Ruijie Reyee RG-EW6000GX Home Wi-Fi Router

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

- Ruijie Reyee website: https://reyee.ruijie.com
- Online support center: https://reyee.ruijie.com/en-global/support
- Case portal: https://www.ruijie.com/support/caseportal
- Community: https://community.ruijienetworks.com
- Email support: service_rj@ruijie.com
- 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.

Contents

1 Product Overview

1.1 RG-EW6000GX

The RG-EW6000GX is a gigabit wireless router designed for small- or medium-sized indoor scenarios covering apartments, villas, residential buildings, and business offices. Compliant with IEEE 802.11a/b/g/n/ac/ax, this router operates simultaneously on the 2.4 GHz and 5 GHz frequency bands. It supports 4x4 MU-MIMO, delivering access rates of up to 1,147 Mbps on the 2.4 GHz frequency band and 4,804 Mbps on the 5 GHz frequency band. The router delivers a combined data rate of up to 5,951 Mbps. In addition to one 2.5 Gbps uplink port (WAN), this router provides four gigabit Ethernet downlink ports (LAN) for connecting to wired terminals. This makes the router an ideal choice for meeting indoor wired and wireless deployment requirements.

1.2 Package Contents

Table 1-1 Package Contents

No.	Item	Quantity
1	RG-EW6000GX	1
2	Power adapter (12 V DC/2.5 A)	1
3	Ethernet cable	1
4	*Quick Start Guide*	1
5	*Warranty Card*	1

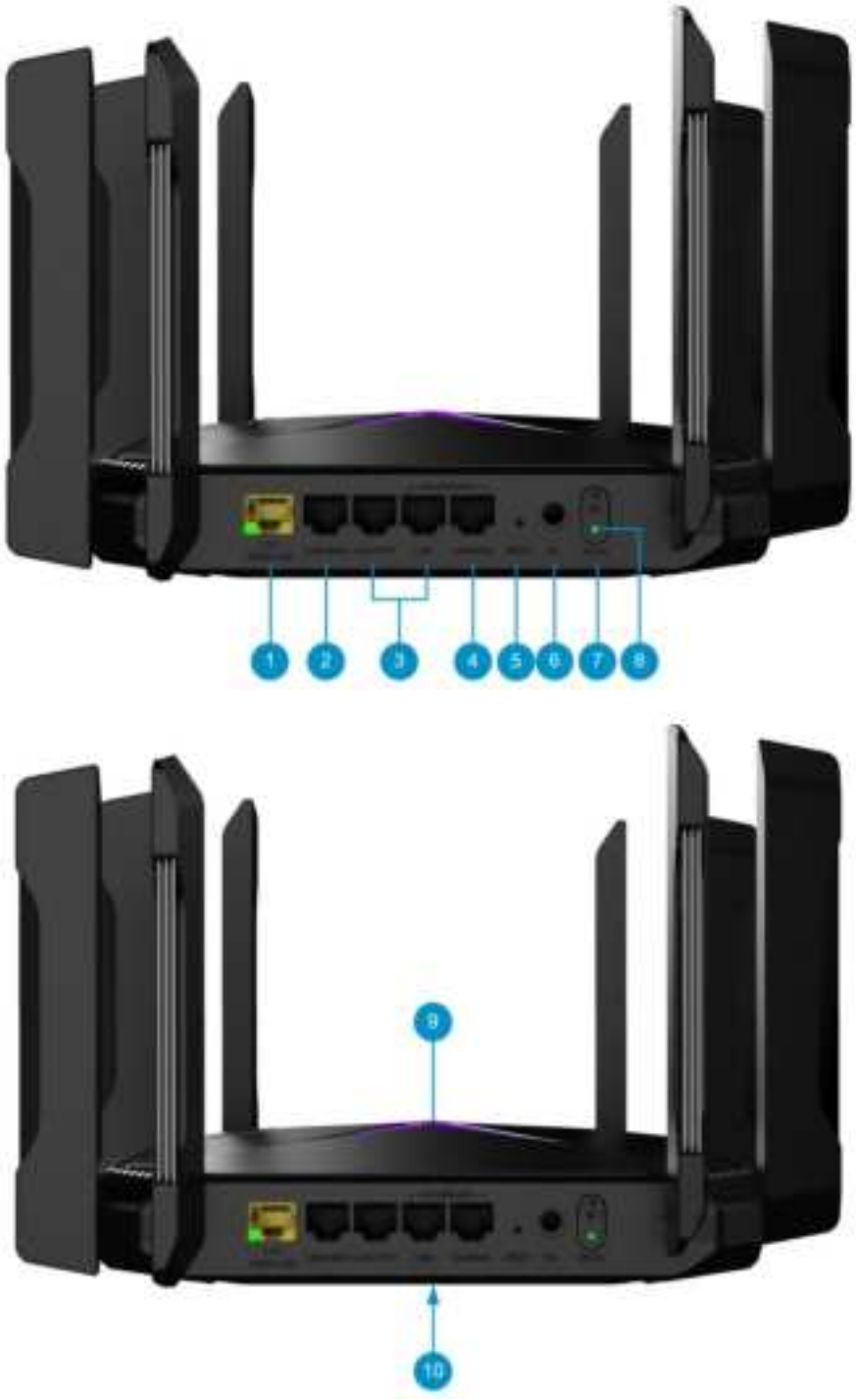
Note

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

1.3 Product Appearance

1.3.1 Product Appearance

1.3.2 Ports and LEDs



No.	Component	Description
1	2.5GE WAN/LAN Port	10/100/1000/2500BASE-T port, which is connected to a modem or fiber-to-the-home (FTTH) Ethernet cable and can be switched to a LAN port.
2	GE LAN/WAN Port	10/100/1000BASE-T port, which is connected to an Ethernet cable and can be switched to a WAN port.

No.	Component	Description	
3	GE LAN Port	10/100/1000BASE-T port, which is connected to a wired terminal.	
4	Gaming Port	Default LAN port and gaming port	
5	Reset	Press and hold the button for more than 3 seconds to restore factory settings.	
6	Power	Connected to a power adapter.	
7	Reyee Mesh Button	■ Press and hold the button for less than 2 seconds. Reyee Mesh pairing is performed with an RG-EW series router. ■ Press and hold for more than 3 seconds to enable or disable Game Turbo.	
8	Reyee Mesh LED	Solid on	Reyee Mesh succeeded.
		Off	Reyee Mesh is not performed or disconnected.
		Blinking	Reyee Mesh is pairing.
9	System Status LED	Solid green	The router is operating normally with Game Turbo disabled.
		Blinking green	The router is starting, resetting, or upgrading.
		Solid red	The router is not connected to the Internet.
		Solid purple	The router is operating normally with Game Turbo enabled.
		Solid orange	The mesh Wi-Fi signal is weak (as a secondary router).
10	Nameplate	The nameplate is located at the bottom of the router.	

1.4 Specifications

Table 1-2 Technical Specifications of an RG-EW6000GX Router

Radio Design	2.4G & 5G dual-radio and four streams
Transmission Protocol	802.11a/n/ac/ax 802.11b/g/n/ax
Operating Frequency Band	802.11b/g/n/ax: 2.4 GHz to 2.4835 GHz 802.11a/n/ac/ax: 5.1 GHz (5.150 GHz to 5.350 GHz), 5.4 GHz (5.470 GHz to 5.725 GHz), 5.8 GHz (5.725 GHz to 5.850 GHz)
Antenna Type	External flat omnidirectional antenna 2.4 GHz: 5.85 dBi

	5 GHz: 5.66 dBi
Number of Spatial Streams	2.4 GHz: 4x4 MU-MIMO 5 GHz: 4x4 MU-MIMO
Transmission Rate	Up to 1,147 Mbps access rate on the 2.4 GHz frequency band Up to 4,804 Mbps access rate on the 5 GHz frequency band Combined access rate: 5,951 Mbps
Modulation	OFDM: BPSK@6/9 Mbps, QPSK@12/18 Mbps, 16QAM@24 Mbps, and 64QAM@48/54 Mbps DSSS: DBPSK@1 Mbps, DQPSK@2 Mbps, and CCK@5.5/11 Mbps MIMO-OFDM: BPSK, QPSK, 16QAM, 64QAM, 256QAM, and 1024QAM OFDMA
Receive Sensitivity	2.4 GHz: 20 MHz 802.11b: -91 dBm (1 Mbps) 802.11g: -87 dBm (6 Mbps), -72 dBm (54 Mbps) 802.11n: -88 dBm (MCS0), -70 dBm (MCS7) 802.11ax: -88 dBm (MCS0), -65 dBm (MCS8), -58 dBm (MCS11) 5 GHz: 20 MHz 802.11n: -88 dBm (MCS0), -70 dBm (MCS7) 802.11a: -89 dBm (6 Mbps), -72 dBm (54 Mbps) 802.11ac: -88 dBm (MCS0), -65 dBm (MCS8) 802.11ax: -88 dBm (MCS0), -65 dBm (MCS8), -58 dBm (MCS11)
Maximum Transmit Power	2400 MHz to 2483.5 MHz ≤ 20 dBm (EIRP); 5150 MHz to 5350 MHz ≤ 23 dBm (EIRP); 5470 MHz to 5725 MHz ≤ 30 dBm (EIRP); 5725 MHz to 5850 MHz ≤ 30 dBm (EIRP); Note: Country specific restrictions apply **European Union & United Kingdom:** 2400 MHz to 2483.5 MHz, EIRP ≤ 20 dBm 5150 MHz to 5350 MHz, EIRP ≤ 23 dBm 5470 MHz to 5725 MHz, EIRP ≤ 30 dBm **Myanmar:** 2400 MHz to 2483.5 MHz, EIRP ≤ 23 dBm 5725 MHz to 5825 MHz, EIRP ≤ 30 dBm **Thailand:** 2400 MHz to 2483.5 MHz, EIRP ≤ 20 dBm

	5150 MHz to 5350 MHz, EIRP ≤ 23 dBm 5470 MHz to 5725 MHz, EIRP ≤ 30 dBm 5725 MHz to 5825 MHz, EIRP ≤ 30 dBm **Indonesia:** 2400 MHz to 2483.5 MHz, EIRP ≤ 27 dBm 5150 MHz to 5350 MHz, EIRP ≤ 23 dBm 5725 MHz to 5825 MHz, EIRP ≤ 23 dBm **Egypt:** 2400 MHz to 2483.5 MHz, EIRP ≤ 20 dBm 5150 MHz to 5350 MHz, EIRP ≤ 23 dBm
Adjustable Power Granularity	0.5 dBm
Dimensions (W x D x H)	200 mm x 200 mm x 43.8 mm (7.87 in. x 7.87 in. x 1.72 in., antennas not included)
Weight	0.95 kg (2.09 lbs) (without packaging materials) 1.68 kg (3.70 lbs) (with packaging materials)
Service Port	1 x 10/100/1000/2500BASE-T uplink port (WAN) 4 x 10/100/1000BASE-T downlink ports (LAN)
Status LED	1 x Reyee Mesh LED 1 x System Status LED
Power Supply	DC 12 V 2.5 A
Power Consumption	< 24 W
Environment	Operating temperature: –10°C to +40°C (14°F to 104°F)
	Storage temperature: –40°C to +70°C (–40°F to +158°F)
	Operating humidity: 20% RH to 80% RH (non-condensing)
	Storage humidity: 5% RH to 95% RH (non-condensing)
Mounting	Desk mount Wall mount
Certification	CE, CB
MTBF	≥ 30,000 hours

1.5 Power Consumption

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

(1) Enable or disable Wi-Fi: Log in to the router's web interface, and choose **More** > **Wi-Fi-Switch** to enable or disable Wi-Fi.

(2) Network standby power: < 8 W.

(3) The product enters the network standby power mode immediately after data transmission stops.

(4) You are advised to unplug the power cord if the router is not used for a long time.

(5) For details about the router, visit https://reyee.ruijie.com/en-global/products/home-wifi/ to view the related documents.

Use only power supplies listed in the user instruction.

Power supply manufacturer: Chenzhou Frecom Electronics Co., Ltd.

Model: F30L7-120250SPACP Input: 100-240V~, 50/60Hz, 0.8A Output: 12.0V  2.5A

1.6 Cooling

- The RG-EW6000GX adopts a fanless design.

2 Preparing for Installation

2.1 Safety Guidelines

The RG-EW6000GX 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 guidelines must be followed during installation and use.

- Do not place the equipment in a wet position, and keep it away from liquid.
- Keep the equipment away from heat sources.
- Wear an ESD-preventive wrist strap during installation and maintenance.
- Do not wear loose clothing that may be snagged on components of the equipment. Tighten your belt, scarf, and sleeves.
- Keep tools and accessories away from walk areas.
- You are advised to use uninterruptible power supplies (UPSs), as it can prevent power outages and avoid power interference.

2.2 Site Requirements

The RG-EW6000GX must be installed and used indoors for normal operation and prolonged service life. The installation site must meet the following requirements.

- Temperature and humidity
- Cleanliness
- ESD prevention
- Preventing electromagnetic interference
- Installation site

2.2.1 Temperature and Humidity

To ensure normal operation and prolonged service life of the equipment, maintain appropriate temperature and humidity conditions in the equipment room. In an environment with high relative humidity, insulating materials are prone to poor insulation or even electricity leakage. In an environment with low relative humidity, insulating gaskets may shrink, resulting in screw loosening. In a dry environment, static electricity is more likely to occur, posing a risk to the internal circuits of equipment. A high temperature can accelerate the aging process of insulation materials, greatly reducing the availability of the equipment and severely affecting its service life. The following table describes the temperature and humidity requirements.

Operating Temperature	Operating Humidity
–10°C to +40°C (14°F to 104°F)	20% to 80%

2.2.2 Cleanliness

Dust poses a significant hazard to the equipment. Dust on the enclosure causes electrostatic adhesion, leading to poor contact of the metallic joints. It not only affects the service life of the equipment, but also causes communication faults. The risk of electrostatic adhesion increases when the indoor relative humidity is low.

The following table lists the requirements for dust concentration and particle size in the equipment room.

Maximum Diameter (μm)	0.5	1	3	5
Maximum Concentration (Number of Particles/m^3)	1.4×10^7	7×10^5	2.4×10^5	1.3×10^5

Apart from dust, there are also requirements on the salt, acid, and sulfide in the air of the equipment room. These harmful gases will accelerate metal corrosion and component aging. Therefore, the equipment room should be properly protected against harmful gases, including SO_2, H_2S, NO_2, NH_3, and Cl_2. The following table lists the limits on harmful gases.

Gas	**Average (mg/m^3)**	**Maximum (mg/m^3)**
Sulfur dioxide (SO2)	0.2	1.5
Hydrogen sulfide (H2S)	0.006	0.03
Nitrogen dioxide (NO2)	0.04	0.15
Ammonia gas (NH3)	0.05	0.15
Chlorine gas (Cl2)	0.01	0.3

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2.2.3 ESD Prevention

The RG-EW6000GX is designed with ESD-preventive procedures during circuit design. However, excessive static electricity can still cause damage to its circuit board. Static electricity on the communication network connected to the router mainly originates from two sources:

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

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

- Keep the site as dust free as possible.
- Maintain appropriate temperature and humidity.

2.2.4 Preventing Electromagnetic Interference

Interference prevention measures primarily target electromagnetic and current interferences. The following requirements should be considered to ensure effective interference prevention.

- Take interference prevention measures for the power supply system.
- Keep the equipment away from the grounding system or lightning protection grounding system of the power facility.

- Keep the equipment far away from high-frequency current equipment such as high-power radio transmitting stations and radar launchers.

2.2.5 Installation Site

Regardless of whether the device is installed on a desktop or wall, ensure that the following requirements are met:

- The desktop or wall surface must be smooth and clean.
- Ethernet cables are properly connected.

2.3 Tools

Common Tools	Phillips screwdriver, power cords, cage nuts, diagonal pliers, and cable ties
Dedicated Tools	Wire stripper, crimper, RJ45 connector crimping plier, and wire cutter
Meters	Multimeter and bit error rate tester (BERT)

Note

The RG-EW6000GX is delivered without a toolkit. Prepare the preceding tools by yourself.

3 Installing the Router

Caution

Before installing the equipment, ensure that guidelines and requirements in Chapter 2 have been met.

3.1 Before You Begin

Carefully plan and arrange the installation location, networking, power supply, and cabling before installing the RG-EW6000GX. Ensure that the following requirements are met before installation:

- The installation site meets the temperature and humidity requirements.
- The power supply is available at the installation site, and its current meets the requirements.
- The power supply meets the requirements.
- The Ethernet cables have been deployed at the installation site.
- The installation site meets the site requirements of the equipment.
- Routers dedicated to specific users meet the specific requirements before installation.

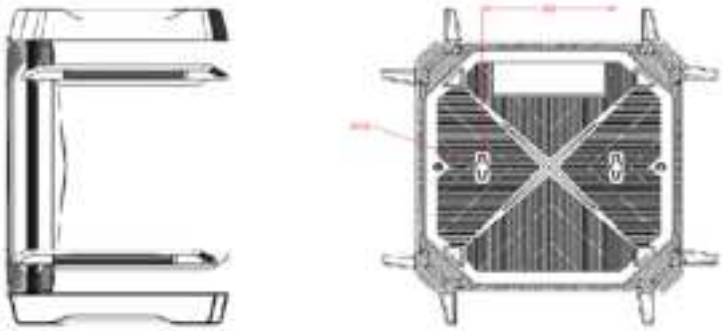
3.2 Safety Precautions During Installation

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

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

3.3 Installation Guide

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



Note

The diameter of the screw head ranges from 5 mm (0.2 in.) to 8 mm (0.31 in.), the screw head thickness is less than 2 mm (0.08 in.), and the distance of two screws is 100 mm (3.94 in.). The screw that projects from the wall needs to be around 5 mm (0.2 in.), and the length of the screw needs to be at least 20 mm (0.79 in.) to withstand the weight of the product.

3.4 Bundling Cables

Precautions

- Bundle cables in an esthetically pleasing way.
- Ensure that the twisted pairs have natural bends or bends of large radius at the connectors.
- Do not overtighten the cable bundle as it may reduce the cable life and performance.

Bundling Steps

(1) Bundle the hanging part of the twisted pairs using cable ties and lead them to the WAN/PoE port end of the router by convenience.

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

(3) Extend the twisted pairs under the router and route them in a straight line.

3.5 Verifying Installation

- Verify that the router is securely fastened.
- Make sure that the twisted pairs match the port type.
- Verify that cables are properly bundled.

4 Commissioning

4.1 Setting Up the Configuration Environment

Verify that the power cord is properly connected and compliant with safety requirements before setting up the environment.

4.2 Powering-on

4.2.1 Checklist Before Power-on

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

4.2.2 Checklist After Power-on

- The LED status is normal.
- After the router is powered on, the SSID can be detected by a mobile phone or other wireless clients.

4.3 Rectifying Power Supply Failures

You can determine whether there is a power system failure by checking the LED status on the front panel of the RG-EW6000GX. For details about the working status of the LEDs, see 1.3.2 Ports and LEDs. Perform the following checks if the power supply is not functioning properly.

- Check whether the router is properly powered.
- Check whether the Ethernet cable is properly connected.

Note

If the router cannot start after all the preceding items are verified, contact your local distributor or technical support.

5 Monitoring and Maintenance

5.1 Monitoring

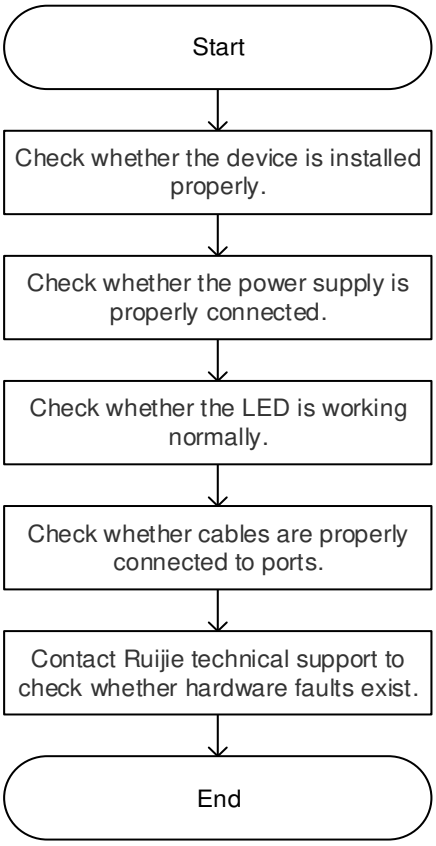
You can observe the LEDs to monitor the RG-EW6000GX in operation.

5.2 Hardware Maintenance

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

6 Common Troubleshooting

6.1 Troubleshooting Flowchart



6.2 Common Faults

What do I do if I cannot log in to the router's web interface (192.168.110.1)?

(1) Ensure that the PC's NIC is set to **Obtain an IP address automatically**.

(2) Ensure that the PC is connected to one of the LAN ports on the router, and that the port status LED is on. If the port status LED is not on, replace the Ethernet cable.

(3) Close and re-open your browser (Google Chrome is recommended), and enter 192.168.110.1 in the address bar to try again.

(4) Use another web browser.

(5) Use another Ethernet cable or PC.

If the fault persists, restore the router to factory defaults by pressing the Reset button for 10 seconds.

What can I do if I cannot access the Internet?

(1) Ensure that the Ethernet cable is properly connected, and that the port status LED is on.

(2) Choose Internet on the router's web interface to check the Internet connection type.

(3) If your ISP provides a broadband account and password, select **PPPoE** and enter the account and password. If your ISP provides IP address, subnet mask, gateway, and DNS server, then select Static IP and enter mandatory parameters.

(4) If the fault persists, contact your ISP.

What can I do if I forget the admin password?

Try to enter the Wi-Fi password. If the password is still incorrect, restore the router to factory defaults.

How do I restore the router to factory defaults?

Use a pin to press and hold the Reset button for 10 seconds until the status LED starts blinking, then release the button. After the status LED turns solid on, the router is restored to factory defaults successfully, and you can connect to the router's Wi-Fi network (@Ruijie-sXXXX).

7 Appendix

7.1 Appendix A Connectors and Media

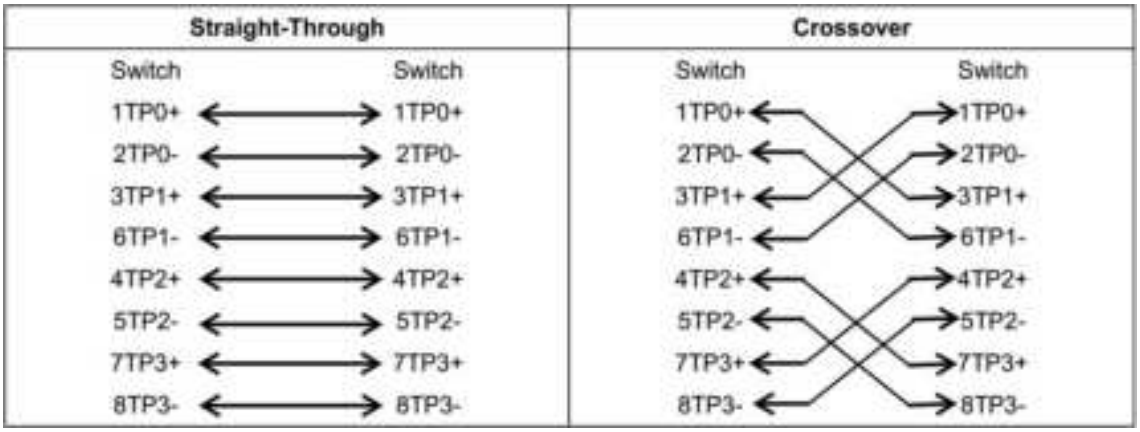
10/100/1000BASE-T Port

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

Compliant with IEEE 802.3ab, the 1000BASE-T port requires a 100-ohm Category 5e Unshielded Twisted Pair (UTP) or recommended Shielded Twisted Pair (STP) with a maximum distance of 100 meters (328.08 feet).

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

Figure 7-1 1000BASE-T Twisted Pair Connections



The 100BASE-TX/10BASE-T port can also be connected by cables of the preceding specifications. Besides, the 10BASE-T port can be connected by 100-ohm Category 3, Category 4, and Category 5 cables with a maximum distance of 100 meters (328.08 feet). 100BASE-TX port can be connected by 100-ohm Category 5 cables with a maximum distance of 100 meters (328.08 feet). The following figure lists definitions of pin signals for the 100BASE-TX/10BASE-T port.

Figure 7-2 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

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

Figure 7-3 100BASE-TX/10BASE-T Twisted Pair Connections