Ruijie Reyee RG-RAP6202(G) Access Point

Installation Guide

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Preface

Intended Audience

This document is intended for:

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

Technical Support

- Official Website 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

This document also uses signs to indicate some important points during the operation. The meanings of these signs are as follows:

Caution

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.

Note

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

Instruction

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.

rdware. At the same time, it is assumed that the users are already familiar with the related terms and concepts.

Contents

Preface I

1 Product Overview 1

1.1 Package Contents 1

1.2 Appearance 2

1.3 Technical Specifications 5

1.4 Power Supply 6

2 Preparing for Installation 7

2.1 Safety Precautions 7

2.1.1 Grounding and Lightning Protection 7

2.2 Preparing the Installation Site 7

2.2.1 Temperature and humidity requirements 8

2.2.2 Outdoor Installation 8

2.2.3 Weatherproof 8

2.2.4 EMI 8

2.3 Installation Tools 9

3 Installation 10

3.1 Installation Flowchart 10

3.2 Before You Begin 10

3.3 Choosing a Site 10

3.4 Installing the Device 11

3.4.1 Wall Mounting 11

3.4.2 Vertical Pole Mounting 12

3.4.3 Horizontal Pole Mounting 13

3.5 Connecting Ethernet Cables 14

4 Appendix A Connectors and Media 16

5 Appendix B Mini-GBIC Models and Specifications 18

1 Product Overview

The RG-RAP6202(G) access point is an outdoor wireless access point designed by Ruijie Networks for high-speed wireless networks. RAP6202(G) features wireless network security, radio frequency (RF) control, mobile access, Quality of Service (QoS) and seamless roaming.

The IP68 design adapts to inclement outdoor environments such as the cold and humidity, and can effectively avoid the influence of bad weather and environment. This greatly simplifies installation and maintenance. RAP6202(G) supports PoE and can be applied in a wide variety of deployment scenarios, including outdoor space of hotels, orchard monitoring, warehouses.

1.1 Package Contents

Table 1-1 Package Contents

Item	Quantity
RG-RAP6202(G) Access Point	1
Hardware Installation and Reference Guide	1
Hose Clamp	2
Mounting Plate	1
M8 x 60 Expansion Bolt	4
M8 x 20 Screw	2
Cable Gland (Pre-installed on the AP)	2
Connecting Rod (Pre-installed on the AP)	1
Warranty Card	1

Note

A normal delivery should contain the above mentioned items, which may differ from the actual delivery, depending on purchase contracts. Please check your goods carefully against the package contents list or purchase contract. If you have any questions or there are any errors, please contact your distributor.

1.2 Appearance

Figure 1-1 Front View



Figure 1-2 Side View



Figure 1-3 Ports

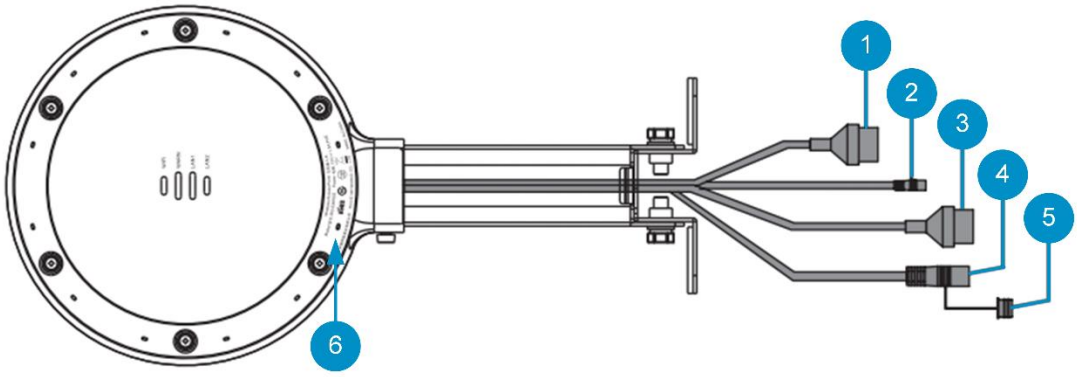


Table 1-2 Description

Sign	Button/Port	Function
1	Ethernet Port	10/100/1000Base-T adaptive Ethernet ports
2	Power port	DC power port, 12 V/1.5 A **Caution** If the power adapter is needed, please purchase it separately.
3	Ethernet port/PoE	10/100/1000Base-T adaptive Ethernet ports, supporting 802.3af/802.3at PoE power supply
4	Reset button	Press for shorter than 2 seconds: Restart the device. Press for 2 to 5 seconds: There is no reaction on the device. Press for longer than 5 seconds: Restore the factory settings.
5	Weatherproof Cap	Protect the access point interior from environmental elements including water, heat, cold, and dust.
6	Label	The label is located on the bottom of the device.

Figure 1-4 Top View

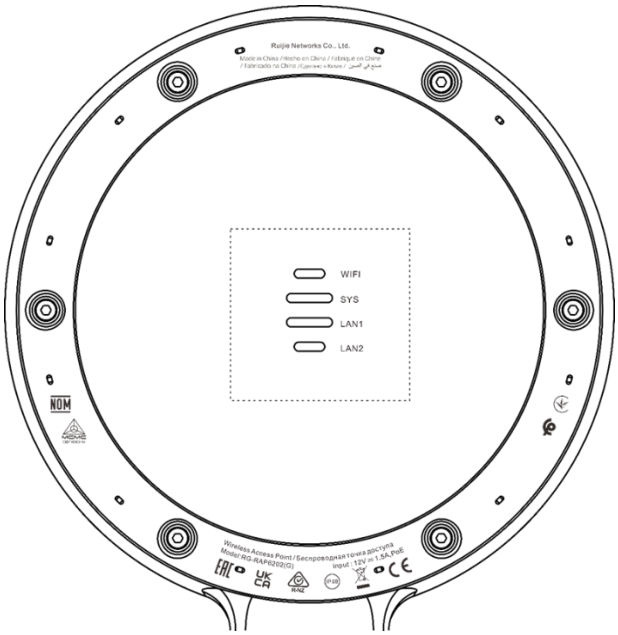


Table 1-3 Description

LED	Status	Meaning
Wi-Fi (Green)	Blinking	Data is transmitted by Wi-Fi.
	Solid on	Wi-Fi is enabled and no data is transmitted.
	Off	Wi-Fi is disabled.
SYS(Blue)	Fast blinking	The device is being initialized.
	Slow blinking (0.5 Hz):	The Internet is unreachable.
	Blinking twice	1. Restore the factory settings. 2. Upgrade the firmware and restore the image file. **Caution** In this case, please do not power off the device.
	A long blink and three short blinks	Other faults occur.
	Solid on	The device is working properly without alarm.
	Off	The device is powered off.
LAN 1(Green)	Blinking	The port is up and data is transmitted.
	Solid on	The port is up and no data is transmitted.
	Off	The port is down.

LED	Status	Meaning
LAN 2(Green)	Blinking	The port is up and data is transmitted.
	Solid on	The port is up and no data is transmitted.
	Off	The port is down.

1.3 Technical Specifications

Table 1-4 Technical Specifications of RG-RAP6202(G)

Max Transmission Rate	Built-in antenna mode: 1267Mbps (867Mbps@5GHz ; 400Mbps@2.4GHz)
Operating Frequency	802.11b/g/n: 2.4 GHz to 2.4835 GHz 802.11a/n/ac/ax: 5.150 GHz to 5.350 GHz, 5.470 GHz to 5.725 GHz, 5.725 GHz to 5.850 GHz (Country-Specific)
Transmit Power	2.4 GHz: ≤ 26 dBm(adjustable) 5 GHz: ≤ 27 dBm(adjustable)
Antenna Type	Built-in omnidirectional antennas
Antenna Gain	2.4 GHz: 3dBi 5 GHz: 4dBi
Beam Width	2.4 GHz E: 30°; H: 360° 5 GHz E: 30°; H: 360°
Ports	One 10/100/1000BASE-T Ethernet uplink port supports 802.3af/ 802.3at PoE input. One 10/100/1000Base-T Ethernet port
FAT/FIT Mode Switchover	Not Supported
Power Supply	IEEE 802.af/at PoE DC power port: 12 V/1.5 A **Caution** If the power adapter is needed, please purchase it separately.
Power Consumption	< 12.95 W
LED	System, Wi-Fi and port status indicators
Certification	CE
Dimensions (W x D x H)	222 mm × 200 mm × 166 mm (8.74 in. x 7.87 in. x 6.54 in.)

Weight	< 1 kg (2.20 lbs.)
IP Rating	IP68
Operating Temperature	-30°C to 65°C (-22°F to 149°F)
Operating Humidity	0% to 100% (non-condensing)
Storage Temperature	-40°C to 85°C (-40°F to 185°F)
Storage Humidity	0% to 100% (non-condensing)

1.4 Power Supply

RG-RAP6202(G) supports 802.3af/802.3at-compliant PoE or 12V DC/1.5 A power supply (please purchase a power adapter separately).

Table 1-5 Power Supply

Output Voltage	12 V
Minimum Output current	1.5 A
Technical Specifications of the DC Power Connector	Inner Diameter: 2.1 mm (0.08 in.) Outer Diameter: 5.5 mm (0.25 in.) Depth: 10 mm (0.39 in.) Polarity: ● Inner pole: positive ● Outer pole: negative

2 Preparing for Installation

2.1 Safety Precautions

Note

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

Warning

Using this device may cause radio interference in living environment.

2.1.1 Grounding and Lightning Protection

- Keep the grounding connection within 30 m (98.43ft), and use a 40 mm x 4 mm (1.57 in. x 0.16 in.) or 50 mm x 5 mm (1.97 in. x 0.2 in.) ground bar of hot-dip zinc-coated flat steel sheet.
- 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 mm^2 (16 AWG) for the connection cable.
- Use a shielded network cable and make sure that the devices at the two ends of the cable, and the shielded sleeves are well grounded. Alternatively, run the network cable through the steel pipe and ground the pipe at both ends.
- No additional lightning protector is required as a high-profile lightning protector is built in the RG-RAP6202(G) and the antenna port and power port support 4 kV lightning protection. If a lightning protector of a higher profile is available, configure the lightning protector optionally. Before the configuration, connect the lightning protector to the ground cable.
- Use a power cable with the PE end to ground the power supply (AC). Ensure that the PE end 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 ground cable of other communication devices, and ensure that the L wire and N wire are properly connected.
- The ground resistance should be less than 5 ohms. In an area with a higher soil resistivity, reduce the soil resistance by spreading ground resistance reducer powder to reduce the soil resistivity.

2.2 Preparing the Installation Site

- Do not expose the AP to high temperature, dust, or harmful gases.
- Do not install the AP in an area prone to fire or explosions.
- 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 noises.

- Keep the AP at least 500 meters away from the ocean and do not face it towards the sea breeze.
- The installation site should be protected from water and 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, electric power, and transportation.

2.2.1 Temperature and humidity requirements

Temperature and Humidity Requirements:

Operating Temperature	Operating Humidity:
-30°C to 65°C (-22°F to 149°F)	0% to 100% RH (non-condensing)

2.2.2 Outdoor Installation

The AP can be installed outdoors and supports installation methods including wall mounting, vertical pole mounting and horizontal pole mounting.

2.2.3 Weatherproof

- Use a weatherproof cap to seal the unused ports.
- After using the reset button, please seal it with the weatherproof cap.
- The Ethernet cable needs to be threaded through the cable gland before connecting to the AP. For details, see Chapter 3 Installation.

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 device(s) 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 Installation Tools

Table 2-1 Installation Tools

Common Tools	Marker, Phillips (crosshead) screwdriver, slotted screwdriver, paper knife, diagonal pliers, wires, Ethernet cables, binding straps, wrench and hammer
Special Tools	Hammer drill, ESD tools, stripping pliers and crimping pliers
Meter	Multimeter, network cable tester
Relevant devices	PC, display, and keyboard

Note

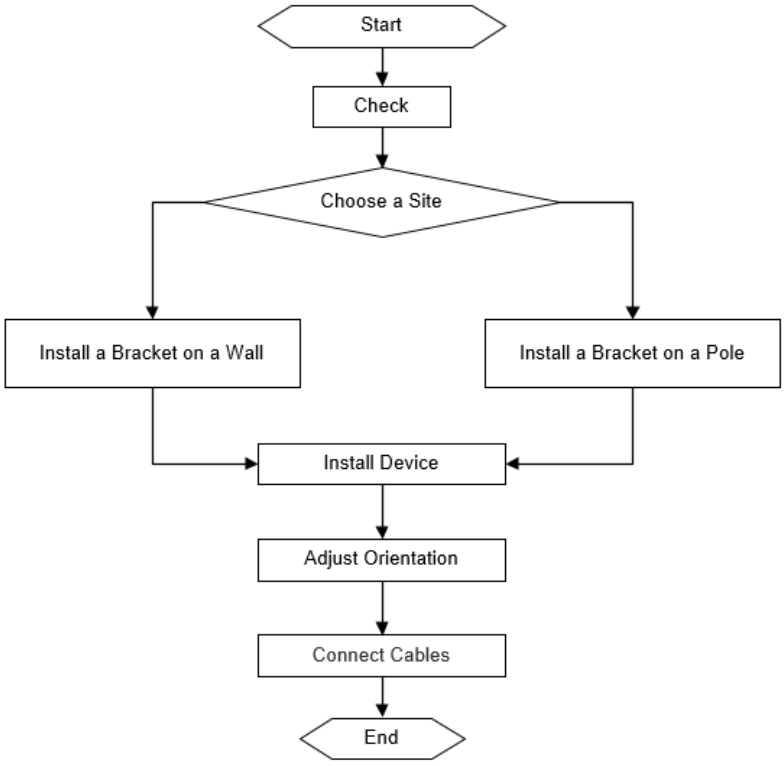
The tool kit and cables are customer-supplied.

3 Installation

Caution

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

- The installation site meets temperature and humidity requirements.
- The installation site is equipped with a proper power supply.
- Network cables are in place.

3.3 Choosing a Site

The outdoor AP can be mounted on a wall and a pole with a diameter ranging from 50 mm to 70 mm (1.97 in. to 2.76 in.). If the diameter of the pole is out of the range, the hose clamp is customer-supplied. In this case, it is recommended that you use a hose clamp with thickness of 2.5mm (0.1 in.) at least. The installation site varies due to on-the-spot surveys conducted by technical personnel.

Please make full preparations as described in Chapter 2 and observe the following precautions before installing

the device.

- Before connecting the power supply, make sure the external power supply matches the power module of the AP.
- Before connecting the power cord, make sure the power module is turned off.
- When connecting the power cord to a binding post, make sure their colors are the same.
- Make sure the power supply is properly connected.

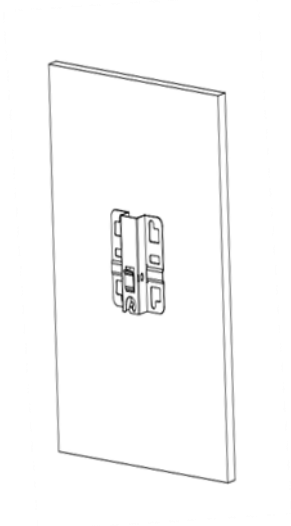
3.4 Installing the Device

3.4.1 Wall Mounting

(1) Use the mounting plate and M8 x 60 expansion bolts to implement wall mounting.

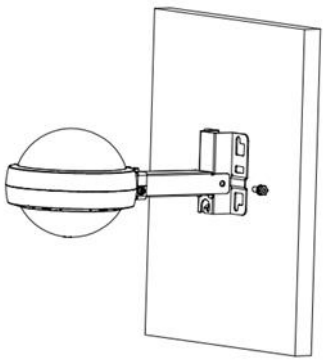
a Attach the mounting plate to the wall and mark the locations of screw holes after adjusting the installation position.

Figure 3-1 Pre-install M8 x 60 expansion bolts on the wall



b Install the access point and the connecting rod to the mounting plate on the wall, and tighten the M8 x 20 screws to complete installation.

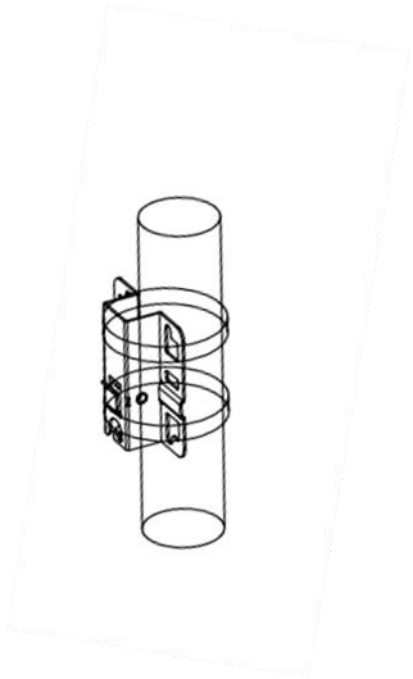
Figure 3-2 Wall Mounting



3.4.2 Vertical Pole Mounting

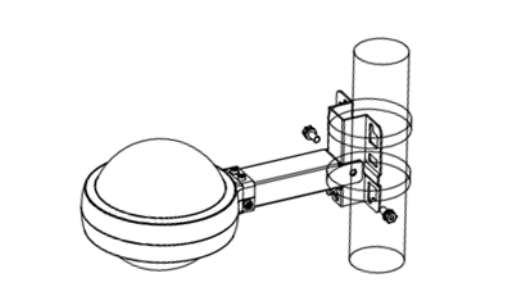
(1) Secure the mounting plate to the vertical pole by threading two clamps through the mounting plate, and fasten the clamps with screws. You are advised to use an electronic screwdriver.

Figure 3-3 Mounting the Plate on a Vertical Pole



(2) Install the access point and the connecting rod to the mounting plate on the vertical pole, and tighten the M8 x 20 screws to complete installation.

Figure 3-4 Vertical Pole Mounting



3.4.3 Horizontal Pole Mounting

Note

The procedures of horizontal pole mounting are the same as those of vertical pole mounting.

Figure 3-5 Mounting the Plate on a Horizontal Pole

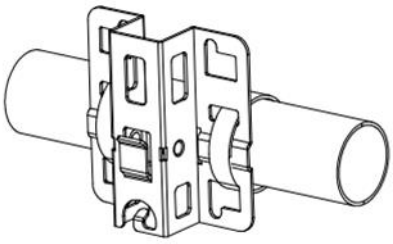
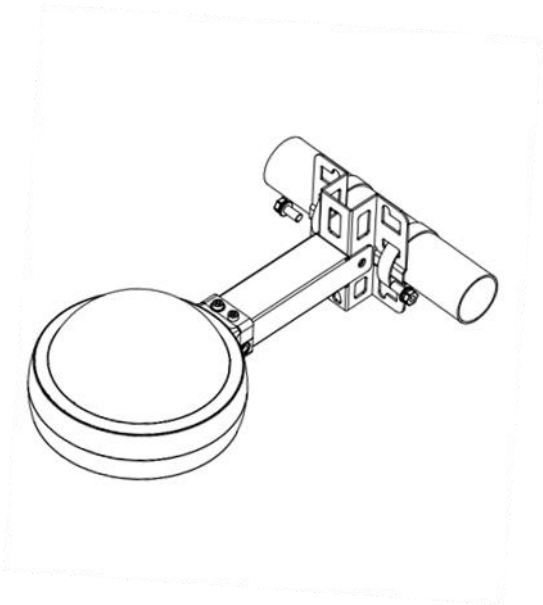


Figure 3-6 Horizontal Pole Mounting



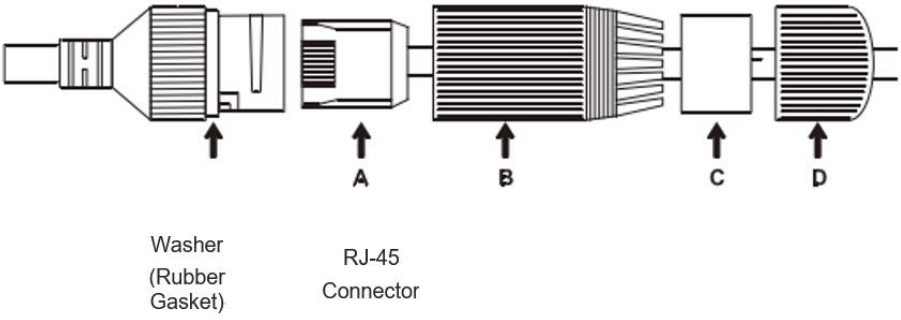
3.5 Connecting Ethernet Cables

Caution

The weatherproof materials are customer-supplied.

(1) Trim an Ethernet cable according to the distance between the access point and the power supply.

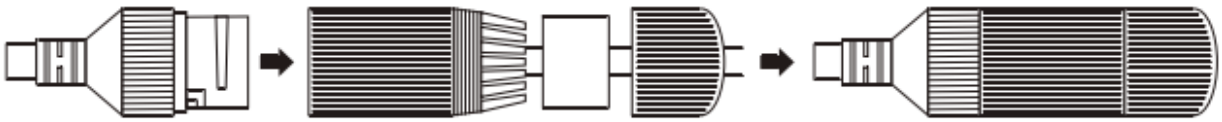
(2) Insert the unterminated end of the Ethernet cable through part D, C and B in sequence.



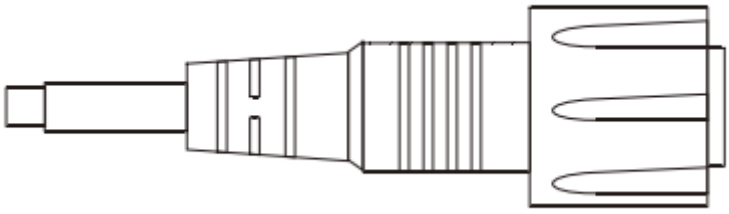
(3) Install an RJ45 connector on the unterminated end of the Ethernet cable using an Ethernet cable installation tool..

(4) Insert the RJ45 connector into the LAN, PoE or uplink port of the access point, and tighten part B, C and D in sequence.

(5) If you want to install the cable gland without an Ethernet cable threaded through it, insert the waterproof rubber rod into the washer (rubber gasket), and tighten part B, C and D in sequence.



(6) Make sure to seal the DC port and the reset button with clean weatherproof caps and insert them into the slot of connecting rod.



Caution

Please ensure that the RJ45 connector is properly inserted. Otherwise, you may damage the RJ45 connector when tightening the cable gland. Before removing the Ethernet cable, please remove the cable gland first and then the RJ45 connector.

Warning

The access point should not be installed in the place prone to water accumulation, seepage, dripping, and condensation.

You are advised to install the access point horizontally.

If any requirement above cannot be fulfilled, please use weatherproof duct tape or weatherproof plaster.

4 Appendix A Connectors and Media

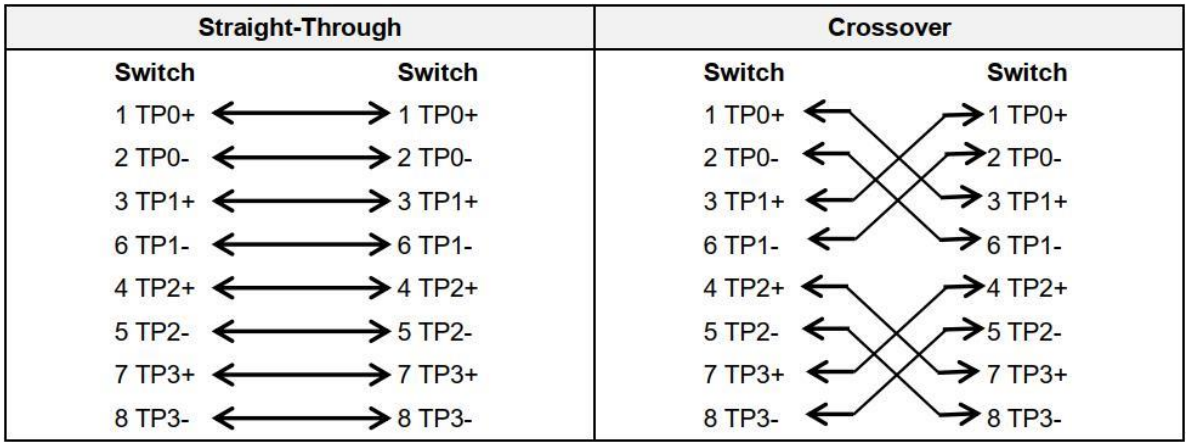
1000BASE-T/100BASE-TX/10BASE-T Port

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

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 4-1.

Figure 4-1 1000BASE-T Connection



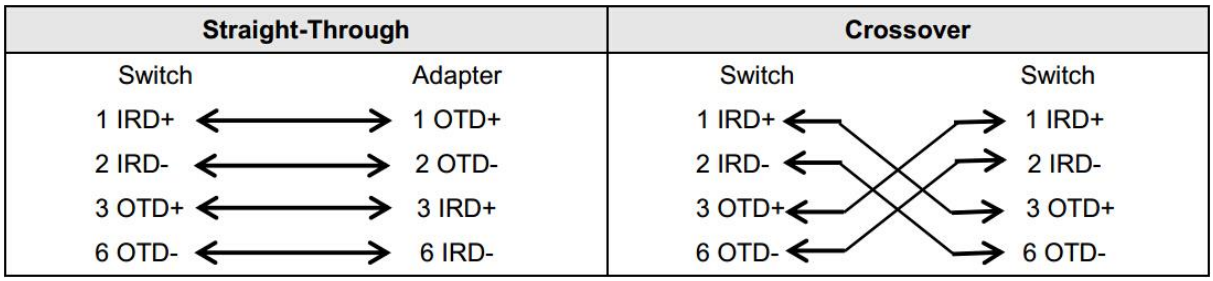
10BASE-T uses Category 3, 4, 5 100-ohm UTP/STP and 1000BASE-T uses Category 5 100-ohm UTP/STP for connections. Both support a maximum length of 100 meters. Figure 4-2 shows100BASE-TX/10BASE-T pin assignments.

Figure 4-2 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 4-3 shows wiring of straight-through and crossover cables for 100BASE-TX/10BASE-T.

Figure 4-3 100BASE-TX/10BASE-T Connection



Fiber Connection

You can choose to use single mode or multimode fibers according to the transceiver module types. Figure 4-4 shows connection of fiber cables.

Figure 4-4 Fiber Connection



5 Appendix B Mini-GBIC Models and Specifications

We provide appropriate 1000M SFP modules (Mini-GBIC modules) according to the port types. You can select the SFP module to suit your specific needs. The following models and technical specifications of some 1000 SFP modules are listed for your reference.

Mini-GBIC (SFP) Models and Specifications

Table 5-1 SFP Models and Specifications

Mini-GBIC(SFP)	Wavelength (nm)	Fiber Type	Core Size (micron)	Modal Bandwidth (MHz/km)	Cable Distance	Max Transmitted Intensity (dBm)	Max 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 50.0	160 200 400 500	220 m 275 m 500 m 550 m	-4	-17	
MINI-GBIC-LX	1310	MMF SMF	62.5 50.0 50.0 9/10	500 400 500 N/A	550 m 550 m 550 m 10 km	-3	-20	
MINI-GBIC-	1310	SMF	9/	N/A	40 km	3	-3	

LH40			125					
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	Cat 5 UTP	N/A	N/A	100 m	N/A	N/A	

[1] MMF=Multimode fiber

[2] SMF=Single mode fiber

Note

For SFP modules with a cabling distance of over 40 km (including 40 km), install an attenuator to avoid overload when using short fiber-optic cables.