

ecowitt®



4G & Wi-Fi Weather Station Mobile Gateway

Model: WS6210



<https://s.ecowitt.com/D33XUA>

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1. Brief Introduction

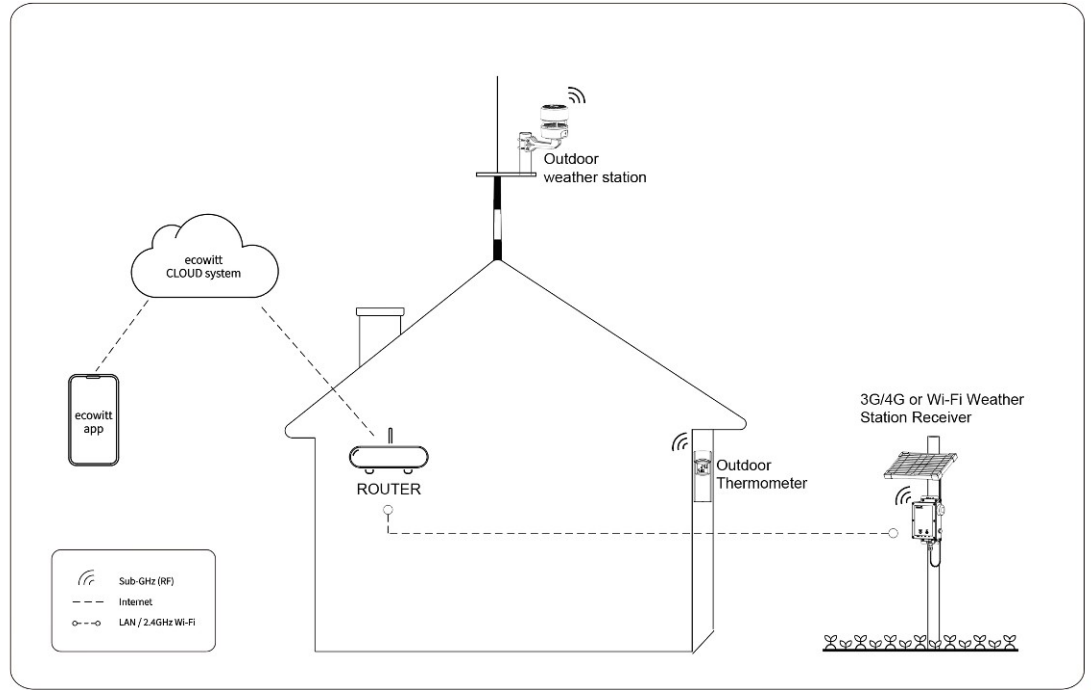


Figure 1

Thank you for your purchase of the Ecowitt WS6210 weather station mobile receiver. The WS6210 is a versatile wireless communication device, supporting various wireless communication protocols. It is suitable for meteorological data collection and transmission. The product supports Wi-Fi and 4G network connections, capable of receiving and processing multiple sensor data types.

Just so you know, the WS6210 needs to be used with optional sensors to obtain outdoor weather data and is not a standalone product.

The following user guide provides step-by-step instructions for installation and operation. Use this manual to become familiar with your professional weather station and save it for future reference.

2. Instructions for Use

2.1 Multiple Views and Size

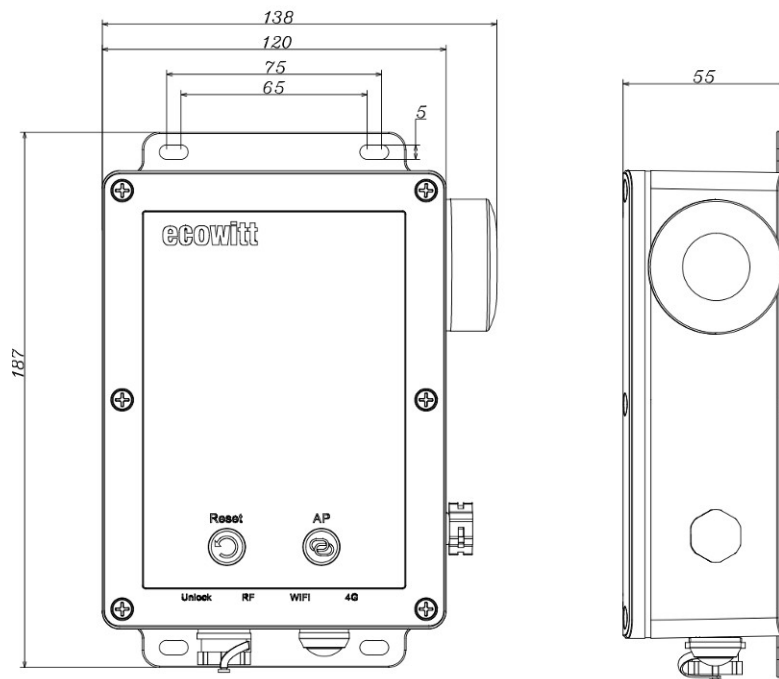


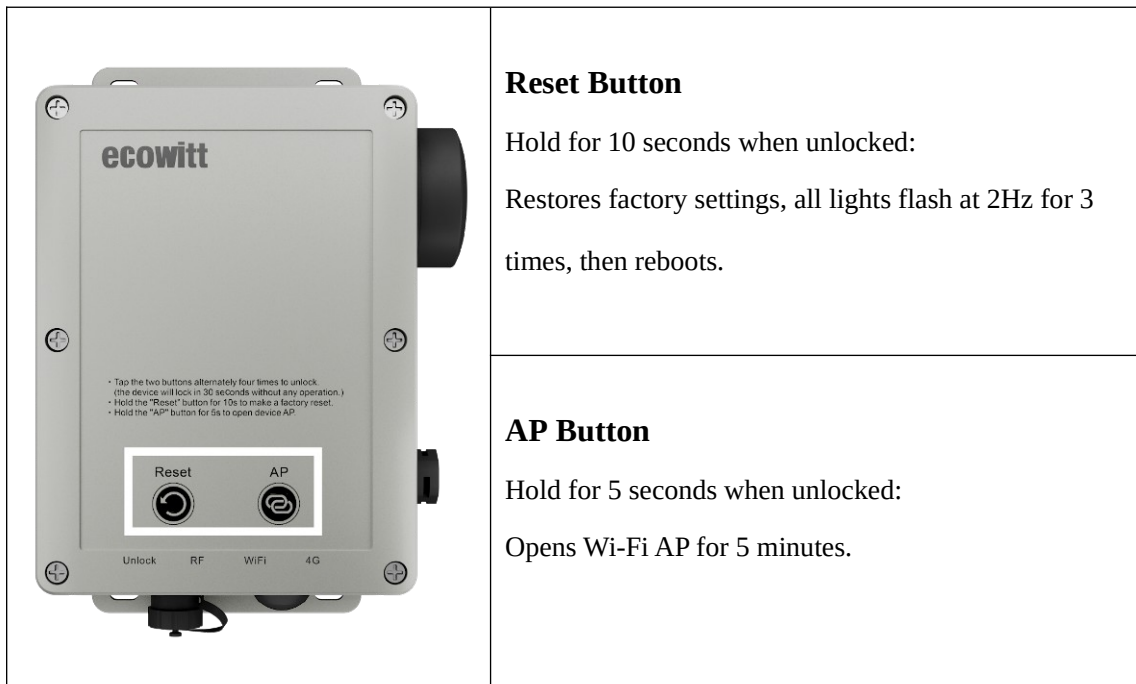
Figure 2

2.2 Physical button



2.3 Touch Button Functions

The device has two touch buttons. Reset Button and AP Button.



*Tap **Reset & AP** Button alternatively 4 times (tap interval < 1.5s) to unlock the device.

Table 1

2.4 Indicators of the 4 Lights

The 4 lights are on the bottom of WS6210.



Light	Indicators
Unlock	<ul style="list-style-type: none"> • Flash: Once when pressed once in locked state • Off: Locked. • On: Unlocked.
RF	<ul style="list-style-type: none"> • Flashes regularly(Once every 5 seconds): Under normal operations . • Flashes : Once each time data reception
WiFi	<ul style="list-style-type: none"> • Continuous blinking (on for 100ms, off for 100ms): Within the first 3 minutes after power on; or when AP is opened by pressing the button. • Off: No Wi-Fi connected. • Fast blinking (on for 100ms, off for 100ms): Connecting to the router. • Slow blinking (on for 1s, off for 1s): Wi-Fi connected

	<p>successfully, but no internet access.</p> <ul style="list-style-type: none"> • Steady on: Wi-Fi connected successfully and internet access available.
4G	<ul style="list-style-type: none"> • Off: Module is not recognized. • Flashes quickly: Module is recognized. • Blinks slowly (1 second on, 1 second off): when registering with the network. • Flashes once every 5 seconds: Successful network connection.

Table 2

3. Installation

3.1 Package list

QTY	Item
1	WS6210 (4G & Wi-Fi Weather Station Mobile Gateway)
1	Solar Panel
8	AA rechargeable NiMH batteries (built-in)
1	Nano-SIM card (built-in)
1	Micro SD card 8G (built-in)
1	Galvanized Bracket
3	Stainless Steel Loop
2	Hose Clamp Brackets
4	M5*8 Screws
1	SD13 to USB Data Cable
1	User Manual
1	Quick Start

Table 3 Package list

3.2 4G Network configuration

3.2.1 Power on

3.2.1.1 Charging

Charge the WS6210 for 10 hours using the included USB cable and test the device to ensure it functions correctly.

*** Replacing the batteries is not recommended unless necessary. If replacement is required, use batteries of the same brand and voltage.**

3.2.1.2 Powering on

Press the physical power button to power on. WS6210 automatically locks after 30 seconds of inactivity. Tap Reset and AP Button alternatively for 4 times to unlock the device. Unlock light will turn on when unlocked.

3.2.2 Activate the SIM card and Data Uploading

3.2.2.1 SIM card Introduction

For supported countries and regions, a free SIM card with 100MB/month data is provided to use for three months for free. Users in unsupported regions can contact us separately or purchase a SIM card on your own. Supported countries and regions can be referred in the Table 2.

Country/Region	Operator
Albania	Vodafone
UAE	Etisalat
Australia	Vodafone
Austria	H3G
Canada	Rogers
Chile	Entel
China	ChinaMobile/Unicom
CongoDR	Vodafone
Czech Republic	Vodafone

Germany	Vodafone
Spain	Vodafone
France	Bouygues Telecom/Orange
United Kingdom	H3G/Vodafone
Denmark	H3G
Sweden	H3G
Ghana	Vodafone
Greece	Vodafone
Hong Kong	H3G
Hungary	Vodafone
Indonesia	Indosat
Ireland	H3G/Vodafone
Israel	Partner/Pelephone
Italy	H3G/Vodafone
Japan	KDDI AU
Cambodia	Smart
South Korea	SKTelecom
Lesotho	Vodafone
Macau	H3G
Malta	Vodafone
Myanmar	MPT
Mozambique	Vodafone
Malaysia	Celcom/Mi3G-UMobile
Netherlands	Vodafone
New Zealand	Vodafone
Philippines	Smart
Portugal	Vodafone
Romania	Vodafone
Russian Federation	MTS
Saudi Arabia	STC
Singapore	Starhub
Thailand	AIS/Truemove
Turkey	Vodafone-Telsim
Taiwan	CHT/FET
Tanzania	Vodafone
USA	AT&T/T-Mobile
Vitenam	Vitenam Mobile
South Africa	Vodafone
Brazil	Telefonica

Table 4 Regions where the built-in SIM card is available

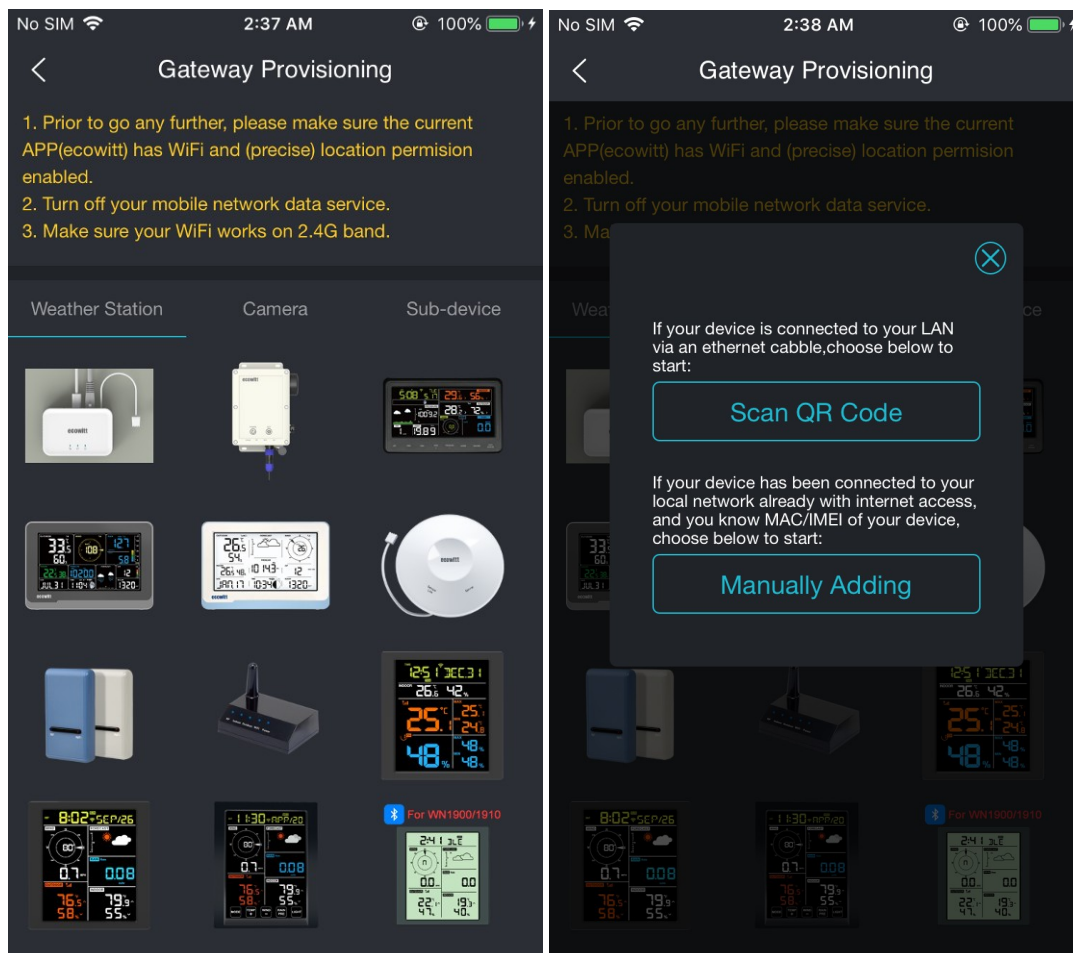
3.2.2.2 Activate the SIM card.

3.2.2.2.1 Add the WS6210 to the Ecowitt APP

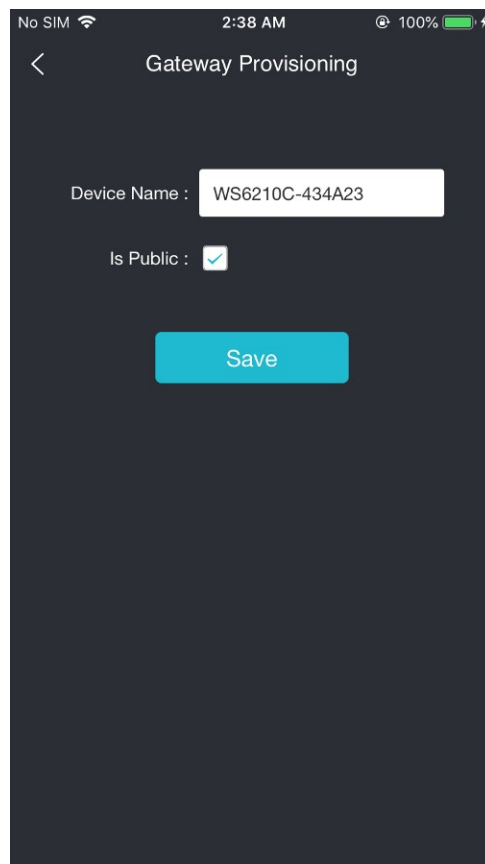
There are two methods to add WS6210 to the app:

1. Adding by Scanning QR Code in the App

- a. Open the Ecowitt APP and click the menu on the left-top corner of the main interface.
- b. Choose "My Devices" and then click "Add New Devices" at the bottom of the interface.
- c. Choose the WS6210's icon, and then click "Scan QR Code" to scan the QR code on the back of the WS6210. Follow the instructions listed, and you can activate the SIM card (refer to 3.2.2.2) and have the device to be added to your account. If your sim card is not from the original attached one but a third party, then the sim card activation is not working; you need to set the APN setting separately.



d. You can edit the device's name and then save.

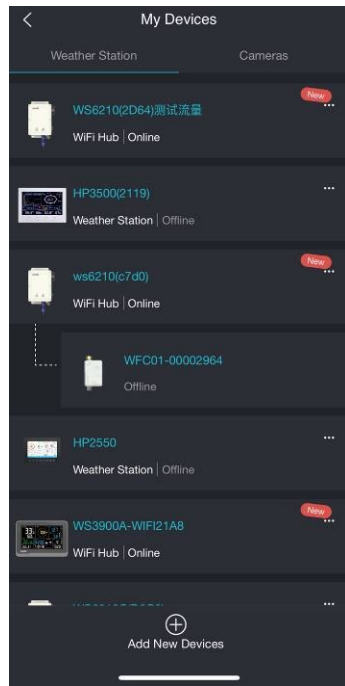
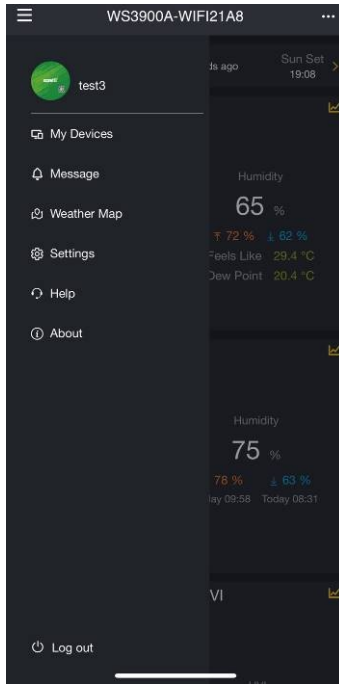


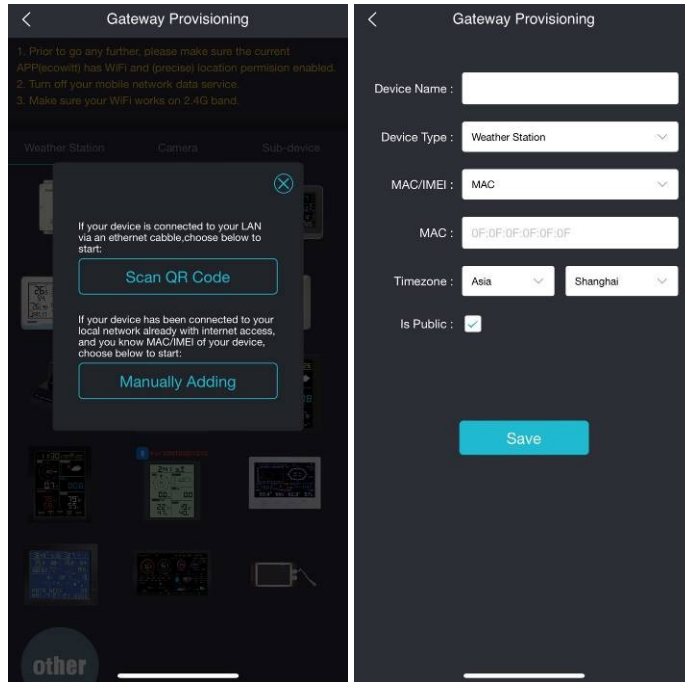
2. Manually Enter MAC Address in the App

a. Obtaining MAC Address

The MAC address can be found on the label of the device or via Embedded Web Page.

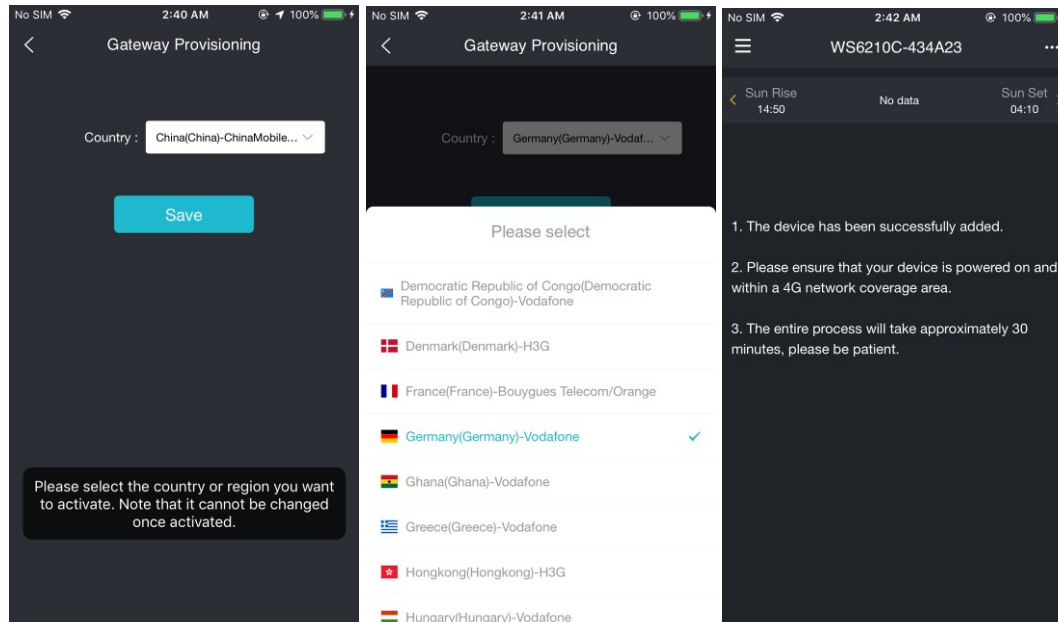
b. Manually Enter the MAC Address





3.2.2.2.2. Activate the SIM Card:

During the QR code scanning setup process, it will first activate the sim card with the device. Please follow the APP's instructions to select your country and apply save to activate the SIM card in your region.



3.3 Using Wi-Fi Network for Upload

Using the WiFi configuration method consumes a lot of power and requires an external power source to operate. It is only suitable for certain indoor use scenarios.

3.3.1 Turn on the WS6210's AP

Hold AP Button for 5 seconds when unlocked will turn on its Wi-Fi AP for 5 minutes.

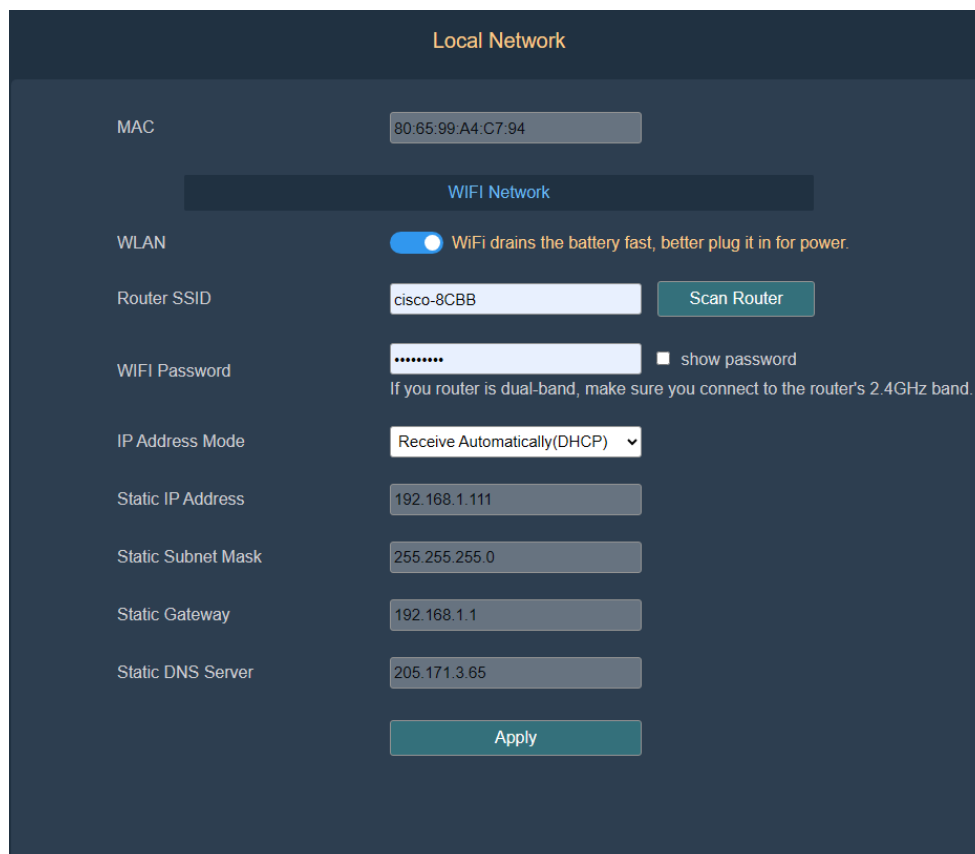
3.3.2 Connect to WS6210's AP.

Connect to WS6210's AP.

3.3.3 Access the configuration web page.

Enter 192.168.4.1 in the browser.

3.3.4 Configure the device's Wi-Fi settings.



The screenshot displays the 'Local Network' configuration interface. At the top, the MAC address is 80:65:99:A4:C7:94. Below this is the 'WIFI Network' section, which is currently active. The WLAN toggle is turned on, with a note: 'WiFi drains the battery fast, better plug it in for power.' The Router SSID is set to 'cisco-8CBB', and there is a 'Scan Router' button. The WiFi Password is masked with dots, and there is a 'show password' checkbox. A note below the password field states: 'If you router is dual-band, make sure you connect to the router's 2.4GHz band.' The IP Address Mode is set to 'Receive Automatically(DHCP)'. Below this, several static IP settings are provided: Static IP Address (192.168.1.111), Static Subnet Mask (255.255.255.0), Static Gateway (192.168.1.1), and Static DNS Server (205.171.3.65). An 'Apply' button is located at the bottom of the configuration area.

Figure 3

3.4 Device Location, Time zone, DST, and Data Public

After completing the Network configuration, follow these steps for Device location, Time zone, DST (Daylight Saving Time), and Data public settings.

1. Click on "My Devices".
2. Click on the "..." icon.
3. Set the Device's location and Time zone on this interface. Tick "Auto DST" and "Is Public" when necessary.
4. Click "Save", then reboot the WS6210 device, the WS6210 will automatically synchronize time and DST.

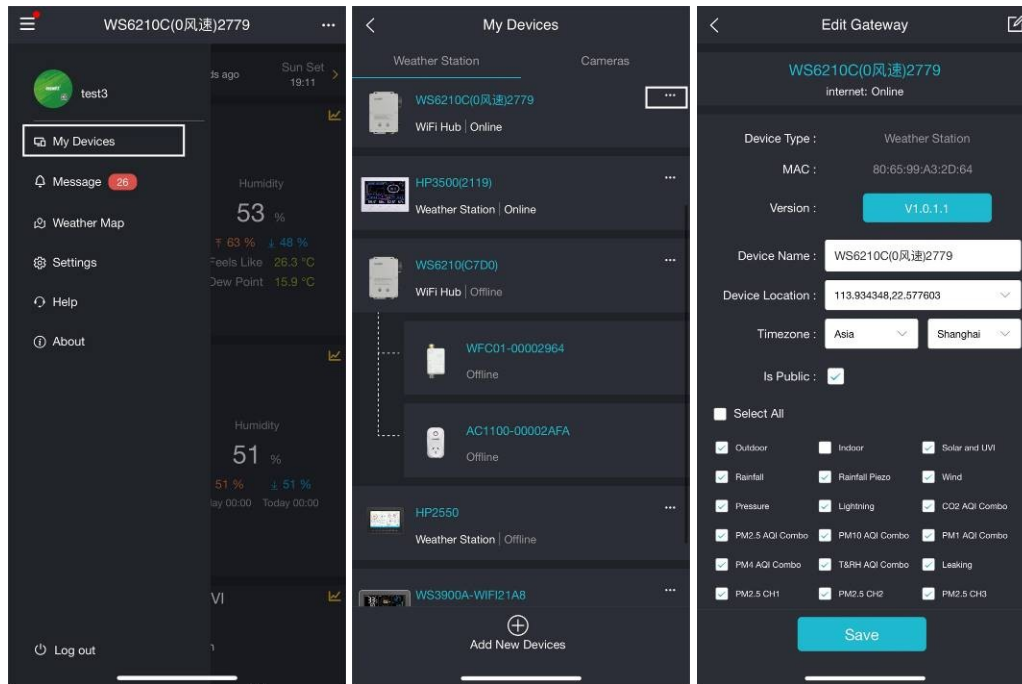


Figure 4 Related settings via Ecovitt App

3.5 Mounting the WS6210

Before installation, please ensure that the product turns on and off properly and that all package accessories are included.

3.5.1 Mount

Prepare a support pole with a diameter of 1.8-2.75 inches (45.72mm-69.85mm) in an open field with adequate lighting. Ensure that the 4G cell phone signal in the outdoor environment is sufficiently strong.

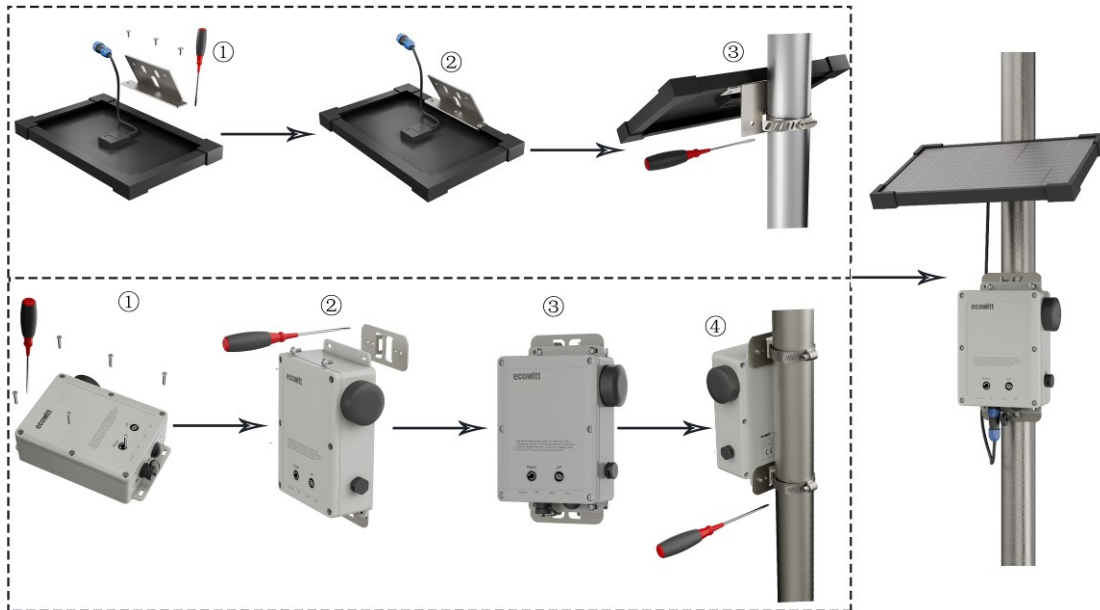


Figure 5

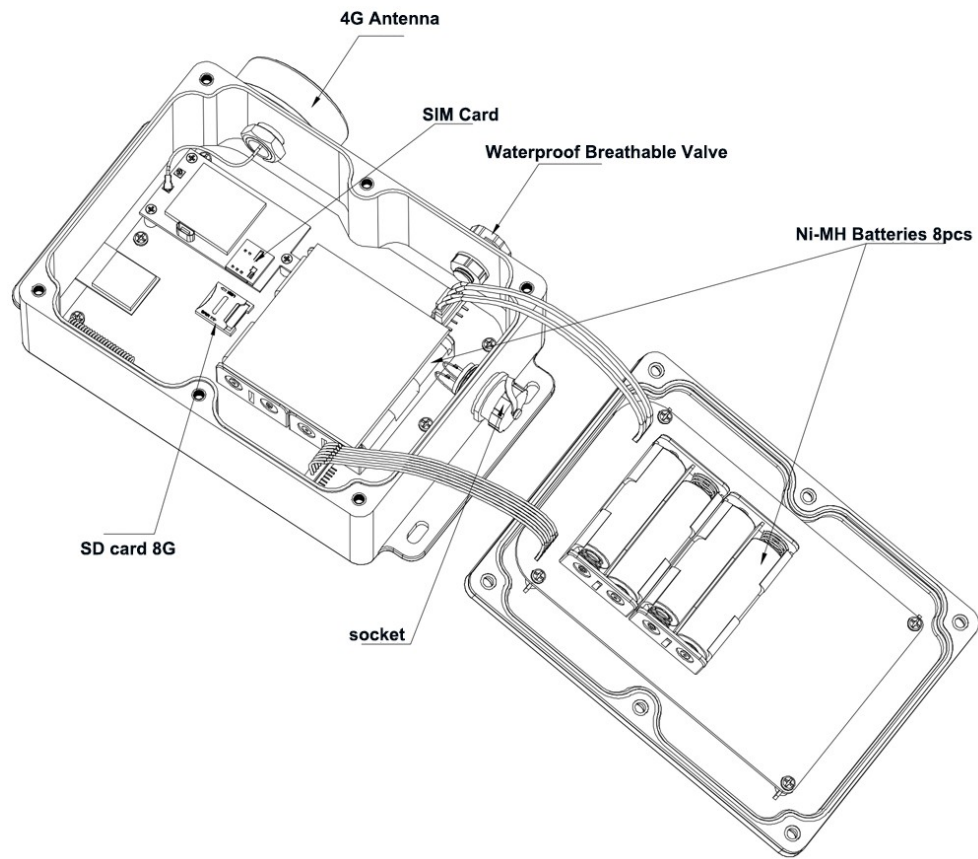
3.5.2 SIM Card Availability Confirmation

Ensure the SIM card is compatible with the operating service provider in your country.

3.5.3 Replacing the SD/SIM Card (when necessary)

1. Locate the SD/SIM Card Slot

Use a Phillips screwdriver to open the device casing as directed in the manual or as shown in the picture.



A newer drawing will be replacing this one##

Figure 6

2. Access the SD/SIM Card Slot

Gently press down on the cover in the direction of the opening and carefully pry it open using a tool such as a fingernail.

3. Install the SD/SIM Card

After opening the SD/SIM card slot cover, insert the SD/SIM card into the slot in the correct direction with the metal contact side facing down. Ensure the SD/SIM card aligns with the metal contact points in the slot. If the card feels stuck or cannot be inserted, check that it is oriented correctly.

4. Close the SD/SIM Card Slot Cover

Push gently in the direction of the cover closing to close the cover. If the cover does not close tightly, the SD/SIM card may have been placed incorrectly, or there might be an issue with the card slot.

5. Verify Proper Installation

After completing the installation, ensure the SD/SIM card is functioning correctly. When removing the SD/SIM card, follow the correct steps to avoid damaging the card or slot.

6. Secure the Device Casing

Finally, secure the plastic shell with all.

3.6 Adding Sensors

To pair the optional sensors (refer to **Section 5 Optional Sensors** for more optional sensors) with the WS6210, please do as follows:

Note: After completing the above Network configuration and related settings, the WS6210 screen will display a stable Wi-Fi signal tower, auto time zone, and DST (when necessary).

Power the sensor on and place it next to the console.

Wait for 1~2 minutes, check whether the console will pick up the sensor data automatically and display it on the screen or App.

If data is not received from a registered sensor, the RF icon will decrease the signal by one frame; if data is received, the RF icon will increase the signal by one frame.

If data is not received, try the following:

***The calibration operation can only be performed when the device is in WiFi network mode or via 192.168.4.1.**

3.6.1 In Wi-Fi network mode

After making sure the phone and WS6210 are connected to the same Wi-Fi network, open the Ecowitt App → Sensor ID → enter the Sensor Management page.

In the Sensor Management page, find the sensor you want to pair, select the ID number box and register it.

Once successful, you may return to the main interface to check the data.

If you know exactly the sensor ID, and want the WS6210 to pair that sensor only, you may enter

the sensor ID, and save the change to make it effective.

4. WebUI Settings

4.1 Local Network

This page supports viewing or setting:

(1) MAC address

(2) WLAN: WLAN is the function of the gateway's Wi-Fi connection router, which is disabled by default

Note: When using solar-powered systems, be sure to disable WLAN and have a 4G modem for data to populate the cloud server. DC power supply via its USB port is required when Wi-Fi connection is acquired.

(3) IP Address Mode: Receive Automatically (DHCP) or Static

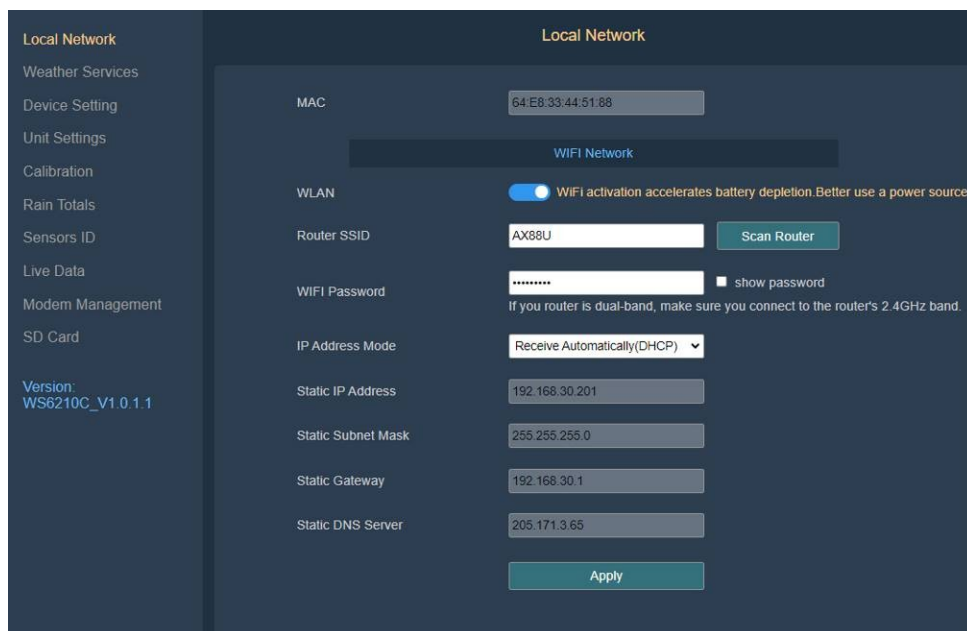


Figure 7

4.2 Weather Services

After the **Network configuration** is successful, data can be uploaded to the following weather station servers:

- A. ecowitt.net (Default upload to this server)
- B. wunderground.com
- C. weathercloud.net
- D. wow.metoffice.gov.uk
- E. Customized servers

The screenshot shows a web interface for configuring weather services. On the left is a sidebar menu with options: Local Network, Weather Services (highlighted), Device Setting, Unit Settings, Calibration, Rain Totals, Sensors ID, Live Data, Modem Management, and SD Card. Below the menu is the version information: Version: WS6210C_V1.0.1.1. The main content area is titled 'Weather Services' and contains five sections for different services:

- Ecowitt.net**: Interval (minutes) is set to 5. A link to [Ecowitt.net](#) is visible.
- Wunderground**: Fields for Station ID and Station Key.
- Weathercloud**: Fields for Weathercloud ID and Weathercloud Key.
- WeatherObservationsWebsite**: Fields for Station ID and Station Key.
- Customized**: Includes radio buttons for 'Customized' (Disable selected), 'Protocol Type Same As' (Ecowitt selected), 'Server IP / Hostname', 'Path' (set to /data/report/), 'Port' (set to 80), and 'Upload Interval' (set to 60 Seconds).

A 'Save' button is located at the bottom of the configuration area.

Figure 8

4.3 Device Setting

This page supports viewing or setting:

(1) Device frequency

(2) Automatic Frequency Control (AFC): When reception becomes unstable due to a temperature change, you can turn on this option, which automatically aligns to the transmitter radio frequency.

(3) Temperature Compensation: If the outdoor sensor array setup is not ideal and it is close to the heat-reflected surface, you may turn on this option to compensate for this heating effect and obtain a more accurate outdoor air temperature.

(4) Auto Timezone

(5) Automatic firmware upgrade

(6) Device AP Auto OFF: Enabled by default, the AP automatically shuts down when no terminals are connected; disabling this option keeps the AP continuously running. Do not disable this setting if using solar-powered systems.

(7) Login & AP Password

(8) Restore default: During factory Reset, all indicators will flash 3 times (ON: 500ms; OFF: 500ms), followed by an automatic restart upon completion.

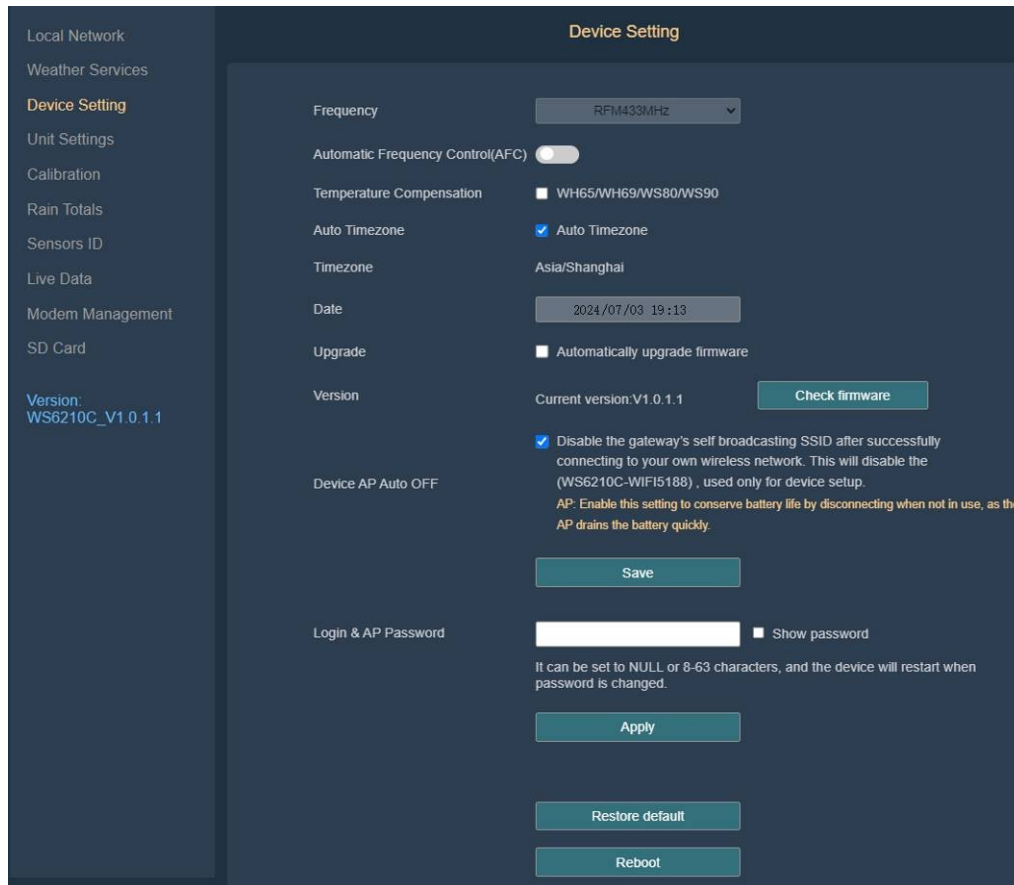


Figure 9

4.4 Unit Settings

Support the following unit settings:

- (1) Temperature: °C, °F
- (2) Pressure: hPa, inHg, mmHg
- (3) Wind: m/s, km/h, mph, knots

Note: Lightning units can be modified by modifying wind speed units:

Wind Speed Unit	Lightning Distance Unit
m/s, km/h, BFT(BFT can only be set in App/ website)	km
knots	nmi
mph, fpm(fpm can only be set in App/website)	mi

- (4) Rain: mm, in

(5) Irradiance: Klux, W/m², Kfc

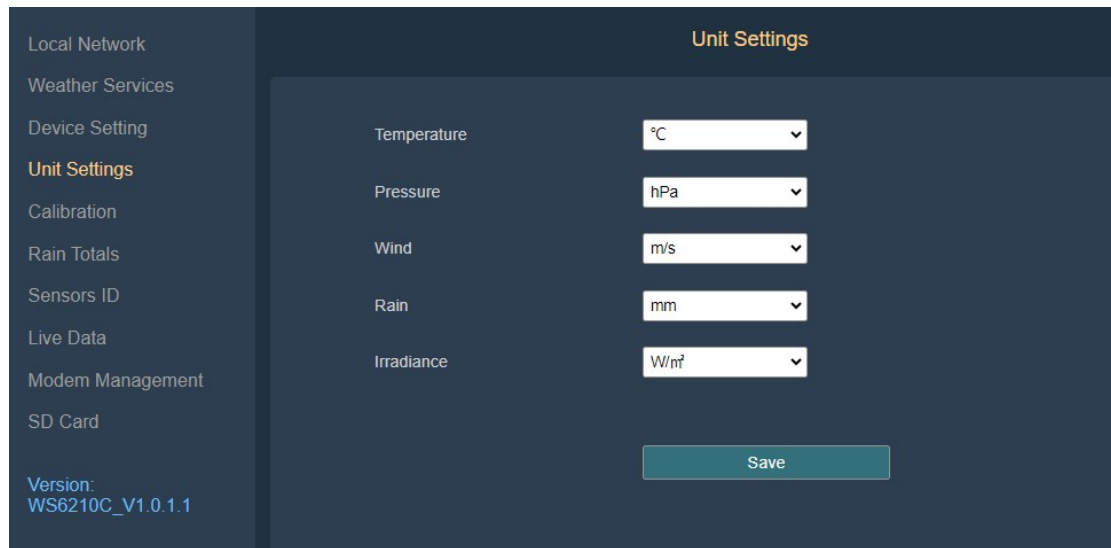


Figure 10

4.5 Calibration

This page supports the following data calibration:

- (1) Solar Irradiance
- (2) UV
- (3) Wind Speed
- (4) Indoor Temperature
- (5) Indoor Humidity
- (6) Absolute Pressure
- (7) Relative Pressure
- (8) Outdoor Temperature
- (9) Outdoor Humidity
- (10) Wind Direction

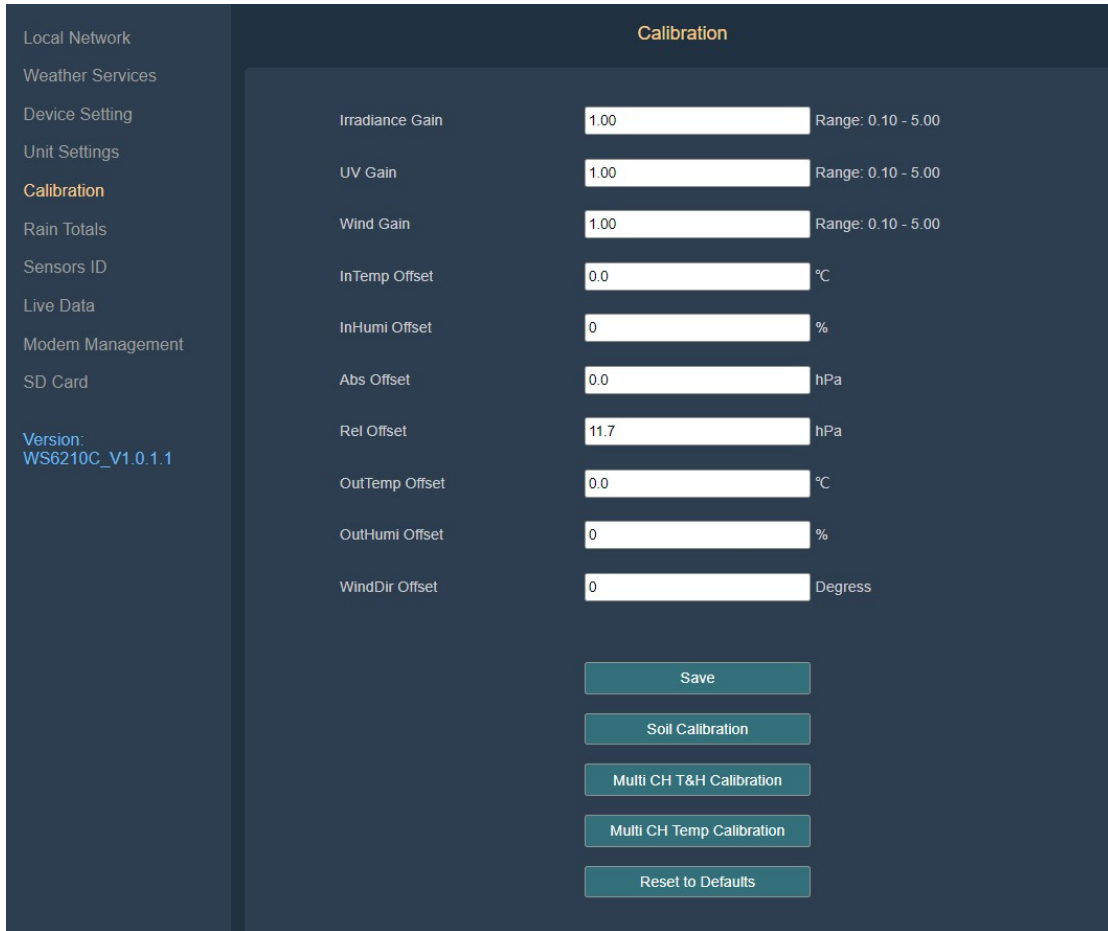


Figure 11

As well as:

(11) Soil Moisture

(12) Multi Channel Temperature & Humidity

(13) Multi Channel Temperature

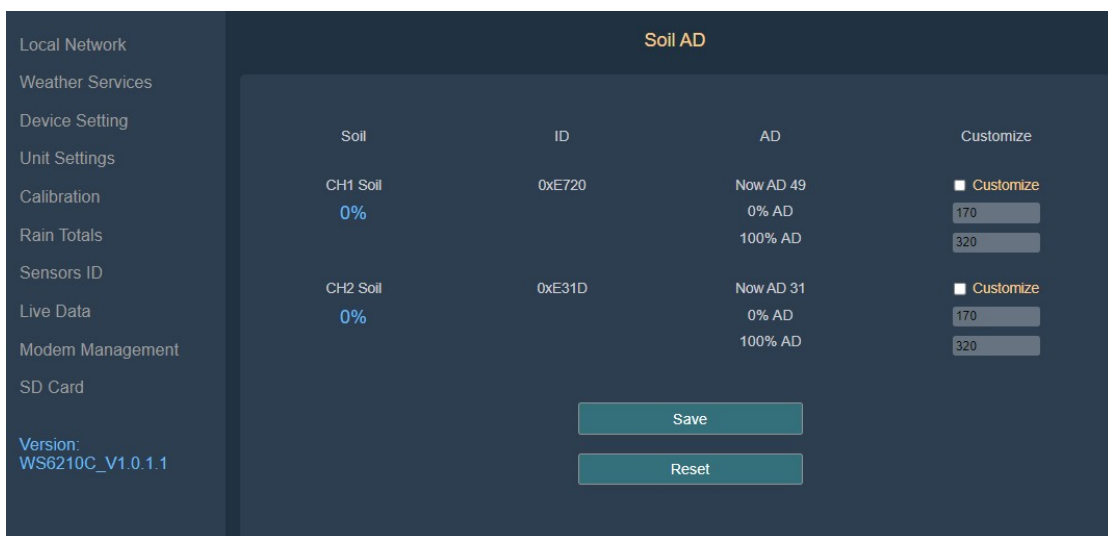


Figure 12

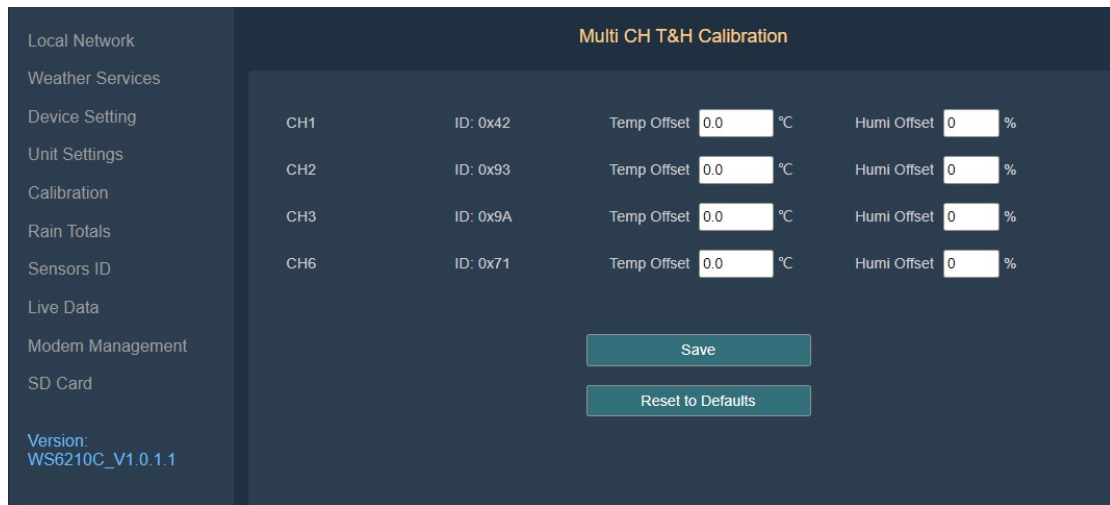


Figure 13

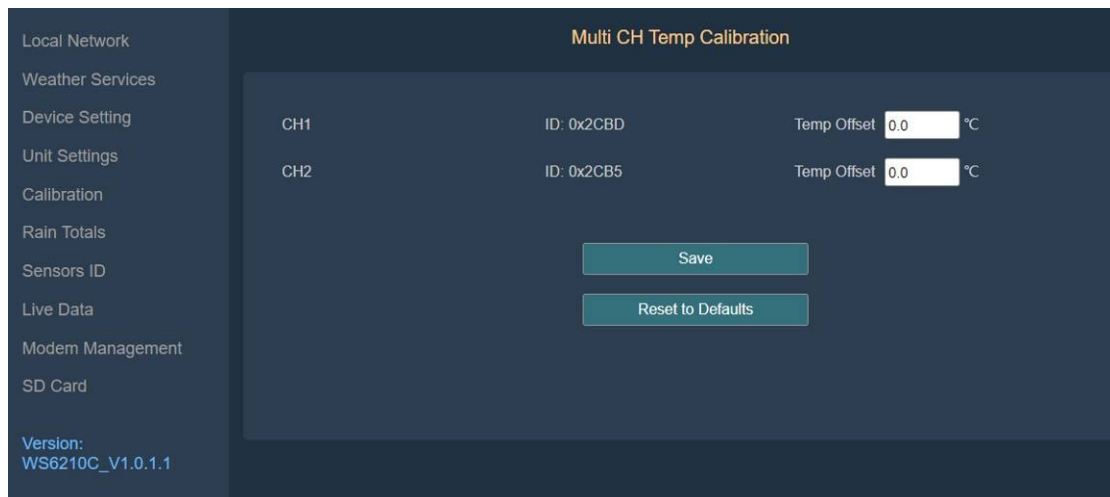


Figure 14

4.6 Rain Totals

This page supports settings such as:

(1) Choose traditional or piezoelectric rain gauge data upload to server and display.

Rainfall priority:

Traditional rain gauge: WH40 > WS69

Piezoelectric rain gauge: WS85 > WS90

(2) Rainfall calibration

(3) Reset time of **Daily Rain/Weekly Rain/Rainfall Season**

Local Network

Weather Services

Device Setting

Unit Settings

Calibration

Rain Totals

Sensors ID

Live Data

Modem Management

SD Card

Version:
WS6210C_V1.0.1.1

Rain Totals

Rainfall data priority Piezoelectric rain gauge ▾
Choose which rain gauge data upload to server and display.

Rain Day mm

Rain Week mm

Rain Month mm

Rain Year mm

Rain Gain
Range: 0.10 - 5.00

Piezo Daily Rain mm

Piezo Weekly Rain mm

Piezo Monthly Rain mm

Piezo Yearly Rain mm

Piezo Rain1 Gain
When rain rate less than 4 mm/h, Range: 0.10 - 5.00

Piezo Rain2 Gain
When rain rate less than 10 mm/h, Range: 0.10 - 5.00

Piezo Rain3 Gain
When rain rate less than 30 mm/h, Range: 0.10 - 5.00

Piezo Rain4 Gain
When rain rate less than 60 mm/h, Range: 0.10 - 5.00

Piezo Rain5 Gain
When rain rate more than 60 mm/h, Range: 0.10 - 5.00

Reset Daily Rain at ▾

Reset Weekly Rain at ▾

Rainfall Season ▾

Figure 15

4.7 Sensors ID

- (1) Supports viewing and registering sensors ID.
- (2) Viewing battery status and signal strength.






















































Local Network		Sensors ID					
Weather Services							
Device Setting							
Unit Settings							
Calibration							
Rain Totals							
Sensors ID							
Live Data							
Modem Management							
SD Card							
Version: WS6210C_V1.0.1.1							
	Name	ID	Battery	Signal	Re-register	Operating	
	Wind & Rain	0x27EF			Re-register	Edit	
	Temp & Humidity & Solar & Wind & Rain	0x598C			Re-register	Edit	
	Temp & Humidity & Solar & Wind & Rain	0x13	Normal		Re-register	Edit	
	Solar & Wind	Learning	---		Re-register	Edit	
	Rain	0x185C2	Normal		Re-register	Edit	
	Temp & Humidity & Pressure	0x7F			Re-register	Edit	
	Temp & Humidity	Learning	---		Re-register	Edit	
	Temp & Humidity & Solar & Wind	Learning	---		Re-register	Edit	
	Lightning	0x12A83			Re-register	Edit	
	PM25 & PM10 & CO2	Learning	---		Re-register	Edit	
	PM2.5 CH1	Learning	---		Re-register	Edit	
	PM2.5 CH2	Learning	---		Re-register	Edit	
	PM2.5 CH3	Learning	---		Re-register	Edit	
	PM2.5 CH4	Learning	---		Re-register	Edit	
	Leak CH1	0xCED7			Re-register	Edit	
	Leak CH2	Learning	---		Re-register	Edit	
	Leak CH3	Learning	---		Re-register	Edit	
	Leak CH4	Learning	---		Re-register	Edit	
	Temp & Humidity CH1	0x42	Normal		Re-register	Edit	
	Temp & Humidity CH2	0x93	Normal		Re-register	Edit	
	Temp & Humidity CH3	0x9A	Normal		Re-register	Edit	
	Temp & Humidity CH4	Learning	---		Re-register	Edit	
	Temp & Humidity CH5	Learning	---		Re-register	Edit	
	Temp & Humidity CH6	0x71	Normal		Re-register	Edit	

Figure 16



























	Temp & Humidity CH7	Learning	---	📶	Re-register	Edit
	Temp & Humidity CH8	Learning	---	📶	Re-register	Edit
	Soil moisture CH1	0xE720	Normal	📶	Re-register	Edit
	Soil moisture CH2	0xE31D	Normal	📶	Re-register	Edit
	Soil moisture CH3	Learning	---	📶	Re-register	Edit
	Soil moisture CH4	Learning	---	📶	Re-register	Edit
	Soil moisture CH5	Learning	---	📶	Re-register	Edit
	Soil moisture CH6	Learning	---	📶	Re-register	Edit
	Soil moisture CH7	Learning	---	📶	Re-register	Edit
	Soil moisture CH8	Learning	---	📶	Re-register	Edit
	Temp CH1	0x2CBD	📶	📶	Re-register	Edit
	Temp CH2	0x2CB5	📶	📶	Re-register	Edit
	Temp CH3	Learning	---	📶	Re-register	Edit
	Temp CH4	Learning	---	📶	Re-register	Edit
	Temp CH5	Learning	---	📶	Re-register	Edit
	Temp CH6	Learning	---	📶	Re-register	Edit
	Temp CH7	Learning	---	📶	Re-register	Edit
	Temp CH8	Learning	---	📶	Re-register	Edit
	Leaf Wetness CH1	0x3013	📶	📶	Re-register	Edit
	Leaf Wetness CH2	0x3031	📶	📶	Re-register	Edit
	Leaf Wetness CH3	Learning	---	📶	Re-register	Edit
	Leaf Wetness CH4	Learning	---	📶	Re-register	Edit
	Leaf Wetness CH5	Learning	---	📶	Re-register	Edit
	Leaf Wetness CH6	Learning	---	📶	Re-register	Edit
	Leaf Wetness CH7	Learning	---	📶	Re-register	Edit
	Leaf Wetness CH8	Learning	---	📶	Re-register	Edit

Figure 17

4.8 Live Data

- (1) Display connected sensor data.
- (2) Show the main unit's battery voltage and external power supply voltage.
- (3) Indicate charging status and number of battery cells.

Note: When fully charged, the voltage reaches 6V and the charging lightning symbol will disappear.

The screenshot displays the 'Live Data' section of a device's settings menu. The interface is dark-themed with a sidebar on the left containing navigation options like 'Local Network', 'Weather Services', 'Device Setting', 'Unit Settings', 'Calibration', 'Rain Totals', 'Sensors ID', 'Live Data', 'Modem Management', and 'SD Card'. The 'Live Data' section is expanded, showing a grid of sensor data. At the top, it shows 'Outdoor Temperature' (26.4 °C), 'Outdoor Humidity' (49%), and 'Feels Like' (26.4 °C). Below this, 'Dew Point' (14.9 °C), 'Wind Speed' (0.0 m/s), and 'Gust Speed' (0.0 m/s) are displayed. Further down, 'Day Wind Max' (0.0 m/s), 'Solar Irradiance' (0.00 W/m²), and 'UV-Index' (0) are shown. A 'Wind Direction' of 203 ° is also present. A 'Console' section shows 'Battery Voltage' (5.10 V) and 'External Power Voltage' (0.38 V). The bottom half of the screen is dedicated to rain and soil moisture data, including 'Rain' (0.0 mm for all periods), 'Piezo Rain' (0.0 mm), 'Last Distance', 'Last Timestamp', 'Daily Count' (0), 'CH1 Leak' (Normal), and individual channel data for CH1, CH2, CH3, CH6, CH1 Soil, CH2 Soil, CH1 Temperature (24.8 °C), CH2 Temperature (25.3 °C), CH1 Leaf (0%), and CH2 Leaf (0%).

Live Data			
Outdoor Temperature	26.4 °C	Outdoor Humidity	49%
Feels Like	26.4 °C	Dew Point	14.9 °C
Wind Speed	0.0 m/s	Gust Speed	0.0 m/s
Day Wind Max	0.0 m/s	Solar Irradiance	0.00 W/m²
UV-Index	0	Wind Direction	203 °
Console		Battery Voltage	5.10 V
		External Power Voltage	0.38 V
Indoor Temperature	24.8 °C	Indoor Humidity	55%
Absolute Pressure	1008.4 hPa	Relative Pressure	1020.1 hPa
Rain		Piezo Rain	
Rain Event	0.0 mm	Rain Event	0.0 mm
Rain Rate	0.0 mm/Hr	Rain Rate	0.0 mm/Hr
Rain Day	0.0 mm	Rain Day	0.0 mm
Rain Week	0.0 mm	Rain Week	0.0 mm
Rain Month	0.0 mm	Rain Month	0.0 mm
Rain Year	0.0 mm	Rain Year	0.0 mm
Last Distance	Last Timestamp	Daily Count	0
CH1 Leak	Normal		
CH1		CH2	
Temperature	25.1 °C	Humidity	None
Temperature	26.1 °C	Humidity	None
CH3		CH6	
Temperature	26.9 °C	Humidity	45%
Temperature	28.4 °C	Humidity	None
CH1 Soil	0%		
CH2 Soil	0%		
CH1 Temperature	24.8 °C	CH2 Temperature	25.3 °C
CH1 Leaf	0%		
CH2 Leaf	0%		

Figure 18

4.9 Modem Management

4.9.1 Management Page Description

(1) Display basic information of the Modem:

- ① **SIM Card:** Inserted or Not Inserted
- ② **RSSI:** Signal strength, used to measure signal quality
- ③ **IMSI:** International Mobile Subscriber Identity, used to uniquely identify a SIM card
- ④ **IMEI:** International Mobile Equipment Identity, used to uniquely identify a 4G module
- ⑤ **ICCID:** Integrated Circuit Card Identifier, a unique identifier for the SIM card
- ⑥ **IP address:** Currently assigned local area network IP address
- ⑦ **Registered Operator:** Operator with which the device is registered
- ⑧ **Network Standard:** Network protocol and frequency bands supported by the device
- ⑨ **APN:** Access Point Name, used for data communication, and can be edited. Correct APN settings are necessary for proper use if using a custom SIM card
- ⑩ **Modem Model:** Model of the 4G module
- ⑪ **Modem Version:** Firmware version of the 4G module

(2) Support real-time display of Modem Log

(3) Support downloading Modem Log to local storage

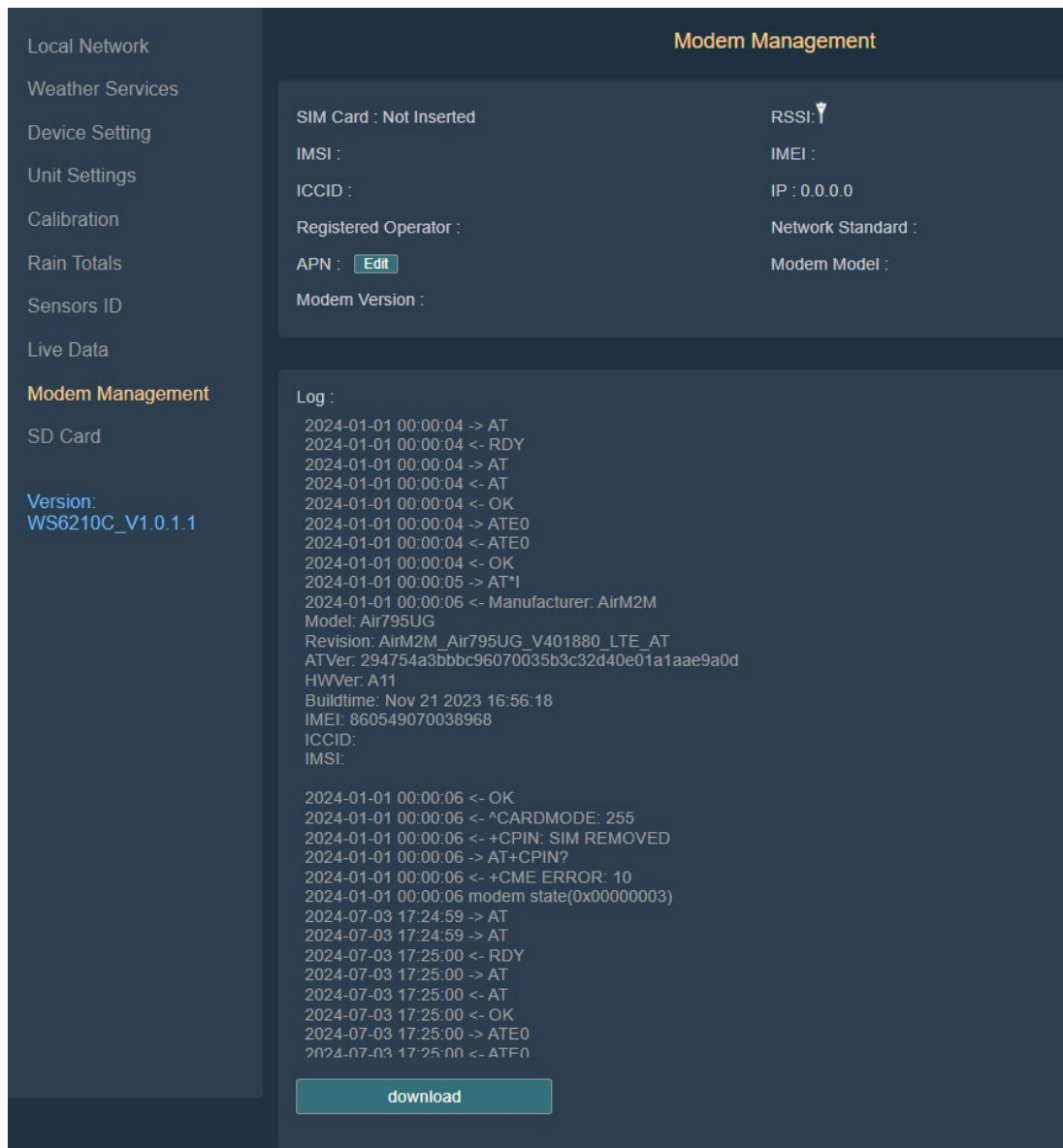


Figure 19

4.9.2 Troubleshooting Modem Issues

(1) Communication Issue with 4G Module

Symptom: On the Modem Management page of the WebUI, SIM Card status shows "Not Inserted" and the Log only displays "-> AT".

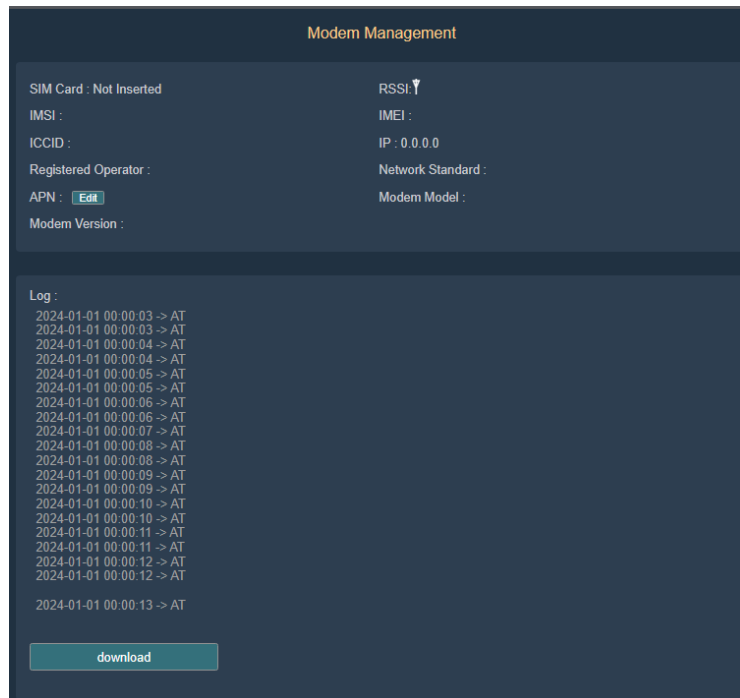


Figure 20

Analysis: Failure in communication between the main control and the module.

Solution: Try power cycling the device. If the issue persists, the 4G module may be damaged or there could be a circuitry issue, requiring replacement of the 4G module board.

(2) SIM Card Not Detected

Symptom: On the Modem Management page of the WebUI, SIM Card status shows "Not Inserted" and the Log shows "-> AT+CPIN?" followed by "<- +CME ERROR: 10".

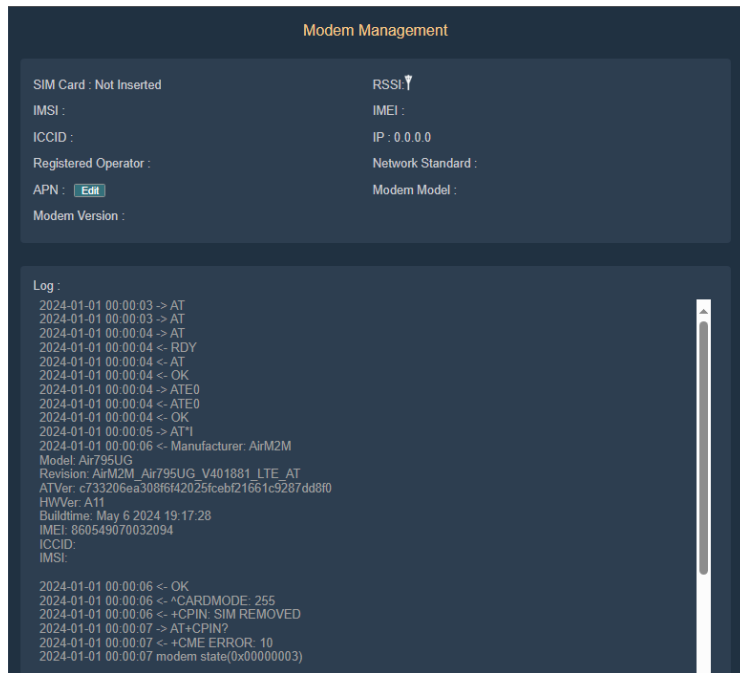


Figure 21

Analysis: Possible reasons include SIM card not inserted properly, loose SIM card, damaged SIM card, or faulty 4G module board.

Solution: Verify SIM card readiness, replace SIM card if necessary, or replace the 4G module board.

(3) Poor Network Signal Strength

Symptom: On the Modem Management page of the WebUI, SIM Card status shows "Inserted" and the Log repeatedly shows "-> AT+CSQ" followed by "<- +CSQ: 99,99".

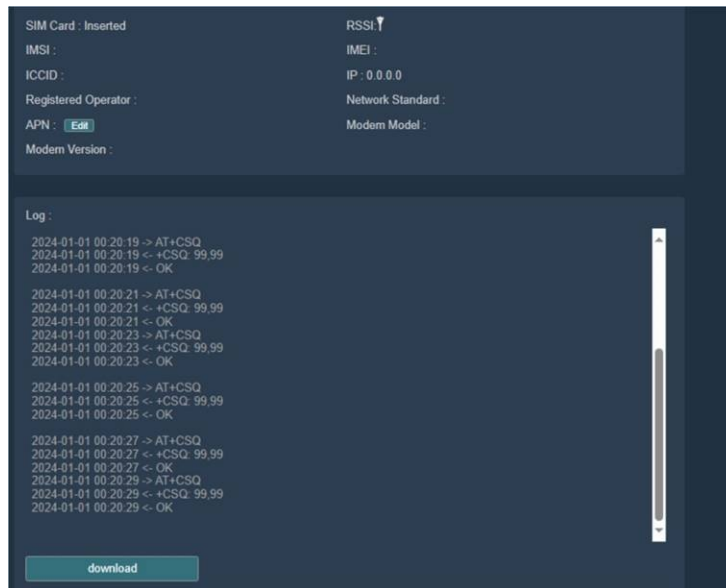


Figure 22

Analysis: Repeated occurrences of "-> AT+CSQ" and "<- +CSQ: 99,99" indicate poor network signal quality.

Solution: Check antenna connection and verify SIM card quality.

(4) SIM Card Attach to Network Failure

Symptom: On the Modem Management page of the WebUI, SIM Card status shows "Inserted" and the Log shows multiple occurrences of "<- +CREG: 0,5", "<- +CREG: 0,1", and "<- +CGATT: 0".

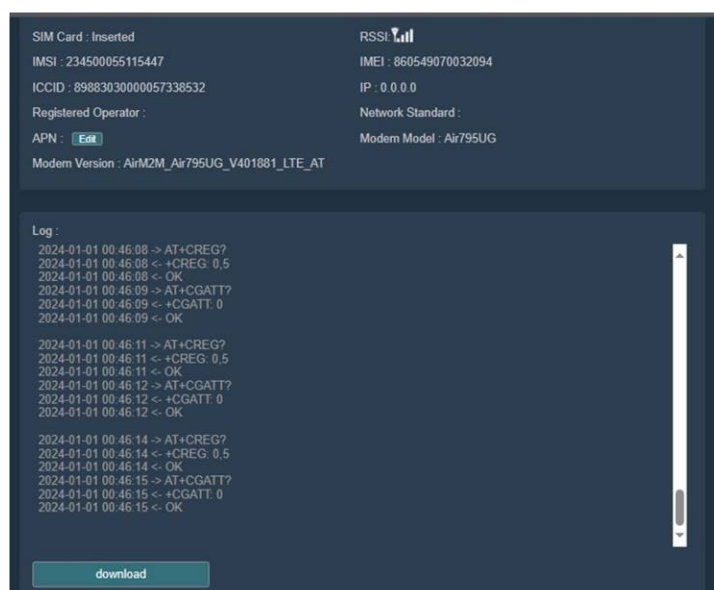


Figure 23

Analysis: "<- +CREG: 0,5" and "<- +CREG: 0,1" indicate successful registration, while "<- +CGATT: 0" indicates failure to attach to the network. This could be due to SIM card being tied to a specific IMEI or running out of data.

Solution: Check SIM card status (payment, validity) or replace SIM card if necessary.

(5) SIM Card Internet Connection Issue

Symptom: On the Modem Management page of the WebUI, SIM Card status shows "Inserted" and the 4G module obtains an IP address, but the Log displays "<- +CDNSGIP: 0,8".

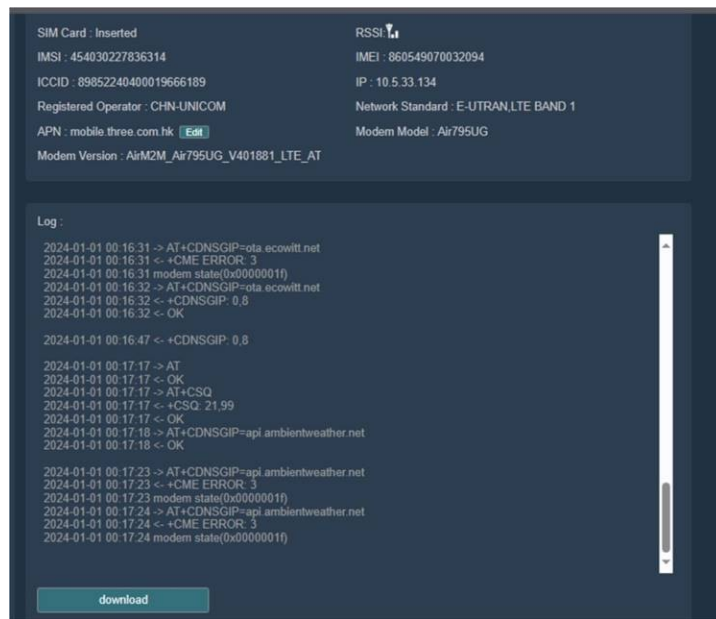


Figure 24

Analysis: Indicates a problem with the SIM card.

Solution: Check SIM card status (payment, validity) or replace SIM card if necessary.

4.10 SD Card Management

Settings change, such as registered Sensor ID, are saved 3 minutes after power-up.

Settings change via the web interface are saved immediately and retained even if power is lost.

(1) **SD card file system format:** Only supports FAT32. For cards larger than 32GB, use the Rufus tool to format the SD card to FAT32. Download the tool from <https://rufus.ie/en/>.

(2) **Real-time status display and hot-swap support:** The system provides real-time monitoring

of the SD card's status and supports insertion or removal of the SD card without device restart.

(3) **SD card information display:** The interface shows detailed SD card information, including storage capacity and read/write frequency.

(4) **Multi-level directory management:** The system adopts a multi-level directory structure for easy file categorization and management by users.

(5) **Sensor data storage:** Data collected by sensors is saved in .csv format in the root directory of the SD card, facilitating direct access and analysis of data.

(5) **Log file management:** The system generates new log files daily, saved in .txt format. All log files are automatically categorized and stored in respective folders by month, facilitating retrieval and management of historical data.

(7) **File filtering mechanism:** The system automatically filters out non-gateway-generated files, ensuring storage space is allocated for important data and avoiding unnecessary data redundancy.

(8) **File operations support:** Users can download and delete individual files, providing flexible file management capabilities.

(9) **Customizable save intervals:** The system allows users to adjust save intervals for data and log files according to specific recording needs.

The screenshot displays the 'SD Card' management interface. At the top, it shows the card's name (SZYL), type (SDHC/SDXC), speed (20 MHz), and size (7580 MB). Below this, the current directory is set to the root directory ('/'). A table lists several files, including a 'log' folder and several CSV files. Each file has 'Download' and 'Delete' buttons. A red arrow points to the 'log' folder in the table, and a red text box on the right explains that sensor data is saved in the root directory and the 'log' folder stores operational logs.

File Name	Size (Bytes)	Operation
log	-	-
202407C.csv	428	Download Delete
202401Allsensors_C.csv	1586	Download Delete
202401A.csv	4924	Download Delete
202401Allsensors_A.csv	15234	Download Delete
202401B.csv	3843	Download Delete
202401Allsensors_B.csv	12436	Download Delete

1. Sensor data is saved in the root directory.
2. The 'log' folder stores operational logs of the product.

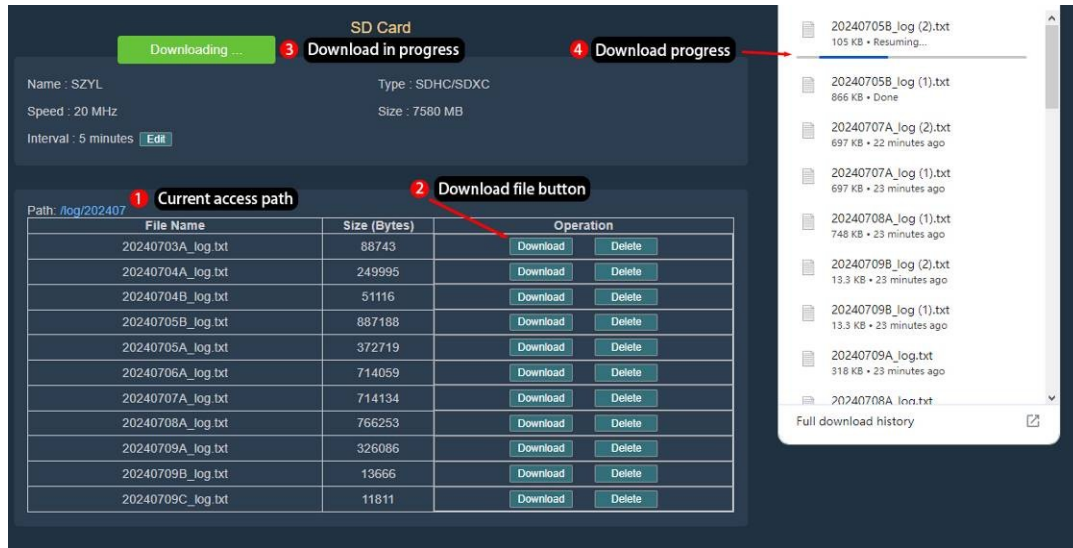


Figure 25

4.11 Firmware updates

Firmware Automatic Upgrade: If automatic firmware update is enabled on the web interface and a new firmware is detected, the product will enter OTA mode and automatically restart upon completion. (Automatic update interval is 24 hours)

Manual Upgrade: Access 192.168.4.1 local web page, navigate to the device settings page, click on 'Check Version', and if a new version is found, click "Upgrade Version".

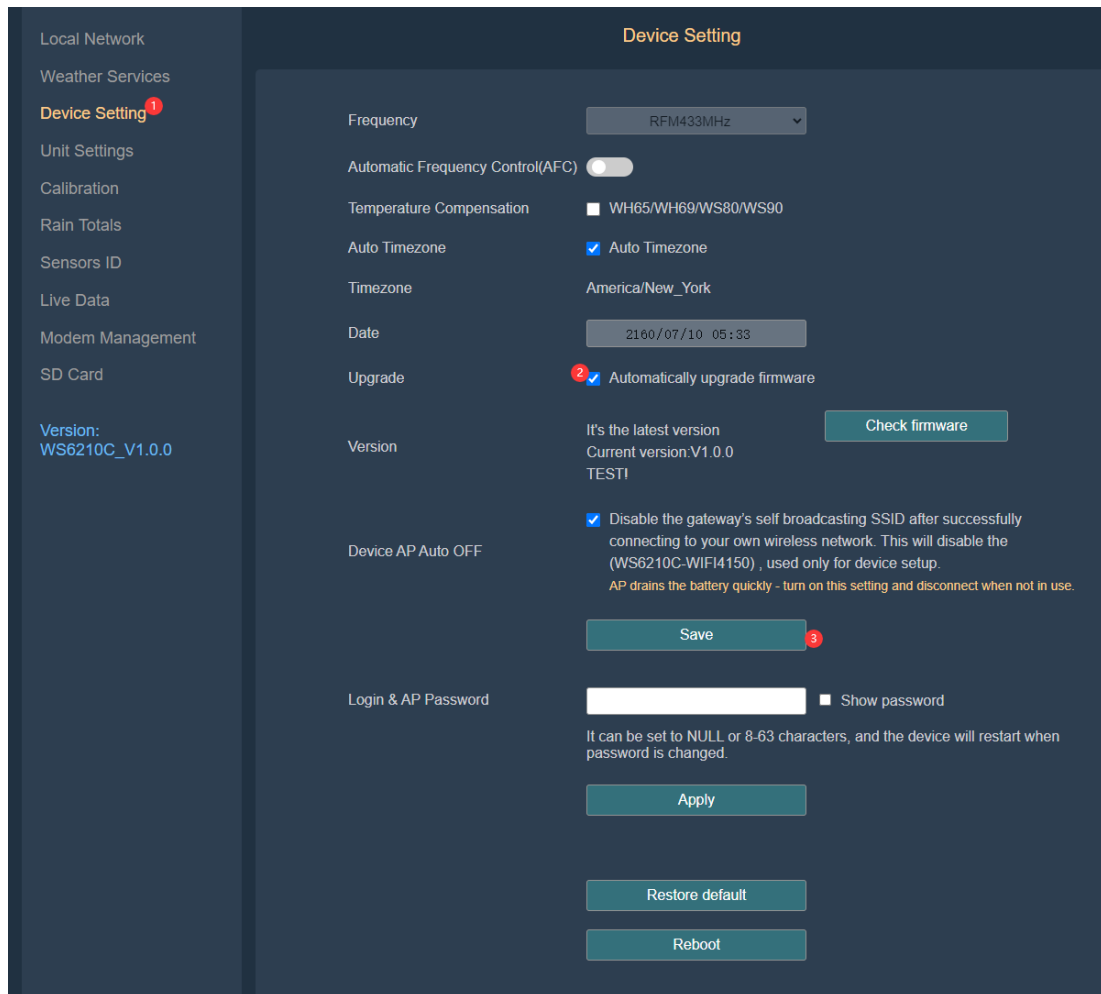


Figure 26

5. Optional Sensors

The product supports receiving data from various sensors, which can be used with the WS View APP and Ecowitt server for enhanced data services. The RF reception function will always be turned on to receive data from multiple sensors at any time.










5.1 Sensors

The following sensors can be purchased separately. For more information, please visit our

website: <http://www.ecowitt.com>. Make sure to select the model of the units with the same RF frequency as your gateway or display (the frequency is different for various countries because of regulations).

Note: Max QTY of the following table means the maximum number of different sensors that can be connected to the WS6210.

5.1.1 Sensor Data Can be Uploaded to the Cloud

Sensor Model	Max QTY	Picture	Functions
WS90	1		Outdoor temperature & humidity, light, UV, wind speed/direction, rainfall
WS85	1		Wind speed/direction, rainfall
WS80	1		Outdoor temperature & humidity, light, UV, wind speed/direction
WS69	1		Outdoor temperature & humidity, light, UV, wind speed/direction, rainfall
WS68	1		Light, UV, wind speed/ direction
WH40	1		Rainfall
WN32P	1		Indoor temperature, humidity and pressure
WN32	1		Outdoor temperature and humidity
WH45/WH46	1		WH45: CO ₂ , PM2.5, PM10, temperature and humidity







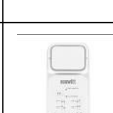




			WH46: CO ₂ , PM1.0, PM2.5, PM4.0, PM10, temperature and humidity
WN31			Temperature and humidity
WN30	8		Temperature
WN36			Pool temperature
WH57	1		Lightning detection
WH41/WH43	4		PM2.5
WH55	4		Water leak detection
WH51L	8		Soil moisture
WH51			Soil moisture
WN34L/S/D	8		Temperature
WN35	8		Leaf wetness

Table 5 Optional sensors

Note:

1. Some data of WS90/85/80/69/68/WH40/WN32 exist display priority, please refer to Section xxx.
2. Some data of WH45/WH46 would not show on the WS6210. Please refer to Section xxx.

5.2 IoT Device



Sensor Model	Max QTY	Picture	Functions
WFC01	16		Smart water timer
AC1100			Smart plug

Table 6 IoT device

6. Specifications

Model	WS6210
Name	4G & Wi-Fi Weather Station Receiver Mobile Gateway
Dimensions	187*138*55(mm) L*W*H
Weight	694.5g (8 batteries involved) 457g (WS6210 only)
Material of Plastic Casing	PC
Sim card	Nano-SIM
SD card	8G Micro SD
Cellular and Wireless	Support LTE 3GPP Rel.13 technology, support 4G network
Supported Brand	4G LTE-FDD B1/B2/B3/B4/B5/B7/B8/B12/B13/B17/B18/B19/B20/B25/B26/ B28/B66 4G LTE-TDD B34/B38/B39/B40/B41 2G GSM 850/900/1800/1900
RF Connection Frequency	920/915/868/433MHz (depending on local regulations)
RF Wireless Range	Over 100 meters (in open areas)
WLAN	802.11 b/g/n 2.4 GHz (802.11n, Max 150 Mbps)

WLAN Wireless Range	Over 30 meters (in open areas)
Power Supply	External solar panel / 5 to 12V external DC power supply
Indicator Light	Unlock, RF, WiFi, 4G
Button	Touch button: Reset, AP Physical button: Power
Operating Temperature	-20 to 60°C
Port Material	2-core waterproof aviation connector
Battery Capacity	4800 mAh
Battery Life	20 days (5-minute upload interval, AP off, not connected to IoT Subdevice) 10 days (5-minute upload interval, AP off, connected to IoT Subdevice)
Power Consumption	0.06W (AP off, not connected to IoT) 0.12W (AP off, connected to IoT) 0.9W (AP on, connected to WiFi, not connected to IoT) 0.96W (AP on, connected to WiFi, connected to IoT) While in a 5-minute upload interval
Posting intervals	By default: 5 minutes Setting range includes: "off, 1, 2, 3, 4, 5, 10 minutes" Shortening the posting interval will result in increased power consumption.

Table 7

7. Product Features

- **Networking:** Supports Wi-Fi and 4G, prioritizing Wi-Fi for data upload to the weather station server.
- **Sensor Support:** Receives data from almost all ecowitt sensors, viewable via a web interface and Ecowitt app.

- Web Functions: Supports web configuration, sensor data viewing, server settings, calibration parameters, and Sensor ID settings.
- IoT Functionality: Compatible with IoT device: WFC01 and AC1100.
- Automation: Automatic timezone and network time acquisition, unit settings.
- Operates on 433MHz, 868MHz, 915MHz (and 920.9MHz).
- Embedded web SD card data download: Free you from complicated SD data .

8. Light Indicators

The device has four indicator lights with the following meanings:

Indicator	Description
RF Light	Blinks once every 5 seconds, blinks once when data is received
4G Light	Off when module not recognized Quick flash when module recognized Slow flash when registering network Blinks every 5 seconds when connected
Wi-Fi Light	Blinks continuously within the first 3 minutes of power-up or when AP is triggered Off when no WiFi signal fills in Quick flash when connected to the router Slow flash when connected to Wi-Fi without network Steady on when network is available
Unlock Light	Blinks once when button is triggered Stays on when unlocked

Table 8

9. Warranty

We disclaim any responsibility for any technical error or printing error or the consequences thereof.

All trademarks and patents are recognized.

We provide a 1-year limited warranty on this product against manufacturing defects or defects in materials and workmanship.

This limited warranty begins on the original date of purchase, is valid only on products purchased, and only to the original purchaser of this product. To receive warranty service, the purchaser must contact us for problem determination and service procedures.

This limited warranty covers only actual defects within the product itself and does not cover the cost of installation or removal from a fixed installation, normal set-up or adjustments, or claims based on misrepresentation by the seller, or performance variations resulting from installation-related circumstances.

Manufacture: Shenzhen Fine Offset Electronics Co., Ltd.

Address: 4/F, Block C, JiuJiu Industrial City, Shajing Town, Baoan District, Shenzhen City, China

10. Care and Maintenance

Certs to be added later after certifications are available.

When batteries of different brand or type are used together, or new and old batteries are used together, some batteries may be over-discharged due to a difference of voltage or capacity. This can result in venting, leakage, and rupture and may cause personal injury.

- Do not mix Alkaline, Lithium, standard, or rechargeable batteries.
- Always purchase the correct size and grade of battery most suitable for the intended use.
- Always replace the whole set of batteries at one time, taking care not to mix old and new ones, or batteries of different types.
- Clean the battery contacts and also those of the device prior to battery installation.
- Ensure the batteries are installed correctly with regard to polarity (+ and -).
- Remove batteries from product during periods of non-use. Battery leakage can cause corrosion and damage to this product.
- Remove used batteries promptly.
- For recycling and disposal of batteries, and to protect the environment, please check the internet or your local phone directory for local recycling centers and/or follow local government regulations

11. Contact Us

11.1 After-sales Service

Order Issues:

If you encounter any missing or incorrect shipments of Ecowitt products purchased, please reach out to the respective platform's customer service from the store where you bought the product for assistance.

Usage Inquiries:

Our product is continuously changing and improving, particularly online services and associated applications. To download the latest manual, and additional help, and for any issues related to product usage feel free to contact our customer support team at support@ecowitt.com. We are committed to providing assistance and resolving any concerns you may have.

11.2 Stay in Touch

Ask questions, watch setup videos, and provide feedback on our social media outlets. Follow Ecowitt on Discord, YouTube, Facebook and Twitter.



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