Ruijie Reyee RG-AirMetro460G Wireless Bridge

Hardware Installation and Reference 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://www.ruijienetworks.com/products/reyee
- Technical Support Website: https://ruijienetworks.com/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://ruijienetworks.com/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:

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 document provides the installation steps, troubleshooting, technical specifications, as well as the specifications and use guidelines of cables and connectors. It is intended for users who want to understand the above contents, and are familiar with the installation and maintenance of networking hardware.

Contents

Preface I

1 Product Introduction 1

1.1 Overview 1

1.2 Package Contents 1

1.3 Appearance 2

1.3.1 Appearance 2

1.3.2 Ports, Buttons and LEDs 3

1.4 Technical Specifications 4

1.5 Power Supply Technical Specifications 6

1.6 Cooling 7

2 Preparing for Installation 8

2.1 Safety Precautions 8

2.1.1 General Safety Precautions 8

2.1.2 Handling Safety 8

2.1.3 Electrical Safety 8

2.2 Installation Environment Requirements 9

2.2.1 Environment 9

2.2.2 Ventilation 9

2.2.3 Temperature and Humidity 9

2.2.4 Anti-Interference 10

2.3 Tools 10

2.4 Checking Before Installation 10

3 Installation 11

3.1 Installation Procedure 11
3.2 Before You Begin 11
3.3 Safety Precautions During Installation 12
3.4 Installing the Wireless Bridge 12
3.5 Connecting Cables 15
3.6 Verifying the Installation 16
4 Debugging 17
4.1 Setting Up the Configuration Environment 17
4.2 Checking Environment Before/After Power-on 17
4.3 Configuring the Wireless Bridge 17
5 Monitoring and Maintenance 19
5.1 Monitoring 19
5.2 Hardware Maintenance 19
6 Common Troubleshooting 20
6.1 Troubleshooting Flowchart 20
7 Appendix 21
7.1 Connectors and Media 21

1 Product Introduction

1.1 Overview

The RG-AirMetro460G wireless bridge is designed for transmitting surveillance video data or wireless data remotely in scenarios such as tower cranes, factory buildings, campuses, construction sites, and forest fire prevention. It utilizes the IEEE 802.11ac standard for efficient and reliable communication. Operating in the 5 GHz band and supporting 2×2 MIMO technology, this product delivers a maximum wireless rate of 867 Mbps for bridging, ensuring more than sufficient bandwidth for delivering point to point (PTP) and point to multi-point (PTMP) services. Moreover, the RG-AirMetro460G wireless bridge also supports the IEEE 802.11n standard. It offers a maximum data rate of 150 Mbps at 2.4 GHz, empowering efficient remote device management.

1.2 Package Contents

Table 1-1 Package Contents

No.	Item	Quantity
1	RG-AirMetro460G Wireless Bridge	1
2	PoE Power Adapter, 24 V, 0.5 A	1
3	Power Cord (0.6 m) (1.97 ft.)	1
4	Reflector	2
5	Mounting Bracket Assembly	1
6	User Manual	1
7	Warranty Card	1
8	Metal Clamp	2

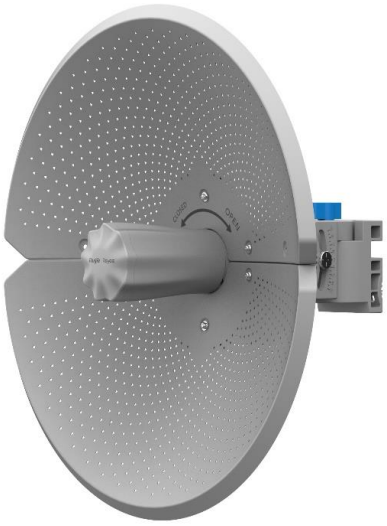
Note

The package contents above are intended to provide a general overview, and are subject to the terms of the order contract. Please check your goods carefully against the package contents or order contract. If you have any questions, please contact the distributor.

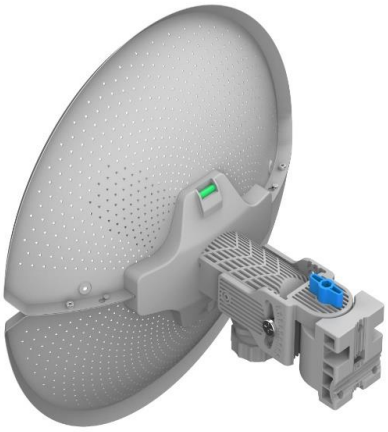
1.3 Appearance

1.3.1 Appearance

Figure 1-1 Appearance of the RG-AirMetro460G Wireless Bridge



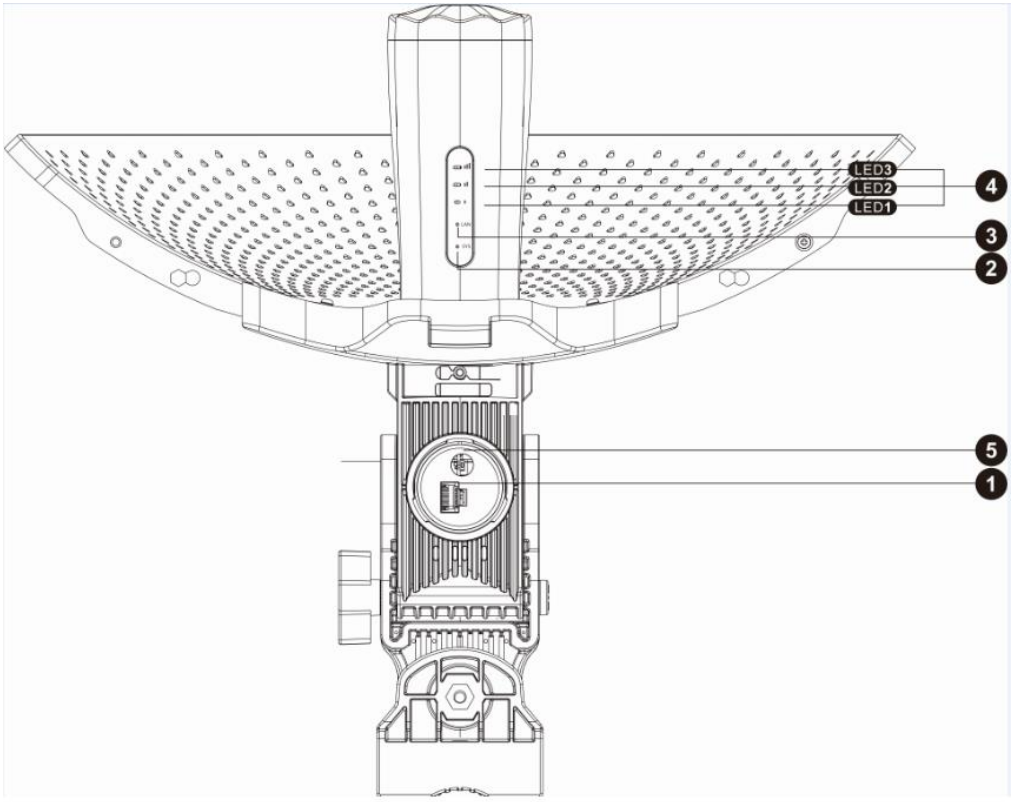
(Front view)



(Back view)

1.3.2 Ports, Buttons and LEDs

Figure 1-2 Ports, Buttons and LEDs of the RG-AirMetro460G Wireless Bridge



(Bottom view)

Table 1-2 Ports

Mark	Item	Description
1	Ethernet port	10/100/1000 Base-T port, supporting 24 V Passive PoE input

Warning

Do not use other models of PoE adapters or switches for power supply as it may lead to irreparable damage to the device.

Table 1-3 LEDs

Mark	Item	Description
2	System LED	Off: The device is NOT receiving power.
		Solid on: The device is operating normally.
		Slow blinking: The device is operating, but an alarm or a power failure occurs.

Mark	Item	Description
		Fast blinking (8 to 10 times/second): The device is starting up.
		Fast blinking (2 times/second): The device is initializing.
		Fast blinking (2 times/second): The device is upgrading.
3	Port LED	Off: No port link is established.
		Solid on: A valid link is established, but the port is not receiving or sending data.
		Fast blinking: A valid link is established, and the port is receiving or sending data.
4	Signal LEDs	Off: The device is not bridged.
		LED 1 on/blinking: The device is bridged.
		LED 1 on: The RSSI is above -75 dBm.
		LED 1 on, LED 2 blinking: The RSSI is above -73 dBm.
		LEDs 1 and 2 on: The RSSI is above -71 dBm.
		LEDs 1 and 2 on, LED 3 blinking: The RSSI is above -68 dBm.
		LEDs 1, 2, and 3 on: The RSSI is above -64 dBm.
		LEDs 1, 2, and 3 blinking: The mesh pairing is in progress.

Table 1-4 WPS/Reset Button

Mark	Item	Description
5	WPS/Reset button	Press and hold for less than 2 seconds: The device establishes a mesh connection with other devices in 30 seconds.
		Press and hold for more than 10 seconds: Restore the device to factory settings.

1.4 Technical Specifications

Table 1-5 Specifications

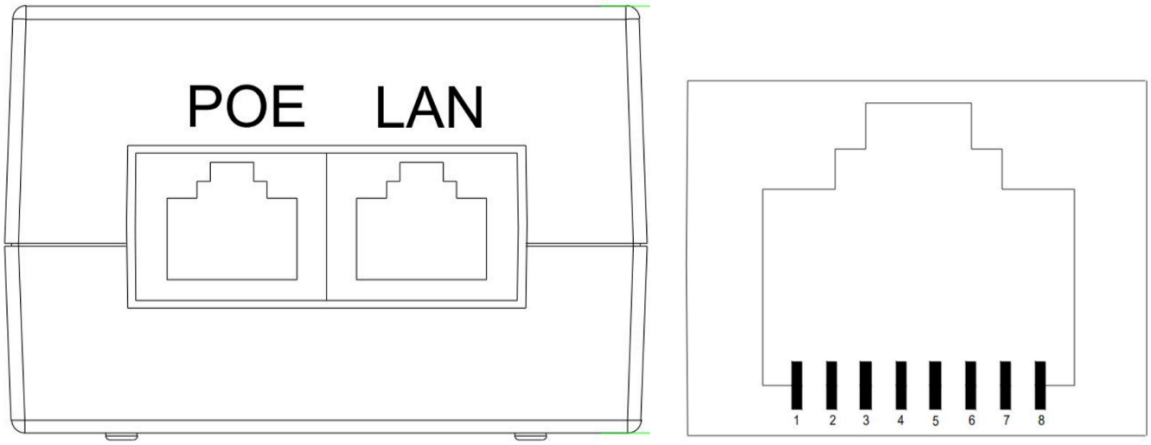
Radio Design	2.4 GHz single-band single-stream 5 GHz single-band dual-stream

Operating Frequency Bands	2.4 GHz: 802.11 b/g/n: 2.4000 GHz to 2.483 GHz 5 GHz: 802.11a/n/ac: 5.150 GHz to 5.350 GHz, 5.470 GHz to 5.725 GHz, 5.725 GHz to 5.850 GHz (Note: Country-specific restrictions apply.) ● European Union & United Kingdom： 2400-2483.5 MHz, EIRP ≤ 20 dBm 5470-5725 MHz, EIRP ≤ 30 dBm ● Myanmar: 2400-2483.5 MHz, EIRP ≤ 23 dBm 5725-5825 MHz, EIRP ≤ 30 dBm ● Thailand: 2.4 GHz to 2.4835 GHz: 20 dBm 5.725 GHz to 5.825 GHz: 30 dBm ● Indonesia: 2400-2483.5 MHz, EIRP ≤ 27 dBm 5725-5825 MHz, EIRP ≤ 23 dBm ● Egypt: 2400-2483.5 MHz, EIRP ≤ 20 dBm 5150-5350 MHz, EIRP ≤ 23 dBm
Antenna Type	Directional antenna (horizontal 9°, vertical 9°, point to point) Antenna gain: 23 dBi
Spatial Streams	2.4 GHz single-stream 5 GHz, 2×2, MIMO
Data Rate	2.4 GHz: 150 Mbps 5 GHz: 867 Mbps
Modulation Technology	OFDM: BPSK@6/9Mbps, QPSK@12/18Mbps, 16-QAM@24Mbps, 64-QAM@48/54Mbps DSSS: DBPSK@1Mbps, DQPSK@2Mbps, CCK@5.5/11Mbps MIMO-OFDM: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM
Receive Sensitivity	11b: -91dBm (1Mbps), -88dBm (5Mbps), -85dBm (11Mbps) 11a/g: -89dBm (6Mbps), -80dBm (24Mbps), -76dBm (36Mbps), -71dBm (54Mbps) 11n: -83dBm@MCS0, -65dBm@MCS7, -83dBm@MCS8, -65dBm@MCS15 11ac VHT20: -83dBm (MCS0), -57dBm (MCS9) 11ac VHT40: -79dBm (MCS0), -57dBm (MCS9) 11ac VHT80: -76dBm (MCS0), -51dBm (MCS9)
Max. Transmit Power	2.4 GHz: ≤ 100 mW (20 dBm) (adjustable) 5 GHz: ≤ 400 mW (26 dBm) (single stream)
Power Step	1 dBm
Dimensions	368.50 mm (length) × 271.00 mm (diameter) (14.50 in. × 10.70 in)
Net Weight	2.33 kg (5.15 lbs.)
Service Ports	1 × 10/100/1000Base-T port, supporting 24 V Passive PoE input
Management Port	N/A
LED	1 × system LED, 1 × port LED, and 3 × signal LED

Power Supply	24 V Passive PoE input (shipped with a 24 V PoE adapter)
Max. Power Consumption	≤ 12 W
Bluetooth 5.0	Not supported
Environment	Operating temperature: –40℃ to 70℃ (–40°F to +158°F)(excluding the power adapter) (Note: When a power adapter is used, the maximum operating temperature for both the device and the power adapter is 60℃ (140°F).)
	Storage temperature: –40℃ to 85℃ (–40°F to +185°F)
	Operating humidity: 5% to 95% RH (non-condensing)
	Storage humidity: 5% to 95% RH (non-condensing)
Installation	Pole-mounted (shipped with metal clamps)
Wind Resistance Level	17
IP Rating	IP65
Certification	CE
MTBF	> 400000 hrs

1.5 Power Supply Technical Specifications

The RG-AirMetro460G wireless bridge supports 24 V Passive PoE input, and is shipped with a 24 V, 0.5 A power adapter. Technical specifications of the power adapter:



RJ45 LAN port: Connects to cameras, switches, PCs and other devices.

Pins 1, 2, 3, 4, 5, 6, 7 and 8 are for data transmission.

RJ45 PoE port: Connects to the RG-AirMetro460F wireless bridge.

Pins 1, 2, 3, 4, 5, 6, 7 and 8 are for data transmission. Pins 4 and 5 are for power supply, and pins 7 and 8 are for grounding.

Warning

Do not use other models of PoE adapters or switches for supplying power to the network video recorder (NVR) and IP camera (IPC) as it may lead to irreparable damage to these devices.

1.6 Cooling

The RG-AirMetro460G wireless bridge adopts a fanless design. Therefore, a sufficient clearance must be maintained around the device for cooling.

2 Preparing for Installation

2.1 Safety Precautions

Note

- To prevent device damage and physical injury, please read carefully the safety precautions described in this chapter.
- The following safety precautions do not cover all possible dangers.

2.1.1 General Safety Precautions

- Do not expose the device to high temperature, dusts, or harmful gases. Do not install the device in an inflammable or explosive environment. Keep the device away from EMI sources such as large radar stations, radio stations, and substations. Do not subject the device to unstable voltage, vibration, and noises.
- The installation site should be far away from the sea. Keep the device at least 500 meters (1640 ft.) away from the seaside and do not face it toward the wind from the sea.
- The installation site should be free from water flooding, seepage, dripping, or condensation. The installation site must be selected according to network planning and features of the device, and considerations such as climate, hydrology, geology, earthquake, electric power, and transportation.

Caution

Please follow the correct procedures described in this guide to install and remove the device.

2.1.2 Handling Safety

- Avoid frequently handling the device.
- Cut off all the power supplies and unplug all power cords before moving or handling the device.

2.1.3 Electrical Safety

Warning

- Improper or incorrect electrical 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 with high voltage or mains power supply via wet objects may cause fatal dangers.

- Observe local regulations and specifications during electrical operations. Only personnel with relevant qualifications can perform such operations.
- Check whether there are potential risks in the work area. For example, check whether the power supply is grounded, whether the grounding is reliable, and whether the ground is wet.
- Find out the location of the emergency power supply switch in the room before installation. First cut off the power supply in case of an accident.

- Be sure to make a careful check before you shut down the power supply.
- Do not place the device in a damp/wet location. Do not let any liquid enter the device.
- Keep the device far away from the grounding or lightning protection devices of the power device.
- Keep the device away from high-power radio stations, radar stations, and high-frequency high-current devices.

2.2 Installation Environment Requirements

To ensure normal operation and a prolonged service life of the device, the installation site must meet the following requirements.

2.2.1 Environment

- Install the device in a well-ventilated environment. If it is installed in a closed room, make sure there is a good cooling system.
- Make sure the site is sturdy enough to support the device and its accessories.
- Make sure the site has enough space for installing the device and leave sufficient space around the device for ventilation.
- Install the device at a height of 1.8 meters above the ground.

2.2.2 Ventilation

This device adopts natural ventilation. Therefore, a sufficient clearance must be maintained around the device for cooling.

2.2.3 Temperature and Humidity

To ensure the normal operation and prolonged service life of the device, maintain an appropriate temperature and humidity in the equipment room. The equipment room with too high or too low temperature and humidity for a long period may damage the device.

- In an environment with high humidity, the insulating material may have bad insulation or even leak electricity and sometimes the materials may suffer from mechanical performance change and metallic parts may get rusted.
- In an environment with low humidity, the insulating strip may dry and shrink, and static electricity is prone to occur and damage the internal circuits of the device.
- In an environment with high temperature, the device is subjected to even greater harm, as its performance may degrade significantly and its service life may be shortened in the case of long-term exposure that expedites the aging process.

Table 2-1 Temperature and Humidity Requirements

Operating Temperature	Operating Humidity
-40°C to +70°C (-40°F to +158°F)	5% to 95% RH (non-condensing)

2.2.4 Anti-Interference

- Keep the device away from the grounding facility or lightning and grounding facility of the power device as much as possible.
- Keep the device away from high-power radio stations, radar stations, and high-frequency high-current devices.

2.3 Tools

Table 2-2 Tools

Common Tools	Phillips screwdriver, hex screwdriver, power cords, Ethernet cables, cage nuts, diagonal plier, spirit level, and marker
Special Tools	Anti-ESD gloves, wire stripper, crimping plier, RJ45 crimping plier, wire cutter, and waterproof adhesive tape
Meters	Multimeter
Relevant Devices	PC, display, and keyboard

Note

The RG-AirMetro460G wireless bridge is not shipped with a tool kit. You need to prepare a tool kit by yourself.

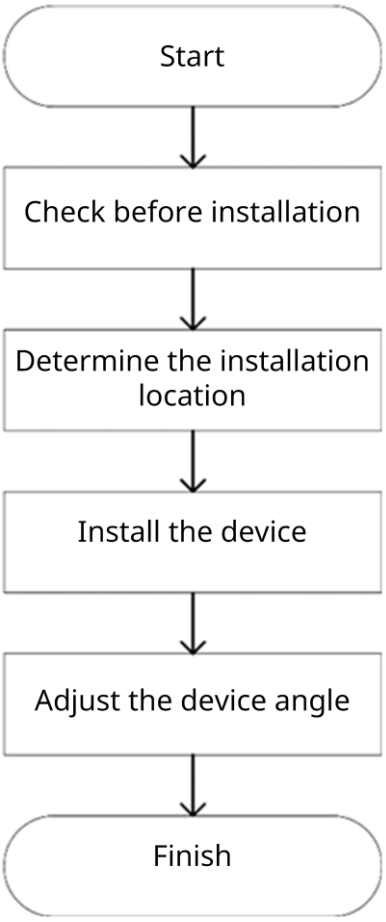
2.4 Checking Before Installation

After unpacking the product, carefully inspect each item in accordance with the provided package contents. If any inconsistencies are found, please contact our local distributor.

3 Installation

> ⚠ Caution
>
> Before installing the device, make sure that you have carefully read the requirements described in Chapter 2.

3.1 Installation Procedure



3.2 Before You Begin

Carefully plan and arrange the installation location, networking mode, power supply, and cabling of the device before installation. Confirm the following points 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 selected power supply modules meet the system power requirement.
- The network cables have been deployed in the installation site.

- The installation site meets all requirements described in this guide.
- The device meets the customers' requirements.

3.3 Safety Precautions During Installation

You are advised to mount this wireless bridge on a pole with a diameter ranging from 35 mm (1.38 in.) to 89 mm (3.50 in.). If the pole falls outside this range, please prepare alternative clamps with a wall thickness of at least 2.5 mm (0.01 in.).

Before installation, ensure that the installation location meets the requirements in 2.2.1 , and pay attention to the following:

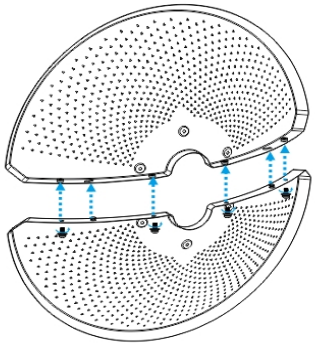
- Use the provided power adapter (24 V PoE adapter. Pins 4 and 5 use the positive voltage and pins 7 and 8 use the negative voltage.), or an alternative power adapter with identical specifications to supply power to this device. Do not use power adapters with different specifications.
- The supplied PoE adapter supports Ethernet cables for power supply for up to 100 meters (328 ft.). Prior to connecting the Ethernet cable, ensure that the power module switch is in the off position.
- Ensure the Ethernet cables and power cords are securely connected.

3.4 Installing the Wireless Bridge

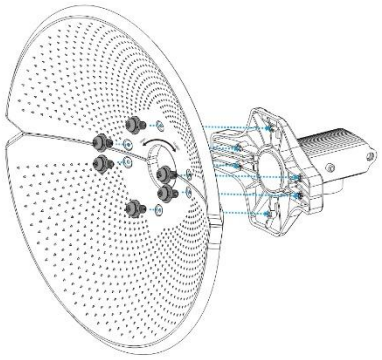
⚠ Caution

- Install the device in a manner that maximizes the coverage area of the antenna.
- The schematic diagram provided is for reference purposes only. The actual product should be installed based on its physical specifications and design.

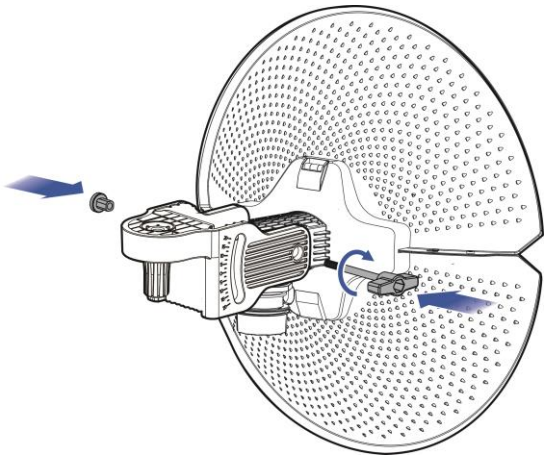
(1) Connect the two reflectors using four screws.



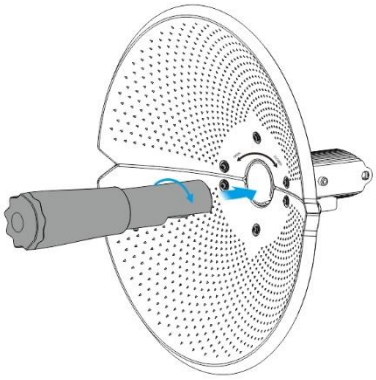
(2) Attach the supporting piece to the back of the assembled reflectors using six screws.



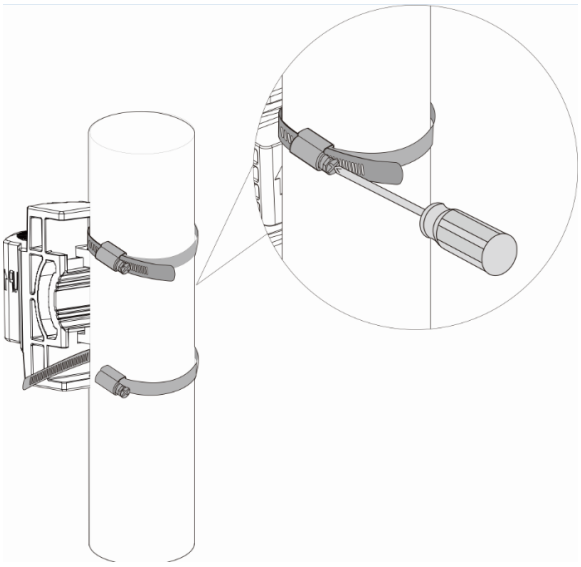
(3) Attach the antenna mounting bracket to the supporting piece using the long screw and the nut.



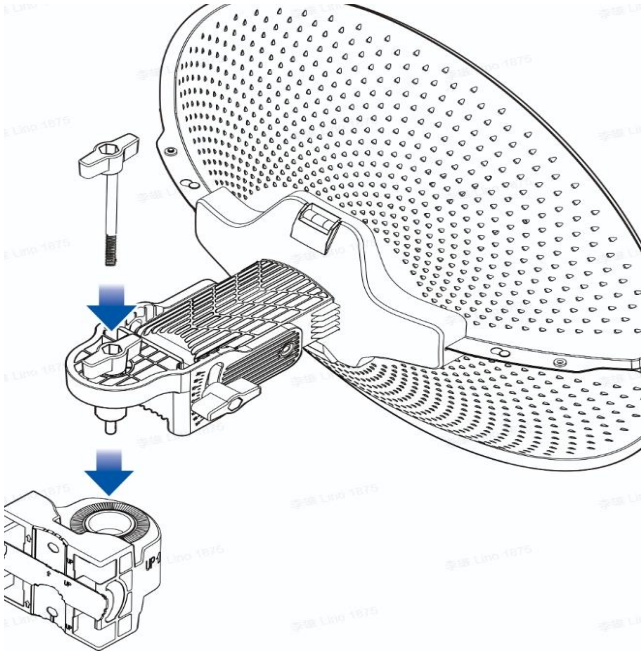
(4) Attach the wireless bridge to the front of the assembled reflectors.



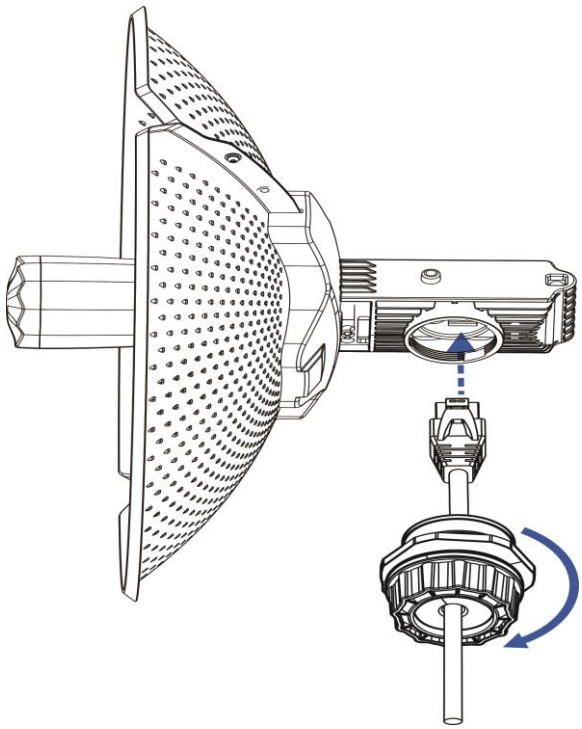
(5) Mount the pole mounting bracket to the pole, and tighten the clamps.



(6) Mount the assembled wireless bridge to the pole mounting bracket and tighten the long screw.



(7) Properly connect the Ethernet cable, and then install the waterproof cover. The installation is complete.

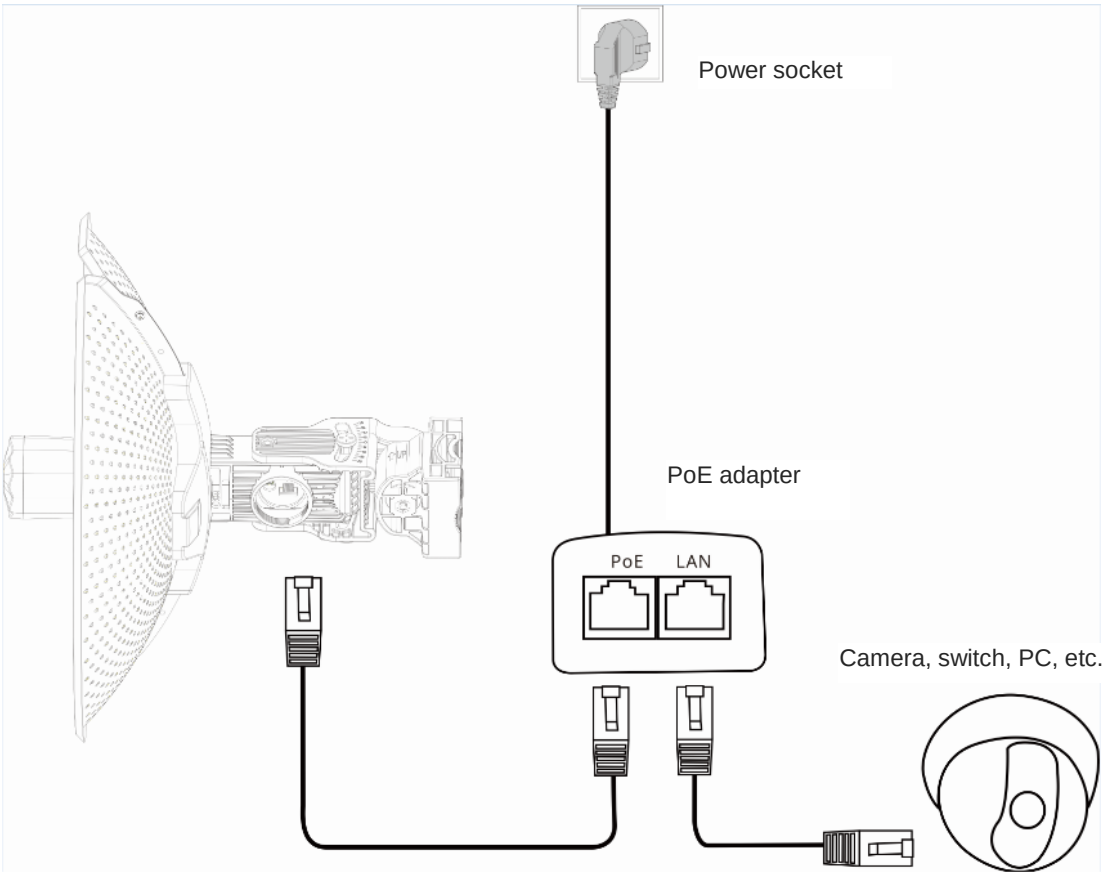


3.5 Connecting Cables

(1) Use or make an Ethernet cable based on the distance between the wireless bridge and the power source. The device supports PoE power supply over Cat5e or better cables with a cable length up to 100 meters (328 ft.).

(2) Connect the PoE port of the PoE adapter to the Ethernet port of the wireless bridge using an Ethernet cable. Connect the LAN port of the PoE adapter to the server or camera using another Ethernet cable. Connect the PoE adapter to a 220 V power source for power supply.

Figure 3-1 Cable Connection



Maximum distance of PoE: 100 meters (328 ft.) (Cat5e or better cables)

Warning

- After the Ethernet cable is securely connected to the device, cover the device with a waterproof cover to shield it from potential water and dust damage.
- Do not use other models of PoE adapters or switches for power supply as it may lead to irreparable damage to the device.

3.6 Verifying the Installation

(1) Check the device

- Verify that the external power supply matches the device.
- Verify that the device is firmly and reliably secured.

(2) Check the power supply

- Verify that the power cord is properly connected and meet safety requirements.
- Turn on the power supply to supply power to the device. Verify that the device works properly.

4 Debugging

4.1 Setting Up the Configuration Environment

Before setting up the configuration environment using a 24 V, 0.5 A Passive PoE adapter, verify that the power cord is properly connected and that the configuration environment meets safety requirements.

4.2 Checking Environment Before/After Power-on

(1) Before power-on, check the following:

- Verify that the power supply is properly connected.
- Verify that the input voltage matches the specification.

(2) After power-on, check the following (Recommended):

- Verify that the LED status is normal.

4.3 Configuring the Wireless Bridge

(1) **Method 1: Via the Ruijie Reyee app**

- Check whether the power supply is properly connected.
- Scan the QR code on this page or on the device to download the Ruijie Reyee app.
- Launch the Ruijie Reyee app, click **Add a project**, and follow the instructions to complete setup.

(2) **Method 2: Via a web browser**

- Connect the LAN port of the wireless bridge to a PC using an Ethernet cable for wired connection, or connect your PC to the device's SSID (default SSID: @Ruijie-bxxxx) for wireless connection.
- Change the IP address of the PC to be an IP address on the same subnet as 10.44.77.
- Enter https://10.44.77.254 in the address bar of your browser, and press **Enter**.
- On the web page that is displayed, enter the password and click **Login**. You will be redirected to the home page of the web interface.

Note

A username is not required on your first login. You can enter the initial password “admin” to log in. To ensure device security, change the password after login, and update the password regularly.

5 Monitoring and Maintenance

5.1 Monitoring

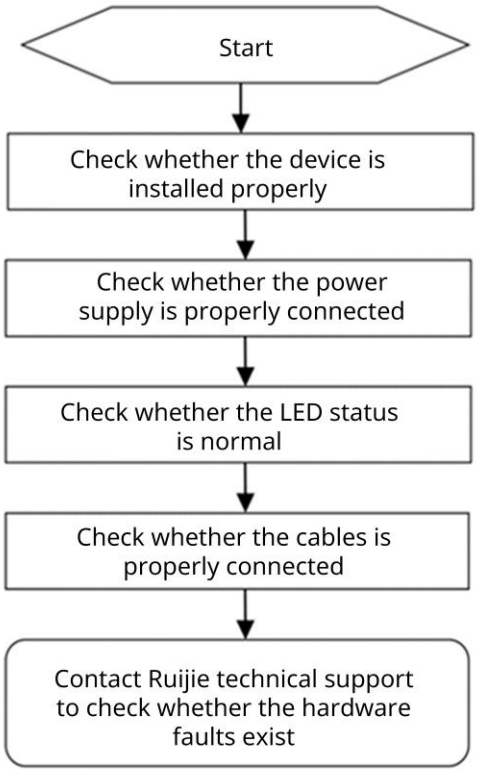
You can observe the LED status to monitor the device in operation.

5.2 Hardware Maintenance

If the hardware is faulty, please contact Ruijie Networks technical support for assistance.

6 Common Troubleshooting

6.1 Troubleshooting Flowchart



7 Appendix

7.1 Connectors and Media

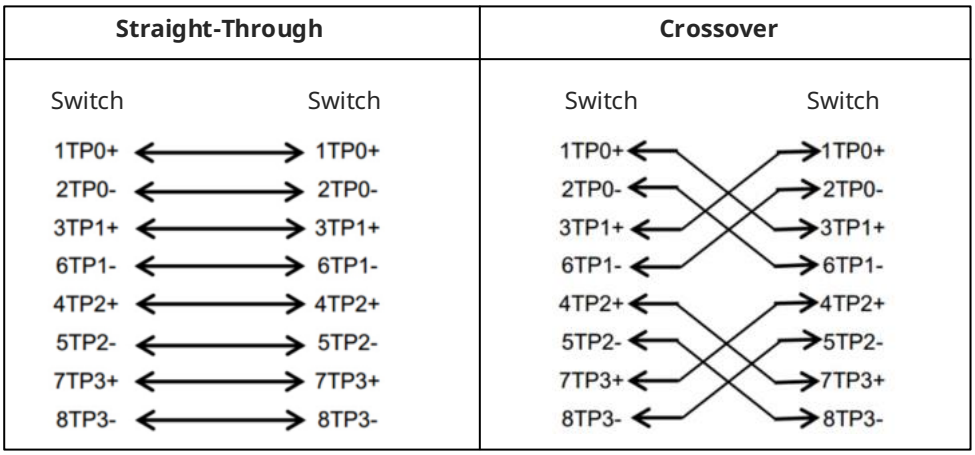
1000BASE-T/100BASE-TX/10BASE-T Port

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

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

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

Figure 7-1 1000BASE-T Twisted Pair Connections



100BASE-TX/10BASE-T can be interconnected using cables of the preceding specifications. For 10 Mbps, the 100BASE-TX/10BASE-T port can be connected using 100-ohm Category 3, Category 4, and Category 5 cables; for 100 Mbps, the 100BASE-TX/10BASE-T port can be connected using 100-ohm Category 5 cables with a maximum connection distance of 100 meters. The following table 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+
6	Output Transmit Data-	Input Receive Data-
4, 5, 7, 8	Not Used	Not Used

The following figure shows feasible connections of the straight-through and crossover twisted pair cables for a 100BASE-TX/10BASE-T port.

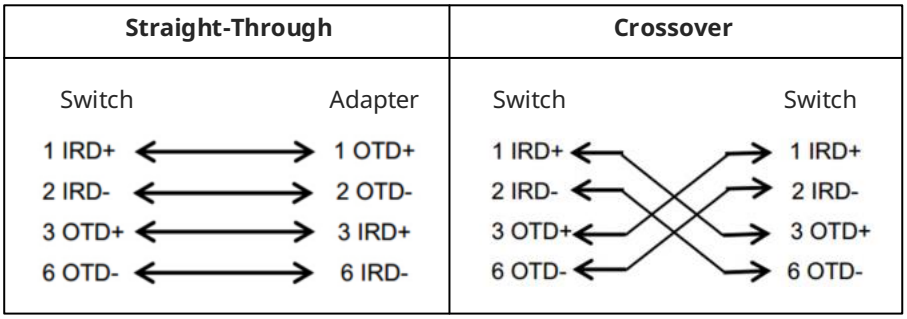



Figure 7-2 100BASE-TX/10BASE-T Twisted Pair Connections