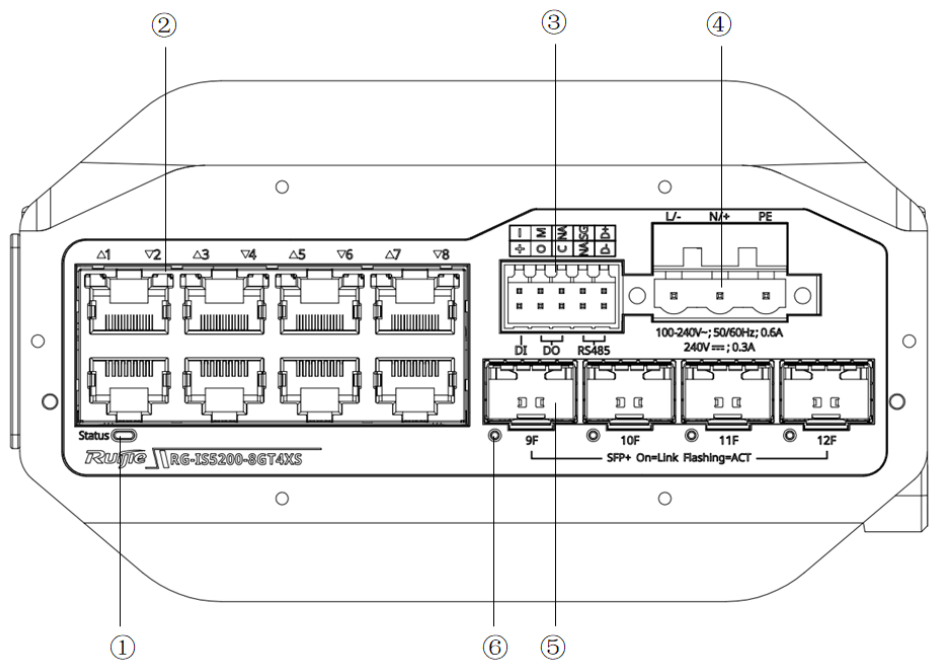
Figure 1-2 Appearance of the RG-IS5200-8GT4XS





1. Front Panel

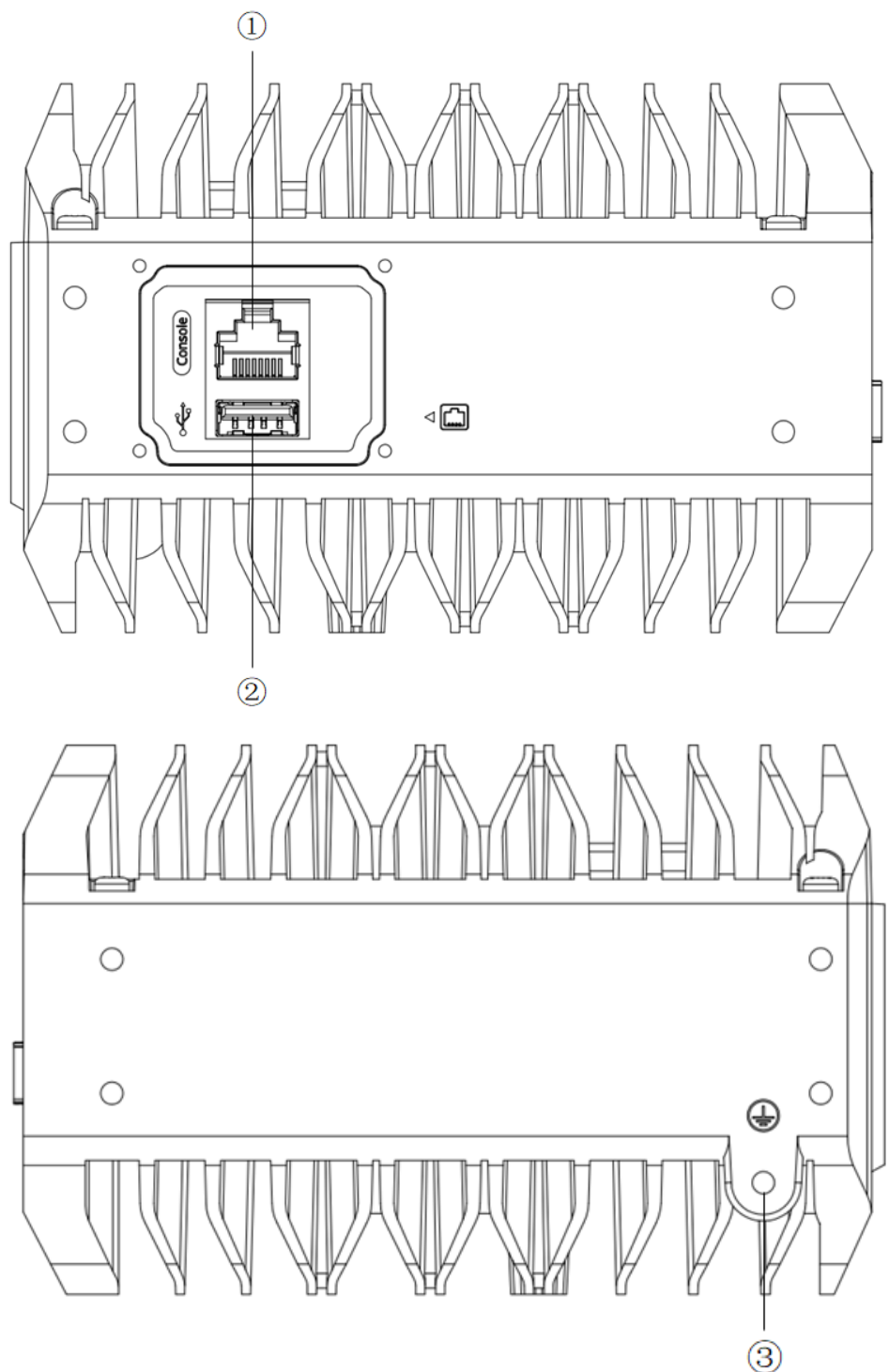
Figure 1-3 Front Panel of RG-IS5200-8GT4XS



Note:	(1) System status LED	(4) Power socket
	(2) 10/100/1000BASE-T port	(5) 1GE/10GE SFP+ port
	(3) DI, DO, and RS-485 port	(6) 1GE/10GE SFP+ port LED

2. Side Panel

Figure 1-4 Side Panel of the RG-IS5200-8GT4XS



Note:	(1) Console port	(3) Grounding stud
	(2) USB port	

3. Power Supply

The RG-IS5200-8GT4XS has built-in power modules, and its front panel has an AC power plug.

4. Cooling

The RG-IS5200-8GT4XS adopts natural cooling to ensure that the device works properly in the specified environment. When installing the device, maintain a minimum clearance of 100 mm (3.94 in.) around the cooling fins on both sides to ensure proper airflow.



Note:

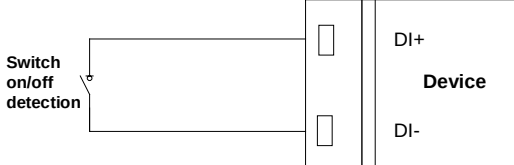
You are advised to install the SFP port at the bottom in vertical mode and leave sufficient space on both sides of the cooling fins. If the device is not installed in the recommended position for long-term operation, the maximum operating temperature needs to be decreased by 5°C (9°F) in actual deployment.

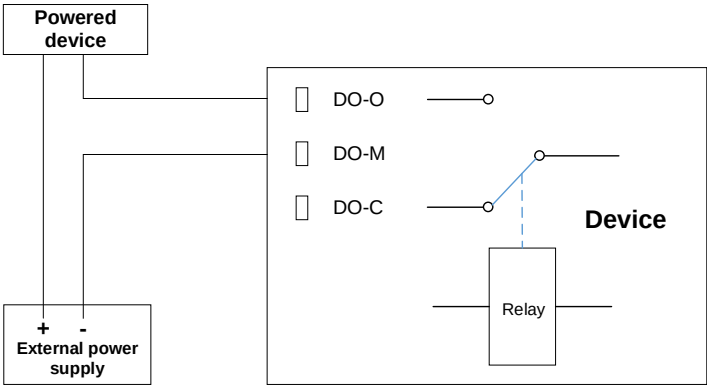
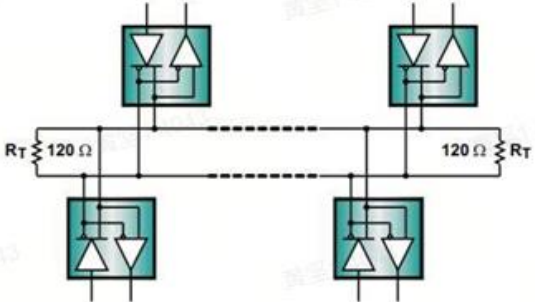
5. LEDs

LED	Panel Identification	Status	Description
System status LED	Status	Off	The switch is not powered on.
		Blinking green (3 Hz)	The switch is being initialized. If the LED blinks continuously, a fault occurs.
		Solid green	The switch works properly.
		Solid yellow	The temperature exceeds the threshold.
		Solid red	System is faulty.
10/100/1000BASE-T port LED	1–8	Off	The port is not connected.
		Solid green	The port is connected at the rate of 10/100/1000 Mbps.
		Blinking	The port is receiving or sending data.
1GE/10GE SFP+ port LED	9F–12F	Off	The port is not connected.
		Solid green	The port is connected at the rate of 1 Gbps or 10 Gbps.
		Blinking green	The port is sending and receiving traffic at the rate of 1 Gbps or 10 Gbps.

1.3 RG-IS5200-8GT4XS-DC

1.3.1 Specifications

Fixed service port	8 x 10/100/1000BASE-T ports 4 x 1GE/10GE SFP+ ports
Transmission medium	100/1000BASE-T Cat 5 UTP 1000BASE-X to 1000BASE-T Cat 5e/6/6a 1000BASE-SR (850 nm) (recommended) 1000BASE-LR (1310 nm) (recommended) 1000BASE-SX (850 nm) 1000BASE-LX (1310 nm) 1000BASE-LH (1310 nm) 1000BASE-ZX (1550 nm) 1000BASE-LX (1310 nm, 1550 nm) 1000BASE-LH (1310 nm, 1550 nm) 10GBASE-SR (850 nm) (recommended) 10GBASE-LR (1310 nm) (recommended) 10GBASE-ER (1550 nm) 10GBASE-ZR (1550 nm) 10GBASE-SR (1270 nm, 1330 nm) 10GBASE-LR (1270 nm, 1330 nm) 10GBASE SFP+ active optical cable (AOC)
Fixed management port	1 x RJ45 console port
USB	1 x USB 2.0 port
DI	Port type: dry contact Signal definitions: + or - Detection method: passive switch on/off detection; on: short-circuit, off: open circuit (default) 
DO	Port type: relay output

	Signal definitions: O, C, and M. By default, M is disconnected from O and connected to C. Rated load of DO: 2 A/30 V DC Maximum switching current of DO: 4 A  Note: Note that the inrush current during relay switching must be less than the preceding maximum switching current.
RS-485	Standard: TIA/EIA-485-A Mode: half-duplex RS-485 Signal definitions: D+, D-, SGND Typical baud rate: 300–115,200 bps Typical distances: 900 m (2,952.75 ft.) for 115,200 bps, 1,200 m (3,937.01 ft.) for 9,600 bps Termination method: No R_T is connected between D+ and D- ends within the device. Instead, termination resistors are typically placed on external links, as shown in the following figure. 
Status LED	1 x system status LED 8 x 10/100/1000BASE-T port LEDs 4 x 1GE/10GE SFP+ port LEDs 2 x power status LED

CPU	Two-core CPU, ARM Cortex™ A55, each core with the clock speed of 1.0GHz
BootROM	16 MB (2 flash chips for 1+1 boot redundancy)
Flash memory	512 MB
Memory	1GB DDR4
Power supply	IPA60: 60 W (12 V/5 A) or external DC power supply
Power connector type	Terminal block
Power input	Dual redundant DC (DC1/DC2) input: • Rated voltage: 12 V DC to 48 V DC • Maximum voltage: 9.6 V DC to 60 V DC • Rated current: 2 A to 0.5 A
Maximum power consumption	12 V DC: 19.8W 48 V DC: 17.5W
Energy saving	Energy Efficient Ethernet (EEE)
Unit dimensions (W x D x H)	150 mm x 133 mm x 86 mm (5.91 in. x 5.24 in. x 3.39 in.)
Unit weight	1.50 kg (3.31 lbs)
Mounting	Desktop mounting, DIN rail mounting, and wall mounting
Temperature	Operating temperature: (at an altitude below 1,800 m [5,905.51 ft.], with industrial optical transceivers installed) • –40°C to +65°C (–40°F to +149°F) (installed in an enclosed cabinet) • –40°C to +70°C (–40°F to +158°F) (installed in a ventilated cabinet with a minimum air velocity of 80 Line Feet Minute [LFM]) • –40°C to +75°C (–40°F to +167°F) (installed in a fan-equipped cabinet with a minimum air velocity of 200 LFM)  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). Storage temperature: –40°C to +85°C (–40°F to +185°F)
Humidity	Operating humidity: 5% to 95% RH

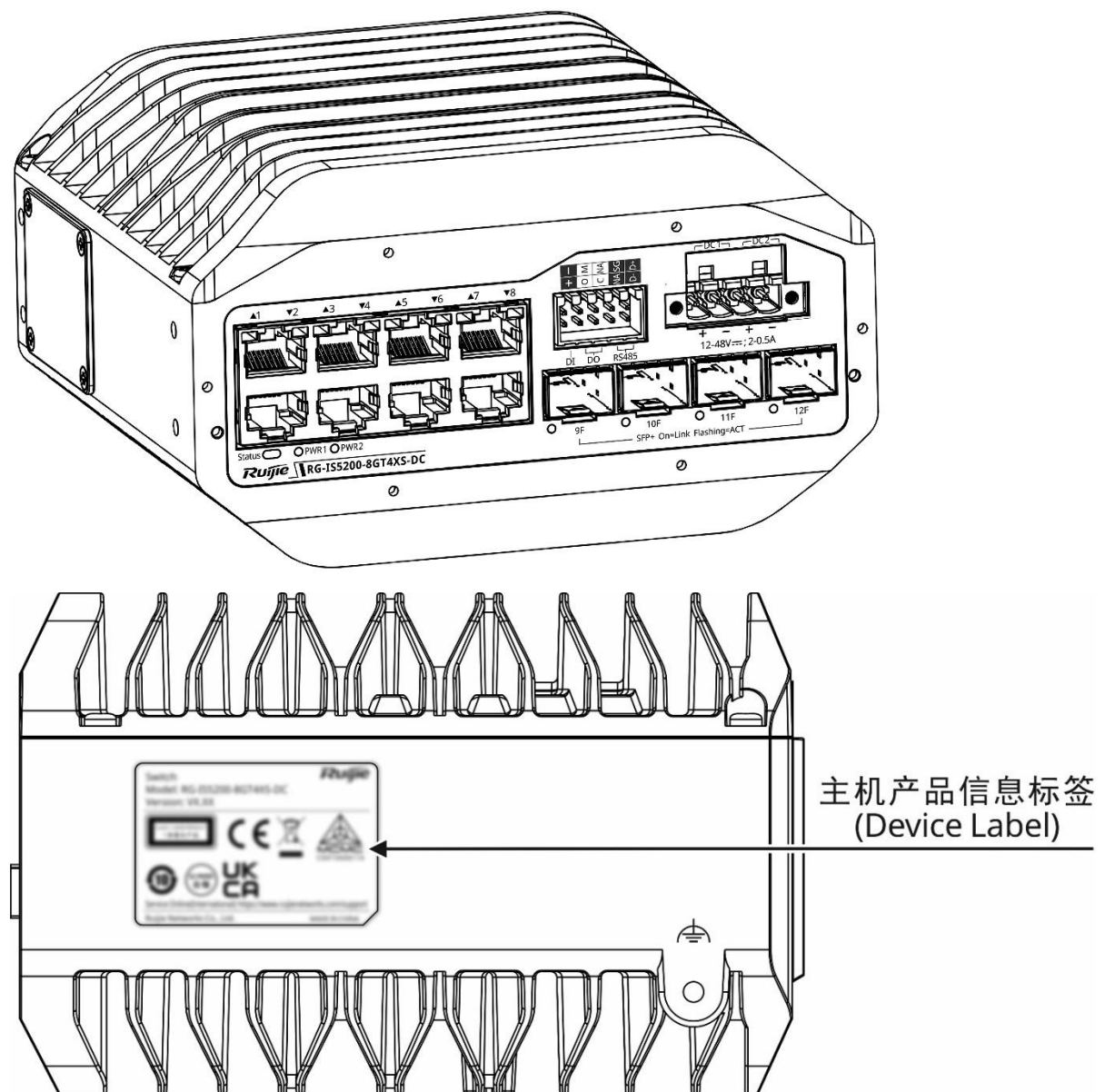
	Storage humidity: 5% to 95% RH
Altitude	Storage altitude: 0 m to 5,000 m (0 ft. to 16,404.20 ft.) Operating altitude: 0 m to 5,000 m (0 ft. to 16,404.20 ft.)
Mean time between failure (MTBF)	Below 40°C (104°F): at least 300,000 hours (about 34 years)
Heat dissipation	Fanless design, natural cooling
IP rating	IP41 by default. When the IS52-shield protection enclosure is installed, the IP rating reaches IP55.  Note: Without any protection enclosure, the front panel of the switch should not be installed upward to meet the IP41 protection requirements.
Surge protection	AC power port (power adapter): - Common mode: 6 kV/Differential mode: 6 kV, 1.2/50, criterion B Service ports: - Common mode: 10 kV (1.2/50), criterion R - Common mode: 6 kV (1.2/50), criterion B - Differential mode: 500 V (between positive and negative ends, 1.2/50, criterion R) DI/DO/RS-485 port: - Common mode: 4 kV (1.2/50), criterion B - Differential mode: 1 kV (1.2/50), criterion B
Safety regulation	EN 62368-1, BS EN 62368-1, IEC 62368-1
EMC regulation	EN 55032, EN 55035, EN 300386, BS EN 55032, BS EN 55035

1.3.2 Appearance

The RG-IS5200-8GT4XS-DC provides 2 x DC power ports, 1 x DI port, 1 x DO port, 1 x RS-485 port, 8 x 10/100/1000BASE-T RJ45 ports with auto-negotiation, and 4 x 10GE SFP+ ports on the front panel. The side

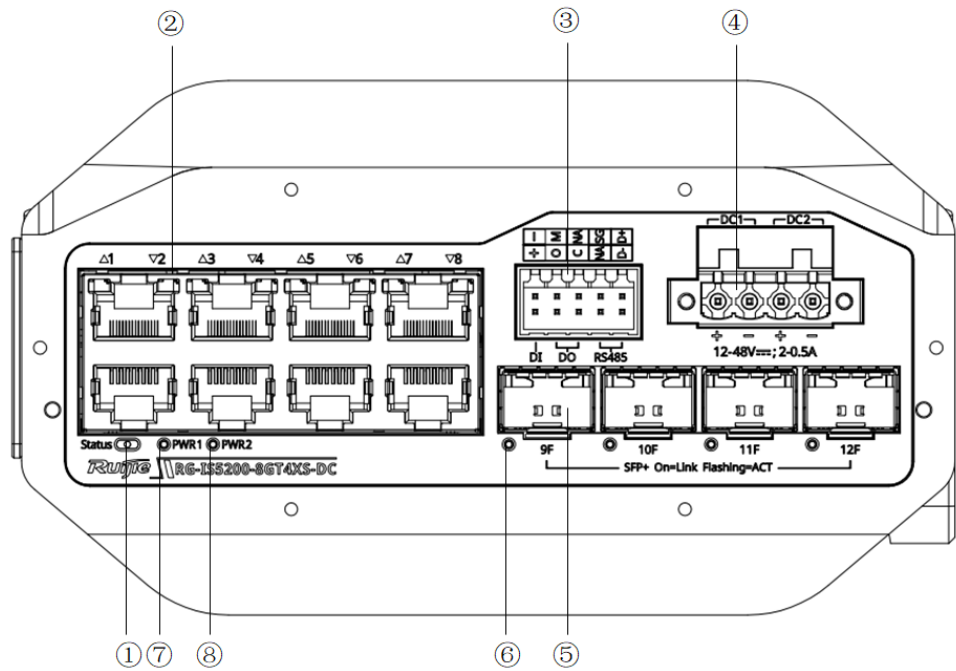
panel has one RJ45 console port and one USB port. When the USB port is not in use, you can lock the baffle plate to adapt to a dusty environment.

Figure 1-5 Appearance of the RG-IS5200-8GT4XS-DC



1. Front Panel

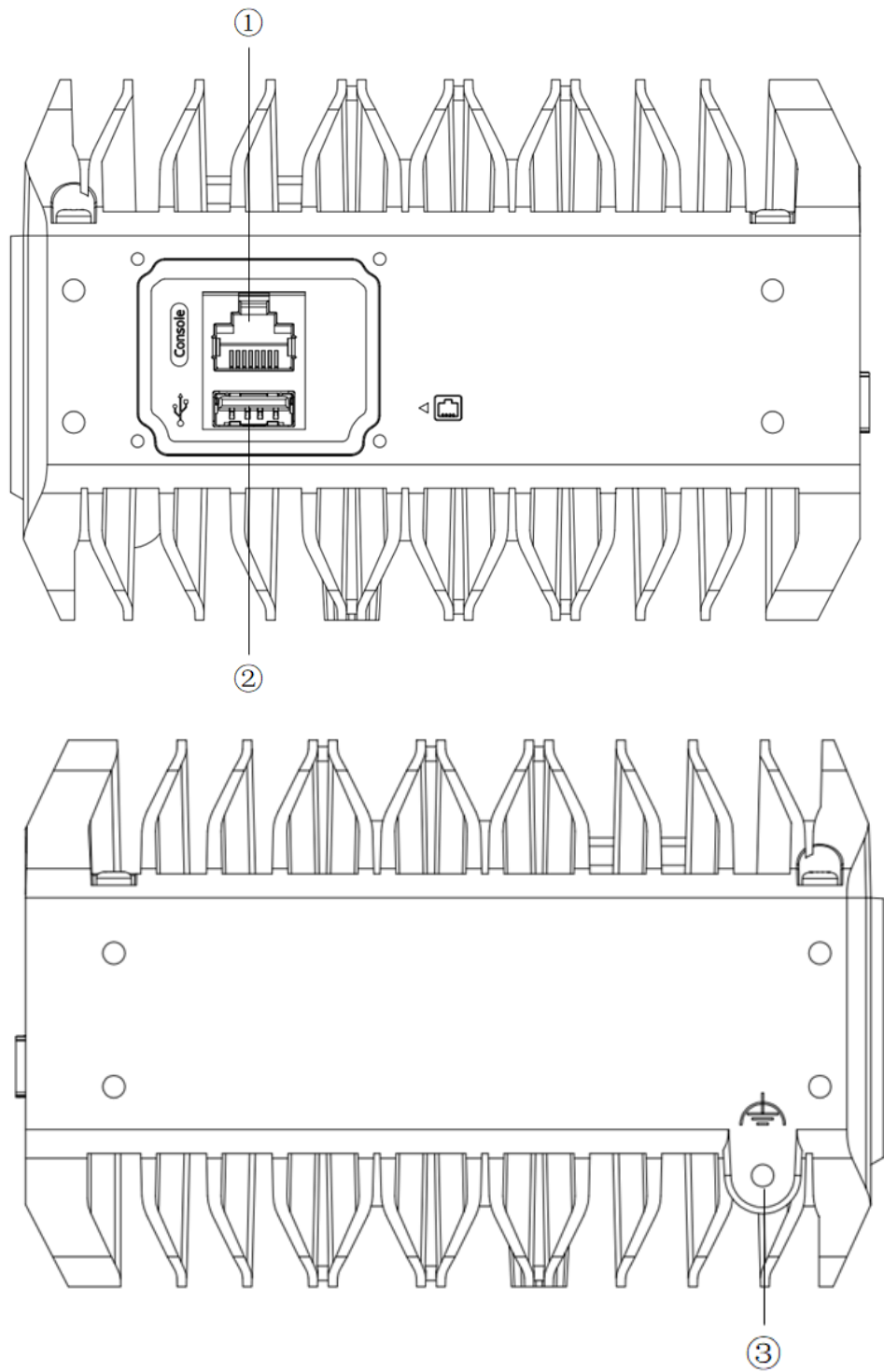
Figure 1-6 Front Panel of the RG-IS5200-8GT4XS-DC



Note:	(1) System status LED (2) 10/100/1000BASE-T port (3) DI, DO, and RS-485 port (4) DC power socket	(5) 1GE/10GE SFP+ port (6) 1GE/10GE SFP+ port LED (7) LED of DC input 1 (8) LED of DC input 2
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2. Side Panel

Figure 1-7 Side Panel of the RG-IS5200-8GT4XS-DC



Note:	(1) Console port	(3) Grounding stud
	(2) USB port	

3. Power Supply

The RG-IS5200-8GT4XS-DC has built-in power modules, and its front panel has two DC inputs.

Two DC inputs: The switch can be powered on by one power module or dual power modules. If both power modules work properly, the switch works in 1+1 power redundancy mode.

4. Cooling

The RG-IS5200-8GT4XS-DC adopts natural cooling to ensure that the device works properly in the specified environment. When installing the device, maintain a minimum clearance of 100 mm (3.94 in.) around the cooling fins on both sides to ensure proper airflow.

Note:

You are advised to install the SFP port at the bottom in vertical mode and leave sufficient space on both sides of the cooling fins. If the device is not installed in the recommended position for long-term operation, the maximum operating temperature needs to be decreased by 5°C (9°F) in actual deployment.

5. LEDs

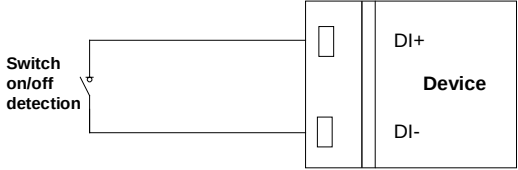
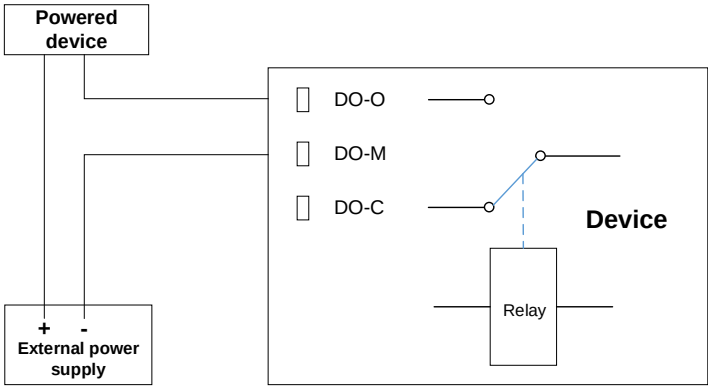
LED	Panel Identification	Status	Description
System status LED	Status	Off	The switch is not powered on.
		Blinking green (3 Hz)	The switch is being initialized. If the LED blinks continuously, a fault occurs.
		Solid green	The switch works properly.
		Solid yellow	The temperature exceeds the threshold.
		Solid red	(1) The temperature at air inlets and outlets exceeds the threshold. (2) The switch is faulty.
Power status LED	PWR1/PWR2	Off	The power module is not installed properly or the voltage is out of the range.
		Solid green	The power module is installed properly.
10/100/1000BASE-T port LED	1–8	Off	The port is not connected.
		Solid green	The port is connected at the rate of 10/100/1000 Mbps.
		Blinking	The port is receiving or sending data.

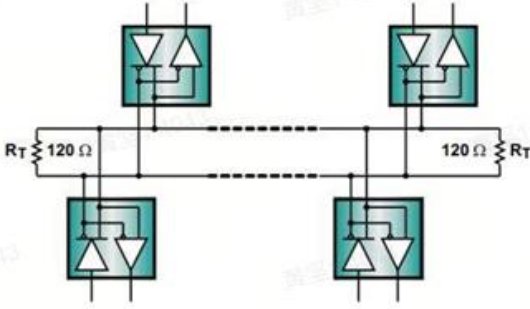
LED	Panel Identification	Status	Description
1GE/10GE SFP+ port LED	9F–12F	Off	The port is not connected.
		Solid green	The port is connected.
		Blinking	The port is receiving or sending data.

1.4 RG-IS5200-8GT4XS-UP-DC

1.4.1 Specifications

Fixed service port	8 x 10/100/1000BASE-T ports, supporting PoE/PoE+/PoE++ 4 x 1GE/10GE SFP+ ports
Transmission medium	100/1000BASE-T Cat 5 UTP 1000BASE-X to 1000BASE-T Cat 5e/6/6a 1000BASE-SR (850 nm) (recommended) 1000BASE-LR (1310 nm) (recommended) 1000BASE-SX (850 nm) 1000BASE-LX (1310 nm) 1000BASE-LH (1310 nm) 1000BASE-ZX (1550 nm) 1000BASE-LX (1310 nm, 1550 nm) 1000BASE-LH (1310 nm, 1550 nm) 10GBASE-SR (850 nm) (recommended) 10GBASE-LR (1310 nm) (recommended) 10GBASE-ER (1550 nm) 10GBASE-ZR (1550 nm) 10GBASE-SR (1270 nm, 1330 nm) 10GBASE-LR (1270 nm, 1330 nm) 10GBASE SFP+ active optical cable (AOC)
Fixed management port	1 x RJ45 console port
USB	1 x USB 2.0 port
DI	Port type: dry contact Signal definitions: + or -

	Detection method: passive switch on/off detection; on: short-circuit, off: open circuit (default) 
DO	Port type: relay output Signal definitions: O, C, and M. By default, M is disconnected from O and connected to C. Rated load of DO: 2 A/30 V DC Maximum switching current of DO: 4 A  Note: Note that the inrush current during relay switching must be less than the preceding maximum switching current.
RS-485	Standard: TIA/EIA-485-A Mode: half-duplex RS-485 Signal definitions: D+, D-, SGND Typical baud rate: 300–115,200 bps Typical distances: 900 m (2,952.75 ft.) for 115,200 bps, 1,200 m (3,937.01 ft.) for 9,600 bps Termination method: No R_T is connected between D+ and D- ends within the device. Instead, termination resistors are typically placed on external links, as shown in the following figure.

	
Status LED	1 x system status LED 8 x 10/100/1000BASE-T port LEDs 4 x 1GE/10GE SFP+ port LEDs 2 x power status LED
CPU	Two-core CPU, ARM Cortex™ A55, each core with the clock speed of 1.0GHz
BootROM	16 MB (2 flash chips for 1+1 boot redundancy)
Flash memory	512 MB
Memory	1GB DDR4
Power supply	IPA240-P: 240 W (56 V/4.4 A) or external DC power supply
Power connector type	Terminal block
Power input	Dual redundant DC (DC1/DC2) input: - Rated voltage: 56 V DC - Maximum voltage : PoE only: 48 V DC PoE/PoE+/PoE++: 54 V DC to 57 V DC - Rated current: 10 A
Maximum power consumption	23.8W (Without PoE) 503.8W (full PoE load)
PoE port	Ports 1 to 8 support PoE/PoE+/PoE++ (IEEE802.3af/at/bt) power supply
PoE power cable pairs	Four pairs (1-2, 3-6, 4-5, and 7-8 pairs)
PoE output power	PoE budget: 480 W Maximum power output per PoE port: 15.4 W (PoE), 30 W (PoE+), 90 W (PoE++) Note:

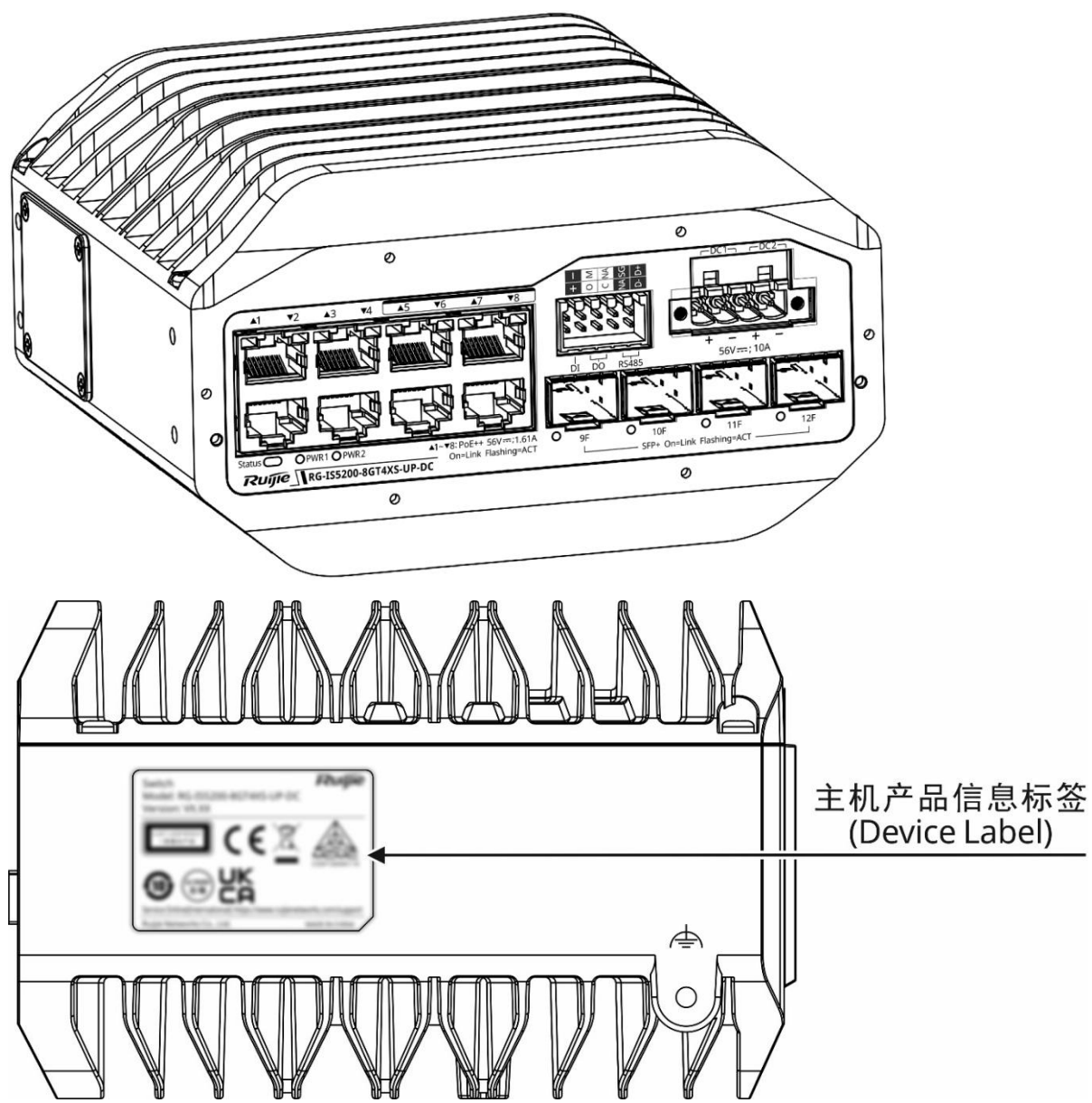
	- The PoE budget is determined by the available power of the power module and the actual power consumption of the switch. - By default, the maximum PoE output power of the switch is 210 W.
PoE distance	Not connected to PoE-REP: 100 m (328.08 ft.) Connected to a PoE-REP: - Ports 1 to 4: 200 m (100 m [328.08 ft.] + 100 m [328.08 ft.] = 200 m [656.16 ft.]). Maximum output power of PoE-REP: 60 W - Ports 5 to 8: 200 m (100 m [328.08 ft.] + 100 m [328.08 ft.] = 200 m [656.16 ft.]). Maximum output power of PoE-REP: 60 W 400 m (300 m [984.25 ft.] + 100 m [328.08 ft.] = 400 m [1,312.33 ft.]) (Distance from RG-IS5200 to PoE-REP + Distance from PoE-REP to powered devices). Maximum output power of PoE-REP: 30 W
Energy saving	Energy Efficient Ethernet (EEE)
Unit dimensions (W x D x H)	150 mm x 133 mm x 86 mm (5.91 in. x 5.24 in. x 3.39 in.)
Unit weight	1.53 kg (3.37 lbs)
Mounting	Desktop mounting, DIN rail mounting, and wall mounting
Temperature	Operating temperature: (at an altitude below 1,800 m [5,905.51 ft.], with industrial optical transceivers installed) –40°C to +60°C (–40°F to +140°F) (installed in an enclosed cabinet) –40°C to +70°C (–40°F to +158°F) (installed in a ventilated cabinet with a minimum air velocity of 80 Line Feet Minute [LFM]) –40°C to +75°C (–40°F to +167°F) (installed in a fan-equipped cabinet with a minimum air velocity of 200 LFM) 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). Storage temperature: –40°C to +85°C (–40°F to +185°F)
Humidity	Operating humidity: 5% to 95% RH Storage humidity: 5% to 95% RH
Altitude	Storage altitude: 0 m to 5,000 m (0 ft. to 16,404.20 ft.) Operating altitude: 0 m to 5,000 m (0 ft. to 16,404.20 ft.)

Mean time between failure (MTBF)	Below 40°C (104°F): at least 300,000 hours (about 34 years)
Heat dissipation	Fanless design, natural cooling
IP rating	IP41 by default. When the IS52-shield protection enclosure is installed, the IP rating reaches IP55.  Note: Without any protection enclosure, the front panel of the switch should not be installed upward to meet the IP41 protection requirements.
Surge protection	AC power port (power adapter): - Common mode: 6 kV/Differential mode: 6 kV, 1.2/50, criterion B Service ports: - Common mode: 10 kV (1.2/50), criterion R - Common mode: 6 kV (1.2/50), criterion B - Differential mode: 500 V (between positive and negative ends, 1.2/50, criterion R) DI/DO/RS-485 port: - Common mode: 4 kV (1.2/50), criterion B - Differential mode: 1 kV (1.2/50), criterion B
Safety regulation	EN 62368-1, BS EN 62368-1, IEC 62368-1
EMC regulation	EN 55032, EN 55035, EN 300386, BS EN 55032, BS EN 55035

1.4.2 Appearance

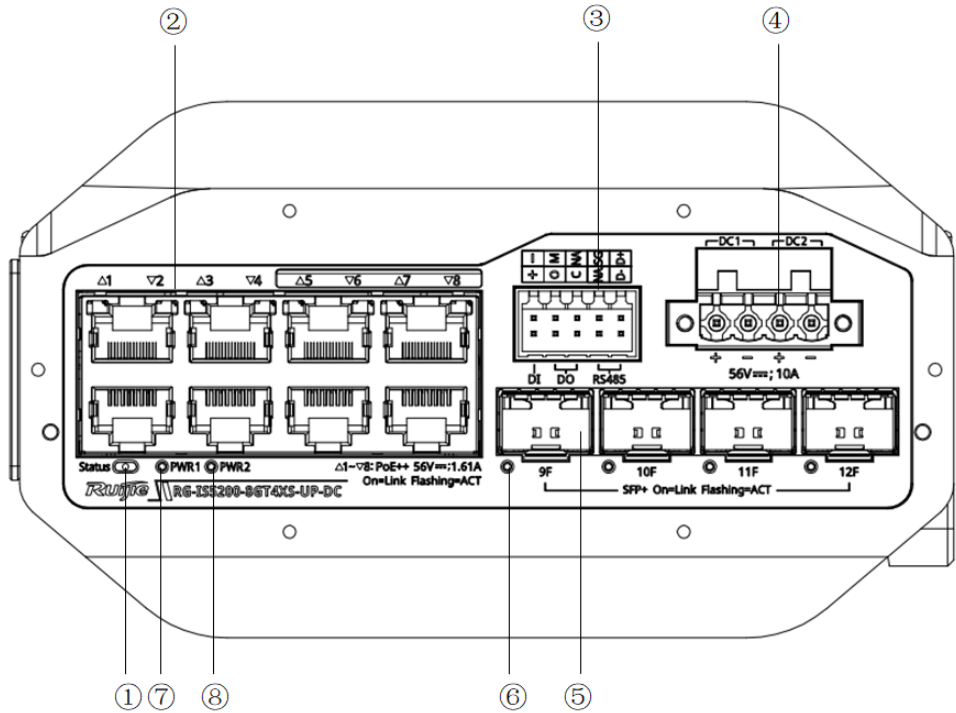
The RG-IS5200-8GT4XS-UP-DC provides 2 x DC power ports, 1 x DI port, 1 x DO port, 1 x RS-485 port, 8 x 10/100/1000BASE-T ports (PoE++, ports 5 to 8 supporting extended PoE), and 4 x 10GE SFP+ ports on the front panel. The side panel has one RJ45 console port and one USB port. When the USB port is not in use, you can lock the baffle plate to adapt to a dusty environment.

Figure 1-8 Appearance of the RG-IS5200-8GT4XS-UP-DC



1. Front Panel

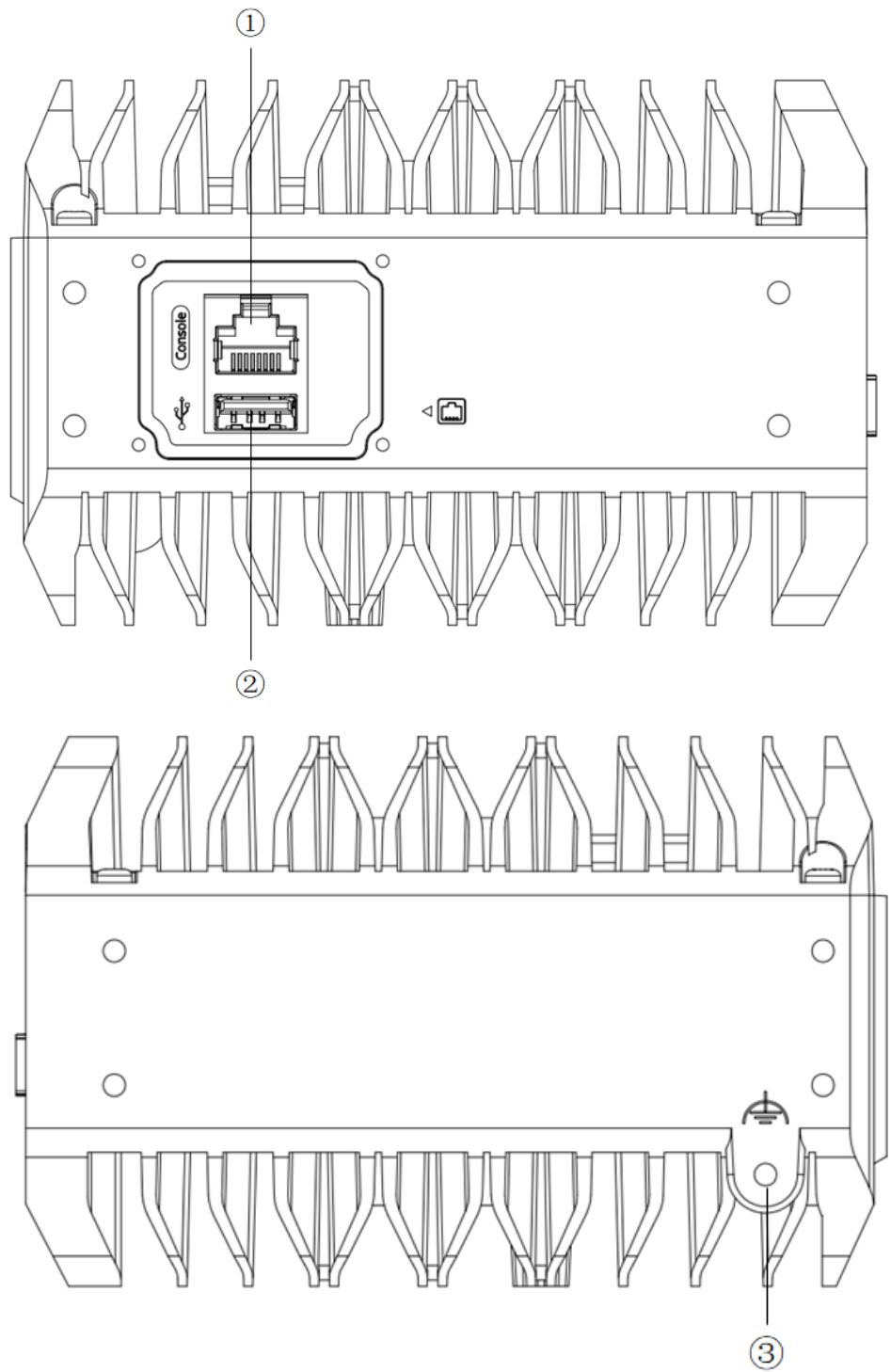
Figure 1-9 Front Panel of the RG-IS5200-8GT4XS-UP-DC



Note:	(1) System status LED	(5) 1GE/10GE SFP+ port
	(2) 10/100/1000BASE-T port	(6) 1GE/10GE SFP+ port LED
	(3) DI, DO, and RS-485 port	(7) LED of DC input 1
	(4) DC power socket	(8) LED of DC input 2

2. Side Panel

Figure 1-10 Rear Panel of the RG-IS5200-8GT4XS-UP-DC



Note:	(1) Console port	(3) Grounding stud
	(2) USB port	

3. Power Supply

The RG-IS5200-8GT4XS-UP-DC has built-in power modules, and its front panel has two DC inputs.

Two DC inputs: The switch can be powered on by one power module or dual power modules. If both power modules work properly, the switch works in 1+1 power redundancy mode.

 Note:

Note that the power supplies of the dual inputs cannot be stacked.

4. Cooling

The RG-IS5200-8GT4XS-UP-DC adopts natural cooling to ensure that the device works properly in the specified environment. When installing the device, maintain a minimum clearance of 100 mm (3.94 in.) around the cooling fins on both sides to ensure proper airflow.

 Note:

You are advised to install the SFP port at the bottom in vertical mode and leave sufficient space on both sides of the cooling fins. If the device is not installed in the recommended position for long-term operation, the maximum operating temperature needs to be decreased by 5°C (9°F) in actual deployment.

5. LEDs

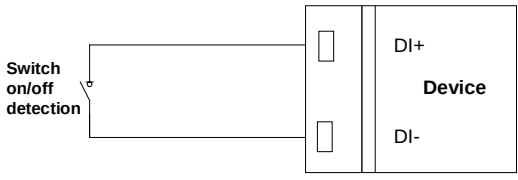
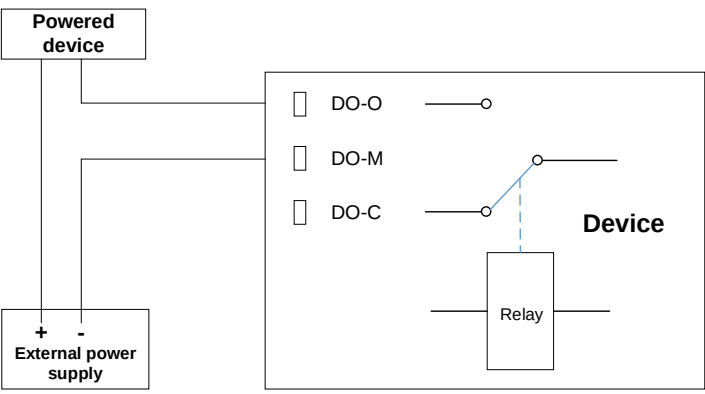
LED	Panel Identification	Status	Description
System status LED	Status	Off	The switch is not powered on.
		Blinking green (3 Hz)	The switch is being initialized. If the LED blinks continuously, a fault occurs.
		Solid green	The switch works properly.
		Solid yellow	The temperature exceeds the threshold.
		Solid red	(1) The temperature at air inlets and outlets exceeds the threshold. (2) The switch is faulty.
Power status LED	PWR1/PWR2	Off	The power module is not installed properly or the voltage is out of the range.
		Solid green	The power module is installed properly.
	1–8	Off	The port is not connected.

LED	Panel Identification	Status	Description
10/100/1000BASE-T port LED		Solid green	The port is connected at the rate of 10/100/1000 Mbps.
		Blinking	The port is receiving or sending data.
1GE/10GE SFP+ port LED	9F–12F	Off	The port is not connected.
		Solid green	The port is connected.
		Blinking	The port is receiving or sending data.

1.5 RG-IS5200-24GT4XS-UP-DC

1.5.1 Specifications

Fixed service port	24 x 10/100/1000BASE-T ports, supporting PoE/PoE+/PoE++ 4 x 1GE/10GE SFP+ ports
Transmission medium	100/1000BASE-T Cat 5 UTP 1000BASE-X to 1000BASE-T Cat 5e/6/6a 1000BASE-SR (850 nm) (recommended) 1000BASE-LR (1310 nm) (recommended) 1000BASE-SX (850 nm) 1000BASE-LX (1310 nm) 1000BASE-LH (1310 nm) 1000BASE-ZX (1550 nm) 1000BASE-LX (1310 nm, 1550 nm) 1000BASE-LH (1310 nm, 1550 nm) 10GBASE-SR (850 nm) (recommended) 10GBASE-LR (1310 nm) (recommended) 10GBASE-ER (1550 nm) 10GBASE-ZR (1550 nm) 10GBASE-SR (1270 nm, 1330 nm) 10GBASE-LR (1270 nm, 1330 nm) 10GBASE SFP+ active optical cable (AOC)
Fixed management port	1 x RJ45 console port
USB	1 x USB 2.0 port

DI	Port type: dry contact Signal definitions: + or - Detection method: passive switch on/off detection; on: short-circuit, off: open circuit (default)  The diagram shows a switch labeled 'Switch on/off detection' connected to two terminals of a 'Device'. The top terminal is labeled 'DI+' and the bottom terminal is labeled 'DI-'.
DO	Port type: relay output Signal definitions: O, C, and M. By default, M is disconnected from O and connected to C. Rated load of DO: 2 A/30 V DC Maximum switching current of DO: 4 A  The diagram shows a 'Powered device' connected to the 'DO-O' terminal of a 'Device'. An 'External power supply' (with '+' and '-' terminals) is connected to the 'DO-M' and 'DO-C' terminals of the 'Device'. Inside the 'Device' box, a relay is shown with its common terminal connected to 'DO-O' and its normally closed terminal connected to 'DO-M'. The normally open terminal of the relay is connected to 'DO-C'. A dashed blue line indicates the default connection from 'DO-M' to 'DO-C'. Note: Note that the inrush current during relay switching must be less than the preceding maximum switching current.
RS-485	Standard: TIA/EIA-485-A Mode: half-duplex RS-485 Signal definitions: D+, D-, SGND Typical baud rate: 300–115,200 bps Typical distances: 900 m (2,952.75 ft.) for 115,200 bps, 1,200 m (3,937.01 ft.) for 9,600 bps Termination method: No R_T is connected between D+ and D- ends within the device. Instead, termination resistors are typically placed on external links, as shown in the following figure.

Status LED	1 x system status LED 1 x LED mode indicator 24 x 10/100/1000BASE-T port LEDs 4 x 1GE/10GE SFP+ port LEDs 2 x power status LED
CPU	Two-core CPU, ARM Cortex™ A55, each core with the clock speed of 1.0GHz
BootROM	16 MB (2 flash chips for 1+1 boot redundancy)
Flash memory	512 MB
Memory	1GB DDR4
Power supply	IPA60: 60 W (12 V/5 A) IPA240-P: 240 W (56 V/4.4 A) or external DC power supply
Power connector type	Terminal block
Power input	Dual redundant DC (DC1/DC2) input: - Rated voltage: 56V DC or 12V DC PoE not supported: 12 V DC PoE only: 48 V DC PoE/PoE+/PoE++: 54 V DC to 57 V DC - Maximum voltage: 9.6 V DC to 60 V DC - Rated current: 10A (56V DC) or 3A (12V DC)
Maximum power consumption	12V DC input: 36.8W 56V DC input: 35.5W (Without PoE) 515.5W (full PoE load)
PoE port	Ports 1 to 24 support PoE/PoE+/PoE++ (IEEE802.3af/at/bt) power supply
PoE power cable pairs	Four pairs (1-2, 3-6, 4-5, and 7-8 pairs)

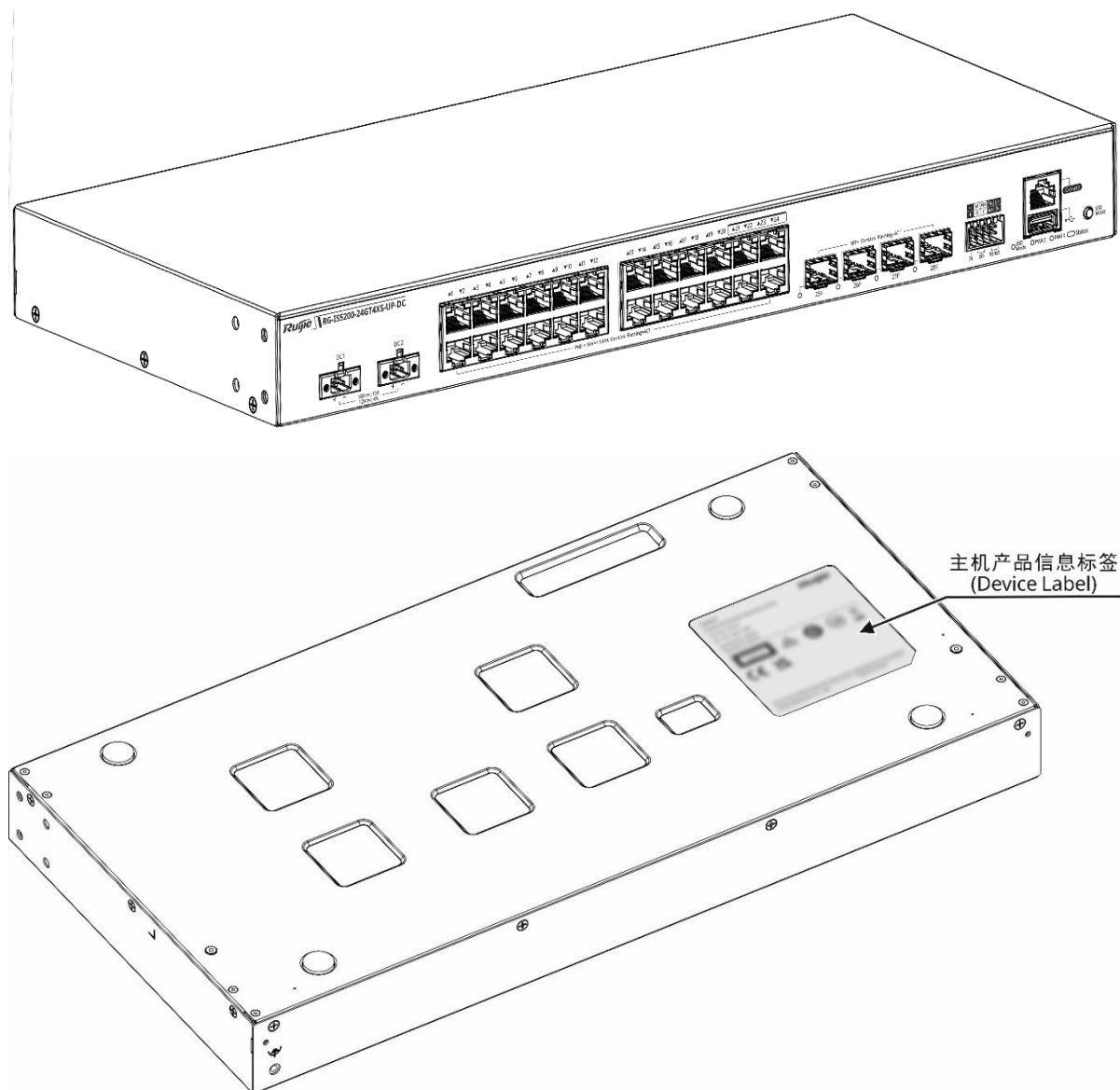
PoE output power	PoE budget: 480 W Maximum power output per PoE port: 15.4 W (PoE), 30 W (PoE+), 90 W (PoE++) Note: • The PoE budget is determined by the available power of the power module and the actual power consumption of the switch. • By default, the maximum PoE output power of the switch is 200 W.
PoE distance	Not connected to PoE-REP: 100 m (328.08 ft.) Connected to PoE-REP: • Ports 1 to 20: 200 m (100 m [328.08 ft.] + 100 m [328.08 ft.] = 200 m [656.17 ft.]). Maximum output power of PoE-REP: 60 W • Ports 21 to 24: 200 m (100 m [328.08 ft.] + 100 m [328.08 ft.] = 200 m [656.17 ft.]). Maximum output power of PoE-REP: 60 W 400 m (300 m [984.25 ft.] + 100 m [328.08 ft.] = 400 m [1,312.34 ft.]) (Distance from RG-IS5200 to PoE-REP + Distance from PoE-REP to powered devices). Maximum output power of PoE-REP: 30 W
Energy saving	Energy Efficient Ethernet (EEE)
Unit dimensions (W x D x H)	442 mm x 220 mm x 43.6 mm (17.4 in. x 8.66 in. x 1.72 in.)
Unit weight	2.85 kg (6.28 lbs)
Mounting	Desktop mounting, rack mounting, and wall mounting
Temperature	Operating temperature: (at an altitude below 1,800 m [5,905.51 ft.], with industrial optical transceivers installed) • -40°C to +65°C (-40°F to +149°F) (installed in an enclosed cabinet) • -40°C to +70°C (-40°F to +158°F) (installed in a ventilated cabinet with a minimum air velocity of 80 Line Feet Minute [LFM]) • -40°C to +75°C (-40°F to +167°F) (installed in a fan-equipped cabinet with a minimum air velocity of 200 LFM) 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).

	Storage temperature: -40°C to +85°C (-40°F to +185°F)
Humidity	Operating humidity: 5% to 95% RH Storage humidity: 5% to 95% RH
Altitude	Storage altitude: 0 m to 5,000 m (0 ft. to 16,404.20 ft.) Operating altitude: 0 m to 5,000 m (0 ft. to 16,404.20 ft.)
Mean time between failure (MTBF)	Below 40°C (104°F): at least 300,000 hours (about 34 years)
Heat dissipation	Fanless design, natural cooling
IP rating	IP40  Note: For bare metal servers, the front panel port should not be installed upward to meet IP40 requirements.
Surge protection	AC power port (power adapter): - Common mode: 6 kV/Differential mode: 6 kV, 1.2/50, criterion B Service ports: - Common mode: 10 kV (1.2/50), criterion R - Common mode: 6 kV (1.2/50), criterion B - Differential mode: 500 V (between positive and negative ends, 1.2/50, criterion R) DI/DO/RS-485 port: - Common mode: 4 kV (1.2/50), criterion B - Differential mode: 1 kV (1.2/50), criterion B
Safety regulation	EN 62368-1, BS EN 62368-1, IEC 62368-1
EMC regulation	EN 55032, EN 55035, EN 300386, BS EN 55032, BS EN 55035

1.5.2 Appearance

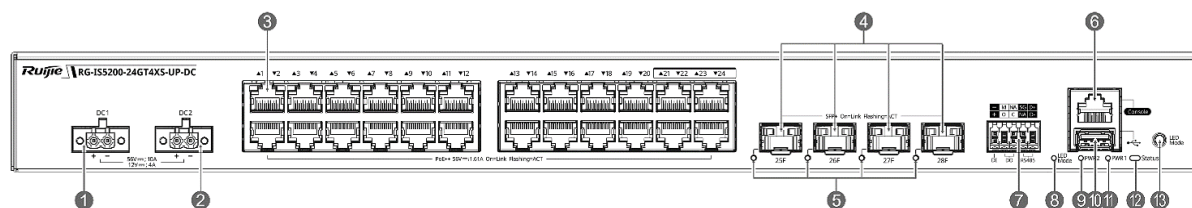
The RG-IS5200-24GT4XS-UP-DC provides 2 x DC power ports, 1 x DI port, 1 x DO port, 1 x RS-485 port, 1 x RJ45 console port, 1 x USB port, 24 x 10/100/1000BASE-T ports (PoE++, ports 21 to 24 supporting extended PoE), and 4 x 10GE SFP+ ports on the front panel.

Figure 1-11 Appearance of the RG-IS5200-24GT4XS-UP-DC



1. Front Panel

Figure 1-12 Front Panel of the RG-IS5200-24GT4XS-UP-DC



Note:	(1) DC power socket 1 (2) DC power socket 2 (3) 10/100/1000BASE-T port (4) 1GE/10GE SFP+ port (5) 1GE/10GE SFP+ port LED (6) Console port (7) DI, DO, and RS-485 port	(8) LED mode indicator (9) LED of DC input 2 (10) USB port (11) LED of DC input 1 (12) System status LED (13) LED mode button
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2. Rear Panel

Figure 1-13 Rear Panel of the RG-IS5200-24GT4XS-UP-DC



Note:	Grounding stud
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3. Power Supply

The RG-IS5200-24GT4XS-UP-DC has built-in power modules, and its front panel has two DC inputs.

Two DC inputs: The switch can be powered on by one power module or dual power modules. If both power modules work properly, the switch works in 1+1 power redundancy mode.

Note:

Note that the power of two power modules cannot be combined.

4. Cooling

The RG-IS5200-24GT4XS-UP-DC adopts natural cooling to ensure that the device works properly in the specified environment. When installing the device, maintain a minimum clearance of 100 mm (3.94 in.) on both sides of the chassis to ensure proper airflow.

Note:

You are advised to install the device horizontally in a rack. If the device is not installed in the recommended position for long-term operation, the maximum operating temperature needs to be decreased by 5°C (9°F) in actual deployment.

5. LEDs

LED	Panel Identification	Status	Description
System status LED	Status	Off	The switch is not powered on.
		Blinking green (3 Hz)	The switch is being initialized. If the LED blinks continuously, a fault occurs.
		Solid green	The switch works properly.
		Solid yellow	The temperature exceeds the threshold.
		Solid red	(1) The temperature at air inlets and outlets exceeds the threshold. (2) The switch is faulty.
Power status LED	PWR1/PWR2	Off	The power module is not installed properly or the voltage is out of the range.
		Solid green	The power module is installed properly.
LED mode indicator	LED Mode	Solid green	The LED indicates the switching status.
		Solid yellow	The LED indicates the PoE power status.
10/100/1000BASE-T port LED	1–24	Off	The port is not connected.
		Solid green	The port is connected at the rate of 10/100/1000 Mbps.
		Blinking	The port is receiving or sending data.
1GE/10GE SFP+ port LED	25F–28F	Off	The port is not connected.
		Solid green	The port is connected.
		Blinking	The port is receiving or sending data.

 Note:

- The **LED Mode** button is used to switch the LED mode. The green LED indicates the switching status. Press the **LED Mode** button, and its LED will turn yellow, indicating the PoE status. Press the **LED Mode** button again, its LED switches to indicating the switching status.
- If you want to switch the LED mode, press the button for over two seconds.

1.6 Power Modules

1.6.1 IPA240-P

The IPA240-P is a power module (AC input and DC output), providing an output voltage of 56 V and an output power of up to 240 W.

1. Specifications

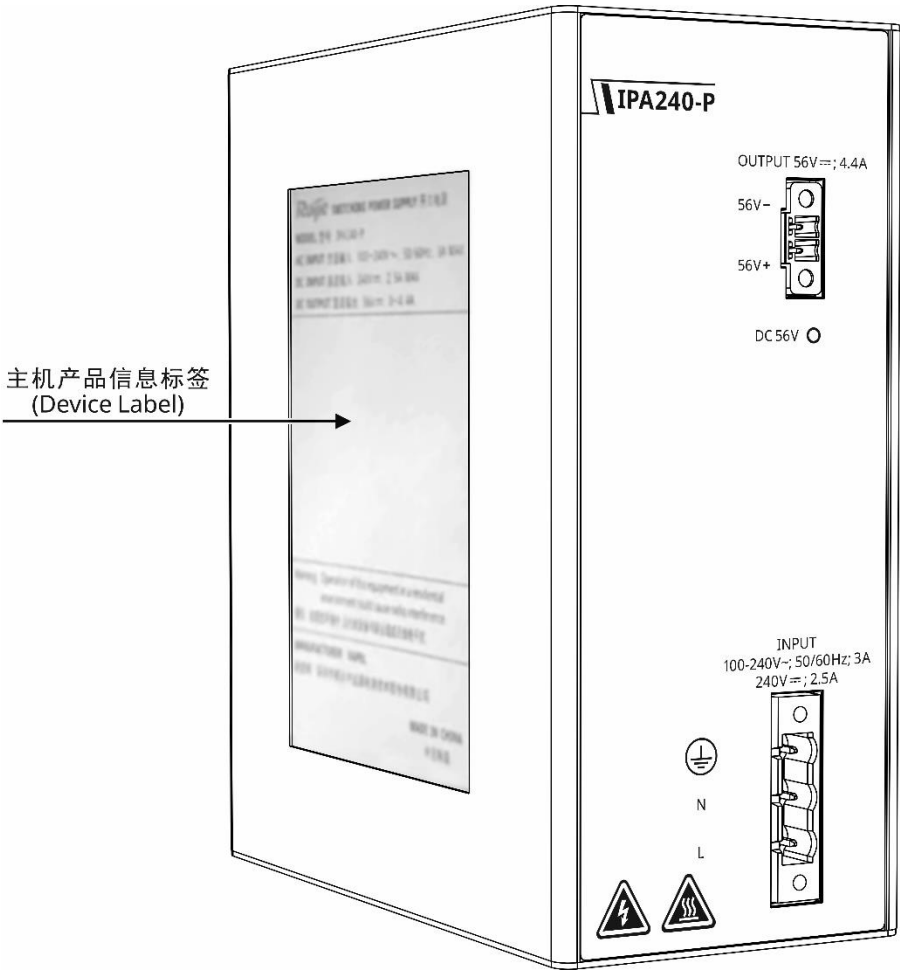
Model	IPA240-P
Applicable Switch	RG-IS5200-8GT4XS-UP-DC RG-IS5200-24GT4XS-UP-DC  Note: ● The IPA240-P power module is sold separately and is not shipped with the switch. You can purchase it as required. ● You can also purchase power modules that meet the power supply specifications of the preceding switch models. For power supply requirements for different models of the RG-IS5200 series switches, see Chapter 1.
Rated Input Voltage Range	AC input: 100 V to 240 V, 50/60 Hz DC input: 240 V
Maximum Input Voltage Range	AC input: 90 V to 290 V, 45/65 Hz DC input: 190 V to 290 V
Maximum Input Current	AC input: 3 A DC input: 2.5 A
Output voltage	56 V
Maximum Output Current	4.4 A
Maximum Output Power	240 W
Ground Leakage Current	≤ 3.5 mA
Dimensions (W x D x H)	150 mm x 133 mm x 65 mm (5.91 in. x 5.24 in. x 2.56 in.)
Weight	1.25 kg (2.76 lbs)

Operating Temperature	–40°C to +70°C (–40°F to +158°F) (installed in a sealed cabinet)  Note: ● At an ambient temperature within 55°C (131°F), the power module supports 100% of the maximum output power. ● At an ambient temperature within 60°C (140°F), the power module supports 85% of the maximum output power. ● At an ambient temperature within 70°C (158°F), the power module supports 60% of the maximum output power.
Storage Temperature	–40°C to +85°C (–40°F to +185°F)
Operating Humidity	5% to 95% RH
Storage Humidity	5% to 95% RH
Operating Altitude	0 m to 5,000 m (0 ft. to 16,404.20 ft.)  Note: ● At the altitude of 0 m to 3,000 m (0 ft. to 9,842.52 ft.), the power module works at an ambient temperature of 55°C (131°F). ● At the altitude of 3,000 m (9,842.52 ft.), every time the altitude increases by 220 m (721.79 ft.), the maximum temperature decreases by 1°C (1.8°F).
IP Rating	IP40

2. Module Appearance

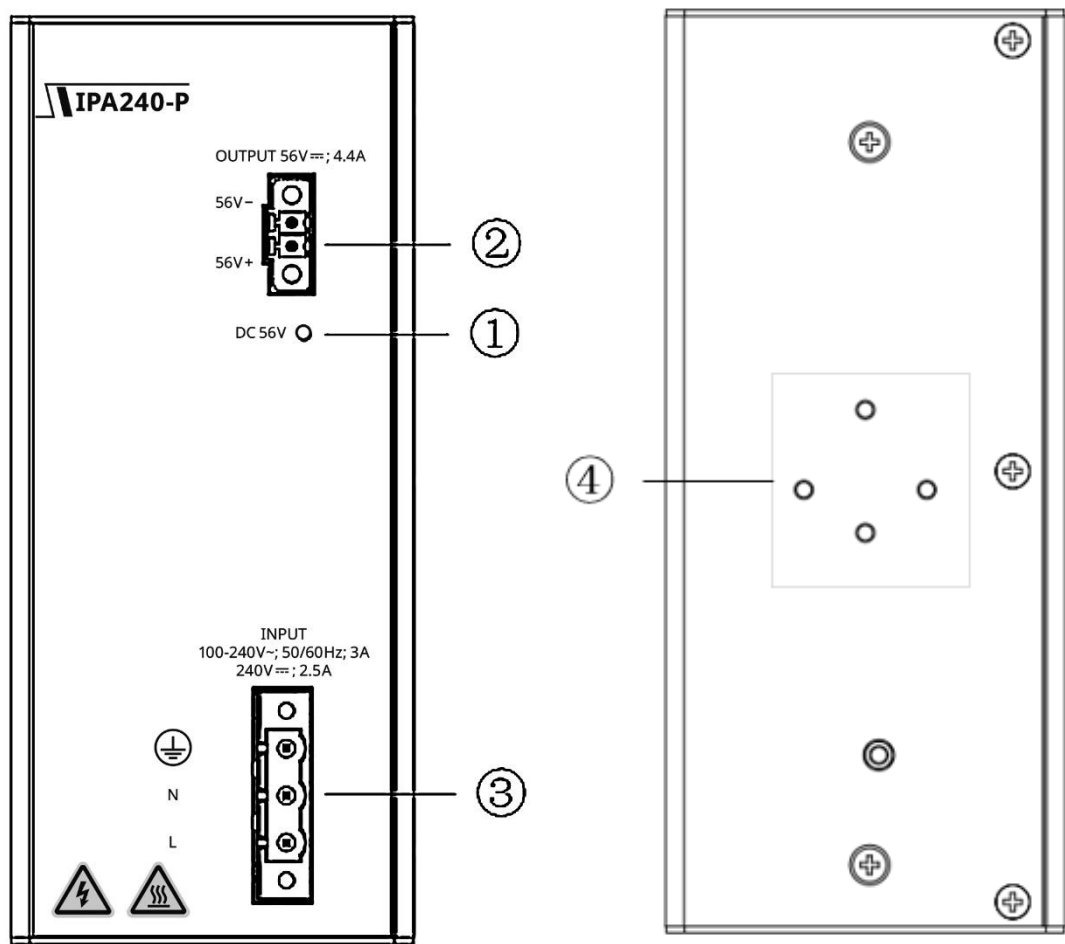
The IPA240-P power module provides one AC power input socket and one DC power output socket.

Figure 1-14 Appearance of the IPA240-P



3. Panel

Figure 1-15 Front Panel (Left) and Rear Panel (Right) of the IPA240-P



Note:	(1) DC power output LED	(3) AC power input connector
	(2) DC power output connector	(4) Snap hole

4. Cooling

The IPA240-P adopts natural cooling. When installing the power module, maintain a minimum clearance of 100 mm (3.94 in.) on both sides to ensure proper airflow.

1.6.2 IPA60

The IPA60 is a power module (AC input and DC output), providing an output voltage of 12 V and an output power of up to 60 W.

1. Specifications

Model	IPA60
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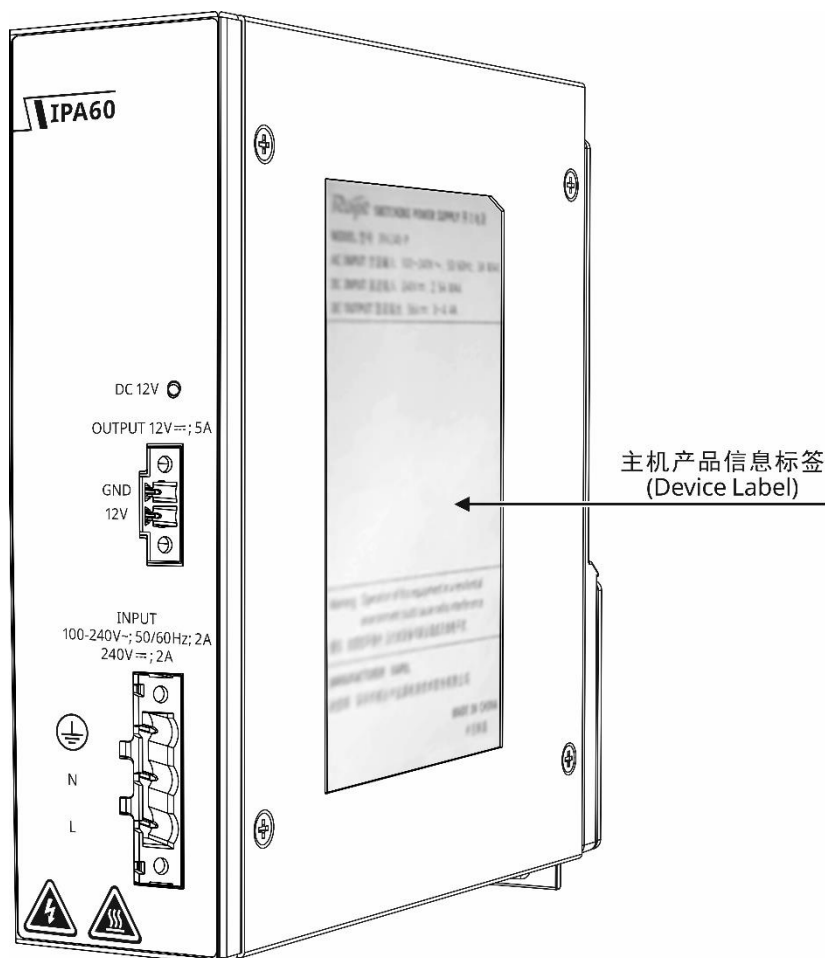
Applicable Switch	RG-IS5200-8GT4XS-DC RG-IS5200-24GT4XS-UP-DC
	 Note: ● The IPA60 power module is sold separately and is not shipped with the switch. You can purchase it as required. ● You can also purchase power modules that meet the power supply specifications of the preceding switch models. For power supply requirements for different models of the RG-IS5200 series switches, see Chapter 1.
Rated Input Voltage Range	AC input: 100 V to 240 V, 50/60 Hz DC input: 240 V
Maximum Input Voltage Range	AC input: 90 V to 264 V, 45/65 Hz DC input: 88 V to 300 V
Maximum Input Current	AC input: 2 A DC input: 2 A
Output voltage	12 V
Maximum Output Current	5 A
Maximum Output Power	60 W
Ground Leakage Current	≤ 3.5 mA
Dimensions (W x D x H)	150 mm x 133 mm x 40 mm (5.91 in. x 5.24 in. x 2.56 in.)
Weight	0.75 kg (1.65 lbs)
Operating Temperature	–40°C to +70°C (–40°F to +158°F)
Storage Temperature	–40°C to +85°C (–40°F to +185°F)
Operating Humidity	5% to 95% RH
Storage Humidity	5% to 95% RH

Operating Altitude	0 m to 5,000 m (0 ft. to 16,404.20 ft.) <i>i</i> Note: - At the altitude of 0 m to 3,000 m (0 ft. to 9,842.52 ft.), the power module works at an ambient temperature of 55°C (131°F). - At the altitude of 3,000 m (9,842.52 ft.), every time the altitude increases by 220 m (721.79 ft.), the maximum temperature decreases by 1°C (1.8°F).
IP Rating	IP40

2. Module Appearance

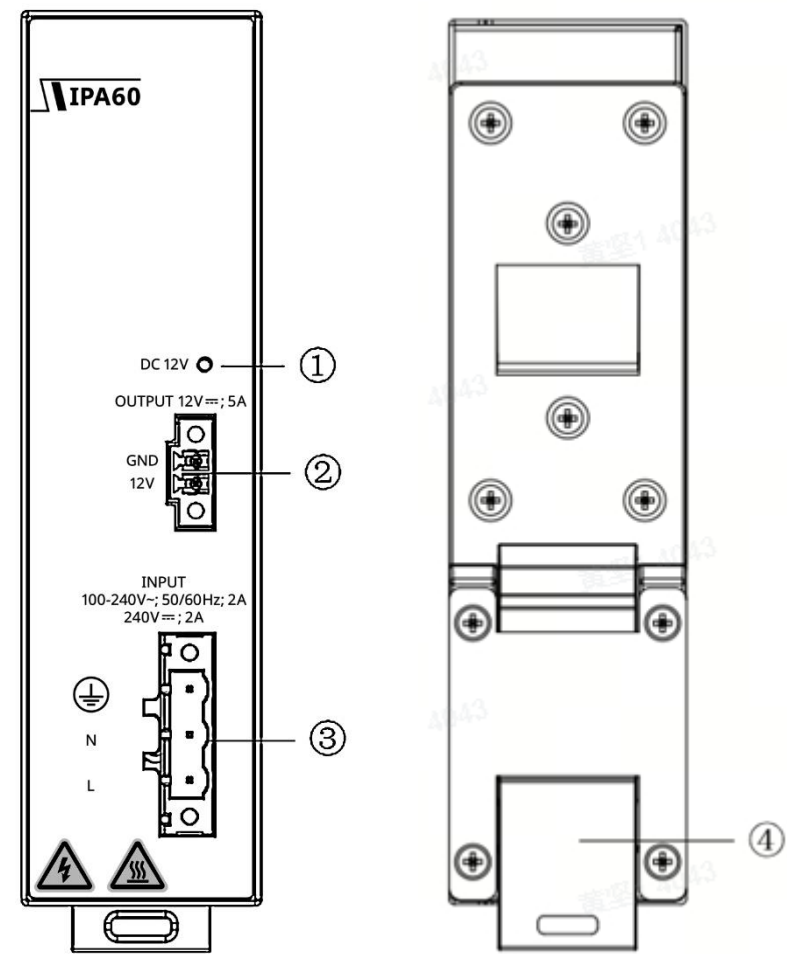
The IPA60 provides one power input socket and one DC power output socket.

Figure 1-16 Appearance of the IPA60



3. Panel

Figure 1-17 Front Panel (Left) and Rear Panel (Right) of the IPA60



Note:	(1) DC power output LED	(3) AC power input terminal
	(2) DC power output terminal	(4) Fastener hole

4. Cooling

The IPA60 adopts natural cooling. When installing the power module, maintain a minimum clearance of 100 mm (3.94 in.) on both sides to ensure proper airflow.

Note:

For DC input, the RG-IS5200 can use the IPA240-P or IPA60 as required. The switch should be equipped with a standard power module that complies with the CE/CB certification if you use a power module for power supply.

1.7 IS52-shield Protection Enclosure

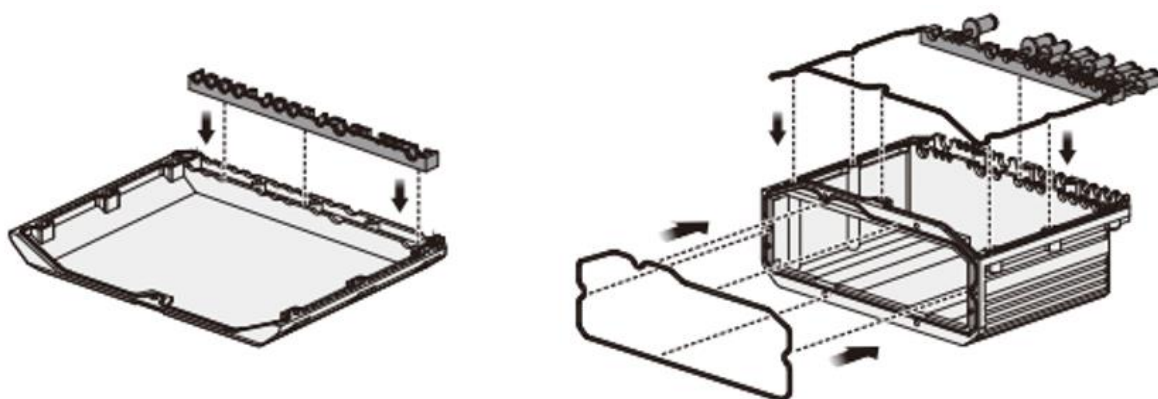
1.7.1 Specifications

Model	IS52-shield
--------------	-------------

Applicable Switch	RG-IS5200-8GT4XS RG-IS5200-8GT4XS-DC RG-IS5200-8GT4XS-UP-DC
	 Note: The IS52-shield protection enclosure is an independent sales module and is not delivered with the device. You can purchase it as required.
Dimensions (W x D x H)	150 mm x 133 mm x 65 mm (5.91 in. x 5.24 in. x 2.56 in.)
Weight	0.25 kg (0.55 lbs.)
Operating Temperature	–40°C to +75°C (–40°F to +167°F, installed in a sealed cabinet)
Storage Temperature	–40°C to +85°C (–40°F to 185°F)
Operating Humidity	5% to 95% RH
Storage Humidity	5% to 95% RH

1.7.2 Appearance

The IS52-shield protection enclosure is an accessory for the RG-IS5200 series switch. The preceding table lists the applicable switch models. It effectively improves the IP rating of the device to cope with harsh application scenarios. The following figure shows the product appearance.



1.8 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
RG-IS5200-8GT4XS ● 4 x 1GE/10GE SFP+ ports RG-IS5200-8GT4XS-DC ● 4 x 1GE/10GE SFP+ ports RG-IS5200-8GT4XS-UP-DC ● 4 x 1GE/10GE SFP+ ports RG-IS5200-24GT4XS-UP-DC ● 4 x 1GE/10GE SFP+ ports	1GE optical transceivers ● Mini-GBIC-GT ● Mini-GBIC-GT(F) ● MINI-GBIC-SX-MM850 ● MINI-GBIC-LX-SM1310 ● MINI-GBIC-LH40-SM1310 ● MINI-GBIC-ZX80-SM1550 ● GE-SFP-SR-MM850-I (recommended) ● GE-SFP-LR-SM1310-I (recommended) ● GE-SFP-LH40-SM1310-BIDI ● GE-SFP-LH40-SM1550-BIDI ● GE-SFP-LX20-SM1310-BIDI ● GE-SFP-LX20-SM1550-BIDI ● GE-SFP-LX03-SM1310-BIDI-I ● GE-SFP-LX03-SM1550-BIDI-I ● GE-SFP-LR(A1-8)-H 10GE optical transceivers and cables ● XG-SFP-SR-MM850-I (recommended) ● XG-SFP-LR-SM1310-I (recommended) ● XG-SFP-SR-MM850 ● XG-SFP-LR-SM1310 ● XG-SFP-ER-SM1550 ● XG-SFP-ZR-SM1550 ● XG-SFP-LR10-SM1270-BIDI-I ● XG-SFP-LR10-SM1330-BIDI-I ● XG-SFP-iLR-SM1310-I ● XG-SFP-LR(A1-8) ● XG-SFP-LR(A1-8)-H ● XG-SFP-AOC1M ● XG-SFP-AOC3M ● XG-SFP-AOC5M

● **Caution**

Use pluggable modules supplied by Ruijie Networks. The reliability of modules supplied by other vendors cannot be guaranteed, which may cause service instability. If you use a module supplied by other vendors, Ruijie Networks will not be liable for the service issues and will not solve them in principle.

1.9 Package Contents

1.9.1 RG-IS5200-8GT4XS/RG-IS5200-8GT4XS-DC/RG-IS5200-8GT4XS-UP-DC

Item	Quantity
Switch	1

Item	Quantity
Rail clip	1
Rail	1
M3x5 mm screw	2
PWA4.2x20 mm tapping screw	2
φ6.0x25 mm expansion anchor	2
Power terminal connector	1
10-Pin terminal block	1
Grounding cable	1
<i>Installation Manual</i>	1
<i>Safety Label and Certification Information Description</i>	1
Ruijie Networks product management software	1

1.9.2 RG-IS5200-24GT4XS-UP-DC

Item	Quantity
Switch	1
M4x7 mm screw	8
2-Pin terminal block	2
10-Pin terminal block	1
Mounting bracket	2
Grounding cable	1
<i>Installation Manual</i>	1
<i>Safety Label and Certification Information Description</i>	1
Ruijie Networks product management software (Pre-installed)	1

Note

A normal delivery should contain the above mentioned items, which may differ from the actual delivery, depending on purchase contracts. Please check your goods carefully according to the packing list or purchase contract. If you have any questions or there are any errors, please contact your distributor.

2 Preparing for Installation

2.1 Safety Guidelines



Note:

- To avoid personal injury or equipment damage, review the safety guidelines in this chapter before you begin the installation.
 - The following safety guidelines may not include all the potentially hazardous situations.
-

2.1.1 General Precautions

- Keep the chassis clean and dust-free.
- Keep the equipment away from walk areas.
- During installation and maintenance, do not wear loose clothing or ornament that may get caught in the chassis.

2.1.2 Chassis-Lifting Guidelines

Pay attention to the following when moving the chassis:

- Avoid moving the equipment frequently.
- Turn off all power supplies and disconnect all power cords before lifting or moving the equipment.
- Keep balance and prevent personal injuries when lifting or moving the equipment.

2.1.3 Electricity Safety

- Always observe the local regulations and standards. Only qualified personnel should be allowed to operate the equipment.
 - Carefully check the work area for potential hazards, including ungrounded power system, absent safety grounds, and damp floors.
 - Locate the emergency power-off switch in the room before installation. In the case of an accident, cut off the power supply immediately.
 - Do not assume that power supply is turned off. Instead, always check.
 - Do not place the device in a wet position, and keep the device away from liquid.
-



Note:

- Any deviation from standard or improper electrical operations can result in accidents such as fires or electric shocks, potentially causing severe or even fatal harm to both individuals and equipment.
- Direct or indirect touch through a wet object on high-voltage and mains supply can bring a fatal danger.
- Select the right leakage protector (also called "leakage current switch" or "leakage current breaker") for the power supply system. This equipment automatically disconnects the power supply in the event of leakage and the risk of electric shock. A leakage protector should meet the following requirements: (1) The rated leakage action current of each leakage protector is greater than twice of the theoretical maximum leakage current of all the power supplies in the system. For example, if a system is equipped with 16 identical power supplies, and the leakage current of each power supply is equal to or less than 1.75 mA, then the leakage current of the system totals 28 mA. A leakage protector with a rated leakage

action current of 30 mA supports no more than nine power supplies (that is, action current of the leakage protector/2/Maximum leakage current of each power supply = $30/2/1.75 \approx 8.57$). In this case, 16 power supplies in the system require at least two leakage protectors with a rated action current of 30 mA, with each leakage protector supporting eight power supplies. Although the number of power supplies in a system differs in models, the rated leakage action current of each leakage protector divided by two must be greater than the sum of the maximum leakage current of all the power supplies. (2) The rated leakage non-action current of a leakage protector should be 50% of the leakage action current. If the non-action current value is too small, the high sensitivity level can cause the circuit to break, leading to power cutoff and service interruption, even if the leakage current value is normal. For example, if a leakage protector has a rated leakage action current of 30 mA, the rated leakage non-action current should be 15 mA. The leakage protector will not activate unless the leakage current exceeds 15 mA.

- To ensure personal safety, each leakage protector in the system must have a rated leakage action current equal to or below 30 mA, which is the recognized safety threshold for human body current. If the total leakage current of the system exceeds twice the 30 mA limit, the system must be equipped with two or more leakage protectors to maintain safety.

2.1.4 Preventing ESD Damage

To prevent ESD damage, take note of the following:

- Ensure that the chassis is connected to earth ground.
- Keep the site as dust free as possible.
- Maintain appropriate humidity conditions.
- Before installing the equipment, wear an anti-ESD wrist strap and make sure that it is properly grounded.
- Avoid contact between the printed circuit boards and clothing. The anti-ESD wrist strap only protects the printed circuit boards from ESD voltages on the body. ESD voltages on clothing can still cause damage.

2.1.5 Laser Safety

The equipment supports various types of optical transceivers, which are Class I laser products.

Pay attention to the following:

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

 Caution:

Do not approach or stare into an optical port under any circumstances. This may cause permanent damage to your eyes.

2.1.6 Storage Guidelines

To ensure normal operation, plan for your installation site according to the temperature and humidity requirements.

 Caution

If the equipment has been inactive for more than 18 months, power it on and operate it continuously for 24 hours to reactivate it.

2.2 Site Requirements

The equipment must be installed indoors for normal operation and prolonged service life. The installation site must meet the following requirements.

2.2.1 Airflow

Maintain a minimum clearance of 100 mm (3.94 in.) around the equipment for air circulation. Manage the Ethernet cables and power cords using cable ties or cable management brackets to avoid affecting the airflow.

2.2.2 Temperature and Humidity

To ensure normal operation and prolonged service life of the equipment, maintain appropriate temperature and humidity conditions in the equipment room. Prolonged exposure to inappropriate temperature and humidity conditions can cause damage to the equipment.

- In an environment with a high relative humidity, insulating materials are prone to poor insulation or even electricity leakage. Sometimes high humidity may causes changes in the mechanical properties and causes rusting of metal parts.
- In an environment with a low relative humidity, insulating gaskets may shrink, resulting in screw loosening.
- A high temperature can accelerate the aging process of insulation materials, greatly reducing the availability of the equipment and severely affecting its service life.

The temperature and humidity requirements are described in the following table.

Operating Temperature	Operating Humidity
–40°C to +65°C (–40°F to +149°F); When the RG-IS5200-8GT4XS-UP-DC is installed in a sealed cabinet, the operating temperature range is from –40°C to +60°C (–40°F to +104°F). –40°C to +70°C (–40°F to +158°F): The switch is installed in a rack with a minimum air velocity of 80 Linear Feet per Minute (LFM). –40°C to +75°C (–40°F to +167°F): The switch is installed in a fan-equipped cabinet with a minimum air velocity of 200 LFM. –40°C to +80°C (–40°F to +176°F): The switch is installed in a fan-equipped cabinet with a minimum air velocity of 200 LFM.	5% to 95% RH

 Note:

The operating temperature and humidity are measured at 1.5 m (4.92 ft.) above the floor and 0.4 m (1.31 ft.) before the rack when there is no protective plate in front or on the rear of the rack.

2.2.3 Cleanliness

Dust poses a significant hazard to the equipment. Dust on the enclosure causes electrostatic adhesion, leading to poor contact of the metallic joints. Electrostatic adhesion is more likely to occur in an indoor environment with relatively low humidity, not only affecting the service life of the equipment, but also causing communication faults. The following table lists the requirements for dust concentration and particle size in the equipment room.

Maximum Diameter (μm)	0.5	1	3	5
Maximum Allowable Concentration (Particles/m ³)	1.4 x 10	7 x 10	2.4 x 10	1.3 x 10

Apart from dust, there are also requirements on the salt, acid, and sulfide in the air of the equipment room. These harmful substances will accelerate metal corrosion and component aging. Therefore, the equipment room should be properly protected against harmful gases, such as sulfur dioxide, hydrogen sulfide, nitrogen dioxide, chlorine gas, and so on. The following table lists the limits on 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
Ammonia gas (NH ₃)	0.05	0.15
Chlorine gas (Cl ₂)	0.01	0.3

2.2.4 Preventing Electromagnetic Interference

The switch is susceptible to external interference by capacitive coupling, inductive coupling, electromagnetic waves, common impedance (ground) coupling, or conduction over power lines, signal lines and output lines. Pay attention to the following:

- In a TN earthing system, use a 3-wire single-phase outlet that has a protective earth (PE) contact to allow the filter circuit in the device to eliminate interference from the power grid.
- Keep the device away from high-power radio launch pads, radar launch pads, and high-frequency large-current devices.
- Take electromagnetic shielding measures to minimize interference when necessary, for example, use shielded interface cables.
- Route interface cables only indoors to prevent signal ports from getting damaged by overvoltage or overcurrent caused by lightning strikes.

2.2.5 Grounding

A proper grounding system is crucial for ensuring stable and reliable operation, as well as preventing lightning strikes and interference. Carefully check the grounding conditions at the installation site according to the grounding requirements, and complete grounding properly based on the site situation.

1. Safety Grounding

Ensure that the rack and power distribution system are securely grounded if the equipment uses the AC power supply. Otherwise, electric shocks may occur when the insulation resistance between the power module and the chassis decreases.

 **Caution:**

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

2. Lightning Grounding

The lightning protection system is an independent system composed of a lightning rod, a down conductor, and a connector connected to the grounding system. The grounding system is typically used for power reference grounding and safety grounding of the rack. Lightning grounding is required only for facilities, and is not required for the equipment.

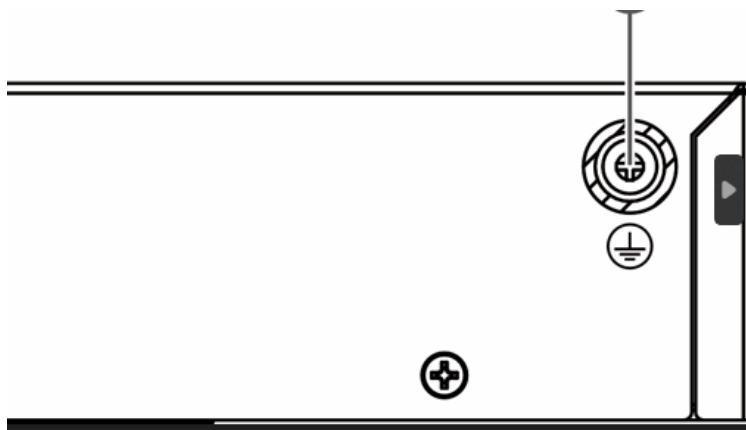
 **Note:**

For details of surge protection for switches, refer to Appendix D.

3. EMC Grounding

Electromagnetic compatibility (EMC) grounding includes shielded grounding, filter grounding, noise and interference suppression, and level reference. The grounding resistance should be smaller than 1 ohm. The rear panel has one grounding lug marked with a conspicuous label, as shown in Figure 2-1.

Figure 2-1 Grounding



2.2.6 Surge Protection

When an AC power cord is introduced from outdoors and directly connected to the power port of the switch, the AC power port must be connected to an external surge protection socket to protect the switch against lightning

strokes. The surge protection socket can be fixed on the rack, workbench, or wall in the machine room by using cable ties and screws. AC power enters the surge protection socket and then enters the switch.

 Note:

- Surge protection sockets are customer-supplied.
 - For details of surge protection sockets, see the related user guide.
-

2.2.7 EMI Requirement

All interference sources, either from outside or inside of the device or application system, affect the device by capacitive coupling, inductive coupling, or electromagnetic waves. EMI occurs due to electromagnetic radiation or conduction, depending on 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 both a part of the interfered system and a completely electrically isolated unit. Conduction interference occurs when interference is transferred from one unit to another unit through cables, which are usually electromagnetic wires or signal cables connected between the source and the sensor. Conducted interference often affects the power supply of the equipment, but can be controlled by a filter. Radiated interference may affect any signal path in the equipment, and is difficult to shield.

- Take interference prevention measures for the power supply system.
- Keep the equipment away from the grounding system or lightning protection grounding system of the power facility.
- Keep the equipment away from high-power radio launch pads, radar launch pads, and high-frequency large-current devices.
- Take electromagnetic shielding measures when necessary.

2.3 Optical Cable Connection Requirements

Make sure that the models of optical transceivers and optical cables match with SFP ports. The transmitting port on the local device should be connected to the receiving port on the peer device and vice versa.

2.4 Tools

Common Tools	Phillips screwdriver, power cords, Ethernet cables, bolts, diagonal pliers, and cable ties
Dedicated Tools	Anti-ESD glove, wire stripper, crimper, RJ45 connector crimping plier, and wire cutter
Fiber Cleaning Tools	Air-laid paper and fiberscope
Meters	Multimeter, bit error rate tester (BERT), and optical power meter

 Note:

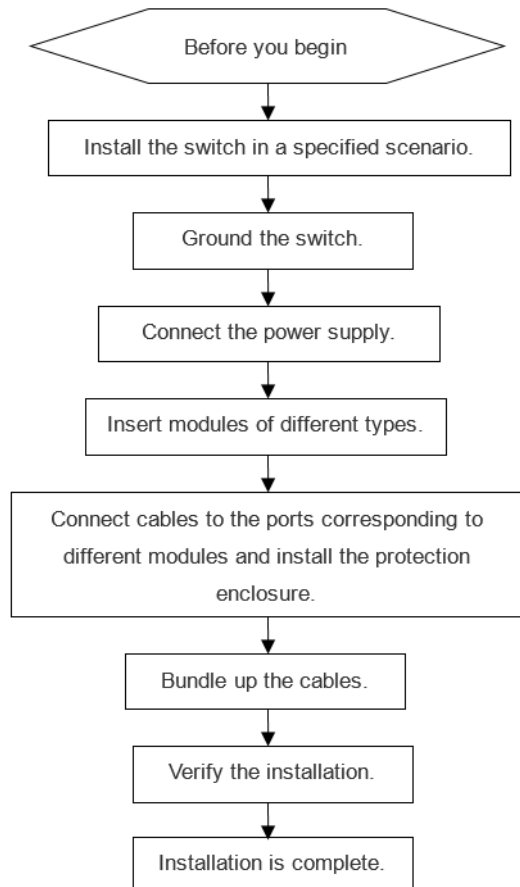
The equipment is delivered without a toolkit. Prepare the preceding tools by yourself.

3 Installation

**Note:**

Before installing the equipment, ensure that guidelines and requirements in Chapter 2 have been met.

3.1 Installation Procedure



3.2 Before You Begin

When installing the switch, pay attention to the following:

- The installation site provides sufficient space for heat dissipation.
- The installation site meets the temperature and humidity requirements.
- The power supply is available at the installation site, and its current meets the requirements.
- The Ethernet cables have been deployed at the installation site.

3.3 Installing the Switch

Precautions

When mounting the switch in a cabinet, you must pay attention to the following:

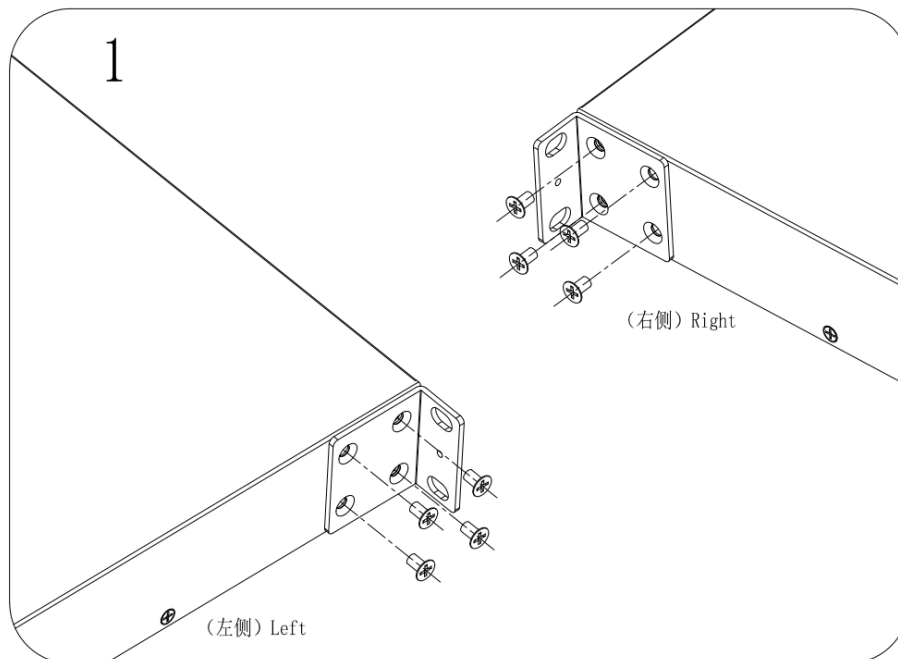
- Connect the power cords of different colors to the corresponding cable terminals.
- Ensure the power cords are securely connected.
- Do not place heavy objects on the device.
- Maintain a minimum clearance of 100 mm (3.94 in.) around the device to ensure proper airflow. Do not stack switches.
- Keep the device away from high-power radio launch pads, radar launch pads, and high-frequency large-current devices. Take electromagnetic shielding measures to minimize interference when necessary, for example, use shielded interface cables. Keep the switch far away from high-frequency current equipment such as a high-power radio transmitting stations and radar launchers. Take electromagnetic shielding measures when necessary, for example, use shielded interface cables.
- Route interface cables only indoors to prevent signal ports from getting damaged by overvoltage or overcurrent caused by lightning strikes.
- The RG-IS5200 series switches can be classified into two types based on the installation method: rack switch (RG-IS5200-24GT4XS-UP-DC) and DIN rail switch (RG-IS5200-8GT4XS, RG-IS5200-8GT4XS-DC, and RG-IS5200-8GT4XS-UP-DC).

3.3.1 Installing the Rack Switch in a Rack

Only the rack switch of the RG-IS5200 series meets the Electronic Industries Alliance (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.

Step 1: Take screws out of the mounting bracket package and install one end of the mounting brackets to the switch, as shown in Figure 3-1.

Figure 3-1 Securing Mounting Brackets (Rack Mounting)-1



Step 2: As shown in Figure 3-2, horizontally mount the switch to an appropriate position inside the rack. Secure the other end of the mounting bracket to the front mounting rail of the rack using M6 screws and cage nuts, as shown in Figure 3-3.

Figure 3-2 Securing Mounting Brackets (Rack Mounting)-2

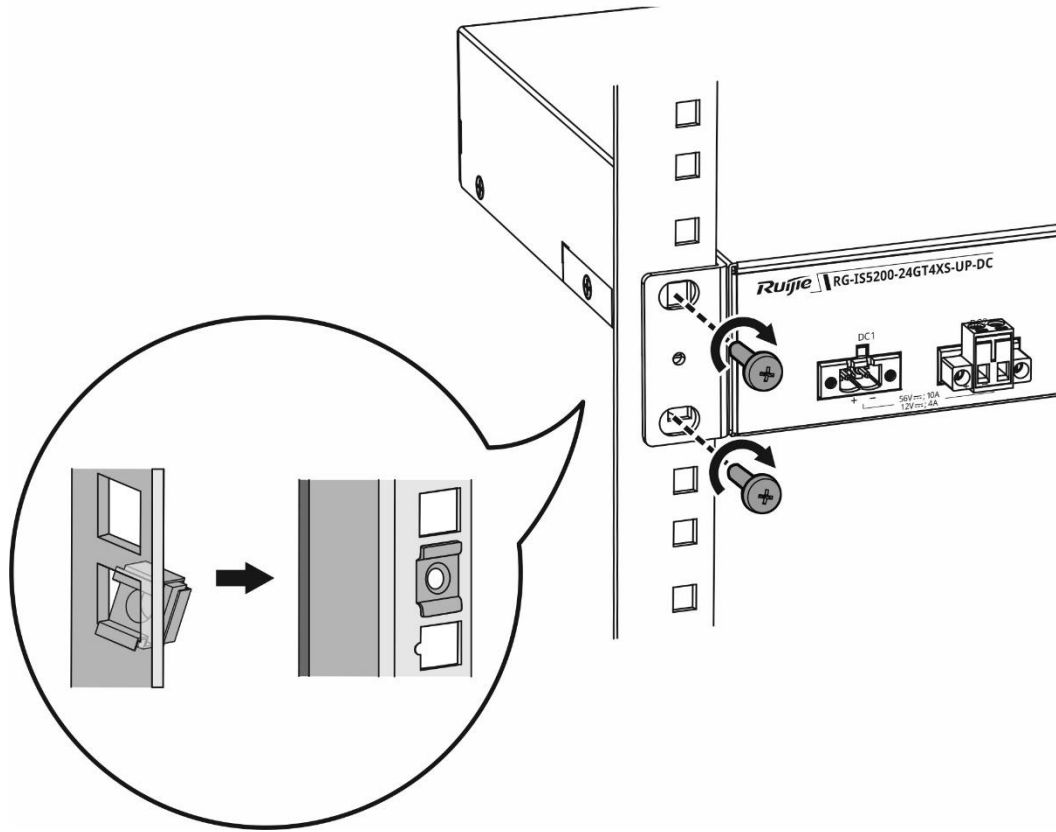
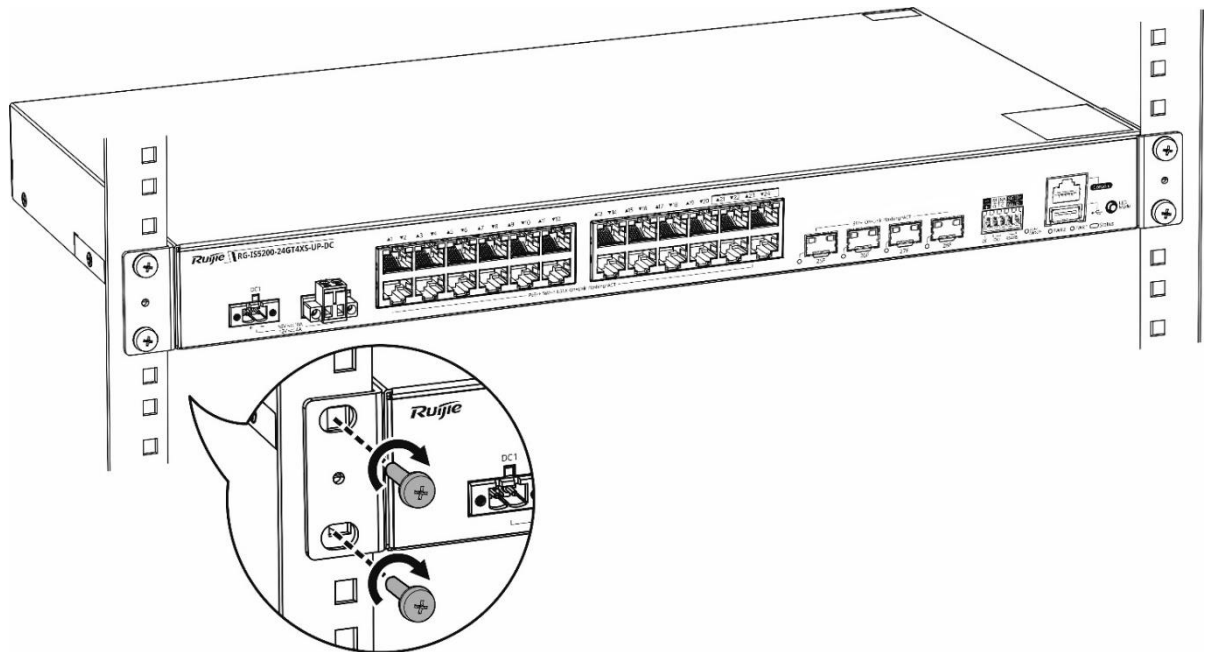


Figure 3-3 Securing Mounting Brackets (Rack Mounting)-3

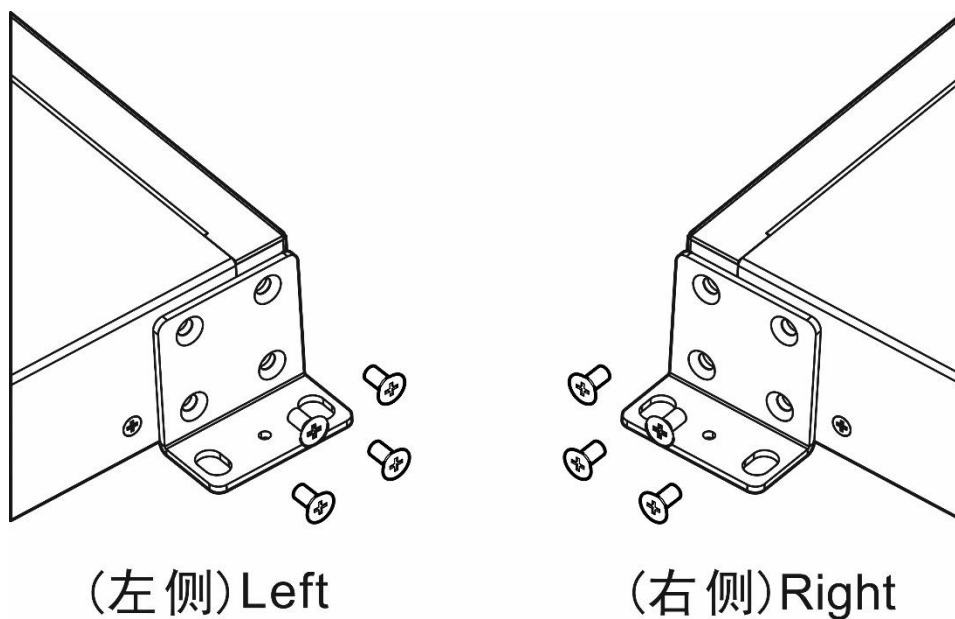


3.3.2 Installing the Rack Switch on the Wall

Mounting brackets delivered with the RG-IS5200 series switch can be used to mount the switch on a wall. The installation steps are as follows:

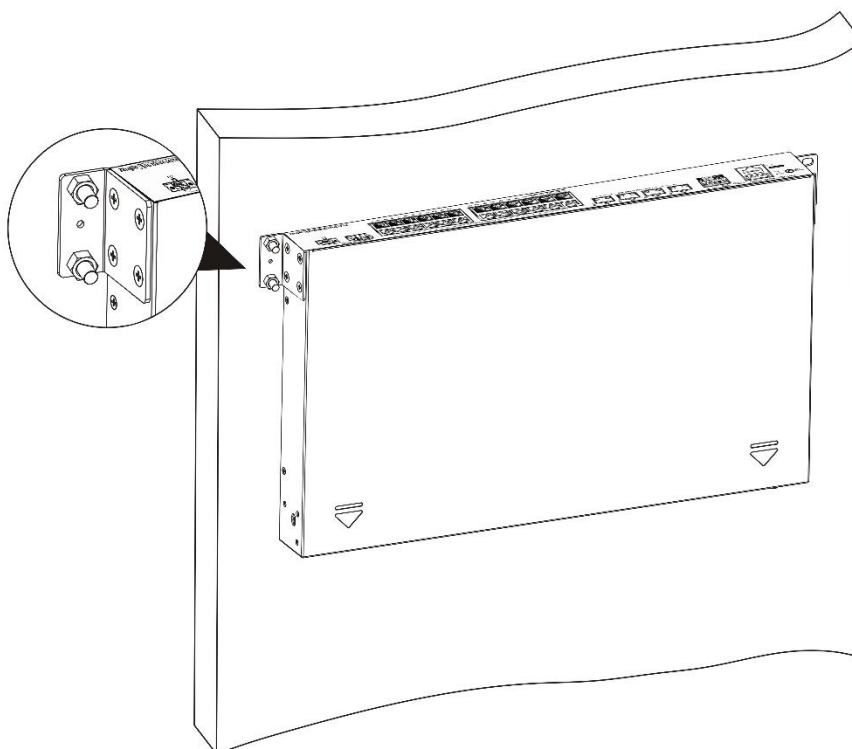
Step 1: Take screws out of the mounting bracket package, rotate the mounting brackets by 90 degrees, and secure one end of the mounting brackets to the switch by using the screws, as shown in Figure 3-4.

Figure 3-4 Securing Mounting Brackets (Wall Mounting)-1



Step 2: Use wall anchors to secure the switch to a wall, as shown in Figure 3-5.

Figure 3-5 Securing Mounting Brackets (Wall Mounting)-2



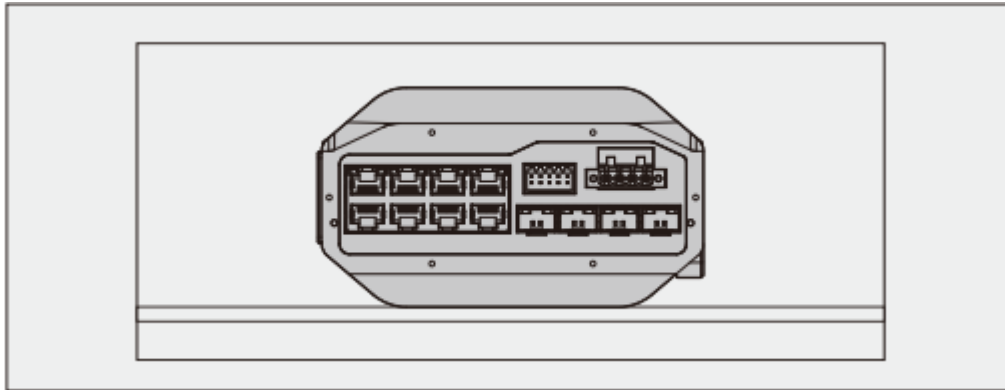
**Note:**

- When the switch is mounted on a wall, it can only be mounted on a concrete or non-flammable surface.
- When the switch is installed on the wall, the heat dissipation surface is closely attached to the wall, which affects heat dissipation of the switch. Therefore, the maximum operating temperature needs to be decreased by 5°C (9°F).

3.3.3 Install the DIN Rail Switch on a Workbench

Place the switch on a clean workbench, as shown in Figure 3-6.

Figure 3-6 Installing the Switch on a Workbench

**Caution:**

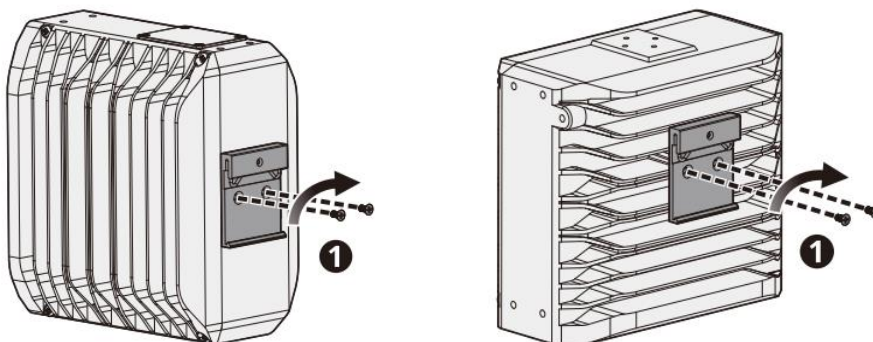
When the switch is installed on a workbench, the heat sinks are also oriented horizontally and one side of the heat sinks is closely attached to the workbench, which affects heat dissipation. In this case, the maximum operating temperature of the switch should be reduced by 5°C (9°F) in actual deployment.

3.3.4 Installing the DIN Rail Switch on the DIN Rail

Only the DIN rail switch of the RG-IS5200 series supports standard DIN rail mounting. The installation process is as follows:

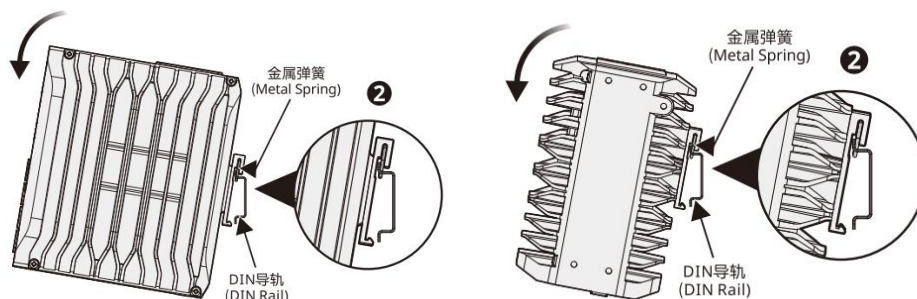
Step 1: Secure the latching tabs to the rear or side of the switch with screws, as shown in Figure 3-7.

Figure 3-7 DIN35 DIN Mounting Clip Installation (Left: Vertical Mounting; Right: Horizontal Mounting)



Step 2: Hold the switch upright, align the mounting clip with the DIN35 rail, and push the switch toward the DIN rail until it clicks into place, as shown in Figure 3-8.

Figure 3-8 Mounting the Switch on the DIN35 Rail (Left: Vertical Mounting; Right: Horizontal Mounting)



⚠ Caution:

When the switch is horizontally installed, the heat sinks are also oriented horizontally and one side of the heat sinks is closely attached to the DIN rail, which affects heat dissipation. In this case, the maximum operating temperature of the switch should be reduced by 5°C (9°F) during actual deployment.

3.3.5 Mounting the DIN Rail Switch on a Wall

Wall mounting of DIN rail switches can be vertical (as shown in Figure 3-9) or horizontal (as shown in Figure 3-10). The installation steps are as follows:

Figure 3-9 Wall Mounting Method 1

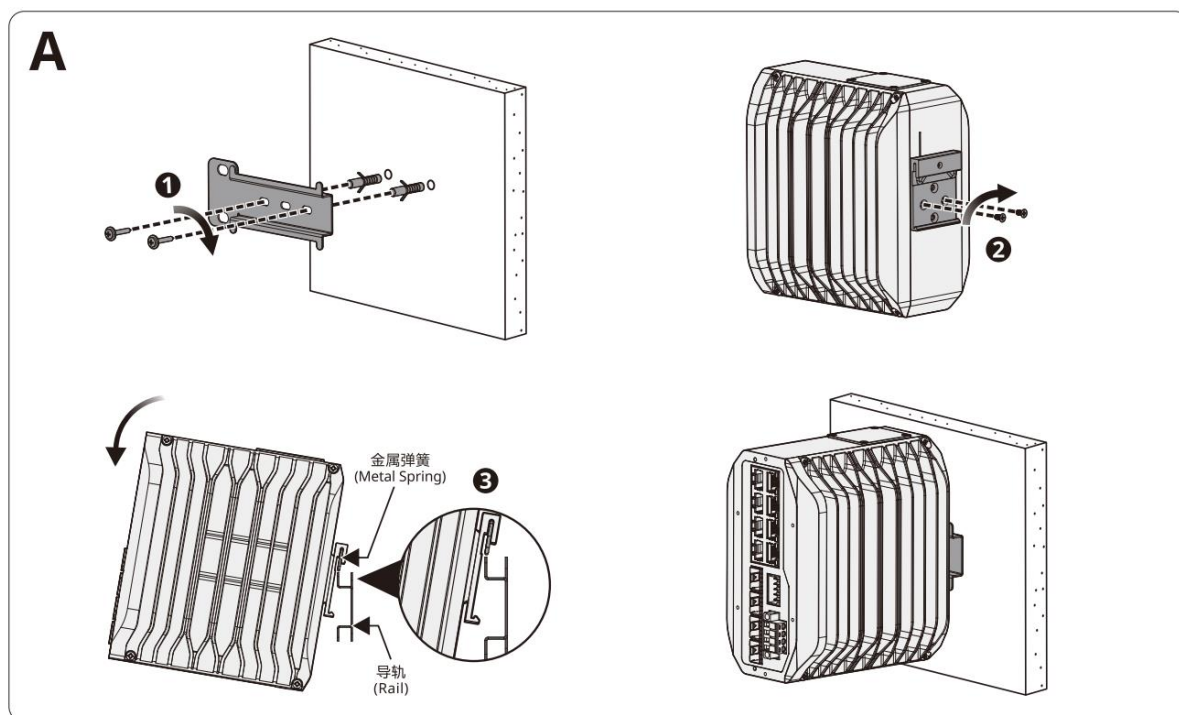
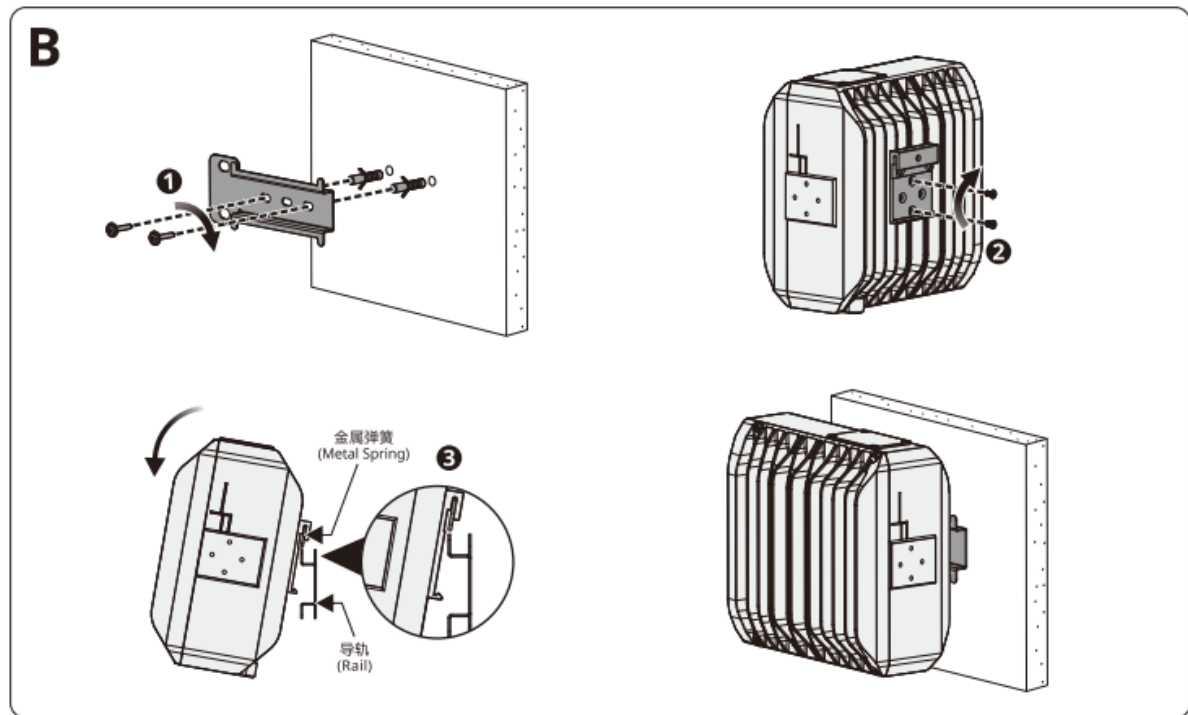


Figure 3-10 Wall Mounting Method 2

Step 1: Install the DIN rail on the wall using wall anchors.

Step 2: Secure the DIN clip to the back or side of the switch with screws. Make sure that the heat sinks are vertical and the optical port is below the network port.

Step 3: Align the latching tab on the device with the guide rail and insert the device into the guide rail, ensuring that it is properly installed.

⚠ Caution:

- When the device is mounted on a wall, it is only suitable to be mounted on a concrete or non-flammable surface.
- Only the mounting brackets on the bottom of the switch are secured on the wall.
- When the switch is horizontally installed, the heat sinks are also oriented horizontally and one side of the heat sinks is closely attached to the DIN rail, which affects heat dissipation. In this case, the maximum operating temperature of the switch must be reduced by 5°C (9°F) during actual deployment.

3.4 Connecting the Power Supply

The RG-IS5200-8GT4XS can be powered by the AC power supply or high-voltage DC power supply. The power cord is connected to the switch through a terminal block for power supply, without the need to install a power module. RG-IS5200-8GT4XS-DC, RG-IS5200-8GT4XS-UP-DC, and RG-IS5200-24GT4XS-UP-DC can be powered by a low-voltage DC power supply. You are recommended to use the IPA240-P or IPA60 power module for powering the switch.

3.4.1 Installing Power Modules

You are advised to follow the steps for installing the power module according to the switch installation scenario. The following table describes various installation methods.

Installation Scenario	Step 1	Step 2	Step 3
Rack mounting	Secure the DIN rail clip to the power module.	Install the rack mounting brackets to the power module.	Snap the power module onto the DIN rail.
Mounting on a workbench	Place the power module on the workbench, as shown in the figure.	N/A	N/A
Wall mounting	Install the DIN rail on the wall.	Install the DIN rail clip on the power module.	Snap the power module onto the DIN rail.
DIN rail mounting	Install the DIN rail clip on the power module.	Snap the power module onto the DIN rail.	N/A

3.4.2 Connecting Power Cords to the Switch

Connect the power module to the switch through terminal terminals and cables. For details, see .Ruijie Networks Device Terminal Block Cabling Description.

1. Specifications of Cables Connecting Terminal Blocks

Model	Port Type	Recommended Conductor Specification
RG-IS5200-8GT4XS	Power port	14–28 AWG. Recommended cable stripping range: 7–8 mm (0.28–0.31 in.)
	DI, DO, RS-485 ports	18–24 AWG. Recommended cable stripping range: 10–11 mm (0.39–0.43 in.)
RG-IS5200-8GT4XS-DC	Power port	14–18 AWG. Recommended cable stripping range: 7–8 mm (0.28–0.31 in.)
	DI, DO, RS-485 ports	18–24 AWG. Recommended cable stripping range: 10–11 mm (0.39–0.43 in.)
RG-IS5200-8GT4XS-UP-DC	Power port	12–16 AWG. Recommended cable stripping range: 7–8 mm (0.28–0.31 in.)
	DI, DO, RS-485 ports	18–24 AWG. Recommended cable stripping range: 10–11 mm (0.39–0.43 in.)
RG-IS5200-24GT4XS-UP-DC	Power port	Power port: 12–16 AWG. Recommended cable stripping range: 7–8 mm (0.28–0.31 in.)
	Industrial control bus port	18–24 AWG. Recommended cable stripping range: 10–11 mm (0.39–0.43 in.)
IPA240	AC power port	14–18 AWG. Recommended cable stripping range: 7–8 mm (0.28–0.31 in.)

Model	Port Type	Recommended Conductor Specification
	DC power port	16–18 AWG. Recommended cable stripping range: 10–11 mm (0.39–0.43 in.)
IPA60	AC power port	14–18 AWG. Recommended cable stripping range: 7–8 mm (0.28–0.31 in.)
	DC power port	16–18 AWG. Recommended cable stripping range: 10–11 mm (0.39–0.43 in.)

**Note:**

The switch is delivered with terminal blocks but not power cords. Select appropriate copper power cords for connection as required.

**Caution:**

- Ensure that each power cord has a self-contained input circuit breaker or avoid installation with power on before connecting to the power cord.
- Note the positive and negative pole marks on the power port to avoid incorrect connection.
- The RG-IS5200 series switches use terminal blocks for power supply and do not support hot swapping.

A power ground (PGND) is installed on the back of the switch. First connect the PGND to the grounding lug of the cabinet and then connect the grounding lug to the grounding bar of the equipment room.

2. Precautions

- The sectional area of a grounding cable should be determined according to the possible maximum current. Grounding cables with good conductors should be used.
- Do not use bare wires.
- 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 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 power 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 power socket protective earth terminal to the building protective earth.
- The power socket should be installed near the device and easily accessible.
- The AC power should be connected to an output socket with a ground connection using a power cord.
- During the switch installation, the ground connection must always be made first and disconnected last.

3.5 Grounding the Switch

Connect the grounding point on the rear or side of the device to the grounding lug of the cabinet, and then connect the grounding lug of the cabinet to the grounding bar of the equipment room.

1. Precautions

- The sectional area of a grounding wire should be determined according to the possible maximum current. Grounding wire with good conductors should be used.
- Do not use bare wires.
- 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 earth ground properly. The resistance between the switch chassis and the ground must be less than 1 ohm.
 - The O&M personnel should check whether the AC outlet is properly 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 lug to the building protective earth.
 - The power socket should be installed near the device and easily accessible.
 - During device installation, connect the grounding cable first and disconnect it last.
 - The cross-sectional area of a protective grounding cable should be at least 2.5 mm² (12 AWG).
-

3.6 Connecting Cables

1. Precautions

- Distinguish SMF and MMF optical cables and ports.
- Avoid a small bend radius at the connector.
- The Ethernet cable type must comply with the Ethernet cable specifications described in Specifications.

2. Connection Procedure

- (1) Connect the RJ45 connector of the delivered Ethernet cable to the Ethernet interface on the device, and the other end to a managed device or PC. Alternatively, connect one end of the console cable with the standard RJ45 connector to the serial port on the device, and the other end to a managed device or PC.
- (2) Insert the SMF and MMF optical cables into the corresponding ports according to the panel identification, and distinguish the transmit and receive ends of the optical cables.
- (3) Insert the twisted pair cable with the RJ45 connector into the corresponding port according to the panel identification, and distinguish the crossover cable and the straight-through cable.

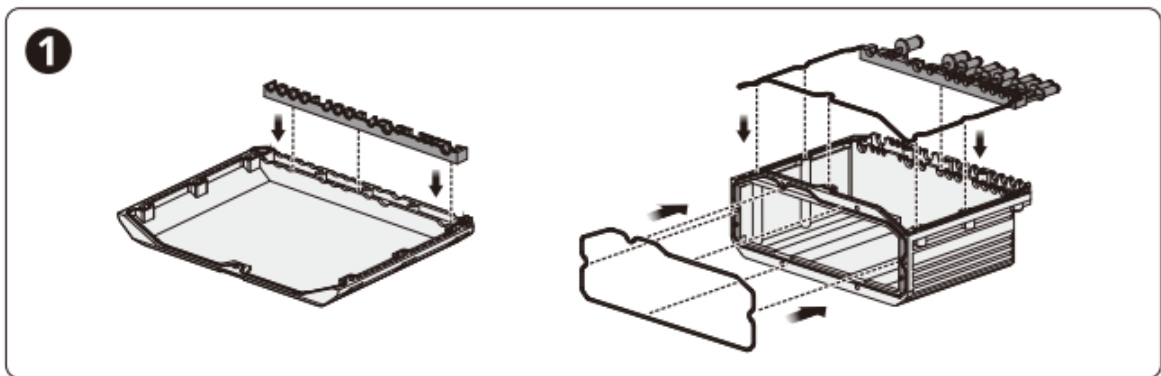
3.7 Installing the Protection Enclosure

1. Precautions

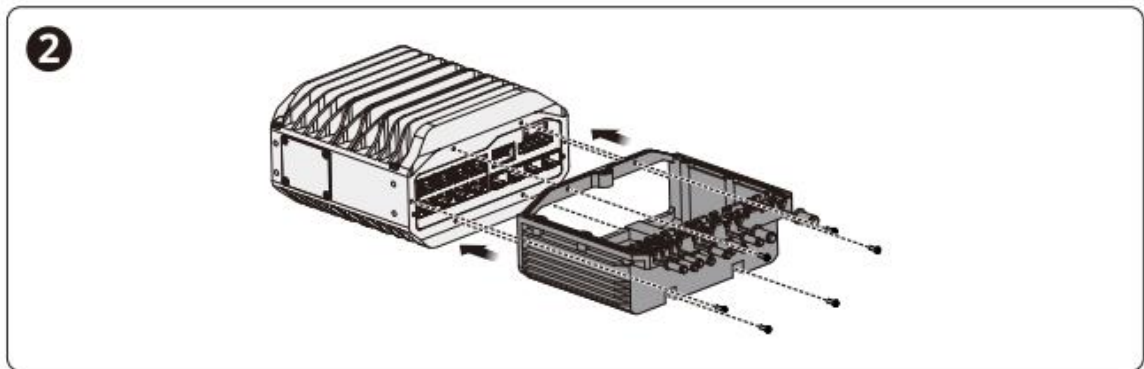
- The protection enclosure is applicable to only DIN rail models (RG-IS5200-8GT4XS, RG-IS5200-8GT4XS-DC, and RG-IS5200-8GT4XS-UP-DC), helping raise the IP rating of the switch to IP55.
- To ensure the protection effect, verify that components are securely seated during and after the installation.
- The cable type must comply with the cable specifications described in Specifications.

2. Connection Procedure

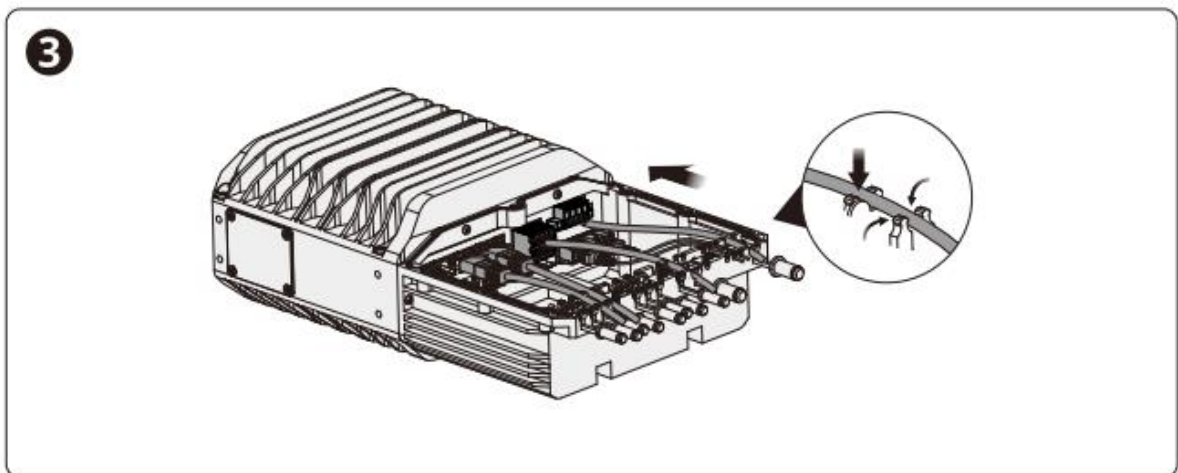
Step 1: Install the gaskets in the edge grooves of the protection enclosure, as shown in Figure 3-11.

Figure 3-11 Installing the Gaskets

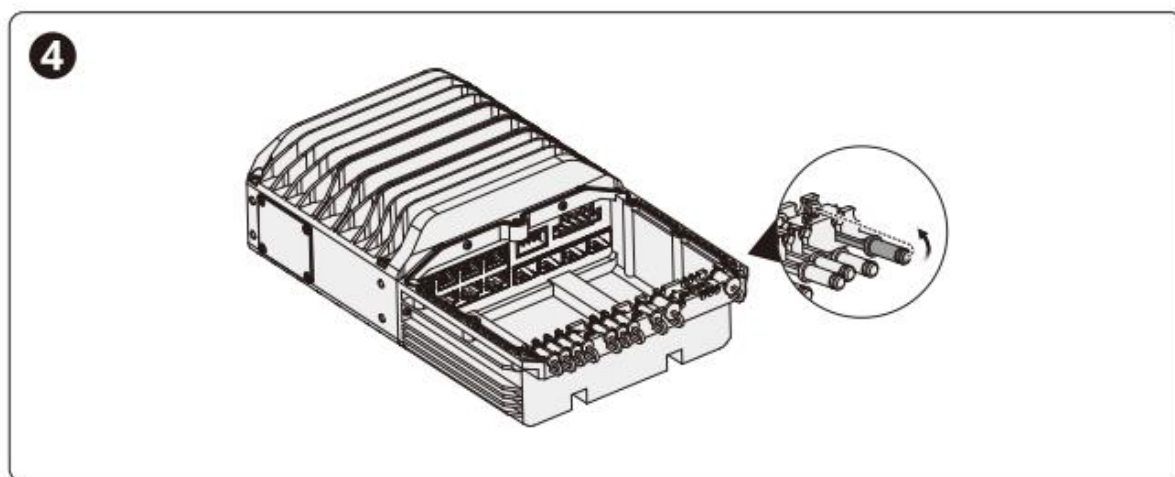
Step 2: Align the protection enclosure with the device and fasten six screws, as shown in Figure 3-12.

Figure 3-12 Installing the Protection Enclosure

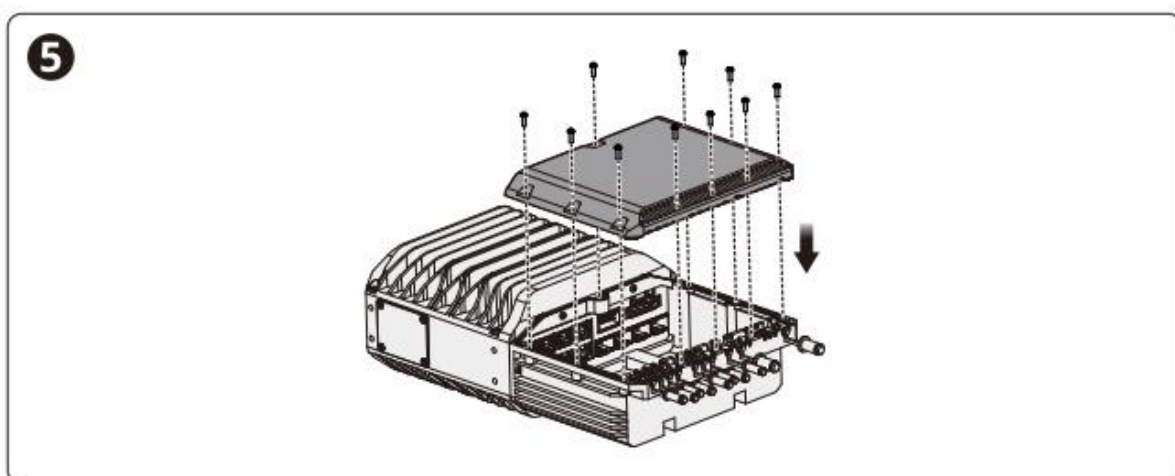
Step 3: Connect the cables to the device and secure them to the groove clamp, as shown in Figure 3-13.

Figure 3-13 Installing and Securing the Cables

Step 4: Install caps for protection enclosure ports with no cables inserted, as shown in Figure 3-14.

Figure 3-14 Installing the Waterproof Plug on the Protection Enclosure

Step 5: Install the upper cover, and fasten 10 screws, as shown in Figure 3-15.

Figure 3-15 Installing and Securing the Cables

3.8 Bundling Cables

1. Precautions

- Bundle the power cords and other cables in a visually pleasing way.
- Ensure that the optical cables at the connectors have natural bends or bends of large radius.
- Do not bundle optical cables and twisted pair cables too tightly, as this may press the cables and affect their service life and transmission performance.

2. Bundling Procedure

- (1) Bind the drooping part of the optical cables and twisted pair cables connected to boards, and lead them to both sides of the chassis for convenience.
- (2) On both sides of the chassis, fasten the optical cables and twisted pair cables to the cable management ring or trough.

- (3) For the power cords, you should bind them closely along the bottom of the chassis, in a straight line wherever possible.

3.9 Verifying Installation



Caution:

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

- Verify that the grounding wire is properly connected.
- Verify that the Ethernet cable and power input cables are properly connected.
- Verify that interface cables are routed indoors. If not, check whether the power supply and interfaces are protected from lightning strikes.
- Maintain a minimum clearance of 100 mm (3.94 in.) around the device for air circulation.

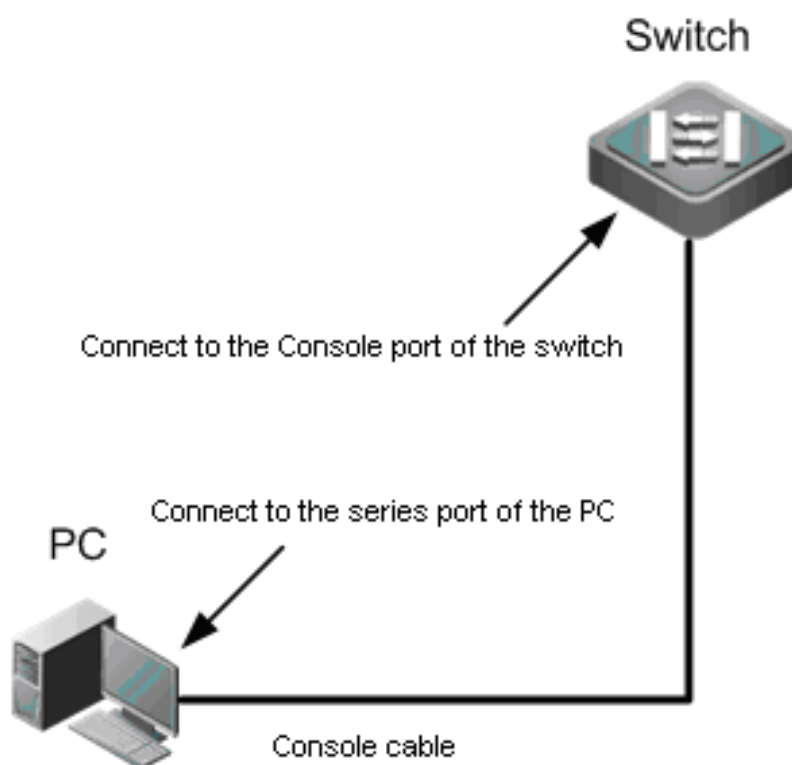
4 Commissioning

4.1 Setting Up the Configuration Environment

4.1.1 Setting Up the Environment

Connect the PC to the console port on the switch by using an Ethernet cable.

Figure 4-1 Setting Up the Configuration Environment



4.1.2 Connecting the Cable

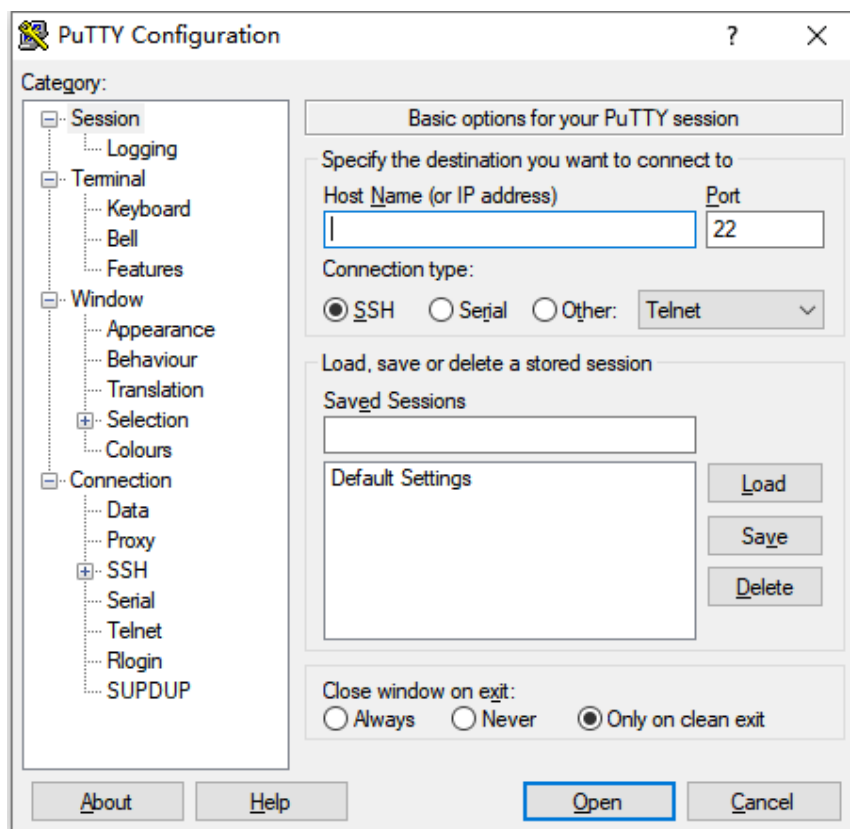
Console port connection steps:

- (1) Connect the DB-9 connector of the cable to the serial port of the PC used to configure the switch.
- (2) Connect the RJ45 end to the console port on your switch.

4.1.3 Setting Parameters

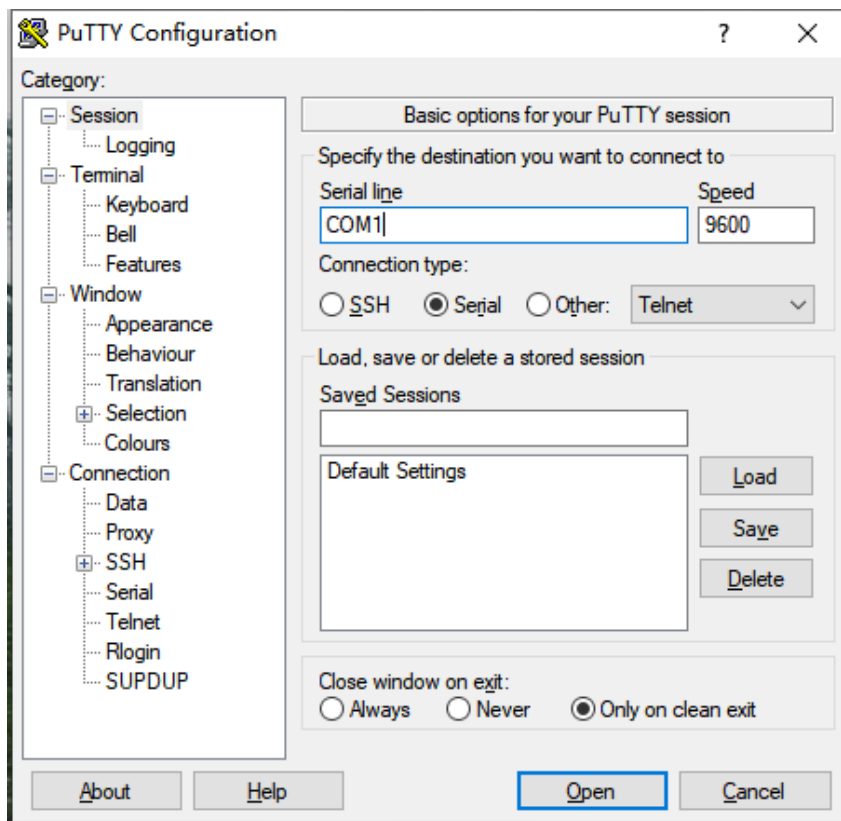
- Step 1: Start the PC and run the terminal simulation program such as PuTTY on your PC (Windows 95/98/NT/2000/7/8/10).
- Step 2: Set terminal parameters. Parameter requirements: baud rate: 9600; data bit: 8; parity check: none; stop bit: 1; flow control: none. Follow the steps below to set the parameters:
 - (1) Choose **Start > PuTTY** to access the HyperTerminal entry window, as shown in Figure 4-2.

Figure 4-2



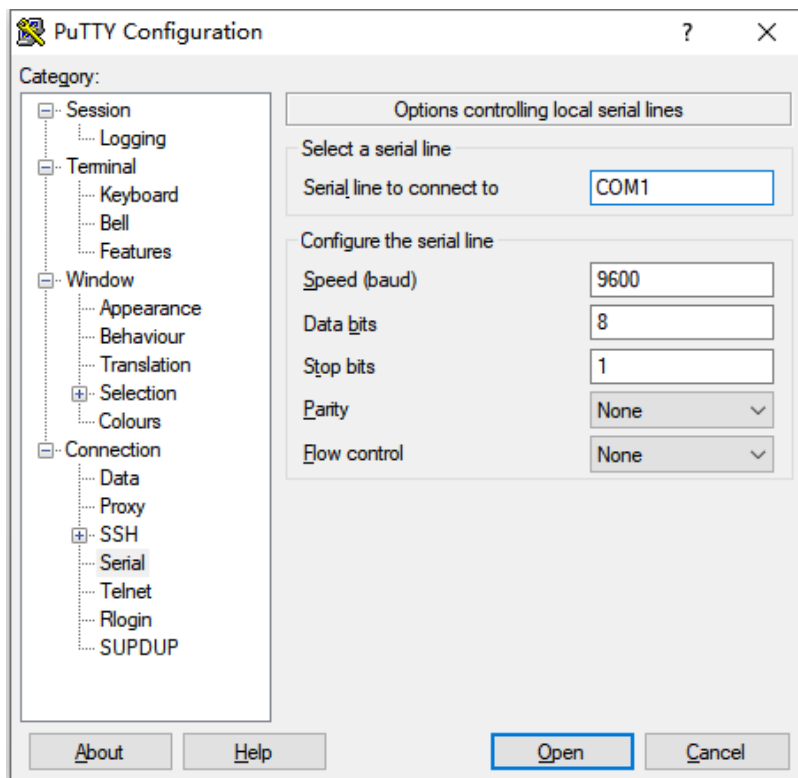
- (2) On the configuration page, check **Serial**, enter the serial port to be connected in the **Serial line** field, and enter the baud rate to be connected in the **Speed** field.

Figure 4-3 4



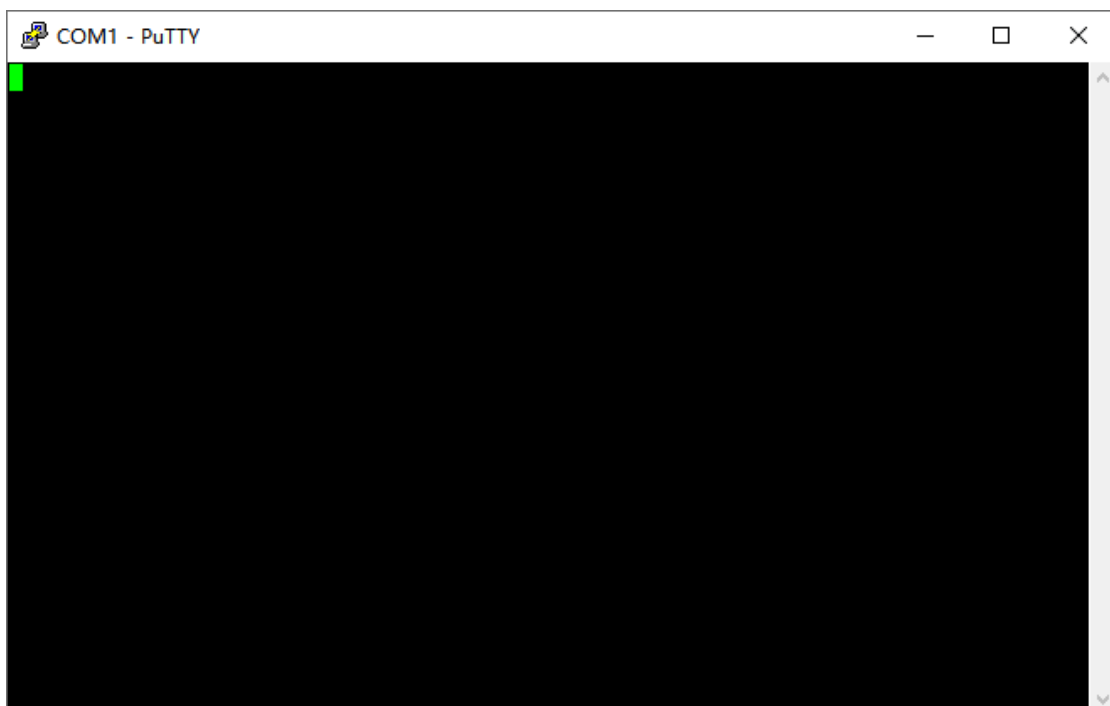
- (3) After selecting the serial port, click **Serial** on the left. The page for setting the connected serial port parameters is displayed, as shown in Figure 4-4. Set **Speed (baud)** to 9600, **Data bits** to 8, **Parity** to None, **Stop bits** to 1, and **Flow control** to None.

Figure 4-4 4



(4) After configuring the serial port parameters, click **Open**. The HyperTerminal window is displayed, as shown in Figure 4-5.

Figure 4-5



4.2 Powering on the Equipment

4.2.1 Checklist Before Power-on

- The switch is properly grounded.
- The power cord is reliably connected.
- The power cord retention clip secures the input power cord to the power supply.
- The input voltage meets the requirement.
- The Ethernet cable is properly connected, the terminal such as a PC used for configuration is already turned on, and the parameters are configured correctly.

4.2.2 Checklist After Power-on (Recommended)

After the device is powered on, check the following items:

- There is information output on the terminal interface.
- The LED status is normal.

5 Monitoring and Maintenance

5.1 Monitoring

5.1.1 LEDs

When the switch is running, you can monitor the switch and module status through LEDs.

- If the System status LED turns red, the system is faulty. Log in to the web-based management system to troubleshoot the fault.
- If the System status LED turns yellow, the system temperature exceeds the alarm value. This affects the system performance, but the system can continue working. Log in to the web-based management system to troubleshoot the fault.
- If the System status LED keeps blinking or turns red, it indicates the switch is faulty. Identify the fault cause, and power off and check the switch when necessary.

5.1.2 CLI Commands

You can run related commands in the Command Line Interface (CLI) to remotely monitor the device status, including:

- Module installation status
- Port configuration and status
- Fan and power module running status
- System temperature



Note:

For the monitoring commands, see RG-IS5200 Series Multi-GE Switches Configuration Guide.

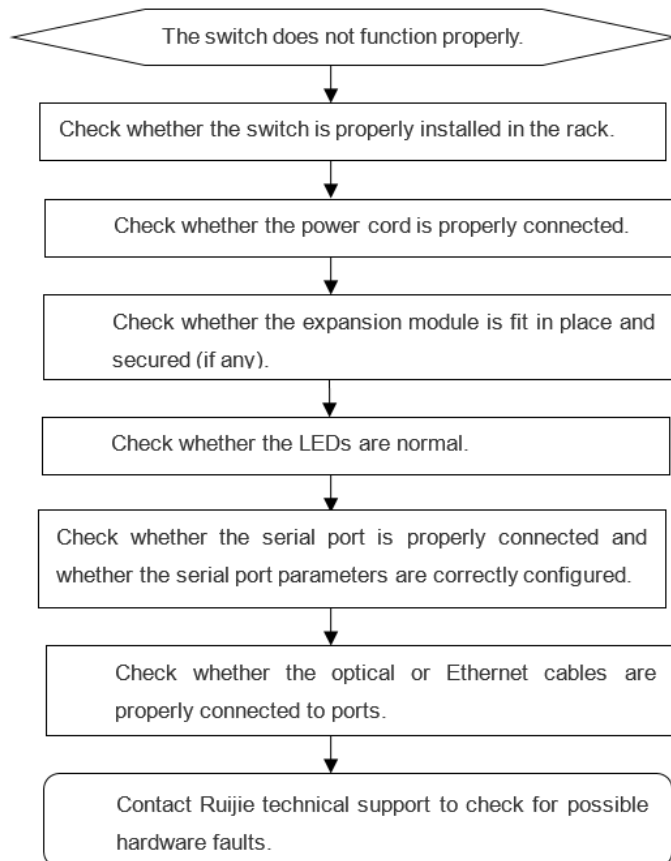
5.2 Hardware Maintenance

5.2.1 Fuse Replacement

For fuse replacement, contact Ruijie Networks Customer Service Department for technical support. They will select and replace the fuse with one of the same specifications.

6 Troubleshooting

6.1 Troubleshooting Flowchart



6.2 Common Faults

6.2.1 Fault 1: The system login password is forgotten.

[Symptom]

The login password of the web-based management system is forgotten. Therefore, the switch cannot be configured.

[Solution]

Contact Ruijie Networks Customer Service Department for technical support.

6.2.2 Fault 2: The serial port console has no output.

[Symptom]

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

[Solution]

- (1) Check whether the console cable is properly connected.
- (2) Ensure that the connected serial port is consistent with what is configured on the HyperTerminal.
- (3) Check whether the configuration of the serial port on the HyperTerminal is consistent with that in *Configuration Guide*. If not, modify the serial port parameters.
- (4) If there is still no output on the serial port, contact Ruijie Networks Customer Service Department.

6.2.3 Fault 3: The serial port console output is garbled.**[Symptom]**

The serial port console output is garbled.

[Solution]

The failure is related to the serial port configuration. Check whether the baud rate configuration is consistent with that in *Configuration Guide*.

6.2.4 Fault 4: The link of an optical port is Down.**[Symptom]**

After the optical transceiver is inserted into the optical port and the optical cable is connected, the link is Down.

[Solution]

Check whether a combo port is used. If so, configure the port to work in optical port mode. Then, perform the following steps:

- (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 optical cables.
- (2) Check whether the wavelength of the optical transceivers on the two sides is consistent. For example, an optical transceiver with a wavelength of 1310 nm cannot be connected to an optical transceiver of 1550 nm.
- (3) Check whether the distance between the two sides exceeds the maximum length marked on the optical transceiver.
- (4) Check whether the speeds of the two sides match and whether the optical cable type meets the requirements.

6.2.5 Fault 5: Some PoE ports work while others do not.**[Symptom]**

When a line card port is connected to a PoE device, some ports supply power and others do not.

[Solution]

- (1) Check whether the ports are manually disabled through software.
- (2) Check whether the PoE power is sufficient. If not, only ports with high priorities are powered.

7 Appendix

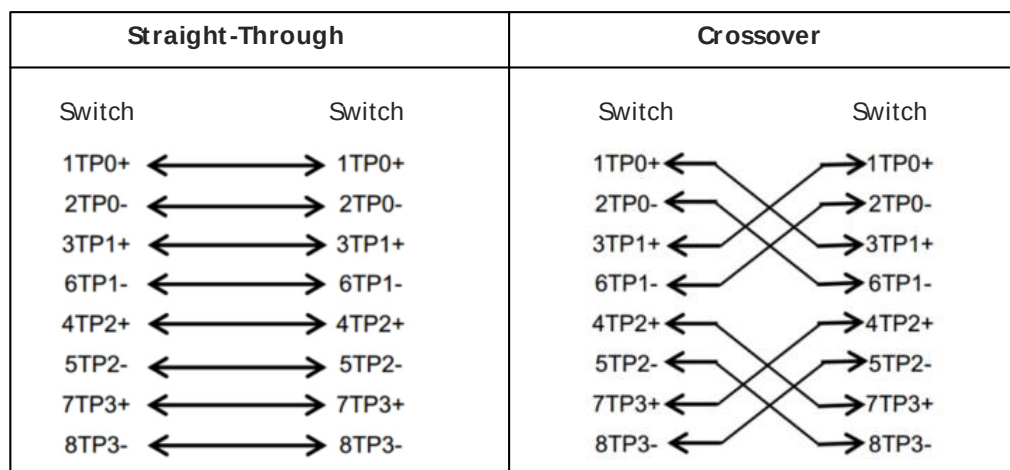
7.1 Connectors and Media

1000BASE-T/100BASE-TX/10BASE-T Port

The 1000BASE-T/100BASE-TX/10BASE-T is a 10/100/1000 Mbps auto-negotiation port that supports auto MDI/MDIX Crossover.

Compliant with IEEE 802.3ab, the 1000BASE-T port requires 100-ohm Category 5/5e UTP or STP with a maximum distance of 100 meters (328.08 ft.). The 1000BASE-T port requires all four pairs of wires to be connected for data transmission. Figure 7-1 shows the connection of four twisted pairs of a 1000BASE-T port.

Figure 7-1 Connection of Four Twisted Pairs of a 1000BASE-T Port



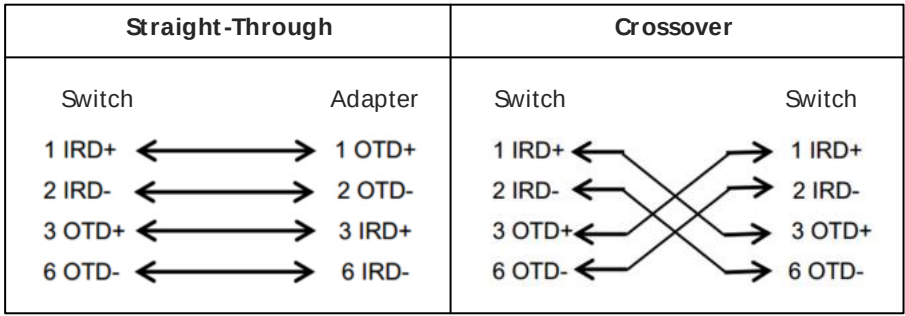
The 100BASE-TX/10BASE-T port can be interconnected using cables of the preceding specifications. For 10 Mbps, the 100BASE-TX/10BASE-T port can be connected using 100-ohm Category 3, 4, and 5 cables; for 100 Mbps, the 100BASE-TX/10BASE-T ports can be connected using 100-ohm Category 5 cables with a maximum connection distance of 100 meters (328.08 ft.). Figure 7-2 lists 100BASE-TX/10BASE-T pin assignments.

Figure 7-2 100BASE-TX/10BASE-T Pin Assignments

Pin [Ⓢ]	Socket [Ⓢ]	Plug [Ⓢ]
1 [Ⓢ]	Input·Receive·Data+ [Ⓢ]	Output·Transmit·Data+ [Ⓢ]
2 [Ⓢ]	Input·Receive·Data- [Ⓢ]	Output·Transmit·Data- [Ⓢ]
3 [Ⓢ]	Output·Transmit·Data+ [Ⓢ]	Input·Receive·Data+ [Ⓢ]
6 [Ⓢ]	Output·Transmit·Data- [Ⓢ]	Input·Receive·Data- [Ⓢ]
4, 5, 7, 8 [Ⓢ]	Not·Used [Ⓢ]	Not·Used [Ⓢ]

Figure 7-3 shows connection of twisted-pair straight-through and crossover cables for 100BASE-TX/10BASE-T ports.

Figure 7-3 Twisted Pair Connections for 100BASE-TX/10BASE-T Ports



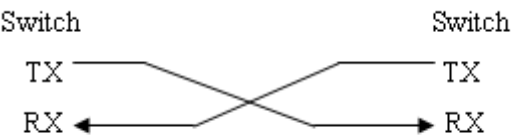
Note:

The switch supports PoE connections using UTP cables of CAT5e or a higher category with a length of more than 100 m (328.08 ft.) through the Ruijie proprietary technology and the IN port.

Optical Cable Connection

You can choose SMF or MMF optical cables according to the transceiver types.

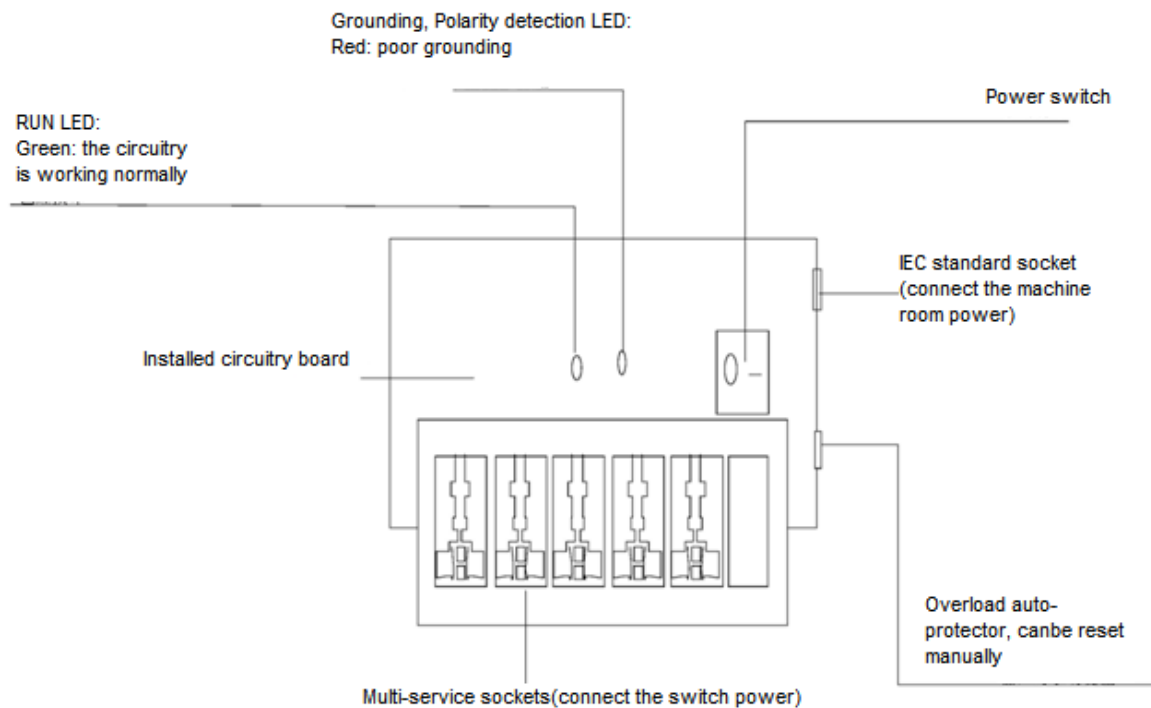
Figure 7-4 Optical Cable Connection



7.2 Lightning Protection

Installing AC Power Arrester (Surge Protection Socket)

When an AC power cord is introduced from outdoors and directly connected to the power connector of the switch, the AC power connector must be connected to an external surge protection socket to protect the switch against lightning strikes. The surge protection socket can be mounted on the rack, workbench, or wall in the equipment room using cable ties and screws. AC power enters the surge protection socket and then enters the switch.

Figure 7-5 Power Arrester

⚠ Caution:

- The power arrester is not delivered with the switch. Please purchase it based on actual requirements.
- Make sure that the PE terminal of the power arrester is well grounded.
- After the AC power plug of the switch is connected to the socket of the power arrester (surge protection socket), surge protection is implemented only if the running system status LED is green and the alarm LED is off.
- If the alarm LED on the power arrester is red, check whether it is caused by a poor grounding connection or by the reversed connection of the neutral and live wires. The detection method is as follows: Use a multimeter to measure the polarity of the power socket for the arrester when the LED is red. If the neutral wire is on the left and the live wire is on the right (facing the socket), the arrester's PE terminal is not grounded. If not, the polarity of the arrester should be reversed. In this case, open the lightning arrester and rectify the polarity of the connection. If the LED is still red, the arrester's PE terminal is not grounded.

Installing the Ethernet Port Arrester

Please connect an Ethernet port arrester to the switch to prevent damage by lightning before connecting an outdoor Ethernet cable to the switch.

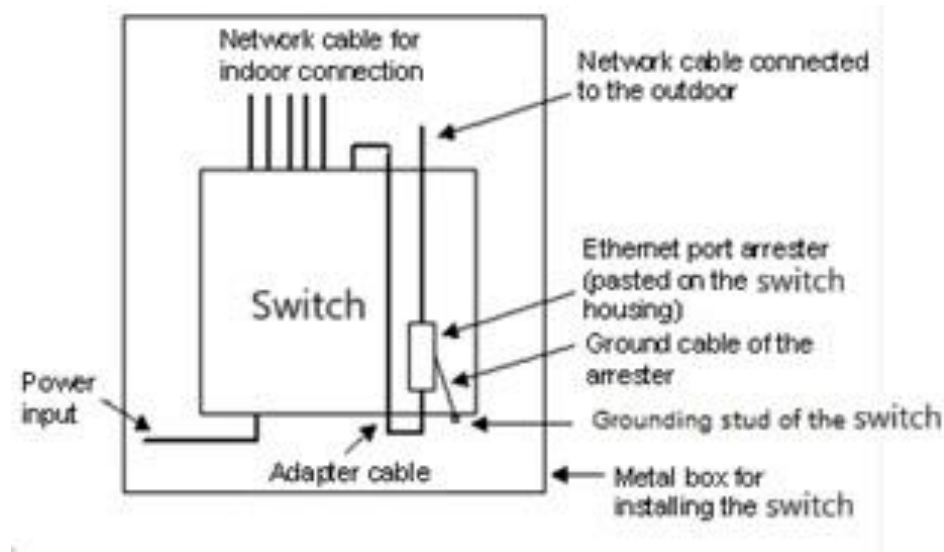
Tools: Phillips or flat-blade screwdriver, multimeter, and diagonal plier

Installation steps:

- (1) Tear one side of the protective paper for the double-sided adhesive tape and paste the tape to the enclosure 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 switch enclosure. The paste position for the Ethernet port arrester should be as close to the grounding lug of the switch as possible.

- (2) Based on the distance between the switch grounding lug and the Ethernet port arrester, cut the grounding wire for the Ethernet port arrester and tighten the grounding wire to the grounding lug of the switch.
- (3) Use a multimeter to check whether the grounding wire for the arrester is in good contact with the grounding lug and the switch enclosure.
- (4) Connect the arrester using an adapter cable (note that the external Ethernet cable is connected to the IN end, while the OUT end is connected to the adapter cable) and check whether the card LED is normal.
- (5) Use a nylon cable tie to bind the power cords.

Figure 7-6 Installation of the Ethernet Port Arrester



Caution:

- The Ethernet port arrester is only for the 10M/100M RJ45 ports.
- The Ethernet port arrester is not delivered with the switch. Please purchase it based on actual requirements.
- The Ethernet port arrester manual includes technical specifications and installation and maintenance instructions. Please read the manual carefully during installation.

Pay attention to the following situations during installation of the Ethernet port arrester to avoid the impact on its performance:

- The arrester is incorrectly connected to the cables. The external Ethernet cable is connected to the OUT end, while the IN end of the adapter cable is connected to the switch.
- The arrester is incorrectly grounded. The grounding wire of the arrester should be as short as possible to ensure that it is in good contact with the grounding lug of the switch. Use a multimeter to check the contact condition after grounding.
- Not all Ethernet ports are installed with arresters. If more than one Ethernet ports on the switch are connected to the peer device, arresters need to be installed on all the ports for surge protection.

7.3 Cabling

When the switch is installed in a standard 19-inch rack, cables are routed upward or downward along the sides of the cable management bracket according to the actual situation in the equipment room. All adapted connectors should be placed at the bottom of the rack in an orderly manner, and cannot be exposed outside the cabinet. Power cords are routed upward or downward beside the cabinet close to the location of the DC power distribution box, power socket, or surge protection box in the equipment room.

Requirements for the Minimum Bend Radius of Ethernet Cables

- The bend radius of a fixed power cord, Ethernet cable, or flat cable should be over five times greater than their respective diameters. The bend radius of these cables that are often bent or plugged should be over seven times greater than their respective diameters.
- 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 bend radius of a fixed high-speed cable (such as an SFP+ cable) should be over five times greater than its diameter. The bend radius of the fixed high-speed cable that is often bent or plugged should be over 10 times greater than its diameter.

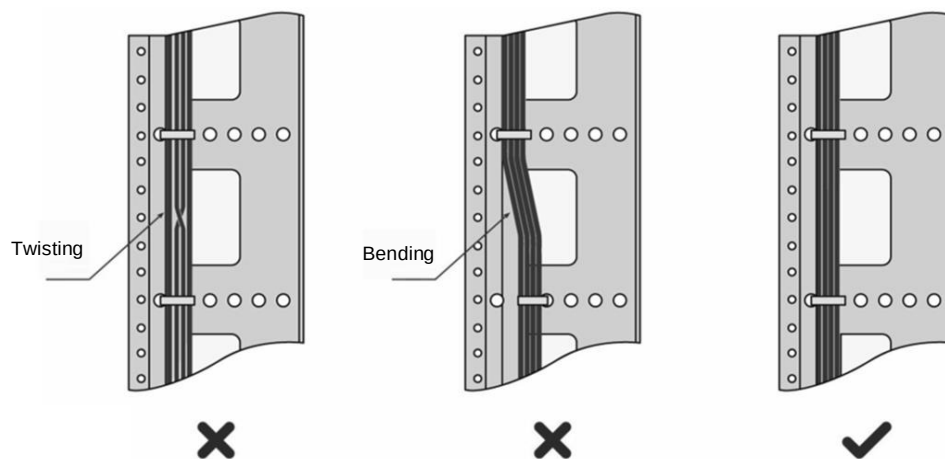
Requirements for the Minimum Bend Radius of Optical Cables

- The bend radius of the optical cable tray should be over 25 times greater than that of the optical cable.
- When an optical cable is moved, the bend radius of the optical cable tray should be over 20 times greater than that of the optical cable.
- During cabling of an optical cable, the bend radius of the optical cable tray should be over 10 times greater than that of the optical cable.

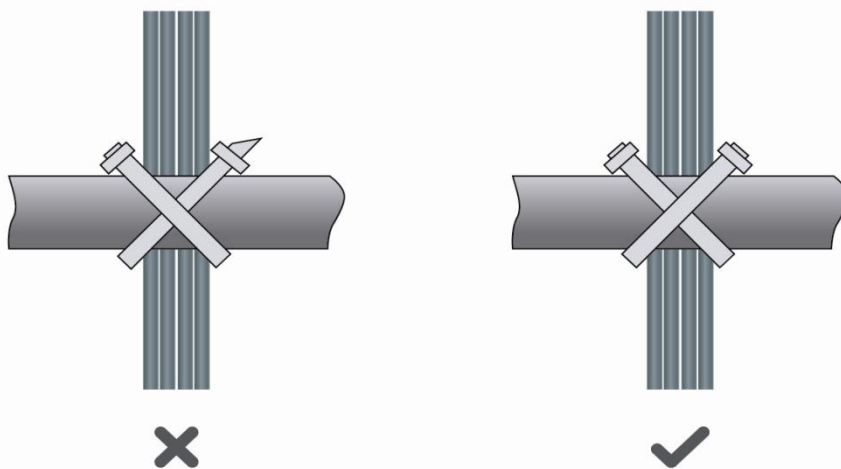
Precautions for Cable Bundling

- Before cables are bundled, mark labels and stick the labels to cables wherever appropriate.
- Cables should be neatly and properly bundled in the rack without twisting or bending, as shown in Figure 7-7.

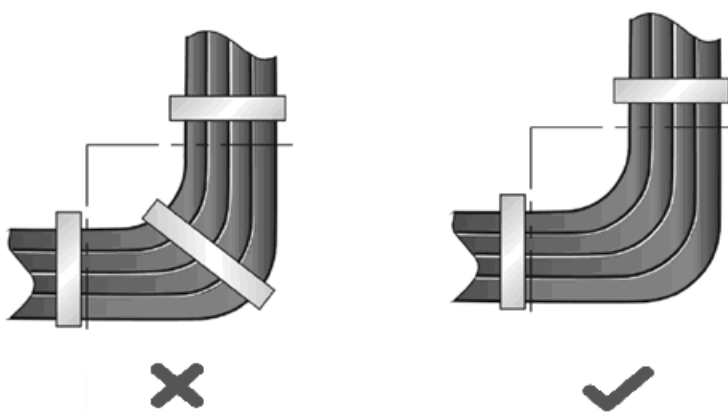
Figure 7-7 Bundling Cables (1)



- Route and bundle power cords, signal cables, grounding wires separately. Mixed bundling is not allowed. When the cables 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 rack should be smooth without sharp corners.
- The metal hole traversed by cables should have a smooth and fully rounded surface or an insulated lining.
- Use cable ties to bundle up cables properly. 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, as shown in Figure 7-8.

Figure 7-8 Bundling Cables (2)

- When cables need to be bent, bundle them up but do not tie cable ties within the bend. Otherwise, stress may be generated on the cables and cause the wires inside to break, as shown in Figure 7-9.

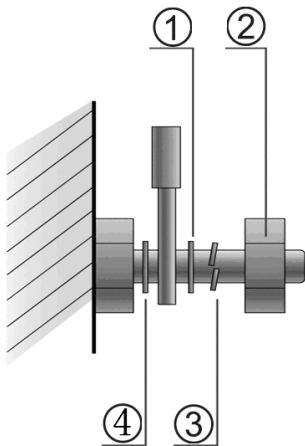
Figure 7-9 Bundling Cables (3)

- Cables not to be assembled or the remaining parts of cables should be folded and placed in a proper position of the rack or cable trough. The proper position refers to a position that does not affect the device running or damage the switch or cable.
- The 220 V, 48 V and 56 V power cables must not be bundled on the guide rails of moving parts.
- The power cords connecting moving parts such as door grounding wires should be reserved with some

excess after being assembled to avoid suffering tension or stress. After the moving part is 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 using screw threads to secure a cable lug, ensure that the bolt or screw is properly tightened and take measures to prevent it from loosening, as shown in Figure 7-10.

Figure 7-10 Securing Cables



Description:	① Flat washer	③ Spring washer
	② Nut	④ Flat washer

- Hard power cords should be secured near the cable termination area to prevent stress on the cable termination area and cables.
- Do not use tapping screws to secure cable lugs.
- Power cords of the same type and in the same cabling direction should be bundled up into bunches, with the cables arranged neatly and straight.
- Bundle up cables using cable ties as shown in table 7-10.

Table 7-1 Bundling Up Cables Using Cable Ties

Cable Bunch Diameter (mm)	Bundling Spacing (mm)
10	80–150
10–30	150–200
30	200–300

- Do not tie cables or bundles in a knot.
- For terminal blocks (such as air switches) with cord end terminals, the metal part of the cord end terminal should not be exposed outside the terminal block when assembled.

7.4 Site Selection

- The equipment room should be at least 5 km (3.11 mi.) away from heavy pollution sources, such as smelter works, coal mines, and thermal power plants. The equipment room should be at least 3.7 km (2.30 mi.) away

from medium pollution sources, such as the chemical factory, rubber factory, and electroplating factory. The equipment room should be at least 2 km (1.24 mi.) 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 (2.30 mi.) away from the sea or salt lake. Otherwise, the equipment room must be sealed, with an air conditioner installed for temperature control. Saline soil cannot be used for construction. Otherwise, you should select devices with advanced protection against severe environments.
- 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 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 boilers and heating boilers.
- The equipment room should be on the second floor or higher. Otherwise, the equipment room floor should be 600 mm (23.62 in.) higher than the highest flood level ever recorded.
- Make sure 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 should be up to the standard for 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 equipment or blowing water drops from the window or air vent toward the equipment.