ecowitt®

Weather Station Receiver Manual

Model: HP2560

https://s.ecowitt.com/W8UDYB

Table of Contents

1. Introduction

Thank you for your purchase of the Ecowitt HP2560 weather station receiver or console.

The Ecowitt HP2560 is a 7" diagonal size TFT(high resolution) colored screen weather station receiver, which provides two background(dark/light) themes selectable.It supports monitoring indoor and outdoor temperature, humidity, absolute and relative barometric pressure, wind speed and gusts, wind direction, rainfall, solar radiation (light),and UV, and it collects these sensor data from various supported wireless sensors.

Furthermore,the HP2560 supports WiFi networking, weather information upload to weather services and to a customer chosen server,a SD card to upgrade firmware,archive your console weather information, back up historical and current data.

The HP2560 needs to be used with optional sensors to obtain outdoor weather data. Apart from the indoor temperature&humidity&barometric data provided by the console's built-in sensor, this device is not a standalone product.

We at Ecowitt are very conscientious about your possible concerns regard ing sending your data into a cloud. Not only do we not share your data wi th any third party, we also offer you a possibility to manage your data loc ally by the help of a special tool-the WS View Plus app. You may refer to the WSView Plus APP instruction for more details.

The following user guide provides step by step instructions for installation and operation, including more functions of the HP2560 receiver. Use this manual to become familiar with your professionally designed weather station and save it for future reference.

General Terms Used in the Manual:

Weather Station: Includes the console and sensors (or sensor array).

Receiver: Refers to the console.

Transmitter: Refers to the sensor or sensor array.

RF: Radio frequency. It refers to the ISM and SRD SubG (Industrial, Scientific and Medical and Short Range Devices frequency bands below 1 GHz) for communicating between the console and its sensors. This frequency is not the same as the 4G modem (LTE) or Wi-Fi working frequencies (2.4 GHz, 5 GHz).) ISM/SRD bands are kept separate from 4G frequencies by national regulations to avoid interferences. Typical ISM/SRD frequencies are 915MHz(Americas), 868MHz(Europe), 433MHz(worldwide), 920MHz (Japan, Korea).

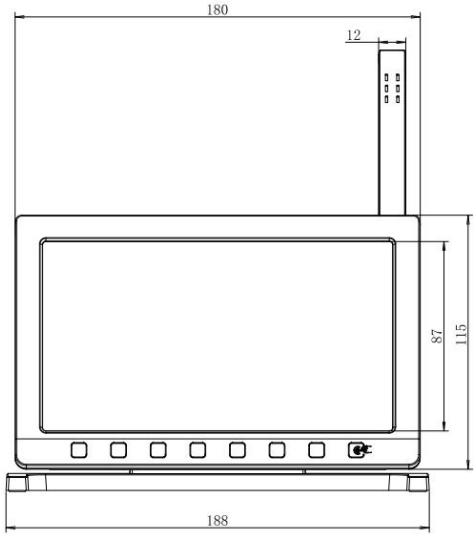
2. Initial Setup and Usage

2.1 Part list

QTY	Item
1	HP2560 Weather Station Receiver
1	DC to USB cable
1	User Manual
1	Quick Start Guide

Table 1

2.2 Multiple Views and Size



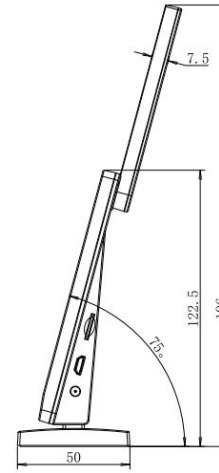


Figure 1: Main view

Figure 2: Side view

重新截图

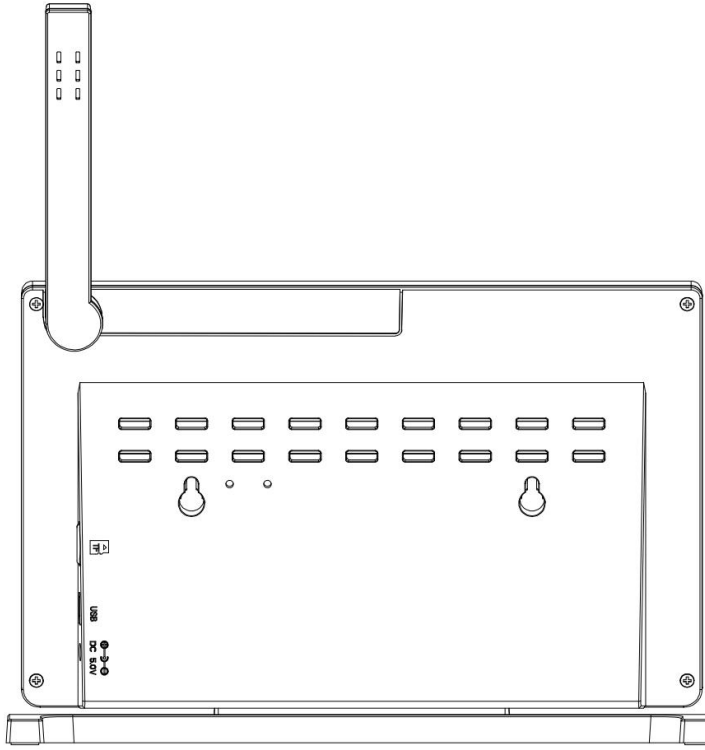


Figure 3: Rear view

重新截图

2.3 Power-up

Insert the 5V 1A Power Adapter into an outlet, and then plug it into the Power Jack on the right side of the console. The screen lights up immediately after a beep and power-up is successful, then receive the data from the transmitters.

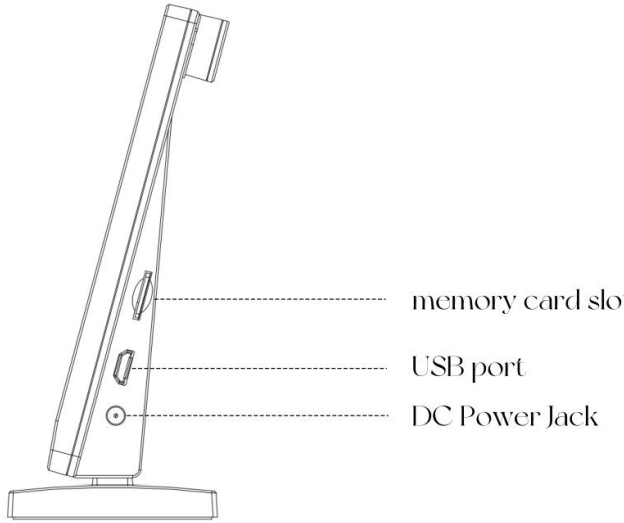


Figure 4: Power-up

重新标注

2.4 Button functions

There is a set of 8 buttons on the bottom of the console display. The following tables briefly explain the function of these buttons.

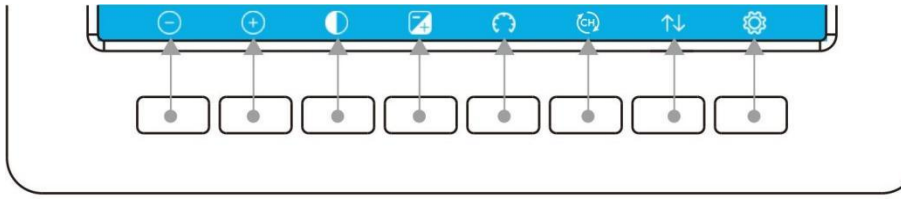


Figure 5: Buttons around the display

Icon	Description
	Brightness control button Touch this button to decrease the brightness- or to confirm a selection in setup mode.
	Brightness control button Touch this button to enhance the brightness- or to confirm a selection in setup mode.
	Backlight on/off button Touch this button to on/off the backlight.
	Background button Touch this button to choose between dark background display and light background display.
	Pressure display button Touch this button to choose the display between Absolute pressure and Relative pressure.
	Channel button Touch this button to shift the display between indoor temp & humidity, Multiple Channel temp & humidity and scroll automatically mode.

	**History button** Touch this button once to view Max/Min record; Touch twice to enter History mode; Touch three times to enter Graph Mode. Touch four times to enter Optional Sensors Display Mode.
	**Setting button** Touch this button to enter Setup Mode. Note: once having entered the setup mode, the settings button shifts one button to the left.

Table 2

2.5 Language setting

The console's default language is English. To facilitate smooth operation, please select your preferred language first.

You may choose from the following languages: English, Dutch, French, German, Italian, Portuguese, Spanish, Russian.

① Touch the  button on the home screen.

② Touch the  button repeatedly until the "**Factory**" page appears.

③ Touch  or  button to select the language. Touch the  or  button to confirm the language.

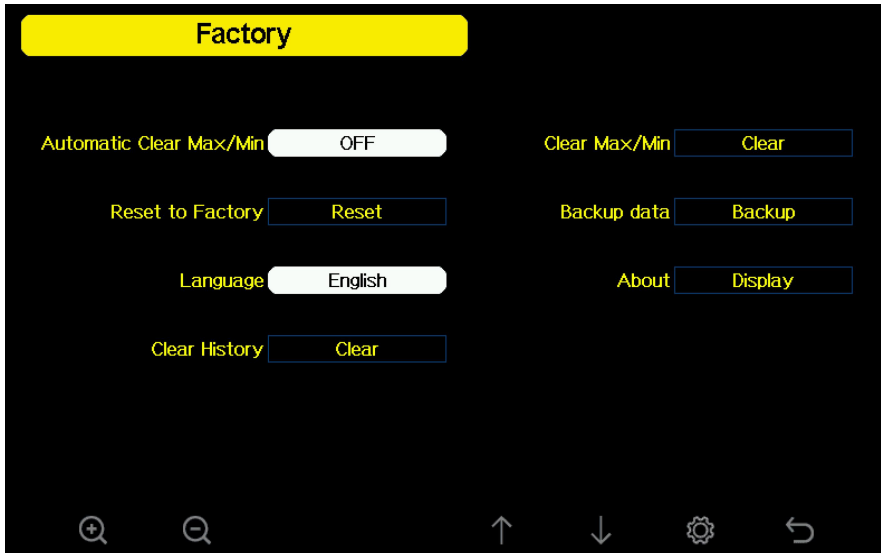


Figure 6: Language setting

2.6 Connect the console with the sensors

Note 1: This connection does not require Wi-Fi.

After powering up the console and setting the language, the next step is to connect the console with the sensors. The sensor data will then be displayed on the console for your observation.

The HP2560 console is compatible with most sensors. For information on supported sensors, please refer to **Section 9** "Optional Sensors."

The optional sensors can be purchased separately. Make sure to select the model with the same RF frequency as your console (the frequency is different for various countries because of regulations).

Note 2 : To pair the optional sensors with the HP2560 console, please follow the below operations:

- Place the optional sensor next to the console (keep them about 5-10ft/1-2m away from the console).

- Install batteries on the sensor and wait for 1-2 minutes.
- Check whether the console will pick up the sensor data automatically and display it on the screen.
- If not, touch the  button and go to the Sensors ID page(Home screen [gear wheel symbol ]→ More [Setup] → Sensors ID [More] – use the arrow up/down keys to select the option,use the  or  button to confirm).
- In the Sensors ID Setup page, find the sensor you want to pair - select the ID number box and register it.
- Once successfully, you may return to the main interface to check the data.
- The console usually registers the sensors in the sequence it receives their signal. If you prefer a special sequence and want to assign a sensor to a dedicated channel number, you will have to enter the sensor ID, and save the change to take effect. The sensor ID is usually provided with a little sticker on the housing of the sensor or sometimes in the battery compartment.

1) Please follow these steps to view the Sensor ID page.

① Access the Setup Page: On the home screen, touch the  button located at the far right.

② **Access the Sensor ID page**: On the "Setup" page, select the “More” section. touch the button  to confirm this section. touch the button  to view the next page.

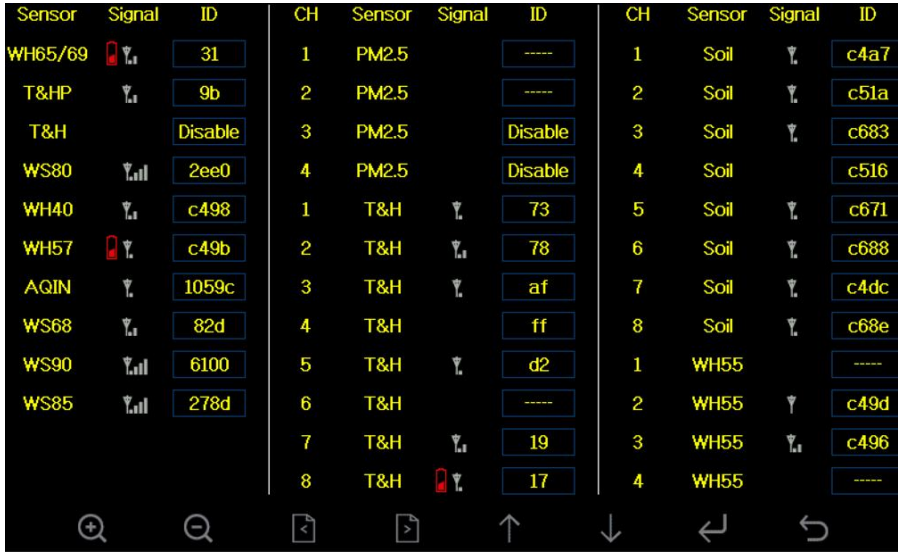


Figure 7: Sensor ID

- Sensor: Sensor model
- Signal: Signal strength and low battery
- ID: Sensor ID
- CH: Channel name
- T&H: WH/WN30/31/31S/31_EP/36/37

(For the T&H sensors the channel has to be selected inside the battery compartment of the sensor)

2) To pair the console with a new sensor, simply register it by entering new Sensor ID. Follow these steps to complete the process.

① Select the relevant sensor and touch button to confirm and enter the new Sensor ID.

② Select the “OK” button and select **Save** to finalize the registration.

Figure 8: Sensor ID

Note: If the console and sensor are disconnected, the RF symbol (radio tower) will not be displayed.

After successfully registering the sensors or the sensor array, the sensors can be mounted /placed at their final location.

2.7 Wi-Fi Configuration

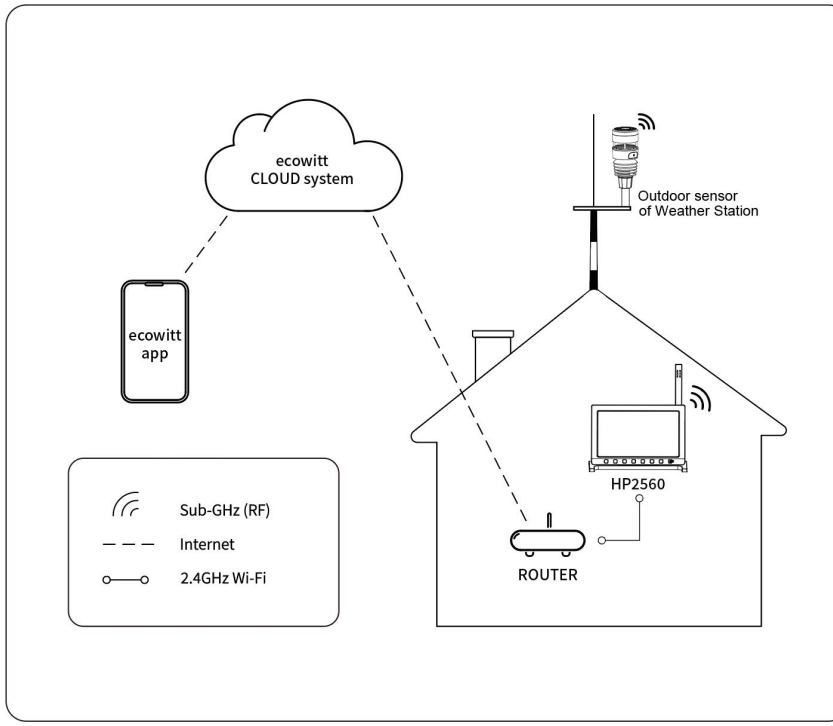


Figure 9: Brief concept diagram

This diagram effectively illustrates the collaboration between the receiver, sensor, router, cloud system, and the Ecowitt app. Each component plays a vital role in creating a seamless flow of data, showcasing how they work together harmoniously.

Once the internet connection is established, you can register your console at the Ecowitt Weather Cloud (www.ecowitt.net) and have post its data there and view it and its history via a web browser or our apps.

Next, the steps below will help you achieve the content shown in the diagram above.

2.7.1 Download the Ecowitt App

Firstly please visit the Apple App Store or the Google Play Store or scan the QR code below to download the free Ecowitt App onto your mobile device.

Open the Ecowitt app and follow the on-screen instructions to add the device to the Device list of the Ecowtt app.

Download on the App Store

GET IT ON Google Play

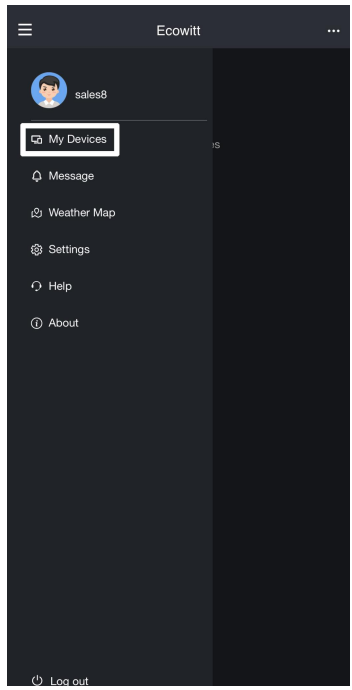
Figure 10 : Download Ecowitt App

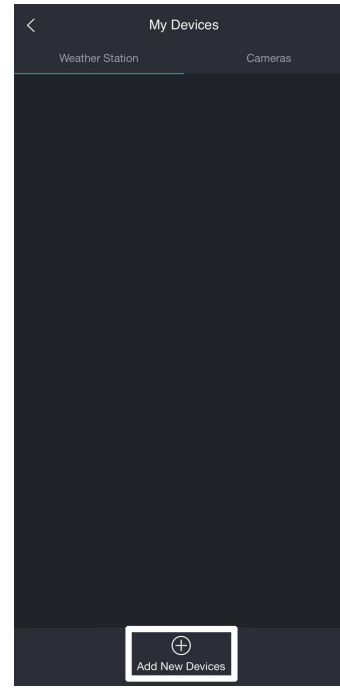
2.7.2 Console provisioning with the Ecowitt App

(1) Open Ecowitt App →"My devices"→ "Add New Devices"→ click HP2560 icon→ choose Manually Adding (the App will guide you through the pairing process)：

In the Manually Adding step, you will be prompted to perform the operations on the console,please jump to **Section 2.7.3** to complete the process firstly. **Make sure to note down the MAC address.**

Then go back to this section to continue with the Manually Adding step**.**





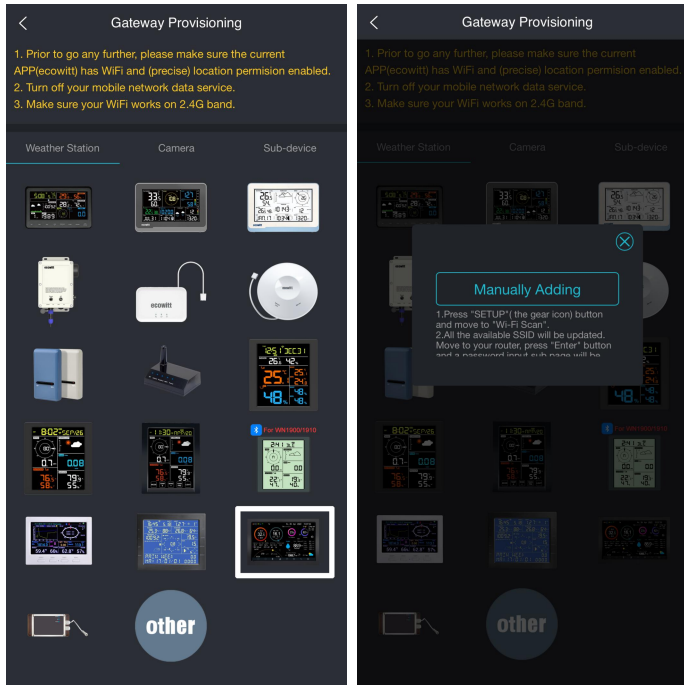


Figure 11

(2) Edit the “Device Name”, enter the MAC address written down in step (1) and enter the proper Timezone, tick "Is Public" if you want the data to be public to other users. Click on Save and the data will can soon be viewed online.

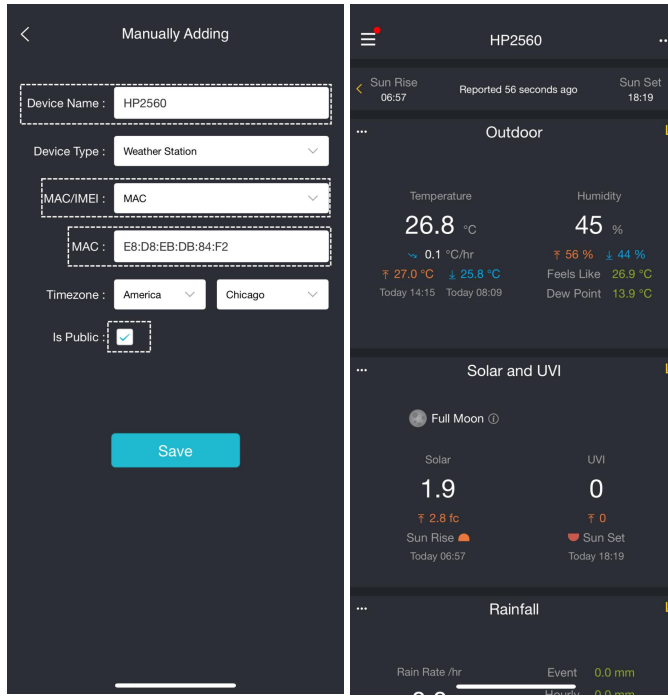


Figure 12

(3) After adding the device, follow the below steps to set the related settings.

① Click on “My Devices”.

② Click on the“...” icon.

③ Choose if check “Is Public”. This refers to whether to make the data public on the map. If you need to check this option, please select the data you want to display. Other users can only see the data items you checked.

④ Click Save.

⑤ Go to the “Weather Map” to view the shared data.

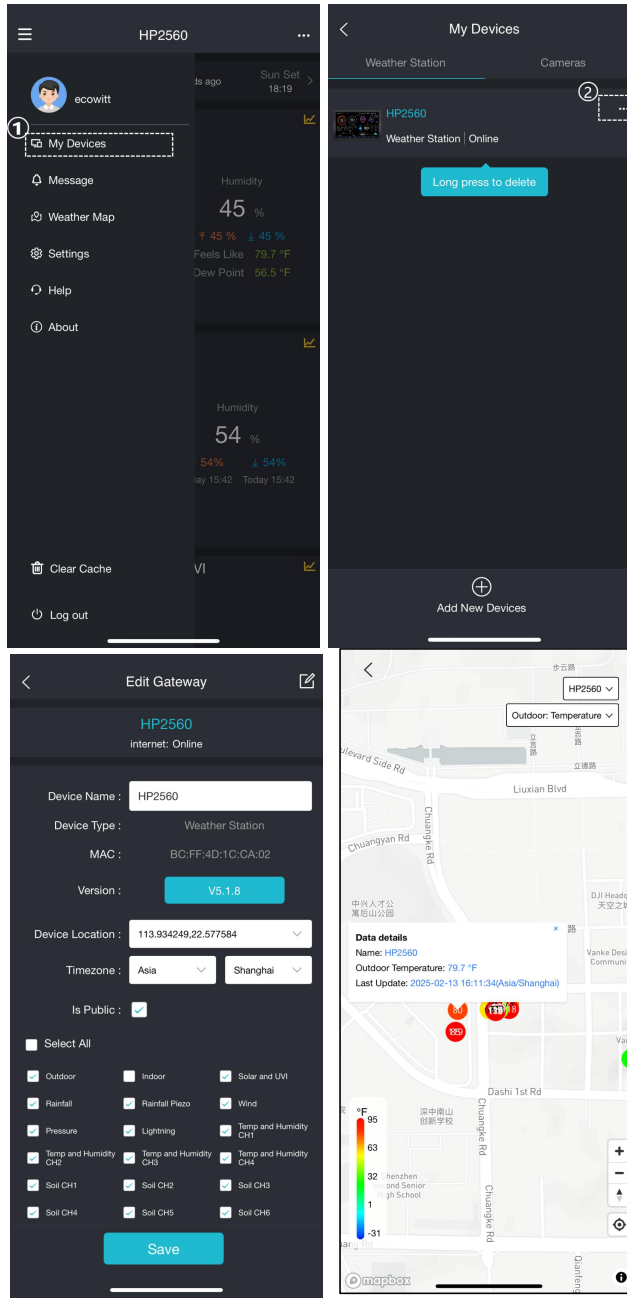

HP2560
ecowitt
1
My Devices
Message
Weather Map
Settings
Help
About
Clear Cache
Log out
Sun Set
18:19
Humidity
45 %
Feels Like 79.7 °F
Dew Point 56.5 °F
Humidity
54 %
My Devices
Weather Station
Cameras
2
HP2560
Weather Station | Online
Long press to delete
Add New Devices
Edit Gateway
HP2560
internet: Online
Device Name : HP2560
Device Type : Weather Station
MAC : BC:FF:4D:1C:CA:02
Version : V5.1.8
Device Location : 113.934249,22.577584
Timezone : Asia Shanghai
Is Public :
Select All
Outdoor
Indoor
Solar and UVI
Rainfall
Rainfall Piezo
Wind
Pressure
Lightning
Temp and Humidity CH1
Temp and Humidity CH2
Temp and Humidity CH3
Temp and Humidity CH4
Soil CH1
Soil CH2
Soil CH3
Soil CH4
Soil CH5
Soil CH6
Save
HP2560
Outdoor: Temperature
Liuxian Blvd
Chuangyan Rd
Chuangke Rd
Dashi 1st Rd
Data details
Name: HP2560
Outdoor Temperature: 79.7 °F
Last Update: 2025-02-13 16:11:34(Asia/Shanghai)
°F
95
63
32
1
-31
mapbox

Figure 13

2.7.3 Wi-Fi configuration on the console

If you need upload data to the servers, please follow up the below steps to complete the Wi-Fi configuration on console (**data uploading requires the Wi-Fi network**). For detailed information about DIY Upload Servers，please jump to **Section 5**.

①**Access the Setup Page**: On the home screen, touch the  button.

②**Navigate to Wi-Fi Scan**: On the "Setup" page, select the “Wi-Fi Scan” section. The system will then display a list of all available Wi-Fi networks.

③**Connect to Wi-Fi**: Choose the desired SSID (note that only 2.4GHz band Wi-Fi networks are supported) and enter the required password.

Figure 14: Connect to Wi-Fi network

1) Touch  or  to select the Wi-Fi network. Touch  to display the keyboard. Touch     to scroll to the character and touch  to enter the character.

2) Touch  to confirm the character.

3) Select the left “OK” button to confirm the password. Touch  to return to normal display mode.

It is possible that your network is not listed when Wi-Fi Scan is performed. Touch  and restart Wi-Fi Scan, this will usually solve the problem.

If the Wi-Fi network connects successfully, the icon  will show on the left top of the console display. If the data upload to Wunderground.com successfully, the icon  will show on the left top of the console display.

If the Wi-Fi network you would like to connect is with a hidden SSID(Network Name) , please follow below steps to connect:

4) Touch  to highlight the SSID. Touch  to display the keyboard and enter your SSID. Touch     to scroll to the character and touch  to enter the character.

Touch the left “OK” button to confirm the SSID. Touch  to return to the setup page.

5) Touch  to highlight the Password. Touch  to display the keyboard and start to enter your password. Touch     to scroll to the character and touch  to enter the character. Touch the left "OK" button to confirm the password. Touch  to return to the setup page.

6) Touch  to highlight the "OK" button beside "Connect" to start connecting.

After connected successfully, the status will display "Connected".

Figure 15: Connected to the WiFi Network

MAC address : On the home screen, touch the button,then select the "Weather Server" section, the MAC address is displaying.

Figure 16

3. User Interface

There are four dashboards: Main screen, Max/Min data, History record and Graph. You can touch button ↑↓ to select the one you want to display on the home screen.

3.1 Main screen

The home screen displays various data, including date, weather, moon phase, indoor/outdoor data, signal strength, and battery level. We categorize these icons into several groups for easier navigation and viewing.

3.1.1 Main Icons

See Figure 17 and 18 to help you identify elements of the console's display screen.

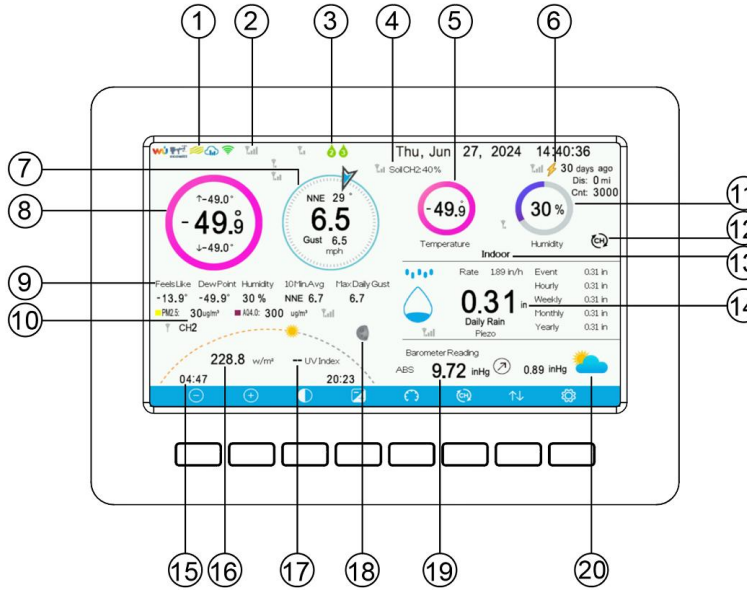


Figure 17: Display Console Screen Layout

No	Description	No	Description
1	Icons of Weather Services to which you successfully uploaded data	2	RF signal bar for outdoor sensor array
3	Multi-Channel water leak sensor (optional Sensor)	4	Soil moisture (WH51(L))/WN34S/L Temperature /WN35 Leaf Wetness (optional sensor)
5	Indoor temperature	6	Last lightning strikes detected time / distance ; daily counts (optional sensor)
7	Wind direction/Wind speed/Gust	8	Outdoor temperature
9	Outdoor Feels Like/Dew Point/Humidity/10Min. Average /Max Daily Gust	10	WH41/WH45/WH46 particulate matter detection sensor cycle display (optional senors)
11	Indoor humidity	12	Multi-channel temperature and humidity sensor cycle display mode icon (optional sensor)
13	Indoor and Multi-channel temperature and humidity sensor names (optional sensor)	14	Rain fall Daily / Event / Hourly / Weekly / Monthly / Yearly
15	Sunrise / Sunset Time	16	Solar Radiation
17	UV	18	Moon Phase
19	ABS/REL Barometer	20	Weather forecast

Table 3: Display console detailed items

For No.4, if you have purchased the optional WN34S/L Temperature Sensor, WN35 Leaf Wetness Sensor and WH51(L) Soil Moisture Sensor, all the data will be displayed in cycling mode.

3.1.2 Transmitter Signal Tower Icons

Check the connection and signal status of each sensor. You can view this information on the main screen or on the Sensor ID page.

The little transmission tower symbol means that the sensor is registered. The maximum four bars show how many of the past four data package transmissions of this sensor were successfully received and processed. They do not signify signal strength like on a mobile phone but rather indicate signal quality.If there's one bar is reduced after reaching full bars, it indicates that there has been a recent data reception failure.

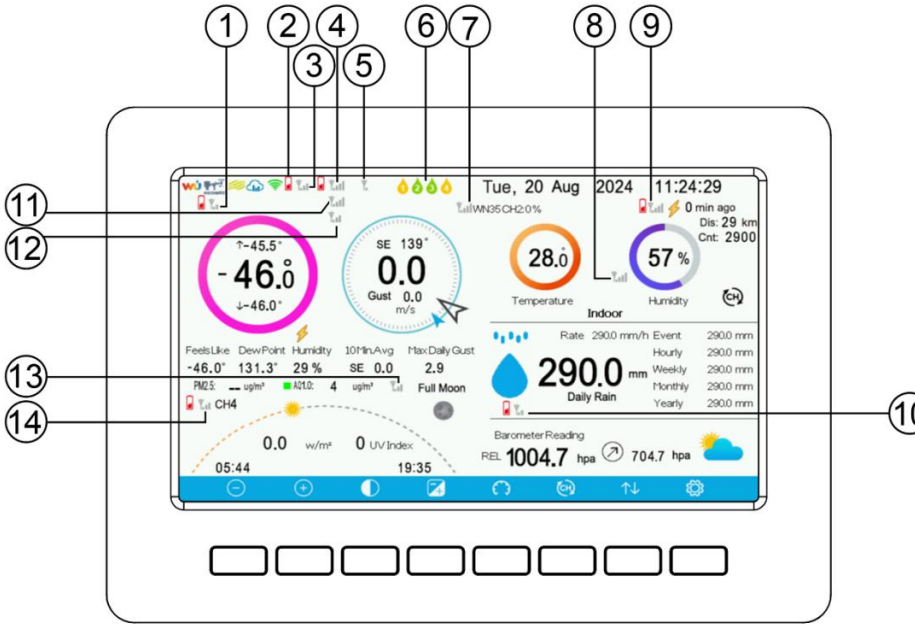


Figure 18 : Signal tower/signal quality of Sensors

No	Description	No	Description
1	WN32 Outdoor Temperature and Humidity Sensor	2	Low battery
3	WH65 Sensor Array	4	WS90 Haptic Sensor Array
5	WS80 Sensor Array	6	4 channels for water leak detection
7	WN34S/L WN35 WH51(L) Temperature Sensor,Leaf Wetness Sensor/Soil Moisture Sensor(Scroll Display)	8	WN32 indoor WN31 WN37 Temperature and Humidity Sensor(Scroll Display)
9	WH57 Lightning Detection Sensor	10	WH40 Rain Collector Rainfall Sensor
11	WS68 Anemometer with Light & UV Sensor	12	WS85 3-in-1 Wind-Rainfall Sensor
13	WH45/WH46 5-in-1/7-in-1 Air Quality Sensor	14	WH41 WH43 PM2.5 Air Quality Sensor (Scroll Display)

Table 4: Signal tower/ signal quality

Note: If you have purchased the optional WH55 water leak sensor, please check the following instructions for the display color:

- Green - normal
- Red & Flash - leaking
- Yellow - low battery alert
- Orange - offline over 10 mins

3.1.3 Temperature/Humidity/Wind direction/Rainfall icons

1) **Outdoor Temperature Icon**

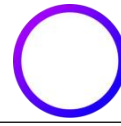
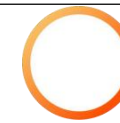
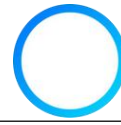
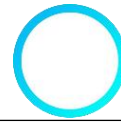
Temperature Range (degF)	Color Ring	Temperature Range (degF)	Color Ring
< -10		50.1 to 60	
-10 to 0		60.1 to 70	
0.1 to 10		70.1 to 80	
10.1 to 20		80.1 to 90	
20.1 to 30		90.1 to 100	
30.1 to 40		100.1 to 110	
40.1-50		> 110	

Table 5

Note: Max/Min values of outdoor temperature: Max outdoor temperature , Min outdoor temperature .

2) **Indoor Humidity Icon**

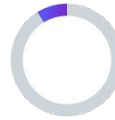
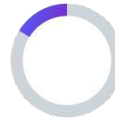
Humidity Range (%)	Color Ring	Humidity Range (%)	Color Ring
0%, No signal or dashes		51 to 60	
1 to 10		61 to 70	
11 to 20		71 to 80	
21 to 30		81 to 90	
31 to 40		91 to 99	
41 to 50		100%	

Table 6

3) Wind Direction Icon

Current wind direction indication , 10-minute average wind direction indication .

4) Hourly Rainfall Icon

Hourly Rain (in)	Color Ring	Hourly Rain (in)	Color Ring
0.0		0.6 to 0.8	
0 to 0.2		0.8 to 1	
0.2 to 0.4		1 to 1.2	
0.4 to 0.6		1.2 to 1.4	

Table 7

3.1.4 Weather Forecasting/Moon Phase Icons

1) Weather Forecasting

This weather forecast provides a prediction for the upcoming 24 hours. The forecast icon is based on the rate of change of barometric pressure. Please allow at least one month for the weather station to learn the barometric pressure over time.

Sunny	**Partly Cloudy**	**Cloudy**
		
Pressure increases for a sustained period of time	Pressure increases slightly or initial power up	Pressure decreases slightly
Rainy	**Stormy**	
		
Pressure decreases for a sustained period of time	Pressure rapidly decreases	

Table 8

In general, if the rate of change of pressure increases, the weather is generally improving (sunny to partly cloudy). If the rate of change of pressure decreases, the weather is generally degrading (cloudy, rainy or

stormy). If the rate of change is relatively steady, it will read partly cloudy.

The reason the current conditions do not match the forecast icon is because the forecast is a prediction 24-48 hours in advance. In most locations, this prediction is only 70% accurate and it is a good idea to consult the National Weather Service for more accurate weather forecasts. In some locations, this prediction may be less or more accurate. However, it is still an interesting educational tool for learning why the weather changes.

As the forecast is based on pressure changes alone, modifying components like inversions or jet stream changes cannot be noticed and considered by the weather station. Only satellites or weather balloons could do this.

The National Weather Services (and other weather services such as Accuweather and The Weather Channel) have many tools at their disposal to predict weather conditions, including weather radar, weather models, and detailed mapping of ground conditions.

2) Moon Phase

The moon phase chart is displayed according to the moon phase percentage breakdown. The Full Moon shows  ,and the New Moon shows  .

Moon Phase percentage	Image	Moon Phase percentage	Image
1.38%-->5%		96%-->86%	
5%-->13%		86%-->77%	
13%-->21%		77%-->69%	
21%-->29%		69%-->61%	
29%-->37%		61%-->53%	
37%-->45%		53%-->45%	
45%-->53%		45%-->37%	
53%-->61%		37%-->29%	

61%-->69%		29%-->21%	
69%-->77%		21%-->13%	
77%-->86%		13%-->5%	
86%-->96%		5%-->1.38%	
96%-->100% 100%-->96%	 Full Moon	0%-->1.38% 1.38%-->0%	 New Moon

Table 9：Moon Phase

3.1.5 Beaufort Wind Force Scale

If you have selected the use of Beaufort wind speed units, you can use the **Table 10** below for reference. The Beaufort scale is based on qualitative wind conditions and how they would affect a ship's (frigate) sails (so yes, it is an "old" standard). It is therefore less precise than the other scales but is still in use in various locales.

Wind speed	Beaufort number	Description
0 - 1 mph, or 0 - 1.6 km/h	0	Calm
1 - 3 mph, or 1.6 - 4.8 km/h	1	Light air
3 - 7 mph, or 4.8 - 11.3 km/h	2	Light breeze
7 - 12 mph, or 11.3 -1 9.3 km/h	3	Gentile breeze
12 - 18 mph, or 19.3 - 29.0 km/h	4	Moderate breeze
18 - 24 mph, or 29.0 - 38.6 km/h	5	Fresh breeze
24 - 31 mph, or 38.6 - 49.9 km/h	6	String breeze
31 - 38 mph, or 49.9 - 61.2 km/h	7	Near gale
38 - 46 mph, or 61.2 - 74.1 km/h	8	Gale
46 - 54 mph, or 74.1 - 86.9 km/h	9	Strong gale
55 - 63 mph, or 88.5 - 101.4 km/h	10	Storm
64 - 73 mph, or 103 - 117.5 km/h	11	Violent storm
74 mph and above, or 119.1 km/h and above	12	Hurricane

Table 10: Beaufort wind force scale

3.1.6 Lightning Alert

The lightning icon will appear if the Dew Point exceeds 70 °F. This means there is a chance of lightning storms forming.

3.1.7 Background (dark/light) Themes

Immediately after power up (inserting USB power supply), the unit will turn on the display, and the unit will start to look for reception of the indoor and outdoor sensor data. This may take up to 3 minutes.

Figure 19: Dark Background Display

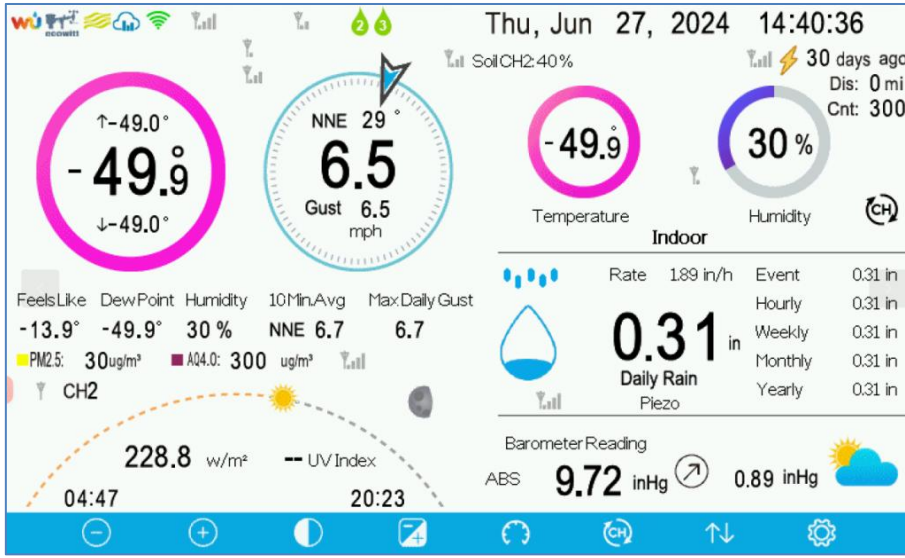


Figure 20: Light Background Display

3.2 View and Reset MAX/MIN

While in the home screen, touch the ↑↓ button once to view and reset minimum and maximums.

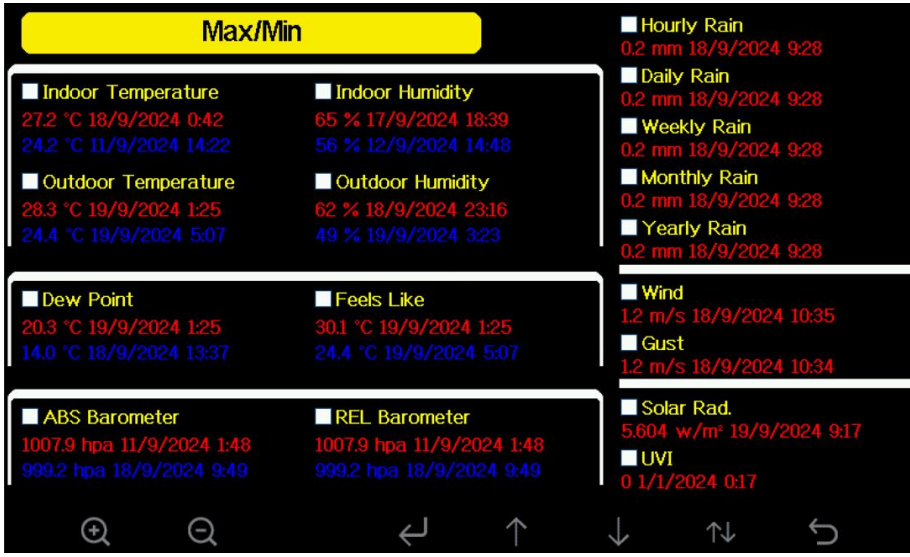


Figure 21 : Max/Min Screen

Icon	Description
	**Selection button** Touch this button to select the weather MAX/MIN record which need to clear.
	**Selection button** Touch this button to select the weather MAX/MIN record which need to clear.
	**Enter button** While the desired weather MAX/MIN record selected, touch this button to popup Message Box "Clear the Max/Min record?".Touch  or  button to select YES or NO. Touch the  or  button to confirm the selection.
	**Up arrow button** Touch this button to change the activated option field.
	**Down arrow button** Touch this button to change the activated option field.
	**History button** Touch this button to select History data display.
	**Return button** Touch this button to return to normal display mode.

Table 11

3.3 History Record

While in normal display, touch the  button twice to enter History Record Mode.

In History mode only data saved to the console memory can be seen. When that memory is full, the oldest record will be overwritten. These are only the basic weather data like wind, rain, temperature, humidity, pressure, solar and UVI. Extra sensor data are not stored in the internal memory. They will, together with the basic data, be archived on an SD card if one is present. They cannot be displayed on the console but can be downloaded from the SD card as CSV (comma separated values) files and processed in a spreadsheet application.

Note: The console can store historical data on a memory card. This memory card is not included. If you want to use this function, you will need a micro SD memory card. The supported max capacity of the card is 32G (Format: FAT32). A 1GB card will store more than 10 years of data, so you do not need a very large capacity card. There is also no requirement on the speed class of this card as data writing happens infrequently and is not speed critical.
If you need an SD card larger than 32G,use the Rufus tool to format the SD card to FAT32. Download the tool from https://rufus.ie/en/.

No	Time	Indoor Temperature (°F)	Indoor Humidity (%)	Outdoor Temperature (°F)	Outdoor Humidity (%)	Dew Point (°F)	Feels Like (°F)	Wind (mph)
241	6/26/2024 pm 12:10	58.8	5	75.0	55	57.7	75.0	1.8
242	6/26/2024 pm 12:15	67.5	21	75.0	55	57.7	75.0	1.8
243	6/27/2024 am 3:10	5.4	5	-6.5	48	-21.3	-31.9	22.4
244	6/27/2024 am 3:15	12.9	19	-7.6	47	-22.5	-33.3	22.4
245	6/27/2024 am 3:20	20.5	33	-8.3	46	-23.6	-34.2	22.4
246	6/27/2024 am 3:25	28.6	48	-9.2	46	-24.5	-35.3	22.4
247	6/27/2024 am 3:30	36.1	62	-10.3	46	-25.4	-36.8	22.4
248	6/27/2024 am 3:35	43.7	76	-11.0	46	-26.1	-37.8	22.4
249	6/27/2024 am 3:40	51.8	91	-12.3	46	-27.4	-39.5	22.4
250	6/27/2024 am 3:45	59.4	6	-13.0	46	-27.9	-40.4	22.4
251	6/27/2024 am 3:50	66.9	20	-13.9	46	-28.8	-41.6	22.4
252	6/27/2024 am 3:55	74.5	34	-14.8	45	-29.9	-42.9	22.4
253	6/27/2024 am 4:00	82.6	49	-15.5	45	-30.8	-43.8	22.4
254	6/27/2024 am 4:05	89.1	61	-16.6	45	-31.5	-45.2	22.4
255	6/27/2024 am 4:10	97.2	76	-16.6	45	-31.7	-45.2	22.4
256	6/27/2024 am 4:13	104.7	90	-17.1	45	-32.3	-45.9	22.4

Figure 22: History record Screen

Icon	Description
	**File Select button** Touch this button to clear all history record.
	**Page Select button** Touch this button to enter particular page of the history data. Each page contains 16sets data.
	**Page up button** Touch this button to switch the columns of data to be viewed.
	**Page up button** Touch this button to switch the columns of data to be viewed.

	Page up button Touch this button to scroll up the page you are viewing.
	Page down button Touch this button to scroll down the page you are viewing.
	History button Touch this button to select the Max/Min record or History.
	Return button Touch this button to return to previous mode.

Table 12

While in History Record Mode, touch button to popup the Message Box: “Clear the history record?” Touch “Yes” to clear all history records saved on console. Touch or button to return to History record Mode.

No	Time	Indoor Temperature (°F)	Indoor Humidity (%)	Outdoor Temperature (°F)	Outdoor Humidity (%)	Dew Point (°F)	Feels Like (°F)	Wind (mph)
241	6/26/2024 pm 12:10	58.8	5	75.0	55	57.7	75.0	1.8
242	6/26/2024 pm 12:15	67.5	21	75.0	55	57.7	75.0	1.8
243	6/27/2024 am 3:10	5.4	5	-6.5	48	-21.3	-31.9	22.4
244	6/27/2024 am 3:15				47	-22.5	-33.3	22.4
245	6/27/2024 am 3:20				46	-23.6	-34.2	22.4
246	6/27/2024 am 3:25				46	-24.5	-35.3	22.4
247	6/27/2024 am 3:30				46	-25.4	-36.8	22.4
248	6/27/2024 am 3:35				46	-26.1	-37.8	22.4
249	6/27/2024 am 3:40				46	-27.4	-39.5	22.4
250	6/27/2024 am 3:45				46	-27.9	-40.4	22.4
251	6/27/2024 am 3:50				46	-28.8	-41.6	22.4
252	6/27/2024 am 3:55	74.5	34	-14.8	45	-29.9	-42.9	22.4
253	6/27/2024 am 4:00	82.6	49	-15.5	45	-30.8	-43.8	22.4
254	6/27/2024 am 4:05	89.1	61	-16.6	45	-31.5	-45.2	22.4
255	6/27/2024 am 4:10	97.2	76	-16.6	45	-31.7	-45.2	22.4
256	6/27/2024 am 4:13	104.7	90	-17.1	45	-32.3	-45.9	22.4

Clear the history record?

Yes No

Figure 23: Clear History Record Screen

While in History Record Mode, touch the button to enter the page selection mode:

No	Time	Indoor Temperature (°F)	Indoor Humidity (%)	Outdoor Temperature (°F)	Outdoor Humidity (%)	Dew Point (°F)	Feels Like (°F)	Wind (mph)
241	6/26/2024 pm 12:10	58.8	5	75.0	55	57.7	75.0	1.8
242	6/26/2024 pm 12:15	67.5	21	75.0	55	57.7	75.0	1.8
243	6/27/2024 am 3:10	5.4	5	-6.5	48	-21.3	-31.9	22.4
244	6/27/2024 am 3:15	12.9	19	-7.6	47	-22.5	-33.3	22.4
245	6/27/2024 am 3:20				46	-23.6	-34.2	22.4
246	6/27/2024 am 3:25				46	-24.5	-35.3	22.4
247	6/27/2024 am 3:30				46	-25.4	-36.8	22.4
248	6/27/2024 am 3:35				46	-26.1	-37.8	22.4
249	6/27/2024 am 3:40				46	-27.4	-39.5	22.4
250	6/27/2024 am 3:45				46	-27.9	-40.4	22.4
251	6/27/2024 am 3:50	66.9	20	-13.9	46	-28.8	-41.6	22.4
252	6/27/2024 am 3:55	74.5	34	-14.8	45	-29.9	-42.9	22.4
253	6/27/2024 am 4:00	82.6	49	-15.5	45	-30.8	-43.8	22.4
254	6/27/2024 am 4:05	89.1	61	-16.6	45	-31.5	-45.2	22.4
255	6/27/2024 am 4:10	97.2	76	-16.6	45	-31.7	-45.2	22.4
256	6/27/2024 am 4:13	104.7	90	-17.1	45	-32.3	-45.9	22.4

View data on page 1 to 17

00016

Ok Cancel

Figure 24: View a specific page of history Screen

Touch or button to select a digit in a number, touch or button to change the number. Touch or button to change the activated option field, toggle OK or Cancel then touch or button to confirm.

3.4 Graph Mode

While in History Record Mode, touch the button once to enter Graph Mode.

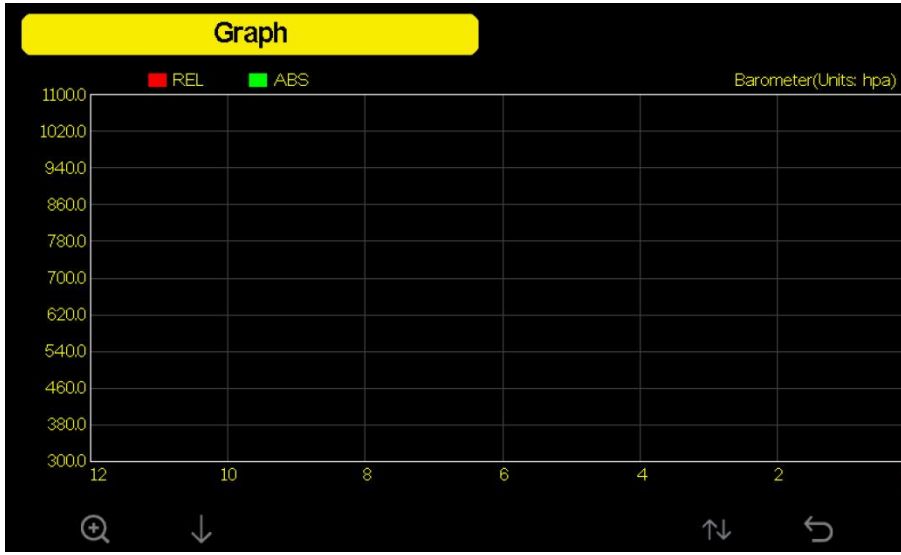


Figure 25: Graph mode

Touch  to shift the data display of 12/24/48/72H. Touch  to view the graph of the following data:

- Indoor Outdoor temperature
- Dew Point and Feels like
- Indoor Outdoor humidity
- Wind speed and Gust
- Wind Direction
- UVI
- Solar Radiation
- Rainfall hourly and daily
- Barometer (REL & ABS)

3.5 Optional Sensor Display Mode

To view the full display of multi-channel sensors you can do this:

While in Graph Mode, touch the  button once to enter Optional Sensor Display Mode.

Figure 26: Optional sensor display

Note: Channel names can be edited on this page.

- Touch the up or down button to select the channel, then touch the plus or minus button to display the keyboard. Touch the one of the  button to select the character, then touch the  button to confirm it.Finally touch the “OK” button to change the channel name.

- The character you want does not appear on the keyboard, please select  and then touch the button  to switch to the desired character.

Figure 27: Edit the channel name

4. Setup Guide

While in normal display, touch the  button to enter Setting mode. You can select the below sub-mode by touching the  button.

4.1 Setup page

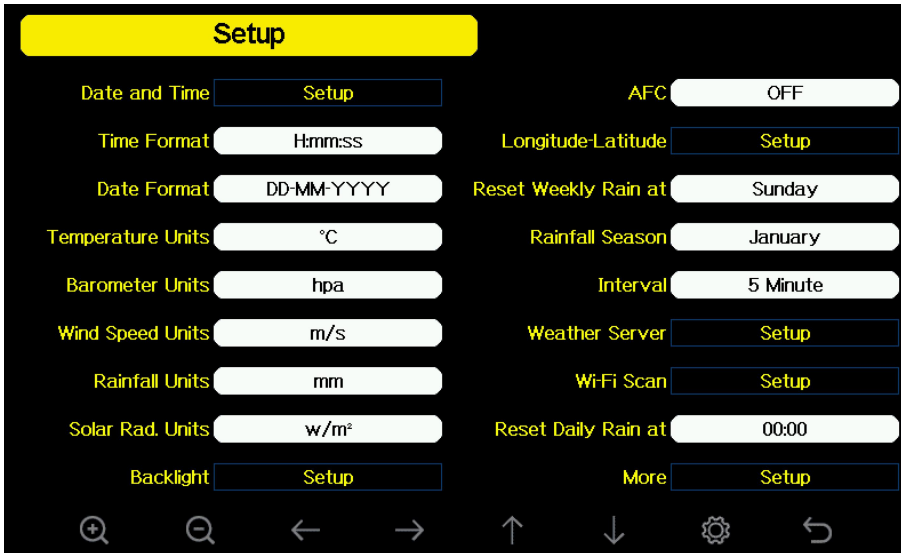


Figure 28: Setup Menu Screen

Icon	Description
	Select button Touch this button to select the unit or scrolls the value.
	Select button Touch this button to select the unit or scrolls the value.
	Left button Touch this button to select the set value.
	Right button Touch this button to select the set value.
	Up arrow button Touch this button to change the activated option field.
	Down arrow button Touch this button to change the activated option field.

	Set button Touch this button to select the Setting sub-Mode.
	Return button Touch this button to return to previous mode.

Table 13

4.1.1 Date and Time

The automatic time synchronization function is turned on by default, and the network time synchronization will be automatically performed every 2 hours. If the external crystal oscillator is damaged, the network time synchronization will be performed every 10 minutes. The network time synchronization function must be connected to the Internet normally to be effective.

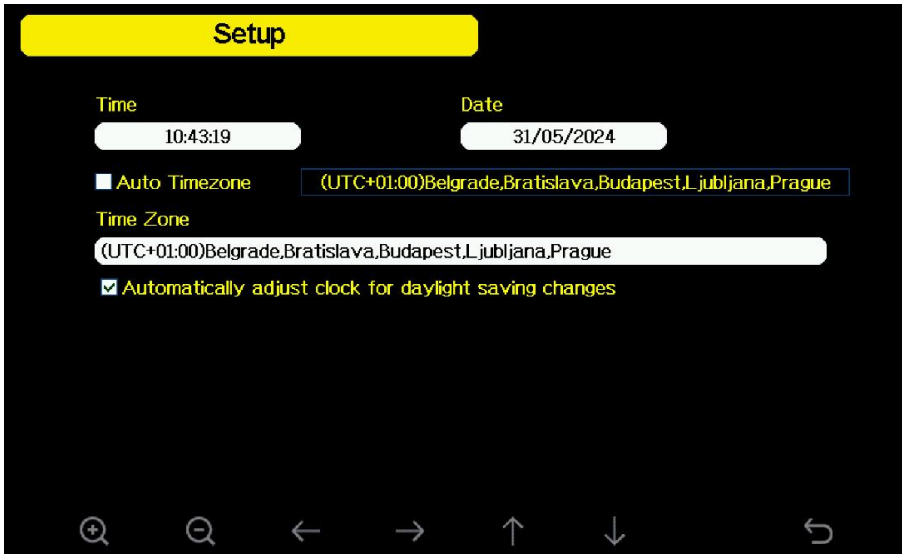


Figure 29: Date and Time Setting

Note: Touch or button to select and confirm.

4.1.2 Time Format

Options: h:mm:ss am,am h:mm:ss,H:mm:ss

4.1.3 Date Format

Options: DD-MM-YYYY, YYYY-MM-DD ,MM-DD-YYYY.

4.1.4 Temperature Units

Options: °F and °C

4.1.5 Barometric Units

Options: inHg,mmHg,hpa

4.1.6 Wind speed Units

Options: km/h, knot, mph, bft(Beaufort scale), ft/s, m/s.

4.1.7 Rainfall Units

Options: in,mm.

4.1.8 Solar Rad.Units

Options: w/m², Fc,Lux.

4.1.9 Backlight

While in Menu Setting Mode, touch ↓ button to select the specific functions.

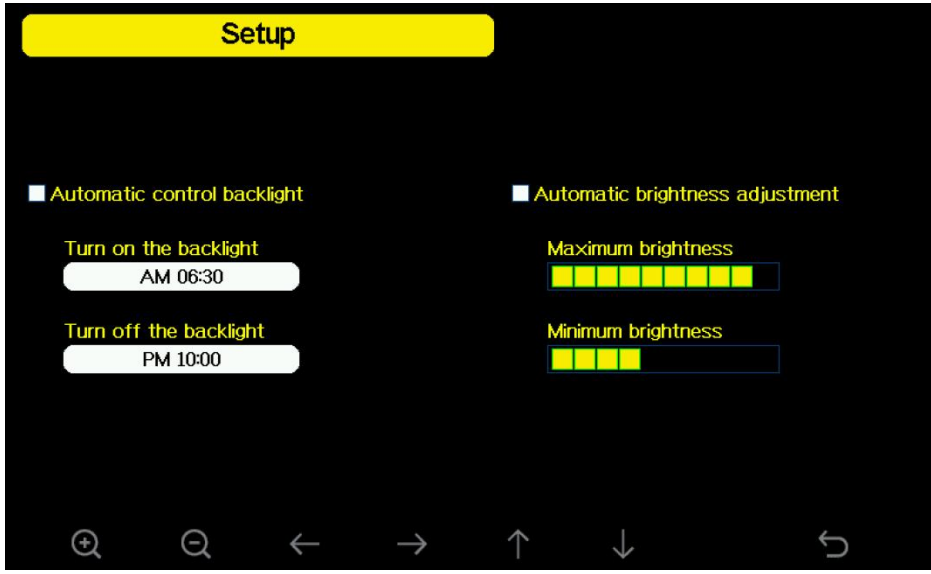


Figure 30: Backlight Setting Screen

- ✓ Automatic control backlight: select this option, the backlight will auto turn on and off according to the set time.
- ✓ Turn on the backlight: set the time of turning on backlight.
- ✓ Turn off the backlight: set the time of turning off backlight.
- ✓ Automatic brightness adjustment: selecting this option, the brightness will change according to the light intensity measured from outdoor sensor.
- ✓ Maximum brightness: set the maximum brightness while it is the highest light intensity.

- ✓ Minimum brightness: set the minimum brightness while it is the weakest light intensity.

Note: If the auto backlight turn-on time has been set, you can touch any button to turn off the backlight within the turn on time. Backlight will turn on again automatically at next turn on time. During the backlight off time, you can touch any button to turn on the backlight until the next backlight off time.

4.1.10 AFC (Default: OFF)

AFC typically stands for "Automatic Frequency Control".

Touch the  or  button to choose the ON and OFF. The "AFC" option optimizes the console's radio signal reception in specific conditions and potentially improves reception capabilities. If you're experiencing reception issues, enable this option to see if it helps. If you have no reception problem at all, it's best to leave this option untouched.

4.1.11 Longitude and Latitude

Options: Longitude,Latitude

While in Menu Setting Mode, touch  button to select Longitude and Latitude setup field, touch  or  button to enter Longitude and Latitude.

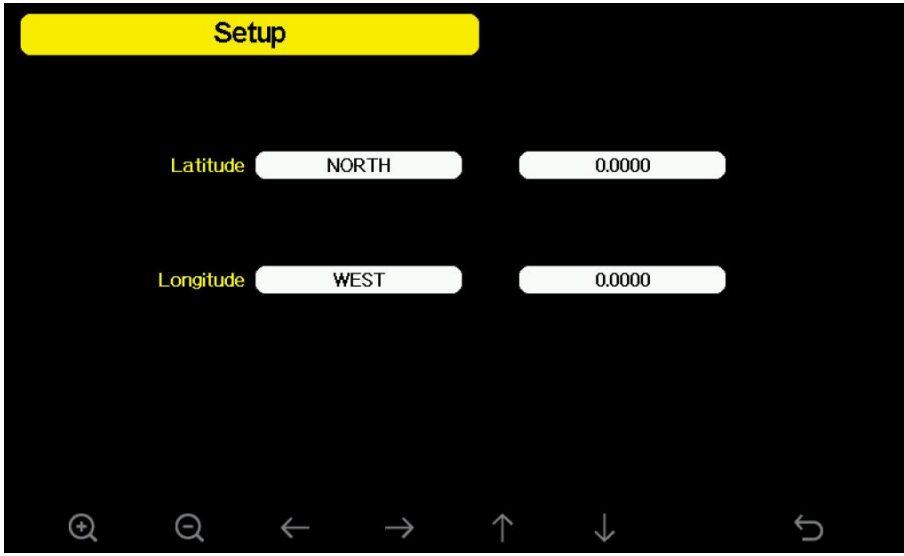


Figure 31: Longitude and Latitude Setting Screen

The sunrise/sunset times will be calculated automatically based on the Longitude and Latitude. Two decimal places are sufficient for this feature to function correctly.

Locations between the equator and the North Pole have northern latitude, while locations between the equator and the South Pole have southern latitude. Locations east of the Prime Meridian (0°) to the International Date Line (180°) include areas across Europe and Asia, which are in eastern longitude. Locations west of the Prime Meridian (0°) to the International Date Line (180°) include areas across the Atlantic and Pacific Oceans, which are in western longitude.

4.1.12 Reset Weekly Rain at (default: Sunday)

Options: Monday, Sunday.

In this setting, you can choose whether the weekly rainfall count starts from Sunday at 0:00 or from Monday at 0:00.

4.1.13 Rainfall Season (default: January)

Options: January to December

This refers to the month for resetting the annual rainfall to zero.

For example, if the clearing month is set to February, the annual rainfall will be cleared on February 1st of the following year.

4.1.14 Interval (1-240minutes Selectable)

This refers to the time interval for recording historical data, and SD card backup data interval.

For example, if the time interval for recording historical data is set to 1 minute, then one set of data will be recorded every minute.

4.1.15 Weather Server

There are several weather servers available for your selection. We have dedicated a separate **Section 5** to guide you on how to create an account and view the data for your reference.

4.1.16 WiFi-Scan

Please refer to **Section 2.7.3** for detailed operation.

4.1.17 Reset Daily Rain at (default: 00:00)

Options: 0:00-23:00

You can set the daily reset time for daily rainfall.

4.1.18 More

Touch the  or  button to access the "More" page.

Touch the  or  button to access or confirm the mode you need.

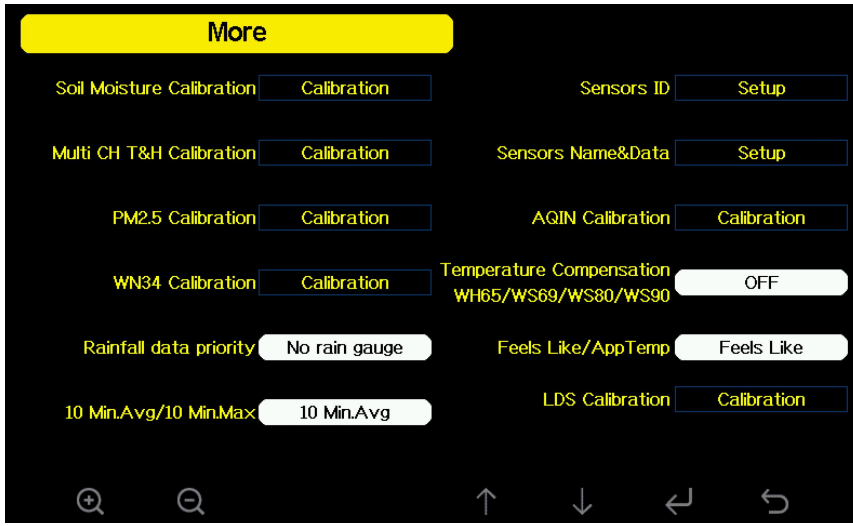


Figure 32

① Soil Moisture Calibration mode

Channel: Channel name

Soil Moisture: Current soil moisture value
Now AD: The AD value corresponding to the current soil moisture
0% AD: The AD value corresponding to 0% soil moisture (range: 70 to 200)
100% AD: The AD value corresponding to 100% soil moisture (range: 0% AD + 10 to 1000)
Customize: Customization option
Reset: Reset button

Figure 33: Soil Moisture Calibration

② Multi CH T&H Calibration mode

Please refer to **Section 4.3** to view about how to calibrate.

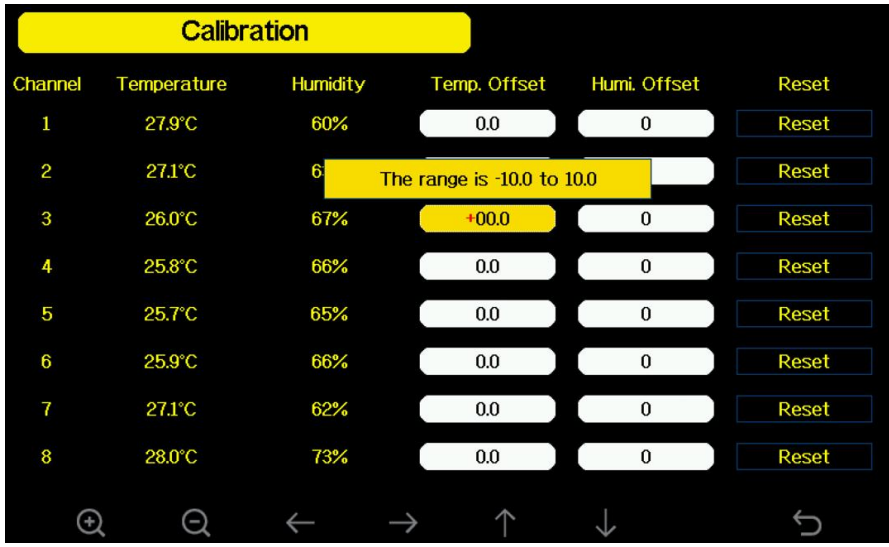


Figure 34

③ PM2.5 Calibration mode

Channel: Channel Name
PM2.5: Current PM2.5 value
PM2.5 Offset: PM2.5 Compensation value
Reset: Reset Button

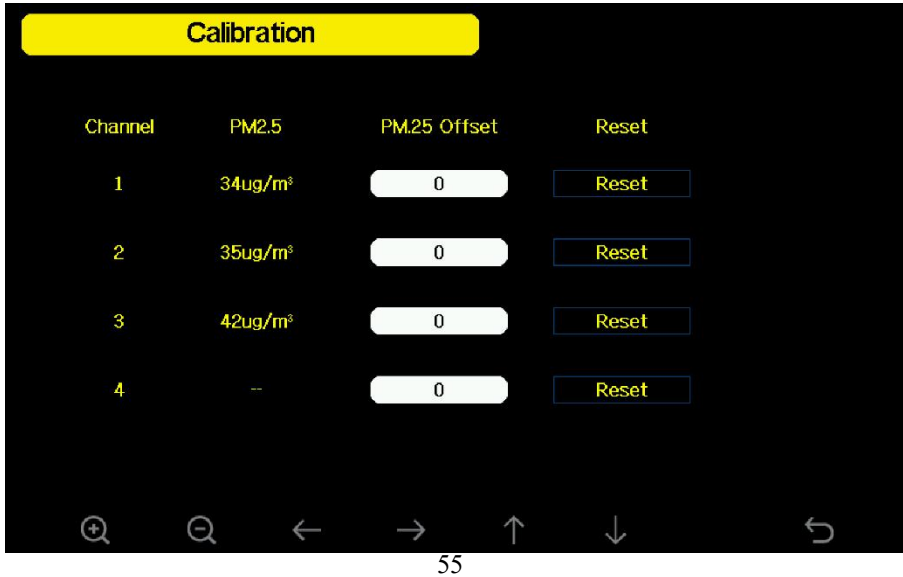


Figure 35: PM2.5 Calibration

④ WN34 Calibration mode

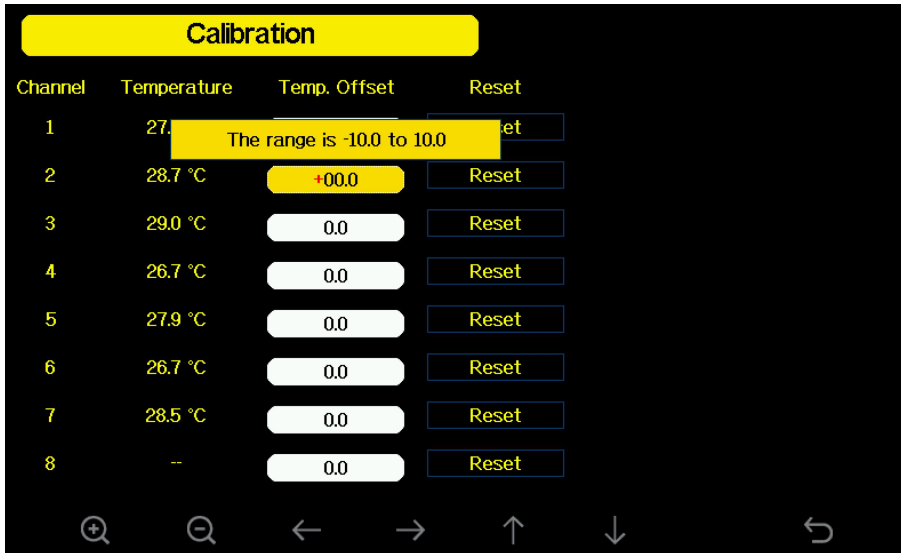


Figure 36

⑤ Rainfall data priority mode

You can switch the rainfall display priority here.

Options: Traditional Rain Gauge→ Piezoelectric Rain Gauge →No Rain Gauge

WH40 and WS69 for traditional rainfall,

WS85 and WS90 for piezoelectric rainfall.

⑥ Display 10 Min.Avg or 10 Min.Max for wind speed

Options: 10 Min.Avg→10 Min.Max

⑦ Sensors ID

You can view your sensors ID or register a new one. The detailed information and operation have been elaborated in **Section 2.6.**

⑧ Sensor Name&Data

You can change the sensor name and view the sensor data. The detailed information and operation have been elaborated in **Section 3.5.**

⑨ AQIN Calibration mode

When the console receives the WH46 sensor, the page will also display options for PM1.0 and PM4.0. A WH45 sensor shows only PM2.5 and PM10.

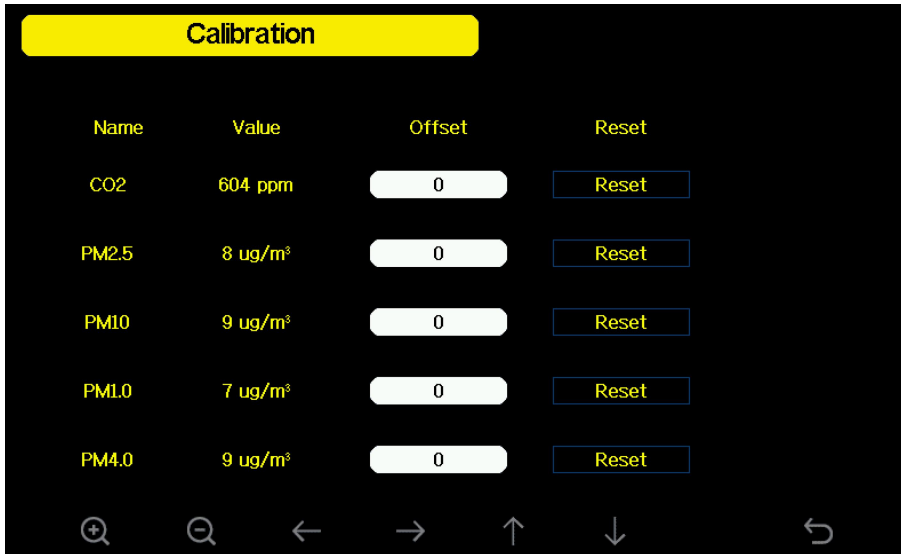


Figure 37: AQIN Calibration

⑩ Temperature Compensation WH65/WS69/WS80/WS90 mode

This option defaults “OFF”.

If the arrays are installed above grass and are not affected by background heating, you do not need to enable this option. However, if it is installed on a rooftop where heating from the roof could influence the outdoor air temperature measurement, you should enable this option. This setting will account for the sun's heating effect and compensate for the setup's potential inaccuracies.

⑪ Feels Like/App Temp

Options: Feels Like→ App Temp.

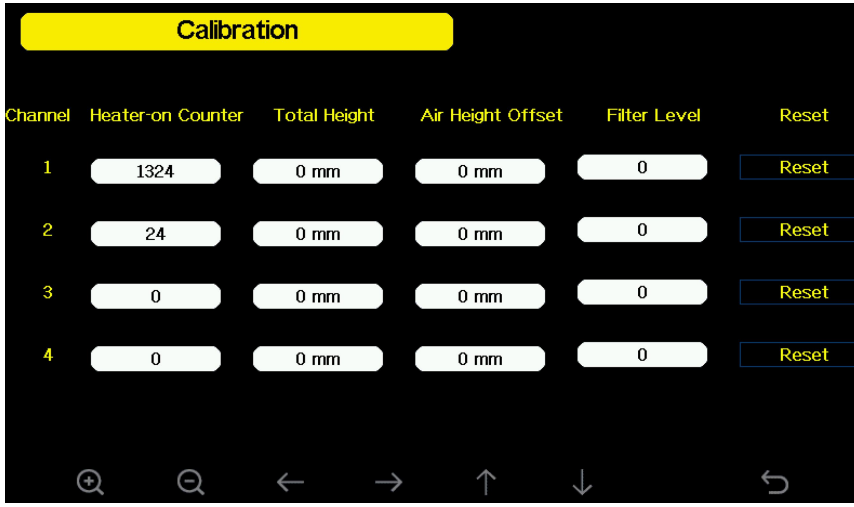
Feels Like measurement range: -40°F ~ 140°F (40°C ~ 60°C).

When the outdoor temperature is less than 50°F (10°C), the value of Feels Like is wind chill. When the outdoor temperature is greater than or equal to 50°F(10°C) and less than or equal to 80°F (26.7°C), the value of Feels Like is the outdoor temperature.
When the outdoor temperature is greater than 80°F (26.7°C), the value of Feels Like is the heat index.

Please refer to this URL to read the Feels Like definition:
https://s.ecowitt.com/PXK90X

If you are in Australia, you can also refer to this:
https://s.ecowitt.com/0K64B3

⑫ LDS Calibration



Channel: Channel name

Heater-on Counter: Displays the number of times the heater has been activated since it was first turned on, with a default value of 0. Once the heating function is enabled on the LDS01, the counter will automatically increment and save each time the heater is activated.

Total Height: This refers to the distance from the bottom of the tank to the bottom of the device (for water measurement) or from the bottom of the device to the ground (for snow measurement). This value must be manually entered by the user.

Air Height Offset: This is the distance from the air space above the water/snow level to the bottom of the device. If the measured value of the device is considered inaccurate, you can set an offset to correct it.

Filter Level: It is used to process the air height values obtained by the LDS01, reducing the impact of instantaneous fluctuations on the data and improving the stability and accuracy of the data. There are 5 levels in total, with the default being level 0.According to the most recent obtained Air Height values, sorted in ascending order.

The Air Height values corresponding to the filter levels are as follows:

Level 0 (default)	Uses the **current latest value** directly, suitable for scenarios with high real-time requirements, but may be affected by instantaneous fluctuations. If highly stable data is not necessary, this level can be chosen.
Level 1	Uses the **median value of the most recent 3 measurements**, sorting to remove extreme values and providing more stable results.
Level 2	Uses the **median value of the most recent 5 measurements**, further reducing fluctuations and improving data smoothing.
Level 3	Uses the **median value of the most recent 7 measurements**, suitable for scenarios requiring higher data stability, effectively eliminating more fluctuations.
Level 4	Uses the **median value of the most recent 9 measurements**, suitable for scenarios requiring extremely high data stability. This level smooths the data to the greatest extent, removing more fluctuations.

By adjusting the filter level, you can balance the real-time performance and stability of the data, meeting the requirements of different applications.

Reset: Resets the Heater-on Counter, Total Height, and Air Height calibration data to zero.

Notes:

1. The “air” shown in **Section 3.5 “Optional Sensor Display Mode”** refers to the distance. When measuring depth, the total height value is a required setting.

2. The total height setting must be greater than or equal to the air height for the water depth to be displayed correctly. Otherwise, it will show as "--".

4.2 Alarm page

Touch the  button on the home screen once, then touch it again to access the Alarm page.

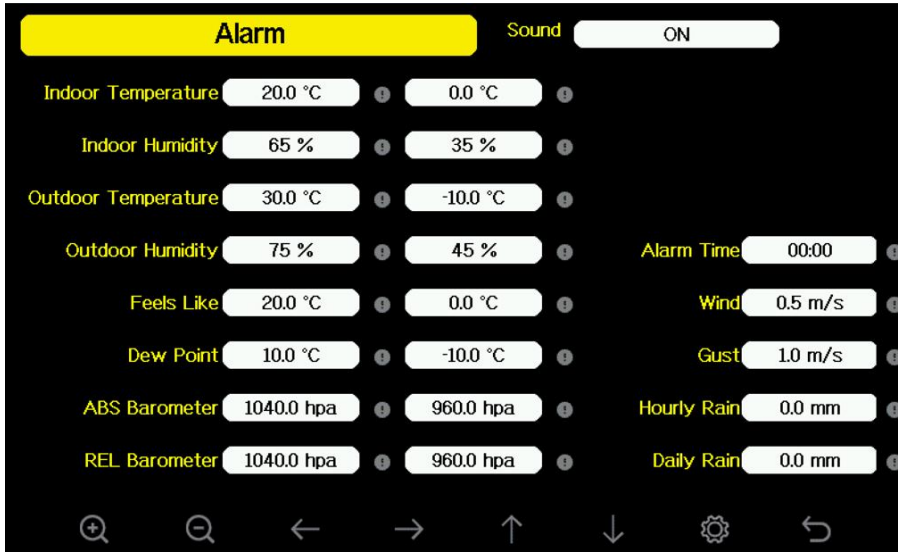


Figure 38: Alarm setting mode

The first row is high alarm value and the second row is low alarm value. When a high value is reached or crossed or a low value is reached or crossed, the alarm will be triggered.When a weather alarm condition has been triggered, that particular alarm will sound for 120 seconds and the

corresponding icon will flash until the weather condition no longer meets the user set level. Touch any button to mute the alarm.

Note: Please turn on the sound button first, otherwise the console will not sound an alarm. Then set a value which need to be alarmed and touch the  button to turn on the  .

The little alarm circles  will be shown with their colour on the console display next to the respective sensor.

4.3 Calibration page

Touch the  button on Alarm page to access the Calibration Mode page.

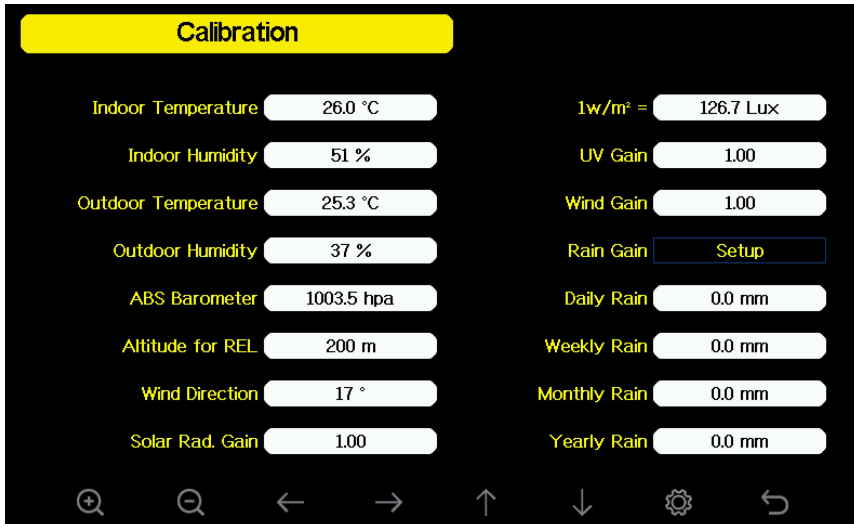


Figure 39: Calibration Mode

To adjust the parameter, touch  to scroll to the parameter you wish to change. Touch  to highlight the sign (positive vs. negative, if applicable) and significant digit. Touch  or  to change the calibrated value.

Parameter	Type of Calibration	Default	Typical Calibration Source
Temperature	Offset	Current Value	Red Spirit or Mercury Thermometer (1)
Humidity	Offset	Current Value	Sling Psychrometer (2)
ABS Barometer	Offset	Current Value	Calibrated laboratory grade barometer
Altitude for REL	Offset	0	Current Location Altitude (3)
Wind Direction	Offset	Current Value	GPS, Compass (4)
Solar Radiation	Gain	1.00	Calibrated laboratory grade solar radiation sensor
1 w/m^2	Gain	126.7 lux	Solar radiation conversion from lux to w/m^2 for wavelength correction (5)
Wind	Gain	1.00	Calibrated laboratory grade wind meter (6)
Rain	Gain	1.00	Sight glass rain gauge with an aperture of at least 4” (7)
Daily Rain	Offset	Current Value	Apply an offset if the weather station was not operating for the entire day.
Weekly Rain	Offset	Current Value	Apply an offset if the weather station was not operating for the entire week.
Monthly Rain	Offset	Current Value	Apply an offset if the weather station was not operating for the entire month.

Yearly Rain	Offset	Current Value	Apply an offset if the weather station was not operating for the entire year.

Table 14

(1) Temperature errors can occur when a sensor is placed too close to a heat source (such as a building structure, the ground or trees).

To calibrate temperature, we recommend a mercury or red spirit (fluid) thermometer. Bi-metal (dial) and digital thermometers (from other weather stations) are not a good source and have their own margin of error. Using a local weather station in your area is also a poor source due to changes in location, timing (airport weather stations are only updated once per hour) and possible calibration errors (many official weather stations are not properly installed and calibrated).

Place the sensor in a shaded, controlled environment next to the fluid thermometer, and allow the sensor to stabilize for 3 hours. Compare this temperature to the fluid thermometer and adjust the console to match the fluid thermometer.

(2) Humidity is a difficult parameter to measure electronically and drifts over time due to contamination. In addition, location has an adverse effect on humidity readings (installation over dirt vs. lawn for example).

Official stations re-calibrate or replace humidity sensors on a yearly basis. Due to manufacturing tolerances, the humidity is accurate to ± 5%. To improve this accuracy, the indoor and outdoor humidity can be calibrated using an accurate source, such as a sling psychrometer.

(3) Relative Pressure Compensation Calculation

The relative pressure compensation value (REL) is calculated based on al titude, outdoor temperature, and absolute pressure (ABS). If outdoor tem

perature data is unavailable, REL can be calculated using the following fo rmula:
REL = ABS + Altitude/11
The altitude unit can be either feet (ft) or meters (m), depending on the selected rainfall unit:
If the rainfall unit is set to inches (in), the altitude unit will be feet (ft).
If the rainfall unit is set to millimeters (mm), the altitude unit will be meters (m).
Please select the appropriate units based on your needs to ensure accurate calculations.

(4) Only use this if you improperly installed the weather station sensor array, and did not point the direction reference to true north.

(5) The default conversion factor based on the wavelength for bright sunlight is 126.7 lux ~ 1 W/m2. It results from a photometrically determined light value converted into a radiometrically based power unit. This variable can be adjusted by photovoltaic experts based on the light wavelength of interest, but for most weather station owners , it is accurate for typical applications, such as calculating evapotranspiration and solar panel efficiency for equally aligned panels.

(6) Wind speed is most sensitive to installation constraints. The rule of thumb for properly installing a wind speed sensor is 4 x the distance of the tallest obstruction. For example, if your house is 20’ tall and you mount the sensor on a 5’ pole:

Distance = 4 x (20 – 5)’ = 60’ or =4 x (6.10-1.52)=18.32m.

Many installations are not perfect and installing the weather station on a roof can be difficult. Thus, you can calibrate for this error with a wind speed multiplier.

In addition to the installation challenges, wind cup bearings (moving parts) wear over time.

Without a calibrated source, wind speed can be difficult to measure. We recommend using a calibrated wind meter (not included) and a constant speed, high speed fan.

Note: If located in Southern hemisphere, please follow the steps to calibrate the wind direction:

1. Install the outdoor sensor package with the West arrow on the sensor pointing due East.
2. Check the wind direction offset (Default: equals to the current wind direction).

If: Current wind direction offset < 180, then it should be calibrated to be: current wind direction + 180. If: Current wind direction offset > 180, then it should be calibrated to be: current wind direction - 180

For example, if the current wind direction is 288, then you'll need to set the wind direction offset to be: 288-180=108.

If the current wind direction is 12, then you'll need to set the wind direction offset to be: 12+180=192.

(7) The rain collector is calibrated at the factory based on the funnel diameter. The bucket tips every 0.1mm or 0.004 inch of rain (referred to as resolution). The accumulated rainfall can be compared to a sight glass rain gauge with an aperture of at least 4" or 0.1m. 1 mm refers to the water level on a 1 m^2 surface or one litre. A 1,000 mm high cubic container with a ground area of 1 m^2 will contain 1 m^3 or 1,000 litres of water when filled. This applies to the WH40 rain gauge. One bucket tip of the WS69/WH65 rain gauge corresponds to 0.254 mm or 0.1 inch.

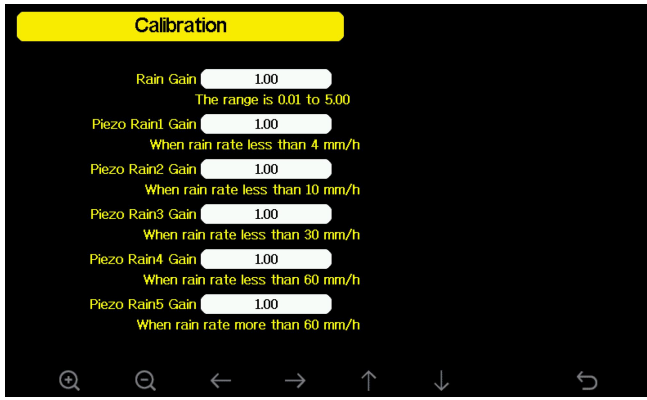
Make sure you periodically clean the rain gauge funnel.

Note: The purpose of calibration is to fine tune or correct for any sensor error associated with the device's margin of error. Errors can occur due to electronic variation (example, the temperature sensor is a resistive thermal device or RTD, the humidity sensor is a capacitance device), mechanical variation, or degradation (wearing of moving parts, contamination of sensors).

Calibration is only useful if you have a known calibrated reference you can compare it against, and is optional. This section discusses practices, procedures and sources for sensor calibration to reduce manufacturing and degradation errors. Do not compare your readings obtained from sources such as the internet, radio, television or newspapers. The purpose of your weather station is to measure conditions of your surroundings, your micro-climate,which can vary significantly from location to location.

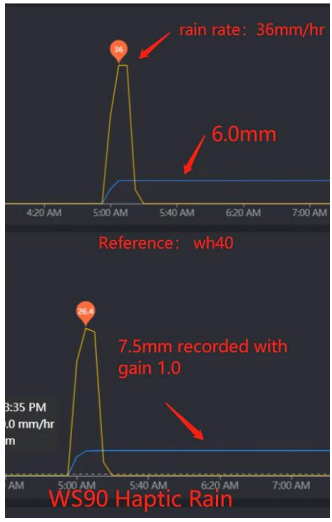
Note: UV Calibration MUST be performed every 2 to 3 months to improve results. Over time, UV Index may alter results based on bright and strong sunlight conditions. This is why diligent UV Calibration is recommended.

WS90/WS85 Piezoelectric Rain Calibration



WS90 and WS85 are weather stations equipped with piezoelectric rain gauges. To make your rain data more accurate, you can calibrate the rain sensor accuracy by yourself on this calibration page or Ecowitt app:

- A reference is needed to record the rainfall value, and it is also important to be able to record the rain rate. Our WH40 rain sensor can be used for this purpose.
- You can set five rain gain parameters: Piezo Rain1: Rain5. We usually leave Rain1 as it is unless you can confirm it consistently produces the same result, and then you can adjust this.
- Please ensure that you record rain data as follows: set rain4 gain to 6/7.5, which equals 0.8. For easier management, set rain2, rain3, and rain5 all to 0.8 for now. Only when different rain rates are recorded, divide the ws90 rain by 0.8 to get 1.0 rain, and then recalculate (reference/ws90/0.8) to precisely adjust the corresponding rain gain setting.



Note:

1.The purpose of calibration is to fine tune or correct for any sensor error associated with the device’ s margin of error. Errors can occur due to electronic variation (example, the temperature sensor is a resistive thermal device or RTD, the humidity sensor is a capacitance device), mechanical variation, or degradation (wearing of moving parts, contamination of sensors).

Calibration is only useful if you have a known, calibrated reference to compare it against, and is optional. This section discusses practices, procedures and sources for sensor calibration to reduce manufacturing and degradation errors. Do not compare your readings obtained from sources such as the internet, radio, television or newspapers. The purpose of your weather station is to measure conditions of your surroundings, your micro-climate, which can vary significantly from location to location.

2. UV Calibration MUST be performed every 2 to 3 months to improve results. Over time, UV Index may alter results based on bright and strong sunlight conditions. This is why diligent UV Calibration is recommended.

4.4 Factory page

Touch the  button on calibration mode page to access the Factory page.

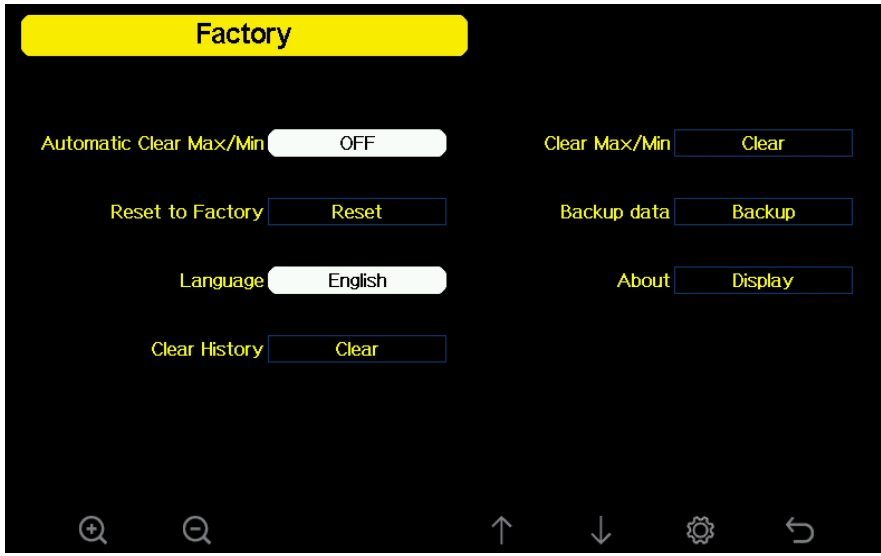


Figure 40: Factory mode

4.4.1 Automatic Clear Max/Min

To turn on/off automatically clear Max/Min record at 0:00hr every day.

Touch or to switch on/off. When it is selected with ON option, min/max will be presented as daily min/max, and with OFF option selected, it is for history min/max record.

4.4.2 Reset to Factory

Touch or to popup the Message Box "Reset to factory default?"

Touch or to select Yes or No. Touch the or to confirm the selection.

Be aware that a factory reset will delete all calibration and rain data including the data saved in memory. We suggest making a backup of the

internal memory to a SD card beforehand. If you need to perform a factory reset due to some electronic dysfunction, note down your calibration values to enter them again once the factory reset is done.

4.4.3 Language

Please jump to **Section 2.5** to refer the specific details.

4.4.4 Clear History

Touch  or  to select Clear History. Touch  or  to popup the Message Box “Clear the history record?” Touch  or  to select Yes or No. Touch the  or  to confirm the selection.

4.4.5 Clear Max/Min

This operation is the same as the one described in **Section 4.4.4.**

4.4.6 Backup data

Touch  or  to select Backup data. Touch  or  to popup the Message Box “Copy history data to SD card?” Touch  or  to select OK or Cancel. Touch the  or  to confirm the selection.

Note: You need to insert a SD card (not included) into the console before using this function.

When you have a SD card permanently inserted, all your sensor data (basic data and extra sensor data) will be written to the SD card in the interval chosen (1-240 minutes).

4.4.7 About information

Figure 41: About information

Note 1: This figure is just for reference (model and frequency will change according to different market). The actual display console may be with higher firmware version than this manual described because we will update the firmware occasionally.

Note 2: You can touch the  or  to choose if check “Automatic WiFi Firmware Upgrade ”and “Automatic Host Firmware Upgrade”.

Note 3: If your Wi-Fi firmware is EasyWeather, please go to WSView Plus to upgrade to EasyWeather**Pro**, then this function can be used.

Note 4: the OTA (over the air, here WLAN) upgrade of the firmware (device and WiFi firmware) is only possible with the newer HP2560 models with WiFi firmware EasyWeather**Pro** >= 5.1.4.

5. Optional Weather Servers

Note: This function must be performed while the console is connected to the Wi-Fi network.

Your console is capable of sending your sensor data to selected internet-based weather services. The supported services are shown in the **Table 15** below:

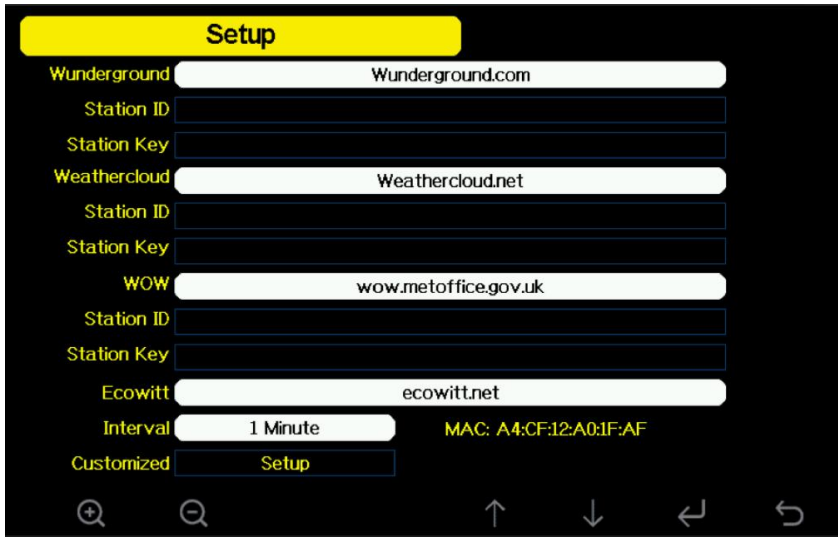
Services	Description
Wunderground	Site: Wunderground.com Provides local & long-range weather forecasts, weather reports, maps & tropical weather conditions for locations worldwide.
WOW	Site: wow.metoffice.gov.uk A UK based weather observation website.
Weathercloud	Site: Weathercloud.net A large network of weather stations reporting data in real time from all over the world.
Ecowitt	Site: ecowitt.net Ecowitt's new weather server that can host a bunch of sensors that other services don't support at this time.

Table 15: Supported weather services

Note: If you are testing the setup with the outdoor sensor package nearby and indoor, you may want to consider connecting to Wi-Fi, but not yet configuring any of the weather services. The reason is that while indoor the temperatures and humidity recorded by the outdoor sensor, and as reported to the weather service(s) will reflect indoor conditions, and not outdoor conditions. Therefore, they will be incorrect. Furthermore, the rainfall bucket may be tripped during handling, causing rain to register while it may not actually have been raining. One way to prevent this is to follow all instructions, except to use an incorrect password on purpose!

Then, after final outdoor installation, come back and change the password after clearing console history. That will start uploading to the services with a clean slate.

Touch  or  button to enter Weather Server setup mode. The device can be configured to send real-time data to Wunderground.com. Enter the Station ID and Key obtained from Wunderground.com.



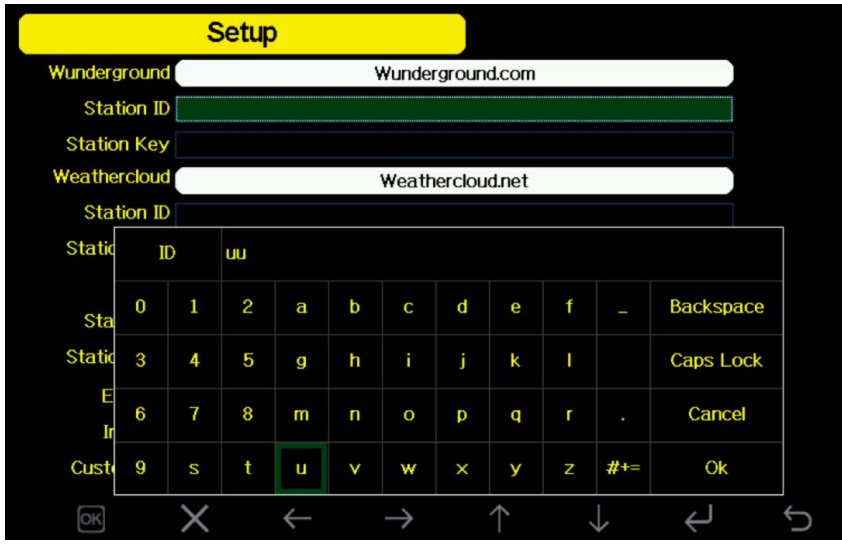


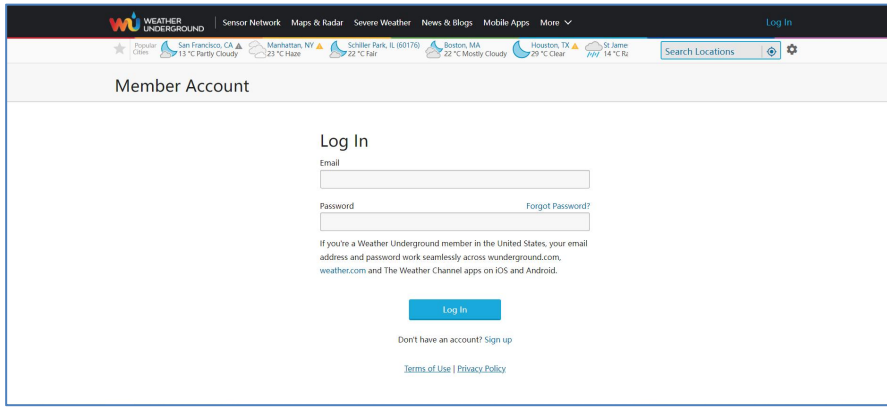
Figure 42: Weather Server setup screen

Enter the Station ID and Key: Touch ↓ to highlight the Station ID/Station Key. Enter your Station ID/Station Key.Touch 🔍+ or 🔍− button to display the keyboard. Touch ↑ ↓ ← → to scroll to the character and touch ↵ to select the character. Touch the "OK" button to confirm. Touch ↩ to return to the setup page.

5.1 Registering with and using wunderground.com

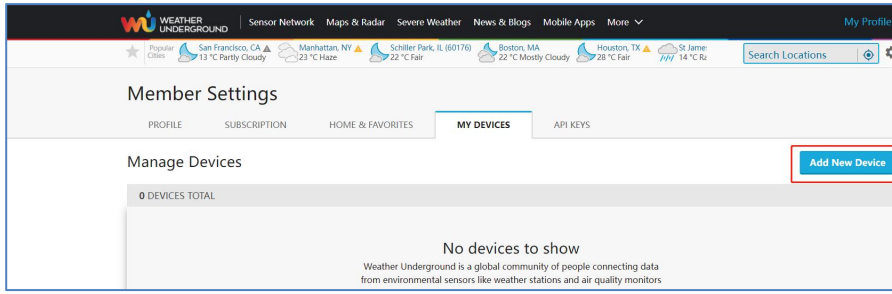
Perform the following steps to get the Station ID and Password on wunderground.com:

1) Visit Wunderground.com and select the "Log in" at the upper right corner of the home page and sign up (if you don't have an account ,please register first.)

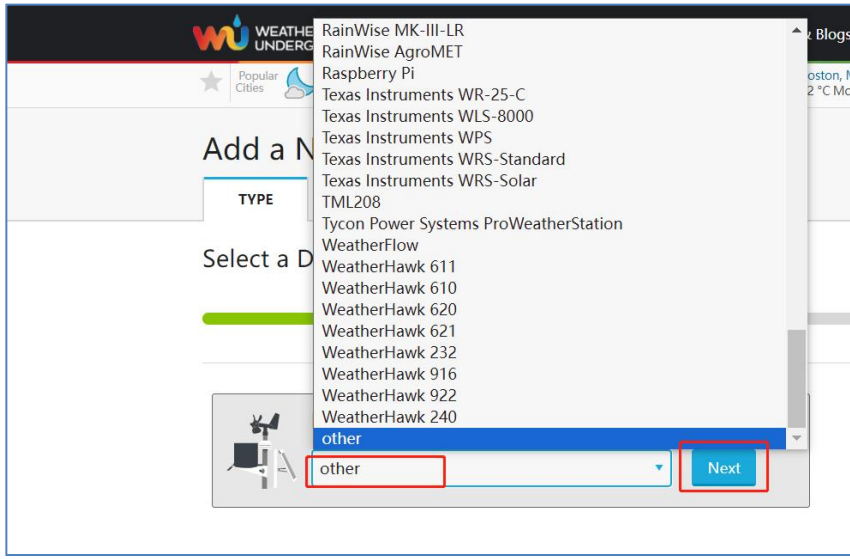


2) Click “My Profile” and select “My Devices” to register your station.

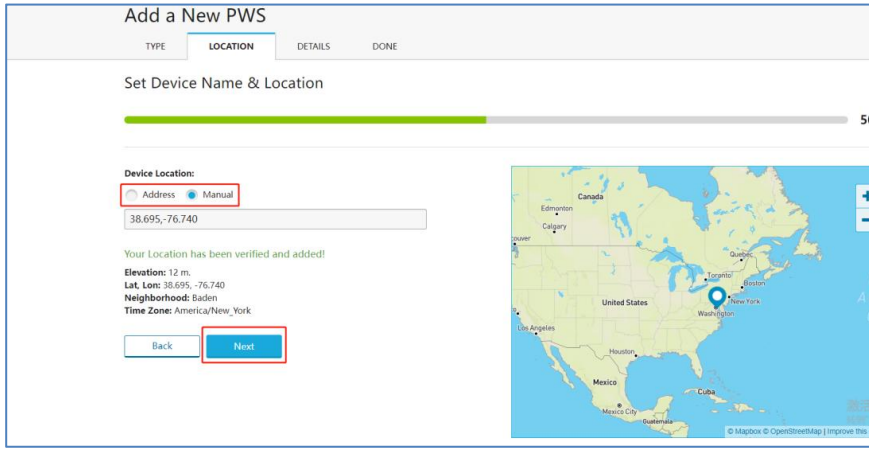
3) Select “Add New Device”.



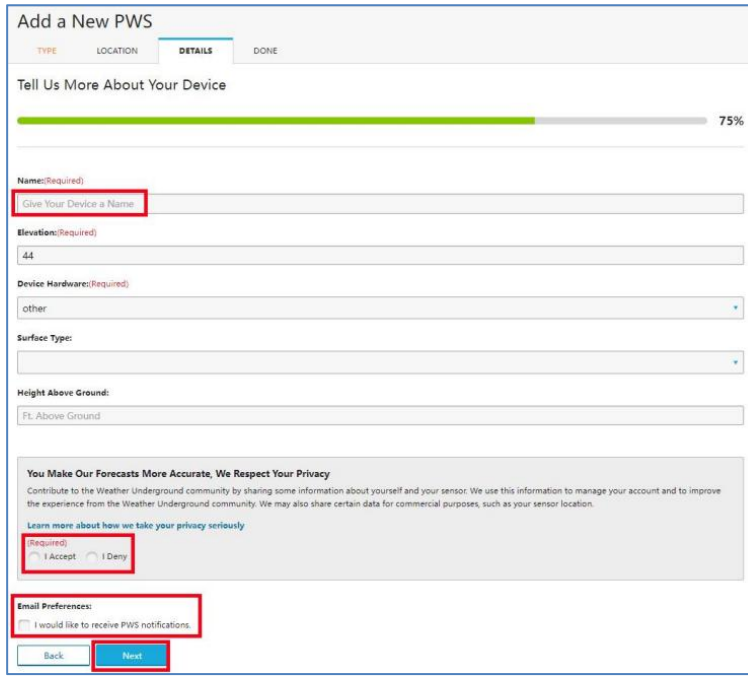
4) Find the “TYPE”, select “other” ,then click “Next.



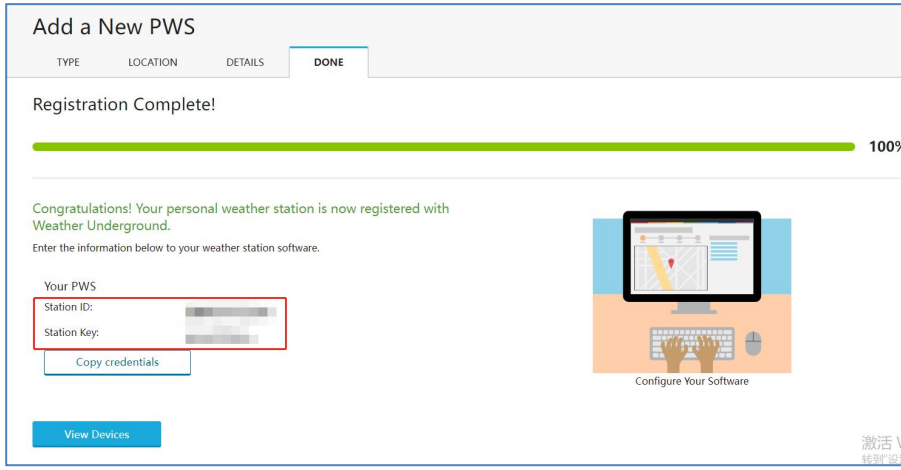
5) Select “Address”or“Manual”option, and find your local position. Touch “Next”.



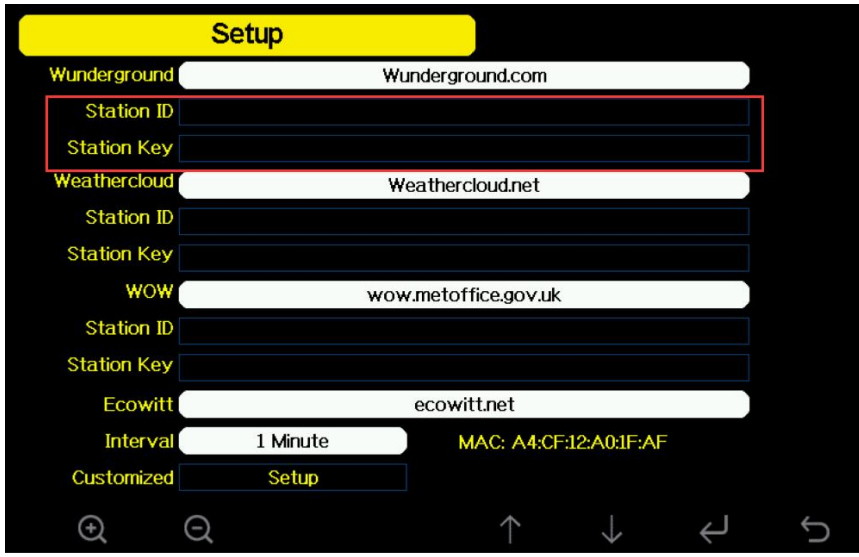
6) This time you will be asked the details about your weather station. Go ahead and fill out the form.



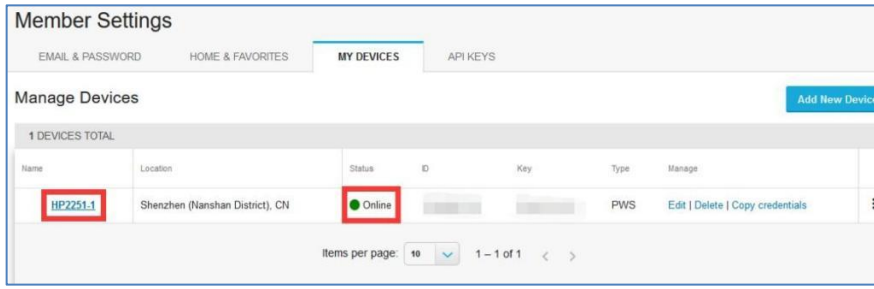
7) After completing the weather station, you will see Station ID and Station Key.



8) Take note of the station ID and Key, then enter it in the Weather Server.



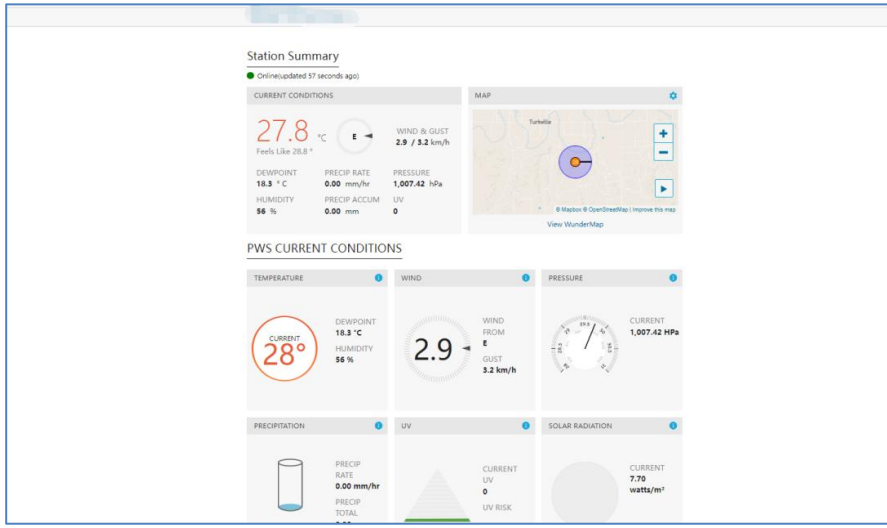
9) Refresh the page, you may have to wait about a few minutes until the status becomes ‘Online’. Then you can click device name to view data.



5.2 Viewing data on wunderground.com

The most basic way to observe your weather station's data is by using the wunderground.com web site. You will use a URL like this one, enter your Station ID in the section "STATIONID":
http://www.wunderground.com/personal-weather-station / dashboard ? ID=ST ATIONID

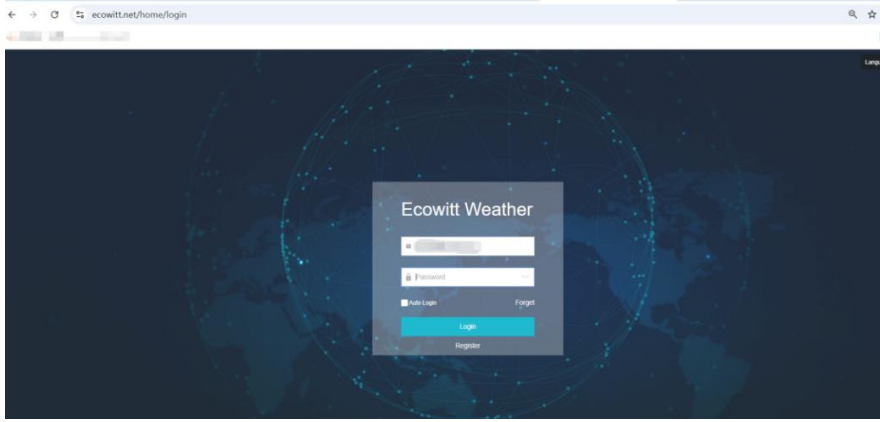
It will show a page such this, where you can look at today's data and historical data as well:



5.3 Registering with and using Ecowitt Weather

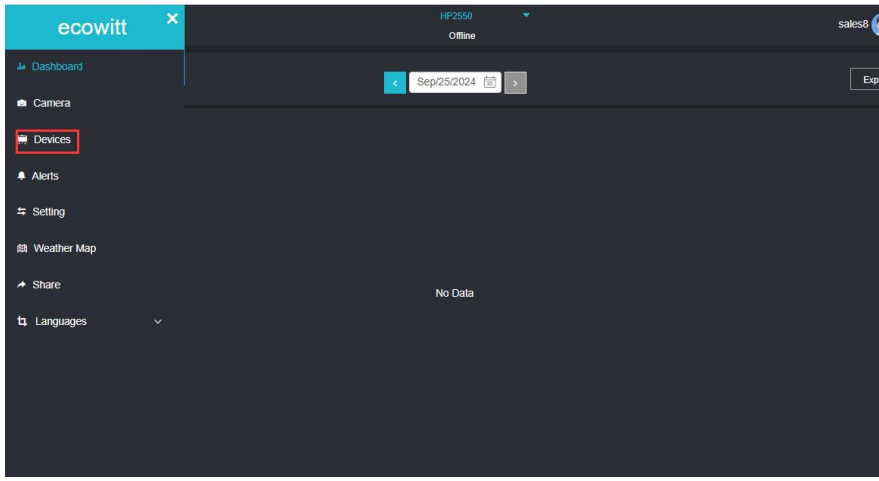
Ensure the console is connected the Internet before registering.

Note: If you have already created an account for the Ecowitt App, you can log in to ecowitt.net using that account.This server account and app account are shared, and the data is the same.



In addition, if your app is already logged in and your device is online, your data will automatically sync when you log in to ecowitt.net.

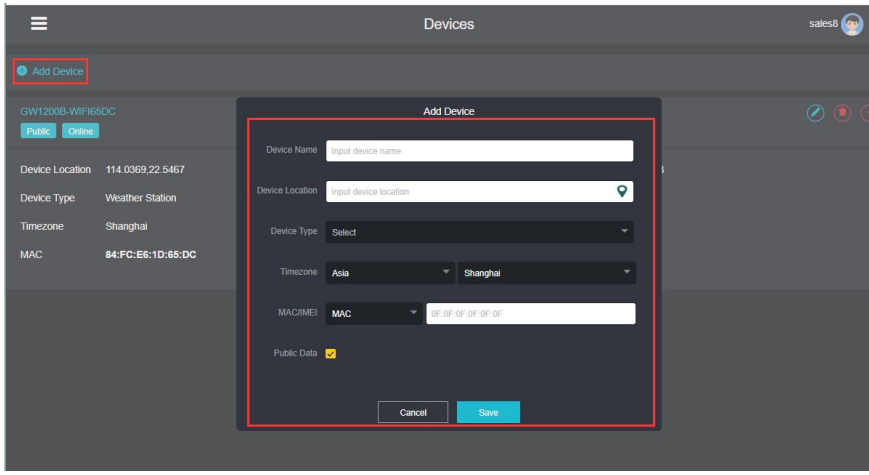
- On the Weather Server page, set the reporting interval time (default: 1 minute).
- Visit the website: https://www.ecowitt.net on your computer and login or finish the registration on the page.
- Click the upper left menu button and select Devices.



- Click Add Device and input all the information needed (The MAC address can be found on the console's Weather Server page).Then click "Save".
- Click Dashboard on the menu. Your sensor data would be available on the dashboard within several minutes.

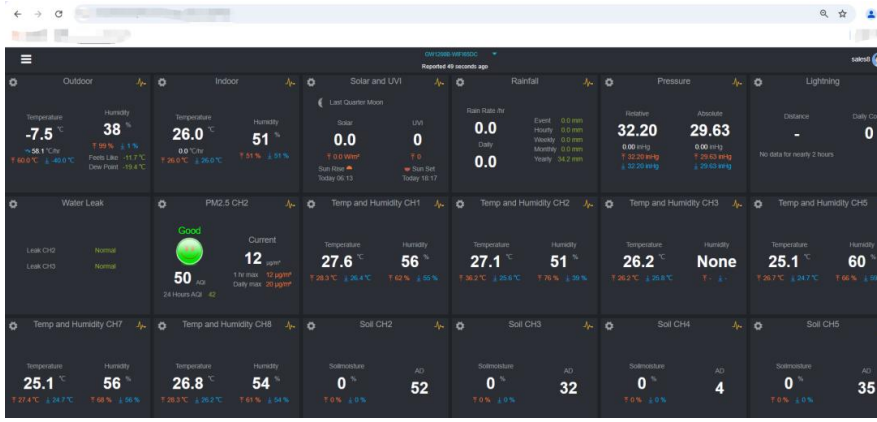
Note: When select device address on map, please wait until the map displays before selecting your address.

You may add a shortcut to the ecowitt.net website on the home page of your phone so that you can visit it just like opening an app.



5.4 Viewing data on ecowitt.net

You can observe your sensor's data by using the ecowitt.net website. Just login the account.



Note: If you want to share your station data with other users, you may use the Share option under the Menu to create a share link.

It will show the pages of dashboard, Graph display, List display, Weather map and Email Alerts, where you can look at today's data and historical data as well.

5.5 Customized server setup

For highly experienced users, it offers the option to send data to the user's own server. Click the "setup" button to enter Customized setup screen.

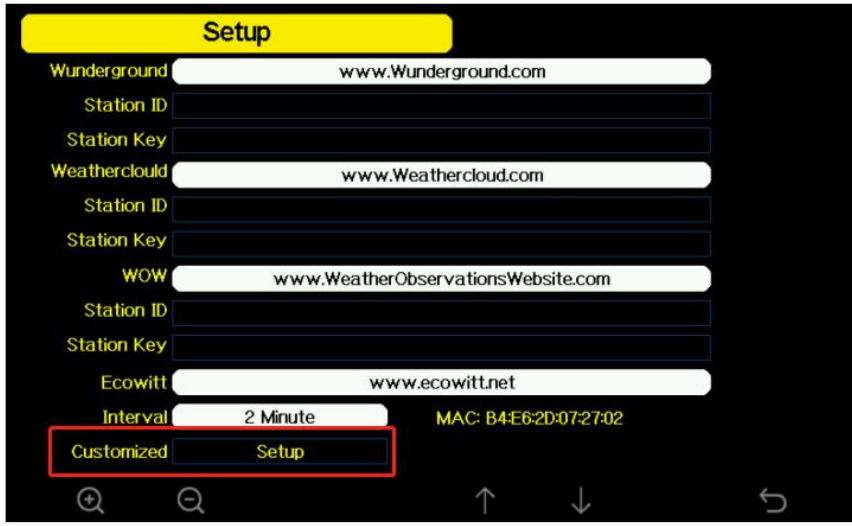


Figure 43: Server setup screen

Select Enable button and select the protocol type. The website should be able to process the same protocol (data content and format) which is posted to Wunderground or to Ecowitt. Input all the information needed.

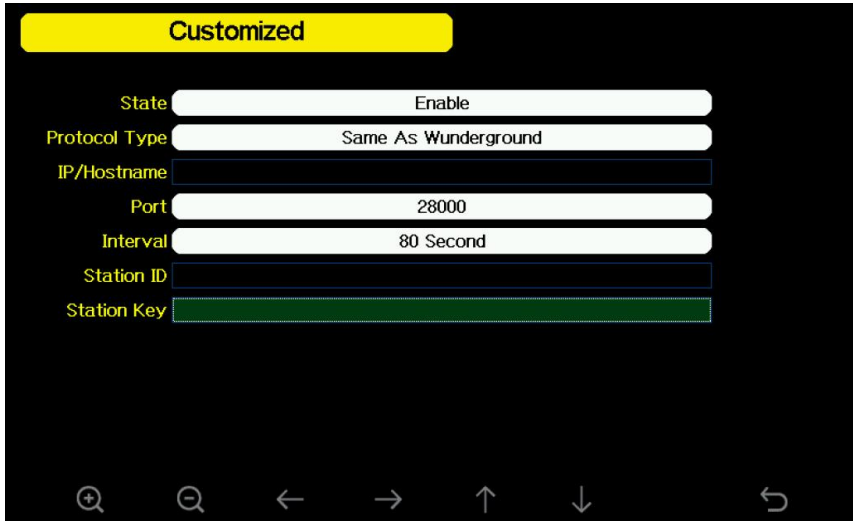


Figure 44: Customized server

Note: Touch the button to choose the Protocol Type. If it is Same As Wunderground, the Station ID/Key are also same as Wunderground. There is no need to input Station ID/Key when choosing Ecowitt.

6. Features

- 7" large TFT (high resolution) colored display console
- Two background (dark/light) themes selectable
- Indoor temperature, humidity
- Absolute and Relative barometric pressure
- Wind speed, wind direction, rainfall, outdoor temperature and humidity, solar radiation and UV
- Calculates dew point, wind chill, heat index, moon phase and sunset/sunrise time, weather forecast & alarm
- View historical records of sensors and graph directly on the console
- Collects sensor data from various supported wireless sensors
- Additional/optional sensors, please refer to **Section 9**.
- Regional time: Date formats are DD-MM-YYYY, YYYY-MM-DD and MM-DD-YYYY, time formats are h:mm:ss am,am h:mm:ss,H:mm:ss, and 108 regional times are available;
- Temperature unit: ℃, ℉ optional;
- Air pressure unit: hpa, inHg, mmHg optional;
- Wind speed unit: km/h, knot, mph, bft, ft/s, m/s optional;
- Rainfall unit: mm, in optional;
- Lighting unit: Lux, Fc, w/m² optional;

- Longitude and latitude selection;
- LCD screen backlight brightness adjustment;
- Indoor temperature and humidity high and low alarm, outdoor temperature and humidity high and low alarm, Feels Like high and low alarm, dew point high and low alarm, absolute air pressure high and low alarm, relative air pressure high and low alarm, time alarm, average wind speed high alarm, gust high alarm, rainfall rate high alarm and rainfall high alarm;
- Indoor and outdoor temperature and humidity compensation, absolute and relative air pressure compensation, wind direction compensation, illumination correction coefficient, illumination unit conversion compensation, ultraviolet correction coefficient, wind chill correction coefficient, rainfall correction coefficient;
- Indoor temperature and humidity, multi-channel temperature and humidity, outdoor temperature and humidity, absolute air pressure, relative air pressure, dew point, Feels Like, average wind speed, wind gust, light intensity, UV index, hourly rainfall, daily rainfall, weekly rainfall, monthly rainfall Amount, maximum and minimum values of annual rainfall and timestamps, PM2.5, soil moisture;
- Support WiFi networking;
- Supports weather information upload server: WiFi firmware is Easy weather x.x.x, supports uploading wunderground, weather cloud, Weather Observations Website, Ecowitt, and custom websites;
- Time synchronization: Support time synchronization with time server time.nist.gov;
- Low battery prompt for indoor, multi-channel and outdoor transmitters;
- Record meteorological information;

- Supports SD card to upgrade firmware, supports SD card to record weather information, supports SD card to back up historical data, supports SD card to back up data in real time, and supports SD card to change default configuration;
- 8 physical buttons;
- When the backlight setting is turned on and off by default, when the screen is turned off or on manually, it will not turn off or on until the time set to turn off or turn on the screen.
- Pushes sensor data to cloud weather services,
  Custom own server data hosting possible when server data exchange is compatible with either Wunderground or Ecowitt protocol
- Manage sensor calibration setup
- Manage sensor via sensor ID
- Data storage service on Ecowitt server: https://ecowitt.net
- Data storing interval:

1) by day: 5 minutes
2) by week: 30 minutes
3) by month: 4 hours
4) by year: 1 day

- Stores data for past three months at 5-minute intervals
- Stores data for past one year at 30-minute intervals
- Stores data for past two year at 4-hour intervals

7. Specifications

Note: Out of range values will be displayed using "---":

Temperature range	-10°C— 60°C (14°F - 140°F)
Temperature resolution	0.1°C, or 0.1°F
Humidity range	10% ~ 99%
Humidity resolution:	1%
Barometric pressure range	300 – 1,100 hPa (8.85 – 32.5 inHg)
Barometric pressure accuracy	± 3 hPa (700 – 1,100 hPa)
Barometric pressure resolution	0.1 hPa (0.01 inHg)
Sensor reporting interval:	60 seconds
Alarm Duration	120 seconds

Table 16 : Indoor sensor specification

Model	HP2560
Name	Weather Station(Receiver)
Dimensions(L*W*H)	**196 x 188 x 50(mm)**
Screen Size	**155 x 87 (mm)**
Weight	**361.4(g)**
Material of Plastic Casing	ABS
Material of Screen	TFT LCD
WLAN	802.11b/g/n 2.4GHz (802.11n, Max 150 Mbps)
WLAN Range	Over 30 meters (in open areas)
Console Operating Temperature	0°C to 50°C (32°F to 122°F)
Reading Update Interval	About 1 minute
Power Supply	3.5mm 5V DC to USB cable (included)
Battery Life	24 Hours (Back-up only)

Table 17: Console specification

8. Troubleshooting Guide

Look through the following and locate an issue or problem you are experiencing in the left column and read possible solutions in the right column. **Table 17** is for troubleshooting related to the console, and **Table 18** is for troubleshooting related to the transmitter (sensor).

Problem	Solution
After the console is powered on, why does the screen light up and show "Starting" and then quickly go black?	This is most likely a problem with the power plug. Please connect the power cord to your computer or mobile phone charger, then the console will power on and work properly. If it still doesn't work, there is something wrong with the console, not the power supply.
Absolute pressure does not agree with official reporting station	You may be viewing the relative pressure, not the absolute pressure. Select the absolute pressure. Make sure you properly calibrate the sensor to an official local weather station.
Would I check the block of “Automatic Host Firm ware Upgrade?What are the consequences?”	If an upgrade is available in the future, you can check the About page for firmware updates. If you set the “automatic upgrade” option, the firmware will be updated once an update is available.
Can I add an additional screen for a different room that takes data from the same sensor array?	Yes, you can add an additional console, one transmitter can be connected to two or more consoles at the same time.

After inserting the SD card, data backup failed.	Please first confirm whether the SD card  icon is displayed in the upper left corner of the screen. If not, please remove the SD card and reinsert it. If the backup is successful, it will show Successful completion of the backup 100% (progress bar)
Data not reporting to Wunderground.com	1.Confirm your password is correct. It is the password you registered on Wunderground.com. Your Wunderground.com password cannot begin with a non-alphanumeric character (a limitation of Wundeground.com, not the station). Example,$oewkrf is not a valid password, but oewkrf$ is valid. 2.Confirm your station ID is correct. The station ID is all capital letters, and the most common issue is substituting an O for a 0 (or vice versa). Example,KAZPHOEN11, not KAZPH0EN11. 3.The number "1" can be easily confused with the lower case of letter "L". 4.Make sure the date and time are correct on the console. If incorrect, you data may be considered old data, not real time data, and will be rejected. 5.Make sure your time zone is set properly. If incorrect, you may be reporting old data, not real time data(see 4). 6.Check your router firewall settings. The console sends data via Port 80.

Table 18

Problem	Solution
The outdoor data displayed on the console (temperature/humidity/ Feels Like/Dew Point) is showing as "--° " ,while other data is displaying normally.	It's possible that the temperature and humidity sensor module is malfunctioning. Please confirm the issue by following these steps to operate the outdoor sensor array: 1. Unscrew the screws at the bottom of the radiation shield and open it, then remove the module, check if there are any other data. If not, press the reset button (the transmitter manual describes the location of the reset button). If other data are normal,plug in the module again. If it still displays --°, it means the module is broken. 2. Please take a photo of the sensor module, send it and your order number to us. We will send you a replacement based on the original module if your order is under the warranty. Please replace it upon receipt.

Outdoor sensor array does not communicate to the display console. – i.e you don't see the weather data of either one or all outdoor sensors.	1. Power-cycle the console and see if there are any changes – leave one minute time in between. 2. If power-cycling the console doesn't help, we have to reset the outdoor array **A: software reset:** inserting the end of an opened paper-clip into the reset hole (see manual for WS68 and WS69 array) or pressing the reset button (WS80, WS85 and WS90 array) for about five seconds will restart the array firmware and the LED will start blinking again (WS68/69 every 16 seconds, WS80 every 5 seconds, WS85/90 every 9 seconds). If A doesn't provide the desired result, we have to perform a hardware rest. **B: hardware reset** - take out the backup batteries - cover the solar panel of the array tightly with black tape or take it into a dark room and wait until the LED stops burning or blinking. The internal battery has to be discharged completely. This may take up to 48 hours. - once the LED has stopped blinking, re-insert the batteries. - the array should power-up and start blinking again every 5-16 seconds depending on the array model.
Rain gauge reports rain when it is not raining	An unstable mounting solution (sway and vibrations in the mounting pole) may result in the tipping bucket incorrectly incrementing rainfall. Make sure you have a stable, level mounting solution.

Wireless remote (thermo-hygrometer) not reporting in to console. There are dashes on the display console.	The maximum line of sight communication range is about 300'. Move the sensor assembly closer to the display console. Re-synchronize the remote sensor(s). Install a fresh set of batteries in the remote sensor(s). Make sure the remote sensors are not transmitting through solid metal (acts as an RF shield), or earth barrier (down a hill). Radio Frequency (RF) Sensors cannot transmit through metal barriers (example, aluminum siding) or multiple, thick walls. Move the display console around electrical noise generating devices, such as computers, TVs and other wireless transmitters or receivers.

Table 19

9. Optional Sensors

The RF reception function will always be turned on to receive data from multiple sensors at any time.

Note: Max QTY of the following table 18 means the maximum number of different sensors that can be connected to the HP2560.

Sensor Model	Max QTY	Picture	Functions
WS85	1		Wind speed/direction, rainfall
WS90	1		Outdoor,temperature&humidity, light, UV, 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
WN32_EP	1		Temperature and Humidity
WN31	8		Temperature and humidity
WN31_EP			Temperature and Humidity
WN30			Temperature
WN36			Pool temperature
WH57	1		Lightning detection
WH51	16		Soil moisture

WH51L			Soil moisture
WN34L/S/D	8		Temperature
WN35	8		Leaf wetness
WH41/WH43	4		PM2.5
WH55	4		Water leak detection
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
WH46D			CO_2 (Carbon Dioxide), PM(Particulate Matter), temperature and humidity
LDS01	4		Laser distance sensor

Table 20

10. Warranty Information

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

All trademarks and patents are recognized.

We provide a 2 years 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

11. FCC

This device complies with part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance

could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception,

which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.

-- Increase the separation between the equipment and receiver.

-- Connect the equipment into an outlet on a circuit different

from that to which the receiver is connected.

-- Consult the dealer or an experienced radio/TV technician for help.

To maintain compliance with RF Exposure guidelines, This equipment should be installed and operated with minimum distance between 20cm the radiator your body: Use only the supplied antenna.

IC Caution:

English:

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.

2. This device must accept any interference, including interference that may cause undesired operation of the device.

French:

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. L'appareil ne doit pas produire de brouillage;

2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

12. Contact Us

12.1 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.

12.2 Stay in Touch

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