

Lysora LR300G-P Router

Installation Guide

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Preface

Intended Audience

This document is intended for:

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

Technical Support

- Official website: <https://help.lysoratech.com>
- Technical support email: support@lysoratech.com

Conventions

1. Symbols

The symbols that may be found in this document are described as follows:

Danger

An alert that calls attention to critical guidelines which, if not understood or followed, can result in personal injury.

Warning

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

Caution

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

Note

An alert that indicates additional or supplementary information.

 **Specification**

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

2. Notes

This document provides installation steps, troubleshooting, technical specifications, and usage guidelines about cables and connectors. It is intended for users who want to understand the above and have extensive experience in network deployment and management, and assume that users are familiar with related terms and concepts.

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1 Product Overview

1.1 Overview

The LR300G-P router is independently developed by Lysora with independent intellectual property rights. LR300G-P router is a new generation of products for the small and micro enterprise offices, small hotels, and villas, providing 1000Mbps of egress bandwidth to meet the user need of high-speed bandwidth. LR300G-P boasts the flexible multi-WAN feature and policy-based routing, enabling users to customize varied online behavior management policies. Working with the manageable switches and access points, it can implement the unified network configuration through the App and perform remote management and diagnosis.

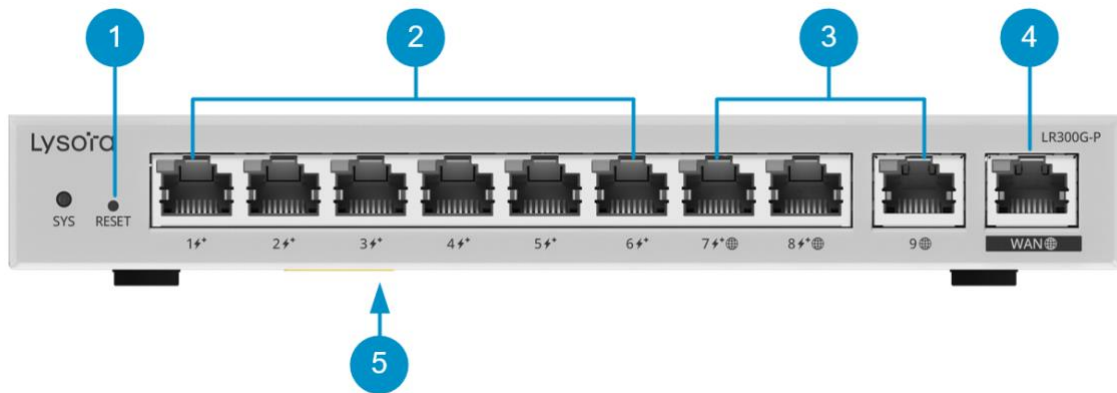
1.2 Product Appearance

Figure 1-1 LR300G-P Appearance



1.2.1 Front Panel

Figure 1-2 Front Panel



Note

⚡+ indicates PoE+ port, which is compliant with IEEE 802.3af and IEEE 802.3at.

Table 1-1 Components on the Front Panel

No.	Silkscreen	Component	Description
1	RESET	Reset button	<ul style="list-style-type: none"> Press for less than 2 seconds to reboot the router. Press for more than 5 seconds until the system LED flashes to restore the router to factory default settings. (The device does not respond if you press the Reset button for 2s to 5s).
2	1-6	LAN Port	10/100/1000BASE-T Ethernet RJ45 with auto negotiation, compliant with the IEEE 802.3af (PoE) and 802.3at (PoE+) standards. Connect the LAN port to the PC, the switch or the access point with an Ethernet cable.

No.	Silkscreen	Component	Description
3	7-9	LAN/WAN Switchable Port	10/100/1000BASE-T Ethernet RJ45 with auto negotiation. The port is switchable between the WAN port and the LAN port.
4	WAN	WAN Port	10/100/1000BASE-T Ethernet RJ45 with auto negotiation. Connect the WAN port to the DSL/Cable Modem to establish an Ethernet connection.
5	-	Nameplate	Nameplate on the bottom of the device. Contains the product name, model, I/O parameters, default IP address, etc.

Note

After the router is restored to factory default settings, the default management IP address is <http://192.168.100.1> (default password: admin).

1.2.2 Rear Panel

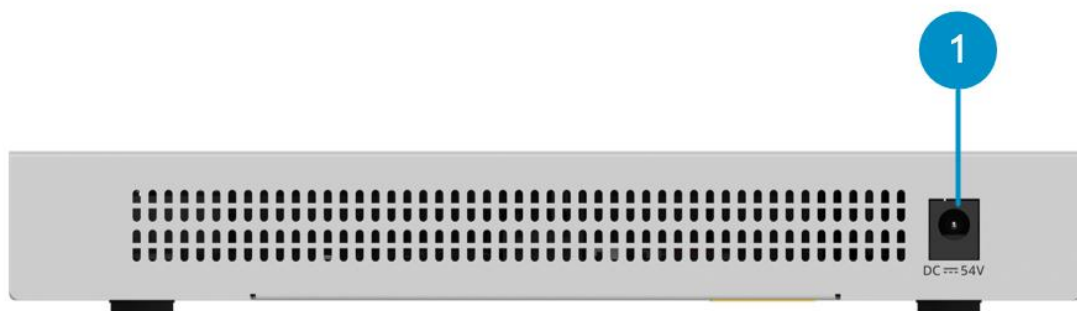
Figure 1-3 Rear Panel

Table 1-2 Components on the Rear Panel

No.	Silkscreen	Component	Description
1	DC=54 V	DC Input Plug	Connect the DC power adapter to the DC input plug on the faceplate of the router to power on the router.

1.2.3 LEDs

Figure 1-4 LEDs

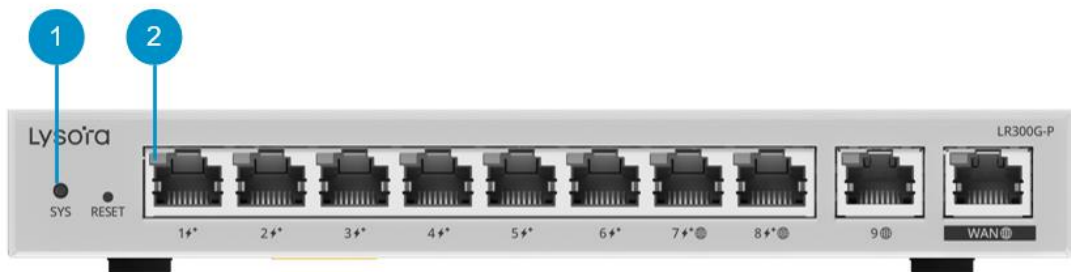


Table 1-3 LEDs

No.	Silkscreen	Component	Status	Description
1	SYS	System Status LED	Off	The device is not receiving power.
			Fast blinking green	The router is starting up.
			Solid green	The router is functioning properly.
			Slow blinking green	<ul style="list-style-type: none"> The router is restoring factory default settings. The router is upgrading the software.

No.	Silkscreen	Component	Status	Description
2	-	Link/ACT Port LED	Solid green	The port has made a successful link.
			Blinking green	The port is transmitting or receiving traffic.

1.3 Technical Specifications

Table 1-4 Technical Specifications

Parameter Type	Parameter Name	Description
System Specifications	CPU	Dual-core processor, 1.35 GHz clock frequency per core
	RAM	512 MB
	Flash memory	256 MB
Port Specifications	Maximum number of WAN ports	4
	Maximum number of LAN ports	9
	Number of LAN/WAN ports	3
	Number of fixed WAN ports	1
	Number of fixed LAN ports	6
	Number of 10/100/1000BASE-T ports	10
	LEDs	1 x system status LED 10 x Ethernet port LEDs

Parameter Type	Parameter Name	Description
	Reset button	1
	Total number of RJ45 ports	10
Power Supply and Consumption	Power supply	DC power adapter
	Dimensions of the DC connector	Outer diameter: 5.5 mm (0.22 in.) Inner diameter: 2.1 mm (0.08 in.) Depth: 10.0 mm (0.39 in.)
	Power input	DC adapter: <ul style="list-style-type: none">• Rated input voltage: 100 V AC to 240 V AC, 50 Hz to 60 Hz• Maximum input voltage: 90 V AC to 264 V AC, 47 Hz to 63 Hz (optional)• Rated input current: 2.5 A Output: <ul style="list-style-type: none">• Rated output voltage: 54 V DC• Maximum output current: 2.4 A
	Number of PoE Out ports	8
	PoE Out standard	IEEE 802.3af/at (PoE/PoE+)
	PoE power pins	1-2 (+), 3-6 (-)
	PoE budget per port	30 W
	PoE budget	110 W
Maximum power consumption	9 W (with no PoE load)	

Parameter Type	Parameter Name	Description
		119 W (with full PoE load)
Dimensions and Weight	Weight	0.55 kg (1.21 lbs)
	Shipping weight	1.62 kg (3.57 lbs)
	Product dimensions (W x D x H)	202 mm x 108 mm x 28 mm (7.95 in. x 4.25 in. x 1.1 in.)
	Package dimensions (W x D x H)	284 mm x 228 mm x 80 mm (11.18 in. x 8.98 in. x 3.15 in.)
Environment and Reliability	Surge protection	Service port: ± 4 kV for common mode Power connector: ± 4 kV for common mode and ± 4 kV for differential mode
	Operating temperature	0°C to 40°C (32°F to 104°F)
	Storage temperature	-40°C to +70°C (-40°F to +158°F)
	Operating humidity	10% RH to 90% RH (non-condensing)
	Storage humidity	5% RH to 95% RH (non-condensing)
	Mounting options	Desk
	Cooling	Natural cooling
	Fan	Fanless design
Certification and Regulatory Compliance	RoHS	Yes
	Certification	FCC, IC, cTUVus

! Warning

- Operation of this equipment in a residential environment could cause radio interference.
 - The power cannot be repaired, do not disassemble it to avoid the risk of an electric shock.
-

2 Preparing for Installation

2.1 Package Contents

Table 2-1 Package Contents

No.	Item	Quantity
1	LR300G-P router	1
2	Rubber pads	4
3	Power adapter	1
4	Power cord	1 x 0.8 m (2.62 ft.)
5	User Manual	1
6	Warranty Card	1

Note

The package contents generally contain the preceding items. The actual delivery is subject to the order contract. Please check your goods carefully against the order contract. If you have any questions, please contact the distributor.

2.2 Safety Guidelines

Note

- The equipment mentioned in this manual cannot be mounted on a wall.
- 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.

2.2.1 General Precautions

- Never operate the equipment in a wet environment, and avoid any liquids inside it. Keep the chassis clean and dust-free.
- Keep the equipment away from heat sources.
- Ensure that the rack and power distribution system are properly grounded.
- 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.
- Keep tools and accessories away from walk areas.

2.2.2 Chassis-Lifting Guidelines

- Avoid moving the equipment frequently.
- Turn off all power supplies and disconnect all cables before lifting or moving the equipment.
- Two or more people are required to lift the chassis. Keep balance and prevent personal injuries when lifting or moving the equipment.

2.2.3 Electricity Safety

Warning

- 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.
-

- 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.
- Never assume that power is disconnected from a circuit. Always check.

- 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:
 - The rated leakage action current of each leakage protector is greater than twice 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 3.5 mA, then the leakage current of the system totals 56 mA. A leakage protector with a rated leakage action current of 30 mA supports no more than four power supplies (that is, action current of the leakage protector/2/Maximum leakage current of each power supply = $30/2/3.5 \approx 4.28$). In this case, 16 power supplies in the system require at least four leakage protectors with a rated action current of 30 mA, with each leakage protector supporting four 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.
 - 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.

⚠ Caution

- 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.
 - The leakage current values vary with equipment. For the leakage current value of each equipment model, see the technical specifications in Chapter 1.
-

2.2.4 Preventing ESD Damage

- Ensure that the chassis is connected to earth ground.
- Keep the site as dust free as possible.
- Maintain appropriate humidity conditions.

2.3 Site Requirements

The equipment must be installed indoors for normal operation and prolonged service life.

The installation site must meet the following requirements.

2.3.1 Floor Loading

Assess the combined weight of the equipment and its accessories, such as rack, chassis, and power modules, and verify that the floor under the rack can bear the weight.

If the router is installed inside a rack, the following conditions must be met:

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

If the router is installed on a workbench, the following conditions must be met:

- You are advised to install the equipment into a standard rack and maintain a proper clearance around the equipment for heat dissipation.
- The workbench must be properly grounded.

2.3.2 Airflow

The equipment uses fans for heat dissipation. To ensure that the equipment works properly in the specified environment, a minimum clearance of 10 cm (3.94 in.) must be maintained around the equipment for air circulation and ventilation. Manage the Ethernet cables and power cords using cable ties or cable management brackets to avoid blocking air intakes. Dust the equipment every three months to avoid obstructing the air-exhaust grid of the chassis.

2.3.3 Space

You are advised to have a pathway of at least 0.8 meters (2.62 ft.) wide in the equipment room. This space ensures that you can move the chassis easily.

Do not install the equipment against a wall. Instead, maintain a minimum clearance of 0.4 m (15.75 in.) around the equipment for heat dissipation and equipment maintenance.

2.3.4 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 high relative humidity, insulating materials are prone to poor insulation or even electricity leakage.
- In an environment with low relative humidity, insulating gaskets may shrink, resulting in screw loosening.
- In a dry environment, static electricity is more likely to occur, posing a risk to the internal circuits of equipment.
- 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 following table lists the operating temperature and humidity requirements of the equipment.

Table 2-2 Operating Environment Requirements

Operating Temperature	Operating Humidity
0°C to 40°C (32°F to 104°F)	10% RH to 90% RH (non-condensing)

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.

2.3.5 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.

Table 2-3 Requirements for Dust

Particle Diameter	Unit	Concentration
≥ 0.5 μm	Particles/m ³	≤ 3.5 × 10 ⁶
≥ 5 μm	Particles/m ³	≤ 3 × 10 ⁴

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.

Table 2-4 Requirements for Gases

Gas	Average (mg/m ³)	Maximum (mg/m ³)
Sulfur dioxide (SO ₂)	0.3	1.0
Hydrogen sulfide (H ₂ S)	0.1	0.5
Nitrogen dioxide (NO ₂)	0.5	1.0
Chlorine gas (Cl ₂)	0.1	0.3

Note

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

2.3.6 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.

- 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.
 - Verify that the AC socket is reliably connected to the protective grounding system of the building. If not, a protective grounding wire should be used to connect the protective grounding lug of the AC socket to the protective grounding system of the building.
 - The cross-sectional area of the protective grounding wire should be at least 0.75 mm² (18 AWG).
-

- Lightning Grounding

The lightning protection system is an independent system composed of a lightning rod, a downlead 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.

- 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. Connect the grounding terminal to the ground before operating the equipment. The grounding terminal needs to be marked with a conspicuous label.

! Warning

This is a Class A product. In a domestic environment this product may cause radio interference. In this case, you are advised to take proper measures against the interference.

2.3.7 Preventing Electromagnetic Interference

The equipment is affected in the conductive ways such as capacitive coupling, inductive coupling, and electromagnetic radiation. Electromagnetic interference (EMI) can be classified into radiated interference and conducted interference, 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 either a part of the interfered system or a completely electrically isolated unit. Conducted 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 interference source and the sensitive component.

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.

The anti-interference requirements for the equipment are as follows:

- 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 far away from high-frequency current equipment such as a high-power radio transmitting stations and radar launchers.
- Take electromagnetic shielding measures when necessary.

2.3.8 Surge Protection

- Although the equipment can guard against lightning strikes, strong lightning strikes may still damage the equipment. Take the following surge protection measures:
- Ensure that the neutral point of the AC power socket is in good contact with the ground.
- Install a power arrester in front of the power input end to enhance surge protection for the power supply.

2.3.9 Installation Site

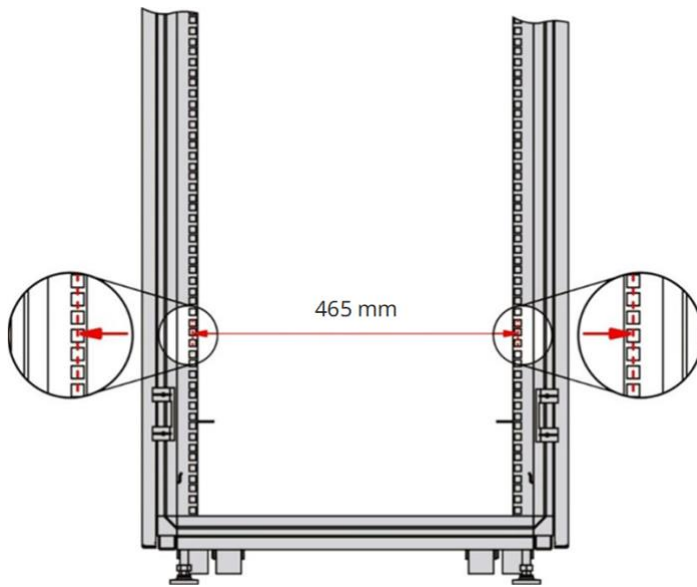
Regardless of whether the equipment is installed in a rack or on a workbench, ensure that the following conditions are met:

- Maintain a proper clearance around the air inlets and outlets for heat dissipation.
- The installation site has a good cooling and ventilation system.
- The installation site is sturdy enough to support the weight of the chassis and its accessories.
- The installation site is properly grounded.

2.4 Rack Requirements

The equipment meets the EIA standard and can be installed in a 19-inch rack. If you want to install the switch in a rack, make sure that the rack observes the following requirements:

- (1) Use a four-post 19-inch cabinet.
- (2) The left and right square-hole rack posts are 465 mm (18.31 in.) apart.

Figure 2-1 19-Inch Rack

- (3) The square-hole rack post is at least 180 mm (7.09 in.) from the front door, and the front door is at most 25 mm (0.98 in.) thick. This ensures an available clearance of at least 155 mm (6.10 in.). The rack depth (distance between front and rear doors) is at least 1000 mm (39.37 in.).
- (4) The guide rails or tray can bear the weight of the equipment and its accessories.
- (5) The rack has a reliable grounding lug for the chassis to connect to earth ground.
- (6) The rack has a reliable ventilation system. The open area of front and rear doors is greater than 50%.
- (7) The cabinet is well ventilated and the porosity of the front and rear panels is greater than 50%.

2.5 Tools

Table 2-5 Tools

Common Tools	Phillips screwdriver, cables, cage nuts, diagonal pliers, and cable ties
Dedicated Tools	Anti-ESD gloves, wire stripper, crimper, RJ45 crimping pliers, and wire cutter
Meter	Multimeter
Relevant Equipment	PC, display, and keyboard

Note

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

3 Installing the Router

Caution

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

3.1 Before You Begin

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

- The installation site provides sufficient space for heat dissipation.
- The installation site meets the temperature and humidity requirements of the device.
- The power supply and required current are available in the installation site.
- The network cables have been deployed in the installation site.
- The selected power supply modules meet the system power requirements.
- The position of the indoor emergency power switch is learned before installation. The power switch is cut off in case of accidents.

3.2 Precautions

To ensure the normal operation and prolonged service life of the device, please observe the following precautions:

- Do not power on the device during installation.
- Install the device in a well-ventilated position.
- Do not subject the device to high temperatures.
- Keep away from high voltage cables.
- Install the device indoors.
- Do not expose the device in a thunderstorm or strong electric field.
- Keep the device clean and dust-free.
- Cut off the power switch before cleaning the device.
- Do not wipe the device with a damp cloth.

- Do not wash the device with liquid.
- Do not open the enclosure when the device is working.
- Fasten the device tightly.
- Before powering off the router that contains a hard disk drive, be sure to switch off the power switch on the back panel of the router.

3.3 Installing the Equipment

3.3.1 Mounting the Equipment on a Workbench

- (1) Attach the four foot pads to the four corners on the bottom of the device.
- (2) Place the device on the workbench to ensure adequate airflow and good heat dissipation.

⚠ Caution

The workbench on which the device is mounted and operated must not be moved.

3.4 Connecting the Ground Cable of the Device

The router has a grounding lug for grounding protection. Connect the grounding lug of the device to the grounding terminal of the cabinet with a ground cable. Then connect the grounding terminal to the grounding bar in the equipment room.

Precautions:

- The cross-sectional area of the ground cable should be determined according to the possible maximum current. Cables with good conductor should be used.
- Do not use bare wires.
- The resistance between the chassis and ground should be less than 1 ohm.

⚠ Caution

The cross-sectional area of the protection ground cable should be at least 2.5 mm² (12 AWG).

3.5 Connecting the Power Cord

The power cord of the device has three cores. You are advised to use a single-phase three-core power socket or a multi-function power socket with a neutral point connector. The neutral point of the power supply must be well grounded in the building. In general, the power supply neutral point of the building has been buried in the ground during the cabling. Users need to confirm whether the power supply of the building has been properly grounded.

Please connect the power cord based on the following steps:

- (1) Insert the ring of the adapter DC connector into the DC input plug of the device. Plug the end of the power cord to the power socket on the adapter and the other end into the AC power socket. For those devices without the adapter power supply, plug the end of the power cord into the power socket on the rear panel of the device and the other end of the power cord into the AC power socket.
- (2) Please check the status of system LED on the front panel of the device. If the LED is on, it means that the power cord is connected correctly. Otherwise, please check the power cord connection.

Caution

- Please use the power supply adapter and power cord delivered with the device to prevent accidents.
 - The maintenance personnel should check whether the AC socket is reliably connected to the protection ground of the building. If not, the maintenance personnel should use a protection ground wire to connect the protection ground terminal of the AC socket to the protection ground of the building.
 - During the device installation, connect the grounding cable first and disconnect it last.
 - The power socket should be installed in an easily operable position near the device.
-

3.6 Connecting Cables

- Connect one end of the RJ45 connector for configuring Ethernet cables to the Ethernet interface of the device module and the other end to the NMS or a control client.
- Insert the twisted pair cable with RJ45 connector into the corresponding interface according to the panel identification, and distinguish the crossover cable and the

straight-through cable.

3.7 Bundling Cables

3.7.1 Precautions

- The power cords and other cables/fibers should be bundled in a visually pleasing way.
- When you bundle the twisted pairs, make sure that the twisted pairs at the connectors have natural bends or bends of large radius.
- Do not bundle the twisted pairs too tightly, as this may press hard the cable/fibers and affect their service life and transmission performance.

3.7.2 Bundling Steps

- (1) Bind the drooping part of the twisted pairs and lead them to both sides of the device for convenience.
- (2) Fasten the twisted pairs to the cabinet cable management ring or bracket. Attach the cables in the cable tray of the rack.
- (3) Bundle the twisted pairs closely along the bottom of the device and in a straight line wherever possible.

3.8 Verifying Installation

3.8.1 Verifying the Device

- Verify if the external power supply matches with the distribution panel of the cabinet.
- Verify if the front/back cabinet doors can be closed after the device is installed.
- Verify that the cabinet and all cables are securely fastened.
- Verify that the device has been installed in the cabinet.

3.8.2 Verifying Cable Connection

- Verify that the cable matches the interface type.
- Verify that cables are properly bundled.

3.8.3 Verifying Power Supply

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

- Verify that the device is operational after power-on.

4 Commissioning

4.1 Setting Up the Configuration Environment

Connect the LAN port of the router to the network port of the PC with an Ethernet cable. Configure the PC to get an IP address automatically.

4.2 Power-on

4.2.1 Checklist Before Power-on

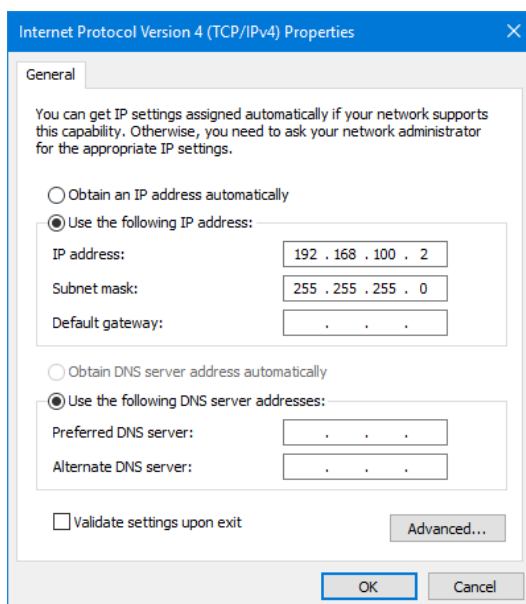
- Check whether the device is properly grounded.
- Check whether the power cord is properly connected.
- Check whether the power supply voltage meets the requirement.
- Check whether the network cable is properly connected, whether the client (may be PC) is started, and whether configuration parameters are configured.

4.2.2 Checklist After Power-on

After power-on, check the following item: Check the device indicator status.

4.3 Login to Web

- (1) Start up the PC and configure the local connection attribute on the PC. Change the static IP address of the PC to 192.168.100.XXX (2-254).



- (2) Open a browser, enter 192.168.100.1 into the address bar of the browser, and press **Enter**.

 Caution

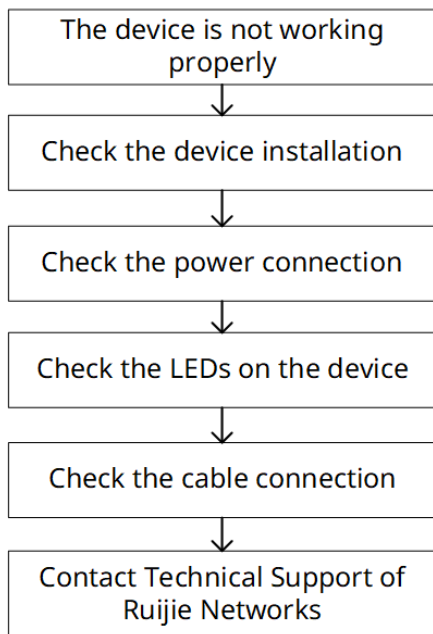
Use the default password "admin" to log in to the router for the first time. To ensure security, you are advised to change the password after login, and update the password regularly.

4.4 Configuring the Router

You can perform specific configuration on the device as required. For details, please refer to the related user manual.

5 Common Troubleshooting

5.1 General Troubleshooting Flowchart



5.1.1 Password Loss

Press the **Reset** button for more than 5 seconds to restore the device to factory default settings and reset the system login password.

5.1.2 System LED Error

Cut off all power supplies first. Check if the cables of the cabinet have been correctly connected and the power socket is functional. Check whether the power cord is tightly connected to the cabinet power socket. Check whether the power cord is tightly connected and the adapter DC connector works properly.

5.1.3 PoE Power Supply Fault

If PoE does not work on some ports, please check whether the power supply is turned off by the software on those ports. Check whether the PoE power is sufficient. If not, only ports with higher priority will be powered.

6 Appendix

6.1 Connectors and Media

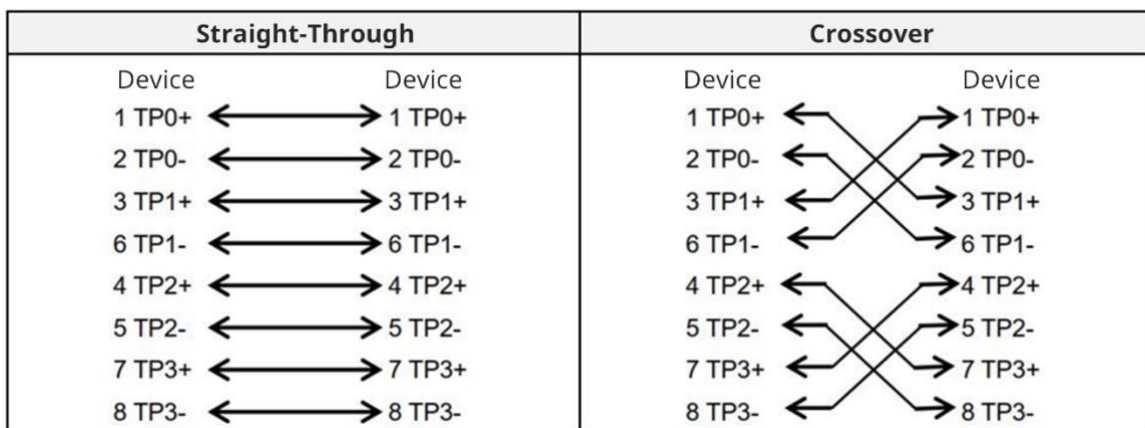
6.1.1 10/100/1000BASE-T Port

The 10/100/1000BASE-T port supports auto-negotiation for 10 Mbps, 100 Mbps, and 1000 Mbps connections and also supports auto MDI/MDIX Crossover.

Compliant with IEEE 802.3ab, a 1000BASE-T port connects to a 100-ohm Category 5 Enhanced (CAT5e) Unshielded Twisted Pair (UTP) or recommended Shielded Twisted Pair (STP) cable with a maximum distance of 100 meters (328.08 feet).

The 1000BASE-T port requires that all four pairs of wires be connected for data transmission. The following figure shows the four pairs of wires for the 1000BASE-T port.

Figure 6-1 Twisted Pair Connections for 1000BASE-T Ports



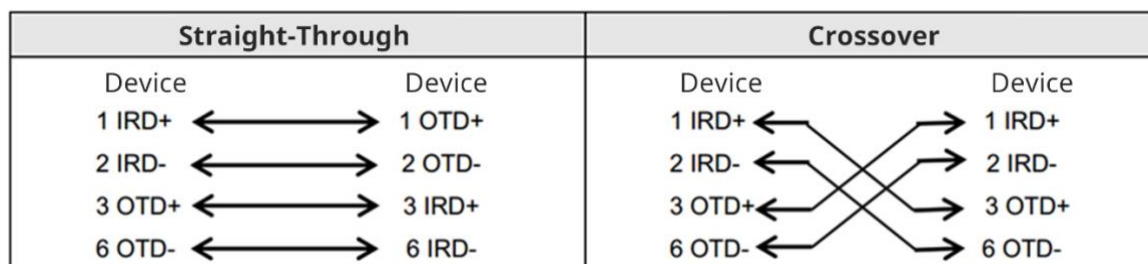
The 100BASE-TX or 10BASE-T port can also be connected by cables of the preceding specifications. Besides, the 10BASE-T port can be connected by 100-ohm Category 3, Category 4, and Category 5 cables with a maximum distance of 100 meters (328.08 ft.). The 100BASE-TX port can be connected by 100-ohm Category 5 cables with a maximum distance of 100 meters (328.08 ft.). The following table shows pin assignments for 100BASE-TX or 10BASE-T ports.

Table 6-1 Pin Assignments for 100BASE-TX or 10BASE-T Ports

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

The following table shows wiring of straight-through and crossover cables for the 100BASE-TX or 10BASE-T ports.

Figure 6-2 Twisted Pair Connections for 100BASE-TX or 10BASE-T Ports



6.2 Cabling Recommendations

When the router is installed in a standard 19-inch cabinet, secure the cables around the cable management brackets. Top cabling or bottom cabling is adopted according to the actual situation in the equipment room. All transferred cable connectors should be placed at the bottom of the cabinet in an orderly manner instead of outside the cabinet that is easy to touch. Power cords are routed beside the cabinet, and top cabling or bottom cabling is adopted according to the actual situation in the equipment room, such as the positions of the DC power distribution box, AC socket, or lightning protection box.

6.2.1 Requirement for the Minimum Bend Radius of Cables

- The bend radius of a fixed power cord, Ethernet cable, and flat cable should be over

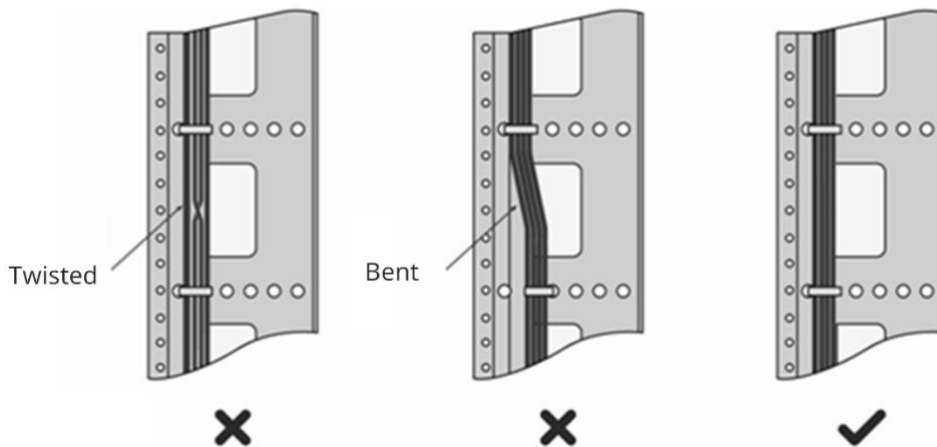
five times greater than their respective external diameters. The bend radius of these cables that are often bent or plugged should be over seven times greater than their respective external diameters.

- The bend radius of a fixed common coaxial cable should be over seven times greater than its external diameter. The bend radius of these cables that are often bent or plugged should be over 10 times greater than their respective external diameters.
- The minimum bend radius of a high-speed cable, such as an SFP+ cable, should be over five times greater than its external diameter. The bend radius of these cables that are often bent or plugged should be over 10 times greater than their respective external diameters.

6.2.2 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 6-3](#).

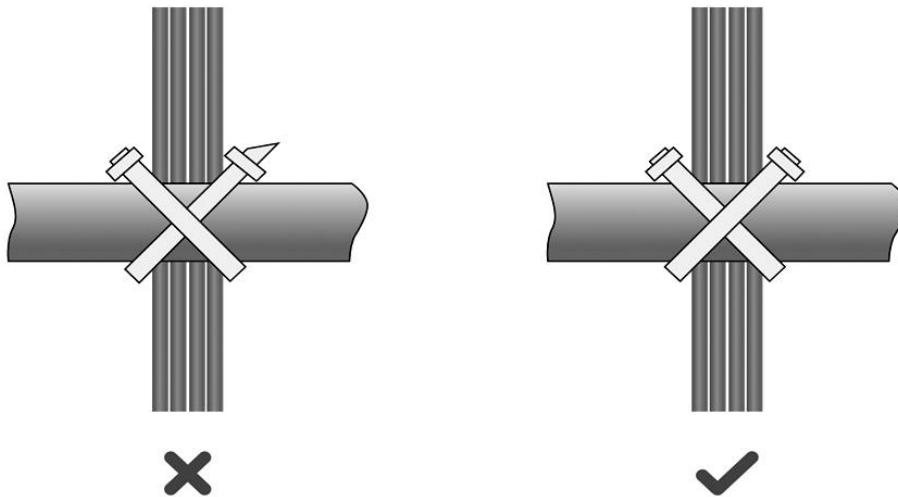
Figure 6-3 Bundling Cables (1)



- Cables of different types (such as power cords, signal cables, and grounding wires) should be separated in cabling and bundling. Mixed bundling is not allowed. When they are close to each other, you are advised to adopt crossover cabling. 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.

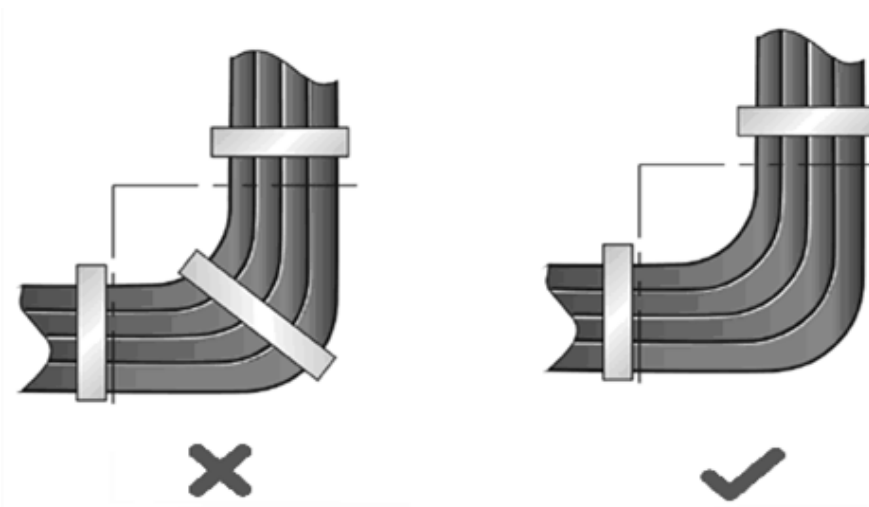
- The metal holes traversed by cables should have a smooth and fully rounded surface or an insulated lining.
- Use cable ties to bundle cables properly. Please do not connect two or more cable ties to bundle cables.
- After bundling up cables with cable ties, cut off the remaining part. The cut should be smooth and trim without sharp corners, as shown in [Figure 6-4](#).

Figure 6-4 Bundling Cables (2)



- When cables need to be bent, bundle them first but do not tie cables within the bend. Otherwise, stress may be generated on the cables and cause the wires inside to break, as shown in [Figure 6-5](#).

Figure 6-5 Binding 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 management trough. The proper position refers to a position that does not affect the equipment running or damage the equipment or cables.
- Power cords 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. When a moving part reaches the installation position, the remaining cable part should not touch heat sources, sharp corners, or sharp edges. If heat sources must be touched, 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 6-6](#).

Figure 6-6 Fastening Cables

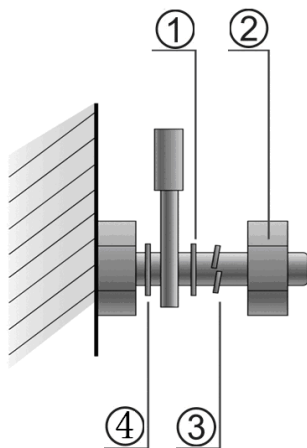


Table 6-2 Fastening Cables

No.	Component
1	Flat washer
2	Nut
3	Spring washer
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 cable bunches, with cables in cable bunches clean and straight.
- Bundle cables by using cable ties according to the following table.

Cable Bunch Diameter	Bundling Spacing
10 mm (0.39 in.)	80 mm to 150 mm (3.15 in. to 5.91 in.)
10 mm to 30 mm (0.39 in. to 1.18 in.)	150 mm to 200 mm (5.91 in. to 7.87 in.)
30 mm (1.18 in.)	200 mm to 300 mm (7.87 in. to 11.81 in.)

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