

# URSALINK LoRaWAN Gateway Quick Start Guide

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## UG87 LoRaWAN Gateway Quick Start Guide



**Ursalink Technology Co, Ltd.**

### Welcome

Thank you for choosing Ursalink UG87 LoRaWAN Gateway.

This guide teaches you how to install the UG87 and how to log in to the web GUI to configure the device. Once you complete the installation, refer to the Ursalink UG87 User Guide for instructions on how to perform configurations on the device.

### Related Documents

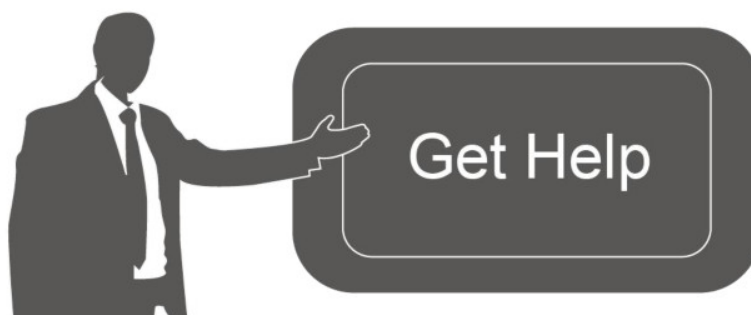
This Quick Start Guide only explains the installation of Ursalink UG87 LoRaWAN Gateway. For more functionality and advanced settings, please refer to the relevant documents below.

Document	Description
Ursalink UG87 Datasheet	Datasheet for the Ursalink UG87 LoRaWAN Gateway.
Ursalink UG87 User Guide	Users can refer to the guide for instruction on how to log in to the web GUI, and how to configure all the settings.

The related documents are available on the Ursalink website: <http://www.ursalink.com>.

### Declaration of Conformity

UG87 is in conformity with the essential requirements and other relevant provisions of the CE, FCC, and RoHS.



For assistance, please contact

Ursalink technical support:

Email: [support@ursalink.com](mailto:support@ursalink.com)

Tel: 86-592-5023060

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## Revision History

Date	Doc Version	Description
Sept. 9, 2019	V1.1	Initial version
Oct. 18, 2019	V1.2	1. Add 16 channels description; 2. Change antenna location.
Nov. 29, 2019	V1.3	Delete AC/DC power supply, add PoE injector
Apr. 4, 2020	V1.4	1. Reset button definition change; 2. Add back AC/DC power supply; 3. Default IP change from 192.168.1.1 to 192.168.23.150; 4. Web GUI interface change (based on 80.0.0.62); 5. Add bulk import LoRaWAN devices.

## Packing List

Before you begin to install the UG87 LoRaWAN Gateway, please check the package contents to verify that you have received the items below.



1 × UG87



1 × Cellular Antenna



1 × LoRa Antenna

(2 × LoRa Antennas for  
16-channel model)



1 × GPS Antenna



1 × WiFi Antenna

(WiFi Version Only)



1 × Wall Mounting Kit



2 × Pole Mounting Kit



Screws



1 × Warranty Card



1 × PoE Injector



1 × Power cable

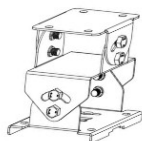
(AC/ DC Version Only)



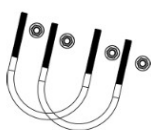
1 × Ethernet Cable

(Optional)

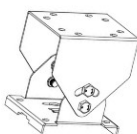
## Optional Installation Accessories



+



1 × Pole Mount A + 2 × U-Bolt



+



1 × Pole Mount B + 2 × U-Bolt



Screws

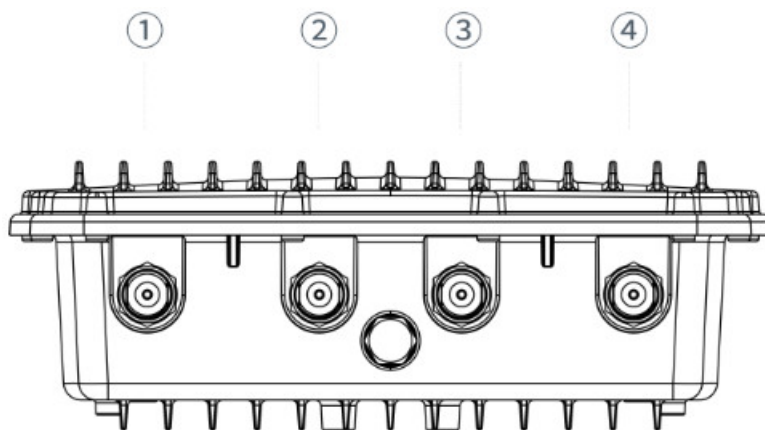


If any of the above items is missing or damaged, please contact your Ursalink sales representative.

## Hardware Introduction

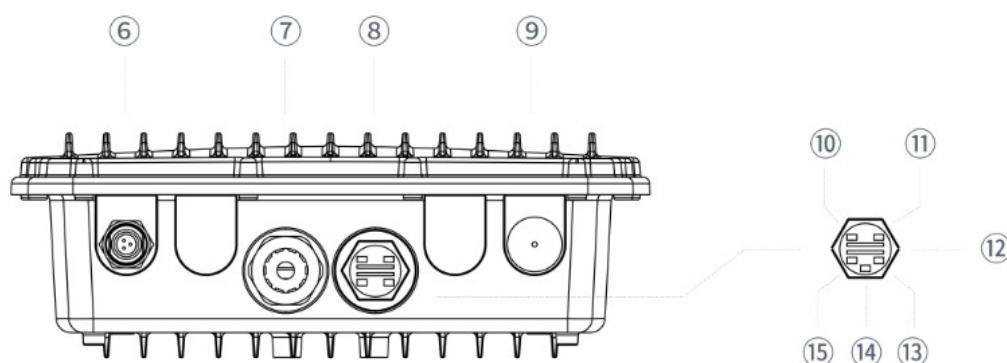
### 2.1 Overview

#### A. Front Panel



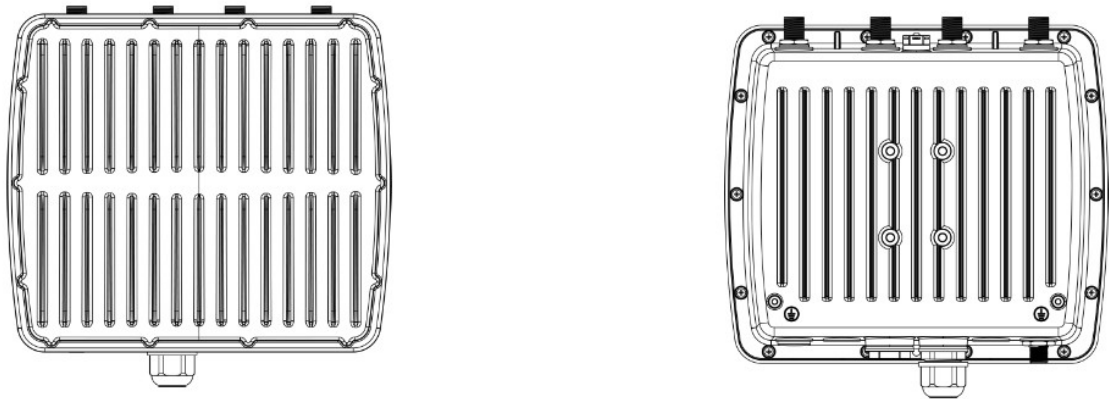
1. LoRa2 Antenna (only for 16-channel model)
2. GPS Antenna
3. LTE Antenna
4. LoRa1 Antenna
5. Vent Plug

#### B. Rear Panel

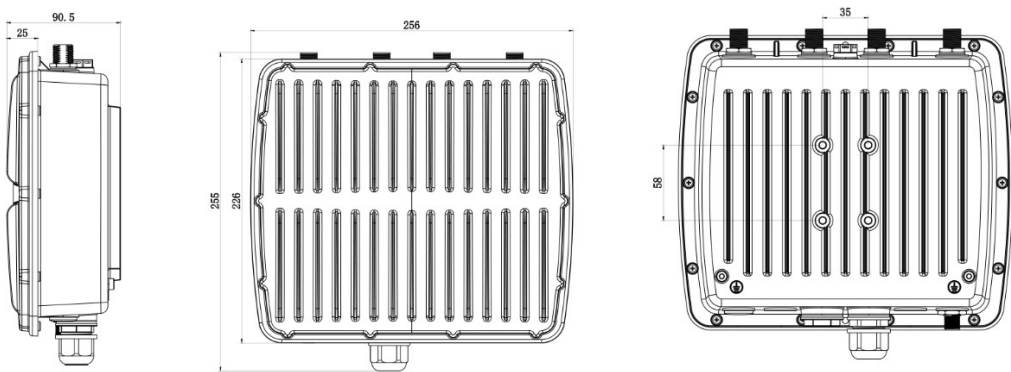


6. Power Connector
7. Ethernet Port (PoE)
8. LED&SIM Area
9. Wi-Fi Antenna LED&SIM Area
10. PWR: Power Indicator
11. SYS: System Indicator
12. SIM Card Slot
13. L2: Cellular Indicator
14. RST: Reset Button
15. L1: LoRa Indicator

C. Top & Bottom View



2.2 Dimensions (mm)



2.3 LED Indicators

LED	Indication	Status	Description
PWR	Power Status	On	The power is switched on
		Off	The power is switched off
SYS	System Status	Green Light	Static: Start-up
			Blinking slowly: the system is running properly
		Off	The system goes wrong
Li	LoRa Status	Green Light	Package Forwarder mode is running well.
		Off	Package Forwarder mode is running off.
L2	SIM Card Status	Off	SIM1 or SIM2 is registering or fails to register (or there are no SIM cards inserted)
		Green Light	Blink Slowly: SIM1 has been registered and is ready for dial-up
			Blink Rapidly: SIM1 has been registered and is dialing up now
			Static: SIM1 or SIM2 has been registered and dialed up successfully
		Orange Light	Blink Slowly: SIM2 has been registered and is ready for dial-up
			Blink Rapidly: SIM2 has been registered and is dialing up now
			Static: SIM2 has been registered and dialed up successfully

## 2.4 Reset Button

Function	Description	
	SYS LED	Action
Reset	Blinking	Press and hold the reset button for more than 5 seconds.
	Static Green → Rapidly Blinking	Release the button and wait.
	Off → Blinking	The gateway resets to factory default.

## 2.5 Ethernet Port Indicator

Indicator	Status	Description
Link Indicator (Orange)	On	Connected
	Blinking	Transmitting data
	Off	Disconnected
Rate Indicator (Green)	On	1000 Mbps mode
	Off	100 Mbps mode

## Hardware Installation

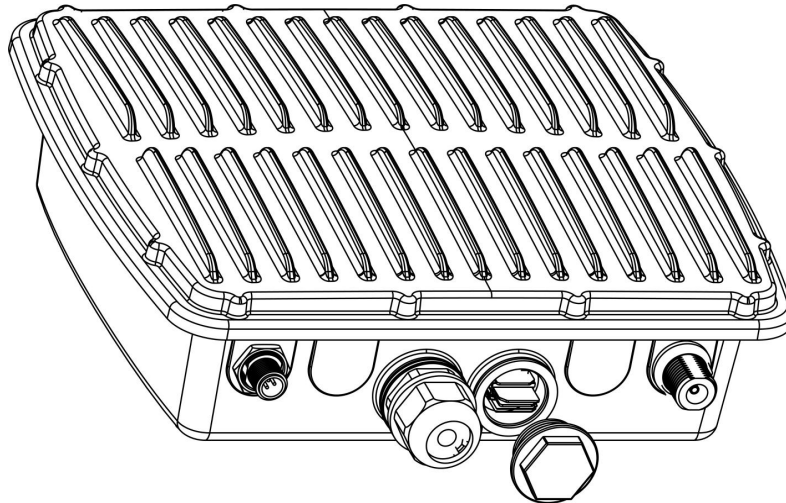
### Environmental Requirements

- Power Input: PoE (IEEE 802.3af standard) (Option: 100-240 VAC/9-48VDC)
- Power Consumption: Typical 4.9 W, Max 6.5 W (8 channels), Typical 6 W, Max 8.2 W (16 channels)
- Ingress Protection: IP67
- Operating Temperature: -40°C to 70°C (-40°F -158°F)
- Relative Humidity: 0% to 95% (non-condensing) at 25°C/77°F

### 3.1 SIM Card Installation

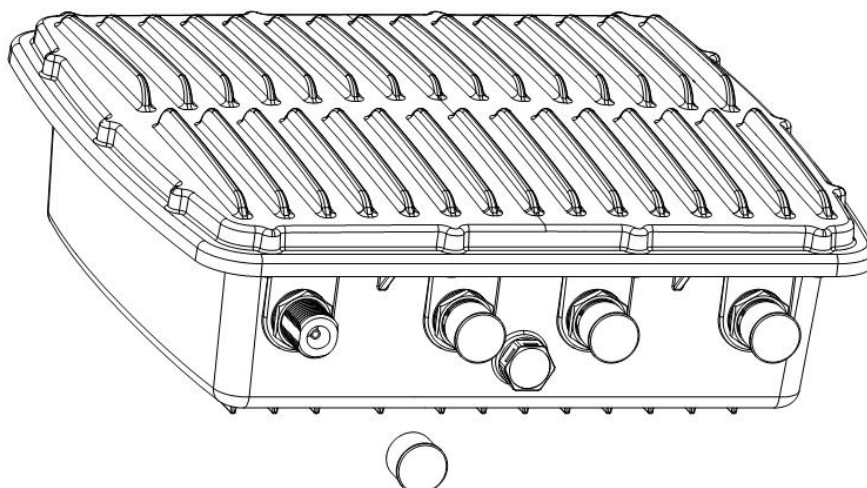
Remove the cover of the SIM card slot with a wrench and insert the SIM card.

Note: Check the triangle icon of the SIM card slot.



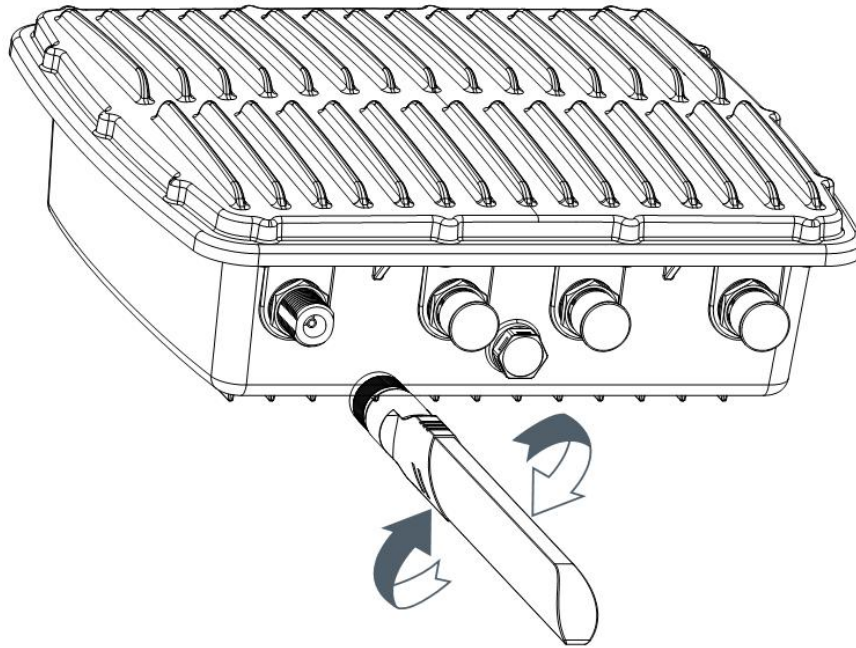
### 3.2 Antenna Installation

A. Remove the protective caps from the antenna connectors.



B. Connect the antenna to the corresponding antenna connector by holding the metal part of the antenna and rotating it clockwise.

**Note:** Each antenna is labeled as cellular, GPS, WLAN or LoRa.



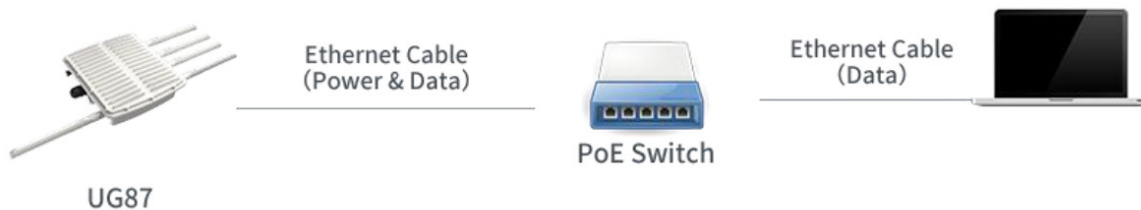
### 3.3 Power Supply

#### 3.3.1 PoE Power Supply

Ethernet cable of UG87 device side should be installed first, or PoE devices or gateway may be damaged.

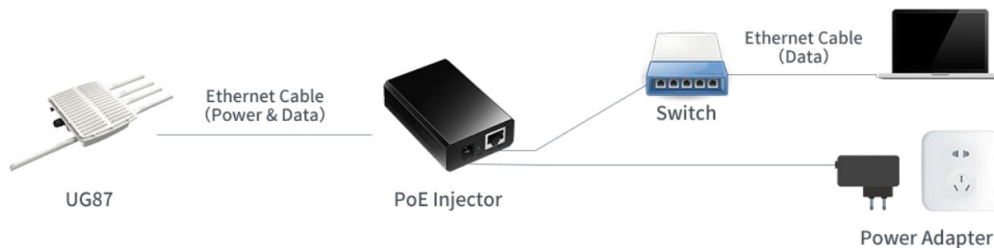
##### 3.3.1.1 Connect UG87 to PoE Switch

Connect UG87 Ethernet port to a PoE switch via Ethernet cable. PoE switch must meet IEEE 802.3 af standard.



##### 3.3.1.2 Connect UG87 to PoE Injector

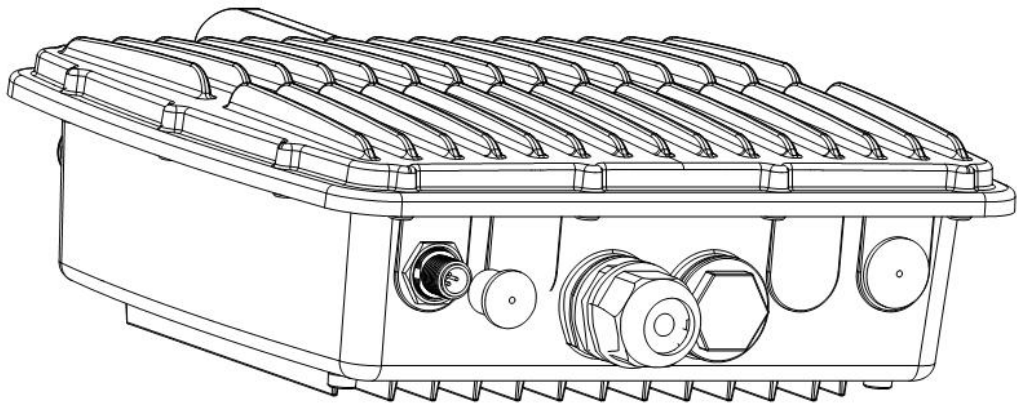
Connect UG87 Ethernet port to a PoE injector via Ethernet cable. PoE injector must meet IEEE 802.3 af standard.



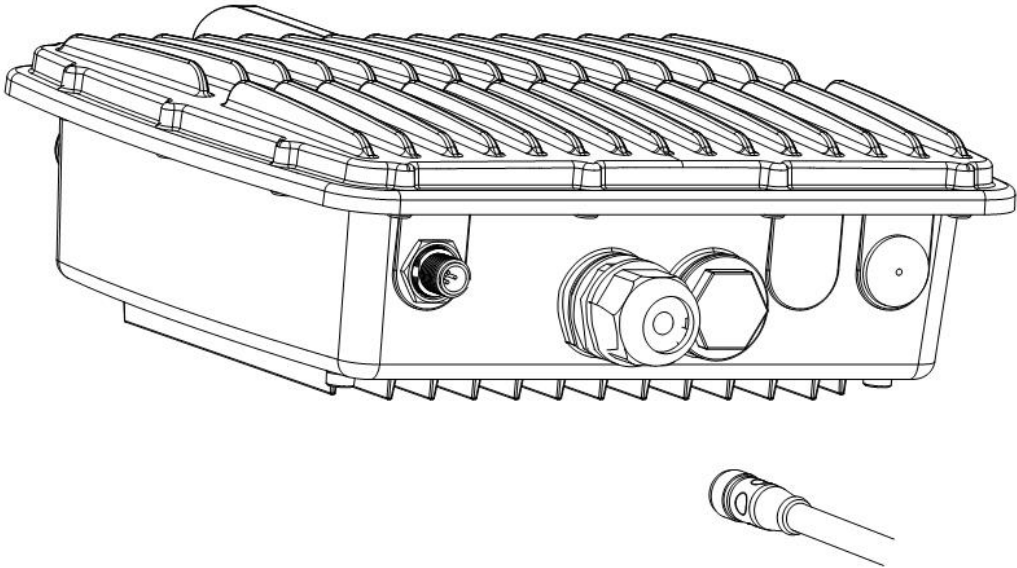
#### 3.3.2 AC/DC Power Supply (Optional)

A. Locate the power port marked POWER on the left side of the enclosure and remove the protective cap to find the connection pins.

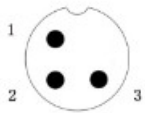




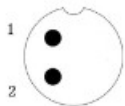
B. Connect a power supply cable to the power port, and rotate it clockwise.



Type	PIN	Color	Description
VAC	1	Brown	L (VIN+)
	2	Black	GND
	3	Blue	N (VIN-)



Type	PIN	Color Brown	Description
VDC	1	Black	V+
	2	Black	GND



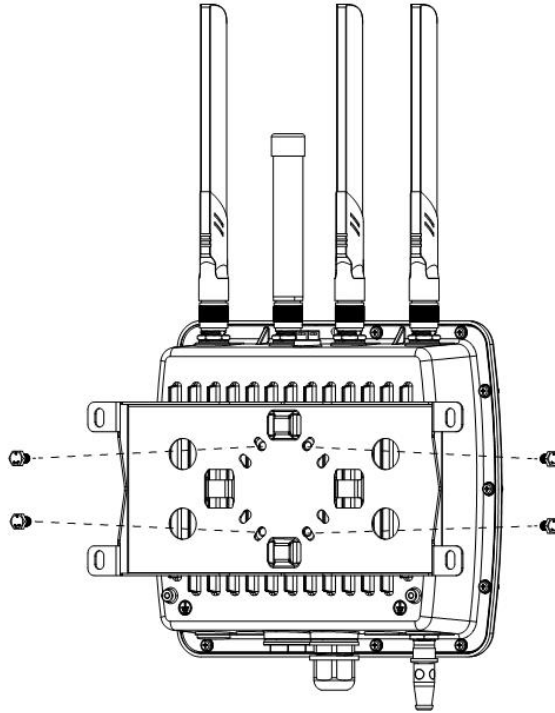
### 3.4 Mount Gateway

The gateway can be mounted to a wall or a pole.

#### 3.4.1 Wall Mounting

Make sure you have mounting brackets, bracket mounting screws, wall plugs, wall mounting screws, and other required tools.

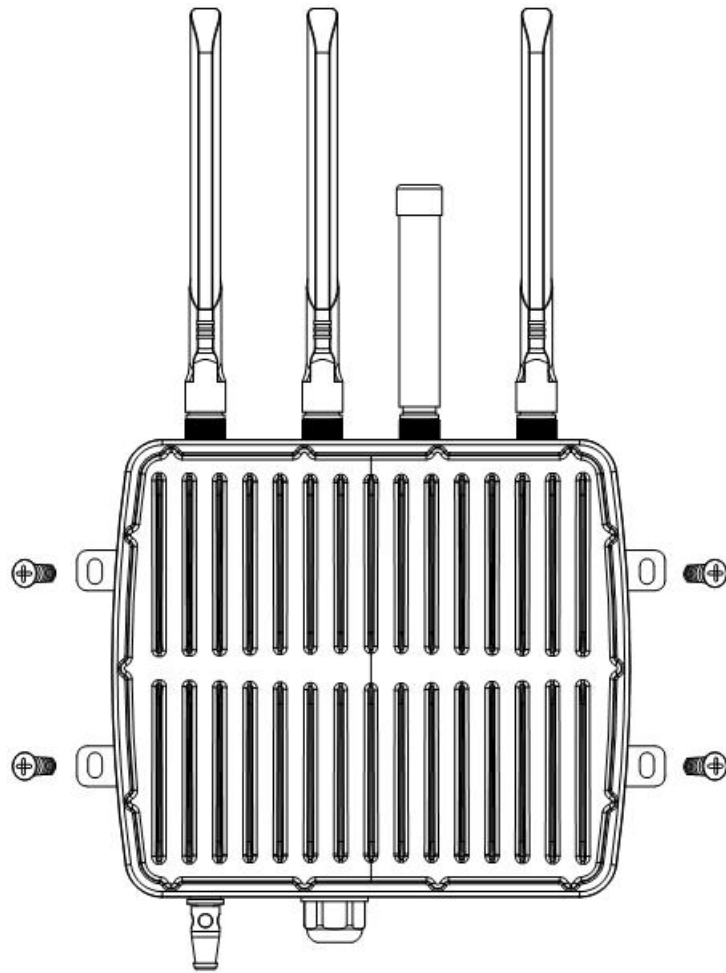
1. Before you start, make sure that your SIM card has been inserted, your antennas have been attached, and that all cables have been disconnected from your enclosure.
2. Mount the enclosure to the mounting bracket with the bracket mounting screws.



3. Align the mounting bracket horizontally to the desired position on the wall, use a marker pen to mark four mounting holes on the wall, and then remove the mounting bracket from the wall.

**Note:** The connecting lines of adjacent points are at right angles.

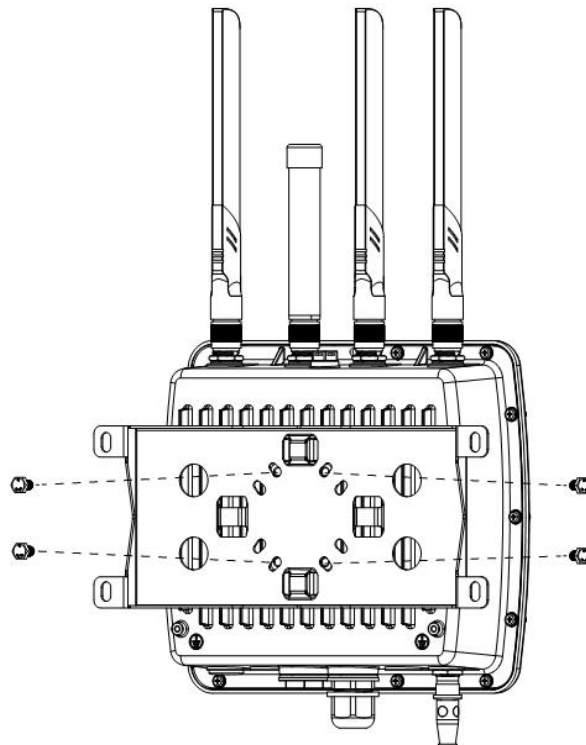
4. Drill four holes with a depth of 32 mm by using your drill with a 6 mm drill bit on the positions you marked previously on the wall.
  5. Insert four wall plugs into the holes respectively.
  6. Mount the mounting bracket horizontally to the wall by fixing the wall mounting screws into the wall plugs.
- Note:** Place the power port on the button when installing.
7. Reconnect the cables.



### 3.4.2 Pole Mounting ( Hose clamp)

Make sure you have mounting bracket, bracket mounting screws, hose clamp and other required tools.

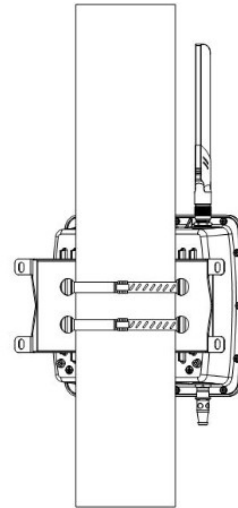
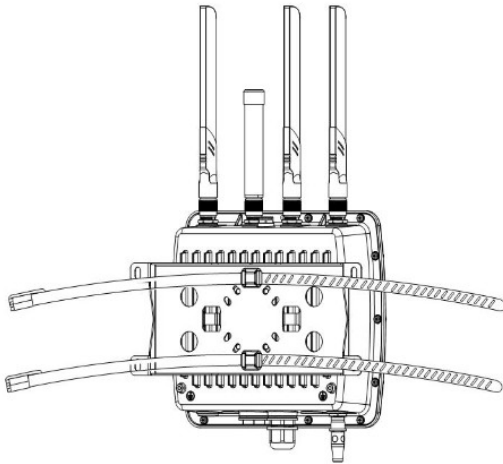
1. Before you start, make sure that your SIM card has been inserted, your antennas have been attached and that all cables have been disconnected from your enclosure.
2. Mount the enclosure to the mounting bracket with the bracket mounting screws.



3. Loosen the hose clamp by turning the locking mechanism counter-clockwise.



4. Straighten out the hose clamp and slide it through the rectangular holes in the mounting bracket, wrap the hose clamp around the pole.
5. Use a screwdriver to tighten the locking mechanism by turning it clockwise.
6. Reconnect the cables.

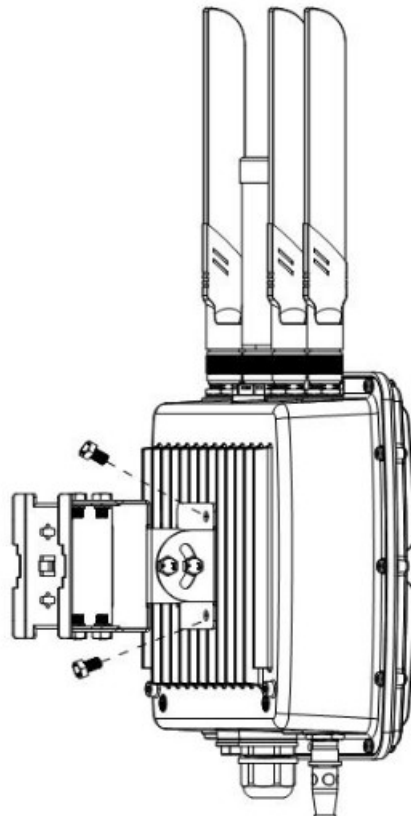


### 3.4.3 Pole Mounting (U-bolt)

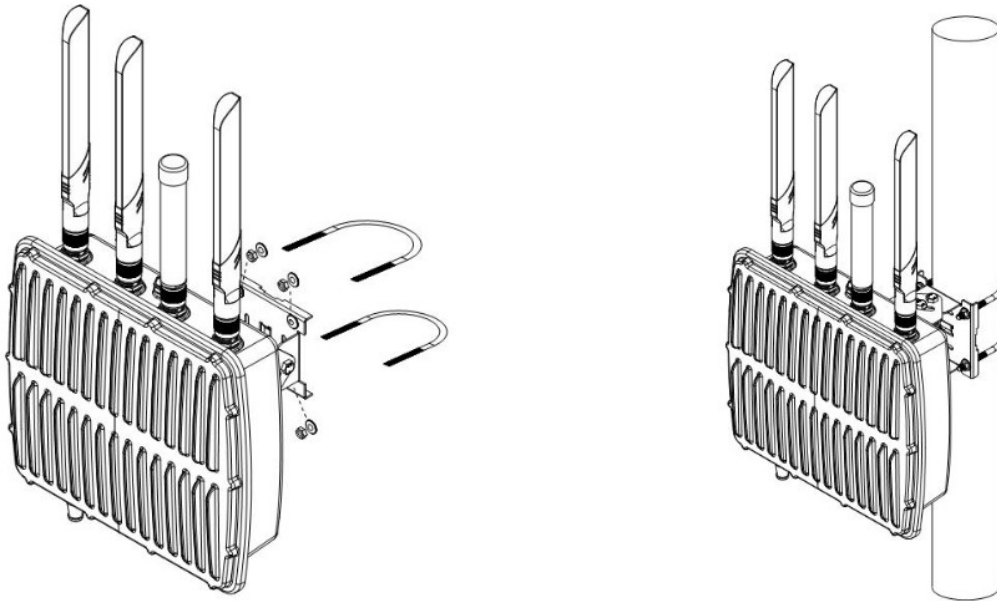
Note: Pole mounting (U-bolt) is optional.

Make sure you have mounting bracket, bracket mounting screws, hose clamp and other required tools.

1. Before you start, make sure your SIM card has been inserted, your antennas have been attached and that all cables have been disconnected from your enclosure.
2. Mount the enclosure to the mounting bracket with the bracket mounting screws.



3. Wrap the U-bolt around the pole and mount the bracket with the mounting screws.
4. Reconnect the cables.



## Access the Web GUI of UG87

Ursalink UG87 provides a web-based configuration interface for management. If this is the first time you configure the gateway, please use the default settings below:

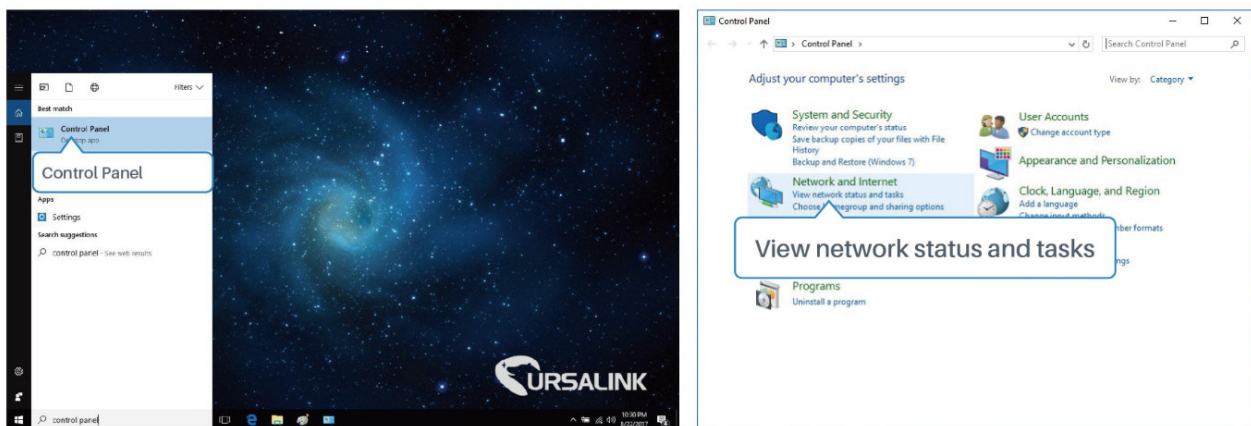
IP Address: 192.168.23.150

Username: admin

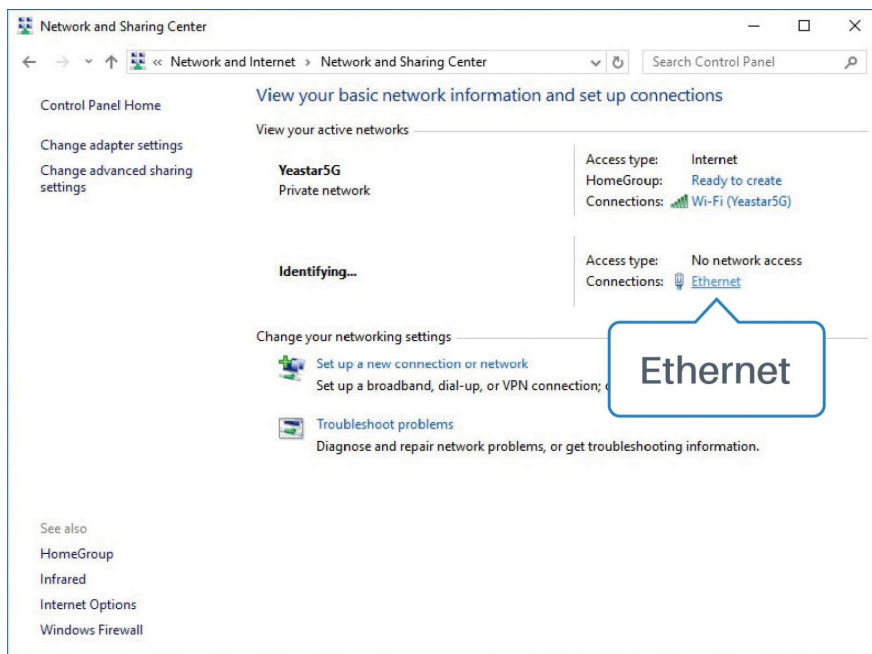
Password: password

### 4.1 PC Configuration

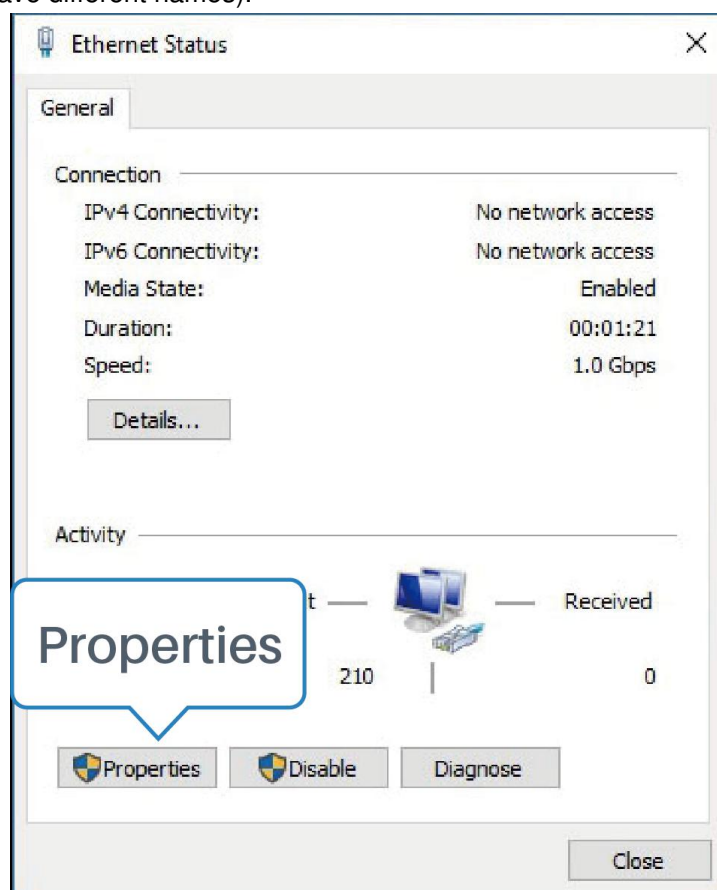
Please connect PC to Ethernet port of UG87 directly and configure a static IP address manually. The following steps are based on Windows 10 operating system for your reference.



- ① Click "Search Box" to search "Control Panel" on the Windows 10 taskbar.
- ② Click "Control Panel" to open it, and then click "View network status and tasks".

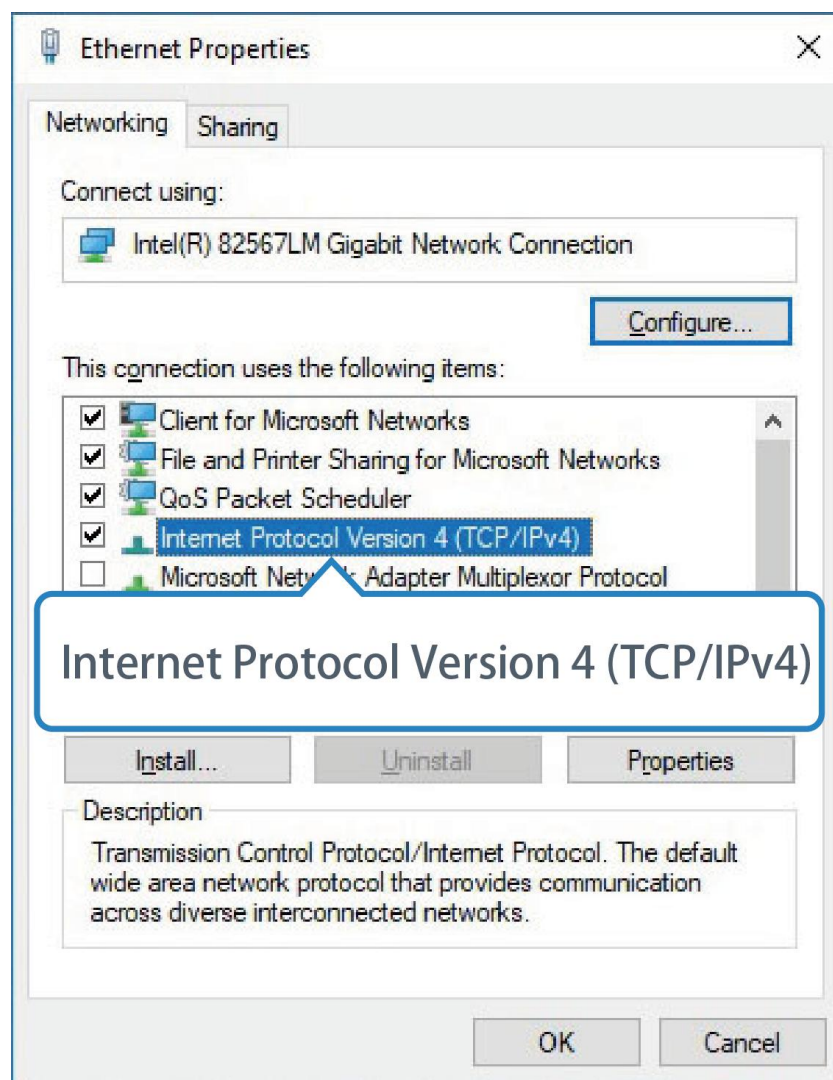


③ Click “Ethernet” (May have different names).

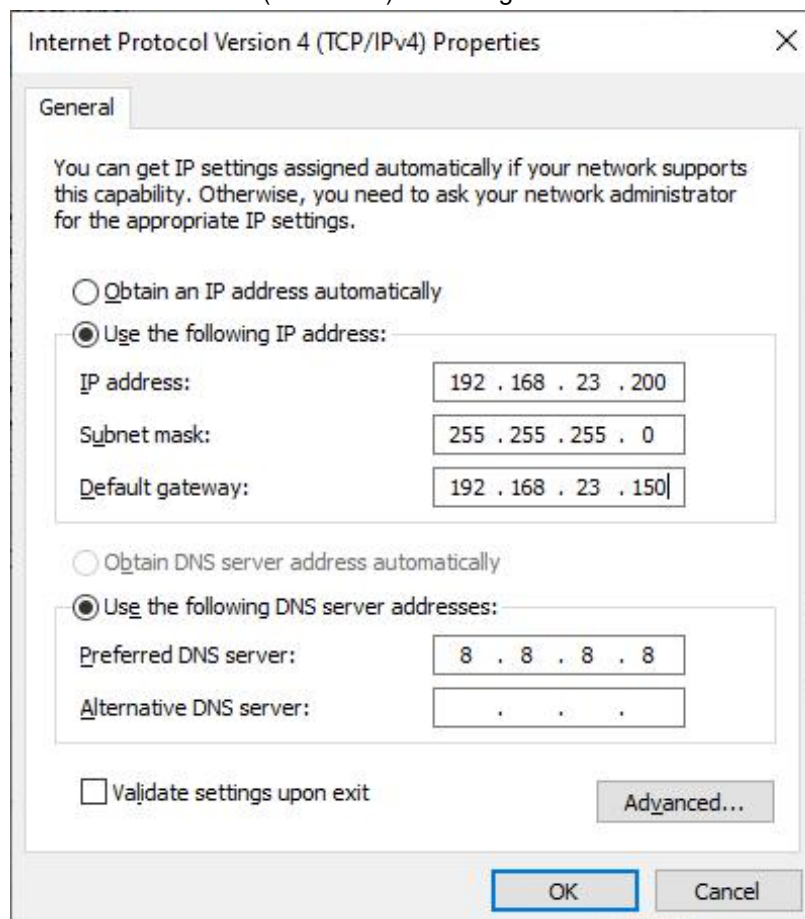


④ Click “Properties”.





⑤ Double Click “Internet Protocol Version 4 (TCP/IPv4)” to configure IP address and DNS server.



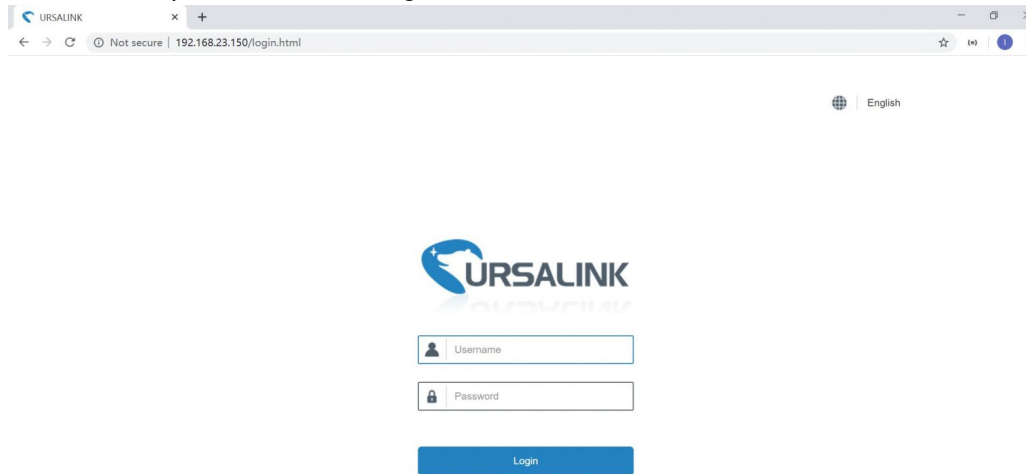
⑥ Click “Use the following IP address” to assign a static IP manually within the same subnet of the gateway.

(Note: Remember to click “OK” to finish the configuration.)

#### 4.2 Log in the Web GUI of UG87

A. Open a Web browser on your PC (Chrome and IE are recommended), type in the IP address, and press Enter on your keyboard.

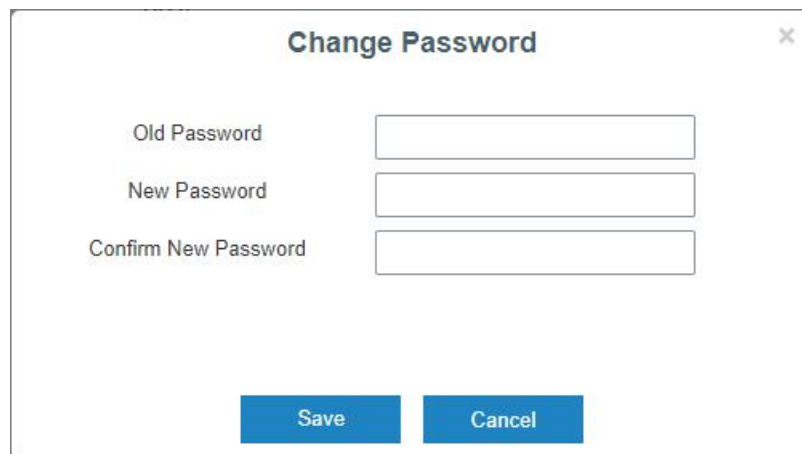
B. Enter the username and password, click “Login”.



The screenshot shows a web browser window with the address bar displaying "192.168.23.150/login.html". The page features the URSALINK logo at the top, followed by a language selector set to "English". Below the logo are two input fields: "Username" and "Password", each with a corresponding icon (a person for username and a lock for password). A blue "Login" button is positioned at the bottom of the form.

If you enter the username or password incorrectly more than 5 times, the login page will be locked for 10 minutes.

C. When you log in with the default username and password, you will be asked to change the password. It's suggested that you change the password for the sake of security. Click the “Cancel” button if you want to modify it later.



The screenshot shows a "Change Password" dialog box with a close button (X) in the top right corner. It contains three input fields: "Old Password", "New Password", and "Confirm New Password". At the bottom, there are two buttons: "Save" and "Cancel".

D. After you log in the Web GUI, you can view system information and perform configuration of the gateway.



For your device security, please change the default password

Status	Overview	Packet Forward	Cellular	Network	WLAN	VPN	Host List
Packet Forwarder	System Information						
Network Server	Model: UG87-L00E-W-G-P-US915						
Network	Serial Number: 621692435611						
System	Firmware Version: 80.0.0.64						
Maintenance	Hardware Version: V1.1						
APP	Local Time: 2020-04-28 16:57:24 Tuesday						
	Uptime: 5days,07:19:34						
	CPU Load: 25%						
	RAM (Capacity/Available): 512MB/23MB(4.49%)						
	eMMC (Capacity/Available): 3.0G/2.5G(85.82%)						
	GPS: -						
	Manual Refresh						Refresh

## 5.Connect UG87 to the Network

This chapter explains how to connect the gateway to network via WAN connection, cellular or Wi-Fi.

### 5.1 Configure the WAN Connection

- Go to “Network”→ “Interface” → “Port” page to select the connection type and configure WAN information.
- Click “Save&Apply” for configuration to take effect.

Port	Cellular	Loopback
Port_1		
Enable	<input checked="" type="checkbox"/>	
Port	GE 0	
Connection Type	Static IP	
IP Address	192.168.22.229	
Netmask	255.255.255.0	
Gateway	192.168.22.1	
MTU	1500	
Primary DNS Server	8.8.8.8	
Secondary DNS Server	114.114.114.114	
Enable NAT	<input type="checkbox"/>	
Multiple IP Address		
IP Address	Netmask	Operation
		<input type="button" value="+"/>

C. Connect Ethernet port of gateway to network devices like router or modem.

D. Log in the web GUI via the newly assigned IP address and go to “Status”→ “Network” to check Ethernet port status.

Status	Overview	Packet Forward	Cellular	Network	VPN	Host List		
Packet Forwarder	WAN							
Network Server	Port	Status	Type	IP Address	Netmask	Gateway	DNS	Duration
Network	GE 0	up	Static	192.168.22.229	255.255.255.0	192.168.22.1	8.8.8.8	03h 01m 21s

## 5.2 Configure the Cellular Connection

Take inserting SIM card into SIM1 slot as an example; please refer to the following detailed operations.

A. Go to “Network” → “Interface” → “Cellular” → “Cellular Setting” page to configure the cellular info.

B. Enable SIM1.

C. Choose relevant network type. “Auto”, “4G Only”, “3G Only” and “2G Only” are optional.

D. Click “Save” and “Apply” for configuration to take effect.

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Menu: Status, LoRaWAN, Network, Interface (1 Interface), Firewall, QoS, DHCP, DDNS, Link Failover, VPN

Tabs: Port, WAN, LAN, VLAN Trunk, Cellular (2 Cellular), Loopback


**Cellular Setting**

**SIM1**

- Enable: ☒
- Network Type: 4G First, Auto, 4G Only, 3G First, 3G Only, 2G First, 2G Only (3 "Auto" or others)
- APN:
- Username:
- Password:
- Access Number:
- PIN Code:
- Authentication Type: Auto
- Roaming: ☐
- SMS Center:

**SIM2**

- Enable: ☒
- Network Type: Auto
- APN:
- Username:
- Password:
- Access Number:
- PIN Code:
- Authentication Type: Auto
- Roaming: ☐
- SMS Center:



Apply

5 Apply

Status

LoRaWAN

Network

Interface

Firewall

QoS

DHCP

DHCP

DHCP

DDNS

Link Failover

VPN

System

Industrial

Maintenance

APP

Port
WAN
LAN
VLAN Trunk
Cellular

Cellular Setting

Enable

Network Type

APN

Username

Password

Access Number

PIN Code

Authentication Type

Roaming

SMS Center

Connection Setting

Dual SIM Strategy

Enable NAT

Restart When Dial-up failed

ICMP Server

Secondary ICMP Server

PING Times

Packet Loss Rate

SIM1

☒

Auto

Auto

☐☐

8.8.8.8

114.114.114.114

6

20

SIM2

☒

Auto

Auto

☐☐

SMS Settings


4 Save

Save

PDU

UG87 has two cellular interfaces named SIM1 & SIM2. Only one cellular interface is active at one time. If both cellular interfaces are enabled, SIM1 interface takes precedence by default.

E. Go to "Status" → "Cellular" page to view the status of the cellular connection. If it shows "Connected", it means SIM1 has dialed up successfully. On the other hand, you can check the status of L2 indicator. If it keeps on green light statically, it means SIM has dialed up successfully.



Status

LoRaWAN

Network

System

Industrial

Maintenance

APP

Overview

LoRa

Cellular

Network

VPN

Modem

Status

Ready

Model

EC25

Current SIM

SIM1

Signal Level

31asu (-51dBm)

Register Status

Registered (Home network)

IMEI

861107032321490

IMSI

460110269496240

ICCID

89860317245923922835

ISP

CHN-CT

Network Type

LTE

PLMN ID

46011

LAC

5f02

Cell ID

5fb0d34

Network

Status

Connected

IP Address

172.21.143.187

Netmask

255.255.255.248

Gateway

172.21.143.188

DNS

218.85.152.99

Connection Duration

0 days, 00:01:39

### 5.3 Configure the Wi-Fi Connection

- Go to “Network” → “Interface” → “WLAN” and select “Client” mode.
- Click “Scan” to search for Wi-Fi access point. Select the available one and click “Join Network”.

Port

WLAN

Cellular

Loopback

< GoBack

SSID	Channel	Signal	Cipher	BSSID	Security	Frequency	
Ursalink_F08A9B	Auto	-76dBm	Auto	24:e1:24:f0:8a:9b	No Encryption	2412MHz	Join Network
Ursalink_F03D6D	Auto	-75dBm	Auto	24:e1:24:f0:3d:6d	No Encryption	2412MHz	Join Network
Ursalink_EEFF89	Auto	-73dBm	Auto	24:cc:dd:ee:ff:89	No Encryption	2412MHz	Join Network
+4413133	Auto	-77dBm	AES	24:e1:24:f0:32:1b	WPA-PSK/WPA2-PSK	2412MHz	Join Network
AABB	Auto	-75dBm	AES	24:e1:24:f0:32:1b	WPA-PSK/WPA2-PSK	2412MHz	Join Network
Redmi	Auto	-75dBm	AES	2a:56:e4:fe:2b:b2	WPA2-PSK	2412MHz	Join Network
Ursalink_Tec	Auto	-73dBm	AES	24:e1:24:f0:2c:4b	WPA-PSK/WPA2-PSK	2452MHz	Join

- Type the correct key of Wi-Fi.

Port	WLAN	Cellular	Loopback
<b>WLAN</b>			
Enable	<input checked="" type="checkbox"/>		
Work Mode	Client		Scan
SSID	Ursalink_TechnologyCenter		
BSSID	24:e1:24:f0:01:1a		
Encryption Mode	WPA-PSK/WPA2-PSK		
Cipher	AES		
Key	.....		
<b>IP Setting</b>			
Protocol	DHCP Client		

D. Go to “Status”→“WLAN” to check Wi-Fi status. If it shows “Connected”, it means gateway connects to Wi-Fi successfully.

Overview	Packet Forward	Cellular	Network	WLAN
<b>WLAN Status</b>				
Wireless Status	Enabled			
MAC Address	24:e1:24:f0:27:d6			
Interface Type	Client			
SSID	Ursalink_TechnologyCenter			
Channel	Auto			
Encryption Type	WPA-PSK/WPA2-PSK			
Cipher	AES			
Status	Connected			
IP Address	0.0.0.0			
Netmask	0.0.0.0			
Connection Duration	0 days, 00:00:01			

## Packet Forwarder Configuration

UG87 has embedded multiple packet forwarders like TTN, Lorient and chip stack. This chapter explains how to connect the gateway to third-party network servers.



Make sure the gateway connects to the network as shown in Chapter 5.

A. Go to “Packet Forwarder” → “General” page and click to add a network server.

B. Fill in the server information and enable this server.

Note: When you select one of TTN, Lorient or chirpstack, other servers are not allowed to enable.

Enable

☒

Type

Semtech

Server Address

router.eu.thethings.network

Port Up

1700

Port Down

1700

Save

C. Go to “Radios” page to configure the center frequency and channels.

**Note:** the channel plan of the gateway and network server need to be the same.

General Radios Advanced Custom Traffic

Radio Channel Setting

Supported Frequency AU915

Name	Center Frequency/MHz
Radio 0	917.0
Radio 1	917.8

Multi Channels Setting

Enable	Index	Radio	Frequency/MHz
<input checked="" type="checkbox"/>	0	Radio 0	916.8
<input checked="" type="checkbox"/>	1	Radio 0	917.0
<input checked="" type="checkbox"/>	2	Radio 0	917.2
<input checked="" type="checkbox"/>	3	Radio 0	917.4
<input checked="" type="checkbox"/>	4	Radio 1	917.6
<input checked="" type="checkbox"/>	5	Radio 1	917.8
<input checked="" type="checkbox"/>	6	Radio 1	918.0
<input checked="" type="checkbox"/>	7	Radio 1	918.2

D. Add the gateway in network server page. Take TTN for example, type and save the gateway EUI and other information when you connect via Semtech packet forwarder. After you add the gateway, TTN will show connection status.

Gateways > Register

REGISTER GATEWAY

Gateway EUI

The EUI of the gateway as read from the LoRa module

24 E1 24 FF FE 9

6 bytes

☒ I'm using the legacy packet forwarder  
Select this if you are using the legacy [Semtech packet forwarder](#).

Description


A human-readable description of the gateway

Frequency Plan

The [frequency plan](#) this gateway will use

Australia 915MHz

E. Go to “Traffic” page to view the data communication of UG87.



admin
?

Status

LoRaWAN

Packet Forwarder

Network Server

Network

System

Industrial

Maintenance

APP

General

Radios

Advanced

Custom

Traffic

Stop Clear

Rfch	Direction	Time	Ticks	Frequency	Datarate	Coderate	RSSI	SNR
1	up	-	2422567628	922.6	SF7BW125	4/7	-86	-11.5
1	up	-	2027425380	923.0	SF7BW125	4/6	-87	-10.8
1	up	-	1906152459	922.2	SF7BW125	OFF	-89	-11.8
0	up	-	1896642603	923.6	SF7BW125	4/6	-89	-12.0
0	up	-	1833066556	923.8	SF7BW250	4/5	-86	-12.0
0	up	-	1793222443	923.4	SF7BW125	4/8	-85	-11.2
0	up	-	1768923067	923.2	SF7BW125	4/5	-89	-11.8
1	up	-	1736475188	922.8	SF8BW125	4/8	-86	-14.0
1	up	-	1504937860	923.0	SF7BW125	4/5	-87	-11.5

## Network Server Configuration

UG87 can work as network server and transmit data to Ursalink Cloud or other platform via MQTT/HTTP/HTTPS.



Make sure the gateway connects to the network as shown in Chapter 5.

### 7.1 Connect UG87 to Ursalink Cloud

A. Go to "Packet Forwarder" → "General" page to enable the "Ursalink" type server.

Status

Packet Forwarder

Network Server

Network

System

Maintenance

APP

General

Radios

Advanced

Custom

Traffic

General Setting

Gateway EUI: 24E124FFFF00000000  
Gateway ID:   
Frequency-Sync: Disabled

Multi-Destination

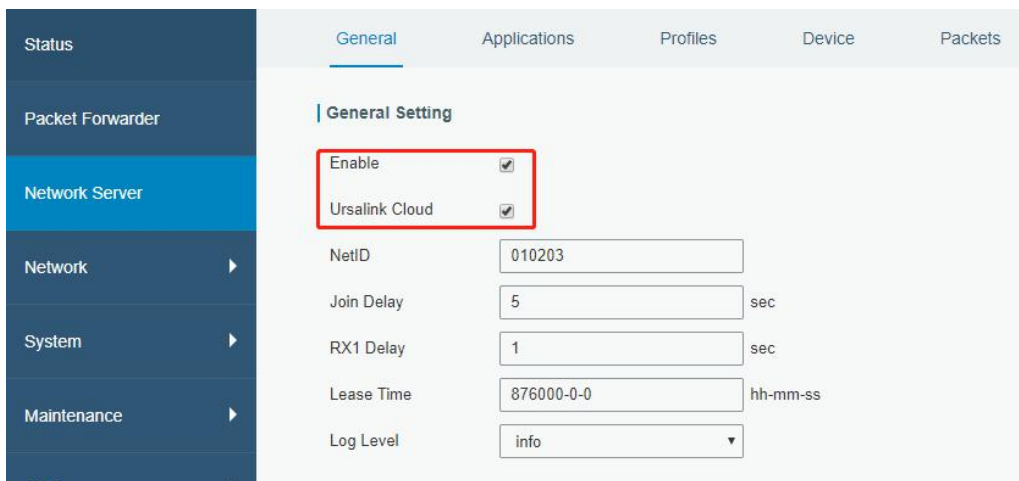
ID	Enable	Type	Server Address	Operation
0	Enabled	Ursalink	localhost	<span>✎</span> <span>✕</span>
<span>+</span>				

Save & Apply

Note: the channel plan of the gateway and network server need to be the same.

B. Go to "Network Server" → "General" page to enable the network server and Ursalink Cloud mode.





**General Setting**

Enable ☒

Ursalink Cloud ☒

NetID: 010203

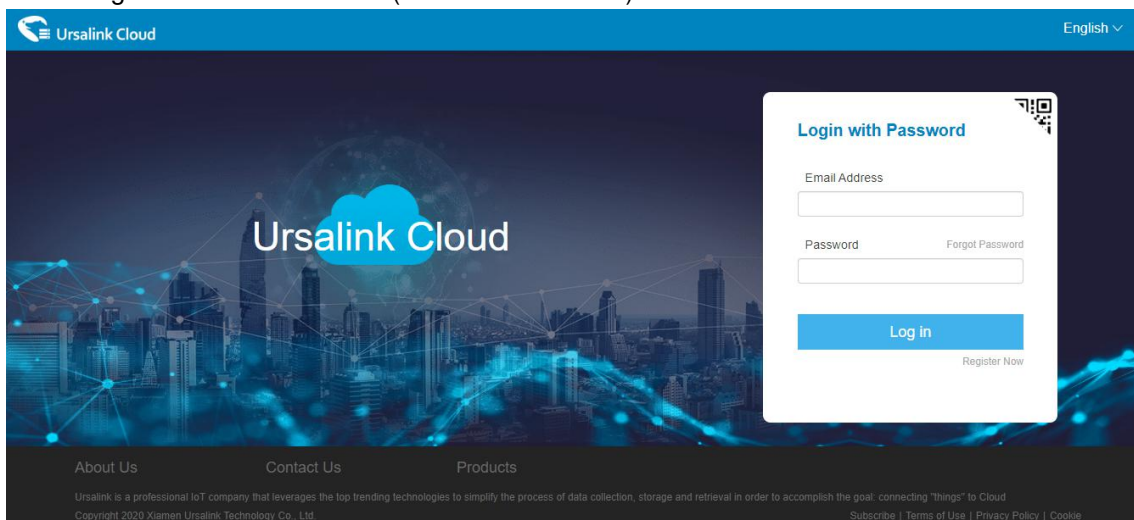
Join Delay: 5 sec

RX1 Delay: 1 sec

Lease Time: 876000-0-0 hh-mm-ss

Log Level: info

C. Register and log in the Ursalink Cloud (cloud.ursalink.com).



Ursalink Cloud

English

**Login with Password**

Email Address

Password [Forgot Password](#)

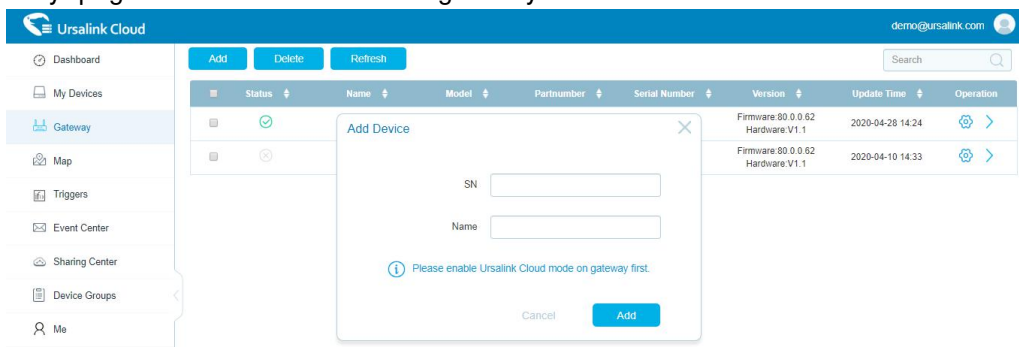
**Log In**

[Register Now](#)

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D. Go to "Gateway" page and click "Add" to add a gateway.



Ursalink Cloud

demo@ursalink.com

**Add** **Delete** **Refresh**

Search

Status	Name	Model	Partnumber	Serial Number	Version	Update Time	Operation
					Firmware 80.0.0.62 Hardware V1.1	2020-04-28 14:24	
					Firmware 80.0.0.62 Hardware V1.1	2020-04-10 14:33	

**Add Device**

SN

Name

Please enable Ursalink Cloud mode on gateway first.

**Cancel** **Add**

E. The gateway is online on Ursalink Cloud.



Ursalink Cloud

demo@ursalink.com

**Add** **Delete** **Refresh**

Search

Status	Name	Model	Partnumber	Serial Number	Version	Update Time	Operation
	231	UG85-L00E-EU868	L00E-EU868	621790	Firmware 80.0.0.62 Hardware V1.1	2020-04-28 14:24	
	23	UG85-L01CE-CN470	L01CE-CN470	621790	Firmware 80.0.0.62 Hardware V1.1	2020-04-10 14:33	

## 7.2 Connect UG87 to Other Platform

A. Go to "Packet Forwarder" → "General" page to enable the "Ursalink" type server.



**General Setting**

Gateway EUI: 24E124FFFF

Gateway ID: 24E124FF

Frequency-Sync: Disabled

Multi-Destination

ID	Enable	Type	Server Address	Operation
0	Enabled	Ursalink	localhost	

**Save & Apply**

A. Go to “Radios” page to configure the center frequency and channels.

**Note:** the channel plan of the nodes and gateway need to be the same.

**Radio Channel Setting**

Supported Frequency: AU915

Name	Center Frequency/MHz
Radio 0	917.0
Radio 1	917.8

**Multi Channels Setting**

Enable	Index	Radio	Frequency/MHz
<input checked="" type="checkbox"/>	0	Radio 0	916.8
<input checked="" type="checkbox"/>	1	Radio 0	917.0
<input checked="" type="checkbox"/>	2	Radio 0	917.2
<input checked="" type="checkbox"/>	3	Radio 0	917.4
<input checked="" type="checkbox"/>	4	Radio 1	917.6
<input checked="" type="checkbox"/>	5	Radio 1	917.8
<input checked="" type="checkbox"/>	6	Radio 1	918.0
<input checked="" type="checkbox"/>	7	Radio 1	918.2

B. Go to “Network Server” → “General” page to enable the network server mode.

**General Setting**

Enable ☒

Ursalink Cloud ☐

NetID: 010203

Join Delay: 5 sec

RX1 Delay: 1 sec

Lease Time: 876000-0-0 hh-mm-ss

Log Level: info

C. Go to “Network Server”→”Application” to add a new application.

Status	General	Applications	Profiles	Device	Packets
Packet Forwarder					
Network Server					
Network					

**Applications**

Name	cloud
Description	cloud
Payload Codec	None

After saving the application, select HTTP, HTTPS or MQTT protocol and fill in correspond server information to send data to another server.

**Data Transmission**






Type	MQTT
Status	MQTT

**General**

Broker Address	
Broker Port	
Client ID	
Connection Timeout/s	30
Keep Alive Interval/s	60

D. Go to "Profiles" page to add a new profile for the device.

General	Applications	Profiles	Device	Packets
<b>Device Profiles</b>				
Name	ClassA-OTAA			
Max TXPower	0			
Join Type	OTAA			
Class Type	Class A			
Advanced	<input type="checkbox"/>			
<input type="button" value="Save"/>		<input type="button" value="Cancel"/>		

General	Applications	Profiles	Device	Packets
<b>Device Profiles</b>				
Name	Max TXPower	Join Type	Class Type	Operation
ClassA-OTAA	0	OTAA	Class A	 
ClassC-OTAA	0	OTAA	Class C	 
				

E. Go to “Device” page and click “Add” to add LoRaWAN node devices.

The screenshot shows the 'Device' management page with tabs for General, Applications, Profiles, Device, and Packets. The 'Device' tab is active. Below the tabs, there are three buttons: 'Add' (highlighted with a red box), 'Bulk Import', and 'Delete All'. A search bar is also present. Below these buttons is a table with columns: Device Name, Device EUI, Device-Profile, Application, Last Seen, Activated, and Operation. The table currently shows 'No matching records found'.

The modal form for adding a new device contains the following fields:

- Device Name: uc11
- Description: a short description of your node
- Device EUI: 0000000000000000
- Device-Profile: ClassA-OTAA
- Application: cloud
- Frame-counter Validation: ☐
- Application Key:
- Device Address:
- Network Session Key:
- Application Session Key:
- Uplink Frame-counter: 0
- Downlink Frame-counter: 0

A 'Save & Apply' button is located at the bottom of the modal.

You can also click “Bulk Import” if many LoRaWAN nodes need to add.

The 'Bulk Import' modal form contains the following elements:

- Import File:
- Browse:
- Import:
- Template Download:

Click “Template Download” to download template file and add LoRaWAN device information to this file. Application and device profile should be the same as you created in web page.

The screenshot shows a spreadsheet application with a table containing device information. The table has columns A through I. Row 1 contains headers: name, description, deveui, application, deviceprofile, appkey, devaddr, appskey, and nwkskey. Row 2 contains data: 24e1242191323266, 24e1242191323266, cloud, ClassC-OTAA, 112233445566778899aa112233445566, and empty cells for the last three columns. Row 3 is empty.

	A	B	C	D	E	F	G	H	I
1	name	description	deveui	application	deviceprofile	appkey	devaddr	appskey	nwkskey
2	24e1242191323266	24e1242191323266	cloud	ClassC-OTAA	112233445566778899aa112233445566				
3									

Import this file to add bulks of devices.

F. Go to “Packets” page to check the packets from LoRaWAN node devices. The type starts from “Up” means uplinks and “Dn” means downlinks.

The screenshot shows the 'Packets' page of a web application. It has tabs for General, Applications, Profiles, Device, and Packets. The 'Send Data To Device' section has input fields for Device EUI (0000000000000000), Type (ASCII), Payload, Port, and a Confirmed checkbox. Below this is a 'Send' button. The 'Network Server' section has a 'Clear' button and a search bar. At the bottom is a table with packet details.

Device EUI	Frequency	Datarate	SNR	RSSI	Size	Fcnt	Type	Time	Details
24e124126a146579	868300000	SF7BW125	8.5	-85	4	14	UpUnc	2020-04-28T15:09:25+08:00	!
24e124126a146579	868300000	SF7BW125	10.2	-75	4	13	UpUnc	2020-04-28T15:04:25+08:00	!


Click “Details” to check the properties and payload contents of packets.

Packets Details

Fcnt	14
Port	85
Modulation	LORA
Bandwidth	125
SpreadFactor	7
Bitrate	0
CodeRate	4/5
SNR	8.5
RSSI	-85
Power	-
Payload(b64)	A3cYAA==
Payload(hex)	03771800
MIC	f5acdeb2

[www.ursalink.com](http://www.ursalink.com)

## Documents / Resources

	<p><a href="#">URSALINK LoRaWAN Gateway Quick Start Guide</a> [pdf] URSALINK, LoRaWAN Gateway, UG87</p>
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## References

- [Milesight IoT Cloud](#)
- [Ursalink Technology - We Connect Things to Cloud](#)