# PROFESSIONAL WEATHER STATION (IC0370)
# Operation Manual

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# 1. Introduction

Thank you for your purchase of the Solar Powered Wireless Wi-Fi Weather Station. The following user guide provides step by step instructions for installation, operation and troubleshooting.

# 2. Warnings and Cautions

**Warning:** Any metal object may attract a lightning strike, including your weather station mounting pole. Never install the weather station in a storm.

**Warning:** Installing your weather station in a high location may result in injury or death. Perform as much of the initial check out and operation on the ground and inside a building or home. Only install the weather station on a clear, dry day.

# 3. Quick Start Guide

Although the manual is comprehensive, much of the information contained may be intuitive. In addition, the manual does not flow properly because the sections are organized by components.

The following Quick Start Guide provides only the necessary steps to install, operate the weather station, and upload to the internet, along with references to the pertinent sections.

**Required**

| Step | Description | Section |
|---|---|---|
| 1 | Assemble and power up the Y shape sensor | 5.2 |
| 2 | Power up the display console and Synchronize with Y shape sensor | 5.3 - 5.4 |
| 3 | Set date and time on console | 6.4.5 |
| 4 | Calibrate the relative pressure to sea-level conditions (local airport) on console | 6.7 |
| 5 | Reset the rain to zero on console | 6.4.10 |

**Optional**

| | | |
|---|---|---|
| 6 | Configure Wi-Fi | 7 |
| 7 | Register and upload to Weather Server | 7 |

# 4. Pre-Installation Checkout and Site Survey

## 4.1 Pre-Installation Checkout

Before installing your weather station in the permanent location, we recommend operating the weather station for one week in a temporary location with easy access. This will allow you to check out all of the functions, ensure proper operation, and familiarize you with the weather station and calibration procedures. This will also allow you to test the wireless range of the weather station.

### 4.2 Site Survey

Perform a site survey before installing the weather station. Consider the following:
1. You must clean the rain gauge every few months and change the rechargeable batteries every 2-3 years. Provide easy access to the weather station.

2. Avoid radiant heat transfer from buildings and structures. In general, install the sensor array at least 5' (1.5m) from any building, structure, ground, or roof top.

3. Avoid wind and rain obstructions. The rule of thumb is to install the sensor array at least four times the distance of the height of the tallest obstruction. For example, if the building is 20' tall, and the mounting pole is 6' tall, install 4 x (20 – 6)' = 56' away. (If building is 6m tall, and mounting pole is 1.8m, install 4 X (6-1.8) = 16.8m away.))

4. Wireless Range. The radio communication distance between receiver and transmitter in an open field can reach up to 300 feet (91.5m), providing there are no interfering obstacles such as buildings, trees, vehicles, high voltage lines. Wireless signals will not penetrate metal buildings. Under most conditions, the maximum wireless range is 100' (30.5m).

5. Radio interference such as PCs, radios or TV sets can, in the worst case, entirely cut off radio communication. Please take this into consideration when choosing console or mounting locations. Make sure your display console is at least five feet away from any electronic device to avoid interference.

# 5. Getting Started

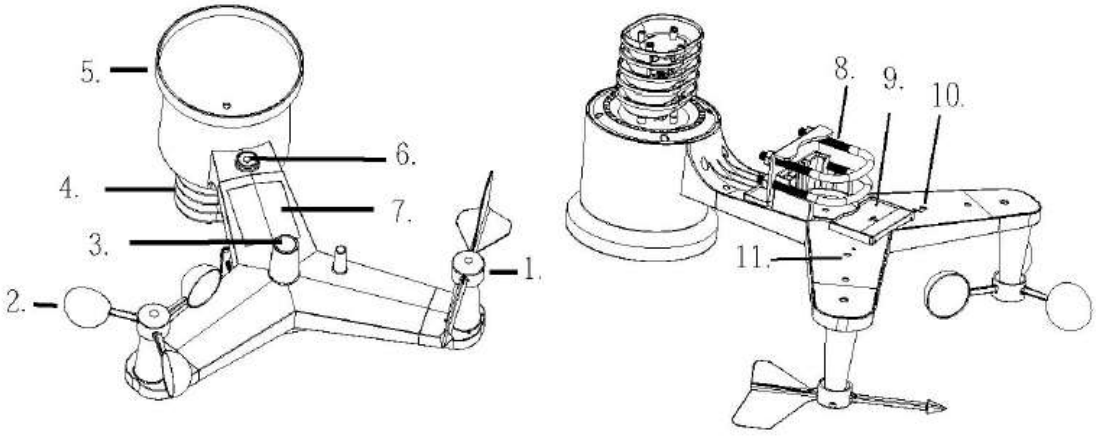
### 5.1 Contents

| QTY | Item |
|---|---|
| 1 | Receiver |
| 1 | Thermo-hygrometer-barometer transmitter |
| 1 | Y shape outdoor sensor (including 1x Thermo-hygrometer, 1x Rain Gauge, 1x Transmitter, 1x pole mounting clamp, 2x U-bolt, and 4x screws, assembled) |
| 1 | Wind Vane |
| 1 | Wind speed sensor |
| 1 | Rain hopper |
| 1 | 5V DC Adaptor |
| 1 | User manual |

### 5.2 Sensor Set Up

1. Wind Vane
2. Wind Speed Sensor
3. UV sensor/ Light sensor
4. Thermo-hygro sensor
5. Rain collector
6. Bubble level
7. Solar panel
8. U-Bolt
9. Battery compartment
10. Reset button
11. LED Indicator: will illuminate for 4s when the unit is powered up. The LED will flash once every 16 seconds (the sensor transmission update period).

## 5.2 Sensor Set Up




### 5.2.1 Install wind vane

Push the wind vane into the shaft. as shown in figure 1.
Tighten the set screw with as shown in figure 2. Make sure the wind vane spins freely.

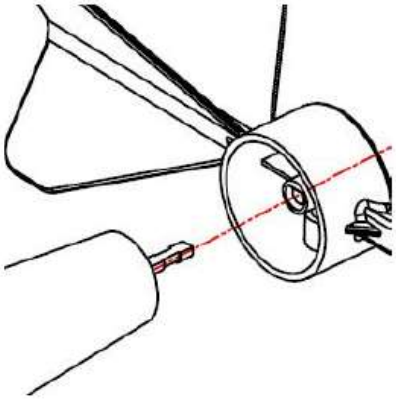


Figure 1

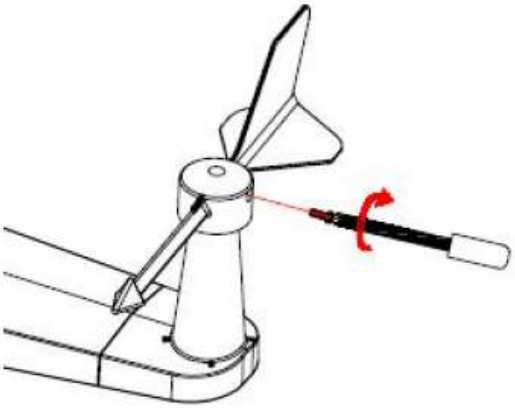


Figure 2

There are four alphabet letter of “N”, “E”, “S” and “W” around the wind direction, representing the directions of North, East, South and West. The wind direction sensor must be adjusted so that the directions on the sensor match the current location. Permanent wind direction error will be introduced when the wind direction sensor is not positioned correctly during installation.

### 5.2.2 Install wind speed

Push the wind cups into the shaft. as shown in figure 3.
Tighten the set screw with as shown in figure 4. Make sure the wind cups spin freely.

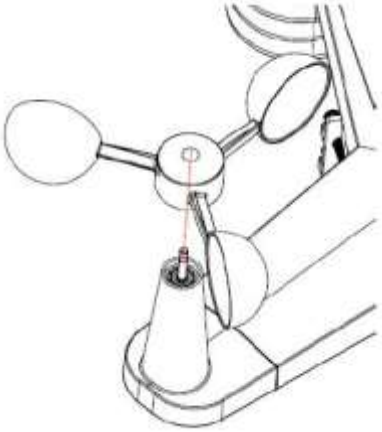


**Figure 3**

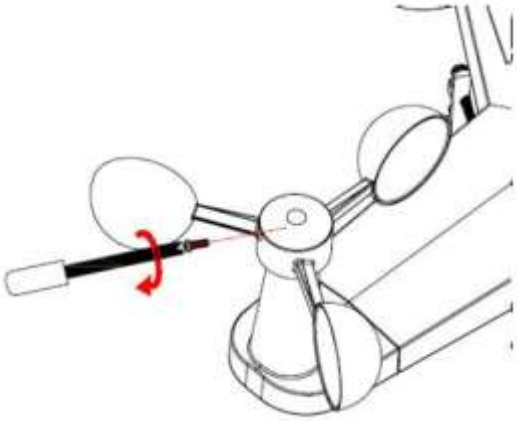


**Figure 4**

### 5.2.3 Install Batteries

Insert 3XAA rechargeable batteries in the battery compartment (figure 5). The LED indicator on the back of the transmitter will illuminate for four seconds and normally flash once every 16 seconds (the sensor transmission update period).

**Note:** If LED doesn't turn on or remains on continuously, make sure the batteries are inserted the correct way. You should also check if the outdoor station has been correctly reset (see 5.2.5 for further detail). Do not install the batteries backwards as it may permanently damage the thermo-hygrometer.

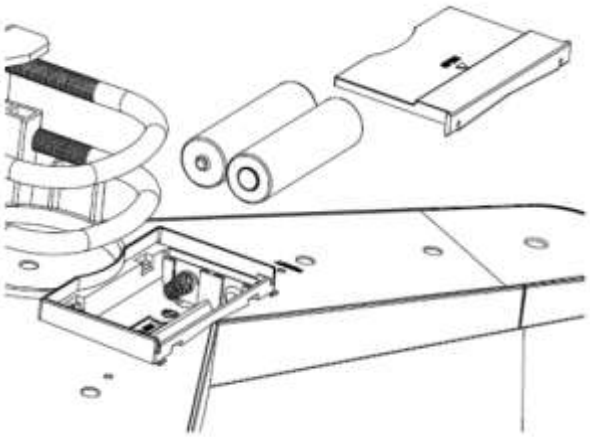


**Figure 5**

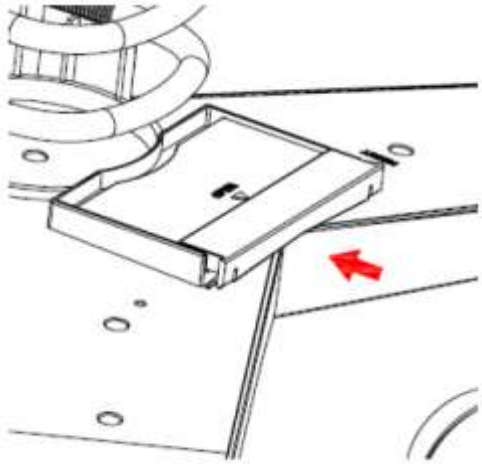


**Figure 6**

### 5.2.4 Mount outdoor sensor

Mount the outdoor sensor to your mounting pole (purchased separately) with the U-bolts as shown in Figure 7 and 8.

Use the bubble level beside the rain sensor as a guide to verify that sensors are level.

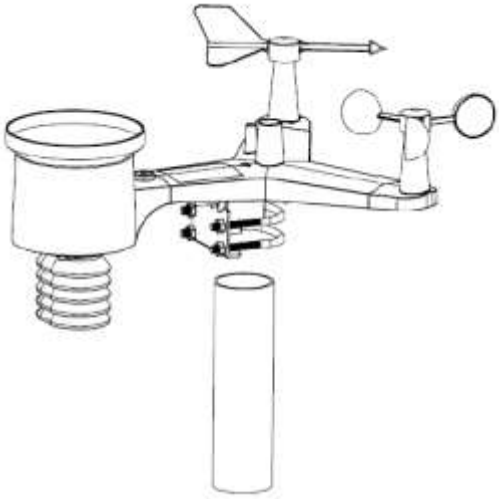


**Figure 7**

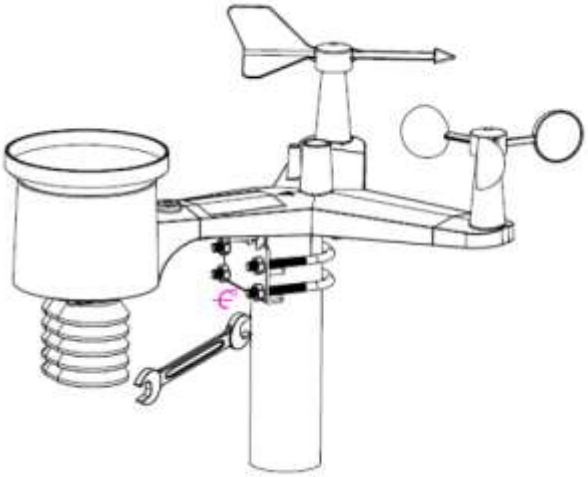


**Figure 8**

### 5.2.5 Reset Button and Transmitter LED

In the event the sensor array is not transmitting, reset the sensor array.
Use an open-ended paperclip to press and hold the **RESET BUTTON** for three seconds to completely discharge the voltage (Figure 10).

Take out the batteries and cover the solar panel. Wait one minute to drain the voltage.
Put batteries back in and resynchronize with console by powering down and up the console with the sensor array about 10ft (3m) away.

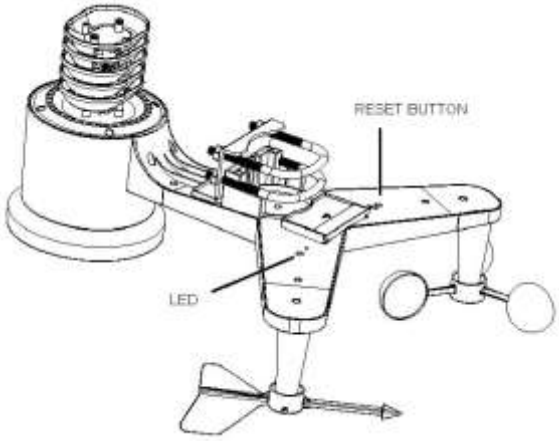



**Figure 10**

## 5.3 Best Practices for Wireless Communication

**Note:** To ensure proper communication, mount the remote sensor(s) upright on a vertical surface, such as a wall.

**Do not lay the sensor flat.**

Wireless communication is susceptible to interference, distance, walls and metal barriers. We recommend the following best practices for trouble free wireless communication.

1. **Electro-Magnetic Interference (EMI)**. Keep the console several feet away from computer monitors and TVs.

2. **Radio Frequency Interference (RFI).** If you have other 433 MHz devices and communication is intermittent, try turning off these other devices for troubleshooting purposes. You may need to relocate the transmitters or receivers to avoid intermittent communication.

3. **Line of Sight Rating.** This device is rated at 300 (91.5m) feet line of sight (no interference, barriers or walls) but typically you will get 100 (30.5m) feet maximum under most real-world installations, which include passing through barriers or walls.

4. **Metal Barriers.** Radio frequency will not pass through metal barriers such as aluminium siding. If you have metal siding, align the remote and console through a window to get a clear line of sight.

The following is a table of reception loss vs. the transmission medium. Each “wall” or obstruction decreases the transmission range by the factor shown below.

**Medium RF Signal Strength Reduction**
Glass (untreated) 5-15%
Plastics 10-15%
Wood 10-40%
Brick 10-40%
Concrete 40-80%
Metal 90-100%

## 5.4 Display console

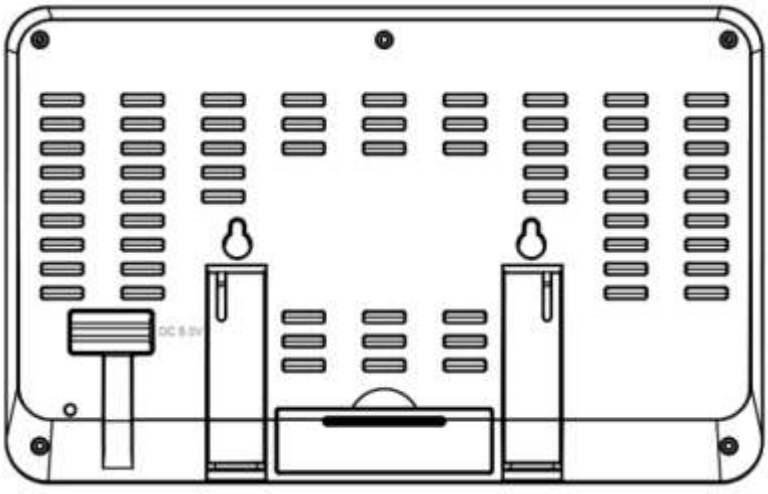


**Figure 11 (rear of console)**


**Figure 12 (front of console)**

1. Insert the 5V AC adaptor into the back of the display console.

2. Insert 3 AAA batteries into the display console (optional).

3. Place the outdoor array no further than (1.5m to 3m away) from the console for 15 minutes to lock in the sensor signals.

4. (Optional) - Spin the wind cups to simulate wind speed. Remove rain funnel and press rain bucket mechanism to simulate rain. Data is transmitted every 16 seconds by the station to the display console.

5. If after 15 minutes transmission occurs correctly, follow the mounting instructions for proper placement of sensors.

Note: Your display console should have readings in all sections. Wind and Rain will show 0's (connected) until wind or rain sensors are activated (via environment, or manually).

Note: If you only use battery to power up display console, you must press **LIGHT/SNOOZE** key to light up the LCD before pressing any other key.

# 6. Display Console Operation

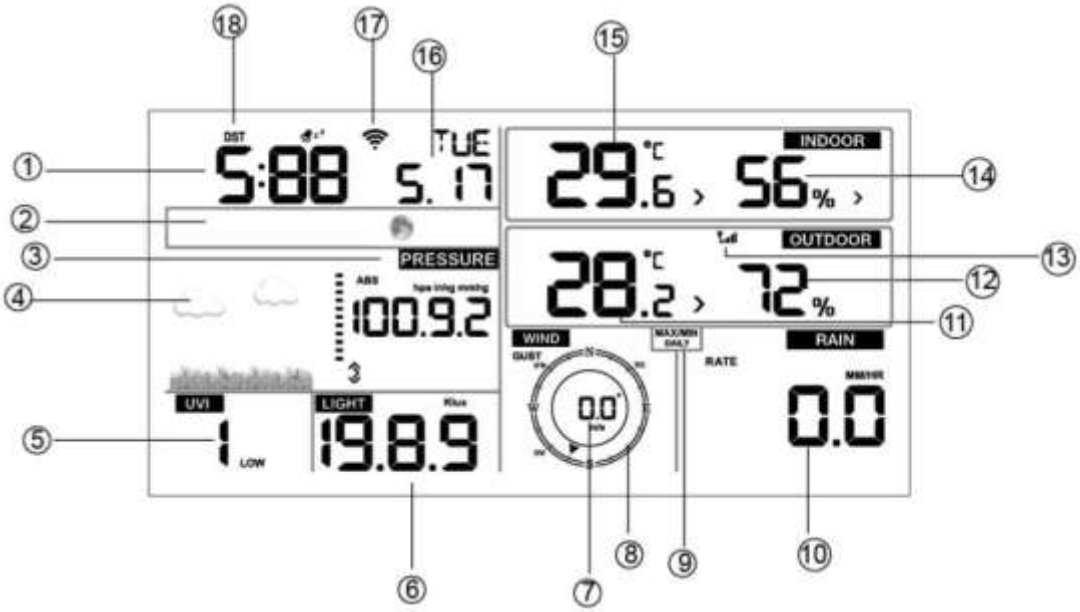



**Figure 13**

## 6.1 Screen Display

1.Time
2**.** Moon phase
3. Barometric Pressure
4. Weather forecast
5. UV index
6. Light
7. Wind speed
8. Wind direction
9. MAX/MIN Daily
10. Rainfall
11. Outdoor temperature
12. Outdoor humidity
13. RF icon
14. Indoor humidity
15. Indoor temperature
16. Date
17. WIFI icon
18. DST

## 6.2 Initial Display Console Set Up

Connect the power adapter to power up the display console.
The display console will show software version number 2 seconds after power reset (figure 14).


**Figure 14**

The display console will turn on all segments of the LCD for 3 seconds after power reset (Figure 15). The display console will search for and register the channel of weather station for 3 minutes.

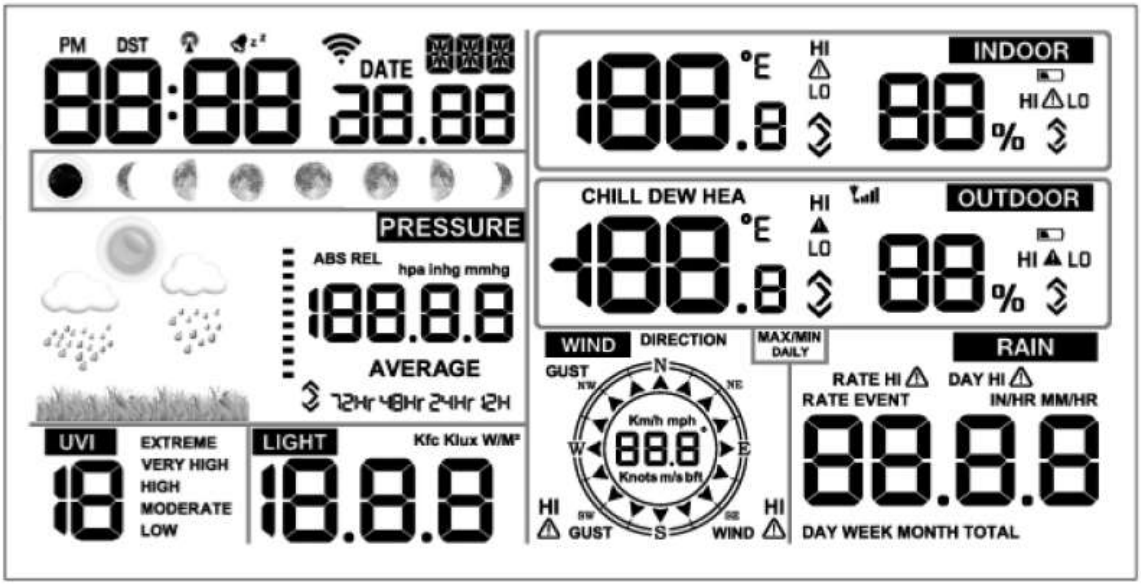



**Figure 15**

## 6.3 Key function

The console has eight keys for easy operation:

**Key Description**

| | |
|---|---|
| **SET** | Hold this key to enter setting mode |
| **TEMP.** | Press this key to view wind Chill, Heat Index, Dew Point Temperature<br><br>Press the TEMP key 5s to register new transmitter. |
| **RAIN** | Press this key to view Rain Rate, event, Rain Day, Rain Week, Rain Month, and Rain total.<br>Press the RAIN key for 2s to reset current display rain |
| **WIND + PRESSURE** | Press this key to view wind/gust and wind direction<br>Press this key to view Absolute Pressure average of 12hr, 24hr, 48hr and 72hr<br>Press and hold 2s this key to view the absolute and relative pressure |
| **ALARM** | Press this key to view the alarm value of Temperature, Humidity, rain rate, rain day, or wind |
| **MAX/MIN** | Press this key to view the MAX/MIN value of Temperature, Humidity, rain rate, rain day, wind, UVI, LIGHT, or Absolute Pressure |
| **LIGHT /SNOOZE** | Press this key to adjust LCD backlight brightness: HI/MID/OFF |

Note:

1) When power on, press **SET** key to reset the weather station and clear all records memory, and clears all user settings to default.

2) When power on, press **TEMP.** key to skip receive RF signal.

3) In Setting mode, press **WIND/+** or **PRESSURE/-** key to select the unit or scroll the value; holding **WIND/+** or **PRESSURE/-** key for 2 seconds will increase/decrease digits in great steps.

4) The setting procedure can be exited at any time by either pressing the **LIGHT /SNOOZE** key or waiting for the 30-second time-out to take effect.

## 6.4 Setting mode

Pressing the **SET** key for 2 seconds to enter setting model, the basic settings can now be performed in the following order:

### 6.4.1 BEEP


- Press the **SET** key for 2 seconds to select the beep section; the ON/OFF section digits will start flashing. Press the **WIND/+** or **PRESSURE/-** key to select ON or OFF.

“BEEP ON” will make the Beep sound on every key press. If you do not want the beep sound to be heard, select “BEEP OFF”.

### 6.4.2 MAX/MIN Daily


- Press the **SET** key twice to select the **MAX/MIN Daily** section; the ON/OFF section digits will start flashing. Press the **WIND/+** or **PRESSURE/-** key to select ON or OFF. (Default is ON. ON: clear at 0:00 every day).

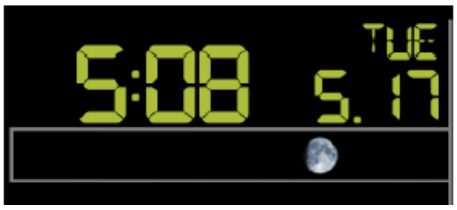
### 6.4.3 DST (daylight saving time)


- Press the **SET** key a third time to select the **Daylight saving time** section; ON/OFF section digits will start flashing. Press the **WIND/+** or **PRESSURE/-** key to select ON or OFF. (default is ON)

### 6.4.4 Time zone


- Press the **SET** key a fourth time to select the **Time zone** section; time zone section digits will start flashing. Press the **WIND/+** or **PRESSURE/-** key to select the value. (Level: -12 to +12. Default: -5)

### 6.4.5 Time / Date




- Press the **SET** key a fifth time to select the 12- or 24-hour format section (default: 24hr).
- Press the **SET** key a sixth time to select the hour section.
- Press the **SET** key a seventh time to select the minutes section.
- Press the **SET** key an eighth time to select DD-MM or MM-DD format. (Default DD-MM format)
- Press the **SET** key a ninth time to select year.
- Press the **SET** key a tenth time to select month.
- Press the **SET** key an eleventh time to select day.

Note: Press the **WIND/+** or **PRESSURE/-**key to set the value.
Note: If user to change minute value, second will auto clear to 0.

### 6.4.6 Pressure


- Press the **SET** key a twelfth time to select ABS. (absolute) Pressure unit (hPa, mmhg or inhg. default: hPa).
- Press the **SET** key a thirteenth time to select REL. (relative) Pressure value.

Note: Press the **WIND/+** or **PRESSURE/-** key to select the value.
Note: in normal mode, press and release the **PRESSURE/-** key to view the average of 12hr, 24hr, 48hr and 72hr pressure. Press and hold 2s the **PRESSURE/-** key to view the absolute and relative pressure

For correct Relative Pressure measurements, locate and/or contact your local weather reporting station or weather-based website, and adjust the relative pressure to match theirs.

### 6.4.7 Light


- Press the **SET** key a fourteenth time to select light unit (lux, fc, w/$m^2$; default: w/$m^2$).

### 6.4.8 Temperature

- Press the **SET** key a fifteenth time to select in/outdoor temperature unit (°C or °F. default unit: °C).
- In normal mode, press the **TEMP.** key to view wind Chill, Heat Index, Dew Point Temperature. Press and hold the **TEMP.** key for 5 seconds to register a new transmitter. Note: every 60 seconds the unit will measure indoor temperature, indoor humidity and pressure. If temperature is If temperature is below minimum or above maximum range, display will show --.-.

### 6.4.9 Wind speed


- Press the **SET** key a sixteenth time to select wind speed unit (km/h, mph, knots, m/s, bft. Default:
km/h).
- In normal mode, press and release the **WIND/+** key to view the wind, gust and wind direction.

### 6.4.10 Rain


- Press the **SET** key a seventeenth time to select rainfall unit (in or mm units; default: mm).
- In normal mode, press and release the RAIN key to view rain of rate, event, day, week, month and total.
- Press the **RAIN** key for 2 seconds to reset current display rain.

Note:
Reset week rain measurement will also reset day rain
Reset month rain measurement will also reset week and day rain.
Reset total rain measurement will auto reset month, week, and day rain.

Note:

| | |
|---|---|
| Rain rate: | rainfall measured in previous 10 minutes X 6 = mm/hr |
| Rain event: | indicates when rainfall recorded is above 10mm within a 24-hour period. |
| Day: | defined by calendar day i.e. 0:00 - 24:00 with current date. |
| Week: | defined by calendar week i.e. Sunday – Saturday. |
| Month: | defined by calendar Month i.e. January 1 - January 31. |
| Total: | running total since station was powered up |

**Note:** The station transmits the wind speed, wind direction and rainfall data every 16 seconds to the console.

### 6.4.11 Moon phase

- Press the **SET** key 18th to select Northern or Southern Hemisphere

## 6.5 Alarm mode

### 6.5.1 Display of Alarm value

1 Press and release **ALARM** key to display high alarm


2 Press **ALARM** key again to display low alarm


Note:
- Press **RAIN** key to select display rate or day rain alarm data.
- Press **WIND/+**key to select display wind or gust alarm data.
- Press **ALARM** key third time or press **LIGHT /SNOOZE** key back to normal mode

**6.5.2 Alarm mode setting**
1) Press and hold for 2 seconds **ALARM** key enter alarm setting mode:
2) Press the **WIND/+** or **PRESSURE/-** to arm/disarm alerts and adjust alert values.
3) Press the **SET** key to confirm & move to the next item.
4) Press the **ALARM** key to on/off the alarm
Note: when alert is triggered, the current triggering source icon for time, icon for high value and icon for low value will be flashing, indicating alert is triggered.

Triggering Source Icon: 

High Value Icon: 


Low Value Icon: 


Note: press **ALARM** key third time back to normal mode or press **LIGHT /SNOOZE** key back to normal mode.

### 6.5.3 Alarm Setting Order

1) Time alarm setting
2) Indoor high temperature setting
3) Indoor low temperature setting
4) Indoor high humidity setting
5) Indoor low humidity setting
6) Outdoor high temperature setting
7) Outdoor low temperature setting
8) Outdoor high humidity setting
9) Outdoor low humidity setting
10) High wind setting
11) High gust setting
12) Rain rate high setting
13) Rain day high setting

## 6.6 Max/min mode

6.6.1 Press and release **MAX/MIN** key to display MAX data


- Press **TEMP.** key to view wind chill, heat index and dew point max.
- Press **RAIN** key to view rain rate, rain day, rain week and rain month max.
- Press **WIND/+** to view wind and gust max.
- Press and hold **PRESSURE/-** for 2 seconds to view pressure absolute and relative max. values.

6.6.2 Press again to display min data


- Press **TEMP.** key to view wind chill and dew point min.
- Press **PRESSURE/-** to hold 2 seconds to view pressure absolute and relative min.

Note: press and hold MAX/MIN button for 2 seconds to reset all max or min values. press **MAX/MIN** key third time back to normal mode or press **LIGHT /SNOOZE** key back to normal mode.

## 6.7 Calibration mode


Hold the **TEMP.** and **MAX/MIN** key together for 5 seconds to enter calibration mode.
- Press the **WIND/+**and **PRESSURE/-** key to adjust values.
- Press the **SET** key to confirm & move to the next item.
- Press the **ALARM** key to reset any adjusted value.
- Press the **LIGHT /SNOOZE** key at any time to exit.

### 6.7.1 Calibration Order

1) Indoor temperature offset calibrated (range ±9°F (±5°C), default: 0 degrees)
2) Indoor humidity offset calibrated (range ±9%) (±5°C)
3) Outdoor temperature offset calibrated (range ±9°F, (±5°C), default: 0 degrees)
4) Outdoor humidity offset calibrated (range ±9%)
5) Absolute pressure offset calibrated (range ±10hPa)
6) Wind direction offset calibrated (adjust by degree)
7) Wind speed factor adjust, default 100% (range 50% to 150%)
8) Rain factor adjust, default 100% (range 50% to 150%)

## 6.8 Other Features

### 6.8.1 Factory Reset/Clear Memory

1) When power on, press **TEMP.** key to stop console receiving signal from station.
2) When power on, press **WIND/+** and **PRESSURE/-** key simultaneously, which will reset the weather station, erase all data stored, and revert all user settings to default.
3) Press the **LIGHT /SNOOZE** key for 5 seconds to register a new transmitter.

### 6.8.2 Backlight (constant backlight requires operation with DC adapter).

1) with AC adaptor.
Press **LIGHT /SNOOZE** key to change the LCD backlight brightness: HI/MID/OFF
2) without DC adaptor
After 15 seconds without touching any keys on console, the screen will enter sleep mode; the backlight stops illuminating and the touch keys will be disabled.
3) Hold the **LIGHT /SNOOZE** key in sleep mode or plug in the DC adapter to wake up Equipment from sleep mode. If holding the **LIGHT/SNOOZE** key in, do not release until backlight illuminates.

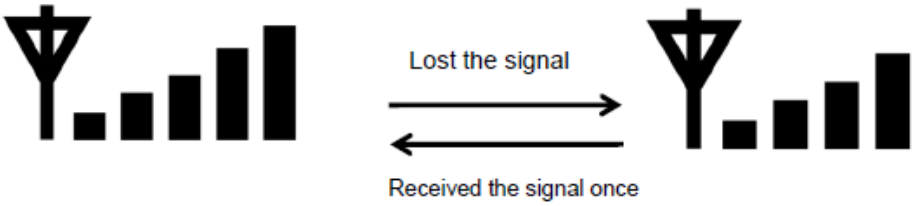
### 6.8.3 Tendency indicators

- 3 hrs comparison which changes on every ½ hour
- Eg. : At 3:00 - compare to 12:00 data; at 3:30 -compare to 12:30 ….. etc

| Tendency indicators | | Humidity | Temperature | Pressure |
|---|---|---|---|---|
| ↗ | Rising | Rising > 3% | Rising >= 1C/2F | Rising > 1hpa |
| → | Steady | Change <= 3% | Change < 1C/2F | Change <= 1hpa |
| ↘ | Falling | Falling > 3% | Falling >= 1C/2F | Falling > 1hpa |

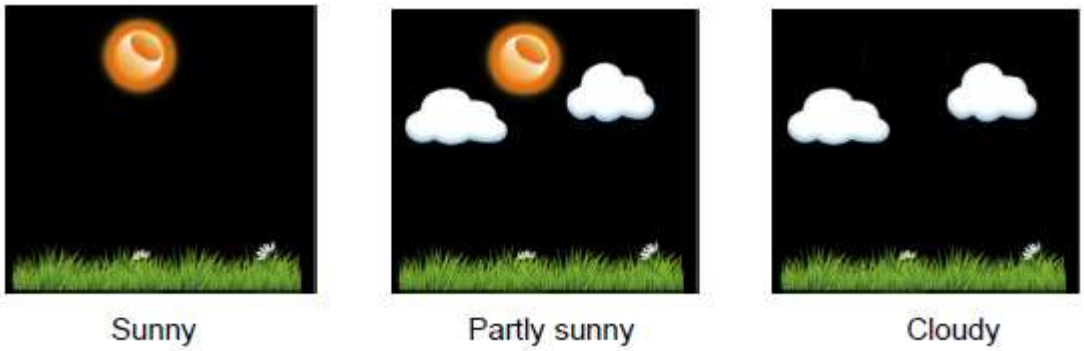
### 6.8.4 Wireless Signal Strength Indicator

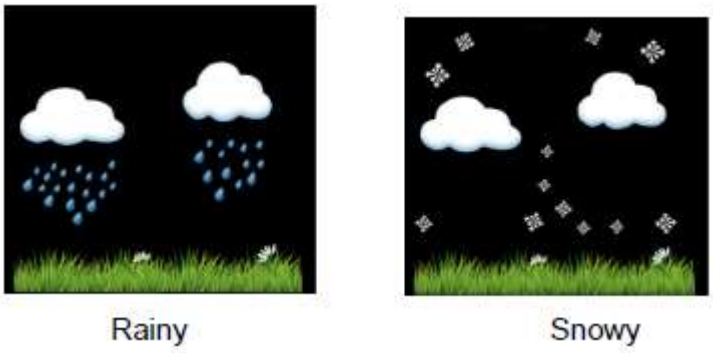
During the synchronization, it will reduce one signal segment if it has not received the signal once from the transmitter. It will increase one signal segment if it has received the signal once.




### 6.8.5 Weather forecast:

Sunny, Partly Sunny, Cloudy, Rainy, Stormy and Snowy.
When Outdoor temperature is below 32°F (0°C) and the forecast is RAINY or STORMY, the LCD will display SNOWY.



### 6.8.6 Snooze

When alarm sounds, press the **LIGHT /SNOOZE** key to silence the alarm in “snooze” mode. Press any other key to exit snooze mode.
The alarm will sound again 10 minutes after the **LIGHT/SNOOZE** key has been pressed.

## 7. WIFI connection setting on mobile

The console must be connected to mains power via DC adapter to connect to Wi-Fi and upload data online. Console cannot upload data when powered by batteries alone. The console will sync its time zone to the Wi-Fi/internet signal it connects to.

## 7.1 Weather server

The weather station sends data to three free hosting services:

| Hosting Service | Website | Description |
|---|---|---|
| Weather Undergound | WeatherUndeground.com | Weather Underground is a free weather hosting service that allows you to send and view your weather station data real-time, view graphs and gauges, import text data for more detailed analysis and use iPhone, iPad and Android applications available at Wunderground.com. Weather Underground is a subsidiary of The Weather Channel and IBM. |
| WeatherBug Community | backyard.weatherbug.com | WeatherBug Community is an extension of the WeatherBug community of weather stations. WeatherBug is a brand owned by Earth Networks that provides live weather data and maintains a mesoscale network of over 8,000 weather stations. |
| Weather Cloud | WeatherCloud.net | Weathercloud is a real-time weather social network formed by observers from around the world. |

## 7.2 Connecting the Weather Station Console to Wi-Fi

The WiFi feature only works when plugged into AC power due to higher energy requirements.

To connect the weather station to WiFi, you must first download the application from one of the following choices:
• Apple App Store
• Google Play Store

1. From your mobile device, visit the Apple App Store or Google Play Store and search for the “**WS View Plus**” application. Download this application to your mobile device.

2. Run the WS View Plus application and select the image for the **IC0370 console** (apple phone used for images below).


3. Make sure your mobile device is connected to your WIFI network. Enter the password for your router/modem and select **Save**.

4. If the WIFI icon is not flashing rapidly, (1) press and hold the **RAIN** and **ALARM** buttons at the same time for four seconds. (2) The WIFI icon will begin flashing rapidly, indicating the console is searching for your WIFI network (Figure 16).


**Figure 16**

Your phone will present a screen like this:

5. Once the console has connected to your Wi-Fi network, the devices Mac address and IP address will be displayed.

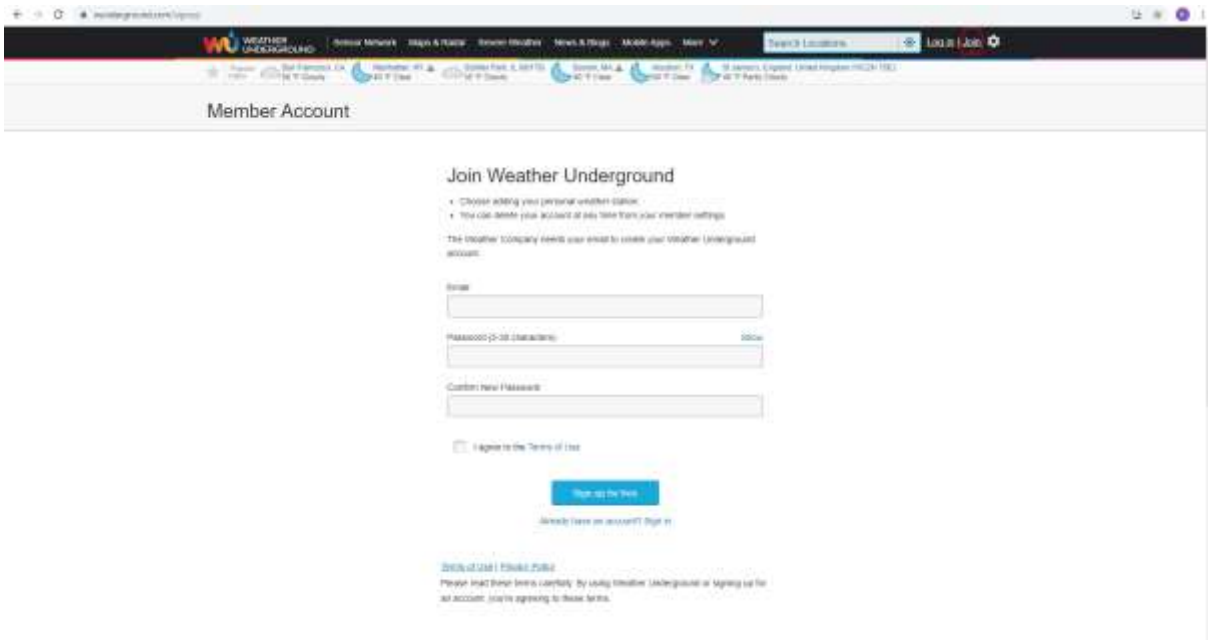


6. Enter your Wunderground.com and/or WeatherCloud.net Station ID, Password and StationNum to register the weather station with those services. You will need to create an account with these services to generate these details.

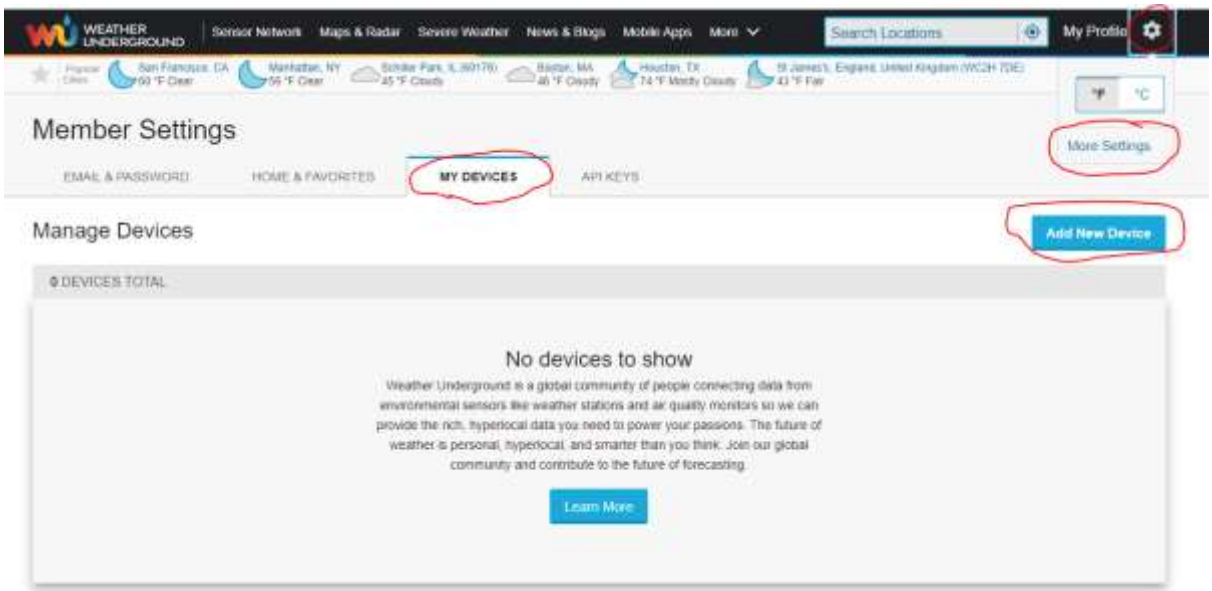
## 7.3 Registering with WeatherUnderground.com, WeatherBug.com, and WeatherCloud.net

### 7.3.1 WeatherUnderground.com

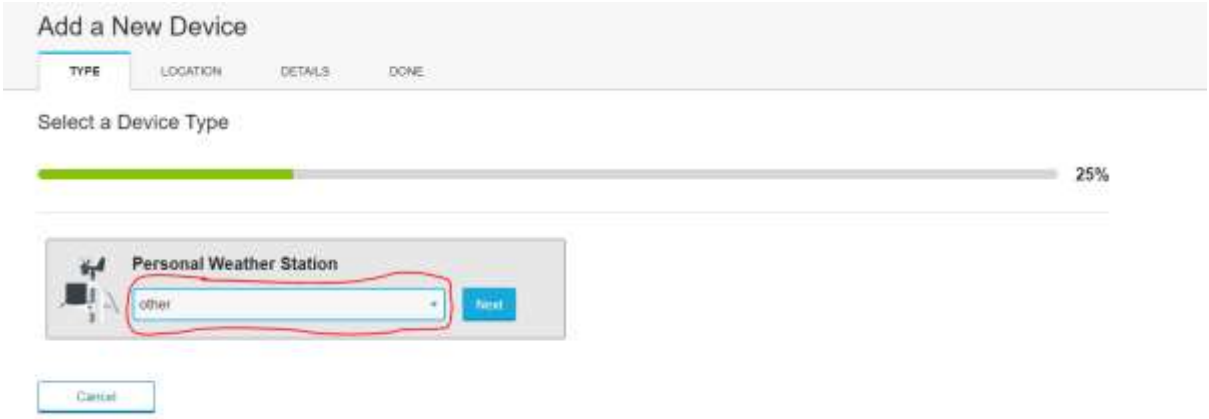
Visit Wunderground.com and select the **Join** link at the top of the page.




1. After creating your new account, select the “settings” symbol, then “more settings”. Select the “my devices” tab, and then press the “add new device” button, to register your Personal Weather Station with Weather Underground.

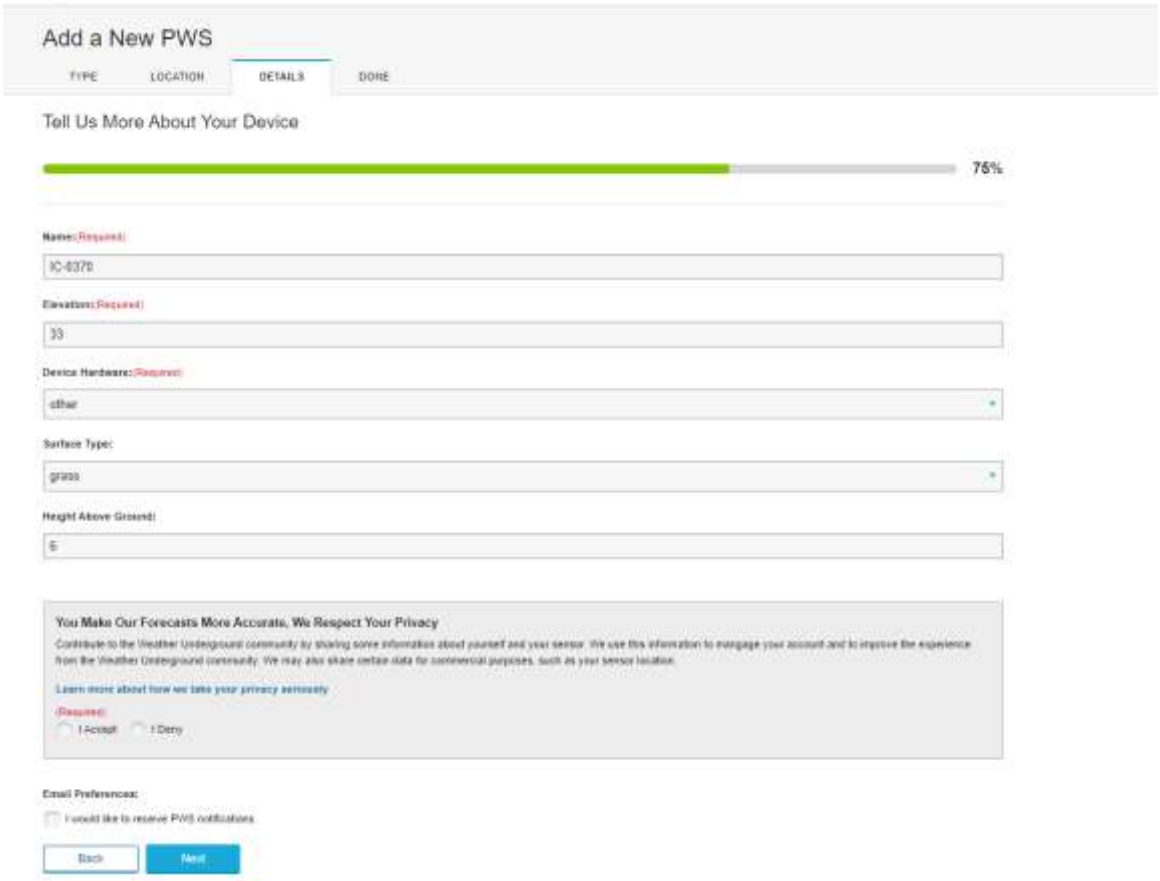


2. select “other” in the “Personal Weather Station” and then press next.

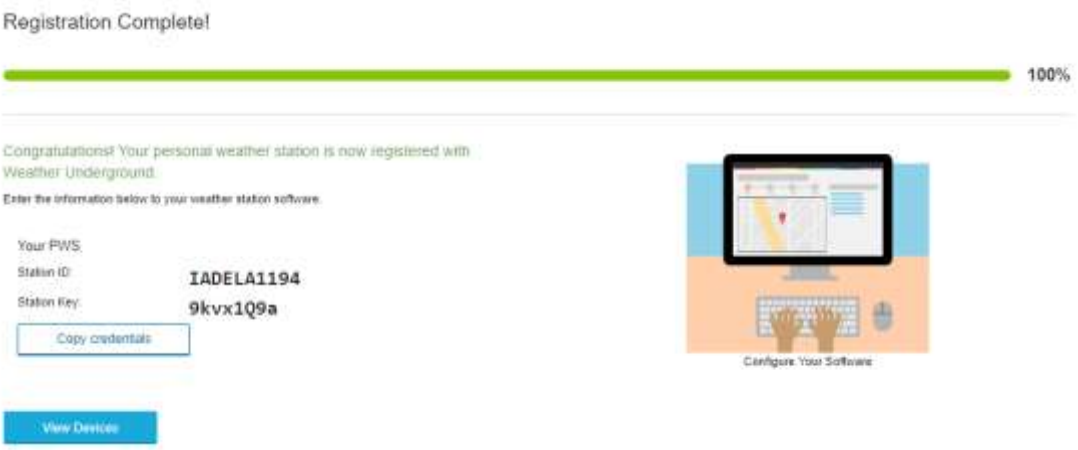



3. Enter the location of your device using the address it is located at using the “address” tab or enter the latitude and longitude co-ordinates via the “manual” tab.

4. Add further details about the location of the weather station, such as its elevation (default unit: feet), surface it is mounted to/standing upon, and height above ground level (default unit: feet). Ensure the privacy box has an answer selected (you must select “I accept” to add a device). Select the checkbox if you would like to receive Personal Weather Station notifications via email.

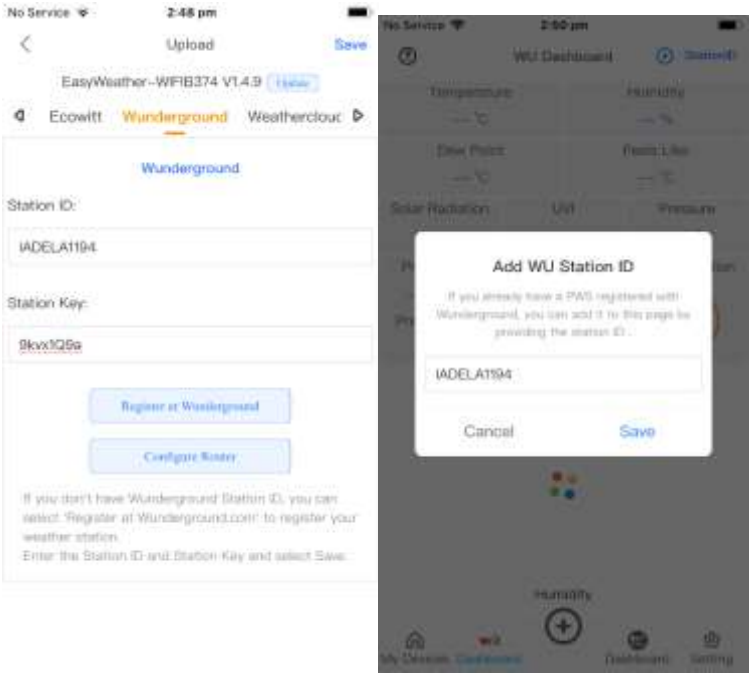


5. After completing registration of the Weather Underground account, Your Station ID and Station Key are created.




Return to the WS View Plus app to register the personal weather station with the Weather Underground Station ID and Station Key. It should take approximately 10 minutes for the station to connect to that service and upload data to your account.

An example for entering the Weather Underground details into the WS View Plus app is shown below. You would select the “WU” logo at the bottom of the page to do this. Both the account and the app will initially show as “offline”, but should change to “online” within 10 minutes.



### 7.3.2 WeatherBug.com

Visit and press sign up to create your account.

login to your new account and add the personal weather station details.
• Username
• Password
• Your Publisher ID
• Your Station Number
Enter the Publisher ID (ID), Password and Station Number (StationNum) into the WS View Plus app.

### 7.3.3 WeatherCloud

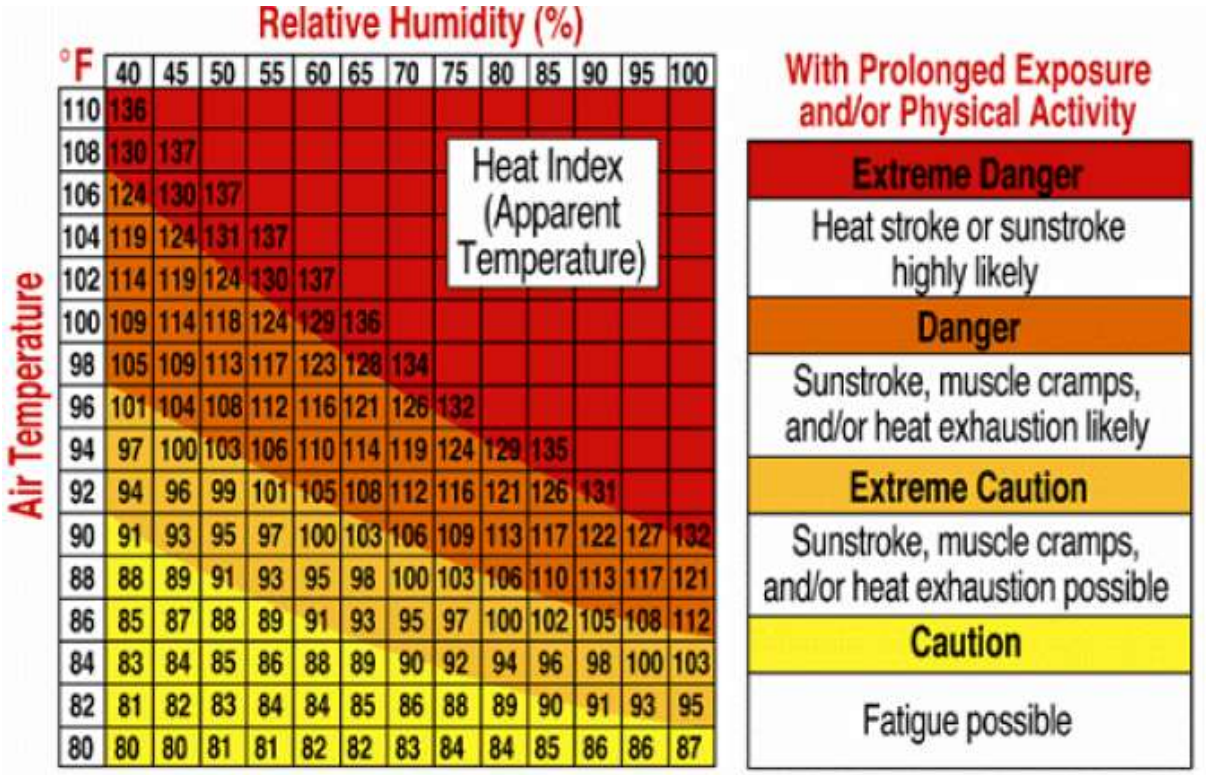
1. Visit WeatherCloud.net and enter a Username, Email and Password.
2. Respond to the validation email from WeatherCloud (it may take a few minutes).
3. Select **Create Device** and enter your weather station information. After registering your station, make a note of the following:
• Weathercloud ID
• Key
Enter the Weathercloud ID (ID), Key (password) into the WS View Plus app. Leave the Station Number (StationNum) blank.

## 8.Glossary of Terms

| Term | Definition |
|---|---|
| Absolute Barometric Pressure | Absolute pressure is the measured atmospheric pressure and is a function of altitude, and to a lesser extent, changes in weather conditions.<br>Absolute pressure is not corrected to sea-level conditions.<br><br>*Refer to Relative Barometric Pressure.* |
| Accuracy | Accuracy is defined as the ability of a measurement to match the actual value of the quantity being measured. |
| Barometer | A barometer is an instrument used to measure atmospheric pressure. |
| Calibration | Calibration is a comparison between measurements – one of known magnitude or correctness of one device (standard) and another measurement made in as similar a way as possible with a second device (instrument). |
| Dew Point | The dew point is the temperature at which a given parcel of humid air must be cooled, at constant barometric pressure, for water vapor to condense into water. The condensed water is called dew. The dew point is a saturation temperature. |
| Heat Index* | The Heat Index, sometimes referred to as the apparent temperature, is a measure of how hot it really feels when relative humidity is factored with the actual air temperature. * |
| HectoPascals (hPa) | Pressure units in SI (international system) units of measurement. Same as millibars (1 hPa = 1 mbar) |
| Hygrometer | A hygrometer is a device that measures relative humidity. Relative humidity is a term used to describe the amount or percentage of water vapor that exists in air. |
| Inches of Mercury (inHg) | Pressure in Imperial units of measure.<br>1 inch of mercury = 33.86 millibars |
| Rain Gauge | A rain gauge is a device that measures liquid precipitation (rain), as opposed to solid precipitation (snow gauge) over a set period of time.<br><br>All digital rain gauges are self-emptying or self-dumping (also referred to as a tipping rain gauge). The precision of the rain gauge is based on the volume of |

| | |
|---|---|
| | rain per emptying cycle. |
| Range | Range is defined as the amount or extent a value can be measured. |
| Relative Barometric Pressure | Measured barometric pressure relative to your location or ambient conditions, corrected to sea level. |
| Resolution | Resolution is defined as the number of significant digits (decimal places) to which a value is being reliably measured. |
| Solar Radiation # | A solar radiation sensor measures solar energy from the sun. # |
| Thermometer | A thermometer is a device that measures temperature. Most digital thermometers are resistive thermal devices (RTD). RTDs predict change in temperature as a function of electrical resistance. |
| Wind Vane | A wind vane is a device that measures the direction the wind is blowing. The wind vane is usually combined with the anemometer (wind cups), a device which measures wind speed. |

* To find the Heat Index temperature, look at the Heat Index chart on the below. As an example, if the air temperature is 95°F (35°C) and the relative humidity is 65%, the heat index (how hot it feels) is approximately 120°F (49°C).



IMPORTANT: Since heat index values were devised for shady, light wind conditions, exposure to full sunshine can increase heat index values by up to 16°F (9°C).

Also, strong winds, particularly with very hot, dry air, can be extremely hazardous. The Heat Index Chart shaded zone above 104°F (40°C) shows a level that may cause increasingly severe heat disorders with continued exposure or physical activity.

Heat Index is not calculated below 80°F (26°C).

**# Solar Radiation:**

Solar radiation is radiant energy emitted by the sun from a nuclear fusion reaction that creates electromagnetic energy. The spectrum of solar radiation is close to that of a black body with a temperature of about 5800 K. About half of the radiation is in the visible short-wave part of the electromagnetic spectrum. The other half is mostly in the near-infrared part, with some in the ultraviolet part of the spectrum.

## 9. Specification

**Outdoor data**

| | |
|---|---|
| Transmission distance in open field: | 100m (330 feet) |
| Frequency: | 433/868/915 MHz |
| Temperature range: | -40°C to +60°C (-14℉ to + 140℉) |
| Accuracy: | + / - 1°C |
| Resolution: | 0.1°C |
| Measuring range rel. humidity: | 10%～99% |
| Accuracy: | +/- 5% |
| Rain volume display: | 0 – 6000mm (show --- if outside range) |
| Accuracy: | + / - 10% |
| Resolution: | 0.1mm (if rain volume < 1000mm)<br>1mm (if rain volume > 1000mm) |
| Wind speed: | 0-50m/s (0~100mph) (show --- if outside range) |
| Accuracy: | +/- 1m/s (wind speed< 5m/s)<br>+/-10% (wind speed > 5m/s) |
| Light: | 0-200k Lux |
| Accuracy: | +/-15% |
| Measuring interval outdoor sensor: | 16 seconds |

**Indoor data**

| | |
|---|---|
| Indoor temperature range: | 0°C-50°C (32℉ to + 122℉) (show --- if outside range) |
| Resolution: | 0.1°C |
| Measuring range rel. humidity: | 10%～99% |
| Resolution: | 1% |
| Measuring range air pressure: | 700-1100hPa (20.67-32.5inHg) |
| Accuracy: | +/-3hpa under 700-1100hPa |
| Resolution: | 0.1hPa (0.01inHg) |

Alarm duration: 120 sec

## 10. Power Consumption

• Base station: 5V DC Adaptor (included), Power Consumption: 0.5 Watts (1.25 Watts during WiFi configuration mode)
• Outdoor sensor array: 3xAA batteries (not included)

## 11. Maintenance

1. Clean the rain gauge once every 3 months. Rotate the funnel anti-clockwise and lift to expose the rain gauge mechanism, and clean with a damp cloth. Remove any dirt, debris and insects. If bug infestation is an issue, spray the array lightly with insecticide (figure 16).
2. Clean the solar radiation sensor and solar panel every 3 months with damp cloth.
3. Replace batteries every 1-2 years. If left in too long, the batteries may leak due to environmental challenges.
4. In snowy environments, spray the top of the weather station with anti-icing silicon spray to prevent snow build up.

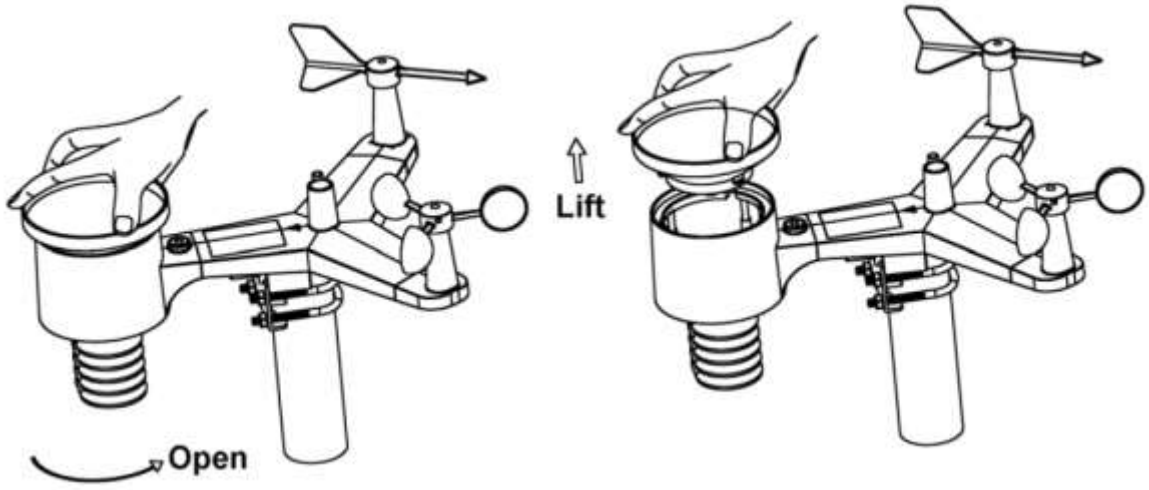



**Figure 16**

## 12. Troubleshooting Guide

| Problem | Solution |
|---|---|
| Outdoor sensor array does not communicate to the display console. | The sensor array may not have initiated properly so the data is not registered by the console, and the console must be reset. Press the reset button as described in Figure 10. With an open-ended paperclip, press the reset button for 3 seconds to completely discharge the voltage. |

| | |
|---|---|
| | Remove the batteries and then covering the solar panel for one minute to drain the voltage.<br>Reinsert batteries and resync the console (Section 5.25) with the<br>sensor array about 10 feet (1.8m) away.<br>The LED next to the battery compartment (sensory array) will flash every 16 seconds.<br>If the LED is not flashing every 16 seconds…<br>Replace the batteries in the outside sensor array and repeat.<br><br>If the batteries were recently replaced, check the polarity. If the sensor<br>is flashing every 16 seconds, proceed to the next step.<br>There may be a temporary loss of communication due to reception<br>loss related to interference or other location factors, or the batteries may have been changed in the sensor array and the<br>console has not been reset.<br>The solution may be to turn the console on and off by removal of AC power and batteries, waiting 10 seconds, then reinsert AC power and batteries. |
| Temperature sensor reads too high in the day-time. | Make certain that the sensor array is not too close to heat generating sources or strictures, such as buildings, pavement, walls or air conditioning units.<br>Use the calibration feature to offset installation issues related to<br>radiant heat sources. Reference Section 5.25 |
| Relative pressure does not agree with official reporting station | You may be viewing the absolute pressure, not the relative pressure.<br>Select the relative pressure by pressing and holding the **PRESSURE-** button for 2 seconds.<br>Make sure you properly calibrate the<br>sensor to an official local weather station.<br>Reference Section 6.4.6 for details. |
| Rain gauge reports rain when it is not raining | An unstable mounting solution (sway in the mounting pole) may result<br>in the tipping bucket incorrectly incrementing rainfall. Make sure you have a stable, level mounting solution via the bubble level on the sensor array (See Section 5.2) |
| Data not reporting to Wunderground.com | Confirm your password or key is correct.<br>It is the password you registered on Wunderground.com.<br>Your Wunderground.com password cannot begin with a non-alphanumeric character (a limitation of Wundeground.com, not the station). For example, $oewkrf is not a valid password, but oewkrf$ is valid. |

| | |
|---|---|
| | 2. Confirm your station ID is correct. The station ID is all caps,<br>and the most common issue is substituting an O for a 0 (or<br>visa versa). Example, KAZPHOEN11, not KAZPH0EN11<br><br>3. Make sure the date and time is correct on the console. If<br>incorrect, you may be reporting old data, not real time data.<br><br>4. Make sure your time zone is set properly. If incorrect, you may<br>be reporting old data, not real time data.<br>5. Check your router firewall settings. The console sends data<br>via Port 80. |
| No WiFi connection | 1. Check for WiFi symbol on the display. If wireless connectivity is successful the WiFi icon will be displayed in the time field.<br><br>2. Make sure your modem WiFi settings are correct (network name and password) |