

Ruijie Reyee RG-EG210G-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

- The official website of Ruijie Reyee: <https://reyee.ruijie.com>
- Technical Support Website: <https://reyee.ruijie.com/en-global/support>
- Case Portal: <https://www.ruijienetworks.com/support/caseportal>
- Community: <https://community.ruijienetworks.com>
- Technical Support Email: service_rj@ruijienetworks.com
- Online Robot/Live Chat: <https://reyee.ruijie.com/en-global/rita>

Conventions

1. Signs

The signs used in this document are described as below:

Danger

An alert that calls attention to safety operation instructions that if not understood or followed when operating the device can result in physical injury.

Warning

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

Caution

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

Note

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

Specification

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

2. Note

This manual provides installation steps, troubleshooting, technical specifications, and usage guidelines for 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

Featured with global-leading semiconductor technologies and communication control technologies, Ruijie EG series router is a data communication product developed by Ruijie Networks with independent intellectual property right. The EG series router is designed according to international standards, similar to the mainstream router products in the international market. By reading this manual, a network administrator familiar with mainstream router configuration commands can use this device without training.

1.1 RG-EG210G-P

1.1.1 Specifications

Table 1-1 Technical Specifications of an RG-EG210G-P-E Router

Model	RG-EG210G-P
Storage	DDR3 SDRAM: 256MB
	ROM: 16MB
Power Module	External 80W power adapter
Interface Standard	Ethernet: 10Base-T/100Base-TX/1000Base-TX
Dimension (without rubber pads) (W x H x D)	202 mm x 28 mm x 108 mm (7.95 in. x 1.1 in. x 4.25 in.)
Voltage	100V to 240V~, 50/60Hz, 1.5A max.
Power Consumption	Less than 80W (With PoE)
PoE	IEEE 802.3af/at, 70W max. output
Working Temperature	0°C to 40°C (32°F to 104°F)
Working Humidity	10% to 90% RH (non-condensing)
Product Certification	CE
	ROHS

Warning

Operation of this equipment in a residential environment could cause radio interference.

Caution

- Please avoid the vibration and collision in the process of moving and usage.
- Products should be transported in original package.

1.1.2 Appearance

Figure 1-1 Front Panel of RG-EG210G-P

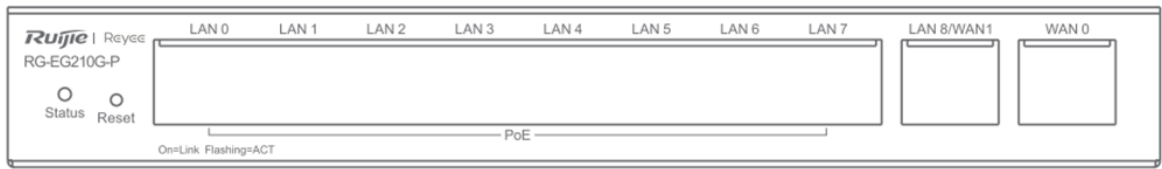


Figure 1-2 Back Panel of RG-EG210G-P

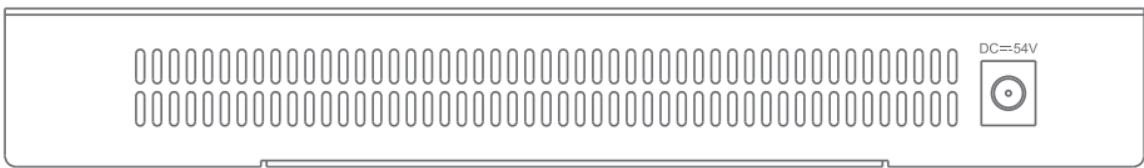
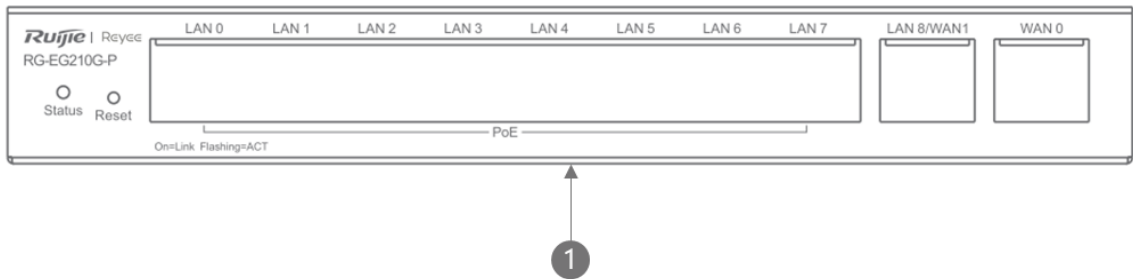


Figure 1-3 Label of RG-EG210G-P

The nameplate is on the bottom of the RG-EG210G-P router, as shown in the following figure.



Mark	Item	Description
1	Nameplate	Nameplate on the bottom of the device. Contains the product name, model, I/O parameters, default IP address, etc.

1.1.3 Interface

Interface	Description
WAN	1 WAN port, used to connect to the DSL/Cable modem for Internet access.

Interface	Description
LAN	9 LAN ports, used to connect the computer to the switch or access point (AP). The LAN8 port can be used as a WAN port via the Web configuration.

1.1.4 LED Indicator

LED Indicator	Description
Status	Blinking green (0.5Hz): The device has started up, but is not connected to the Ruijie Cloud. Solid green: The device has started up, and is connected to the Ruijie Cloud. Blinking green (10Hz): The device is starting up/shutting down, or PoE overload occurs.
Link/ACT	Solid green: the port is up. Blinking green: data is being transceived on the port.

1.1.5 Button

Button	Description
Reset	Press reset button until the status LED blinks green at 10Hz to restore the device to the factory default setting. The default management IP address is http://192.168.110.1 .

2 Preparation

The router acts as the critical transfer station of network connections, and its normal service is crucial to the normal operation of the entire network.

- Do not place the device in a watery place and prevent any liquid from entering into it.
- Keep the device away from heat sources.
- Ensure the normal grounding of device.
- Wear an anti-static wrist strap to install and maintain the device.
- Do not wear loose clothes to avoid hooking any parts. Before operation, tighten your band, shawl and sleeves.
- Keep tools and parts away from the walkway to avoid damage.
- Use the uninterruptible power supply (UPS) to avoid power failure and other interferences.
- If the system time is incorrect, check whether you have set the clock. If the clock is not set, the time may not be correct; if the clock has been set precisely and the time is still incorrect, the built-in button cell of device may have ran out, which is typically happened after 10-year service.
- Install and use the device in restricted access locations.

Caution

Use of wrong battery may cause damage to the device. Do not replace the battery by yourself. Please contact the technical support for help.

Note

- Install and use the device in restricted access locations.
 - Invite professionals and related technicians to install this type of device.
-

Caution

Where a plug on the power supply cord is used as the disconnect device, the installation instructions shall state that for pluggable equipment, the socket-outlet shall be easily accessible. For pluggable equipment intended for installation by an ordinary person, the installation instructions shall be made available to the ordinary person.

2.1 Installation Environment

Ruijie EG series router products are for indoor use only. To ensure normal operation and prolong their service life, the installation site must meet the following requirements:

2.1.1 Temperature/humidity requirements

To ensure normal operation and prolong the service life of the device, the equipment room must maintain constant temperature and humidity. If the equipment room is overheated for a long time, the insulation materials may result in defective insulation and even electric leakage. If the relative humidity is low, the insulation spacer

may result in dry shrinkage, which will make screws looser and easily generate static electricity in the dry environment, thus damaging the interior circuits on the device. Excessively high temperature will accelerate the aging of insulation materials and compromise the reliability and even service life of the device. The temperature/humidity requirements are shown below (detailed difference between products is described in Product Overview):

Temperature	Relative Humidity
0°C to 40°C (32°F to 104°F)	10% to 90%

**Note**

The temperature/humidity of working environment indicates the value measured at 1.5 m above the floor and 0.4 m ahead of the equipment frame when there is no protection plate on the front and rear side of the equipment frame.

2.1.2 Cleanliness

The dust is also a major threat to the safe operation of device. The dust accumulated on the device may cause electrostatic adsorption and result in poor contact. It will not only compromise the service life of device but also cause communication failure. When the indoor relative humidity is low, such electrostatic adsorption will occur more easily.

Maximum Diameter (μm)	0.5	1	3	5
Maximum Density (Particles/m ³)	1.4×10 ⁷	7×10 ⁵	2.4×10 ⁵	1.3×10 ⁵

Apart from the dust, the device is also sensitive to the hydrochloric acid sulfide contained in the air. These noxious gases will accelerate metal wastage and the aging of certain parts. The upper limits of noxious gases (Sulfur dioxide, Sulfured hydrogen, Nitrogen dioxide, Ammonia and Chlorine) in the following table:

Gas	Average (mg/m ³)	Maximum (mg/m ³)
SO ₂	0.2	1.5
HS	0	0.03
NO ₂	0.04	0.15
N ₂	0.05	0.15
Cl ₂	0.01	0.3

2.1.3 ESD

The router has already given consideration to electrostatic prevention during circuit design, but excessively strong static electricity will still damage the circuit board. The static electricity in the communication network connected with the device is mainly from:

- Outdoor high-voltage transmission line, lightning and other exterior electric fields.
- Indoor environment, flooring material, complete appliance structure and other in-house systems.

To avoid the damage caused by static electricity, we shall:

- Properly ground the device and floor.
- Apply indoor dust control.
- Maintain proper temperature and humidity.
- Before touching the circuit board, wear an anti-static wrist strap and an anti-static uniform.
- Place the circuit board disassembled face up on the antistatic workbench or in the electromagnetic shielded bag.
- When observing or transferring the circuit board of router, touch the outer edge of circuit board and avoid direct contact with the components on the circuit board.

2.1.4 Anti-Interference

The interference as mentioned herein refers to electromagnetic or electrical interference, and the anti-interference requirements are described below:

- Effective power grid interference control measures shall be taken against the power supply system.
- The working ground of the router shall be kept far away from the grounding device or lightning grounding device of power equipment instead of sharing.
- The router shall be kept far away from high-power radio-transmitting station, radar-transmitting station and other high-frequency & heavy-current devices.
- Electromagnetic shielding measures shall be taken whenever necessary.

2.1.5 Installation Site

No matter the router is installed in the cabinet or on the workbench, the following requirements shall be met:

- Make sure sufficient room has been reserved for the air intake and air vent of router to facilitate the heat elimination of the router chassis. It is recommended to install the router in the 19-inch standard cabinet. Otherwise, install it on a clean and flat surface. In heated areas, the air conditioning system shall be equipped.
- Make sure the cabinet and workbench is equipped with a good ventilation and cooling system.
- Make sure the cabinet and workbench is steady enough and capable of withstanding the weight of the router and its accessories.
- Make sure the cabinet and workbench is properly grounded.

2.2 Installation Tools and Devices

Please prepare the following tools and devices:

Installation Tools	Phillips screwdriver, ESD wrist strap
Cables	Power cables, configuration cables, Ethernet cables, grounding wires

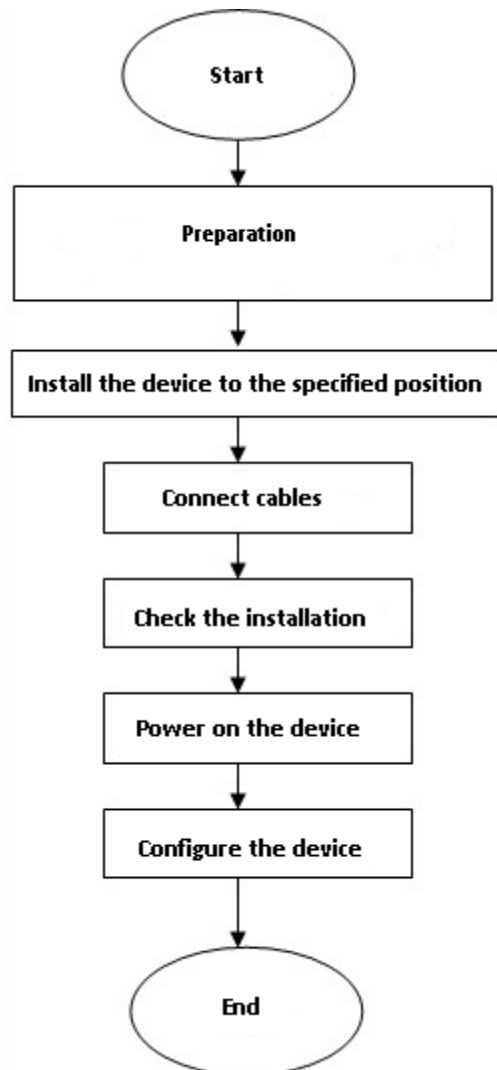
Devices	HUB or switch, configuration terminal (PC with hyper-terminal), power socket
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3 Installing the Router

3.1 Installation Flowchart

Please take the following steps:

Figure 3-1 Installation Flowchart



3.2 Mounting the Router

Mounting the router refers to installing the device to the specified position. Upon completion of installation preparation, fix the router to the specified position. The installation position of router is generally a cabinet or a workbench.

Mounting on a Workbench

In most cases, the user does not have a standard cabinet. Instead, the user can place the device on a clean workbench. Although it is easy and simple, you shall pay attention to the following:

- Guarantee the steadiness and good grounding of the workbench.
- Attach the rubber pads onto the small holes at the bottom of the router, and maintain a minimum of 10 cm around the device.
- Do not place heavy things on the device.

3.3 Installing Power Cables

The requirements of Ruijie EG series router products on AC power supply are described below (refer to *Product Overview* for detailed parameters):

100–240 V / 50/60 Hz.

RG-EG series router uses 3-conductor power cables. You are suggested to use a single-phase 3-conductor outlet or a multifunction microcomputer outlet with neutral connector. The neutral point of the power supply shall be securely grounded in the building. In most buildings, the neutral point of a power supply has been grounded during the construction. You need to make sure the power supply is properly grounded.

Please take the following steps:

- Plug one end of the power cable into the power socket on the backpanel of the router, and plug the other end into the AC power supply outlet.
- Check whether the power LED on the front panel of the router lights up or not. The LED indicator will light up if the power supply is properly connected.

3.4 Checking after the Installation

After completing the mechanical installation of router, perform the following checks before powering on the device:

- If the device is installed in a cabinet, check whether the angle bar for device installation is steady. If the device is installed on the workbench, check whether sufficient room is reversed around the device to ensure heat elimination and whether the workbench is steady.
- Check whether the power supply meets the requirements.
- Check whether the earth wire of device is properly connected.
- Check whether the device is connected correctly to the configuration terminal.

4 Quick Configuration

4.1 Connecting Devices

Connecting to AP

- (1) Connect the AP device to the EG router via network cable.
- (2) Power on the devices.
- (3) The AP device broadcasts an SSID with a prefix starting with @Ruijie-mXXXX.

Connecting to PC

- (1) Connect the PC to the EG router via network cable.
- (2) Enable the PC to automatically obtain the IP address.

4.2 Power-on Startup

Checks before Power-on

Before power-on, perform the following checks on the router:

- Whether the power cable and the ground wire are properly connected.
- Whether the power voltage is consistent with the requirement of the router.
- Whether the configuration cable is properly connected, and whether the microcomputer or terminal for device configuration is started or configured.



Caution

Before powering on the router, be aware of the location of the power switch of the router to timely cut off power supply in case of any accident.

Powering on the Router

- Turn on the power supply switch of the router.

Checks after Power-on

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

- Whether the LED indicators on the front panel of the router works normally.

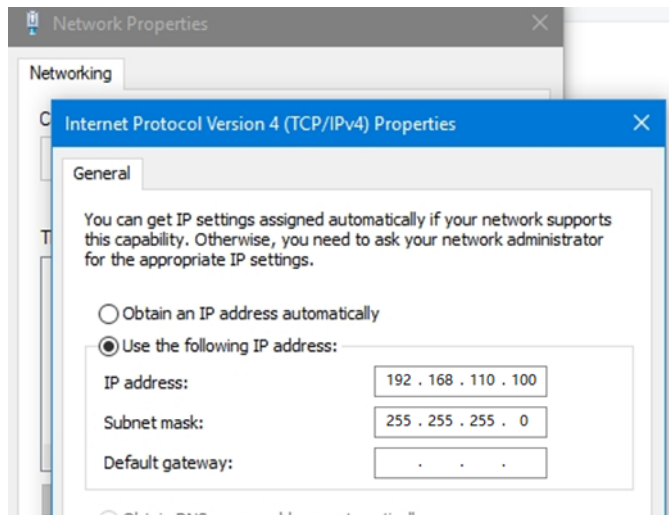
Refer to the indicators in *Product Overview*.

- Whether the Web-based system is available.

The default management IP address is <http://192.168.110.1>.

4.3 Log In to the Web Interface

- (1) Start up the PC and configure the local connection attribute on the PC. Change the static IP address of the PC to 192.168.110.XXX (1–255, excluding 1).



- (2) Open a browser, enter 192.168.110.1 into the address bar of the browser, and press **Enter**.

Caution

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

4.4 Configuring Router

To use the router, you need to properly configure the router as required. Refer to the relevant Web-based configuration guide for details about router configuration.

5 Troubleshooting

5.1 Power Supply

Refer to *Product Overview* for the normal state descriptions of LED indicators. If abnormality occurs, perform the following checks:

- Whether the power switch is turned on.
- Whether the power supply of the router is turned on.
- Whether the power cable is properly connected.
- Whether the power supply to the router meets relevant requirements.

 Caution

Do not plug or pull the power cable when the device is powered on. If everything is ok but the Status LED still does not light up, contact with a local distributor or technical support personnel.

5.2 Configuration System

After the router is powered on, the Web-based configuration system is available if the device works normally. If not, please check:

- Whether the power system works normally.
- Whether the network cable is properly connected.
- Whether the network card of the computer is using DHCP to obtain the IP address.

6 Appendix

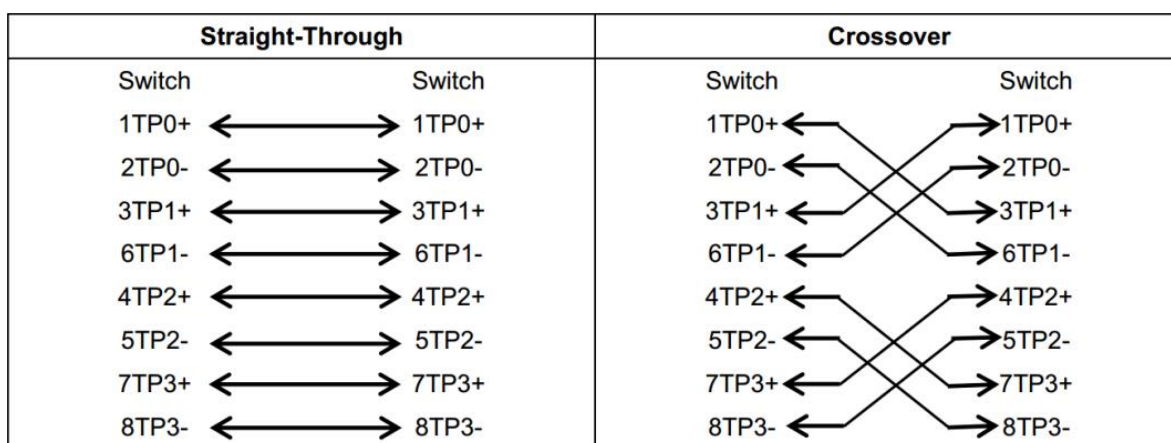
6.1 Connectors and Media

• 1000BASE-T/100BASE-TX/10BASE-T

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

Compliant with IEEE 802.3ab, 1000BASE-T requires Category 5e 100-ohm UTP or STP (STP is recommended) with a maximum distance of 100 meters (328 feet). 1000BASE-T requires all four pairs of wires be connected for data transmission, as shown in Figure 6-1.

Figure 6-1 1000BASE-T Connection



10BASE-T uses Category 3, 4, 5, 5 100-ohm UTP/STP and 1000BASE-T uses Category 5 100-ohm UTP/STP for connections. Both support a maximum length of 100 meters. [Table 6-1](#) shows 100BASE-TX/10BASE-T pin assignments.

Table 6-1 100BASE-TX/10BASE-T Pin Assignments

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

[Figure 6-2](#) shows wiring of straight-through and crossover cables for 100BASE-TX/10BASE-T.

Figure 6-2 100BASE-TX/10BASE-T Connection

Straight-Through		Crossover	
Switch	Adapter	Switch	Switch
1 IRD+ ←	→ 1 OTD+	1 IRD+ ←	→ 1 IRD+
2 IRD- ←	→ 2 OTD-	2 IRD- ←	→ 2 IRD-
3 OTD+ ←	→ 3 IRD+	3 OTD+ ←	→ 3 OTD+
6 OTD- ←	→ 6 IRD-	6 OTD- ←	→ 6 OTD-

6.2 Cabling

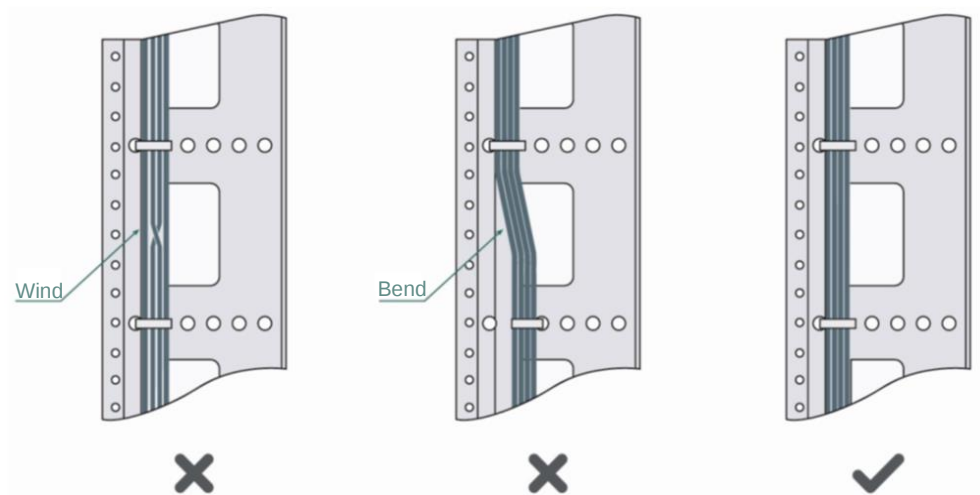
When the router is installed in a standard 19-inch cabinet, secure the cables around the cable management brackets. Top cabling or bottom cabling is adopted according to the actual situation in the equipment room. All transferred cable connectors should be placed at the bottom of the cabinet in an orderly 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 Requirements for the Minimum Cable Bend Radius

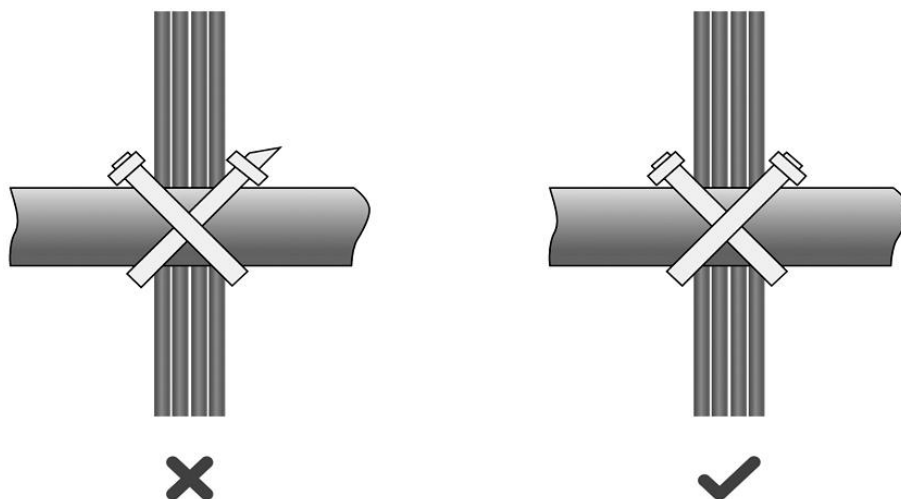
- The bend radius of a fixed power cord, network cable, or flat cable should be over five times greater than their respective diameters. The bend radius of these cables that are often bent or plugged should be over seven times greater than their respective diameters.
- The bend radius of a fixed common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

6.2.2 Precautions for Bundling up Cables

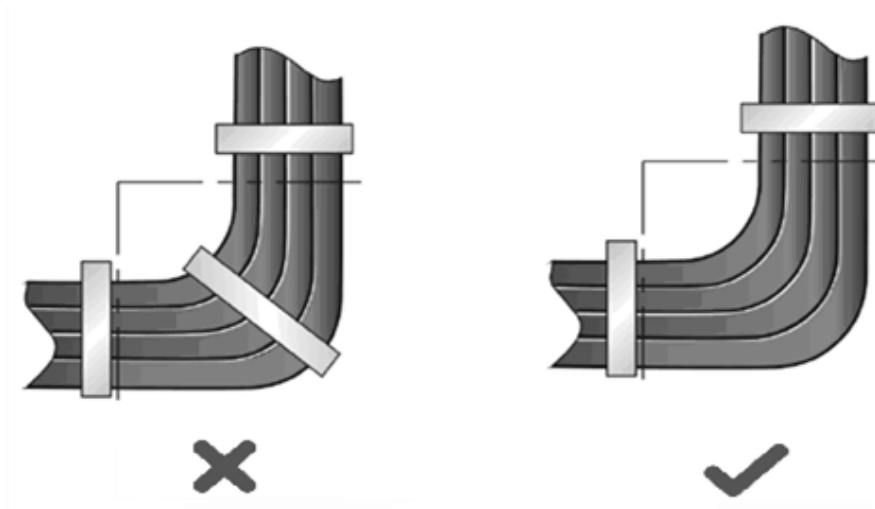
- Before cables are bundled, mark labels and stick the labels to cables wherever appropriate.
- Cables should be neatly and properly bundled in the cabinet without twisting or bending, as shown in [Figure 6-3](#).

Figure 6-3 Binding Cables (1)

- Cables of different types (such as power cords, signal cables, and ground cables) should be separated in cabling and bundling. Mixed bundling is not allowed. When they are close to each other, it is recommended 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 cabinet should be smooth without sharp corners.
- The metal hole traversed by cables should have a smooth and fully rounding surface or an insulated lining.
- Use cable ties to bundle up cables properly. Please do not connect two or more cable ties to bundle up cables.
- After bundling up cables with cable ties, cut off the remaining part. The cut should be smooth and trim, without sharp corners, as shown in [Figure 6-4](#).

Figure 6-4 Binding Cables (2)

- When cables need to be bent, please bundle them up but do not tie them where the cables will be bent. Otherwise, considerable stress may be generated in cables, breaking cable cores, as shown in [Figure 6-5](#).

Figure 6-5 Binding Cables (3)

- Cables not to be assembled or remaining parts of cables should be folded and placed in a proper position of the cabinet or cable trough. The proper position refers to a position that does not affect device running or damage the switch or cable.
- 220 V and –48 V 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 access after being assembled to avoid suffering tension or stress. After the moving part is installed, the remaining cable part should not touch heat sources, sharp corners, or sharp edges. If heat sources cannot be avoided, high-temperature cables should be used. If heat sources cannot be avoided, high-temperature cables should be used.
- When screw threads are used to fasten cable terminals, the bolt or screw must be tightly fastened, and anti-loosening measures should be taken, as shown in [Figure 6-6](#).

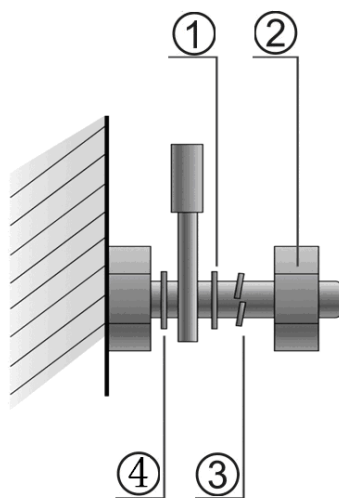
Figure 6-6 Cable Fastening

Table 6-2 Cable Fastening Components

No.	Components
1	Flat washer
2	Nut
3	Spring washer
4	Flat washer

- Hard power cords should be fastened in the terminal connection area to prevent stress on terminal connection and cable.
- Do not use self-tapping screws to fasten terminals.
- power cords of the same type and in the same cabling direction should be bundled up into cable bunches, with cables in cable bunches clean and straight.
- Bundle up cables by using cable ties based on the following table.

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

- No knot is allowed in cabling or bundling.
- For wiring terminal blocks (such as circuit breakers) with cord end terminals, the metal part of the cord end terminal should not be exposed outside the terminal block when assembled.