3.3 Icon Explanation

See Figure 22 to help you identify icons of the console's display screen.

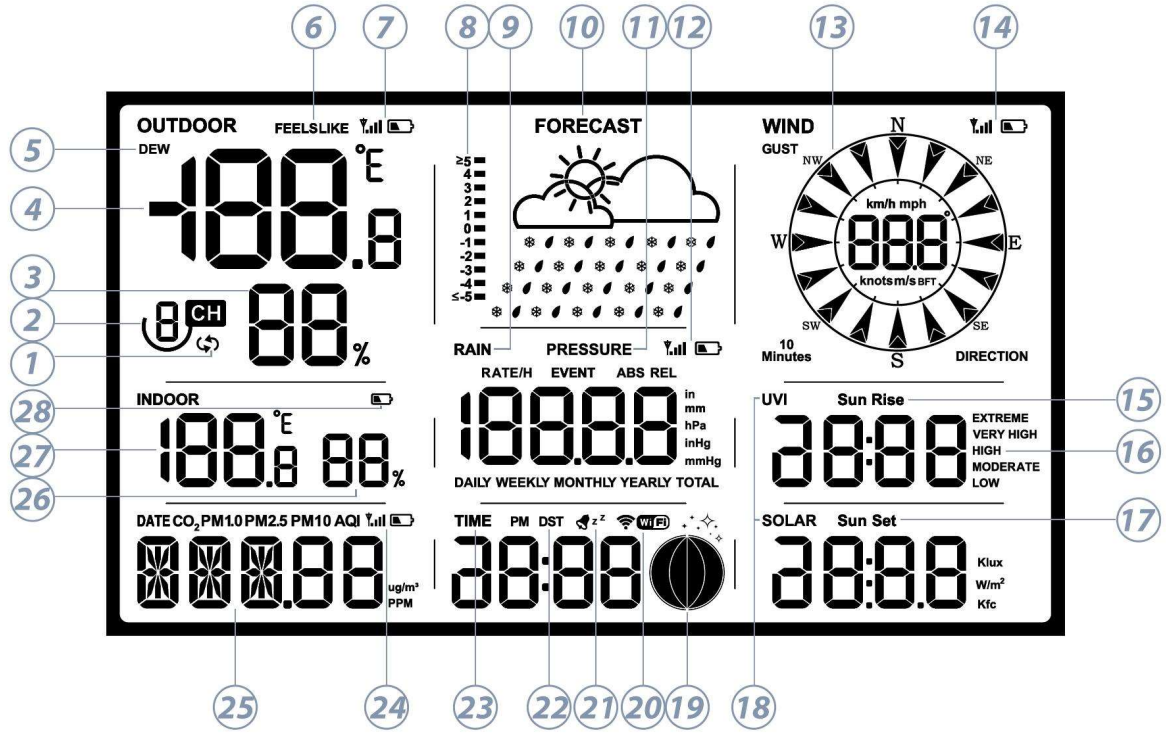


Figure 22

No	Description	No	Description
1	Auto-Scroll	2	Multi-channel temperature and humidity sensors
3	Outdoor humidity	4	Outdoor temperature
5	Dew point	6	Feels like/Apparent temperature
7	RF signal bar and low battery power indicator for WS69 outdoor sensor array or WN30/31/36 multi-channel sensors	8	Pressure trend function
9	Rain Rate/Event/Daily/ Weekly/Monthly/Yearly/ Total	10	Weather forecast
11	ABS/REL pressure	12	RF signal bar and low battery power indicator for WH40 rain gauge sensor

13	Wind speed/Gust/Direction/ 10min direction	14	RF signal bar and low battery power indicator for WS90/WS80/WS68 outdoor sensor array
15	Sunrise	16	Range of variation of UV index (EXTREME/VERY HIGH/HIGH/MODERATE/ LOW)
17	Sunset	18	UVI & Solar radiation
19	Moon phase	20	Wi-Fi signal bar
21	Alarm & Snooze	22	DST (Daylight Saving Time)
23	Time	24	RF signal bar and low battery power indicator for WH45/WH46 air quality sensor
25	Date/CO_2/PM1.0/PM2.5/ PM10/AQI	26	Indoor humidity
27	Indoor temperature	28	Low battery power/no battery indicator for WS3800

Table 1: Icon explanation

3.3.1 Date & Time

The date and time will be automatically updated when the Wi-Fi configuration is finished, and the automatic time zone is set. (refer to **Section 2.2** for Wi-Fi configuration)

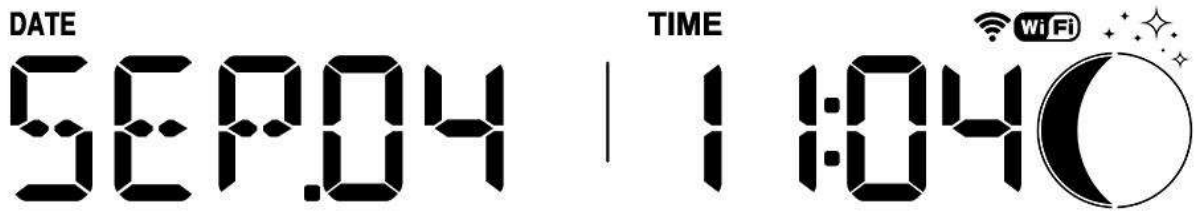


Figure 23: Date & Time

3.3.2 CO_2/PM1.0/PM2.5/PM10/AQI

WS3800 supports connecting one WH45 or one WH46 air quality sensor and displaying CO_2/PM1.0(only WH46)/PM2.5/PM10/AQI data. Air quality data share the same display area with Date, which can be switched by pressing the + button.

Note: PM4.0, temperature, and humidity (measured by WH46) readings are only available in the Ecowitt App or web page, not on the display. Temperature and humidity measured by WH45 are also the same.

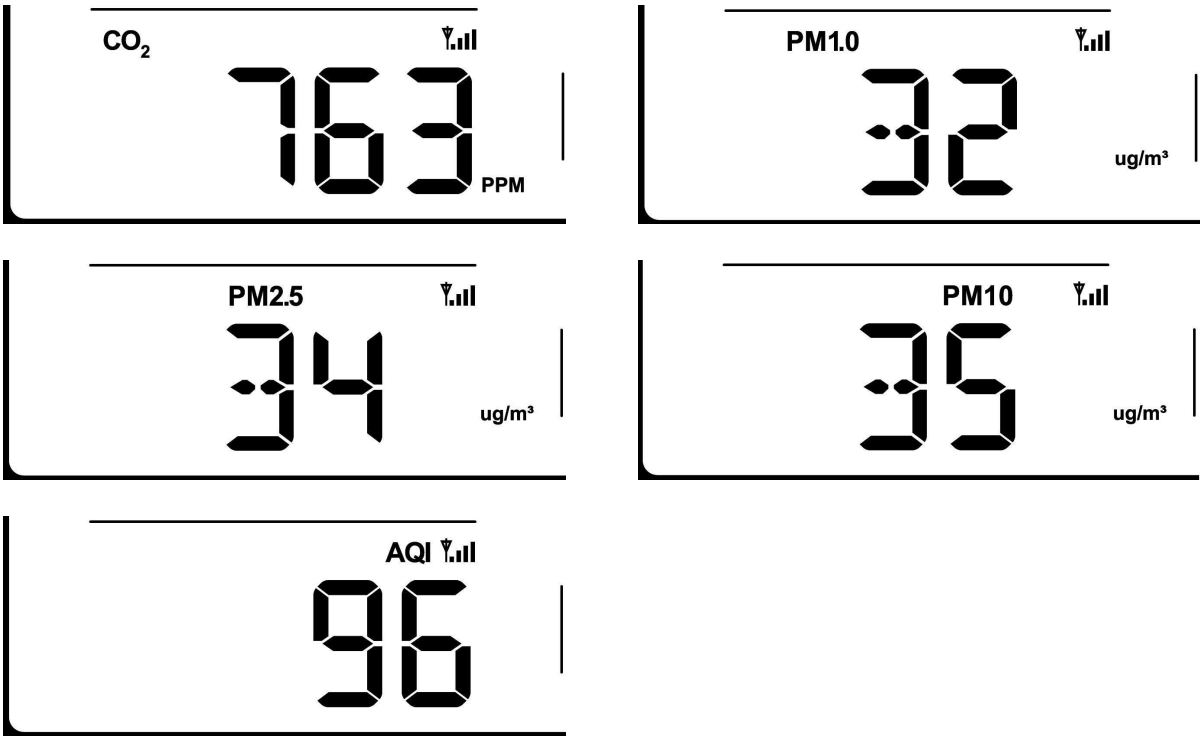


Figure 24: CO_2/PM1.0/PM2.5/PM10/AQI

3.3.3 Weather Forecast

Weather forecast is based on learning the local air pressure over a period (at least one month) and then making a prediction of the weather for the day ahead based on the change in air pressure.

There are seven weather conditions: Sunny, Partly Cloudy, Cloudy, Rainy, Stormy, Snowy and Storm Snowy.

Rain/snow will blink when in a Stormy/Storm Snowy condition. When the outdoor temperature is below 32°F (0°C) and the weather forecast is Rainy or Stormy, the display will show the Snowy condition.

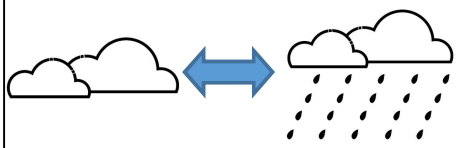
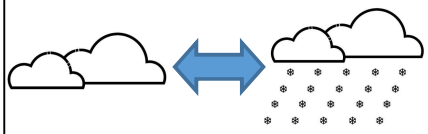
Sunny	Partly Cloudy	Cloudy
		
Pressure increases for a sustained period of time	Pressure increases slightly or initial power up	Pressure decreases slightly
Rainy	**Stormy**	**Snowy**
		
Pressure decreases for a sustained period of time	Pressure rapidly decreases	Pressure decreases for a sustained period of time, and temperature ≤0°C
Storm Snowy		
		
Pressure rapidly decreases, and temperature ≤0°C		

Table 2: Weather forecast

3.3.4 Pressure Trend Function

Indicates the difference between the current barometric pressure and the average barometric pressure over the past 30 days.

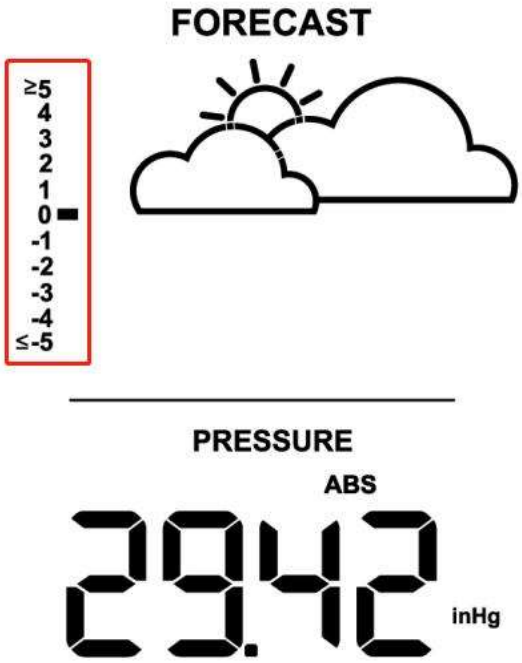


Figure 25: Pressure Trend

3.3.5 Wi-Fi Icon

Wi-Fi Icon Status	Description
Flash	Situation 1: Device power up or hold TEMP + -. Situation 2: WS3800 is not connected to the router.
Slow flash	WS3800 is connected to the router but has no internet access. The data hasn't been successfully uploaded.
Constant light	The data has been uploaded to the server. The Wi-Fi icon indicates the signal strength.

Table 3： Wi-Fi icon

3.3.6 Indoor Temperature, Humidity, and Pressure

WS3800 has a built-in temperature & humidity sensor, and a barometric pressure sensor. The WN32P can be used to replace the built-in sensor data.

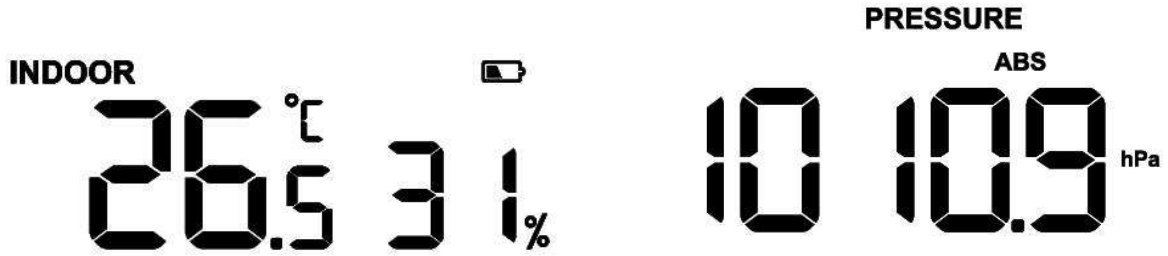


Figure 26: Indoor temperature, humidity, and pressure

3.3.7 Outdoor Temperature and Humidity

Temperature and humidity display priority:

WN32  > WS90  > WS80  > WS69 

3.3.8 Wind

1. Wind display priority:

WS90  > WS80  > WS68  > WS69 

2. Wind values and units:

When the wind speed unit is selected via buttons (refer to **Section 3.6.2** to adjust the unit) or web page 192.168.4.1 (Unit Settings), the WS3800 will display the corresponding unit and value on the screen. Units set by the Ecowitt App or Ecowitt.net website will not be synchronized to the WS3800.

3.3.9 Rainfall

1. Rainfall display priority:

Traditional rainfall: WH40  > WS69 

Piezoelectric rainfall: WS90 

2. Display rules

The WS3800 can display either rainfall or piezoelectric rainfall, simply by selecting the rainfall rule you want to display via the "Rainfall data priority" on the App or web page.

3. Units

Refer to 3.3.8 Wind units setting.

3.3.10 UVI

The UV index varies between 0 ~ 15. The bar graph is divided into 6 levels of display.

Level 5: 12 < value < =15, EXTREME
Level 4: 9 < value < =12, VERY HIGH
Level 3: 6 < value < =9, HIGH
Level 2: 3 < value <= 6, MODERATE
Level 1: 0 < value < =3, LOW
Level 0: 0 = value, (no display)

e.g.:

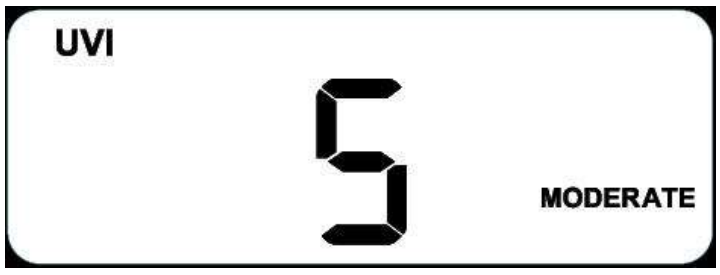


Figure 27: UVI

3.3.11 Moon Phase

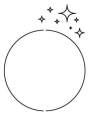
The WS3800 will be set to the Southern or Northern Hemisphere by default depending on the RF frequency:

915/868MHz: Northern Hemisphere

433MHz: Southern Hemisphere

The following moon phases are displayed based on the calendar date.

Northern Hemisphere:

								
New Moon	Waxing Crescent	First Quarter	Waxing Gibbous	Full Moon	Waning Gibbous	Third Quarter	Waning Crescent	New Moon

Southern Hemisphere:

								
New Moon	Waxing Crescent	First Quarter	Waxing Gibbous	Full Moon	Waning Gibbous	Third Quarter	Waning Crescent	New Moon

Table 4: Moon phase

3.3.12 Feels Like

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.

Users have the option to choose between "Feels Like Temperature" and "Apparent Temperature" on the App or ecowitt.net.

Take the App as an example: Open Ecowitt App → "Menu" → "Settings" → "Temp Index"→"Feels Like Temperature" or "Apparent Temperature".

If the user selects "Apparent Temperature", the numerical value for "Feels Like" on the LCD screen will be displayed as the value of "Apparent Temperature".

3.4 LCD Display Brightness

The WS3800 has 5 levels of brightness, which are Max → High → Medium → Low → Off.

A. When Battery Powered:

When the battery power is supplied, pressing any button will turn on the backlight, and the brightness will turn off automatically after 15s without button operation. When only battery powered, the brightness is only "Max" and "Off".

Note: 3 fresh AA alkaline or lithium batteries can only run for 24H.

B. When DC Powered:

1. The brightness will be adjusted to "Medium" automatically when the DC power supply is connected.

2. After disconnecting the DC power supply, the backlight will keep the brightness for 15s and then turn off.

3. When DC power is supplied, press LIGHT to adjust the brightness: Max → High → Medium → Low → Off.

3.5 Buttons

There are 8 buttons in total: SET, TEMP, RAIN, PRE, WIND, +, -, LIGHT.

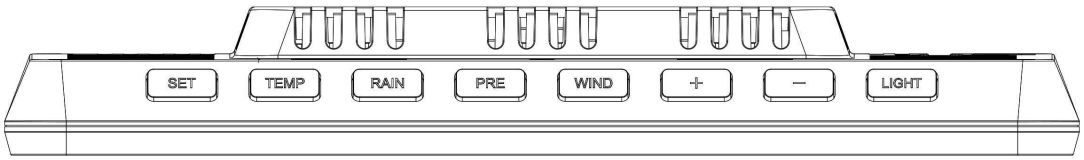


Figure 28: 8 Buttons

There are 8 buttons on the top of the display console. The following tables briefly explain the function of these buttons.

Buttons	Functions
SET	**Setting button** Press to switch MAX/MIN/Alarm setting/MAC mode. Press to switch setting option in setting mode. Hold to enter setting mode. Hold SET + LIGHT for a factory reset.
TEMP	**Temperature display button** Press to switch temp channel. Hold to register weather data from sensor. Hold TEMP & - to activate Wi-Fi hotspot/configuration.
RAIN	**Rain display button** Press to switch RAIN RATE/EVENT/DAILY/WEEKLY/ MONTHLY/YEARLY/TOTAL.
PRE	**Pressure display button** Press to switch REL/ABS mode.
WIND	**Wind display button** Press to switch WIND/GUST/DIRECTION/10min direction. Press to activate/deactivate alarm in alarm setting mode.
+	**Plus button** Press to switch display in the Date area. Press + to adjust value in setting mode.
-	**Reduce button** Press to switch UVI/sunrise & sunset. Press - to adjust value in setting mode. Hold TEMP & - to activate Wi-Fi hotspot/configuration.

LIGHT	**Brightness adjustment button** Press to adjust backlight when powered by DC. Press LIGHT to snooze and press the other to exit while alarming. Hold LIGHT to exit while snoozing. Hold SET & LIGHT for a factory reset.

Table 5: Button functions

3.6 Product Modes

There are 5 modes in total: Normal mode, Setting mode, Max/Min value mode, Alarm setting mode, and MAC address display.

3.6.1 Normal Mode

1. The product will enter the main page of Normal mode by default when it is normally powered on. In other modes, no button operation for 30 seconds or press LIGHT can also return to the main page of normal mode.

2. In Normal mode, press SET to change the mode.
Sequence: Normal mode → Maximum value → Minimum value → Alarm setting → MAC address display.

3. Press TEMP in Normal mode to switch the display: OUTDOOR → FEELSLIKE → DEW → CH1 → CH2 → CH3 → CH4 → CH5 → CH6 → CH7 → CH8 → Auto-Scroll mode.

4. Hold TEMP for more than 5 seconds in OUTDOOR, FEELSLIKE or DEW display mode will re-register all non-disabled states outdoor temperature and humidity transmitters (WN32/WS90/WS80/WS69).

5. Hold TEMP for more than 5s in single CH mode will re-register the corresponding CH sensor.

6. Hold TEMP for more than 5s in Auto-Scroll mode will re-register the WN32, WS90, WS80, WS69 and CH1~CH8 sensors.

7. RAIN and PRESSURE share the same display area:

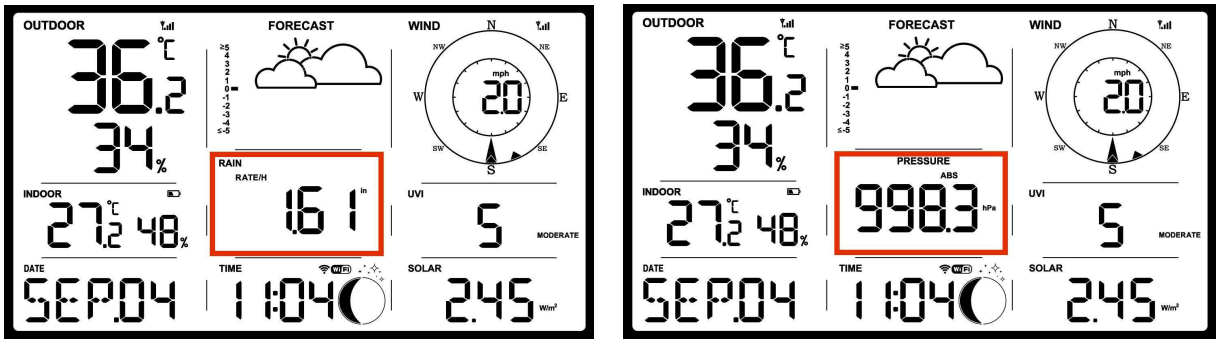


Figure 29: Switching display of rainfall and pressure

① Press RAIN to switch RAIN RATE/EVENT/DAILY/WEEKLY/ MONTHLY/YEARLY/TOTAL display.

② Press PRE to switch PRESSURE ABS/REL display.

③ If the current display is RAIN, press PRE to switch to PRESSURE ABS/REL display. On the other hand, press RAIN to switch to rain display.

Notes:

*** In Auto-Scroll mode, only registered sensors are displayed.**

*** Max and Min values will be cleared together if the multi-channel temperature and humidity sensor is re-registered.**

Figure 30: Auto-Scroll mode

8. Press WIND to switch WIND/GUST/DIRECTION/10min direction display. Numbers indicate the angle of the wind direction.

9. Press + to switch Date/CO_2/PM1.0/PM2.5/PM10/AQI display.

10. Press - to switch to UVI/Solar radiation/Sunrise/Sunset display. The exponential intensity graph on the right side synchronizes the display of UVI values.

11. When DC power is supplied, press LIGHT on the main page to

adjust the backlight in 5 levels: Max → High → Medium → Low → Off.

12. Hold TEMP + - for more than 2s to open hotspot, Wi-Fi signal icon fast flash, you can connect to this hotspot on a mobile phone or PC.

13. Hold SET + LIGHT for 5 seconds the device will restore factory settings and reboot, and all setup parameters will be cleared.

3.6.2 Setting Mode

In Normal mode, hold SET for more than 2s to enter Setting mode. Then press SET to switch the setting item, press the + or - button to adjust the setting value:

① Beep sound (ON/OFF)
②RST daily High and Low reset switch
③Hour format (12 hours/24 hours)
④Hour setting
⑤Minute setting
⑥Year setting
⑦Month setting
⑧Day setting
⑨Pressure unit selection (inHg, mmHg, hPa)
⑩Relative pressure setting (700hPa-1100hPa)
⑪Temperature unit selection (°C, °F)
⑫Wind speed unit selection (mph, knots, BFT, m/s, km/h)
⑬Rainfall unit selection (in, mm)
⑭Solar Light unit selection (W/m2, Kfc, Klux)
⑮Selection of the northern and southern hemispheres (NTH, STH)

3.6.3 Max/Min Value Mode

In Normal mode, press SET to enter Max/Min value mode.
Sequence: Normal mode → Maximum value → Minimum value.
Max value: outdoor/indoor temperature & humidity, feels like, dew point, pressure, rainfall, wind speed, gust speed, UVI, and solar radiation.
Min value: outdoor/indoor temperature & humidity, feels like, dew point, and pressure.

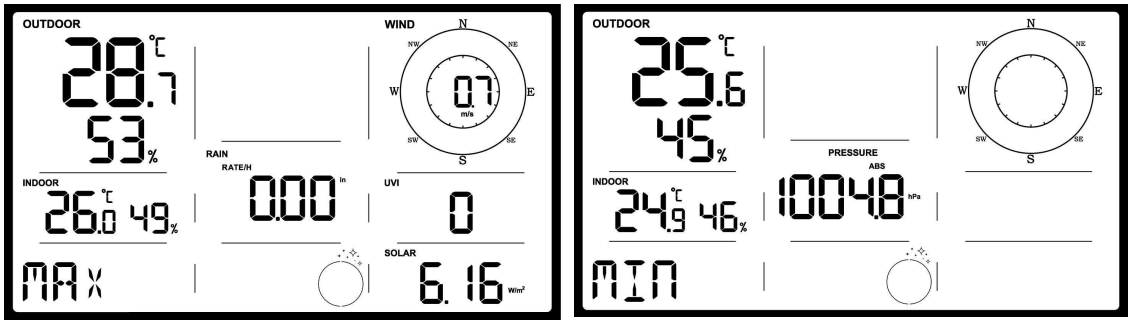


Figure 31：Max/Min value mode

3.6.4 Alarm Setting Mode

A. Alarm Function

In Normal mode, press SET to enter Alarm setting mode.
Sequence: Normal mode → Maximum value → Minimum value → Alarm setting.
In the alarm setting mode, press SET to switch the alarm clock setting item:
① Alarm hour setting
② Alarm minute setting
Press + or - to adjust the value. Press WIND to switch on/off the alarm.
After the alarm is triggered, the alarm will continue to sound for 2 minutes when no button is pressed, and the alarm will become more and more rapid within these 2 minutes.

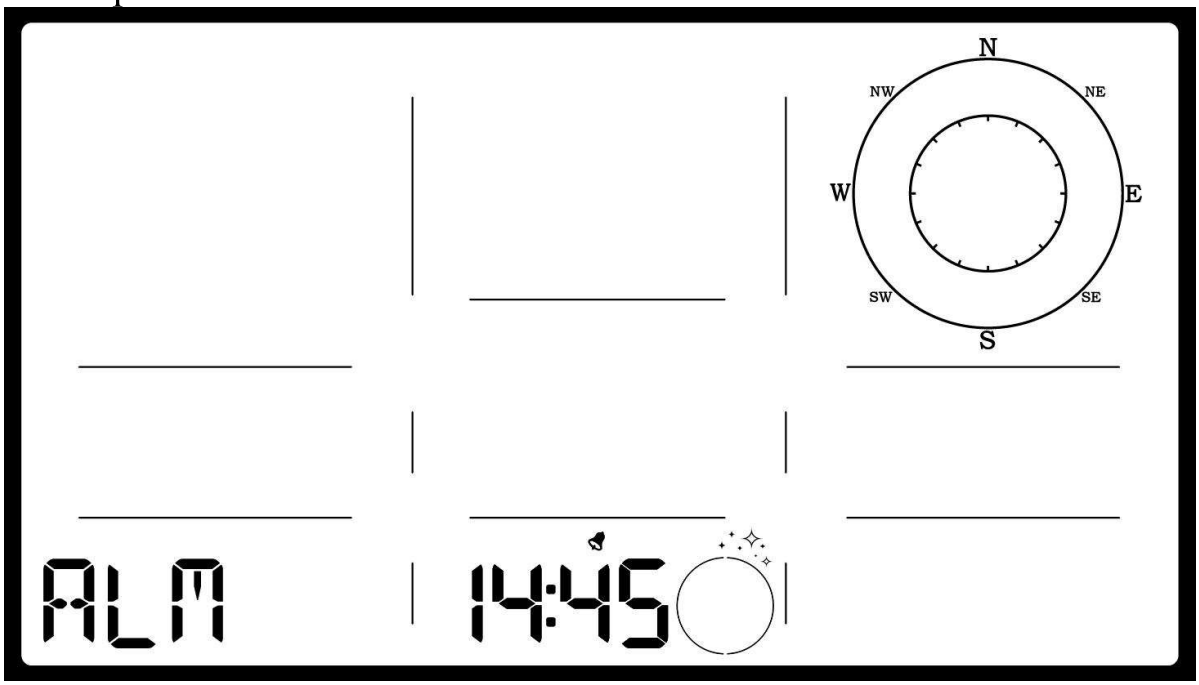


Figure 32: Alarm setting

B. Snooze Function

When the alarm clock is set and the alarm is triggered, press LIGHT to enter snooze mode, the snooze icon $^{z^z}$ will be displayed near the alarm clock icon, and the alarm will sound again after 10 minutes.
Hold any button for 2 seconds after entering snooze mode will exit snooze mode.

Figure 33: Snooze function

3.6.5 MAC Address Display

In Normal mode, press SET to change the mode.
Sequence: Normal mode → Maximum value → Minimum value → Alarm setting → MAC address display.

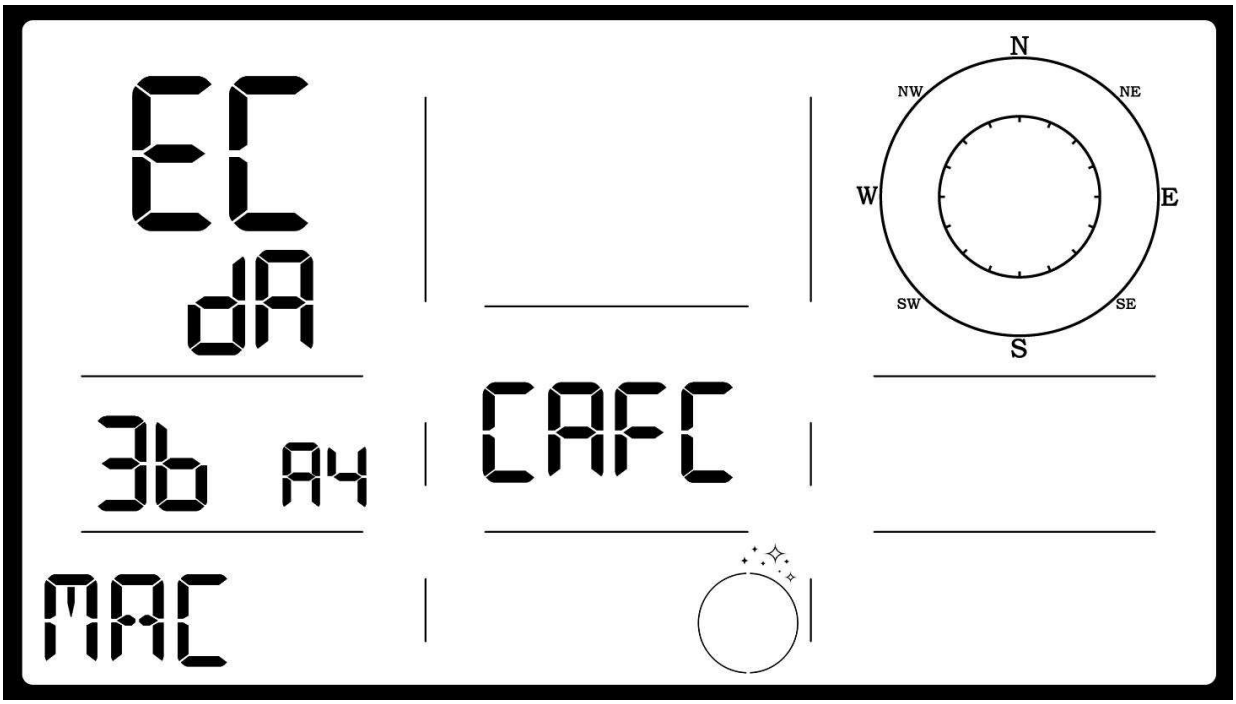


Figure 34: MAC address: EC:DA:3B:A4:CA:FC

3.7 Historical Data Export and Clear

3.7.1 Export History Data:

WS3800 doesn't support a memory card to store data, when the Wi-Fi configuration (refer to **Section 2.2** for Wi-Fi Configuration) is completed, you can log in to Ecowitt.net to export the data in CSV file format.

Figure 35: Export Historical Data from Ecowitt.net

Note:
Data with a query period of days/24 hours is retained for 3 months.
Data with a weekly query period is retained for 1 year.
Data with a monthly query period is retained for 2 years.
Data with a yearly query period is retained for 4 years.

3.7.2 Clear History Data:

Under "menu" → "devices" → "..." →"Sure".

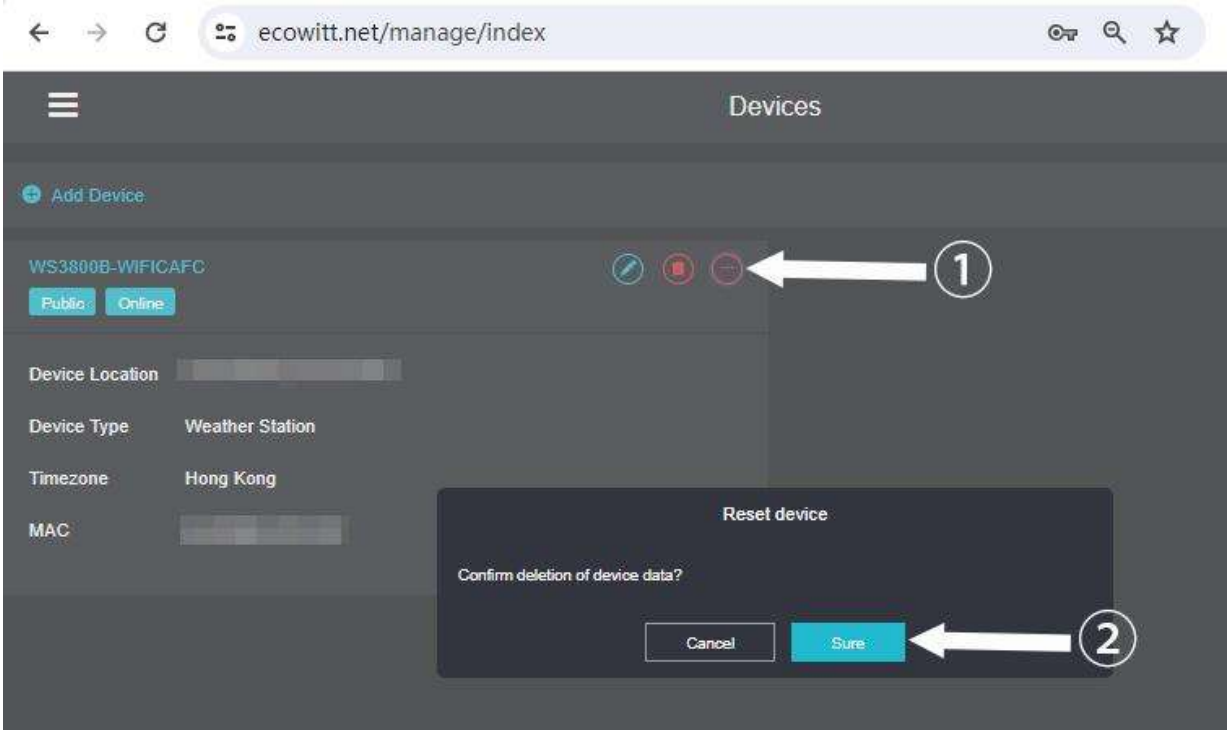


Figure 36: Clear History Data

3.8 Firmware Upgrade

Method 1: Via Ecowitt App

Open Ecowitt App → My Devices →"…" (Open the Edit Gateway page) → tap the firmware version number to upgrade if there is a new version available. When the upgrade is complete, the WS3800 will reboot into the latest version.

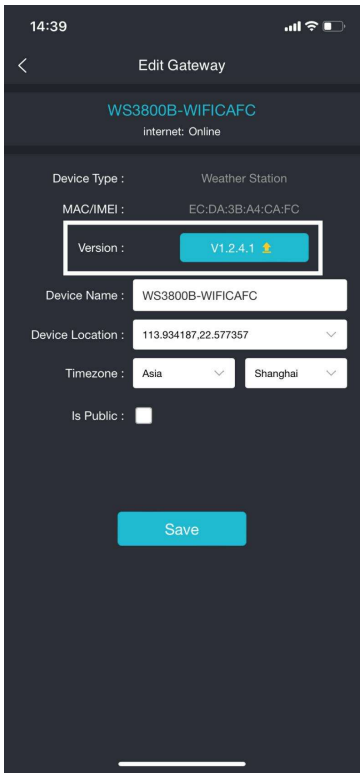


Figure 37: Upgrade Firmware on the App

Method 2: Via web page 192.168.4.1

If you choose "Automatically upgrade firmware" on the web page 192.168.4.1(refer to **Section 2.2.4** to access the web page), WS3800 will enter OTA every time when there is a new firmware, and the screen will display the "OTA" character. When the automatic firmware update is successful, it will display "OTA OK" and reboot automatically. (Automatic update interval is 24 hours).

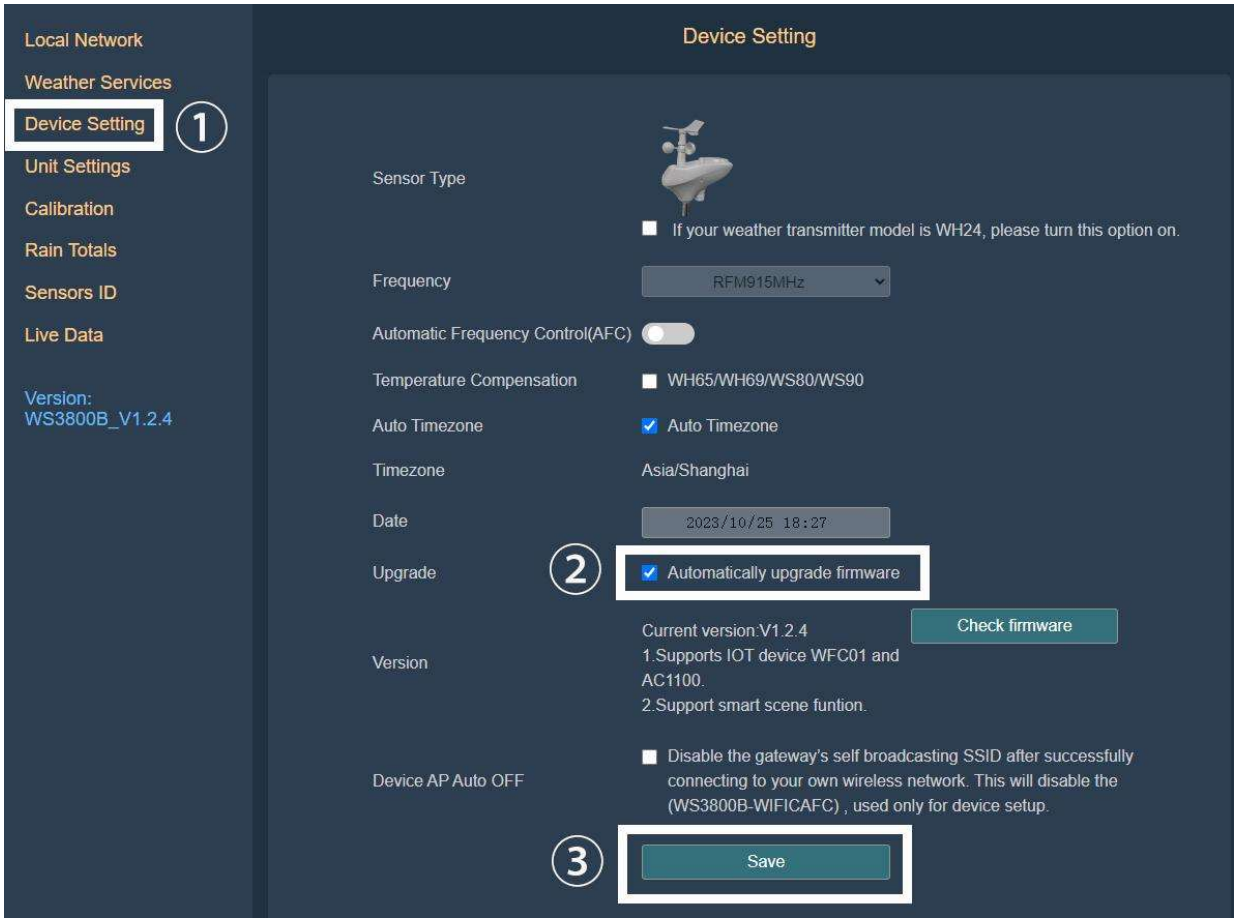


Figure 38: Automatically upgrade firmware setting on the web page

4. Optional Sensors

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

4.1 Sensors

When powered by DC or battery, the device supports these sensors as below, power consumption can be high if only battery power is available.

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 WS3800.

4.1.1 Sensor Data Can be Displayed on the WS3800

Sensor Model	Max QTY	Picture	Functions
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
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	8		Temperature and humidity
WN30			Temperature
WN36			Pool temperature

Table 6: Optional sensors

Note:

1. Some data of WS90/80/69/68/WH40/WN32 exist display priority, please refer to **Section 3.3.7~3.3.9**.

2. Some data of WH45/WH46 would not show on the WS3800. Please refer to **Section 3.3.2.**

4.1.2 Sensor Data Can Only be Uploaded to the Cloud

Sensor Model	Max QTY	Picture	Functions
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 7: Optional sensors