ThinkNode

ThinkNode-G1

Indoor Gateway For LoRaWAN

User Manual

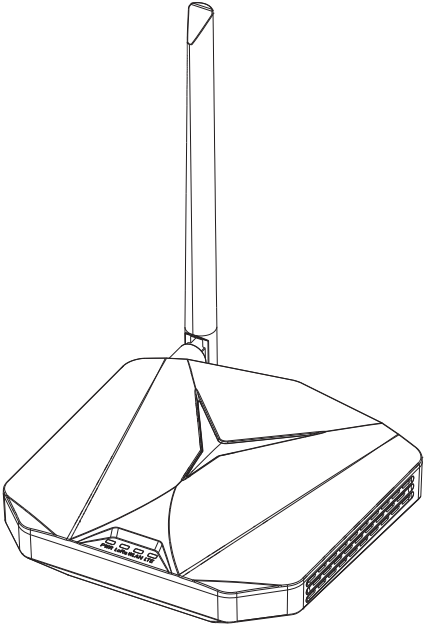


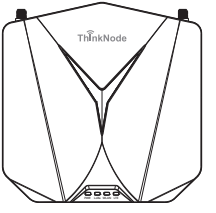
Table of Contents

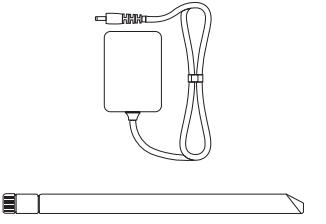
About ThinkNode-G1

Thank you for selecting the ThinkNode-G1 for your impressive IoT project.
This LoRaWAN indoor gateway is designed to connect to a diverse range of network servers, supporting both WiFi and Ethernet connections, as well as an optional LTE module for 3G/4G cellular network bridging. Utilizing LoRa wireless technology, the G1 gateway enables long-distance data transmission at low data rates.

Part List

- ThinkNode-G1*1
- Power Adapter(12V-2A)*1
- LoRa Antenna(3dBi)*1

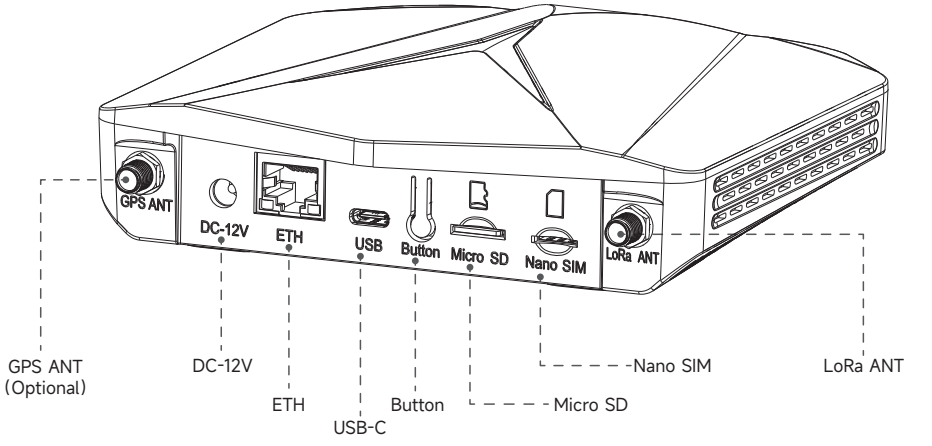




Specifications

Processor	MT7628（MIPS24KEc@580MHz）
RAM	DDR2 128MB
Flash	32M
LoRa Gateway Chip	SX1302（8-Channel）
LoRa Sensitivity	-125dBm @125K/SF7, -139dBm @125K/SF12
LoRa TX power	Up to 26 dBm
WiFi	Support 2.4 GHz 802.11 b/g/h
Bluetooth	Dual-mode Bluetooth-BR /EDR+BLE5.0
LTE Cat(Optional)	Global Frequency Band（SIM7670）
Ethernet	RJ45 (10M / 100 M)
Antenna	LoRa: 3dBi External Antenna, Wi-Fi: Internal Antenna, BLE: Ceramic Antenna
Antenna Impedance	50 Ohm
LoRaWAN® Protocol	Supports Class A/Class B/Class C
Software（OpenWRT）	Supports Web UI for easy configuration and monitoring
Input Voltage	DC 12V-2A
Dimension	140*140*39mm
Operating Temperature	-20°C to 55°C
Installation Method	Wall Mounting

Interface

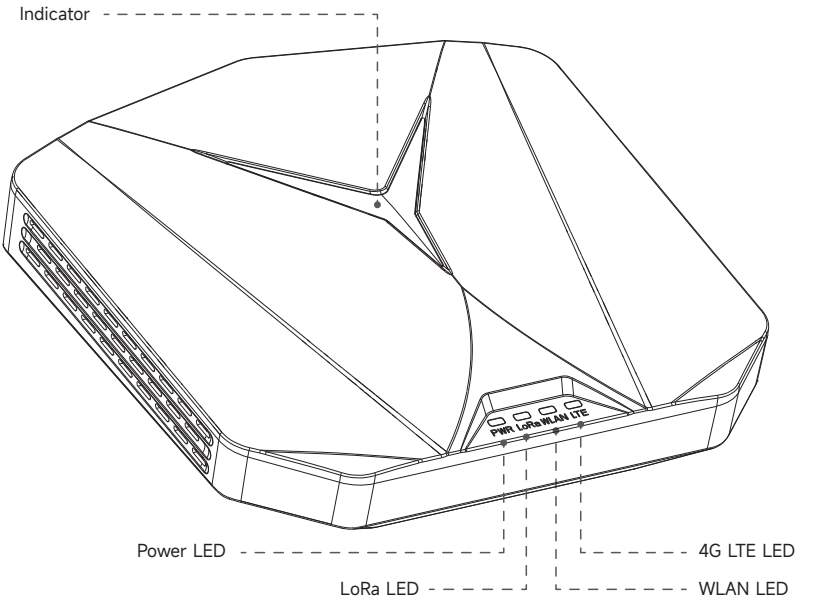


⚠ **Note**:

• SD and SIM cards are not hot-swappable. Always ensure the gateway is powered off before inserting or removing the SIM or SD card.

• Do not power the gateway without connecting the antenna, as this may damage the radio function.

Interface


Indicator
PWR
LoRa
WLAN
LTE
Power LED
LoRa LED
4G LTE LED
WLAN LED

Indicator

Mode		Description
Green	Solid	Operating normally, good internet connection.
	Slow Blink	Device/hotspot is starting up.
Blue	Solid	Device is ready to connect to the network and requires further configuration.
	Slow Blink	Configuration mode, will automatically exit if there is no activity in 5 minutes.
	Rapid Blink	Device reset indication, press the button for 20 seconds, the light will flash rapidly.
White	Slow Blink	Firmware update indication, do not disconnect the device from the internet.
Red	Solid	Hardware issue or internet connection failure.
White	Solid	Device currently only has factory firmware, will automatically update to the latest firmware when connected to the internet.

Connection

Mode		Description
PWR	On	Device powered on.
	Off	Not connected to power.
LoRa	On	Connected to LoRa wireless network.
	Off	Not connected.
WLAN	On	Connected to WLAN Ethernet network.
	Off	Not connected.
LTE	On	Connected to 4G cellular network.
	Off	Not connected.

Button

Mode	Description
Double Click	Software reboot.
Press for 5s	Slow blue light blink, entering configuration mode, will automatically exit if there is no activity in 5 minutes.
Press for 20s	Rapid blue light flash, triggering factory reset and software reboot.

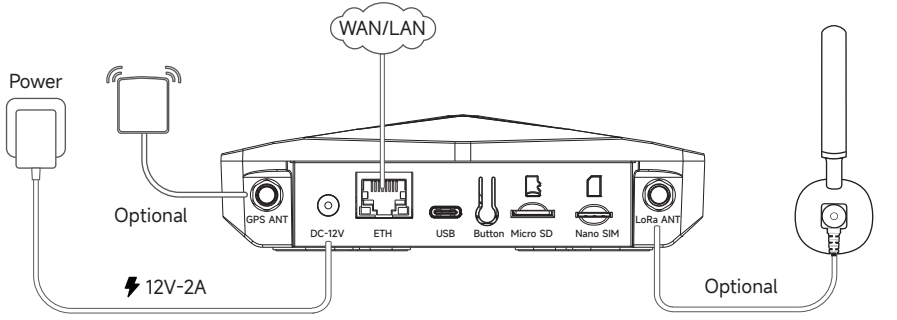
Quick Start

Step 1. Set up ThinkNode-G1

➢ Connect the antenna, power adapter, and Ethernet cable (not necessary) to the gateway, then turn on the power.

➢ The power LED turns green, then the top indicator flashes green after 15 seconds, indicating startup.

➢ After startup, the gateway's status indicator turns solid green if connected via Ethernet, or blue while awaiting Wi-Fi setup.

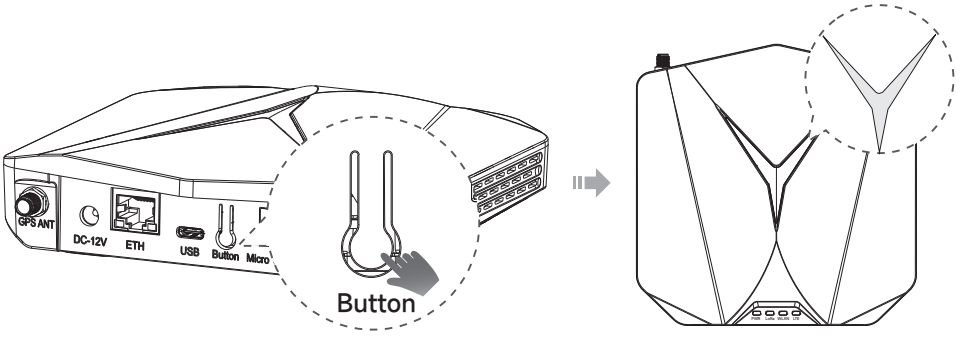


⚠ **Note**:

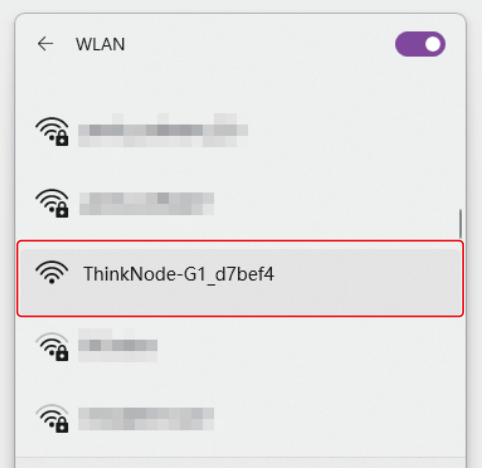
• Ensure that all antennas are connected before powering the gateway.

• LoRa antennas must be selected based on frequency bands, such as 868MHz or 915MHz; install the appropriate frequency band antenna for your region.

➢ Connect to power, then press and hold the gateway's setup button for 5 seconds to enter configuration mode. A slow blue flash indicates setup mode is active.

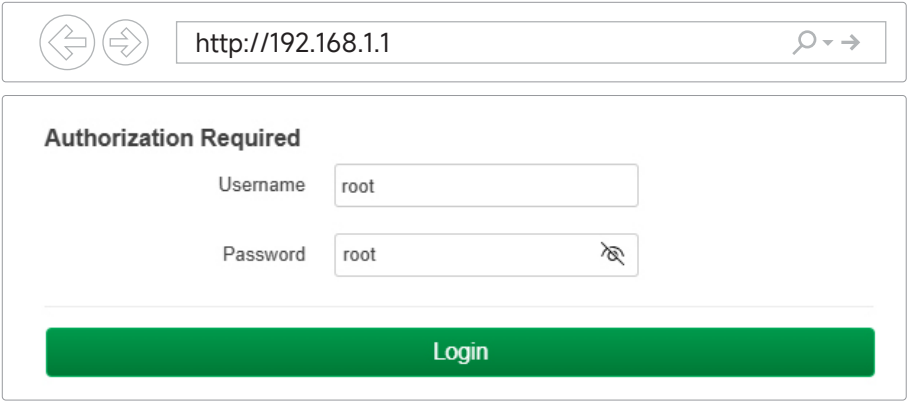


➢ Once in configuration mode, connect to the gateway's AP and log in to the Luci network configuration interface using a mobile device or a computer/laptop with a wireless network interface, connecting to the gateway AP- "**ThinkNode-G1_XXXXXX**".



➢ Connect to the IP address assigned to the gateway via a browser, which defaults to **192.168.1.1**. You should see the login window as shown in the figure below. Click to access the URL and log in to the Luci network configuration interface.

Username: root Password: root

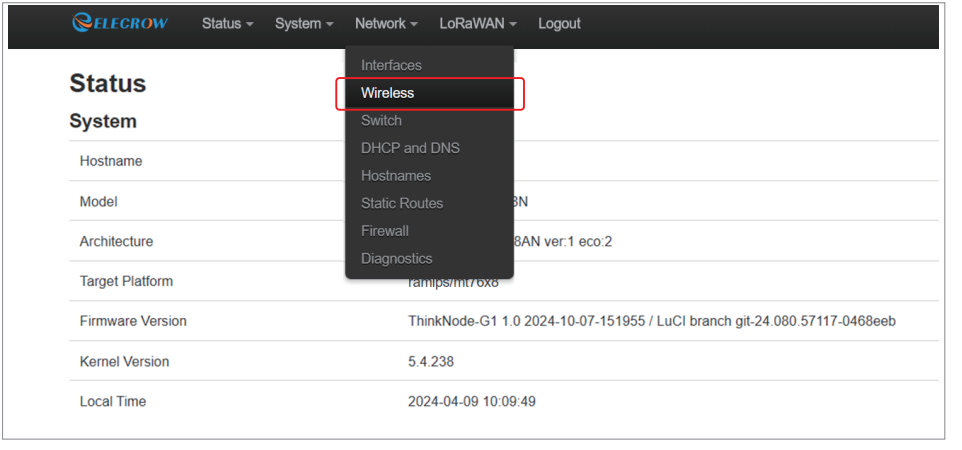


Step 2: ThinkNode-G1 Internet Connection Configuration

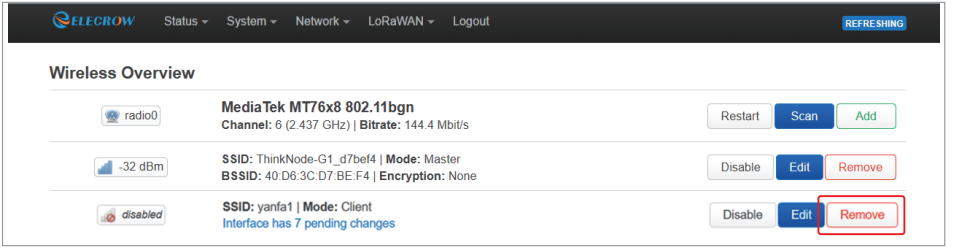
After entering the Luci interface, begin configuring the gateway's internet connection. There are three network configuration modes: WiFi, ETH, and LTE (4G).

(1) Setting up WiFi Connection Mode

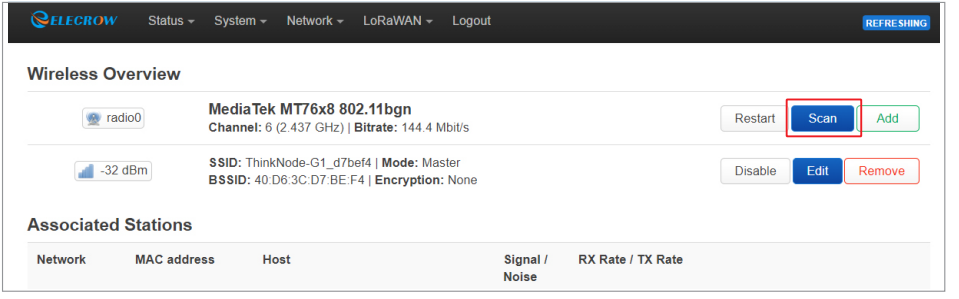
➢ Click on **Network** in the interface and select **Wireless**.

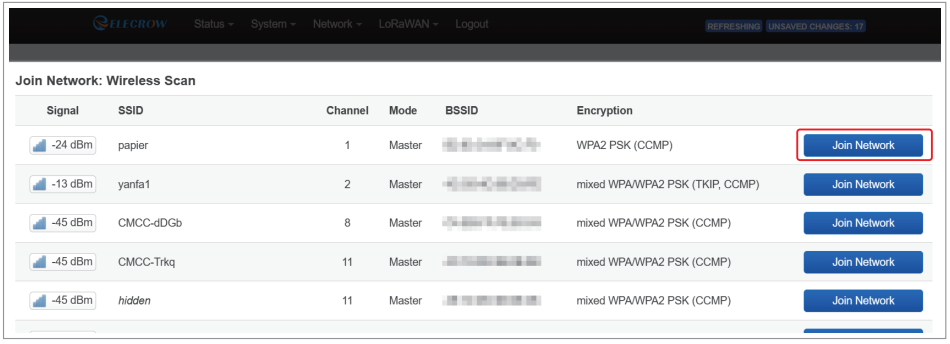


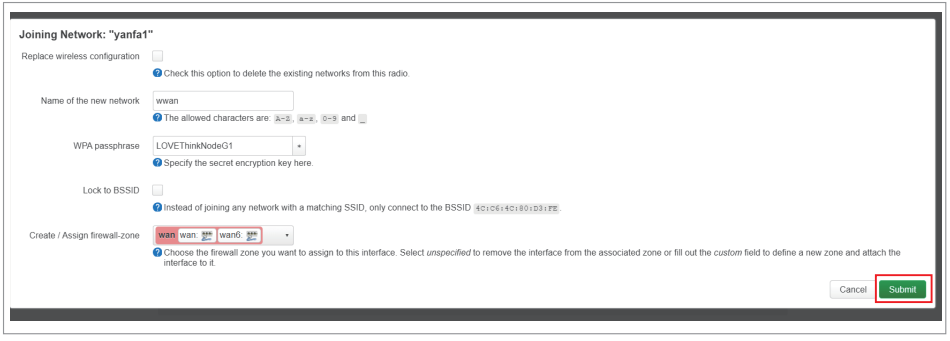
➢ Click **"Remove"** to delete the previous WiFi hotspot. (Skip this step if you haven't connected the device before.)



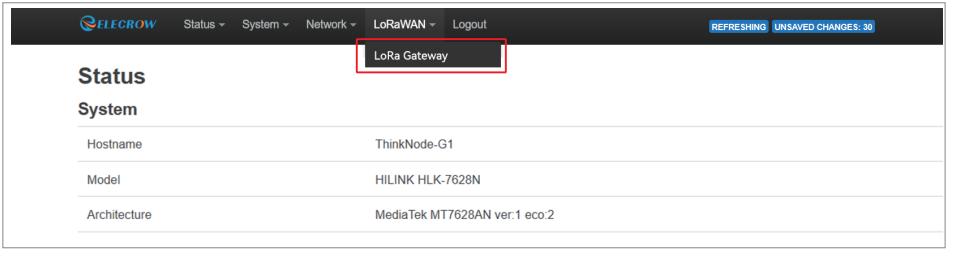
➢ Click on the **"Scan"** option to select a new WiFi hotspot, click **"Join Network"** , enter the WiFi password, and submit.



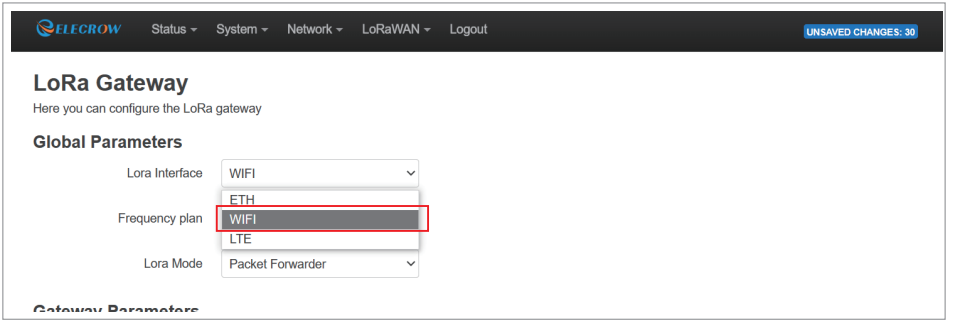

ELECROW
Status
System
Network
LoRaWAN
Logout
REFRESHING
UNSAVED CHANGES: 17
Join Network: Wireless Scan
Signal
SSID
Channel
Mode
BSSID
Encryption
-24 dBm
papier
1
Master
WPA2 PSK (CCMP)
Join Network
-13 dBm
yanfa1
2
Master
mixed WPA/WPA2 PSK (TKIP, CCMP)
Join Network
-45 dBm
CMCC-dDGb
8
Master
mixed WPA/WPA2 PSK (CCMP)
Join Network
-45 dBm
CMCC-Trkq
11
Master
mixed WPA/WPA2 PSK (CCMP)
Join Network
-45 dBm
hidden
11
Master
mixed WPA/WPA2 PSK (CCMP)
Join Network


Joining Network: "yanfa1"
Replace wireless configuration
Check this option to delete the existing networks from this radio.
Name of the new network
wwan
The allowed characters are: A-Z, a-z, 0-9 and _
WPA passphrase
LOVEThinkNodeG1
Specify the secret encryption key here.
Lock to BSSID
Instead of joining any network with a matching SSID, only connect to the BSSID 4C:C6:4C:80:D3:FE.
Create / Assign firewall-zone
wan: wan: wan6:
Choose the firewall zone you want to assign to this interface. Select unspecified to remove the interface from the associated zone or fill out the custom field to define a new zone and attach the interface to it.
Cancel
Submit

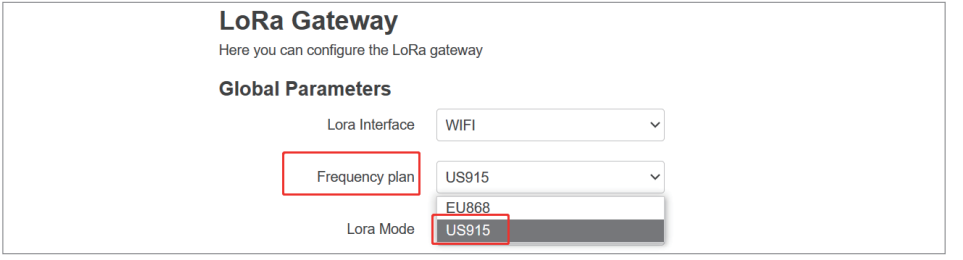
➢ Return to the Luci start interface, select the **LoRa Gateway** in the LoRaWAN dropdown menu to enter the gateway configuration interface.



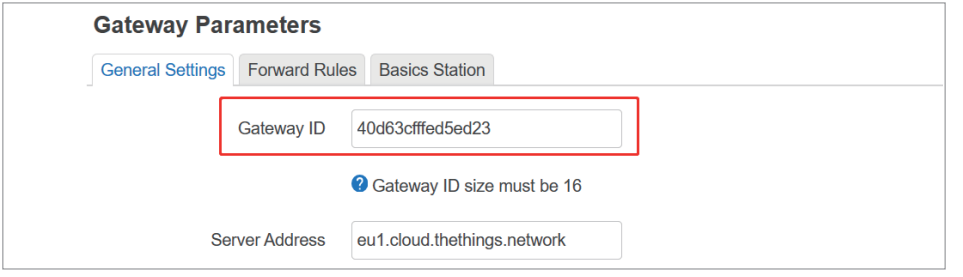
➢ Choose the **WiFi** option.



➢ Select the LoRa gateway frequency band, choose either 868MHz or 915MHz based on the product.



➢ Enter the gateway ID, which needs to be registered on the TTN server website.



➢ Use the default settings for all other configurations.

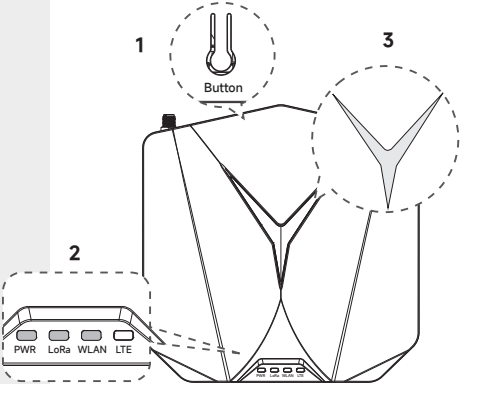
➢ Click **“Save & Apply”**, then exit the Luci website and wait for the gateway to restart.

Note:

• 1. Quickly press the gateway's side setup button twice to restart the gateway!

• 2. Wait until the "WLAN" and "LoRa" green lights illuminate and the middle status light turns solid green on the gateway, confirming successful network configuration and normal operation.

• 3. The normal operation LED light status is with the WLAN and LoRa indicator lights on, and the middle large status light solid green.

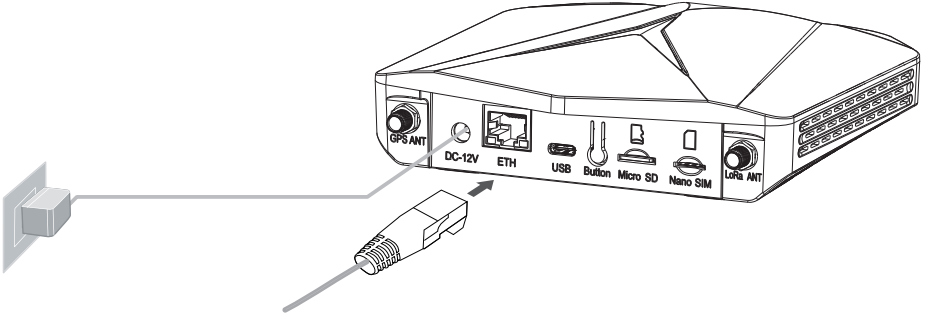


(2) Gateway ETH Internet Connection Configuration

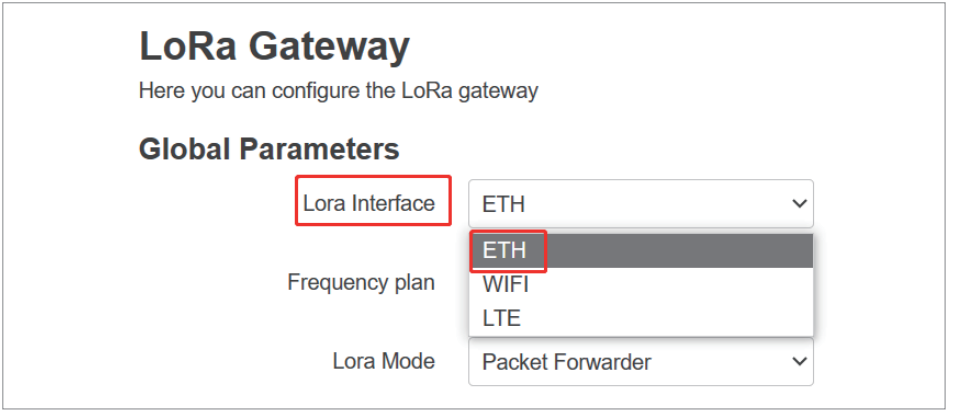
You will need to connect an Ethernet cable to the gateway's side port, then press and hold the setup button for 5 seconds to connect to the AP and log in to the Luci interface.

Since the WiFi network is not used, there is no need to enter the Network settings for WiFi; this step can be skipped directly. Go to the initial interface's LoRaWAN dropdown menu and select LoRa Gateway to enter the gateway configuration interface. Choose the ETH connection method, save the settings, exit Luci, and wait for the gateway to restart.

➢ After connecting the Ethernet cable, press and hold the setup button for 5 seconds to put the gateway into configuration mode.



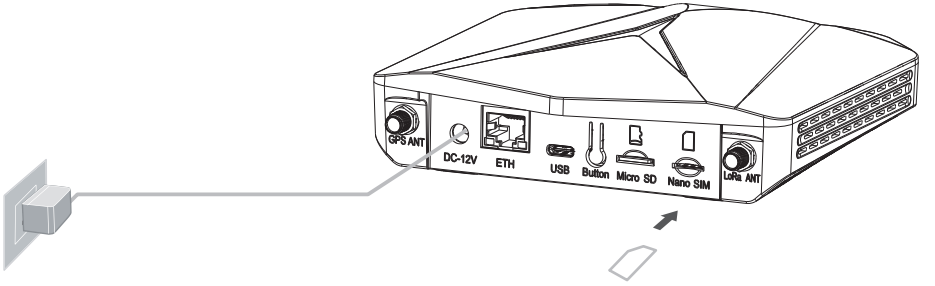
➢ Log in to the Luci interface, select the LoRa Gateway in the LoRaWAN dropdown menu to enter the gateway configuration interface, and choose the ETH internet connection method.



➢ Click **"Save & Apply"**, then exit the Luci website and wait for the gateway to restart. After the restart, if the "WLAN", "LoRa" indicator lights and the middle status light are solid green, it indicates that the gateway has been set up successfully and is running normally.

(3) Gateway LTE (4G) Internet Connection Configuration

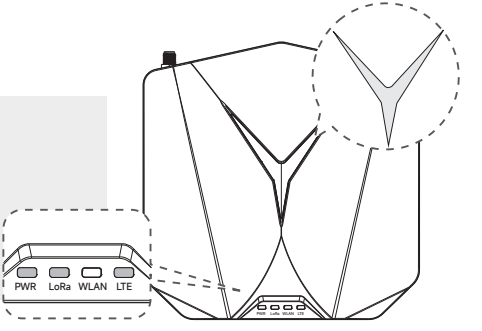
To use the 4G network for internet connection, insert 4G SIM Card into the SIM card slot on the side of the gateway.



➢ Refer to the configuration steps in (1) and (2), in the initial interface of Luci, select the LoRa Gateway in the LoRaWAN dropdown menu to enter the gateway configuration interface, choose the LTE internet connection method, save the settings, exit Luci, and wait for the gateway to restart.

⚠ Note:

• When the gateway is using the 4G network and operating normally, the LTE indicator light on the gateway will flash, the LoRa indicator light will be solid, and the status indicator light will be solid.



Customer Support

If you have any questions, customer support is always standing by.

 info@elecrow.com  techsupport@elecrow.com

For more technical details, please visit the relevant webpage:

https://www.elecrow.com/thinknode-g1-indoor-8-channels-lorawan-gateway-powered-by-sx1302-chip.html

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