Reyee RG-E6 Home Wi-Fi Router

Hardware Installation and Reference Guide

Document Version: V1.0
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Contents

1 Product Introduction

1.1 Overview

The RG-E6 router is a dual-band Gigabit Wi-Fi 6 wireless router designed especially for gamers seeking a top-notch Wi-Fi experience. Designed with the next-generation Wi-Fi 6 technology, it delivers mind-blowing speeds of up to 6000 Mbps across both bands. Featuring a 2.5 Gbps WAN/LAN port and a flagship-grade 2.0 GHz quad-core processor, this router comes packed with power and delivers an incredibly strong signal thanks to the eight independent power amplifiers. The RG-E6 router provides one 2.5 Gbps WAN/LAN port (default WAN port), one gigabit WAN/LAN port (default LAN port), and three gigabit LAN ports, supporting two gigabit Internet connections. With its advanced dual-frequency high-order 4 × 4 RF architecture, this router supports a broad 160 MHz bandwidth. You can effortlessly manage and control your network locally or remotely through the user-friendly web interface or the convenient Reyee Router app. Standout features of the RG-E6 router include parental control and IoT Wi-Fi, making this wireless router the perfect addition to any household.

1.2 Package Contents

Table 1-1 Package Contents

No.	Item	Quantity
1	RG-E6 Router	1
2	Power Adapter (12 V DC/3 A)	1
3	Ethernet Cable	1
4	Quick Installation Guide	1
5	Warranty Card	1

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 Top View

Figure 1-1 Top View

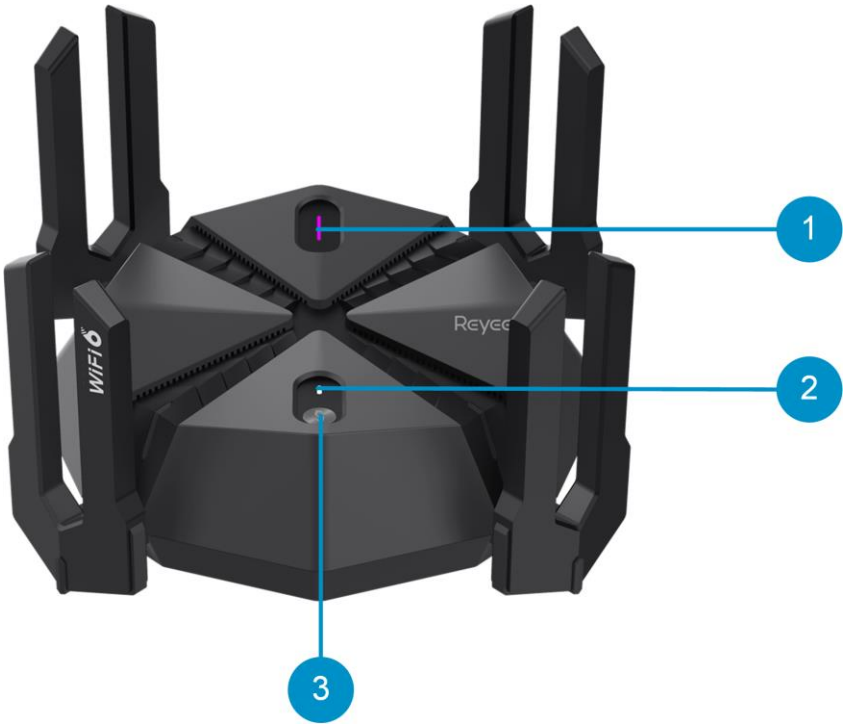


Table 1-2 LEDs and Buttons

Mark	Item	Description
1	Game turbo LED	Off: Game turbo is disabled. On: Game turbo is enabled.
2	System LED	Off: The router is not powered on. On: The router is functioning properly. Slow blinking: The router is not connected to the Internet, or is in the process of forming a mesh network. Fast blinking: The router is starting up.
3	Reyee Mesh/Game turbo button	Press the button for less than 2 seconds: This device serves as the primary router, and starts mesh networking. Press the button for more than 3 seconds: Enables or disables the game turbo function

1.3.2 Back View

Figure 1-2 Back View

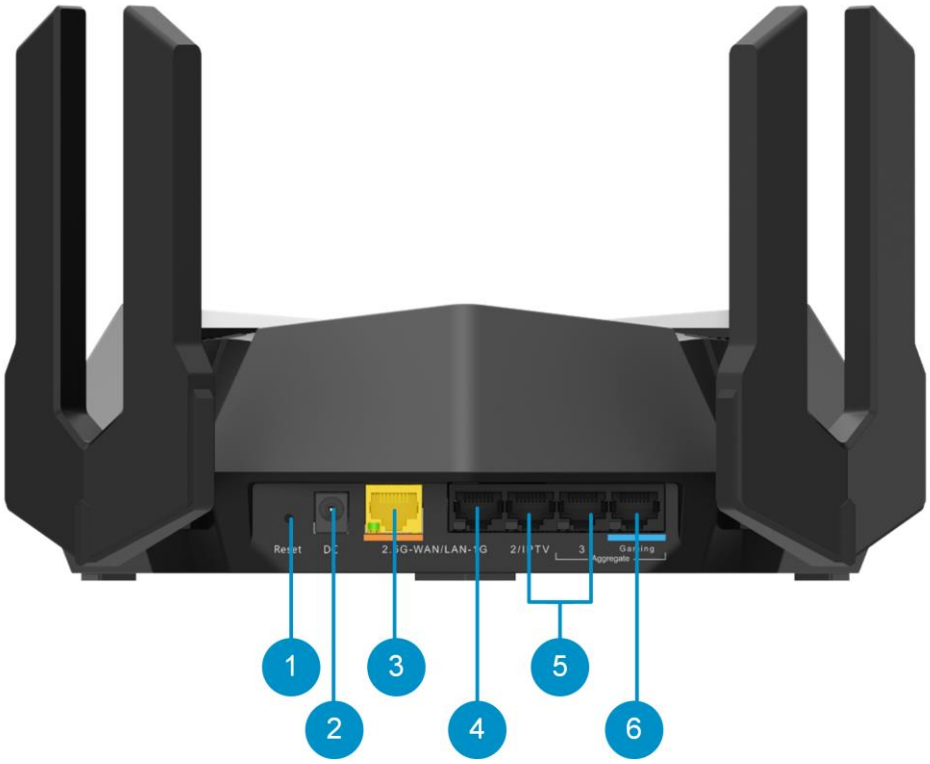


Table 1-3 Ports and Buttons

Mark	Item	Description
1	Reset button	Press and hold for less than 1 second: No action is triggered. Press and hold for more than 10 seconds: The router is restored to factory defaults.
2	DC power cord connector	Connects to a 12 V/3 A DC power adapter to supply power to the router.
3	2.5G port (WAN/LAN)	10/100/1000/2500 Base-T uplink port
4	Gigabit port (WAN/LAN)	10/100/1000 Base-T port
5	Gigabit LAN ports	10/100/1000 Base-T downlink port, supporting IPTV
6	Gaming port	10/100/1000 Base-T port

1.4 Technical Specifications

Table 1-4 Specifications

Radio Design	2.4 GHz and 5 GHz dual-radio four-stream
Protocol and Standard	Supports 802.11ax, 802.11ac wave2/wave1 and 802.11a/b/g/n standards for simultaneous operation
Operating Frequency Bands	802.11b/g/n/ac/ax: 2.4 GHz to 2.4835 GHz 802.11a/n/ac/ax: 5.1 GHz: 5.150 to 5.350 GHz; 5.4 GHz: 5.470 to 5.725 GHz; 5.8 GHz: 5.725 to 5.850 GHz
Antenna Type	External flat omni-directional antenna 2.4 GHz: 4 dBi 5.1 GHz: 5 dBi 5.8 GHz: 5 dBi
Spatial Streams	2.4 GHz: 4x4 MIMO 5 GHz: 4x4 MIMO
Data Rate	2.4 GHz: 1148 Mbps 5 GHz: 4804 Mbps Combined: 5952 Mbps
Modulation Technology	DBPSK/DQPSK/CCK(DSSS)/BPSK/QPSK/16QAM/64QAM/256QAM/1024QAM /OFDMA
Receive Sensitivity	2.4 GHz: 20 MHz 802.11b: –96 dBm (1 Mbps) 802.11g: –91 dBm (6 Mbps), –72 dBm (54 Mbps) 802.11n: –89 dBm (MCS0), –68 dBm (MCS7) 5 GHz:20MHz 802.11n: –89 dBm (MCS0), –68 dBm (MCS7) 802.11a: –92 dBm (6 Mbps), –73 dBm (54 Mbps) 802.11ac: –88 dBm (MCS0), –64 dBm (MCS8) 802.11ax: –88 dBm (MCS0), –64dBm (MCS8), –58dBm (MCS11)
Max. Transmit Power	2400 to 2483.5 MHz ≤ 30 dBm (EIRP); 5150 to 5350 MHz ≤ 26.61 dBm (EIRP); 5470 to 5725 MHz ≤ 20.59 dBm (EIRP); 5725 to 5850 MHz ≤ 27.84 dBm (EIRP);

Power Step	25%
Dimensions (W x D x H)	242 mm × 242 mm × 64 mm (9.53 in. × 9.53 in. × 2.52 in.) (excluding antenna) 293 mm × 293 mm × 64 mm (11.54 in. ×11.54 in. × 2.52 in.) (including antenna)
Net Weight	1.3 kg (2.87 lbs.)
Service Ports	1 x 10/100/1000/2500 Base-T uplink WAN port 4 x 10/100/1000 Base-T downlink LAN port
Management Port	N/A
LED	1 x system LED, 1 x mesh LED
Power Supply	AC/DC power adapter (12 V/3 A DC)
Max. Power Consumption	< 36 W
Bluetooth 5.0	Not supported
Environment	Operating temperature: -10°C to 45°C (14°F to 113°F)
	Storage temperature: –40°C to +70°C (–40°F to +158°F)
	Operating humidity: 5% to 95% RH (non-condensing)
	Storage humidity: 5% to 95% RH (non-condensing)
Installation	Placed on a desktop or mounted on a wall with screws
Certification	FCC, IC, RoHS, cTUVus
MTBF	> 25000 H

1.5 Power Supply Technical Specifications

This router supports 12 V/3 A DC power supply, and is supplied with a 12V/3 A DC power adapter. Technical specifications of the DC power cord connector:

Inner Diameter	Outer Diameter	Depth
2.10±0.1 mm (0.08±0.002 in.)	5.50±-0.05 mm (0.22±0.05 in.)	9.5mm (0.35 in.)

1.6 Cooling

This router adopts a fanless design. Therefore, a sufficient clearance needs to be maintained around the router for cooling.

2 Preparing for Installation

2.1 Safety Precautions

This router plays a vital role in connecting networks, and its proper functioning is crucial for ensuring the normal operation of all interconnected subnetworks.

The following safety precautions must be followed during installation and use:

- Do not place the device in a damp or wet location, and keep the device away from any kind of liquid.
- Install the device in a position far away from heat sources.
- Wear an ESD wrist strap during installation and maintenance.
- Do not wear loose clothing and tighten your belt, scarf, and sleeves to prevent clothing from getting caught on the device and causing damage.
- Keep tools and accessories away from walking areas to avoid damage.
- Use an uninterruptible power source (UPS) to avoid power failures and disturbance.

2.2 Installation Environment Requirements

This router must be installed indoors to ensure its normal operation and prolonged service life. The installation site must meet the following requirements.

- Temperature and humidity
- Cleanliness
- ESD protection requirements
- Anti-interference
- Checking the mounting workbench

2.2.1 Temperature and Humidity

Appropriate temperature and humidity at the installation site are crucial for ensuring normal operation and prolonged service life of the router. High humidity can lead to poor insulation and electrical performance issues such as leakage. On the other hand, low humidity can cause shrinkage of insulation gaskets and looseness of fastening screws, which can generate static electricity and pose a risk to internal circuits, especially in dry climate environments. High temperatures can significantly impact the reliability and service life of the device by accelerating the aging process of insulation materials. The following table describes the temperature and humidity requirements.

Operating Temperature	Operating Humidity
-10°C to 45°C (14°F to 113°F)	5% to 95% RH (non-condensing)

2.2.2 Cleanliness

Dust poses a significant risk to the operational safety of the device. When indoor dust accumulates on the device, it can lead to electrostatic adsorption and result in poor contact. This not only affects the lifespan of the device

but also increases the likelihood of communication failures. The risk of electrostatic adsorption increases when the indoor relative humidity is low.

The following table describes the requirements for the dust content and granularity.

Max. Diameter (μm)	0.5	1	3	5
Max. Concentration (Number Of Particles/m^3)	1.4×107	7×105	2.4×105	1.3×105

In addition to dust, the device also has specific requirements regarding the presence of harmful gases such as hydrochloric acid sulfides in the air at the installation site. These gases can cause accelerated corrosion of metals and aging of certain components. The following table describes the specific limits for harmful gases including SO_2, H_2S, NO_2, NH_3, and Cl_2 in the installation site.

Gas	**Avg. (mg/m^3)**	**Max. (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

2.2.3 ESD Protection Requirements

This device is designed with rigorous anti-static procedures during circuit design. However, excessive static electricity can still cause damage to its circuit board. Static electricity in the communication network connected to the device mainly originates from two sources:

- Outdoor high-voltage transmission lines, lightning and other external electric fields; and
- Internal systems such as indoor flooring materials and overall structure of the device.

To prevent damage caused by static electricity, pay attention to the following:

- Keep the indoor installation environment clean and free of dust.
- Maintain appropriate temperature and humidity.

2.2.4 Anti-interference

Anti-interference measures primarily target electromagnetic and current interferences. The following requirements should be met to ensure effective mitigation of interference:

- Take effective measures to prevent interference from power grid to the power supply system.
- Keep the device away from the grounding facility or lightning and grounding facility of the power device as much as possible.
- Keep the device far away from high-frequency current devices such as high-power radio transmitting stations and radar launchers.

2.2.5 Checking the Mounting Workbench

Regardless of whether the device is installed on a desktop or wall, the following conditions must be met:

- The desktop or wall surface must be smooth and clean.
- The Ethernet cables must be in good condition.

2.3 Tools

Common Tools	Phillips screwdriver, cables, fastening bolts, diagonal plier, and cable ties
Special Tools	Wire stripper, crimping plier, RJ45 crimping plier, and wire cutter
Meters	Multimeter and bit error rate tester (BERT)

Note

The RG-E6 router is not shipped with a tool kit. You need to prepare a tool kit by yourself.

3 Installation

⚠ Caution

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

3.1 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 location should meet the temperature and humidity requirements of the device.
- The installation location should meet the power supply and current requirements of the device.
- The selected power supply should meet the system power requirements of the device.
- The installation location should meet the cabling requirements of the device.
- The installation location should meet the site selection requirements of the device.
- Before proceeding with the installation, ensure that all the specific requirements of the intended users are met if this device is designed for special purpose.

3.2 Safety Precautions

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

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

3.3 Installation Procedures

3.3.1 Installing the Router

- Installing the router on a flat surface

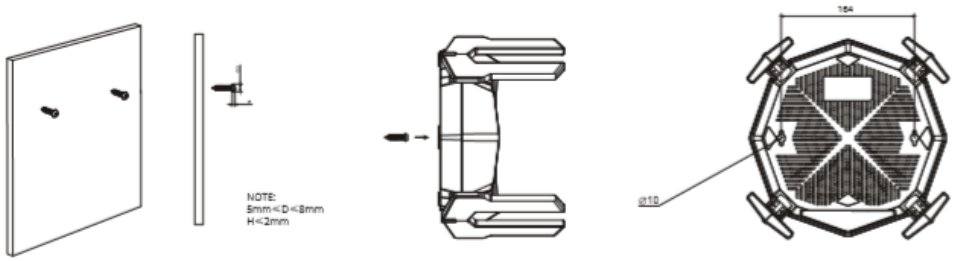
The router can be placed on a horizontal surface, such as on a shelf or desktop.

- Installing the router on a wall

Do not place the router in a place where it will be exposed to moisture or excessive heat.

Keep the router away from devices with strong electromagnetic interference, such as Bluetooth devices, microwave ovens, or cordless phones.

Generally, the router is placed on a horizontal surface, such as on a shelf or desktop. The router also can be mounted on the wall as shown in the following figure.



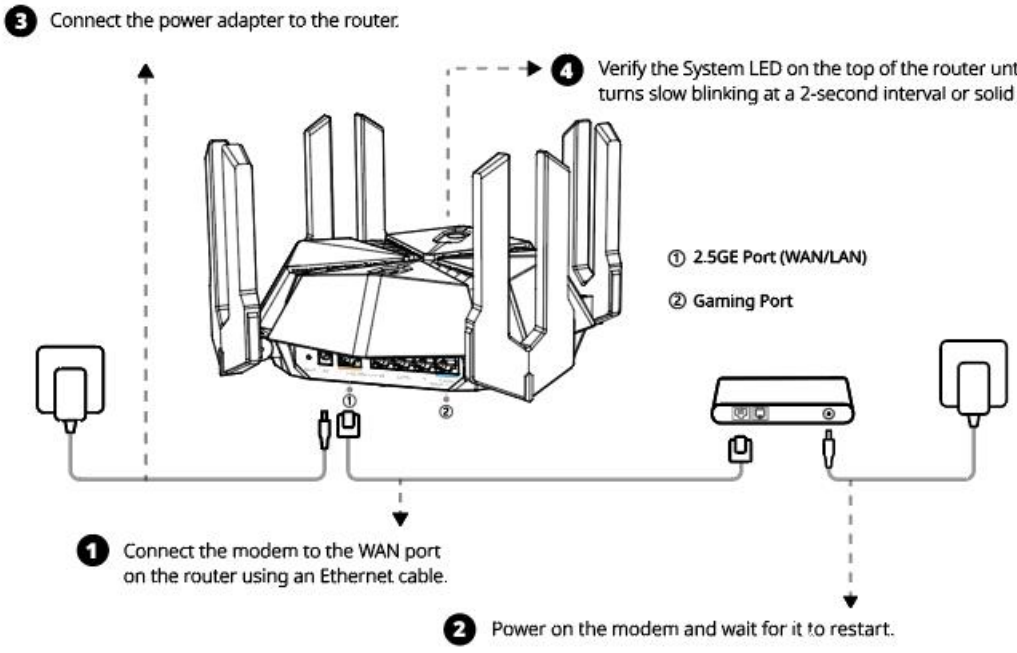
The screw head should have a diameter ranging from 5mm to 8 mm (5 mm ≤ D ≤ 8 mm), with a maximum height of 3 mm. The distance between two screws should measure precisely 111.64 mm. The screw should have a minimum length of 20 mm, with a visible portion above the wall measuring at least 4.5 mm in order to withstand the weight of the router.

3.3.2 Connecting Cables

Note

If you use a modem for Internet access, power off your modem and remove the backup battery if it has one.

If you do not have a modem, you can connect the Ethernet port in the wall directly to the WAN port of your router. Once connected, proceed to follow steps 3 and 4.



3.4 Bundling Cables

Note

- Bundle the cables in a visually pleasing way.
- Make sure that the twisted pair cables at the connectors have natural bends or bends of large radius.
- Do not bind twisted pair cables too tightly, as this may press the twisted pair cables and affect their service life and transmission performance.

Bundling steps:

(1) Bundle the hanging part of the twisted pair cables using cable ties and route them to the WAN port of the device.

(2) Fasten the twisted pair cables to the cable trough of the mounting bracket.

(3) Extend the twisted pair cables under the device and route them in a straight line.

3.5 Verifying the Installation

- Verify that the device is firmly and reliably secured.
- Verify that the twisted pair cable matches the port type.
- Verify that cables are properly bundled.

4 Debugging

4.1 Setting Up the Configuration Environment

Verify that the power cables are in good condition and meet safety requirements.

4.2 Powering On

4.2.1 Checking Before Power-on

Verify that the DC power cord connector of the device is in good condition, and that the device does not shake when the DC power adapter is connected to the DC power cord connector.

4.2.2 Checking After Power-on

- Verify that the LED status is normal.
- After the device is powered on, verify that the SSID can be successfully connected to by a smartphone or any other wireless device.

4.3 Troubleshooting Power Failures

The working status of the LED on the device indicates whether the device power supply system is malfunctioning. See **错误!未找到引用源。 错误!未找到引用源。** for the description of the LED status. Perform the following checks in the case of any abnormality:

- Verify that the device is properly powered on.
- Verify that the Ethernet cable is correctly connected to the device.

Note

If the device still cannot be powered on after the preceding check, please email us at techsupport@ireyee.com.

5 Monitoring and Maintenance

5.1 Monitoring

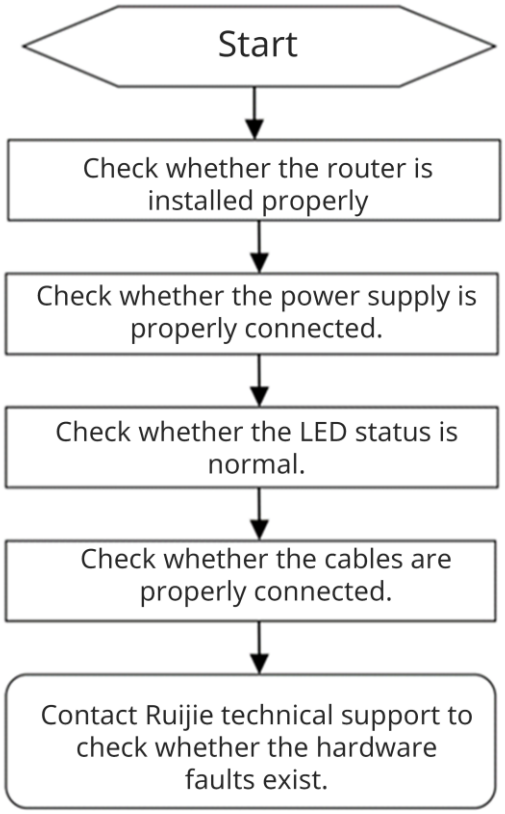
You can observe the LED status to monitor the device in operation.

5.2 Hardware Maintenance

If the hardware is faulty, please email us at techsupport@ireyee.com.

6 Common Troubleshooting

6.1 Troubleshooting Flowchart



6.2 Common Faults

6.2.1 The LED Is Off After the Device Is Powered On

Verify that the supplied power adapter is connected properly, and that the Ethernet cable is connected properly.

6.2.2 The Ethernet Port Is Not Working After the Ethernet Cable Is Plugged In

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

6.2.3 A Client Cannot Discover the SSID of the Router

(1) Verify that the router is properly powered on.

(2) Verify that the Ethernet port is correctly connected.

(3) Verify that the router is correctly configured.

(4) Move the client closer to the router.

6.2.4 A Client Cannot Discover the 5 GHz SSID of the Router

- Verify that a 5 GHz SSID is configured on the router.
- Verify that the router is compliant with the IEEE 802.3at standard.

7 Appendixes

7.1 Appendix A Connectors and Media

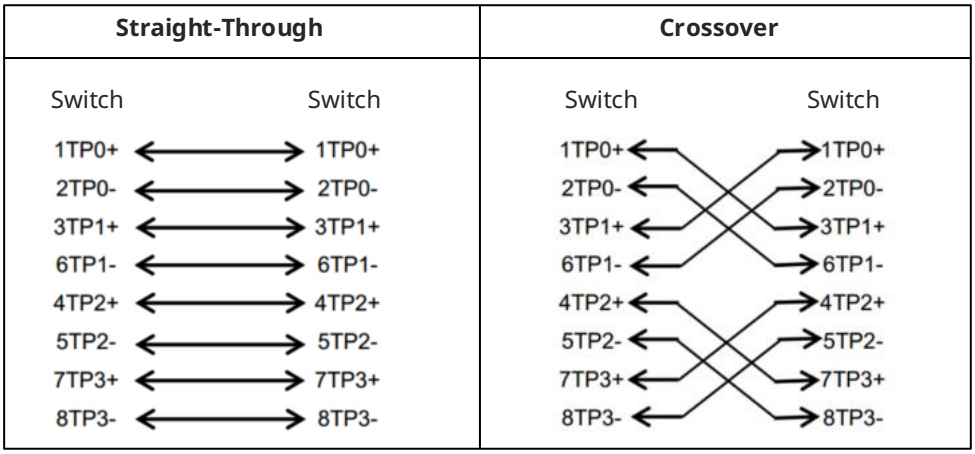
1000BASE-T/100BASE-TX/10BASE-T Port

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



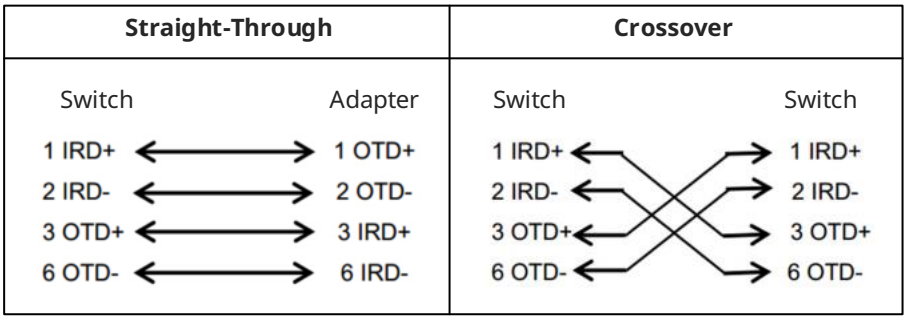
100BASE-TX/10BASE-T can be interconnected using cables of the preceding specifications. For 10 Mbps, the 100BASE-TX/10BASE-T port can be connected using 100-ohm Category 3, Category 4, and Category 5 cables; for 100 Mbps, the 100BASE-TX/10BASE-T port can be connected using 100-ohm Category 5 cables with 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



7.2 Appendix C Compliance Statements

The router complies with the European Commission (EC) Regulation No. 1275/2008 and Regulation No. 801/2013

1. How to turn on or off Wi-Fi: Log in to the web interface of the router, choose **More** > **Advanced** > **Wi-Fi Switch**, and toggle on **Wi-Fi Switch** to turn Wi-Fi on or off.
2. Network standby power: < 8 W
3. Default time for power management: The product enters network standby power mode immediately after data transmission stops.
4. You are advised to unplug the power cord if the product is not used for a long time.
5. For details, visit https:// www.ireyee.com to view the related documentation.

Use only power supplies listed in the user instructions.

Input: 100-240Vto 50/60Hz 0.9A Output: 12V 3A 36.0W

Power supply manufacturer:

1. Chenzhou Frecom Electronics Co., Ltd.

2. Hunan Frecom Electronics Co., Ltd.

Model: F36L7-120300SPACP