

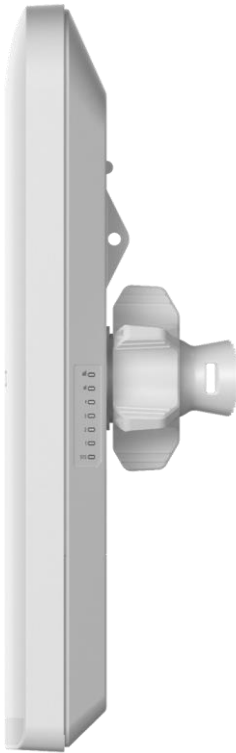
1 Product Overview

The Base5i (HVIN: L2529) wireless bridge is launched by Lysora. It utilizes the IEEE 802.11ac standard for efficient and reliable communication. Operating in the 5 GHz band and supporting 2x2 MIMO technology, this product delivers a maximum wireless rate of 867 Mbps for bridging services, ensuring more than sufficient bandwidth for delivering point to point (PTP) and point to multi-point (PTMP) services. The Base5i utilizes the 2.4 GHz band in single-stream mode for bridge management, while the 5 GHz band is used for data transmission.

1.1 Product Appearance

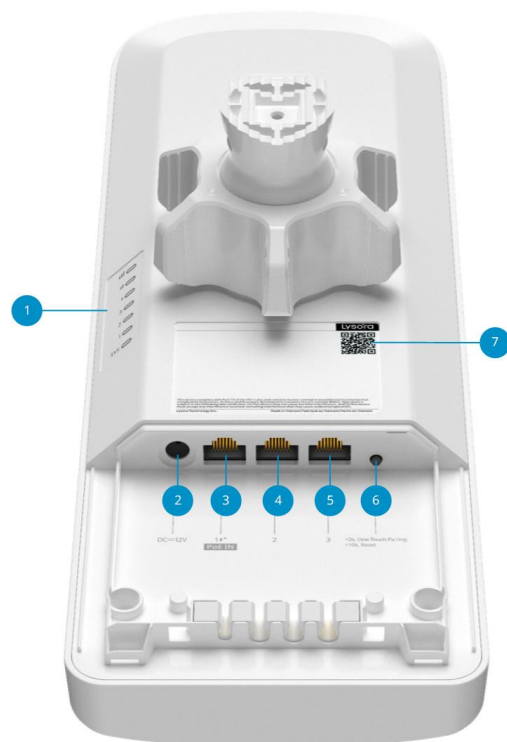
Figure 1-1 Appearance of the Base5i Wireless Bridge (Front View)



Figure 1-2 Appearance of the Base5i Wireless Bridge (Rear View)

***i* Note**

The label is located on the back of the device.

Figure 1-3 Ports, Buttons and LEDs**Table 1-1****Ports, Buttons and LEDs**

Mark	Item	Description
1	Status LEDs	7 status LEDs, including 1 x system LED, 3 x port LEDs and 3 x signal LEDs
2	12 V DC connector	upport 12 V/1.2 A DC power supply
3	LAN1/PoE Port	10/100/1000BASE-T Ethernet port, support 802.3af/at PoE or 24V=0.6A passive PoE
4	LAN2 Port	10/100/1000BASE-T Ethernet port
5	LAN3 Port	10/100/1000BASE-T Ethernet port

Mark	Item	Description
6	Reset/One-Touch Pairing button	● Press and hold the button for less than 2s: The wireless bridge pairs with another wireless bridge (the LED blinks during pairing). ● Press and hold the button for 2s to 10s: No action is triggered. ● Press and hold the button for more than 10s: Restores the wireless bridge to factory settings.
7	Label	Contains the product name, model, I/O parameters, default IP address, and other information.

Table 1-2 LEDs

No.	LED	Description
1, 2, and 3	Signal status LEDs	LED 3, LED 2, and LED 1 off: The bridge is not paired with another bridge. LED 3 on or blinking: The bridge is paired with another bridge, and the Received Signal Strength Indicator (RSSI) is lower than -75 dBm. LED 3 on: The bridge is paired with another bridge, and the RSSI is greater than -75 dBm. LED 3 on and LED 2 blinking: The bridge is paired with another bridge, and the RSSI is greater than -73 dBm. LED 3 and LED 2 on: The bridge is paired with another bridge, and the RSSI is greater than -71 dBm. LED 3 and LED 2 on and LED 1 blinking: The bridge is paired with another bridge, and the RSSI is greater than -68 dBm. LED 3, LED 2, and LED 1 on: The bridge is paired with another bridge, and the RSSI is greater than -64 dBm. LED 3, LED 2, and LED 1 blinking: The bridge is pairing with another bridge.
4, 5 and 6	Ethernet port LEDs	Off: The port is not connected. Solid on: The port is connected, but is not receiving or sending data. Fast blinking: The port is connected, and is receiving and sending data.

No.	LED	Description
7	System status LED	Off: The bridge is not powered on. Solid on: The bridge is operating normally. Slow blinking: The bridge is operating but an alarm or a power failure occurs. Fast blinking (8 to 10 times/second): The bridge is starting up. Fast blinking (2 times/second): The bridge is initializing or upgrading.

1.2 Technical Specifications

Warning

- Avoid using PoE injectors or switches of other models to power the bridges in BaseStation and CPE modes, as this may cause irreparable damage to the bridges.
- To ensure reliable operation of the bridge, use the supplied DC power adapter or passive PoE injector indoors.
- When the bridge is operating at full load, ensure the ambient temperature remains below 55°C (131°F).
- When using a DC power supply to power the device, ensure that the power output of the DC power supply is less than 100 W.
- This device does not support the 6G frequency band (5925MHz-7125MHz).

Table 1-3 Technical Specifications

Radio design	Dual-radio 3 spatial streams ● Radio 1: 2.4 GHz, 1 spatial stream: 1 x 1, SISO ● Radio 2: 5 GHz, 2 spatial streams: 2 x 2, MIMO
Wi-Fi standard	Wi-Fi 5 (IEEE 802.11ac) standard, compatible with IEEE 802.11a/b/g/n standards

Operating band	IEEE 802.11b/g/n: 2.400 GHz to 2.483 GHz IEEE 802.11a/n/ac: 5.150 GHz to 5.350 GHz IEEE 802.11a/n/ac: 5.470 GHz to 5.725 GHz IEEE 802.11a/n/ac: 5.725 GHz to 5.850 GHz Note: Available bands vary with countries and regions. To use the preceding frequency bands, ensure that your country or region supports these frequency bands. For details, see Channels for Countries & Regions (official website link to be added).
Antenna	2.4 GHz: 1 x 1 Built-in omnidirectional antenna 5 GHz: 2 x 2 Built-in directional antenna, horizontal: 120°, vertical: 13°
Antena gain (2.4 GHz)	1.22 dBi
Antena gain (5 GHz)	● Ant1: 13.54 dBi ● Ant2: 14.11 dBi
Maximum bridge distance	3 km (1.86 miles)
Transmission rate	Maximum wireless data rate: 1017 Mbps ● Radio 1: 2.4 GHz, 150 Mbps ● Radio 2: 5 GHz, 867 Mbps
Modulation	802.11b: BPSK, QPSK, CCK 802.11a/g/n: BPSK, QPSK, 16-QAM, 64-QAM 802.11ac: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM
Receive sensitivity	802.11b: -91 dBm (1 Mbps), -88 dBm (5 Mbps), -85 dBm (11 Mbps) 802.11a/g: -89 dBm (6 Mbps), -80 dBm (24 Mbps), -76 dBm (36 Mbps), -71 dBm (54 Mbps) 802.11n: -83 dBm@MCS0, -65 dBm@MCS7, -83 dBm@MCS8, -65dBm@MCS15 802.11ac HT20: -83 dBm (MCS0), -57 dBm (MCS9) 802.11ac HT40: -79 dBm (MCS0), -54 dBm (MCS9) 802.11ac HT80: -76 dBm (MCS0), -51 dBm (MCS9)
Maximum transmit power	2.4 GHz: 20 dBm (20 dBm per link) 5 GHz: 29 dBm (26 dBm per link) Note: The transmit power varies according to regulations in different countries and regions.

Power Step	1 dBm
Product dimensions (W x D x H)	355 mm x 124 mm x 48 mm (13.98 in. x 4.88 in. x 1.89 in.) (excluding mounting bracket)
Package dimensions (W x D x H)	415 mm x 185 mm x 113 mm (16.34 in. x 7.28 in. x 4.45 in.)
Weight	0.83 kg (1.83 lbs) (without packaging materials)
Shipping weight	1.61 kg (3.55 lbs)
Service Ports	3 x 10/100/1000BASE-T auto-negotiation ports
Button	1 x Reset/One-Touch Pairing button
LED	● 1 x System status LED ● 3 x Ethernet port LEDs ● 3 x Signal status LEDs
Power Supply	Power supply options: ● DC power adapter ● Passive PoE injector
Power input	DC power adapter: Rated input voltage: 100 V AC to 240 V AC, 50 Hz to 60 Hz Rated input current: 0.5 A Max. Output: Rated output voltage: 24 V DC Maximum output current: 0.6 A Passive PoE injector: Rated input voltage: 24 V DC Rated input current: 0.6 A Output: Rated output voltage: 24 V DC Maximum output current: 0.6 A
Dimensions of the DC connector	Outer Diameter: 5.50 mm $\pm$ 0.05 mm (0.22 in. $\pm$ 0.002 in.) Inner Diameter: 2.10 mm $\pm$ 0.05 mm (0.08 in. $\pm$ 0.002 in.) Depth: 9 mm (0.35 in.)
Maximum power consumption	12 W

Environmental	● Operating temperature: –30°C to +65°C (–22°F to +149°F) ● Storage temperature: –40°C to +85°C (–40°F to +185°F) ● Operating humidity: 5% RH to 95% RH (non-condensing) ● Storage humidity: 5% RH to 95% RH (non-condensing)
Mounting	Wall/Pole
IP Rating	IP55
Certification	FCC, IC, cTUVus
MTBF	400,000 hours (about 45 years)

1.3 Power Supply Technical Specifications

The Base5i can be powered by 12 V/1.2 A DC power supply, 24 V passive PoE power supply, and IEEE 802.3at/af-compliant PoE power supply. It is supplied with a 24 V/0.6 A DC power adapter and a 1000 Mbps passive PoE injector.

Inner Diameter	Outer Diameter	Depth
2.10 mm ± 0.05 mm (0.083 in. ± 0.002 in.)	5.50 mm ± 0.05 mm (0.22 in. ± 0.002 in.)	10 mm (0.35 in.)

Warning

- For DC power supply, the DC adapter required for this wireless bridge is not included in the package. You can purchase the DC adapter separately from us.
- For PoE power supply, use the provided PoE injector in the package. Do not use other models of PoE injectors or switches for power supply as it may lead to irreparable damage to the device.
- When using a DC power supply to power the device, ensure that the power output of the DC power supply is less than 100 W.

2 Preparing for Installation

2.1 Package Contents

No.	Item	Quantity
1	Device	1
2	PoE injector	1

No.	Item	Quantity
3	Power adapter	1 Note: 24 V/1.5 A DC power adapter
4	User Manual	1
5	Warranty Card	1
6	Screw	4x Phillips pan head screws (self-tapping screws 4.2 mm x 19 mm)
7	Cable tie	4

2.2 Safety Precautions

Caution

- 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.
-

2.2.1 General Safety Guidelines

- Do not expose the equipment to high temperatures, dust, or harmful gases. Do not install the equipment in flammable or explosive environments. Keep the equipment away from sources of electromagnetic interference (EMI), such as large radar stations, radio stations, and substations.
- Do not subject the equipment to unstable voltage, vibration, or excessive noise.
- The installation site should be dry. Do not install the equipment in a place near the sea. Keep the equipment at least 500 meters (1640.42 ft.) away from the ocean 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.
- The product and power supply equipment can only be installed and used in the same building.

Caution

Always install and remove the equipment according to the installation procedures outlined in this document.

2.2.2 Chassis-Lifting Guidelines

- After the equipment is installed, avoid handling it frequently.
- Cut off all power supplies and unplug all power cords before moving or handling the equipment.

2.2.3 Electric Safety

**Warning**

- Improper or incorrect electric operations may cause a fire, electric shock, and other accidents, and lead to severe and fatal personal injury and device damage.
 - Direct or indirect contact with high voltage or mains power supply through wet objects may cause fatal dangers.
-
- Observe local regulations and specifications during electric operations. Only personnel with relevant qualifications can perform such operations.
 - Check whether there are potential risks in the work area. For example, check whether the power supply is grounded, whether the grounding is reliable, and whether the ground is wet.

2.3 Site Requirements

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

2.3.1 Installation Requirements

- The equipment should be installed in an open environment if possible. If the environment is enclosed, verify that a good ventilation and heat dissipation system is available.
- Ensure that the installation position is sturdy enough to support the weight of the device and its accessories.
- Ensure that the installation location is suitable for the device, leaving sufficient space on the front, back, left, and right sides for heat dissipation.

2.3.2 Lightning Protection Requirements

- 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 devices connected to both ends of the shielded network cable are reliably grounded, and 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.
- The device features a built-in 4 kV surge protector, so generally no additional surge protector is needed. However, if higher surge protection is required, an external surge protector can be added, and it should be connected to a grounding cable during installation.

2.3.3 Temperature and Humidity Requirements

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

- In an environment with high relative humidity, the insulating material may have poor insulation or even leak electricity.
- In an environment with too low relative humidity, the insulating strips will shrink, and static electricity is prone

to occur and damage the internal circuits of the switch.

- A high ambient temperature not only deteriorates device performance but also causes various hardware faults.

The table below lists the ambient temperature and humidity requirements of RG-ES200 series switches.

Table 2-1 Working Environment Requirements

Temperature	Relative Humidity
0°C-40°C(32°F to 104°F)	10% RH to 90% RH (non-condensing)

Note

Requirements for ambient temperature and humidity of sampling points:

The ambient temperature and humidity of the switch are measured at the point that is 1.5 m (59.06 in.) above the floor and 0.4 m (15.75 in.) before the switch rack when there is no protective plate in front or at the back of the rack.

2.3.4 Electromagnetic Interference

- Take interference prevention measures for the power supply system.
- Keep the equipment far away from grounding or lightning protection devices for power equipment.
- Keep the equipment away from radio stations, radar stations, high-frequency high-current devices, and microwave ovens.

2.4 Tools

Table 2-2 Tools

Common Tools	Marker, Phillips screwdriver, hammer drill, hammer, hose clamp, power cords, Ethernet cables, diagonal pliers, cable ties
Special Tools	Anti-ESD gloves, wire stripper, crimper, RJ45 connector crimping plier, and wire cutter
Meters	Multimeter and Ethernet cable tester
Relevant Devices	PC, display, and keyboard

Note

The device is not shipped with a tool kit. You need to prepare a tool kit by yourself.

3 Installation

3.1 Preparing

Carefully plan and arrange the installation position, networking mode, power supply and cabling before installation. Confirm the following requirements before installation:

- The installation site provides sufficient space for heat dissipation.
- The installation site meets the temperature and humidity requirements of the device.
- The power supply and required current are available in the installation site.
- The network cables have been deployed in the installation site.
- The selected power supply modules meet the system power requirements.
- The position of the indoor emergency power switch is learned before installation. The power switch is cut off in case of accidents.

3.2 Safety Precautions During Installation

To ensure minimal interference when installing multiple wireless bridges in close proximity, maintain a horizontal installation distance of at least 2 meters (6.56 ft), or a vertical installation distance of at least 0.5 meters (1.64 ft) between each wireless bridge. Ensure that the horizontal angle formed by the two wireless bridges is greater than 120 degrees. The specific installation location of the wireless bridge should be determined by professionals after conducting a thorough site survey.

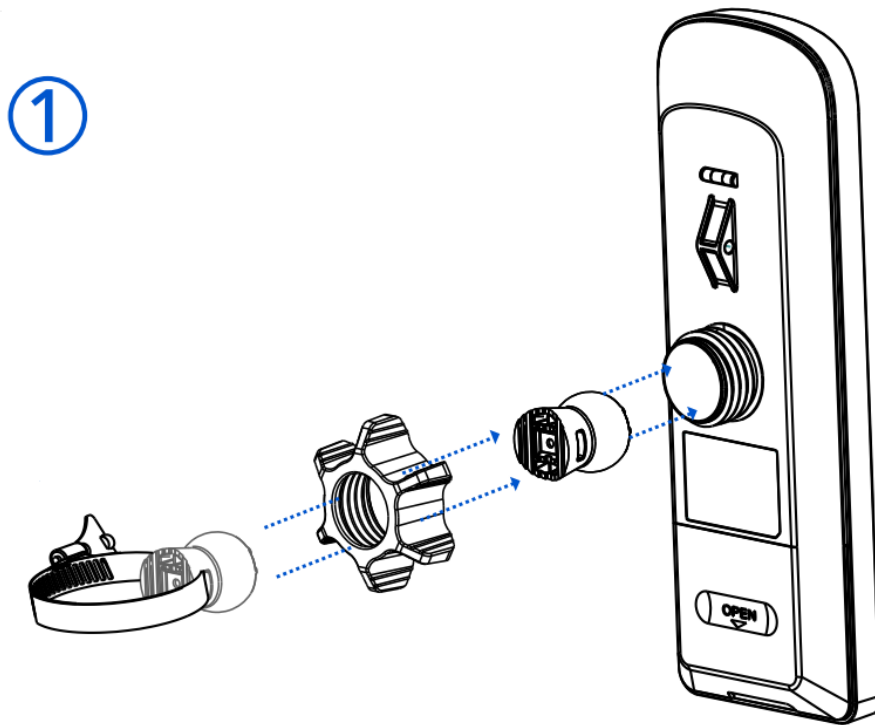
Before installation, ensure that the installation location meets the requirements and pay attention to the following:

- Use the supplied 24 V/0.6 A DC power adapter or an equivalent power source with the same specifications to power the equipment. Do not use adapters with different specifications.
- When the equipment is powered by 24 V passive PoE and is operating under full load (with simultaneous 2.4 GHz, 5 GHz, and wired connectivity), the maximum recommended cable length for the Cat5e cable is 80 m (262.47 ft.).
- Ensure that the Ethernet cable and power cord are securely connected.

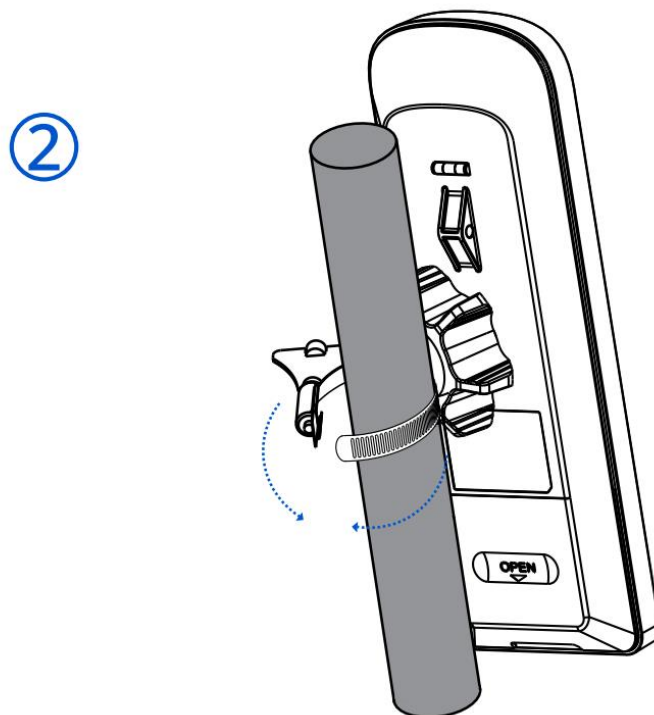
3.3 Installing the Device

3.3.1 Pole Mounting

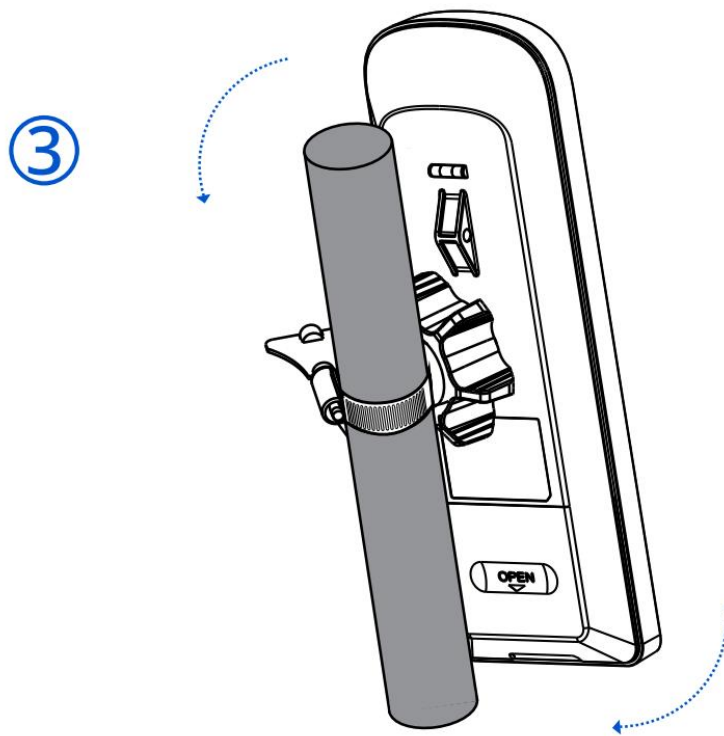
- (1) Install the device to the mounting bracket.



(2) Secure the mounting bracket to the pole by threading a clamp through the mounting bracket.



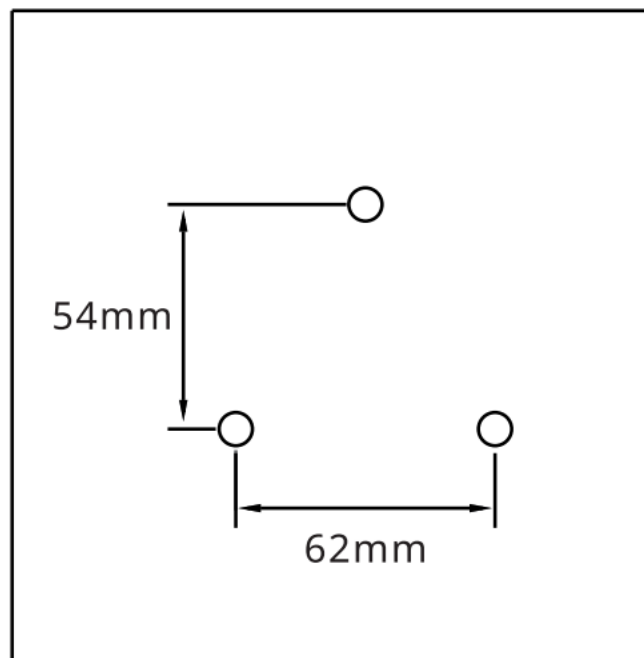
(3) Adjust the orientation.



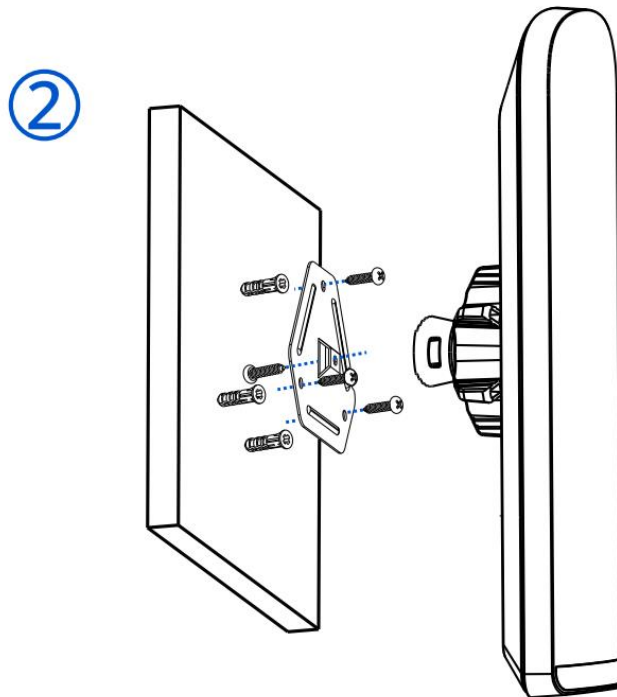
3.3.2 Wall Mounting

- (1) Secure the mounting bracket on the wall.

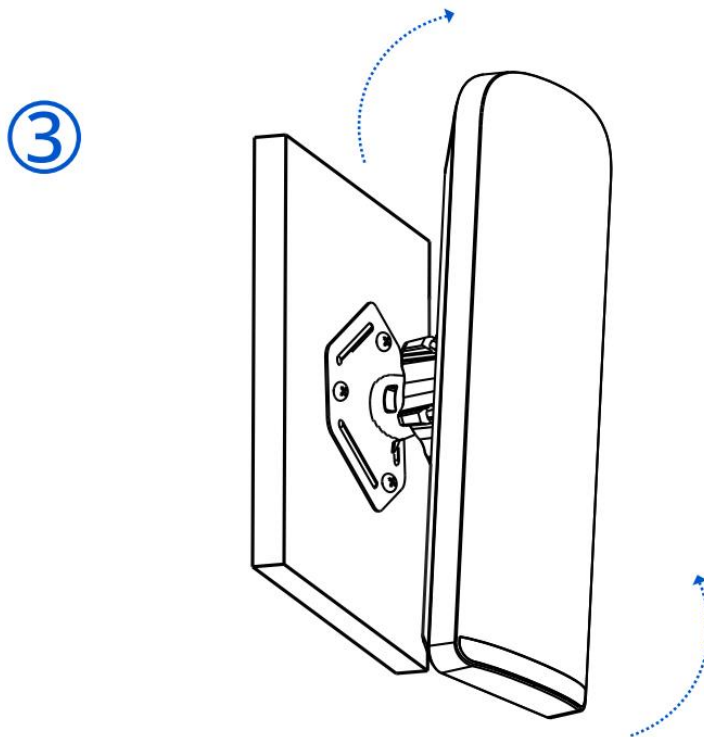
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- (2) Install the device to the mounting bracket.



(3) Adjust the orientation.



3.4 Connecting Cables

- (1) Select or make an Ethernet cable suitable for the distance between the bridge and the power source equipment. (The bridge supports Cat5e or higher cables up to 100 meters (328.08 ft) for PoE power supply.)

- (2) Connect one end of the Ethernet cable to the PoE port of the 1000 Mbps passive PoE injector, and the other end to the LAN1/PoE port on the bridge. Connect the LAN port of the 1000 Mbps passive PoE injector to a server or IP camera using another Ethernet cable. Connect the 24 V/0.6 A DC power adapter to the DC power connector of the PoE injector for power supply. Alternatively, connect a 12 V DC solar panel to the DC connector of the bridge for power supply. Then, connect a LAN port on the bridge to a server or IP camera using an Ethernet cable.

Figure 3-1 Connecting the Ethernet Cable to the Passive PoE Injector

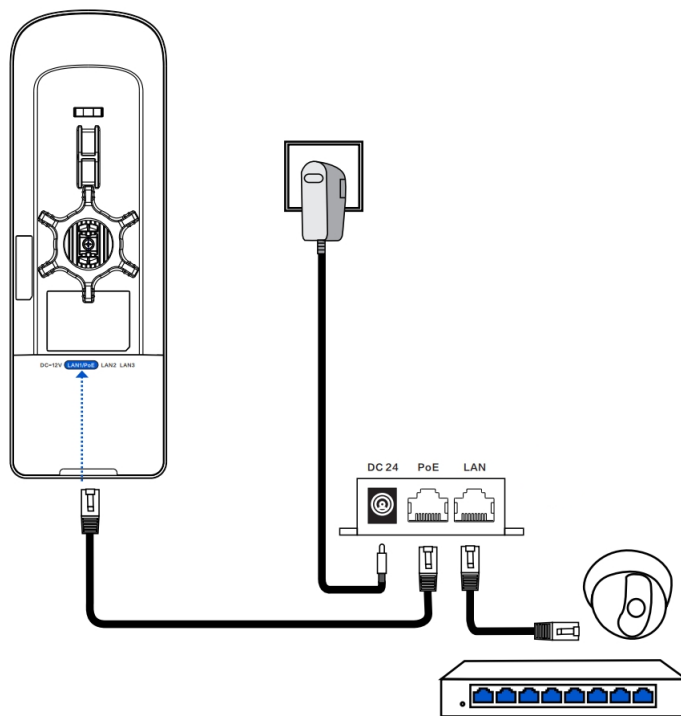
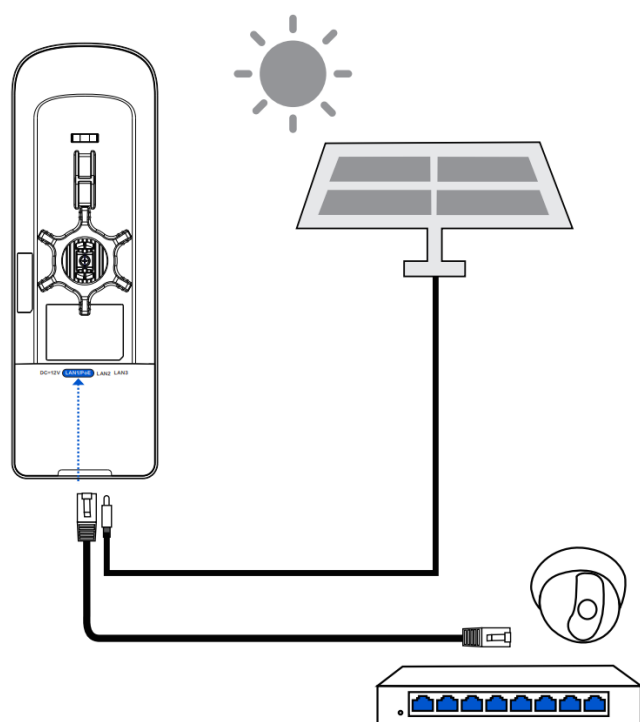


Figure 3-2 Connect the Ethernet cable to a solar panel

Solar Panel

Solar panels convert light energy from sunlight into electrical energy. The EST350G requires a solar power panel with an output specification of 12V/1.2A DC.

Notes for Installing the Solar Panel

Because the sun's position differs between the Northern and Southern Hemispheres, the solar panel should face south in the Northern Hemisphere and north in the Southern Hemisphere to achieve optimal power output. Additionally, the tilt angle of the solar panel affects the efficiency of solar energy conversion. The optimal tilt angle varies with latitude. The following table shows the optimal tilt angles for different latitude ranges.

Latitude Range	Optimum Tilt
0°–10°	10°–20°
10°–20°	20°–30°
20°–30°	30°–40°
30°–40°	40°–50°
40°–50°	50°–60°
50°–60°	Approximately 60°

Warning

After the Ethernet cable is securely connected to the device, cover the device with a waterproof cover to shield it from potential water and dust damage.

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

3.5 Verifying Installation

(1) Checking the Bridge.

- Verify that the external power supply meets the requirement of the wireless bridge.
- Verify that the wireless bridge is securely fastened.

(2) Checking the Power Supply.

- Verify that the power cord is properly connected and meets safety requirements.
- Connect the power supply to the bridge and verify that it works properly.

4 Debugging

4.1 Powering On

(1) Checklist Before Power-on.

- The power cord is properly connected.
- The power voltage meets the requirement.

(2) Recommended: After the bridge is powered on, check whether the LED status is normal.

4.2 Configuring the Bridge

- Method 1: Configure the bridge through Lysora App

(1) The power cord is properly connected.

(2) Scan the QR code on this page or on the device to download and install Lysora App.

(3) Log in to Lysora App for Configuration.

- Log in to web interface for configuration.

(4) Connect the LAN port of the wireless bridge to a PC using an Ethernet cable for wired connection, or connect your smartphone or PC to the device's SSID (default SSID: Lysora-bxxxx) for wireless connection.

(5) Enter 10.100.111.254 in a browser to access the device's web interface.

(6) Enter the device password (default password: admin) and click Login to log in to web interface for configuration.

Caution

Enter the initial password admin to log in and begin configuration.

To ensure device security, set a password after login and change the password regularly.

5 Monitoring and Maintenance

5.1 Monitoring

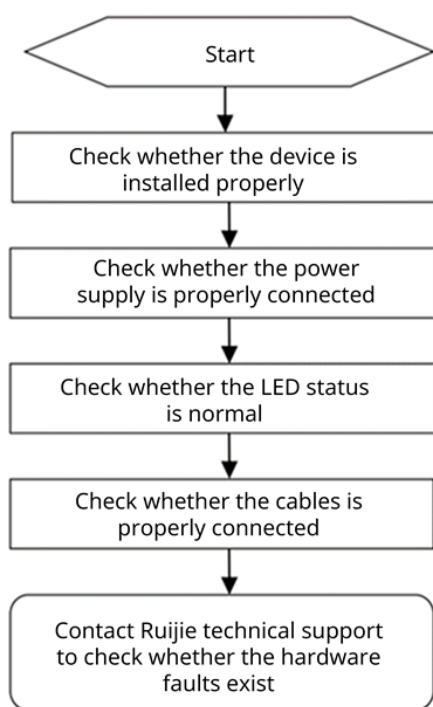
You can observe the LEDs to monitor the device in operation.

5.2 Hardware Maintenance

If a hardware error occurs, please contact Lysora Technical support for help.

6 Troubleshooting

Troubleshooting Flowchart



7 Appendix

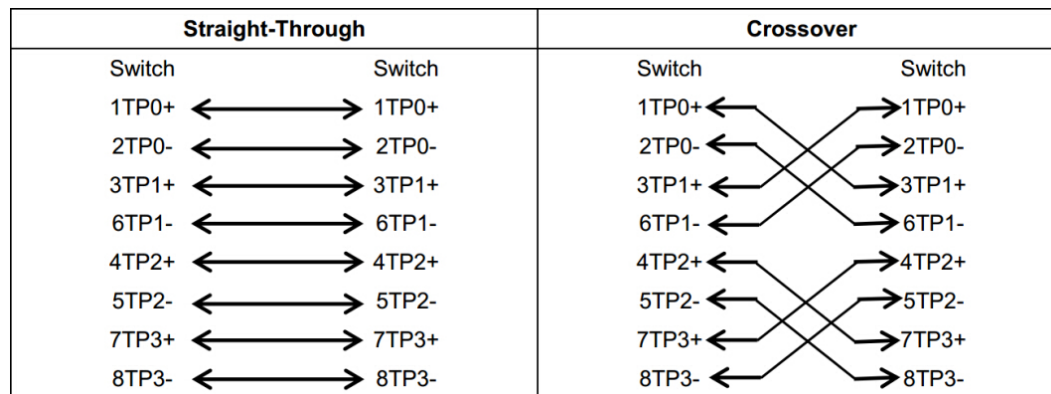
7.1 Connectors and Media

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

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

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 7-1.

Figure 7-1 1000BASE-T Connection



10BASE-T uses Category 3, 4, 5, 5e 100-ohm UTP/STP and 1000BASE-T uses Category 5 100-ohm UTP/STP for connections. Both support a maximum length of 100 meters. Table 7-1 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 wiring of straight-through and crossover cables for 100BASE-TX/10BASE-T.

Figure 7-2 100BASE-TX/10BASE-T Connection

