Hardware Installation and Reference Guide

RG-S1800 Series Switch

RG-S1800G Series Switch

RG-S1800-P Series Switch

RG-S1800G-P Series Switch

Copyright Statement

Exemption Statement

Preface

Thank you for using our products. This manual will guide you through the installation of the device.

This manual describes the functional and physical features and provides the device installation steps, hardware troubleshooting, module technical specifications, and specifications and usage guidelines for cables and connectors.

Audience

It is intended for the users who have some experience in installing and maintaining network hardware. At the same time, it is assumed that the users are already familiar with the related terms and concepts.

Obtaining Technical Assistance

- Ruijie Networks Website: https://www.ruijienetworks.com/
- Service Email: service_rj@ruijienetworks.com
- Technical Support: https://www.ruijienetworks.com/service.aspx

Symbol Conventions

	Means reader take note. Notes contain helpful suggestions or references.
	Means reader be careful. In this situation, you might do something that could result in equipment damage or loss of data.

Table of Contents

1 Product Overview

Thank you for using Ruijie Networks RG-S18 series Ethernet switches.

The RG-S1800 series switches are unmanaged 100M switches released by Ruijie Networks. Some of the switches provide GE uplink ports, powerful switching performance, and cost-effective GE port-based uplink capability.

The RG-S1800G series switches are full GE switches released by Ruijie Networks. With powerful switching capability and cost-effective full GE copper cable ports, the switches fully meet users' requirements for high-bandwidth data communication, dense high-speed access server clusters, and GE backbone service network construction.

The RG-S1800-P series switches are PoE-capable 100M Ethernet switches released by Ruijie Networks. Some of the switches provide 100M uplink ports, powerful switching performance, and cost-effective 100M port-based uplink capability. In addition, some other switches provide GE uplink ports, powerful switching performance, and cost-effective GE port-based uplink capability. This series of switches are characterized by high performance, high security, support for multiple services, and ease of use, and provide brand new technical solutions for users. Each port of the switches can provide high bandwidth and supply power to wireless APs and IP cameras. The switches support full-/half-duplex mode, and enable low-cost and high-performance network solutions.

The RG-S1800G-P series switches are full GE PoE switches released by Ruijie Networks. The switches are characterized by high performance, high security, support for multiple services, and ease of use, and enable new technical solutions for users. Each port of the switches can provide high bandwidth and supply power to wireless APs and IP cameras. The switches support full-/half-duplex mode, and enable low-cost and high-performance network solutions.

Some models of the S18 series switches are capable of independent flow control, which prevents data packet loss during data transmission.

- RG-S1800 Series Switch

Model	10/100BASE-T Auto-sensing Ethernet Port	Combo Ports	
		10/100/1000BASE-T Auto-sensing Ethernet Port	1000BASE-X SFP Port
RG-S1808	8	N/A	N/A
RG-S1826	24	2	2

Combo port consists of one 1000BASE-X SFP port and one 10/100/1000BASE-T auto-sensing Ethernet port. That is, only one port of them is available at a particular time.

- RG-S1800G Series Switch

Model	10/100/1000BASE-T Auto-sensing Ethernet Port	1000BASE-X SFP Port
RG-S1808G	8	N/A
RG-S1818G	16	2

RG-S1826G	24	2

- RG-S1800-P Series Switch

Model	10/100BASE-T Auto-sensing Ethernet Port	10/100/1000BASE-T Auto-sensing Ethernet Port	PoE Port
RG-S1809-P	8	1	8

- RG-S1800G-P Series Switch

Model	10/100/1000BASE-T Auto-sensing Ethernet Port	PoE Port	1000BASE -X SFP Port
RG-S1826G-P	24	24	2

1.1 RG-S1800 Series Switch

1.1.1 RG-S1808

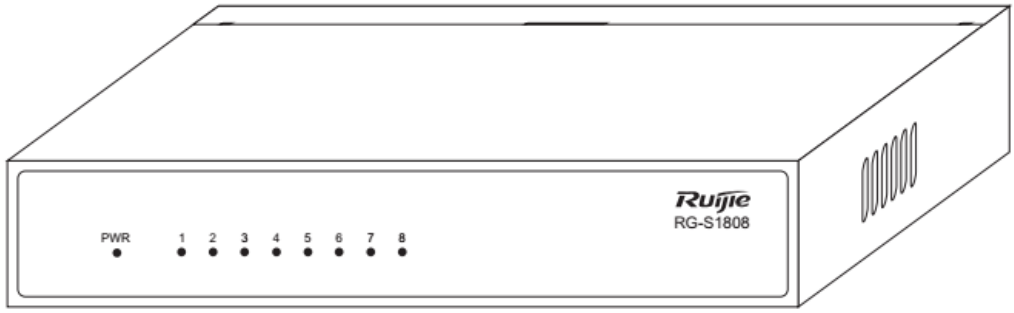
Technical Specifications

Model	RG-S1808
Ports	8-port 10/100BASE-T
Power Supply	DC input: DC 5V/550mA Rated current: 550mA Max voltage range: 90V to 290V~
PoE	Not supported
Power Consumption	1.5W(Max)
Operating Temperature	0ºC to 50ºC (32ºF to 122ºF)
Storage Temperature	-40ºC to +70ºC (-40ºF to 158ºF)
Operating Humidity	10% to 90% RH non-condensing
Storage Humidity	5% to 90% RH non-condensing
Fan	N/A
EMC Standards	EN55032(Class B)
Dimensions (W×D×H)	140 mm x 76 mm x 27 mm
Switching Capacity(Gbps)	1.6Gbps

Product Appearance

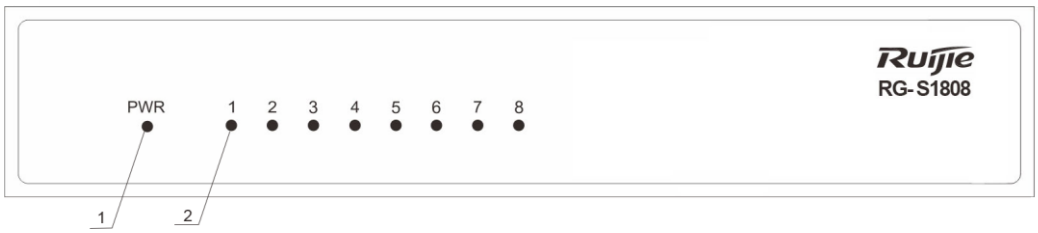
The front panel of RG-S1808 Ethernet switch provides a Power Status LED indicator and Link/ACT Status LED indicators. The rear panel provides eight 10/100BASE-T Ethernet ports and one DC power input port. Figure 1-1 shows the appearance of the RG-S1808.

Figure 1-1 Appearance of RG-S1808



Front Panel

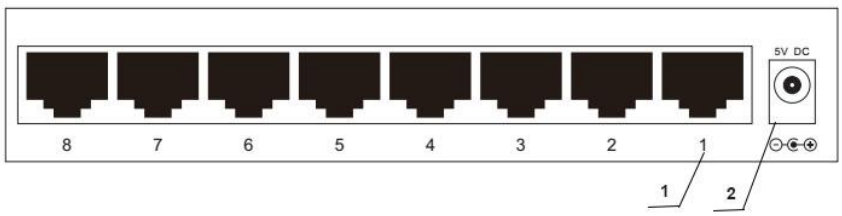
Figure 1-2 Front Panel of RG-S1808



Note	1. Power status indicator 2. 10/100BASE-T Link/ACT indicator

Rear Panel

Figure1-3 Rear Panel of RG-S1808



Note	1. 10/100BASE-T ports 2. DC power input port

Power Supply

The RG-S1808 switch can be powered with DC power.

DC input: DC 5V/550mA

Heat Dissipation

The RG-S1808 switch is designed with no fans. To ensure good dissipation, sufficient space (10 cm distance from both sides and the back panel of the chassis) should be reserved for ventilation. Dust the device every three months to avoid blocking the ventilation openings.

LED Indicator

Indicator	Faceplate Marker	Status	Indication
Power indicator	PWR	Off	The switch is powered down.
		On	The switch is powered on.
Ethernet port indicator	1-8	Off	The port is NOT connected.
		Solid green	The port is connected.
		Blinking green	The port is transmitting or receiving data.

1.1.2 RG-S1826

Technical Specifications

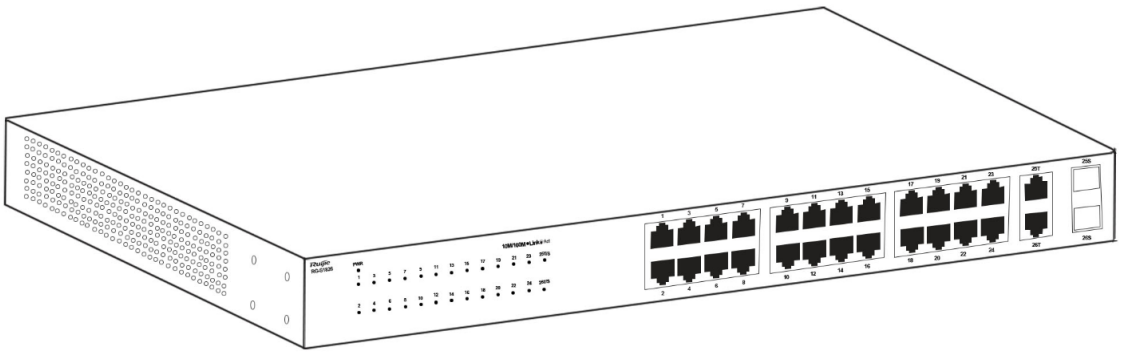
Model	RG-S1826
Ports	24-port 10/100BASE-T 2 combo ports
SFP Type	Ethernet Gigabit: Mini-GBIC-SX Mini-GBIC-LX Mini-GBIC-LH40 Mini-GBIC-ZX50 Mini-GBIC-ZX80 Mini-GBIC-ZX100 1000Base-T: Mini-GBIC-GT The supported module type may change at any time. Consult us for the detailed change information.
SFP Ports	Support 1000BASE-X
Power Supply	AC input: Rated voltage range: 100V to 240V Max voltage range: 90V to 290V Frequency: 50/60Hz Rated current: 0.5A
PoE	Not supported

Power Consumption	12W(Max)
Operating Temperature	0ºC to 50ºC (32ºF to 122ºF)
Storage Temperature	-40ºC to +70ºC (-40ºF to 158ºF)
Operating Humidity	10% to 90% RH non-condensing
Storage Humidity	5% to 90% RH non-condensing
Fan	N/A
EMC Standards	EN55032(Class A)
Dimensions (W×D×H)	440 mm x 205 mm x 44 mm
Switching Capacity	8.8Gbps

Product Appearance

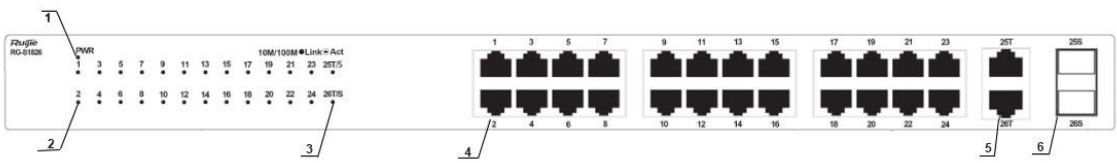
The front panel of RG-S1826 Ethernet switch provides 24 10/100BASE-T Ethernet ports, two Gigabit combo ports. The rear panel provides an AC power input port and a grounding connector.

Figure 1-4 Appearance of RG-S1826



Front Panel

Figure 1-5 Front Panel of RG-S1826



Note	1. Power status indicator	5. 10/100/1000BASE-T Ethernet port
	2. 10/100BASE-T Link/ACT indicator	6. 1000BASE-X SFP port
	3.10/100/1000BASE-T Link/ACT indicator	
	4. 10/100BASE-T Ethernet port	

Rear Panel

Figure1-6 Rear Panel of RG-S1826

Note	1. Grounding connector 2. AC power input port

Power Supply

The RG-S1826 switch can be powered with AC power.

Rated voltage range: 100V to 240V

Max voltage range: 90V to 290V

Frequency: 50/60Hz

Rated current: 0.5A

Power Cord Requirements: 10A

Heat Dissipation

The RG-S1826 switch is designed with no fans. To ensure good dissipation, sufficient space (10 cm distance from both sides and the back panel of the chassis) should be reserved for ventilation. Dust the device every three months to avoid blocking the ventilation openings.

LED Indicator

Indicator	Faceplate Marker	Status	Indication
Power indicator	PWR	Off	The switch is powered down.
		On	The switch is powered on.
Ethernet port indicator	1-24	Off	The port is NOT connected.
		Solid green	The port is connected.
		Blinking green	The port is transmitting or receiving data.
Combo port indicator	25 T/S 26 T/S	Off	The port is NOT connected.
		Solid green	The port is connected.
		Blinking green	The port is transmitting or receiving data.

1.2 RG-S1800G Series Switch

1.2.1 RG-S1808G

Technical Specifications

Model	RG-S1808G

Ports	8-port 10/100/1000 BASE-T
Power Supply	AC input: Rated voltage range: 100V to 240V Max voltage range: 90V to 290V Frequency: 50/60Hz Rated current: 0.3A
PoE	Not supported
Power Consumption	2.5W(Max)
Operating Temperature	0ºC to 50ºC (32ºF to 122ºF)
Storage Temperature	-40ºC to +70ºC (-40ºF to 158ºF)
Operating Humidity	10% to 90% RH non-condensing
Storage Humidity	5% to 90% RH non-condensing
Fan	N/A
EMC Standards	EN55032(Class B)
Dimensions (W×D×H)	220 mm x 160 mm x 44 mm
Switching Capacity(Gbps)	16Gbps

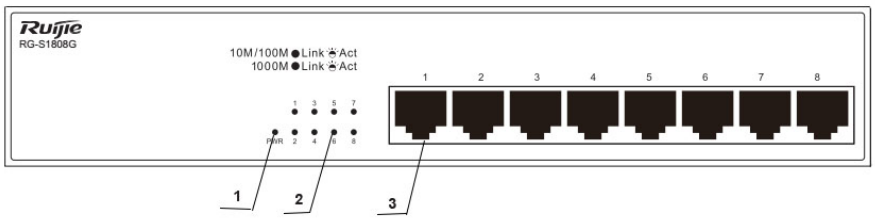
Product Appearance

The front panel of RG-S1808G Ethernet switch provides eight 10/100/1000Mbps Ethernet ports. The rear panel provides an AC power input port and a grounding connector.

Figure 1-7 Appearance of RG-S1808G

Front Panel

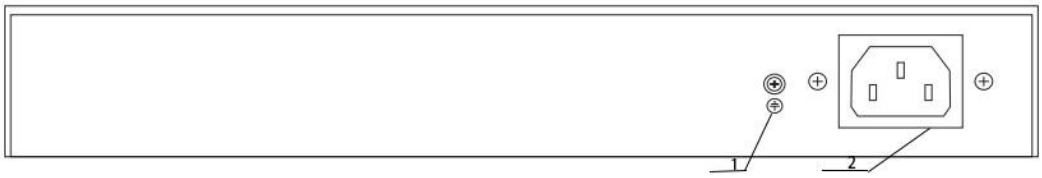
Figure 1-8 Front Panel of RG-S1808G



Note	1. Power status indicator	3. Power cord retention clip
	2. 10/100/1000BASE-T Link/ACT/Speed indicator	

Rear Panel

Figure1-9 Rear Panel of RG-S1808G



Note	1. Grounding connector
	2. AC power input port

Power Supply

The RG-S1808G switch can be powered with AC power.

Rated voltage range: 100V to 240V

Max voltage range: 90V to 290V

Frequency: 50/60Hz

Rated current: 0.3A

Power cord requirement: 10A

Heat Dissipation

The RG-S1808G switch is designed with no fans. To ensure good dissipation, sufficient space (10 cm distance from both sides and the back panel of the chassis) should be reserved for ventilation. Dust the device every three months to avoid blocking the ventilation openings.

LED Indicator

Indicator	Faceplate Marker	Status	Indication
Power indicator	PWR	Off	The switch is powered down.
		On	The switch is powered on.
Ethernet port indicator	1-8	Off	The port is NOT connected.
		Solid orange	The port is connected at 10/100 Mbps.

		Blinking orange	The port is receiving or transmitting traffic at 10/100 Mbps.
		Solid green	The port is connected at 1000 Mbps.
		Blinking green	The port is receiving or transmitting traffic at 1000 Mbps.

1.2.2 RG-S1818G

Technical Specifications

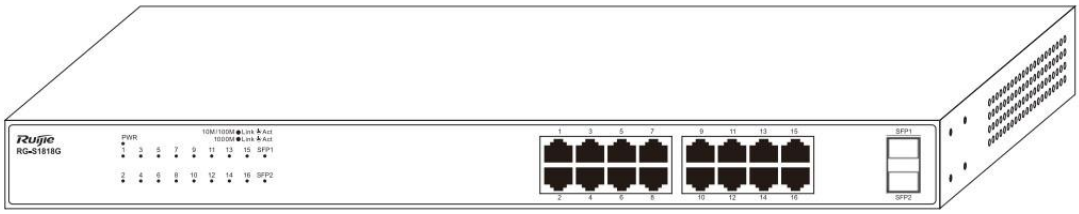
Model	RG-S1818G
Ports	16-port 10/100/1000BASE-T 2-port 1000BASE-X SFP
SFP Type	Ethernet Gigabit: Mini-GBIC-SX Mini-GBIC-LX Mini-GBIC-LH40 Mini-GBIC-ZX50 Mini-GBIC-ZX80 Mini-GBIC-ZX100 1000Base-T: Mini-GBIC-GT The supported module type may change at any time. Consult us for the detailed change information.
SFP Ports	Support 1000Base-X
Power Supply	AC input: Rated voltage range: 100V to 240V Max voltage range: 90V to 290V Frequency: 50/60Hz Rated current: 0.5A
PoE	Not supported
Power Consumption	9W(max)
Operating Temperature	0ºC to 50ºC (32ºF to 122ºF)
Storage Temperature	-40ºC to +70ºC (-40ºF to 158ºF)
Operating Humidity	10% to 90% RH non-condensing
Storage Humidity	5% to 90% RH non-condensing
Fan	N/A
EMC Standards	EN55032(Class A)
Dimensions (W×D×H)	440 mm x 205 mm x 44 mm

Switching Capacity(Gbps)	36Gbps

Product Appearance

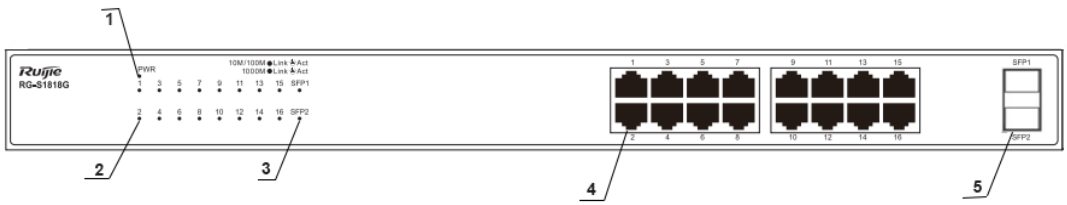
The front panel of RG-S1818G Ethernet switch provides 16 10/100/1000BASE-T Ethernet ports, two 1000BASE-X SFP ports. The rear panel provides an AC power input port and a grounding connector.

Figure 1-10 Appearance of RG-S1818G



Front Panel

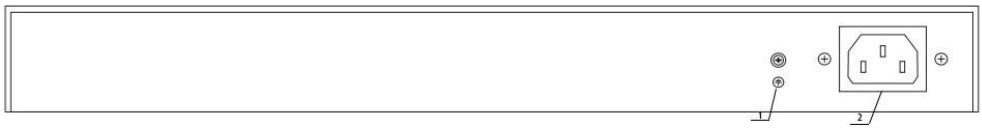
Figure 1-11 Front Panel of RG-S1818G



Note	1. Power status indicator 2. 10/100/1000BASE-T Link/ACT/Speed indicator 3.1000BASE-X SFP port indicator 4. 10/100/1000BASE-T Ethernet port	5. 1000BASE-X SFP port

Rear Panel

Figure1-12 Rear Panel of RG-S1818G



Note	1. Grounding connector 2. AC power input port

Power Supply

RG-S1818G switch can be powered with AC power.

Rated voltage range: 100V to 240V

Max voltage range: 90V to 290V

Frequency: 50/60Hz

Rated current: 0.5A

Power cord requirement: 10A

Heat Dissipation

The RG-S1818G switch is designed with no fans. To ensure good dissipation, sufficient space (10 cm distance from both sides and the back panel of the chassis) should be reserved for ventilation. Dust the device every three months to avoid blocking the ventilation openings.

LED Indicator

Indicator	Faceplate Marker	Status	Indication
Power indicator	PWR	Off	The switch is powered down.
		On	The switch is powered on.
Ethernet port indicator	1-16	Off	The port is NOT connected.
		Solid orange	The port is connected.
		Blinking orange	The port is connected at 10/100 Mbps.
		Solid green	The port is connected at 1000 Mbps.
		Blinking green	The port is receiving or transmitting traffic at 1000 Mbps.
SFP port indicator	SFP1, SFP2	Off	The port is NOT connected.
		Solid orange	The port is connected at 100 Mbps.
		Blinking orange	The port is receiving or transmitting traffic at 100 Mbps.
		Solid green	The port is connected at 1000 Mbps.
		Blinking green	The port is receiving or transmitting traffic at 1000 Mbps.

1.2.3 RG-S1826G

Technical Specifications

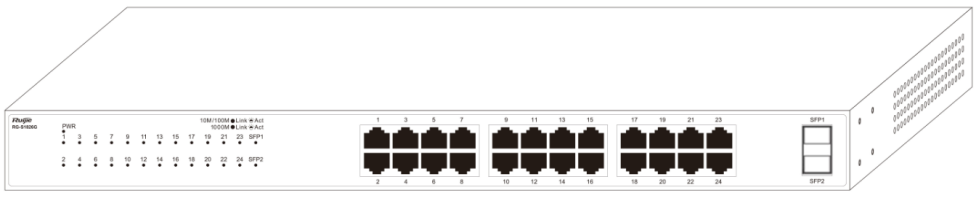
Model	RG-S1826G
Ports	24-port 10/100/1000BASE-T 2-port 1000BASE-X SFP
SFP Type	Ethernet Gigabit: Mini-GBIC-SX Mini-GBIC-LX Mini-GBIC-LH40 Mini-GBIC-ZX50

	Mini-GBIC-ZX80 Mini-GBIC-ZX100 1000Base-T: Mini-GBIC-GT The supported module type may change at any time. Consult us for the detailed change information.
SFP Ports	Support 1000Base-X
Power Supply	AC input: Rated voltage range: 100V to 240V Max voltage range: 90V to 290V Frequency: 50/60Hz Rated current: 0.5A
PoE	Not supported
Power Consumption	13W(max)
Operating Temperature	0ºC to 50ºC (32ºF to 122ºF)
Storage Temperature	-40ºC to +70ºC (-40ºF to 158ºF)
Operating Humidity	10% to 90% RH non-condensing
Storage Humidity	5% to 90% RH non-condensing
Fan	N/A
EMC Standards	EN55032(Class A)
Dimensions (W×D×H)	440 mm x 205 mm x 44 mm
Switching Capacity(Gbps)	52Gbps

Product Appearance

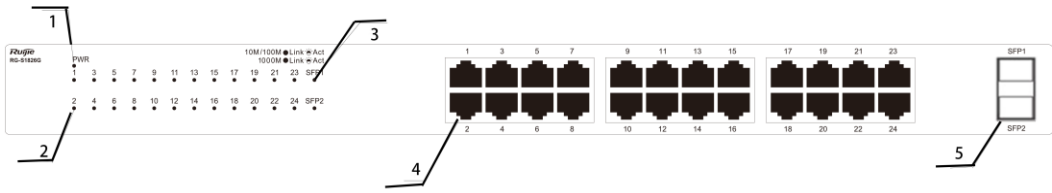
The front panel of RG-S1826G Ethernet switch provides 24 10/100/1000BASE-T Ethernet ports and two 1000BASE-X SFP ports. The rear panel provides an AC power input port and a grounding connector

Figure 1-13 Appearance of RG-S1826G



Front Panel

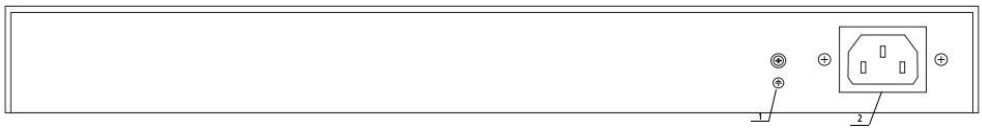
Figure 1-14 Front Panel of RG-S1826G



Note	1. Power status indicator	5.1000BASE-X SFP port
	2. 10/100/1000BASE-T Link/ACT/Speed indicator	
	3. 1000BASE-T SFP port indicator	
	4. 10/100/1000BASE-T Ethernet port	

Rear Panel

Figure1-15 Rear Panel of RG-S1826G



Note	1. Grounding connector
	2. AC power input port

Power Supply

RG-S1826G switch can be powered with AC power:

Rated voltage range: 100V to 240V

Max voltage range: 90V to 290V

Frequency: 50/60Hz

Rated current: 0.5A

Power Cord Requirements: 10A

Heat Dissipation

RG-S1826G switch is designed with no fans. To ensure good dissipation, sufficient space (10 cm distance from both sides and the back panel of the chassis) should be reserved for ventilation. Dust the device every three months to avoid blocking the ventilation openings.

LED indicator

Indicator	Faceplate Marker	Status	Indication
Power indicator	PWR	Off	The switch is powered down.
		On	The switch is powered on.
Ethernet port indicators	1-24	Off	The port is NOT connected.

		Solid orange	The port is connected at 10/100 Mbps.
		Blinking orange	The port is receiving or transmitting traffic at 10/100 Mbps.
		Solid green	The port is connected at 1000 Mbps.
		Blinking green	The port is receiving or transmitting traffic at 1000 Mbps.
SFP port indicators	SFP1, SFP2	Off	The port is NOT connected.
		Solid orange	The port is connected at 100 Mbps.
		Blinking orange	The port is receiving or transmitting traffic at 100 Mbps.
		Solid green	The port is connected at 1000 Mbps.
		Blinking green	The port is receiving or transmitting traffic at 1000 Mbps.

1.2.4 Module

The RG-S1800G series switches support the following modules: M3000E-02SFP/GT and M3000E-STACK.

M3000E-02SFP/GT can be used to extend two SFP ports.

1.3 RG-S1800-P Series Switch

1.3.1 RG-S1809-P

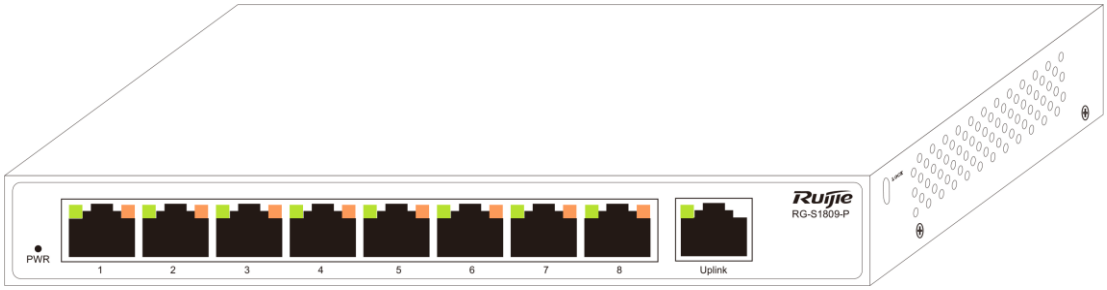
Technical Specifications

Model	RG-S1809-P
Ports	8-port 10/100BASE-T 1-port 10/100/1000BASE-T Uplink
Power Supply	DC input: DC 53.5V/2.3A Rated current: 2.3A Max voltage range: 90V to 290V
PoE	Support
Power Consumption	120W(Max)
Operating Temperature	0ºC to 50ºC (32ºF to 122ºF)
Storage Temperature	-40ºC to +70ºC (-40ºF to 158ºF)
Operating Humidity	10% to 90% RH non-condensing
Storage Humidity	5% to 90% RH non-condensing
Fan	N/A
EMC Standards	EN55032(Class B)
Dimensions (W×D×H)	190 mm x 100 mm x 28 mm
Switching Capacity	3.6Gbps

Product Appearance

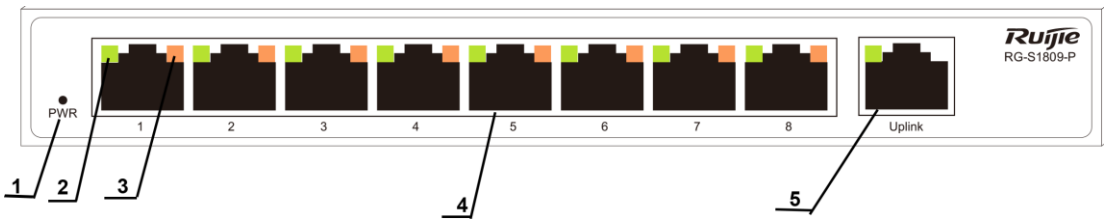
The front panel of RG-S1809-P Ethernet switch provides a power LED indicator, PoE LED indicators and Link/ACT LED indicators, 8-port 10/100BASE-T Ethernet ports and one Gigabit uplink port.

Figure 1-16 Appearance of RG-S1809-P



Front Panel

Figure 1-17 Front Panel of RG-S1809-P



Note	1. Power status indicator	4. 10/100 BASE-T Ethernet port
	2. 10/100BASE-T Link/ACT indicator (1-8),10/100/1000BASE-T Link/ACT indicator(Uplink)	5.10/100/1000 BASE-T Ethernet port
	3. PoE Status LED indicator	

Rear Panel

Figure1-18 Rear Panel of RG-S1809-P

Note	1. Grounding connector
	2. DC power input port

Power Supply

RG-S1809-P switch can be powered with DC power.

Rated current: 2.3A

Rated voltage: 53.5V

Heat Dissipation

RG-S1809-P switch is designed with no fans. To ensure good dissipation, sufficient space (10 cm distance from both sides and the back panel of the chassis) should be reserved for ventilation. Dust the device every three months to avoid blocking the ventilation openings.

PoE

The PoE power supply of the RG-S1809-P switch is designed to support the IEEE802.3af and 802.3at standards. It uses Alternative B, that is, uses the idle line pairs (45+, 78-) for power supply.

LED Indicator

Indicator	Faceplate Marker	Status	Indication
Power indicator	PWR	Off	The switch is powered down.
		On	The switch is powered on.
10/100Mbps Ethernet port indicator	1-8	Off	The port is NOT connected.
		Solid green	The port is connected at 10/100 Mbps.
		Blinking green	The port is receiving or transmitting traffic at 10/100 Mbps.
1000Mbps Ethernet port indicator	Uplink	Off	The port is NOT connected.
		Solid green	The port is connected at 10/100/1000 Mbps.
		Blinking green	The port is receiving or transmitting traffic at 10/100/1000 Mbps.
PoE Status indicator	1-8	Off	No PoE power supply.
		Solid orange	PoE is operational.
		Blinking orange	Abnormal PoE power supply

RG-S1800-P switch supports the dynamic PoE mode, that is, Dynamic-FIFS (Dynamic First In First Service) mode. This mode enables automatic detection and power-on of PD devices and allocates the PoE port power by the actual power consumption of the PD device. Device powering will be disabled if the required power is greater than the available power.

1.4 RG-S1800G-P Series Switch

1.4.1 RG-S1826G-P

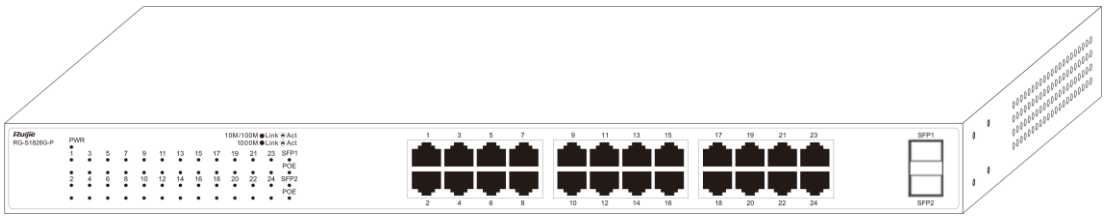
Technical Specifications

Model	RG-S1826G-P
Ports	24-port 10/100/1000BASE-T 2-port 1000BASE-X SFP
SFP Type	Ethernet Gigabit: Mini-GBIC-SX Mini-GBIC-LX Mini-GBIC-LH40 Mini-GBIC-ZX50 Mini-GBIC-ZX80 Mini-GBIC-ZX100 1000BASE-T: Mini-GBIC-GT The supported module type may change at any time. Consult us for the detailed change information.
SFP Ports	Support 1000BASE-X
Power Supply	AC input: Rated voltage range: 100V to 240V Max voltage range: 90V to 285V Frequency: 50/60Hz Rated current: 4A
PoE	All the RJ45 ports are PoE-capable with the maximum power output of 30W. The maximum output power of PoE/PoE+ is 370W.
Power Consumption	400W(max)
Operating Temperature	0ºC to 50ºC (32ºF to 122ºF)
Storage Temperature	-40ºC to +70ºC (-40ºF to 158ºF)
Operating Humidity	10% to 90% RH non-condensing
Storage Humidity	5% to 90% RH non-condensing
Fan	Support
EMC Standards	EN55032(Class A)
Dimensions (W×D×H)	440 mm x 205 mm x 44 mm
Switching Capacity(Gbps)	52Gbps

Product Appearance

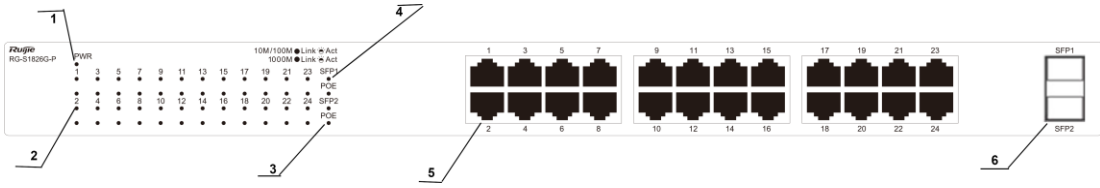
The front panel of RG-S1826G-P Ethernet switch provides 24 10/100/1000BASE-T ports, two 1000BASE-X SFP ports, and LED indicators.

Figure 1-19 Appearance of RG-S1826G-P



Front Panel

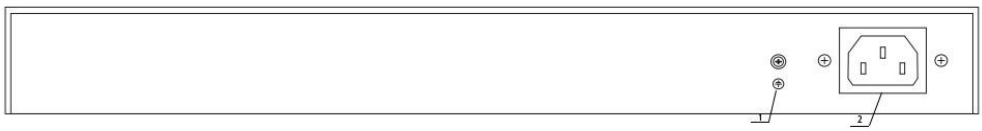
Figure 1-20 Front Panel of RG-S1826G-P



Note	1. Power status indicator		5.10/100/1000 BASE-T port
	2.10/100/1000 Link/ACT/Speed indicator	BASE-T	6.1000BASE-X SFP port
	3.PoE Status indicator		
	4.1000BASE-X SFP port indicator		

Rear Panel

Figure1-21 Rear Panel of RG-S1826G-P



Note	1. Grounding connector
	2. AC power input port

Power Supply

RG-S1826G-P Switch can be powered with AC power.

Rated voltage range: 100V to 240V

Max voltage range: 90V to 285V

Frequency: 50/60Hz

Rated current: 4A

Power cord requirement: 10A

Heat Dissipation

The switch adopts turbine fans for heat dissipation, thereby ensuring normal function of the device in the specified environment. 10 cm distance space should be reserved at both sides and the back plane of the cabinet to allow air circulation. It is recommended to clean the device once every 3 months to avoid dust from blocking vents.

PoE

The PoE power supply of RG-S1826G-P switch is designed to support the IEEE802.3af and 802.3at standards. It uses Alternative A, that is, uses UTP/STP category-5/5e cables for power supply.

LED Indicator

Indicator	Faceplate Marker	Status	Indication
Power indicator	PWR	Off	The switch is powered down.
		On	The switch is powered on.
Ethernet port indicator	1-24	Off	The port is NOT connected.
		Solid orange	The port is connected at 10/100 Mbps.
		Blinking orange	The port is receiving or transmitting traffic at 10/100 Mbps.
		Solid green	The port is connected at 1000 Mbps.
		Blinking green	The port is receiving or transmitting traffic at 1000 Mbps.
SFP port indicator	SFP1, SFP2	Off	The port is NOT connected.
		Solid green	The port is connected at 1000 Mbps.
		Blinking green	The port is receiving or transmitting traffic at 1000 Mbps.
PoE status indicator	1-24	Off	No PoE power supply.
		On	PoE is operational.
		Blinking	Abnormal PoE power supply

1.4.2 Module

The RG-S1800G-P series switches support the following modules: M3000E-02SFP/GT, M3000E-STACK.

M3000E-02SFP/GT can be used to extend two SFP ports.

RG-S1800G-P switch supports the dynamic PoE mode, that is, Dynamic-FIFS (Dynamic First In First Service) mode. This mode enables automatic detection and power-on of PD devices and allocates the PoE port power by the actual power consumption of the PD device. Device powering will be disabled if the required power is greater than the available power.

2 Preparation before Installation

2.1 Safety Suggestions

To avoid personal injury and equipment damage, please carefully read the safety suggestions before you install the switch.

The following safety suggestions do not cover all possible dangers.

2.1.1 Safety Precautions for Installing the System

- Keep the chassis clean and free from any dust.
- Do not place the equipment in a walking area.
- The device must be installed and operated in the place that can restrict its movement.
- Do not wear loose clothes or accessories that may be hooked or caught by the device during installation and maintenance.
- Turn off all power supplies and remove the power sockets and cables before installing or uninstalling the device.

2.1.2 Movement Safety

- Do not frequently move the device.
- When moving the device, note the balance and avoid hurting legs and feet or spraining the waist.
- Before moving the device, turn off all power supplies and dismantle all power modules.

2.1.3 Electric Safety

- Observe local regulations and specifications when performing electric operations. Relevant operators must be qualified.
- Before installing the device, carefully check any potential danger in the surroundings, such as ungrounded power supply, and damp/wet ground or floor.
- Before installing the device, find out the location of the emergency power supply switch in the room. First cut off the power supply in the case of an accident.
- Try to avoid maintaining the switch that is powered-on alone.
- Be sure to make a careful check before you shut down the power supply.
- Do not place the equipment in a damp location. Do not let any liquid enter the chassis.

Any nonstandard and inaccurate electric operation may cause an accident such as fire or electrical shock, thus causing severe even fatal damages to human bodies and equipment.

Direct or indirect touch through a wet object on high-voltage and mains supply may bring a fatal danger.

2.1.4 Static Discharge Damage Prevention

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

- Proper grounding of grounding screws on the back panel of the device. Use of a three-wire single-phase socket with protective earth wire (PE) as the AC power socket.
- Indoor dust prevention.
- Proper humidity conditions.

2.1.5 Laser Safety

- When a fiber transceiver works, ensure that the port has been connected with an optical fiber or is covered with a dust cap, to keep out dust and avoid burning your eyes.
- When the optical module is working, do not pull out the fiber cable and stare into the transceiver interface or you may hurt your eyes.

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

2.2 Installation Site Requirements

To ensure the normal working and a prolonged durable life of the equipment, the installation site must meet the following requirements.

2.2.1 Ventilation Requirements

You must ensure that sufficient space (10 cm distance from both sides and the back panel of the cabinet) is reserved at the ventilation openings to ensure the normal ventilation. During the jumper process of the device, prevent the cables from blocking the air intake. Dust the device every three months to avoid blocking the ventilation openings.

2.2.2 Temperature and Humidity Requirements

To ensure the normal operation and prolong the service life of the switch, you should keep proper temperature and humidity in the equipment room.

If the equipment room has temperature and humidity that do not meet the requirements for a long time, the equipment may be damaged.

- In an environment with high relative humidity, the insulating material may have bad insulation or even leak electricity. Sometimes the materials may suffer from mechanical performance change and metallic parts may get rusted.
- In an environment with low relative humidity, however, the insulating strip may dry and shrink. Static electricity may occur easily and endanger the circuit on the equipment.
- In an environment with high temperature, the equipment is subject to even greater harm, as its performance may degrade significantly and various hardware faults may occur. .

Therefore, the ambient temperature and humidity must meet the requirements listed in Table 2-1:

Table 2-1 Temperature and Humidity Requirements

Temperature	Relative Humidity
0ºC to 50ºC (32ºF to 122ºF)	10% to 90% RH

The requirements for the sampling site of the temperature and humidity in the operating environment of the device are as follows:

There is no protective plate at the front or back of the equipment rack.

The vertical height is 1.5 m above the floor.

The distance from the front panel of the equipment is 0.4 m.

2.2.3 Cleanness Requirements

Dust poses a severe threat to the running of the equipment. The indoor dust falling on the equipment may be adhered by the static electricity, causing bad contact of the metallic joint. Such electrostatic adherence may occur more easily when the relative humidity is low, not only affecting the useful life of the equipment, but also causing communication faults. Table 2-2 shows the requirements for the dust content and granularity in the equipment room.

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

Substance	Concentration Limit (particles/m3)
Dust particles (diameter ≥0.5μm)	≤3.5×10^6
Dust particles (diameter ≥5μm)	≤3×10^4

Apart from dust, the salt, acid and sulfide in the air in the equipment room must also meet strict requirements; as such poisonous substances may accelerate the corrosion of the metal and the aging of some parts. The equipment room should be protected from the intrusion of harmful gases (for example, SO_2, H_2S, NO_2 and Cl_2), whose requirements are listed in the following table.

Table 2-3 Requirements for Harmful Gases in the Equipment Room

Gas	Average (mg/m3)	Maximum (mg/m3)
SO_2	0.3	1.0
H_2S	0.1	0.5
NO_2	0.5	1.0
Cl_2	0.1	0.3

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

2.2.4 EMI

During applications, the switch may be subject to external interferences that affect the device through conduction manners such as capacitance coupling, inductive coupling, electromagnetic wave emission, common impedance

(including grounding systems), and wires (power cables, signal cables and outgoing transmission cables). For that purpose, note that:

- For the AC power supply system TN, single-phase three-core power socket with protective earthing conductors (PE) should be adopted to effectively filter out interference from the power grid through the filtering circuit.
- The switch should be located at places free from large power radio launch pad, radar launch pad, and high-frequency large-current devices.
- If necessary, electromagnetic shielding should be adopted. For example, use interface cables to shield cables.
- Interface cables should be laid inside the equipment room. Outdoor cabling is prohibited, avoiding damages to device signal interfaces caused by over-voltage or over-current of lightning.

2.2.5 System Grounding Requirements

A good grounding system is the basis for the stable and reliable operation of the switch. It is the chief condition to prevent lightning stroke and resist interference. Please carefully check the grounding conditions on the installation site according to the grounding requirements, and perform grounding operations properly as required.

⚠ Effective grounding of the switch is an important guarantee for lightning protection and interference resistance. Therefore, connect the grounding line of the switch properly.

Safety Grounding

The equipment using AC power supply must be grounded by using the yellow/green safety grounding cable. Otherwise, when the insulating resistance decreases the power supply and the enclosure in the equipment, electric shock may occur.

⚠ Ensure that a protective earth wire is provided in the building.

⚠ A service person should check whether or not the socket-outlet from which the device is to be powered provides a reliable connection to the building protective earth. If not, the service person should arrange for the installation of a protective earthing conductor from the separate protective earthing terminal to the protective earth wire in the building.

⚠ The socket-outlet should be installed at a location near the device easy for operation.

⚠ During the device installation, always make the ground connected first and disconnected last.

⚠ The cross-sectional area of protective earthing conductor should be at least 0.75mm^2 (18AWG).

⚠ Use three-pin power cord for installation. The cross-sectional area of each pin should be at least 0.75mm^2 (18AWG).

Lightning Grounding

The lightning protection system of a facility is an independent system that consists of the lightning rod, downlead conductor and the connector to the grounding system, which usually shares the power reference ground and yellow/green safety cable ground. The lightning discharge ground is for the facility only, irrelevant to the equipment.

EMC Grounding

The grounding required for EMC design includes shielding ground, filter ground, noise and interference suppression, and level reference. All the above constitute the comprehensive grounding requirements. The resistance of earth wires

should be less than 1 ohm. The switch backplane is reserved with one grounding pole, as shown in Figure 2-1, Figure 2-2, and Figure 2-3.

Figure 2-1

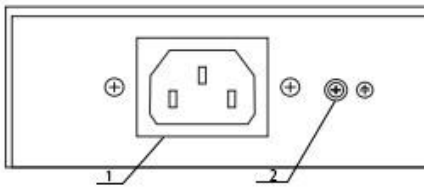


Figure 2-2

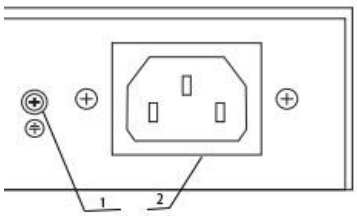
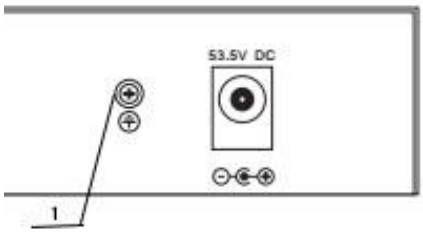
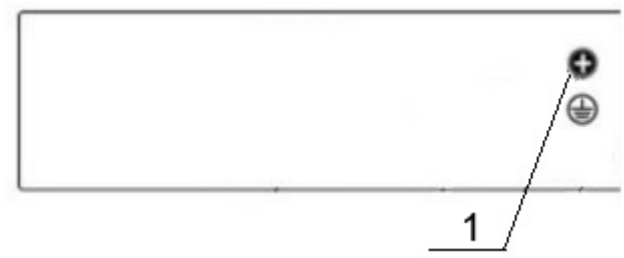


Figure 2-3





2.2.6 Lightning Resistance Considerations

When the AC power cable is imported outdoors and directly connected to the power port of the switch, lightning line bank should be adopted to prevent the switch from being hit by lightning shocks. Usage of the lightning line bank: Connect the mains supply AC cable to the lightning line bank. Then, connect the switch to the lightning line bank. This can help to prevent the current of high-voltage lightning from passing the switch directly through the mains supply cable to a certain extent.

The lightning line banks are not provided and should be purchased by users as required.
For the usage of lightning line banks, refer to their related manuals.

2.2.7 EMI Consideration

Electro-Magnetic Interference (EMI), from either outside or inside the equipment or application system, affects the system in the conductive ways such as capacitive coupling, inductive coupling, and electromagnetic radiation.

There are two types of electromagnetic interferences: radiated interference and conducted interference, depending on the type of the transmission path.

When the energy, often RF energy, from a component arrives at a sensitive component via the space, the energy is known as radiated interference. The interference source can be either a part of the interfered system or a completely electrically isolated unit. Conducted interference results from the electromagnetic wire or signal cable connection between the source and the sensitive component, along which cable the interference conducts from one unit to another. Conducted interference often affects the power supply of the equipment, but can be controlled by a filter. Radiated interference may affect any signal path in the equipment and is difficult to shield.

- Effective measures should be taken for the power system to prevent the interference from the electric grid.
- The grounding device of the switch must not be used as the grounding device of the electrical equipment or anti-lightning grounding device. In addition, the grounding device of the switch must be deployed far away from the grounding device of the electrical equipment and anti-lightning grounding device.
- Keep the equipment away from high-power radio transmitter, radar transmitting station, and high-frequency large-current device.
- Measures must be taken to shield static electricity.

2.3 Requirements of Installation Tools

Table 2-4 List of Installation Tools

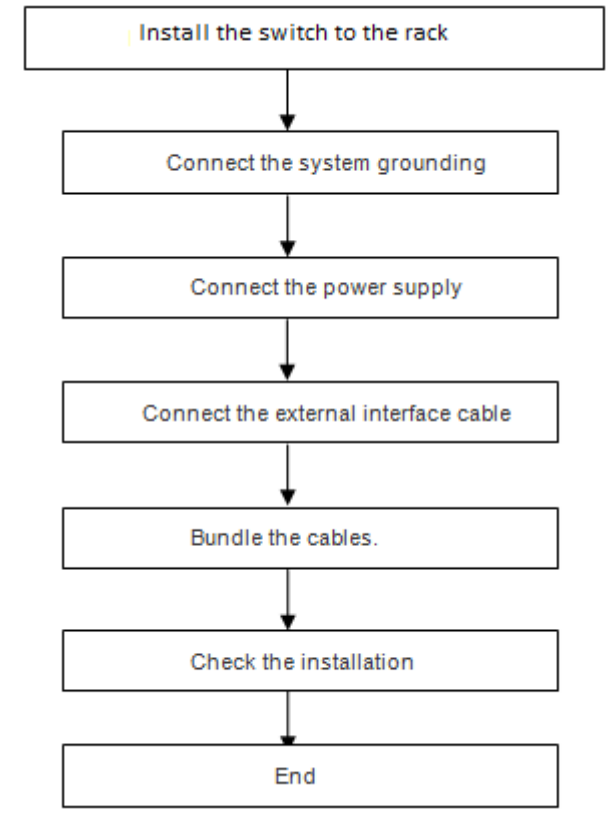
Common tools	Philips screwdriver, flathead screwdriver, related electric cables and optical cables, bolts, diagonal pliers, straps
Special tools	Anti-static tools
Meters	Multimeter

The tool kit is customer supplied.

3 Product Installation

Please ensure that you have carefully read the section of “Preparation before Installation”.
Make sure that the requirements set forth in section of “Preparation before Installation” have been met.

3.1 Installation Procedure



3.2 Confirmations before Installation

Before installation, please confirm the following points:

- Whether ventilation requirements are met for the switch
- Whether the requirements of temperature and humidity are met for the switch
- Whether power cables are already laid out and whether the requirements of electrical current are met
- Whether related network adaption lines are already laid out

3.3 Precautions

During installation, note the following points:

- Connect the power cables of different colors to the corresponding grounding posts.
- Ensure that the interface of the power supply cable is well connected to the power interface of the device. The power cables must be protected using power cable retention clips after they are connected to the device.
- Do not place any articles on the switch.
- Reserve a spacing of at least 10 cm around the chassis for good ventilation. Do not stack the devices.
- The switch should be located at places free from the large power radio launch pad, radar launch pad, and high-frequency large-current devices. If necessary, electromagnetic shielding should be adopted. For example, use interface cables to shield cables.
- 100-meter network cables should be laid inside the equipment room and outdoor cabling of such cables is prohibited. If outdoor cabling is necessary, take relevant measures for lightning protection.

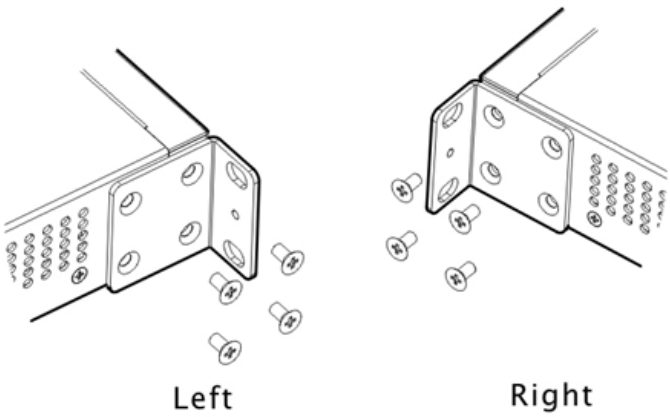
3.4 Installing the RG-S1800 Series

3.4.1 Mounting the Switch in the Rack

The RG-S1800 series switches are designed with the EIA standard dimensions. RG-S1826 can be installed in 19-inch rack, while RG-S1808 does not support rack mounting.

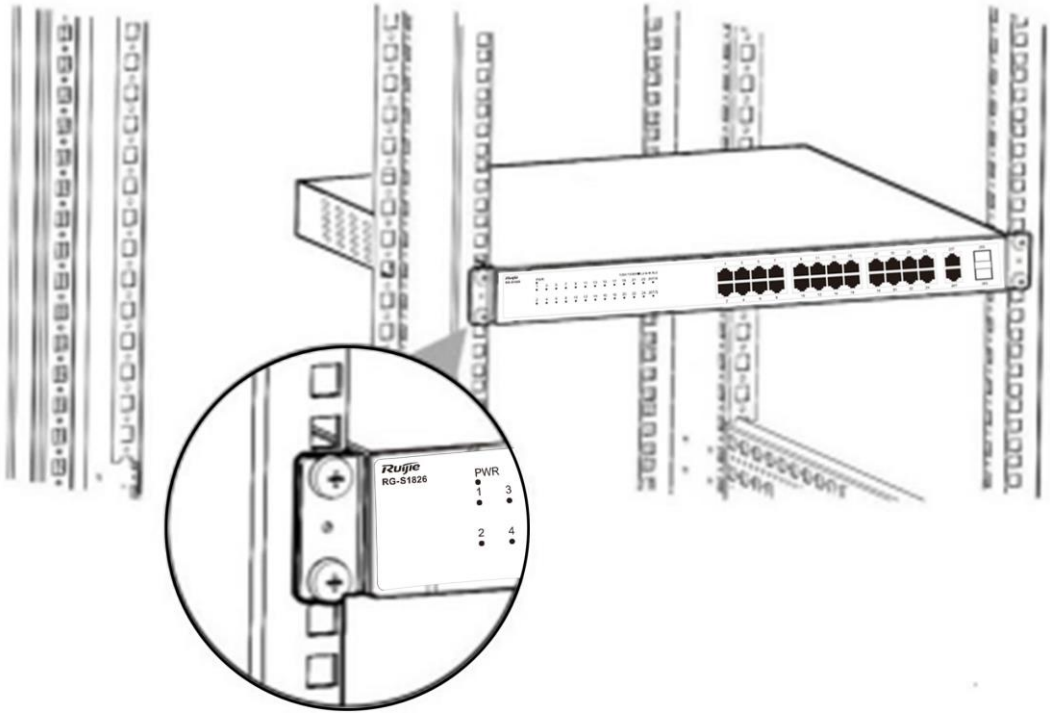
Step 1: Take out supplied screws and brackets, and then mount the brackets onto left and right sides of the switch.

Figure 3-1 Attaching the Mounting Brackets to the Switch



Step 2: Place the switch into the rack. Fix the other ends of both brakcets onto the suqre hole strips of the rack by using screws and cage nuts, as shown in Figure 3-2.

Figure 3-2 Fixing the Brackets to the Rack

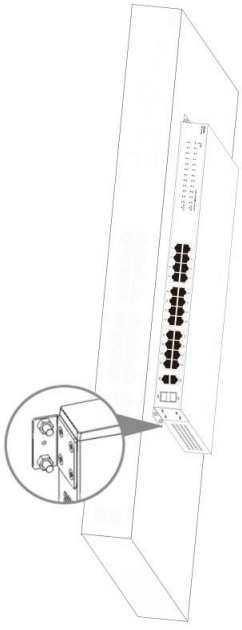


3.4.2 Mounting the Switch on the Wall

The RG-S1800 series switches can be mounted on a wall (RG-S1808 does not support wall mounting).

Step 1: Take out supplied screws and brackets. And then rotate the brackets by 90° when it is mounted on the wall.

Figure 3-3 Fixing the Switch to the Wall



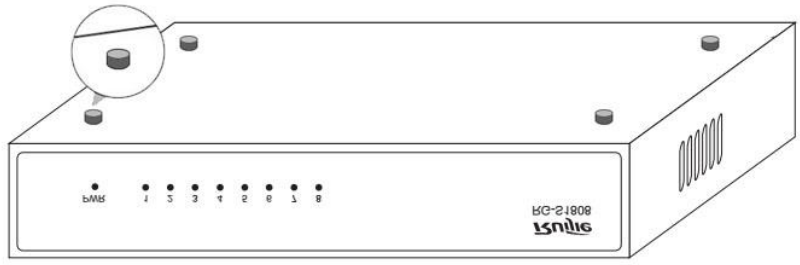
Step 2: Fix the switch onto the wall by using expansion screws.

3.4.3 Mounting the Switch to a Workbench

In some cases, users do not have the 19-inch standard cabinet. The common solution is to place the switch on a clean workbench. The operation is simple as follows:

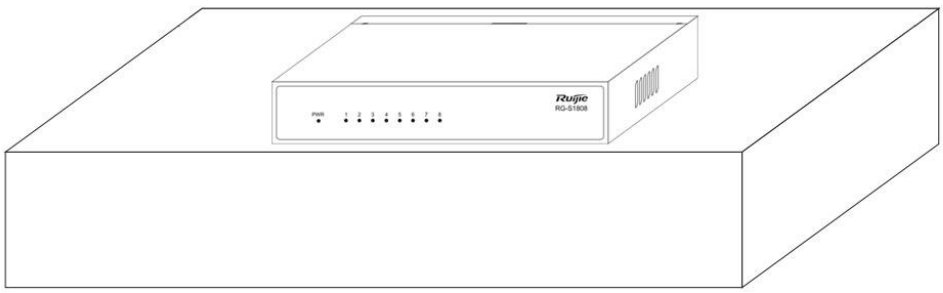
Step 1: Attach the four rubber pads to the four corners on the switch bottom.

Figure 3-4 Attaching the Pads to the Switch



2) Step 2: Place the switch on the workbench and ensure good ventilation condition around the switch.

Figure 3-5 Placing the Switch on the Workbench



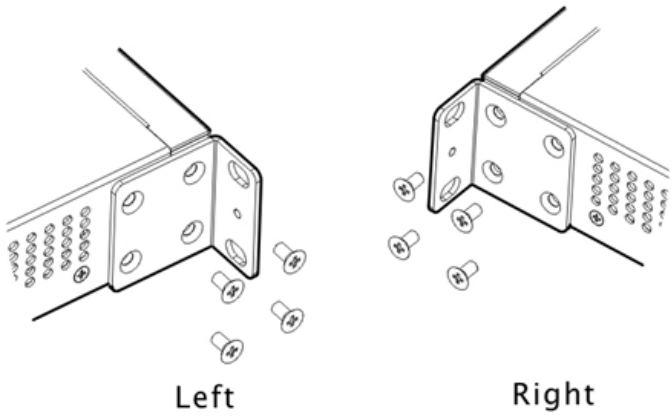
3.5 Installing the RG-S1800G Series

3.5.1 Mounting the Switch in the Rack

The RG-S1800G series switches are designed with the EIA standard dimensions. The switch can be installed in 19-inch rack.

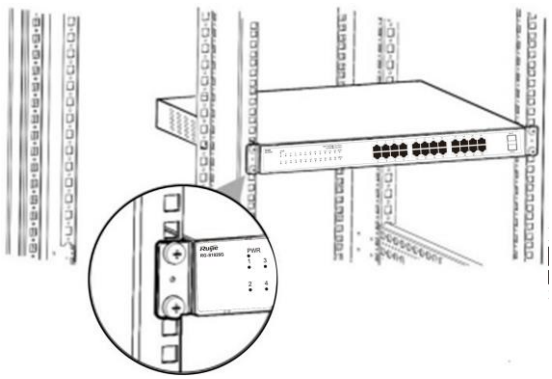
Step 1: Take out supplied screws and brackets, and then mount the brackets onto left and right sides of the switch.

Figure 3-6 Attaching the Mounting Brackets to the Switch



Step 2: Place the switch into the rack. Fix the other ends of both brakcets onto the suqre hole strips of the rack by using screws and cage nuts, as shown in Figure 3-7.

Figure 3-7 Fixing the Brackets to the Rack

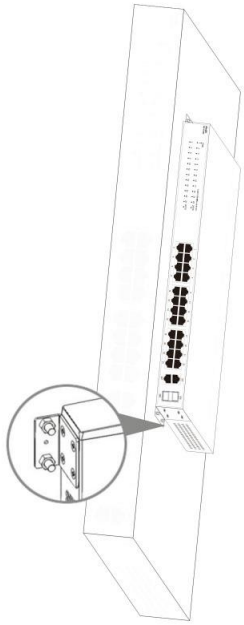


3.5.2 Mounting the Switch on the Wall

The RG-S1800G series switches can be mounted on a wall.

Step 1: Take out supplied screws and brackets. And then rotate the brackets by 90° when it is mounted on the wall.

Figure 3-8 Fixing the Switch to the Wall



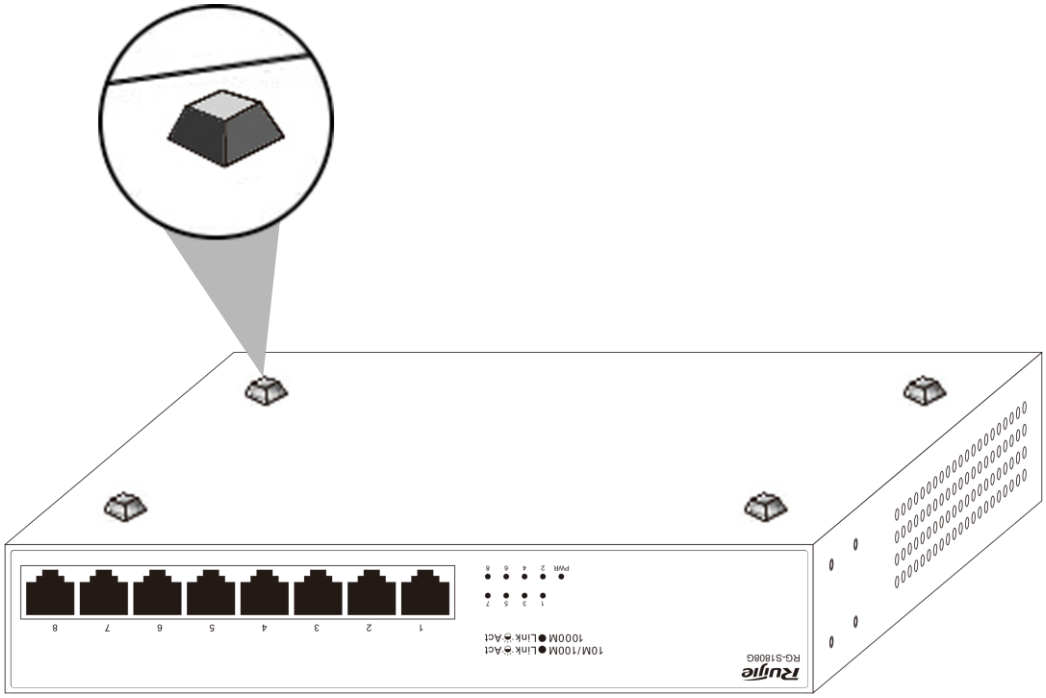
Step 2: Fix the switch onto the wall by using expansion screws.

3.5.3 Mounting the Switch to a Workbench

In some cases, users do not have the 19-inch standard cabinet. The common solution is to place the switch on a clean workbench. The operation is simple as follows:

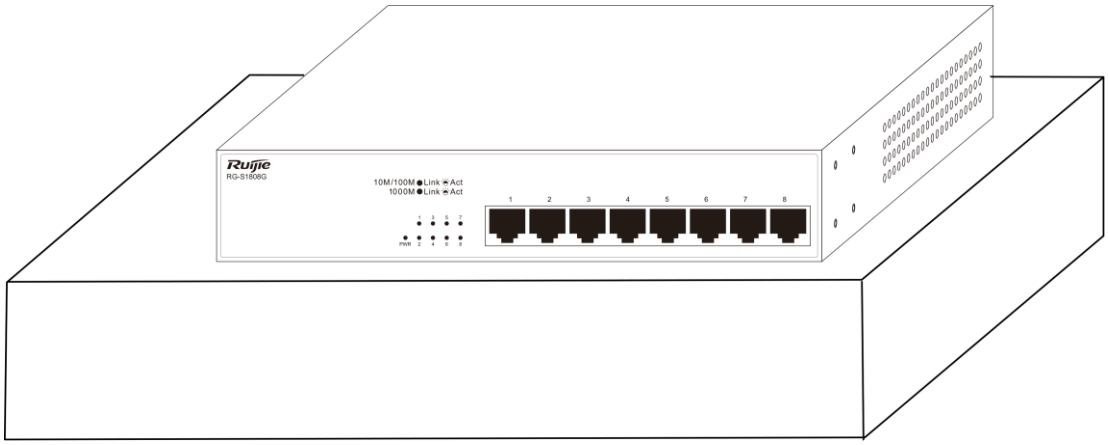
Step 1: Attach the four rubber pads to the four corners on the switch bottom.

Figure 3-9 Attaching the Pads to the Switch



2) Step 2: Place the switch on the workbench and ensure good ventilation condition around the switch.

Figure 3-10 Placing the Switch on the Workbench



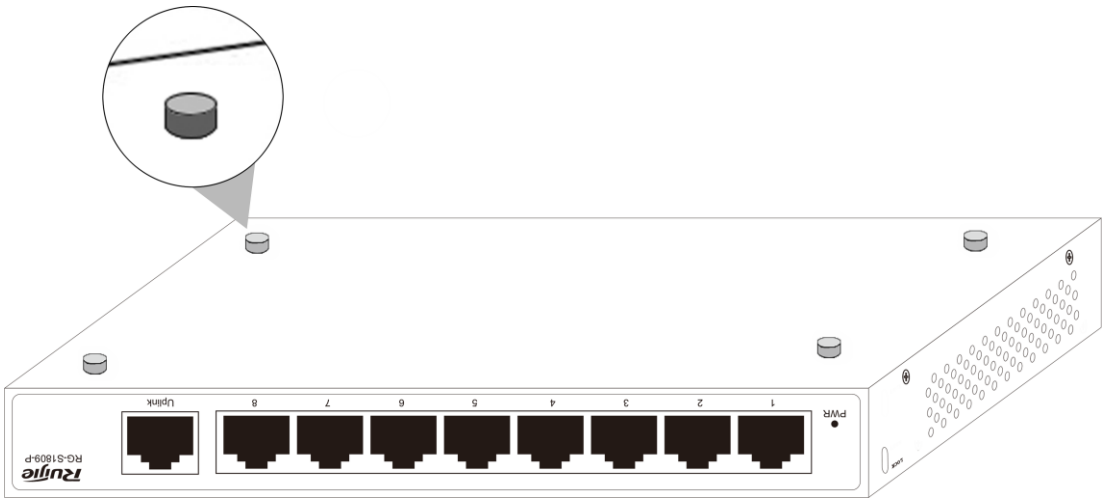
3.6 Installing the RG-S1800-P Series

3.6.1 Mounting the Switch to a Workbench

In some cases, users do not have the 19-inch standard cabinet. The common solution is to place the switch on a clean workbench. The operation is simple as follows:

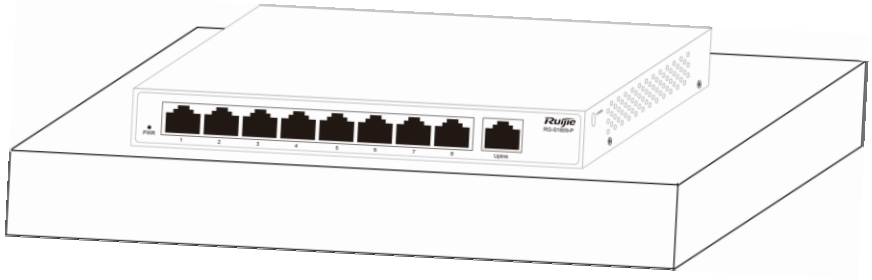
Step 1: Attach the four rubber pads to the four corners on the switch bottom.

Figure 3-11 Attaching the Pads to the Switch



2) Step 2: Place the switch on the workbench and ensure good ventilation condition around the switch.

Figure 3-12 Placing the Switch on the Workbench

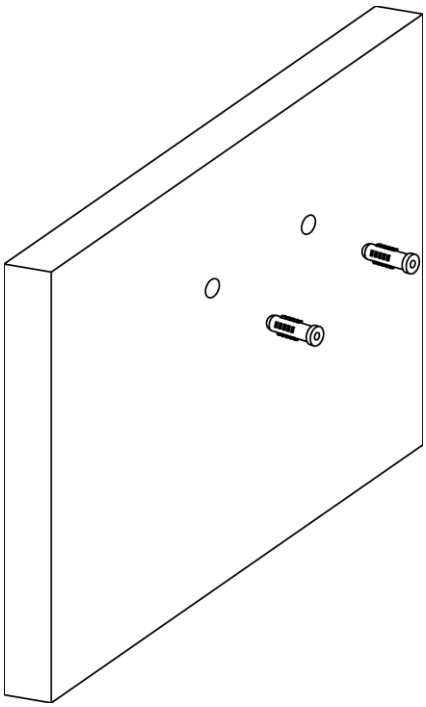


3.6.2 Mounting the Switch on the Wall

The RG-S1809-P series switches can be mounted on a wall.

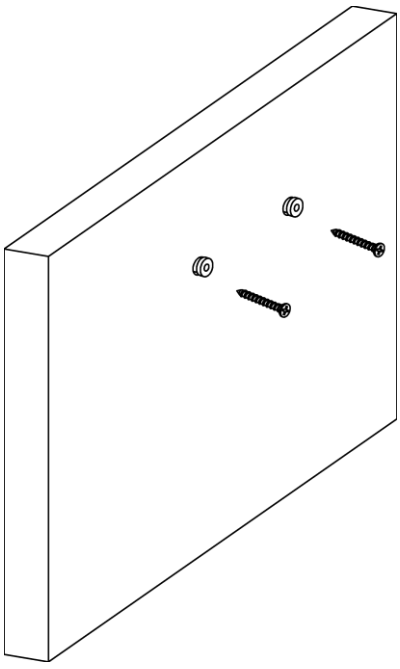
Step1: Drill two holes on the wall. Tap wall anchors into the holes.

Figure 3-13



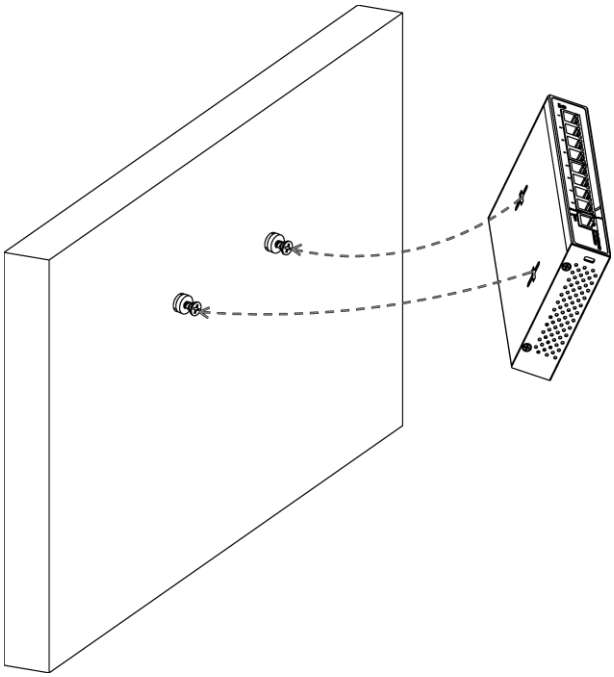
Step 2: Drive screws into the anchors.

Figure 3-14



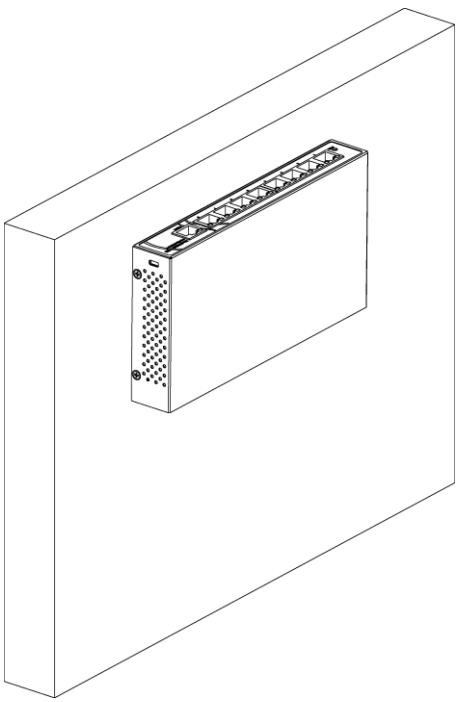
Step 3: Mount the switch to wall through the screws.

Figure 3-15



Step 4: Complete installation.

Figure 3-16



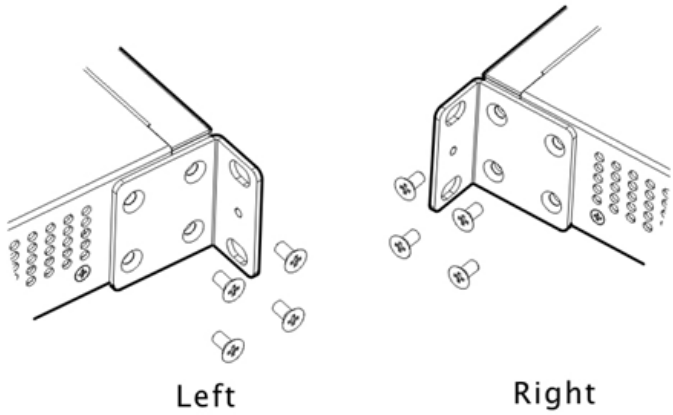
3.7 Installing the RG-S1800G-P Series

3.7.1 Mounting the Switch in the Rack

The RG-S1800G-P series switches are designed with the EIA standard dimensions. RG-S1826G-P can be installed in 19-inch rack.

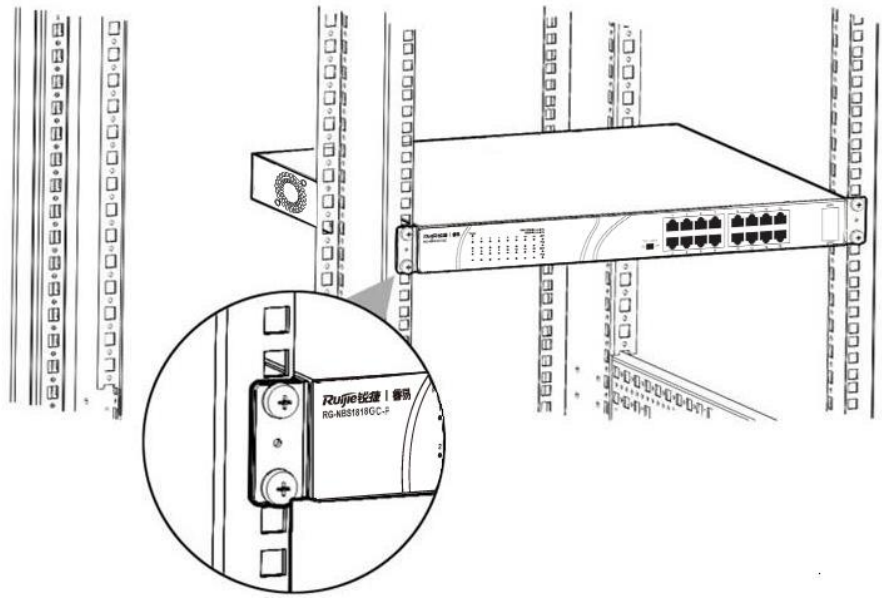
Step 1: Take out supplied screws and brackets, and then mount the brackets onto left and right sides of the switch.

Figure 3-17 Attaching the Mounting Brackets to the Switch



Step 2: Place the switch into the rack. Fix the other ends of both brakcets onto the suqre hole strips of the rack by using screws and cage nuts, as shown in Figure 3-18.

Figure 3-18 Fixing the Brackets to the Rack

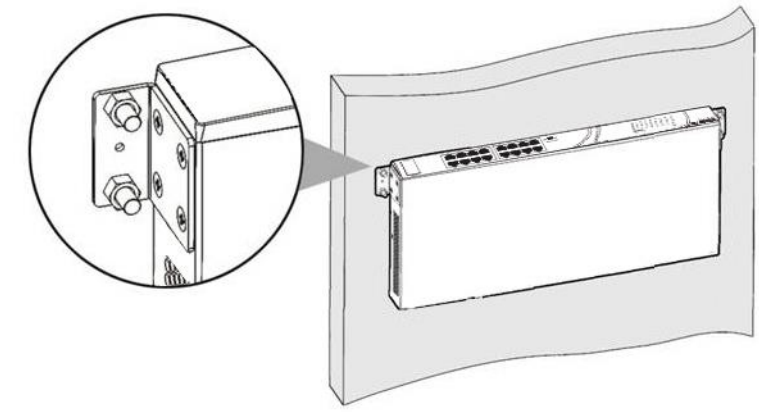


3.7.2 Mounting the Switch on the Wall

The RG-S1800G-P series switches can be mounted on a wall.

Step 1: Take out supplied screws and brackets. And then rotate the brackets by 90° when it is mounted on the wall.

Figure 3-19 Fixing the Switch to the Wall



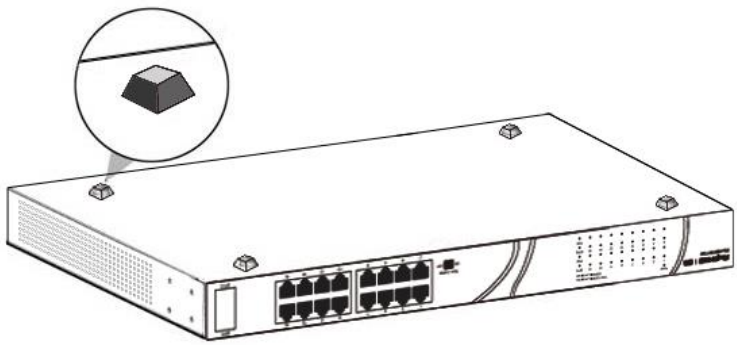
Step 2: Fix the switch onto the wall by using expansion screws.

3.7.3 Mounting the Switch to a Workbench

In some cases, users do not have the 19-inch standard cabinet. The common solution is to place the switch on a clean workbench. The operation is simple as follows:

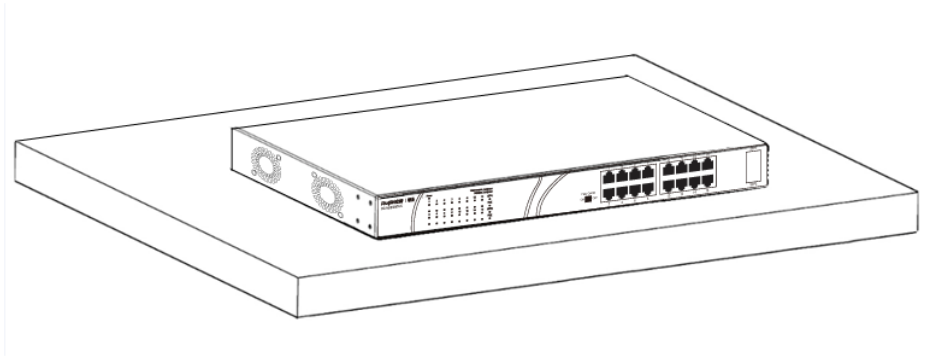
Step 1: Attach the four rubber pads to the four corners on the switch bottom.

Figure 3-20 Attaching the Pads to the Switch



2) Step 2: Place the switch on the workbench and ensure good ventilation condition around the switch.

Figure 3-21 Placing the Switch on the Workbench



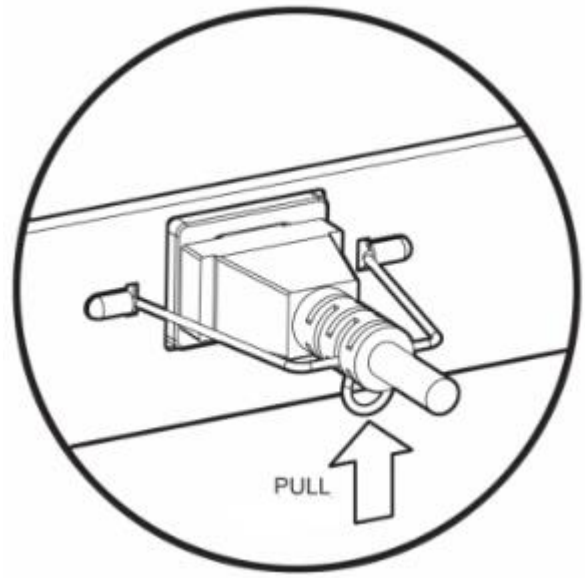
3.8 Connecting the Power Cord

Make sure the socket is powered off and the switch is properly grounded before the power cord is connected.

Connect the AC power cord

1. Insert the AC power plug into the device.
2. Take out the anti-loose buckle.
3. Install the anti-loose buckle on the rear panel of the device
4. Fasten the anti-loose buckle to the power cord.
5. Connect the other end of the power cord to an external power socket.
6. Power on the device and check whether the status indicator is blinking. Blinking indicates the switch is being initialized.

Figure 3-22 Connecting the Power Cord



Connect the DC power cord

1. Insert the DC power plug into the device.
2. Connect the other end of the power cord to an external power socket.
3. Power on the device and check whether the status indicator is blinking. Blinking indicates the switch is being initialized.

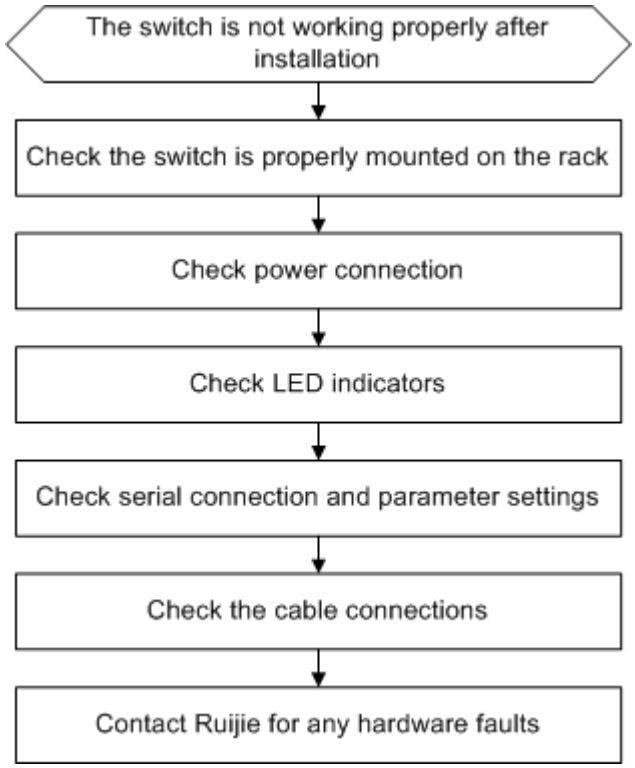
3.9 Checking after Installation

⚠ Before checking the installation, switch off the power supply so as to avoid any personal injury or damage to the component due to connection errors.

- Check that the ground line is connected.
- Check that the cables and power input cables are correctly connected.
- Check that the 100 meter cables are laid out inside the equipment room. In the case of external cabling, check that the lightning resistance socket or network interface lightning protector is connected.
- Check that sufficient ventilation space is available around the device (over 10 cm).

4 Maintenance and Troubleshooting

4.1 General Troubleshooting Procedure



4.2 Common Faults

Symptom	Possible Causes	Solution
The PWR indicator is not on after the switch is started.	The power supply module does not supply power. The power cable is in loose contact.	Check whether the power socket at the equipment room is normal and whether the power cable of the switch is in good contact.
The RJ45 port is not in connectivity or it is erroneous in receiving/transmitting frames.	The connected twisted pair cable is faulty. The length of the cable exceeds 100 m. The port has special configuration that has no common working mode with the connected switch.	Replace the twisted pair cable. Check that the port configuration has the common working mode with the connected switch.
The fiber port cannot be connected.	The Rx and Tx ends are connected reversely.	Switch the Rx and Tx ends of the optical fiber. Replace the optical module with one of the

Symptom	Possible Causes	Solution
	The interconnected optical module type does not match. The fiber type is not correct. The length of the optical fiber exceeds that rated of the optical module.	matched type. Replace the optical fiber with one of the appropriate type. Replace the optical fiber with one of the appropriate length.

Appendix A: Connectors and Connection Media

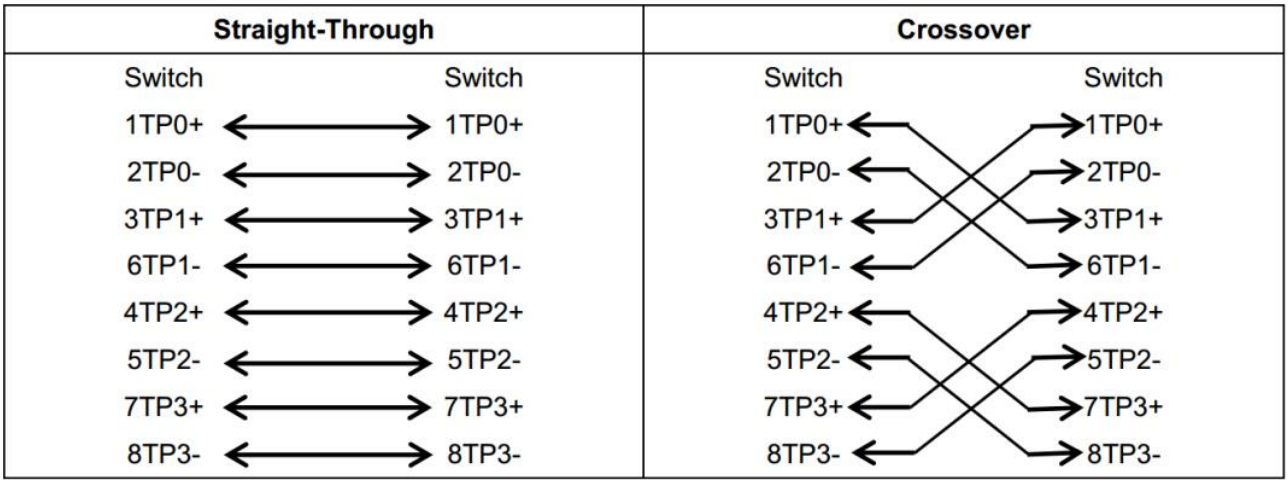
1000BASE-T/100BASE-TX/10BASE-T Ports

The 1000BASE-T/100BASE-TX/10BASE-T is a port that supports adaptation of three rates, and automatic MDI/MDIX Crossover at these three rates.

The 1000BASE-T complies with IEEE 802.3ab, and uses the cable of 100-ohm Category-5 or Supper Category-5 UTP or STP, which can be up to 100 m.

The 1000BASE-T port uses four pairs of wires for transmission, all of which must be connected. Figure A-1 shows the connections of the twisted pairs used by the 1000BASE-T port.

Figure A-1 Four Twisted Pairs of the 1000BASE-T



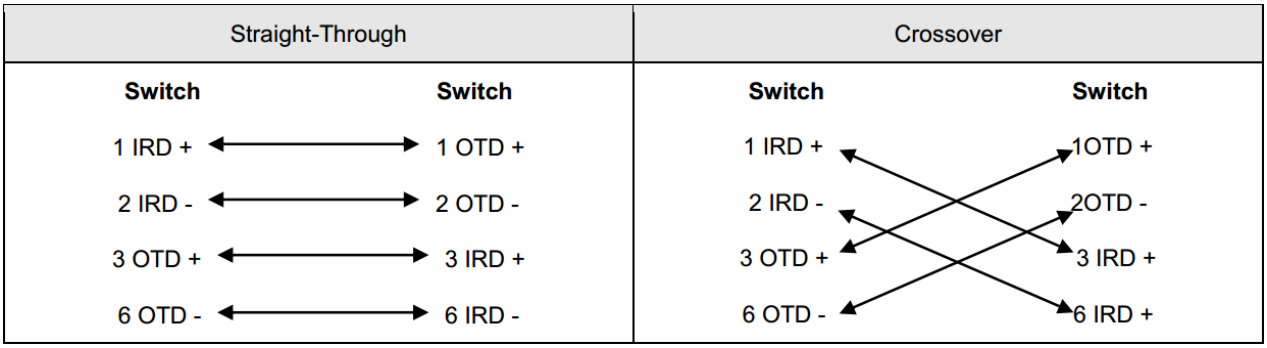
In addition to the above cables, the 100BASE-TX/10BASE-T can also use 100-ohm Category-3, 4, 5 cables for 10 Mbps, and 100-ohm Category-5 cables for 100 Mbps, both of which can be up to 100 m. Figure A-2 shows the pinouts of the 100BASE-TX/10BASE-T.

Figure A-2 Pinouts of the 100BASE-TX/10BASE-T

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 A-3 shows the straight-through and crossover cable connections for the 100BASE-TX/10BASE-T.

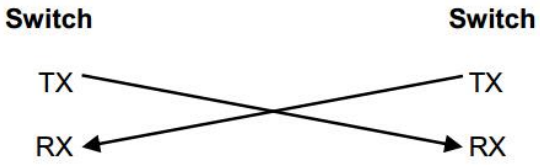
Figure A-3 Connections of the Twisted Pairs of the 100BASE-TX/10BASE-T



Optical Fiber Connection

For the optical fiber ports, select single-mode or multiple-mode optical fibers for connection according to the fiber module connected. The connection schematic diagram is shown in Figure A-4:

Figure A-4 Optical Fiber Connections



Appendix B Mini-GBIC Modules

We provide appropriate SFP modules (Mini-GBIC) modules according to the types of interfaces of the switch modules. You can select the module to suit your specific needs. The 100M/1000M SFP module supports the following modules as well as the 100M/1000M fiber/copper conversion SFP module (Mini-GBIC-GT). The following models and technical specifications of some 100M/1000M SFP modules are listed for your reference.

Models and Technical Specifications of the Mini-GBIC (SFP) Module

Table B-1 Models and Technical Specifications of the 100M SFP Modules

100M Mini-GBIC (SFP)	Wavelength (nm)	Media Type	Core Size (μm)	Cabling Distance	Intensity of Transmitted Light (dBm)		Intensity of Received Light (dBm)		Support DDM (Yes/No)
					min	max	min	max	
FE-SFP-LX-MM1310	1,310	Multi-mode fiber	62.5/125	2km	-22	-14	-30	-14	Yes
FE-SFP-LH15-SM1310	1,310	Single-mode fiber	9/125	15km	-15	-8	-28	-8	Yes

Table B-2 Models and Technical Specifications of the 1000M SFP Modules

1000M Mini-GBIC (SFP)	Wavelength (nm)	Media Type	Core Size (μm)	Cabling Distance	Intensity of Transmitted Light (dBm)		Intensity of Received Light (dBm)		Support DDM (Yes/No)
					min	max	min	max	
MINI-GBIC-SX-MM850	850	Multi-mode fiber	62.5/125	275m	-9.5	-3	-17	0	No
			50/125	550m					
MINI-GBIC-LX-SM1310	1,310	Single-mode fiber	9/125	10km	-9.5	-3	-20	-3	No
GE-eSFP-SX-MM850	850	Multi-mode fiber	62.5/125	275m	-9.5	-3	-17	0	Yes
			50/125	550m					
GE-eSFP-LX-SM1310	1,310	Single-mode fiber	9/125	10km	-9.5	-3	-20	-3	Yes
MINI-GBIC-LH40-SM1310	1,310	Single-mode fiber	9/125	40km	-2	3	-22	-3	Yes
MINI-GBIC-ZX50-SM1550	1,550	Single-mode fiber	9/125	50km	-5	0	-22	-3	Yes
MINI-GBIC-ZX80-SM1550	1,550	Single-mode fiber	9/125	80km	0	4.7	-22	-3	Yes

MINI-GBIC-ZX100-SM1550	1,550	Single-mode fiber	9/125	100km	0	5	-30	-9	Yes

For the optical module with transmission distance exceeding 40 km and more, one on-line optical attenuator should be added on the link to avoid the overload of the optical receiver when short single-mode optical fibers are used.