

Ruijie Reyee RG-RAP72Pro Access Point

Installation Guide



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Preface

Audience

This document is intended for:

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

Technical Support

- 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. GUI Symbols

Interface symbol	Description	Example
Boldface	1. Button names 2. Window names, tab name, field name and menu items 3. Link	1. Click OK . 2. Select Config Wizard . 3. Click the Download File link.
>	Multi-level menus items	Select System > Time .

2. Signs

The signs used in this document are described as follows:



Danger

An alert that calls attention to safety instruction that if not understood or followed can result in personal 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.

3. 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 Overview

1.1 About the RG-RAP72Pro

The RG-RAP72Pro access point (AP) is a powerful Wi-Fi 7 5040 Mbps dual-band ceiling AP designed for indoor scenarios such as offices, hotels, and schools. Featuring multiple advanced technologies, this AP can deliver high-speed, stable, and secure Wi-Fi connectivity to meet the diverse needs of users.

The RG-RAP72Pro supports the IEEE 802.3at standard PoE and 12 V DC power supply, offering flexibility to choose the most suitable power supply mode based on specific conditions. It is compatible with the IEEE 802.11a/b/g/n/ac/ax/be standards, and operates in the 2.4 GHz and 5 GHz frequency bands. The RG-RAP72Pro delivers data rates of 0.688 Gbps in the 2.4 GHz band and 4.323 Gbps in the 5 GHz band, with a maximum data rate of 5.01 Gbps, meeting the requirements for high-speed wireless connectivity.

Moreover, the RG-RAP72Pro provides one 2.5G Ethernet port and one 1000 Mbps Ethernet port, bringing the high-speed wireless performance into full play. Leveraging Reyee Self-Organizing Network technology, it can cater to diverse networking needs while ensuring complete indoor Wi-Fi coverage.

1.2 Package Contents

Table 1-1 Package Contents

Item	Quantity
RG-RAP72Pro access point	1
Mounting plate	1
Mounting template	1
Latch	1
Phillips pan head screws	4
Wall anchors	4
User Manual	1
Warranty Card	1

Note

The package contents are subject to the purchase contract, and actual delivery may vary. Please check the items carefully against the package contents or purchase contract. If you have any questions, please contact your distributor.

1.3 Product Appearance

Figure 1-1 Appearance



1.3.2 Front Panel

Figure 1-2 Front Panel

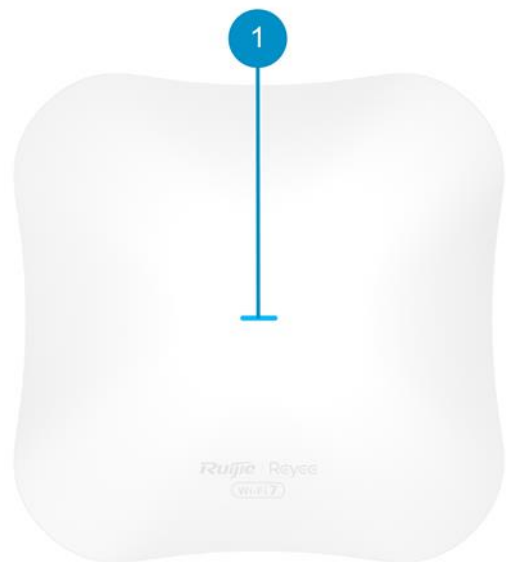


Table 1-2 LEDs

No.	Status	Description
1	Solid blue	The device is working properly.
	Off	The device is not receiving power.

No.	Status	Description
	Fast blinking blue	The device is starting up.
	Blinking blue (one blink per 2 seconds)	The device is not connected to the Internet.
	Blinking blue twice	Possible cases: The device is resetting. The device is recovering.
		Caution Do not power off the device when the LED is in this state.
	Solid blue (one long blink and three short blinks)	Other faults have occurred.

1.3.3 Rear Panel

Figure 1-3 Rear Panel

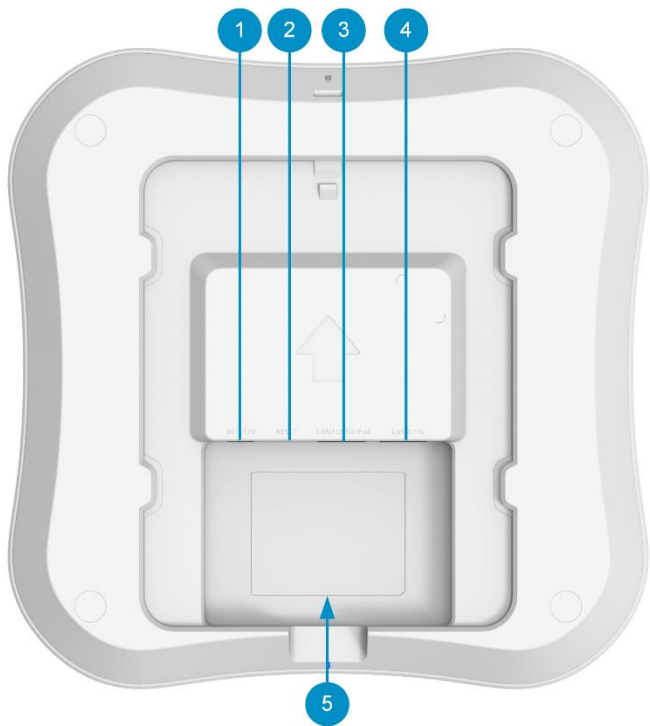


Table 1-3 Components on the Rear Panel

No.	Component	Description
1	DC power connector	Supplies power to the AP, with a power supply specification of DC 12 V
2	Reset button	Press and hold for less than 2 seconds: Restart the device. Press and hold for more than 5 seconds: Restore the device to factory settings.
3	LAN1/2.5G/PoE port	100/1000/2500BASE-T port with auto-negotiation, supporting PoE input
4	LAN2/1G port	100/1000BASE-T port with auto-negotiation
5	Label	The label is at the bottom of the device.

1.4 Technical Specifications

Table 1-4 Technical Specifications

Radio Design	2.4 GHz: dual-stream 5 GHz: tri-stream
Wi-Fi Standards	IEEE 802.11a/b/g/n/ac/ax/be
Operating Frequency Bands	IEEE 802.11b/g/n/ax/be: 2.4 GHz to 2.4835 GHz IEEE 802.11a/n/ac/ax/be: 5.150 GHz to 5.350 GHz, 5.470 GHz to 5.725 GHz, 5.725 GHz to 5.850 GHz
Spatial Streams	2.4 GHz: two spatial streams, 2x2 MU-MIMO 5 GHz: three spatial streams, 3x3 MU-MIMO
Max. Wi-Fi Speed	2.4 GHz: 0.688 Gbps 5 GHz: 4.323 Gbps Combined: 5.01 Gbps
Modulation	OFDM: BPSK@6/9 Mbps, QPSK@12/18 Mbps, 16QAM@24 Mbps, 64QAM@48/54 Mbps DSSS: DBPSK@1 Mbps, DQPSK@2 Mbps, CCK@5.5/11 Mbps MIMO-OFDM: BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM, 4096QAM, OFDMA

Receiver Sensitivity	<p>11b: -90 dBm (1 Mbps), -87 dBm (5.5 Mbps), -76 dBm (11 Mbps)</p> <p>11a/g: -82 dBm (6 Mbps), -74 dBm (24 Mbps), -70 dBm (36 Mbps), -65 dBm (54 Mbps)</p> <p>11n: 20MHz: -82 dBm (MCS0), -64 dBm (MCS7)</p> <p>11n: 40MHz: -79 dBm (MCS0), -61 dBm (MCS7)</p> <p>11ac: 20MHz: -82 dBm (MCS0), -59 dBm (MCS8)</p> <p>11ac: 40MHz: -79 dBm (MCS0), -54 dBm (MCS8)</p> <p>11ac: 80MHz: -76 dBm (MCS0), -51 dBm (MCS9)</p> <p>11ac: 160MHz: -73 dBm (MCS0), -48 dBm (MCS9)</p> <p>11ax: 20MHz: -82 dBm (MCS0), -52 dBm (MCS11)</p> <p>11ax: 40MHz: -79 dBm (MCS0), -49 dBm (MCS11)</p> <p>11ax: 80MHz: -76 dBm (MCS0), -46 dBm (MCS11)</p> <p>11ax: 160MHz: -73 dBm (MCS0), -43 dBm (MCS11)</p> <p>11be: 20MHz: -82 dBm (MCS0), -46 dBm (MCS13)</p> <p>11be: 40MHz: -79 dBm (MCS0), -43 dBm (MCS13)</p> <p>11be: 80MHz: -76 dBm (MCS0), -40 dBm (MCS13)</p> <p>11be: 160MHz: -73 dBm (MCS0), -37 dBm (MCS13)</p> <p>11be: 320MHz: -70 dBm (MCS0), -34 dBm (MCS13)</p>
Max. Transmit Power	<p>Frequency bands and maximum Effective Isotropic Radiated Power (EIRP):</p> <hr/> <p>Note</p> <p>Country specific restrictions apply.</p> <hr/> <p>European Union & United Kingdom: 2400 to 2483.5 MHz, EIRP ≤ 20 dBm 5150 to 5350 MHz, EIRP ≤ 23 dBm 5470 to 5725 MHz, EIRP ≤ 30 dBm</p> <p>United States: 2400 to 2483.5 MHz, max output power ≤ 30 dBm & EIRP ≤ 36 dBm 5150 to 5250 MHz, max output power ≤ 30 dBm & EIRP ≤ 36 dBm 5250 to 5350 MHz, max output power ≤ 24 dBm & EIRP ≤ 30 dBm 5470 to 5725 MHz, max output power ≤ 24 dBm & EIRP ≤ 30 dBm 5725 to 5850 MHz, max output power ≤ 30 dBm & EIRP ≤ 36 dBm</p> <p>Thailand: 2400 to 2483.5 MHz, EIRP ≤ 20 dBm 5150 to 5350 MHz, EIRP ≤ 23 dBm 5470 to 5725 MHz, EIRP ≤ 30 dBm 5725 to 5825 MHz, EIRP ≤ 30 dBm</p>
Power Step	1 dBm

Dimensions (W X D X H)	280 mm x 280 mm x 45 mm (11.02 in. x 11.02 in. x 1.77 in.) (excluding the mounting bracket)
Net Weight	≤ 0.7 kg (1.54 lbs.)
Service Ports	1 x 100/1000/2500BASE-T Ethernet port with auto-negotiation, support PoE input 1 x 100/1000BASE-T Ethernet port with auto-negotiation
Management Port	NA
Status LED	1 x status LED (blue)
Power Supply Options	DC power adapter: Local power supply at 12 V/2.5 A Standard PoE: 802.3at-compliant PoE
Max. Power Consumption	< 30 W
Temperature	Working temperature: 0°C to 40°C (32°F to 104°F)
	Storage temperature: -40°C to +70°C (-40°F to +158°F)
Humidity	Working humidity: 5% RH to 95% RH (non-condensing)
	Storage humidity: 5% RH to 95% RH (non-condensing)
Certification	CE, FCC, ISED, cTUVus
MTBF	> 400000 hours

1.5 Power Supply Technical Specifications

The RG-RAP72Pro can be powered by the DC power supply or PoE.

- When a DC power adapter is used for power supply, the power adapter should have a voltage of 12 V and a current of 2.5 A or higher. Dimensions of the DC power connector (outer diameter x inner diameter x depth): 5.5 mm x 2.1 mm x 10 mm (0.22 in. x 0.08 in. x 0.39 in.).
- When the AP is powered by standard PoE, the Ethernet cable must be connected to the LAN1/2.5G/PoE port of the AP, and the other end of the Ethernet cable must be connected to the PoE-capable switch port or a PoE power sourcing equipment. Ensure that the power sourcing equipment supports IEEE 802.3at.

1.6 Cooling

The RG-RAP72Pro adopts a fanless design.

Caution

Ensure that there is sufficient space around the AP for heat dissipation.

2 Preparing for Installation

2.1 Safety Guidelines



Note

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

2.1.1 Safety Precautions

- Do not expose the AP to high temperature, dusts, or harmful gases. Do not install the AP in an inflammable or explosive environment. Keep the AP away from Electro-Magnetic Interference (EMI) sources such as large radar stations, radio stations, and substations. Do not subject the AP to unstable voltage, vibration, and noises.
- The installation site should be dry. You are not advised to install the AP in a place near the sea. Keep the device at least 500 meters (1,640.41 ft.) away from the ocean and do not face it towards the sea breeze.
- The installation site should be free from water flooding, seepage, dripping, or condensation. The installation site should be selected according to communication network planning and technical requirements for communication equipment, and considerations such as climate, hydrology, geology, earthquake, electrical power, and transportation.



Caution

Follow the installation instructions in the user manual to correctly install or remove the AP.

2.1.2 Handling Safety

- After the AP is installed, avoid handling it frequently.
- Turn off all power supplies and unplug all power cables before you handle the AP.

2.1.3 Electrical Safety



Warning

- Improper or incorrect electric operations may cause a fire, electric shock, and other accidents, and lead to severe and fatal personal injury and device damage.
 - Direct or indirect contact through wet objects with high voltage or mains power supply may be fatal.
-
- Always observe the local regulations and standards. Only trained and qualified personnel should be allowed to operate the AP.
 - Check potential risks in the work area, such as wet floor.
 - Find out the position of the indoor emergency power switch before installation. Cut off the power supply in case of accidents.

- Make sure that the AP is powered off when you cut off the power supply.
- Do not place the AP in a wet position, and keep it away from liquid.
- Keep the AP far away from grounding or lightning protection devices for power equipment.
- Keep the AP away from radio stations, radar stations, high-frequency and high-current devices, microwave ovens, and other high-power wireless devices.

2.2 Installation Site Requirements

The RG-RAP72Pro must be used indoors. For normal operation and prolonged service life of the access point, the installation site must meet the following requirements.

2.2.1 Bearing

Ensure that the installation site is firm enough to support the weight of the RG-RAP72Pro and its accessories.

2.2.2 Space

- The AP should be installed in an open environment if possible. If the AP is to be installed in an enclosed environment, ensure that a good ventilation and heat dissipation system is available.
- Ensure that the installation site has sufficient space for heat dissipation.

2.2.3 Ventilation

The RG-RAP72Pro adopts natural cooling. When installing the AP, ensure that there is sufficient space in front, back, left, and right of the AP for heat dissipation.

2.2.4 Temperature and Humidity

To ensure that the RG-RAP72Pro works properly and has a long service life, maintain a proper temperature and humidity in the working environment. Improper room temperature and humidity can cause damage to the AP.

- High relative humidity may affect insulation materials, resulting in poor insulation and even electrical leakage. Sometimes it may lead to changes in the mechanical properties of materials and corrosion of metal parts.
- Low relative humidity can dry and shrink insulation sheets and cause static electricity that can damage the circuitry.
- High temperatures greatly reduce device reliability and shorten service life.

2.2.5 Cleanliness

Dust poses a major threat to the device. The indoor dust can cause electrostatic adhesion when falling on the device, causing poor contact of the metallic joint. Such electrostatic adhesion occurs more easily when the indoor relative humidity is low, not only affecting the service life of the device, but also causing communication failure easily. The following table lists the requirements on the dust content and diameter in the equipment room.

Table 2-1 Dust and Particles

Particle Size	Unit	Content
$\geq 0.5 \mu\text{m}$	Particles/ m^3	$\leq 1.4 \times 10^7$
$\geq 1 \mu\text{m}$	Particles/ m^3	$\leq 7 \times 10^5$

$\geq 3 \mu\text{m}$	Particles/ m^3	$\leq 2.4 \times 10^5$
$\geq 5 \mu\text{m}$	Particles/ m^3	$\leq 1.3 \times 10^5$

Apart from dust, the salt, acid, and sulfide in the air of the equipment room must meet strict requirement. These harmful substances will accelerate metal corrosion and component aging. The equipment room should be protected from harmful gases (such as sulfur dioxide, hydrogen sulfide, nitrogen dioxide, ammonia, and chlorine). The following table lists the limits of harmful gases in the equipment room.

Table 2-2 Hazardous Gases

Gas	Average (mg/m^3)	Maximum (mg/m^3)
Sulfur dioxide (SO_2)	0.2	1.5
Hydrogen sulfide (H_2S)	0.006	0.03
Nitrogen dioxide (NO_2)	0.04	0.15
Ammonia gas (NH_3)	0.05	0.15
Chlorine gas (Cl_2)	0.01	0.3

Note

The average value is measured over one week. The maximum value is the upper limit of the harmful gas measured in one week for up to 30 minutes every day.

2.2.6 EMI

- Keep the AP as far away from the grounding equipment of the power device and the lightning prevention equipment as possible.
- Keep the device away from radio stations, radar stations, high-frequency and high-current devices, microwave ovens, and other high-power wireless devices.

2.3 Tools

Table 2-3 Tools

Common Tools	Phillips screwdriver, cables, cage nuts, diagonal plier, cable ties
Special Tools	ESD gloves, wire stripper, crimping plier, RJ45 crimping plier, wire cutter, and waterproof adhesive tape
Meters	Multimeter and bit error rate tester (BERT)

Note

This device is delivered without a toolkit. Prepare the preceding tools by yourself.

3 Installing the AP

The RG-RAP72Pro must be installed indoors, and used in a fixed place.

⚠ Caution

Before installing the AP, make sure that you have carefully read the requirements described in Chapter 2.

3.1 Before You Begin

Before installing the RG-RAP72Pro, carefully plan and arrange the installation location, networking mode, power supply, and cabling. Confirm the following requirements before installation:

- The installation site should provide sufficient space for heat dissipation.
- The installation site meets the temperature and humidity requirements of the AP.
- The power supply and required current are available in the installation site.
- The selected power supply modules meet the system power requirements.
- The installation site meets the cabling requirements of the AP.
- The installation site meets the site requirements of the AP.
- The customized AP meets the client-specific requirements.

3.2 Safety Precautions During Installation

To ensure the normal operation and prolonged service life of the AP, observe the following safety precautions:

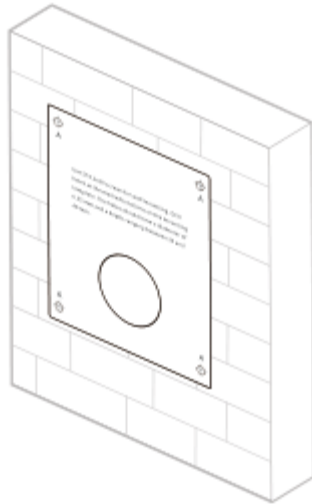
- Do not power on the AP during installation.
- Place the AP in a well-ventilated environment.
- Do not expose the AP to high temperature.
- Keep the AP away from high-voltage power cables.
- Install the AP indoors.
- Do not expose the AP to a thunderstorm or strong electric field.
- Keep the AP clean and dust-free.
- Cut off the power supply before cleaning the AP.
- Do not wipe the AP with a damp cloth.
- Do not wash the AP with liquid.
- Do not open the enclosure when the AP is working.
- Secure the AP properly.

3.3 Installing the AP

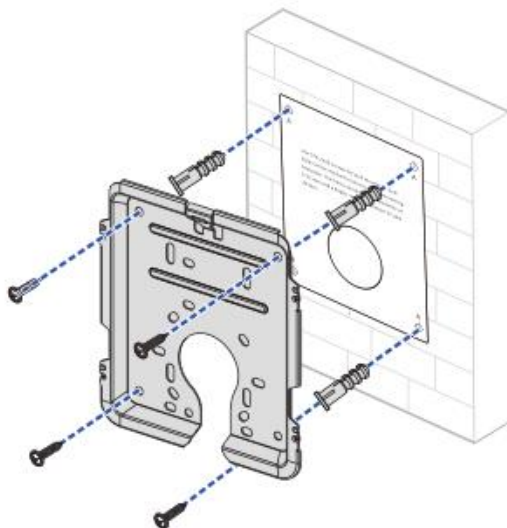
Note

- In an indoor environment, a ceiling-mounted AP offer broader antenna radiation coverage compared to a wall-mounted one. Hence, ceiling mounting is the preferred option.
 - The schematic diagram provided is for reference purposes only. The actual product should be installed based on its physical specifications and design.
-

- (1) Drill holes on the ceiling or wall using the mounting template.



- (2) Use four Phillips head screws and wall anchors to secure the mounting plate to the ceiling or wall.



⚠ Caution

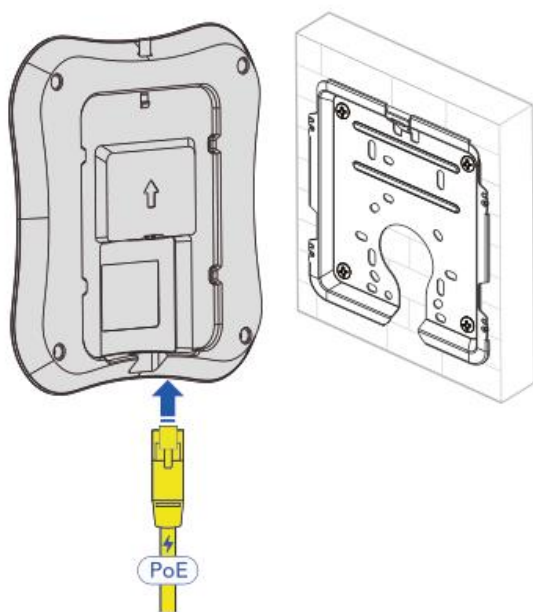
The plane deviation of the wall in a specific area should be within 2 mm (0.08 in.), and the recommended torque for installation is 4 kgf.cm. In case of uneven installation site, please mount the AP on a protruding wall.

(3) Connect cables according to the actual networking. The following describes how to connect cables on the AP side.

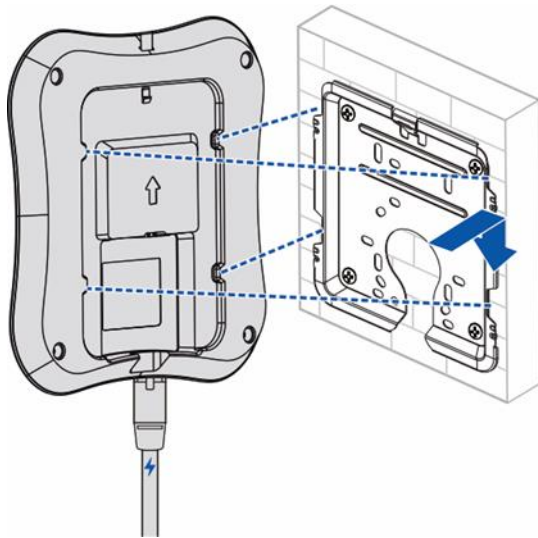
- Ethernet cable: Connect one end of the Ethernet cable to the LAN1/2.5G/PoE port (supports PoE input) or the LAN2/1G port on the back of the AP.
- DC power cord: When DC power supply is used, connect one end of the power cord to the DC 12 V power connector on the back of the AP.

⚠ Caution

- Avoid a small bend radius at the connector.
- Ethernet cables with a protective sheath is not recommended as it can hinder the assembly of Ethernet cables.
- When using an optical cable for data transmission, insert and remove the optical cable gently. If you pull the optical cable too hard, the fiber core may be displaced, affecting the optical communication quality. Do not bend or coil the optical cable excessively, as this will increase the attenuation of light during transmission.



(4) Align the slots on the back of the AP with the square feet on the mounting plate, and slide the AP into the mounting plate slowly to ensure that the AP is securely fixed.

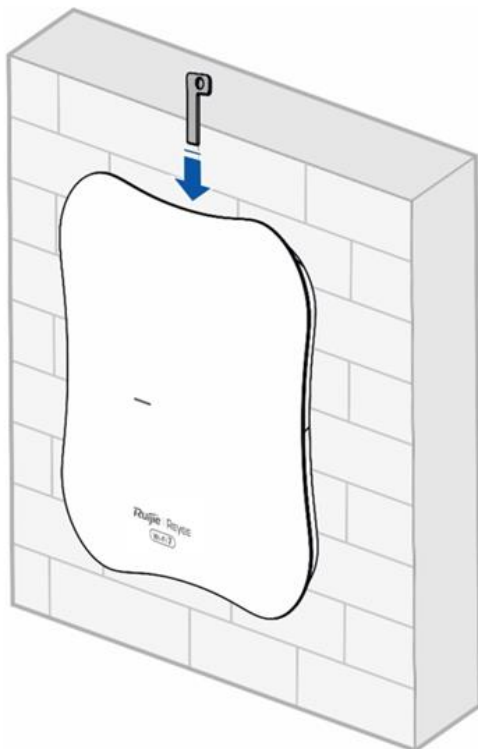


⚠ Caution

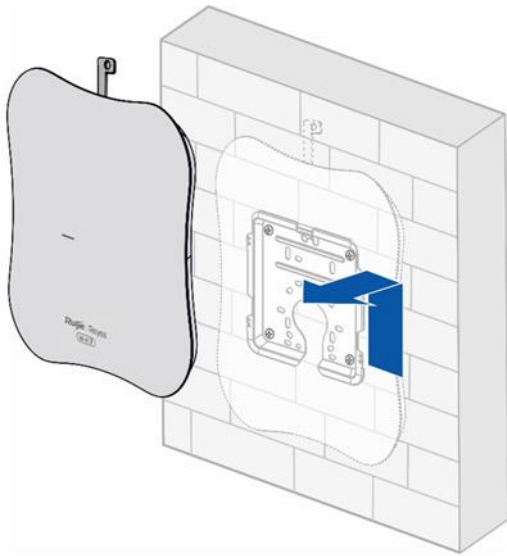
- Before securing the AP to the mounting plate, connect the cables first.
 - The slots on the back of the AP must be aligned with and slid into the square feet on the mounting plate. Do not press the slots into the square feet by force.
 - After installation, check whether the AP is secured.
-

3.4 Removing the AP

- (1) Insert the latch into the reserved slot.



- (2) Slide down the AP as indicated by the arrow.



3.5 Bundling Cables

Caution

- Bundle the cable in a visually pleasing way.
 - Make sure that the fibers at the connectors have natural bends or bends of large radius.
 - Do not bundle the cables too tightly, as this may reduce the cable service life and transmission performance.
-

The steps of cable bundling are as follows:

- (1) Bundle the drooping part of the cables and place the bundle as near the ports as possible.
- (2) Route the cables under the AP and run them in straight line.

3.6 Checklist After Installation

- Checking the AP
 - Verify that the external power supply meets the requirement of the AP.
 - Verify that the AP is securely fastened.
- Checking the Cable Connection
 - Verify that the cable type matches the port type.
 - Verify that the cables are properly bundled.
- Checking the Power Supply
 - Verify that the power cord is properly connected and meets safety requirements.
 - Verify that the AP works properly when powered by the power supply.

4 Debugging

4.1 Setting Up the Configuration Environment

After powering on the AP through a DC power adapter or a PoE power source equipment, ensure that the power cord is properly connected and meets safety requirements.

4.2 Powering on the AP

4.2.1 Checklist Before Power-On

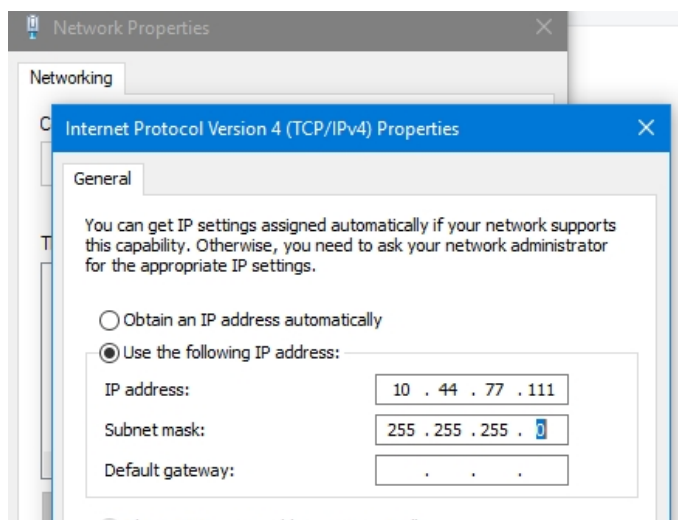
- The power cord is properly connected.
- The input voltage meets the requirement.

4.2.2 Checklist After Power-on

- Verify the LED status.
- After the AP is powered on, check whether the SSID (@Ruijie-mXXXX for multiple devices or @Ruijie-sXXXX for a single device) can be searched by a mobile phone or other wireless devices.

4.3 Logging In to the Web GUI

- (1) Power on the PC and configure the local connection attribute on the PC. Set the IP address of the PC to 10.44.77.XXX (1 to 255, excluding 254).



- (2) Open a browser on the PC and enter 10.44.77.254 to log in to the web interface. The default password is admin for the first login. For security purposes, change the default password after login.

5 Monitoring and Maintenance

5.1 Monitoring

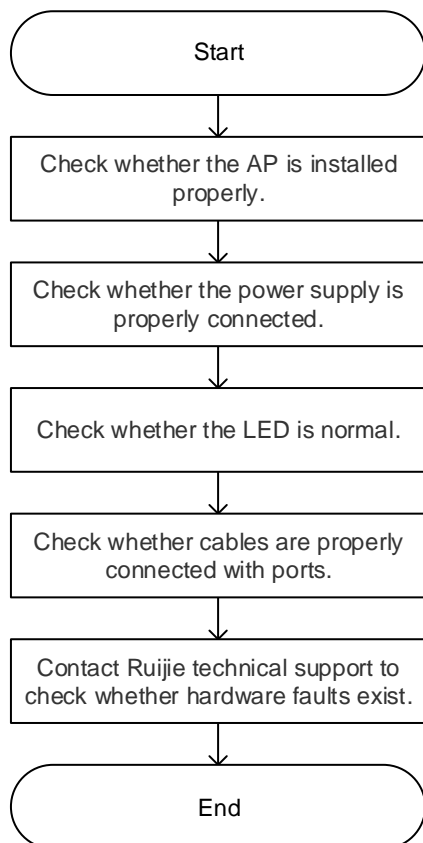
When the RG-RAP72Pro is operating, you can monitor the device running status by observing the LED.

5.2 Maintenance

If the hardware is faulty, please contact the local distributor.

6 Troubleshooting

6.1 General Troubleshooting Flowchart



6.2 Common Faults

6.2.1 The Status LED Is Off After the AP Is Powered On

- If the AP is powered by PoE, verify that the PSE is 802.3at-compliant and the Ethernet cable is connected properly.
- If the AP is powered by a DC adapter, verify that the adapter has mains input and works properly and the adapter supports 12 V DC output.

6.2.2 After an Ethernet Cable is Connected, the Ethernet Port Cannot Be Used

Verify that the device at the other end of the Ethernet cable is working properly. Then, verify that the cable is capable of providing the required data rate and is properly connected.

6.2.3 A Client Cannot Discover the AP

- (1) Verify that the AP is properly powered.
- (2) Verify that the Ethernet port is correctly connected.

- (3) Verify that the AP is correctly configured.
- (4) Move the client device closer to the AP.

7 Appendix

7.1 Connectors and Media

7.1.1 10/100/1000/2.5G/5G/10GBASE-T Ports

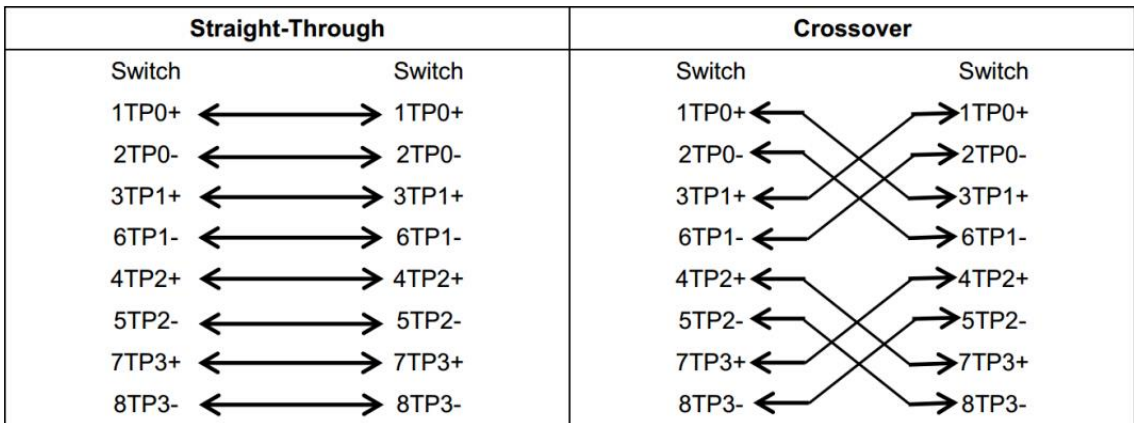
The 10GBASE-T/1000BASE-T/100BASE-TX port is 10 Gbps/1000 Mbps/100 Mbps port that supports auto MDI/MDIX Crossover.

Compliant with the IEEE 802.3an standard, the 10GBASE-T port requires a Category 6a (Cat 6a) STP or higher cable with a maximum distance of 100 meters (328 feet).

Compliant with the IEEE 802.3ab standard, the 1000BASE-T port requires a Category 5 (Cat 5) or Category 5e (Cat 5e) 100-ohm UTP or STP or higher cable with a maximum distance of 100 meters (328 feet).

The 10GBASE-T/1000BASE-T port requires four pairs of wires to be connected for data transmission. **错误!未找到引用源。** shows the four pairs of wires for the 10GBASE-T/1000BASE-T port.

Figure 7-1 10GBASE-T/1000BASE-T Twisted Pair Connections



The 100BASE-TX/10BASE-T port can be connected using a 100-ohm Category 3 (Cat 3), Category 4 (Cat 4) or Cat 5 cable (for 10 Mbps) or a 100-ohm Cat 5 cable (for 100 Mbps) with a maximum distance of 100 meters (328 ft.) in addition to cables of the above specifications. **错误!未找到引用源。** shows 100BASE-TX/10BASE-T pin assignments.

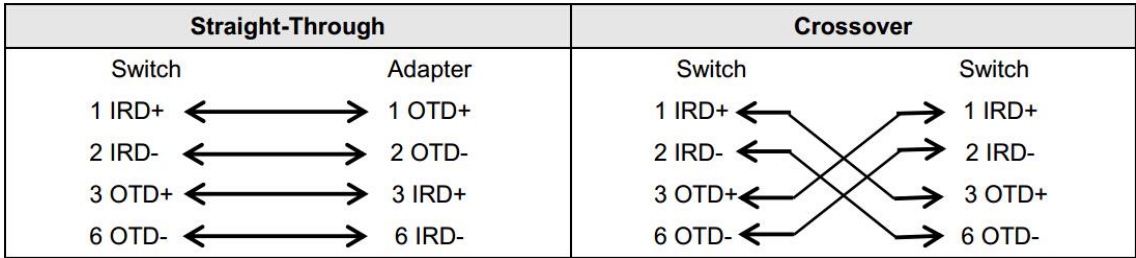
Table 7-1 100BASE-TX/10BASE-T Pin Assignments

Pin	Socket	Plug
1	Input Receive Data+	Output Transmit Data+
2	Input Receive Data-	Output Transmit Data-
3	Output Transmit Data+	Input Receive Data+

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

错误!未找到引用源。 show feasible connections of the straight-through and crossover twisted pairs for a 100BASE-TX/10BASE-T port.

Figure 7-2 100BASE-TX/10BASE-T Twisted Pair Connection



7.2 Cabling Recommendations

During installation, route cable bundles upward or downward along the sides of the rack depending on the actual situation in the equipment room. All cable connectors used for transit should be placed at the bottom of the cabinet rather than be exposed outside of the cabinet. 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.

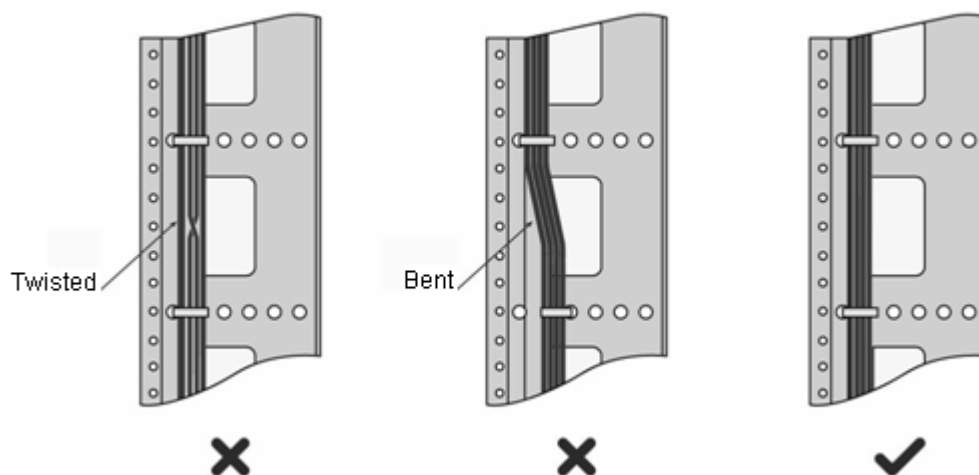
7.2.1 Requirements for Cable Bend Radius

- 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 an SFP+ cable) should be over five times greater than its diameter. The bend radius of the fixed high-speed cable that is often bent or plugged should be over 10 times greater than its diameter.

7.2.2 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 rack without twisting or bending, as shown in Figure 7-3.

Figure 7-3 Bundling up Cables (1)

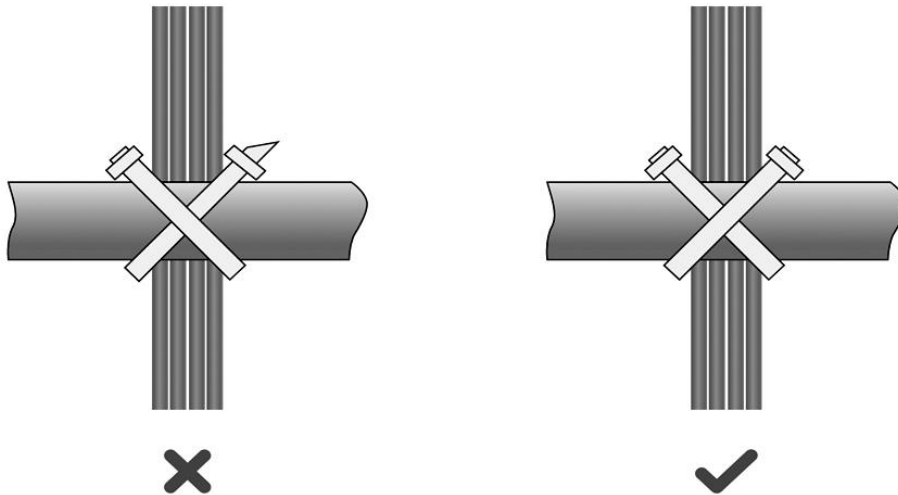


- Cables of different types (such as power cords, signal cables, and grounding cables) should be separated in cabling and bundling. Mixed bundling is disallowed. When they are close to each other, you are advised to adopt crossover cabling. In the case of parallel cabling, maintain a minimum distance of 30 mm (1.18 in.) between power cords and signal cables.
- The cable management brackets and cabling troughs inside and outside the cabinet should be smooth

without sharp corners.

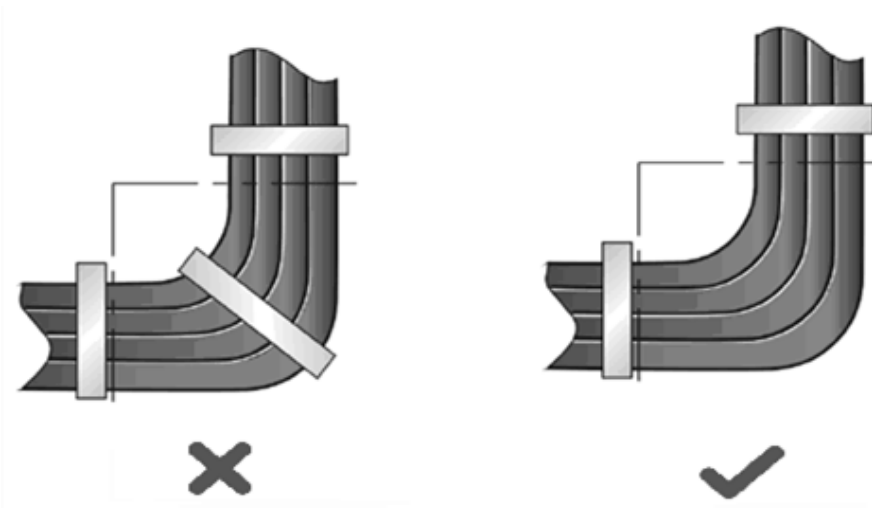
- The metal hole traversed by cables should have a smooth and fully rounding surface or an insulated lining.
- Use cable ties to bundle up cables properly. Do not connect two or more cable ties to bundle up cables.
- After bundling up cables with cable ties, cut off the remaining part. The cut should be smooth and trim, without sharp corners, as shown in Figure 7-4.

Figure 7-4 Bundling up Cables (2)



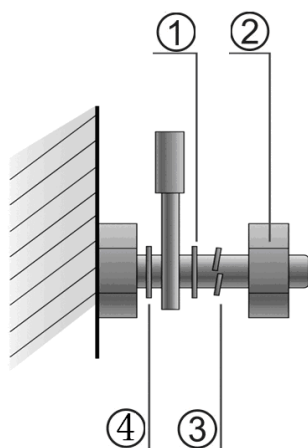
- When cables need to be bent, you should first bundle them up, as shown in Figure 7-5. However, the buckle cannot be bundled within the bend area. Otherwise, considerable stress may be generated in cables, breaking cable cores.

Figure 7-5 Bundling up Cables (3)



- Cables not to be assembled or remaining parts of cables should be folded and placed in a proper position of the rack or cable trough. The proper position refers to a position that does not affect device running or damage the device 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 grounding cables 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.
- When screw threads are used to fasten cable terminals, the anchor or screw must be tightly fastened, as shown in Figure 7-6.

Figure 7-6 Cable Fastening

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.
- Binding by using buckles should be performed according to **错误!未找到引用源。**

Table 7-2 Cable Bunch

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

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

