Ruijie RG-AP680(CD) Access Point

Hardware Installation and Reference Guide

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Preface

Intended Audience

This document is intended for:

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

Technical Support

- Ruijie Networks website: https://www.ruijienetworks.com/
- Technical support website: https://ruijienetworks.com/support
- Case portal: https://caseportal.ruijienetworks.com
- Community: https://community.ruijienetworks.com
- Technical support Email: service_rj@ruijienetworks.com
- Live Chat: https://www.ruijienetworks.com/rita

Conventions

1. 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.

2. Note

This manual provides the device installation steps, hardware troubleshooting, module technical specifications, and specifications and usage guidelines for cables and connectors. It is intended for the users who have some experience in installing and maintaining network hardware. At the same time, it is assumed that the users are already familiar with the related terms and concepts.

Contents

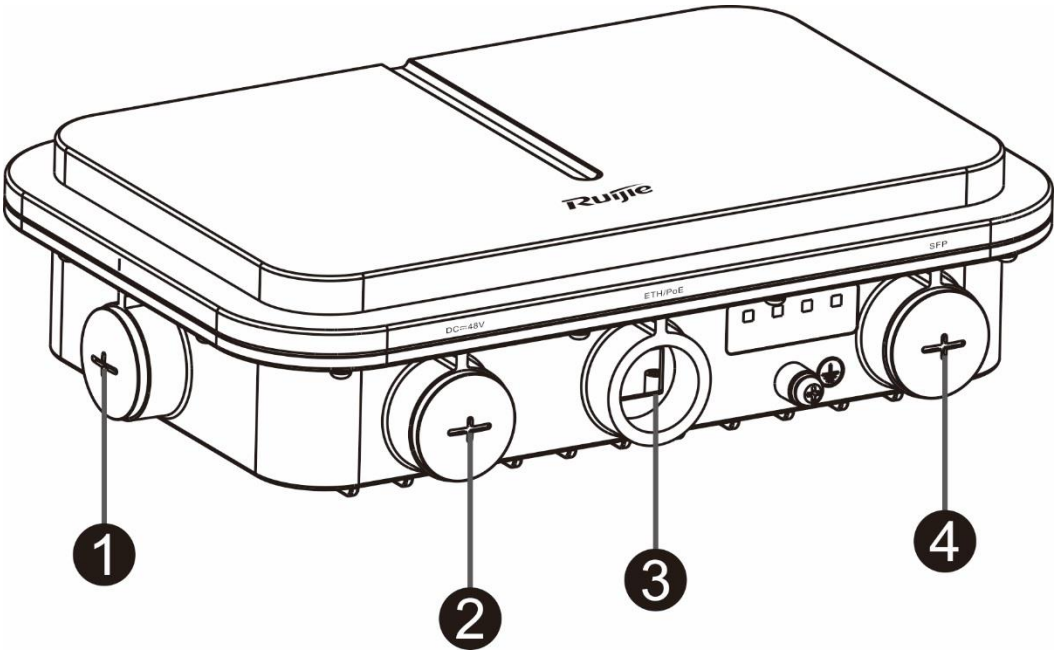
1 Product Introduction

1.1 Overview

The RG-AP680(CD) is a dual-radio and IEEE 802.11ax-compliant access point (AP) released by Ruijie Networks for general education scenarios. The RG-AP680(CD) adopts the dual-radio design and complies with Wi-Fi standard IEEE 802.11ax. When dual radios work at 5 GHz, it can provide a wireless data rate of up to 2.402 Gbps. When working at 2.4 GHz and 5 GHz, it can provide a wireless data rate of up to 1.775 Gbps. The RG-AP680(CD) AP provides one 1GE SFP port and one 1GE Ethernet port, which can work at the same time.

1.2 Product Appearance

Figure 1-1 Product Appearance of the RG-AP680(CD)



1. Console port and reset button 2. Port for 48 V DC power supply	3. 10/100/1000 Base-T Ethernet/PoE port with auto-negotiation 4. SFP port

Note

The nameplate is at the bottom of the access point.

1.3 Technical Specifications

1.3.1 Dimensions and Weight

Table 1-1 Dimensions and Weight

Dimensions and Weight	RG-AP680(CD)
Dimensions (W × D × H)	251 mm × 168 mm × 64 mm (9.88 in. x 6.61 in. x 2.52 in.)
Weight	1.5 kg (3.31 lbs.)
Installation	Wall mounting and pole mounting
Mounting bracket dimensions (W × D × H)	115 mm × 115 mm × 126 mm (4.53 in. x 4.53 in. x 4.96 in.)
Mounting hole pattern	90 mm × 43.32 mm (3.54 in. x 1.71 in.)
Mounting hole diameter	8 mm (0.31 in.)
Pole diameter	40 mm to 70 mm (1.57 in. x 2.76 in.)

1.3.2 Radio Specifications

Table 1-2 Radio Specifications

Radio Specifications	RG-AP680(CD)
Radio design	Dual-radio Up to four spatial streams Radio 1: 2.4 GHz/5 GHz, two spatial streams: 2 x 2, MU-MIMO Radio 2: 5 GHz, two spatial streams: 2 x 2, MU-MIMO
Operating frequencies	Radio 1: 802.11b/g/n/ax, 2.400 GHz to 2.4835 GHz Radio 2: 802.11a/n/ac/ax, 5.150 GHz to 5.350 GHz, 5.725 GHz to 5.850 GHz

Radio Specifications	RG-AP680(CD)
	Note: The operating frequencies is country-specific.
Data rate	Radio 1: 2.4 GHz, 574 Mbps/5 GHz, 1.201 Gbps Radio 2: 5 GHz, 1.201 Gbps Combined: 2.4 GHz + 5 GHz: 1.775 Gbps 5 GHz + 5 GHz, 2.402 Gbps
Antenna type	Built-in directional antennas 2.4 GHz: horizontal lobe angle of 60 degrees and vertical lobe angle of 30 degrees 5 GHz: horizontal lobe angle of 60 degrees and vertical lobe angle of 30 degrees
Antenna gain	2.4 GHz: 9 dBi 5 GHz: 9 dBi
Max. transmit power	2.4 GHz radio: 28 dBm (25 dBm per chain) 5 GHz radio: 28 dBm (25 dBm per chain) Note: The transmit power is limited by local regulatory requirements. Thailand 2.400 GHz to 2.4835 GHz: 20 dBm 5.470 GHz to 5.725 GHz: 30 dBm 5.725 GHz to 5.825 GHz: 30 dBm
Power increment	1 dBm
Modulation	OFDM: BPSK @ 6/9 Mbps, QPSK @ 12/18 Mbps, 16-QAM @ 24 Mbps, and 64-QAM @ 48/54 Mbps DSSS: DBPSK @ 1 Mbps, DQPSK @ 2 Mbps, and CCK @ 5.5/11 Mbps MIMO-OFDM: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM, and 1024-QAM
Receive sensitivity	802.11b: –91 dBm (1 Mbps), –88 dBm (5 Mbps), –85 dBm(11 Mbps)

Radio Specifications	RG-AP680(CD)
	802.11a/g: –89 dBm (6Mbps), –80 dBm (24Mbps), –76 dBm (36Mbps), –71 dBm (54Mbps) 802.11n: –83 dBm @ MCS0, –65 dBm @ MCS7, –83 dBm @ MCS8, –65 dBm @ MCS15 802.11ac HT20: –83 dBm (MCS0), –57 dBm (MCS9) 802.11ac HT40: –79 dBm (MCS0), –57 dBm (MCS9) 802.11ac HT80: –76 dBm (MCS0), –51 dBm (MCS9) 802.11ax HE80: –76 dBm (MCS0), –49 dBm (MCS11)

1.3.3 Port Specifications

Table 1-3 Port Specifications

Port Specifications	RG-AP680(CD)
Bluetooth	Bluetooth 5.0
Fixed service port	One 10/100/1000Base-T Ethernet port with auto-negotiation, powered by powered devices (PDs) One 1GE SFP port
Fixed management port	One RJ45 console port
Status LED	One system status (SYS) LED Three Received Signal Strength Indicator (RSSI) LEDs
Button	One reset button

1.3.4 Power Supply and Consumption

Table 1-4 Power Supply and Consumption

Power Supply and Consumption	RG-AP680(CD)
Input power supply	1. DC power supply (44 V to 57 V/0.35 A) 2. PoE/PoE+ (IEEE 802.3af/at-compliant)

Max. power consumption	12.95 W

Caution

- To power the AP by PoE, ensure that the device at the other end of the Ethernet cable supports IEEE 802.3af/at-compliant power supply.
- The direct current should be 0.35 A at least. The power port and power cords should meet the working environment requirements. For example, the temperature is between –40°C and +65°C (–40°C°F to +149°F). The power cords should be waterproof and sun-resistant.

1.3.5 Environment and Reliability

Table 1-5 Standard Compliance

Environment and Reliability	RG-AP680(CD)
Temperature	Working temperature: –40°C to +65°C (–40°F to +149°F) Storage temperature: –40°C to +85°C (–40°F to +185°F) Note: At an altitude between 3000 m (9842.52 ft) and 5000 m (16404.20 ft), every time the altitude increases by 166 m (546 ft.), the maximum temperature decreases by 1°C (1.8°F).
Humidity	Working humidity: 0% RH to 100% RH (non-condensing) Storage humidity: 0% RH to 100% RH (non-condensing)
IP rating	IP68
Anti-corrosion rating	Salt spray test: 48 hours

Environment and Reliability	RG-AP680(CD)
Regulatory compliance	EN 55032 EN 55035 EN 61000-3-3 EN IEC 61000-3-2 EN 301 489-1 EN 301 489-3 EN 301 489-17 EN 300 328 EN 301 893 EN 300 440 FCC Part 15 EN IEC 62311 IEC 62368-1 EN 62368-1 IEC 60950-22

1.4 LED and Button

The RG-AP680(CD) has multiple LEDs, including one SYS LED and RSSI LEDs. The status of LEDs is described as follows.

Table 1-6 LEDs of the RG-AP680(CD)

LED	Status	Description
System status LED	Blinking green	The AP is booting.
	Solid green	The AP is booting and works properly.
	Blinking orange	The AP is working properly but no CAPWAP connection is established.
	Blinking red	The uplink wired port is disconnected.

LED	Status	Description
RSSI (3 LEDs in total; available when bridging is enabled)	1 solid on	< –70 dBm
	2 solid on	–70 dBm to –50 dBm
	3 solid on	> –50 dBm

Table 1-7 Reset Button of the RG-AP680(CD)

Button	Function	Result
Reset button	To reboot the AP	Press the button for less than 2s to reboot the device.
	To restore to factory settings	Press and hold the button for over 3s to restore factory settings.

2 Preparing for Installation

Note

- To avoid personal injury and device damage, carefully read the safety precautions before you install the device.
- The following safety precautions may not cover all possible dangers.

2.1 Grounding and Lightning Protection Requirements

- Ensure that both the power-receiving end and the power-supplying end are well-grounded.
- The grounding cable is shorter than 30 m (98.43 ft), and use a 40 mm (1.57 in.) x 4 mm (0.16 in.) or 50 mm (1.97 in.) x 5 mm (0.20 in.) hot-dip galvanized steel flat bar as the grounding bar.
- When the connection cable between the main grounding conductor and local equipotential earthing terminal board (LEB) on each floor is short, use a stranded copper wire with a sectional area not less than 1.318 mm2 (16 AWG) for the connection cable.
- Use a shielded network cable if possible, ensure that the devices connected to both ends of the shielded network cable are reliably grounded, and make sure that the sheath of the shielded network cable is also grounded if possible. If no shielded network cable is available, wire the network cable through a steel pipe and bury the steel pipe for lead-in, and properly ground both ends of the steel pipe.
- No additional lightning protector is required as a high-profile lightning protector is built in the RG-AP680(CD), and the power port support 6 kV lightning protection. If a lightning protector of a higher profile is available, configure the lightning protector as required. Before the configuration, connect the lightning protector to the grounding cable.
- Use a power cord with the protective earthing (PE) connector to ground the AC power supply. Ensure that the PE connector is properly grounded, with a ground resistance less than 5 ohms. Do not use a two-wire power cable with only the live (L) wire and naught (N) wire. Do not connect the N wire to the protection grounding cable of other communication devices, and ensure that the L wire and N wire are properly connected.
- Ensure that the ground resistance is less than 5 ohms. In areas with high soil resistivity, reduce the soil resistivity by measures such as spreading resistivity reduction mixture around the grounding conductor.

2.2 Installation Site Requirements

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 EMI sources such as large radar stations, radio stations, and substations. Do not subject the AP to unstable voltage,

vibration, and strong 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 m (1640.42 in.) away from the sea 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 network planning, communications equipment features, and considerations such as climate, hydrology, geology, earthquake, electrical power, and transportation.

2.2.1 Temperature and Humidity Requirements

Table 2-1 Required Temperature and Humidity for the RG-AP680(CD)

Working Temperature	–40°C to +65°C (–40°F to +149°F)
Working Humidity	0% to 100% (non-condensing)

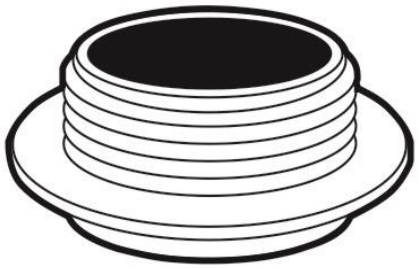
2.2.2 Installation Methods

The RG-AP680(CD) can be mounted on a wall or pole.

2.2.3 Waterproof Requirements

Cap unused ports using dust caps to ensure waterproof.

Figure 2-1 Dust Cap



Connect the network cable, optical fiber jumper, and DC power cord to the AP after they pass through the corresponding waterproof plugs to ensure waterproof. For details, see 3.4 Installing the Access Point.

2.2.4 EMI

All interference sources (from outside or inside of the device or application system) affect the device by capacitive coupling, inductive coupling, or electromagnetic waves.

Electromagnetic interference (EMI) occurs due to electromagnetic radiation or conduction, depending on the transmission path.

Radiation interference occurs when energy (usually radio frequency energy) is emitted from a device and propagated through space to disrupt other devices. The interference source can be part of disrupted system or a fully electrically isolated unit. Conduction interference occurs when interference is transferred from one unit to another through cables, which are usually electromagnetic wires or signal cables connected between the source and the devices experiencing interference. Conduction interference often affects the power supply of the device. It is eliminated by using filters. Radiation interference can influence the path of any signal from the device and is difficult to shield.

- Take effective measures against interference from the power grid.
- Keep the AP far away from the grounding or lightning protection devices for power equipment.
- Keep the AP away from high-power radio stations, radar stations, and high-frequency high-current devices.
- Take electrostatic shielding measures.

2.3 Precautions for Fiber-Optic Cable Connection

Before connecting fiber-optic cables, make sure the model of the optical connector and fiber type match the optical port. The transmit port on the local device should be connected to the receive port on the peer device and vice versa.

2.4 Tools

Table 2-2 Tools

Tools	Marker, Phillips screwdriver, flat-blade screwdriver, drill, paper knife, crimping pliers, diagonal pliers, network cable pliers, wire stripper, network cable tester, related electric and fiber-optic cables, wrench, hammer, cable ties, ESD tools, multimeter, waterproof duct tape, and waterproof plaster

Note

The RG-AP680(CD) is not delivered with a tool kit. The tool kit is customer-supplied.

2.5 Checking Before Installtion

Note

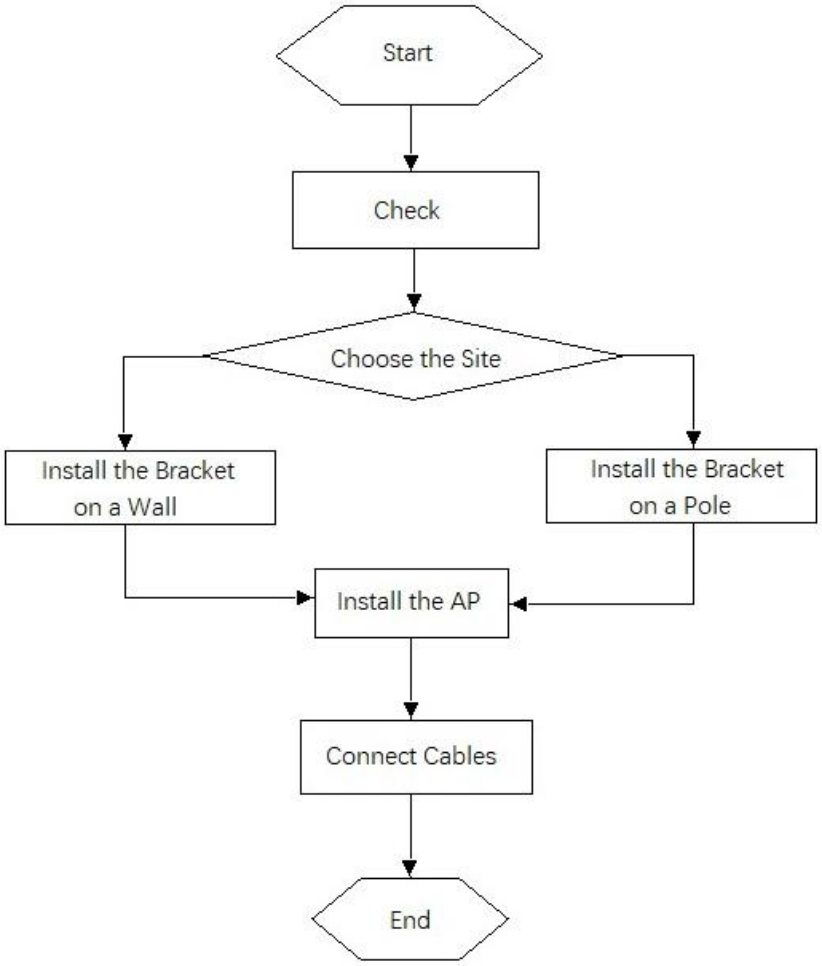
Please check your goods carefully against the package contents in this document. If you have any questions, please contact the supplier or agent.

3 Installing the Access Point

Note

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

3.1 Installation Flowchart



3.2 Before You Begin

Carefully plan and arrange the installation location, networking mode, power supply, and cabling before installing the device.

Confirm the following requirements before installation:

- The installation location meets the temperature and humidity requirements of the device.
- The power supply and required current are available in the installation location.

- The network cables have been deployed in the installation location.

3.3 Precautions

The RG-AP680(CD) can be mounted on a wall or a pole with a diameter ranging from 50 mm to 140 mm (1.97 in. to 5.51 in.). Use the 304 stainless steel hose clamp delivered with the AP. If the diameter of the pole is out of this range, purchase the SUS304 hose clamp with a proper size for installation. The thickness of the hose clamp should be at least 2.5 mm (0.10 in.). Otherwise, the AP could fall down and cause injuries. The installation site should be determined by the technical personnel who conducts a site survey.

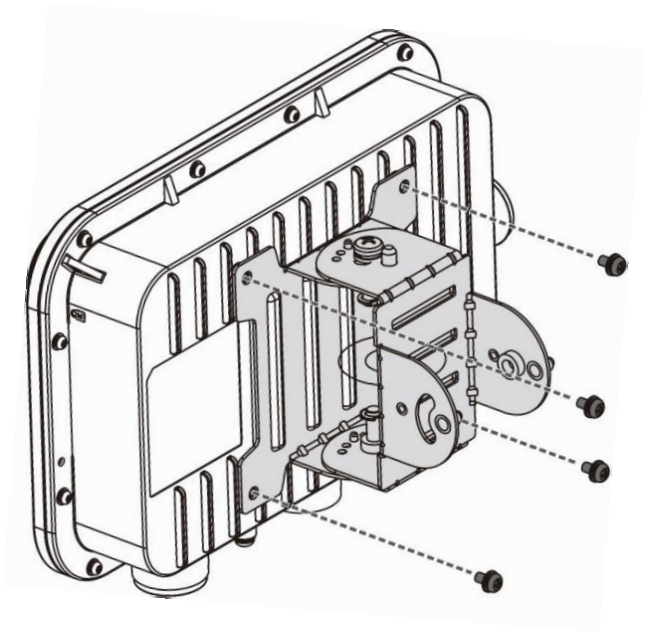
To ensure the normal operation of the AP and lengthen the service life of the AP, observe the following precautions before installing the AP.

- Before connecting the power supply, make sure the external power supply matches the power module inside the AP.
- Before connecting the power cord, make sure the power switch is in the OFF position.
- When connecting a wire to a grounding stud, make sure their colors are the same.
- Make sure the power supply is properly connected.

3.4 Installing the Access Point

(1) Use four M5 screws to secure the AP to the mounting plate.

Figure 3-1 Securing the Access Point to the Mounting Plate

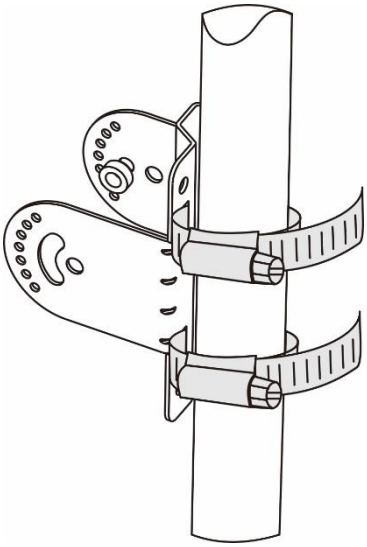


(2) Install the mounting bracket to a pole or wall.

- Pole mounting

  As shown in Figure 3-2, attach the mounting bracket to a pole by threading two hose clamps through openings of the mounting bracket.

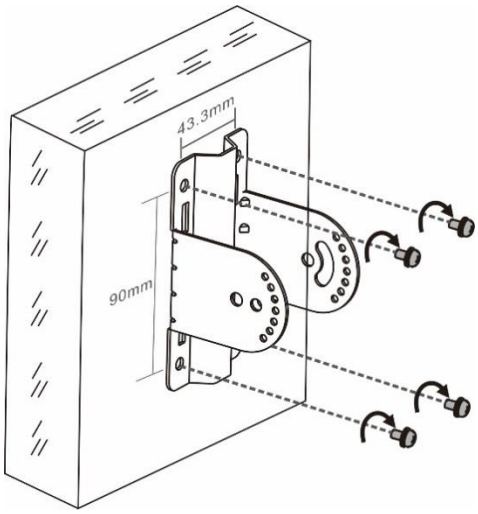
Figure 3-2 Attaching the Mounting Bracket to a Pole



- Wall mounting

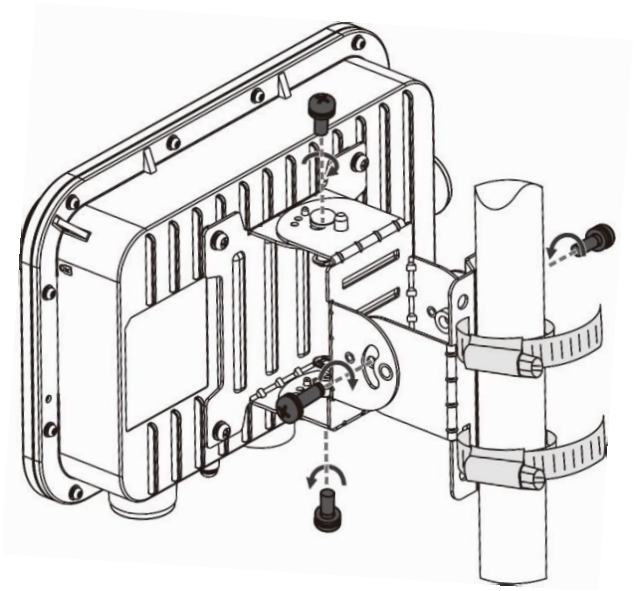
  As shown in Figure 3-3, install the mounting bracket on a wall using four M6 expansion anchors.

Figure 3-3 Attaching the Mounting Bracket to a Wall



(3) Install the AP on the mounting plate to the mounting bracket. Use four M6 screws to join the mounting plate and the bracket. Adjust the orientation of the AP before tightening the screws.

Figure 3-4 Installing the Access Point to the Mounting Bracket and Securing the Access Point after Adjusting Its Angle



Caution

- Use matching screws for the screw holes, and tighten the structural parts in each installation step.
- Tighten all fastening screws. If any screw is not installed, the device may vibrate violently, shift, or fall down.
- After installation, check that all screws are tightened to prevent the device from falling down.

3.5 Connecting Cables

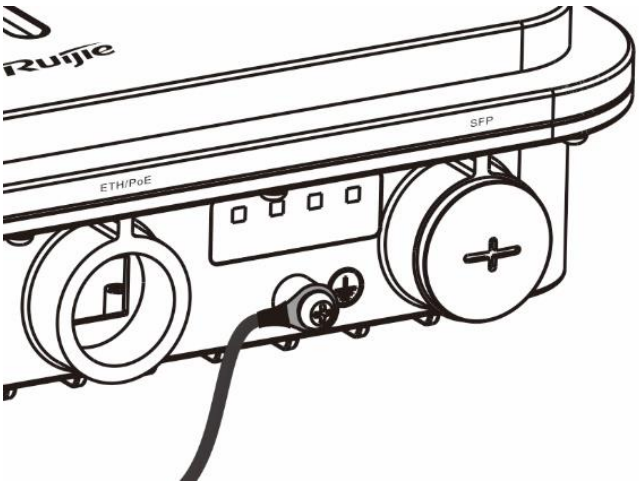
Note

The waterproof materials are customer-supplied.

- Connecting the Grounding Cable

The grounding cable needs to be made onsite. Connect one end of the grounding cable delivered with the device to the ground hole of the device through an OT terminal and the other end to the ground through another OT terminal. The cable length can be trimmed based on the onsite situation to avoid waste.

Figure 3-5 Connecting the Grounding Cable



- Connecting the Network Cable

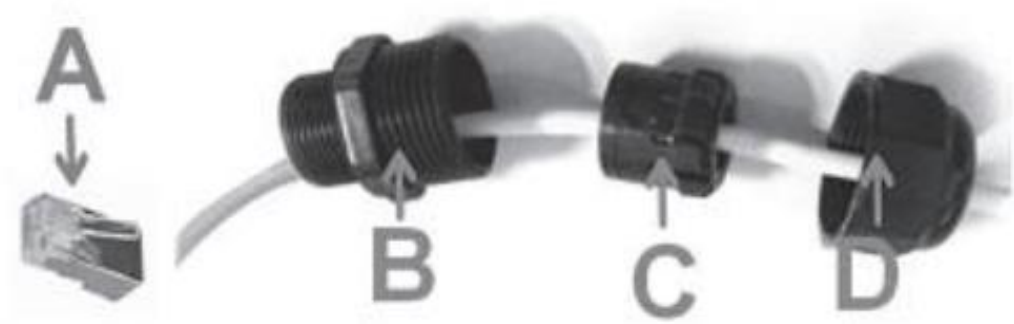
Caution

- Ensure that the crystal connector of the network cable is properly inserted into the AP. If not, the crystal connector may be damaged when a cable gland assembly is installed.
- When removing the network cable, remove the cable gland assembly first and then the crystal connector connected to the AP.

(1) Based on the distance from the AP to the power supply terminal, trim the network cable to a proper length and thread it through the mounting plate.

(2) Thread the network cable through the cable gland assembly based on the sequence shown in Figure 3-6.

Figure 3-6 Threading the Network Cable Through Cable Gland Assembly



(3) After threading the network cable through the cable gland assembly, install an RJ-45 connector on the unterminated end of the network cable. Wrap waterproof materials around the network cable between B (split gasket) and C (grommet).

Figure 3-7 Wrapping Waterproof Materials Around Network Cable

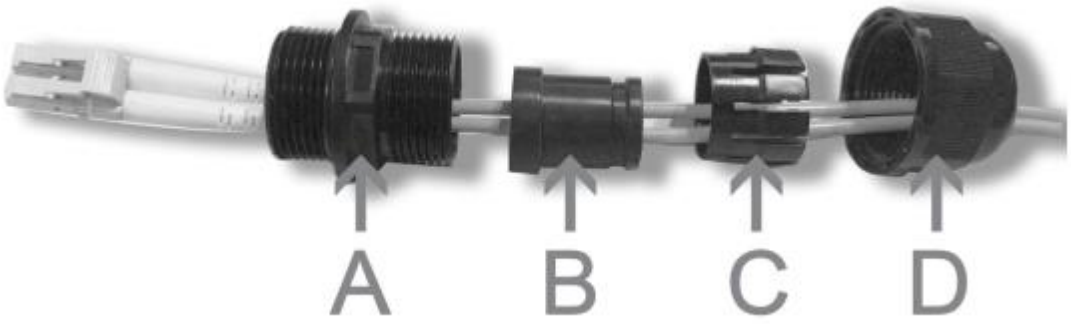
(4) Insert the crystal connector of the network cable into the ETH/PoE port on the AP and tighten the cable gland for B (split gasket), C (grommet), and D (compression cap) in sequence.

- (Optional) Connecting the Fiber-Optic Cable

(1) Select an LC-LC optical fiber jumper whose diameter ranges from 2.5 mm to 2.9 mm (0.10 in. to 0.11 in.).

(2) A cable gland assembly includes four components: A (adapter base), B (split gasket), C (grommet), and D (compression cap). B (split gasket) can be pressed into C (grommet) and also can be removed from C (grommet). Thread the optical fiber jumper through the cable gland assembly based on the sequence shown in Figure 3-8.

Figure 3-8 Threading the Optical Fiber Jumper Through Cable Gland Assembly



(3) Plug the optical fiber jumper into the optical transceiver and tighten A (adapter base).

(4) Slide B (split gasket) and C (grommet) along the optical fiber jumper, press firmly to seat B (split gasket) completely into C (grommet), and insert the assembly of B and C into (adapter base).

(5) Tighten D (compression cap) until C (grommet) and B (split gasket) compressed on to the optical fiber jumper. Use a waterproof tape to tighten the cable gland.

Caution

When removing the cable gland, proceed in the reverse order of the installation. Start by loosening D (compression cap). Otherwise, the optical fiber jumper may be damaged.

Note

- The cable gland can only hold the LC to LC optical fiber jumper with a diameter ranging from 2.5 mm to 2.9 mm (0.10 in. to 0.11 in.). A thicker or thinner cable cannot ensure waterproof effect.
- Connect or remove the LC to LC optical fiber jumper according to operation instructions. Otherwise, the optical fiber may be damaged.
- Make sure that one threaded end of A is fully screwed into D and the other threaded end is fully screwed into the AP.

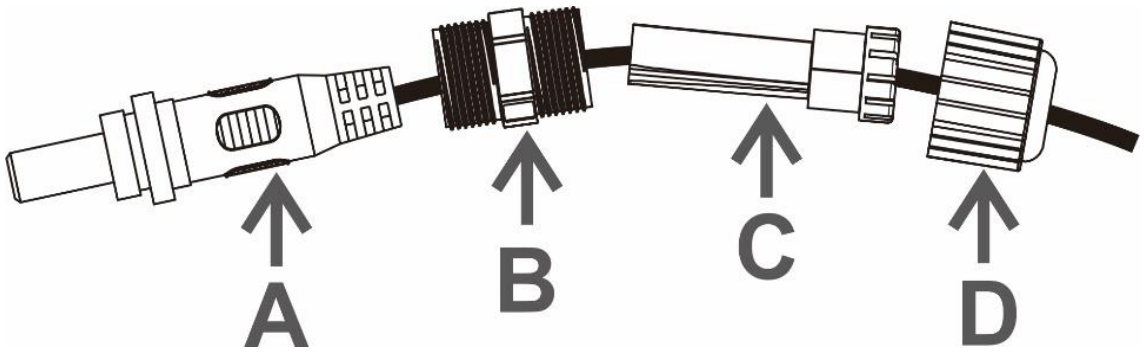
- (Optional) Connecting the DC Power Cord

Note

When the AP is powered by the DC power supply, its ports are facing downward. In this case, the AP can be protected against only splashing water.

The DC power cord should be used together with the cable gland. Paint waterproof plaster and wrap the waterproof tapes around the DC power cord between B (split gasket) and C (grommet). The waterproof power cord should be at least 5 mm (0.20 in.) in diameter.

Figure 3-9 Connecting DC Power Cord



Note

Make sure that one threaded end of B (split gasket) is fully screwed into D (compression cap) and the other threaded end is fully screwed into the AP.

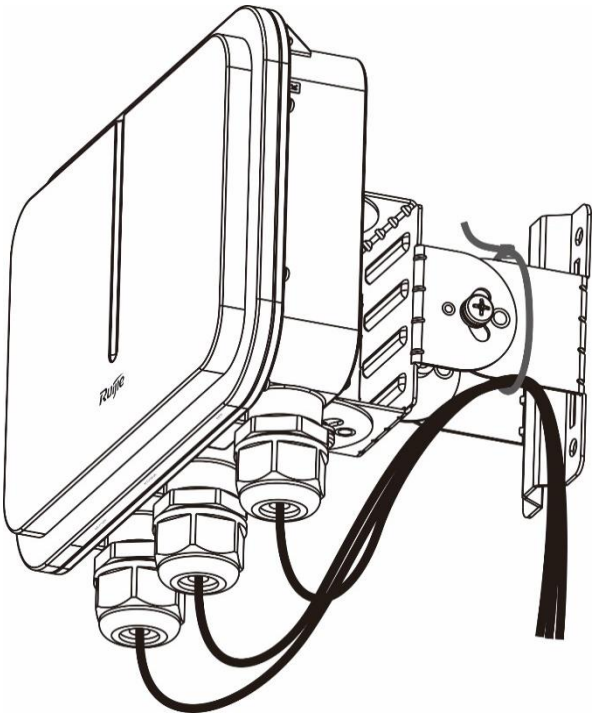
3.6 Bundling Cables

Note

- The power cords and cables should be bound in a visually pleasing way.
- Bend twisted pairs naturally or to a large radius close to the connector.

After the cables are connected with the AP through the cable gland assembly and powered on properly, use a cable tie to bundle the cables on the mounting bracket to fix themneatly.

Figure 3-10 Bundling Cables on Mounting Bracket Using a Cable Tie

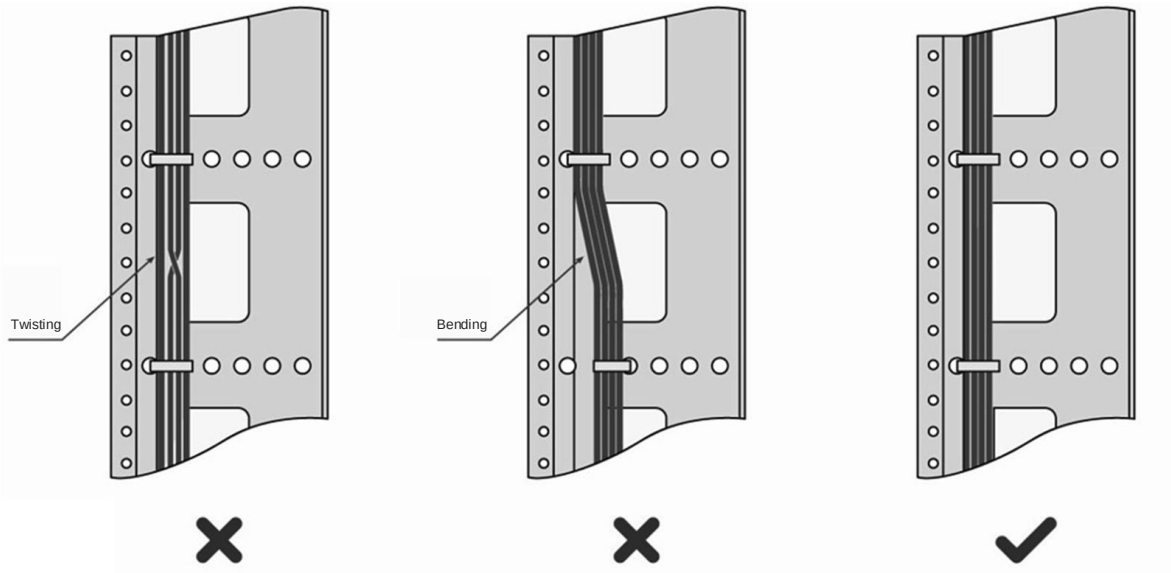


- Requirement for the Minimum Cable Bend Radius
  - The bend radius of a power cord, communication cable, or flat cable should be over five times greater than their respective outer diameters. The bend radius of these cables that are often bent or plugged should be over seven times greater than their respective outer diameters.
  - The bend radius of a fixed common coaxial cable should be over seven times greater than its outer diameter. The bend radius of the common coaxial cable that is often bent or plugged should be over 10 times greater than its outer diameter.
  - The minimum bend radius of a high-speed cable, such as an SFP optical fiber jumper should be over five times the outer diameter of the cable. If the cable is frequently bent

or plugged, the bend radius should be over 10 times the outer diameter.

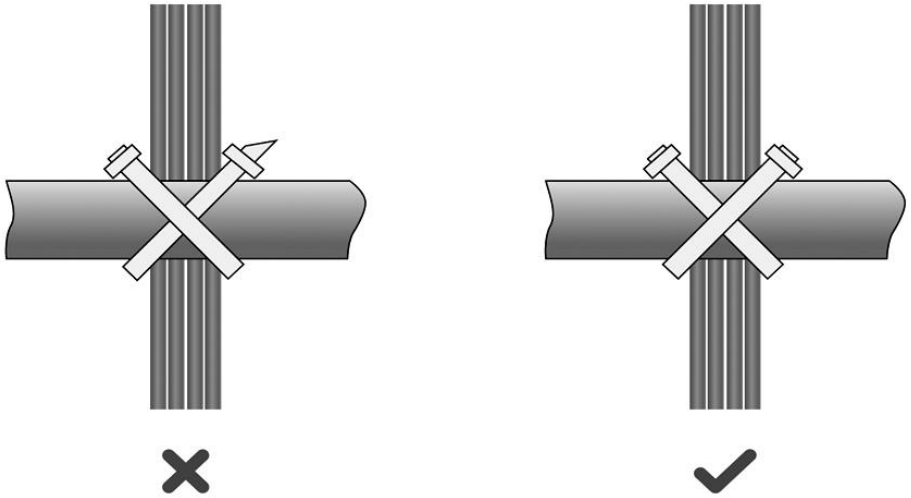
- Precautions for Cable Bundling
  - Before cables are bundled, mark labels and stick the labels to cables wherever appropriate.
  - Cables should be neatly and properly bundled in the cabinet without twisting or bending, as shown in Figure 3-11.

Figure 3-11 Bundling Cables for Wall Mounting



  - 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 3-12.

Figure 3-12 Bundling Cables Pole Mounting



4 Appendix

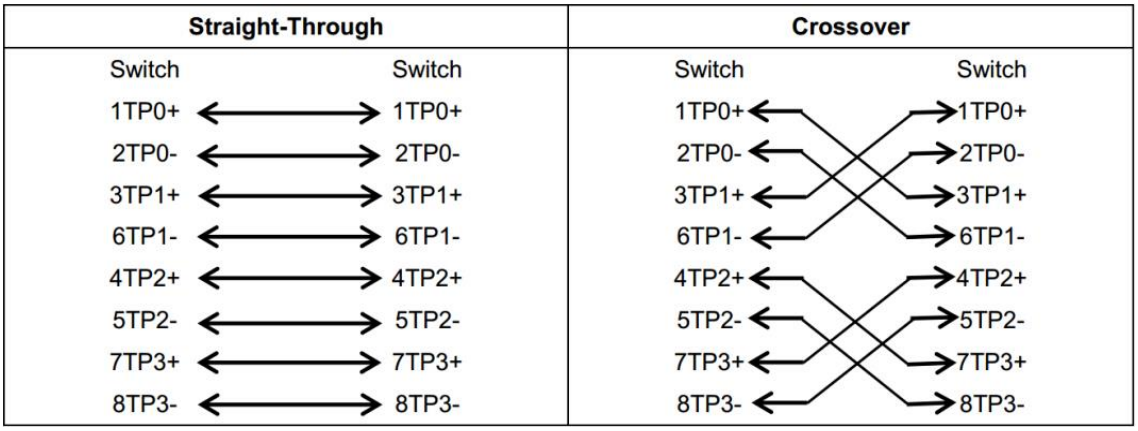
4.1 Connectors and Media

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

The 1000BASE-T/100BASE-TX/10BASE-T is a 10/100/1000 Mbps port with auto-negotiation, which supports auto MDI/MDIX Crossover at these three rates.

The 1000BASE-T complies with IEEE 802.3ab standard, and uses up to 100 m (328.10 ft) of 100-ohm CAT5e UTP or STP twisted pairs with higher standard (STP is recommended). The 1000BASE-T port uses four pairs of wires for transmission, all of which must be connected. Table 4-1 shows the connection of the twisted pairs used by the 1000BASE-T port.

Table 4-1 Four Twisted Pairs of the 1000BASE-T



In addition to the preceding cables, the 100BASE-TX/10BASE-T can also use 100-ohm Category-3, Category-4, and Category-5 cables for 10 Mbps, and 100-ohm Category-5 cables for 100 Mbps, both of which can be up to 100 m (328.10 ft). Table 4-2 shows the pinouts of the 100BASE-TX/10BASE-T.

Table 4-2 Pinouts of the 100BASE-TX/10BASE-T

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

Table 4-3 shows the straight-through and crossover cable connections for the 100BASE-TX/10BASE-T.

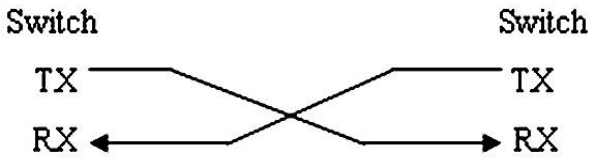
Table 4-3 Connections of the Twisted Pairs of the 100BASE-TX/10BASE-T

Straight-Through		Crossover	
(Switch)	(Adapter)	(Switch)	(Hub/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-

Fiber-Optic Cable Connection

For the optical ports, select single-mode or multimode fiber-optic cables for connections according to the optical module connected. Figure 4-1 shows the connection schematic diagram.

Figure 4-1 Fiber-Optic Cable Connections



4.2 Mini-GBIC Module Models and Specifications

Ruijie provides various Gigabit SFP modules (Mini-GBIC modules) for APs based on the interfaces of access controller modules. You can select the most suitable SFP modules as needed. This appendix describes the models and specifications of some of the Gigabit SFP modules for your reference.

Mini-GBIC (SFP) Models and Specifications

Table 4-4 Models and Specifications of SFP Modules

Mini-GBIC (SFP)	Wavelength (nm)	Media Type	Core Size (μm)	Modal Bandwidth (MHz/km)	Cabling Distance	Max. Intensity of Transmitted Light (dBm)	Max. Intensity of Receive Sensitivity (dBm)	Standards
FE-SFP-LX-MM1310	1310	MMF	62.5/125	N/A	2 km	–14	–14	IEEE802.3
FE-SFP-LH15-SM1310	1310	SMF	9/125	N/A	15 km	–8	–8	
Mini-GBIC-SX	850	MMF	62.5 62.5 50.0	160 200 400	220 m 275 m 500 m	–4	–17	
Mini-GBIC-LX	1310	MMF SMF	62.5 50.0 50.0	500 400 500	550 m 550 m 550 m	–3	–20	
Mini-GBIC-LH40	1310	SMF	9/125	N/A	40 km	3	–3	
Mini-GBIC-ZX50	1550	SMF	N/A	N/A	50 km	0	–22	

Mini-GBIC-ZX80					80 km	4.7	–22	
Mini-GBIC-ZX100					100 km	5	–9	
Mini-GBIC-GT	N/A	CAT5 UTP	N/A	N/A	100 m	N/A	N/A	

Note

For the optical module with the transmission distance exceeding 40 km (24.85 miles) or above, add one in-line optical attenuator on the link to avoid the overload of the optical receiver when short single-mode fiber-optic cables are used.

4.3 Package Contents

Table 4-5 Package Contents

Item	Quantity	Remarks
Access point	1	
Mounting plate	1	
Mounting bracket	1	
M5 x 10 mm machine screw	4	
M6 x 20 mm machine screw	2	
M6 x 50 mm expansion anchor	4	
Cable gland assembly	2	For the Ethernet/PoE port and the DC power port
Cable gland assembly for the fiber-optic cable	1	The split gasket has two holes and can hold an LC-LC optical fiber jumper whose diameter ranges from 2.5 mm to 2.9 mm (0.10 in. to 0.11 in.).
Cable tier	1	
Hose clamp	2	
Grounding cable	1	
Warranty card	1	
Dust cap	3	Pre-installed on the AP
Ruijie Networks Wireless Product Management Software	1	Pre-installed on the AP

4.4 DC Connector Specifications

- Input voltage: 48 V DC; rated current: 0.35 A

Table 4-6 DC Connector Specifications

Inner Diameter	Outer Diameter	Depth	Polarity
2.1 mm (0.08 in.)	5.5 mm (0.25 in.)	10 mm (0.39 in.)	Inner Positive, Outer Negative

Figure 4-2 DC Connector Specifications