FT-0214W (0214R-009TW-016TH)



Wireless Wi-Fi Weather Station

User Manual-EN

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Help: Our product is continuously changing and improving, particularly online services and associated applications. To download the latest manual and additional help, please contact our technical support team: support@nicetyweather.com

1. INTRODUCTION

The FT-0214W weather monitoring system features an integrated suite of sensors to provide a wealth of current weather data. The built-in sensors include a wind vane to measure wind direction, an anemometer to measure wind speed, and outdoor and indoor thermo-hygrometers to measure temperature and humidity both inside and outside. A built-in clock provides the current date, time, and day of the week. This allows users to easily check current conditions anytime.

The indoor monitoring console connects wirelessly via 2.4GHz Wi-Fi to support connection to Weather data is uploaded automatically to popular weather data aggregation services like Weather Underground and WeatherCloud. This enables remote access to current sensor readings from PC or smart devices. Users can view, save, analyze, share, and compare data from their personal weather station with other local stations.

The console features a large 5.0-inch color display for easy readability both during the day and at night, powered conveniently via included AC adapter. Setup of the system is straightforward, with an easy-to-follow user manual for effortless configuration. The integrated anemometer and wind vane sensor unit is water resistant and includes mounting hardware for flexible installation in locations like gardens, lawns, patios or rooftops/fences. The system supports up to 8 additional remote temperature and humidity sensors (sold separately) for multi-location monitoring.

2. PRECAUTIONS

1. It is strongly recommended to keep and read the "User's Manual". The manufacturer and supplier accept no responsibility for any incorrect readings, lost exit data, or consequences resulting from inaccurate readings.
2. This product should not be used for medical purposes or for publicity purposes.
3. Do not expose the device to external forces, vibrations, dust, excessive temperature or humidity.
4. Do not immerse the device in water. If liquid is spilled on the appliance, wipe it dry immediately with a soft, lint-free cloth.
5. Do not use abrasive or corrosive materials to clean the appliance.

6. Do not tamper with the internal components of the appliance. Otherwise, the warranty is void.
7. Use only new batteries. Do not mix old and new batteries.
8. Use only the accessories specified by the manufacturer.
9. Images shown in this manual may differ from the actual display.
10. This product should only be used with the supplied adapter.
11. Batteries must not be exposed to extreme environments such as high or low temperatures, low air pressure, high altitude, etc., during use, storage or transportation, as this may result in an explosion or leakage of flammable liquids or gases.
12. Keep new and used batteries away from children.
13. If the battery compartment does not close securely, stop using the product and keep it away from children.
14. The socket should be mounted near the device and easily accessible.
15. The console should only be used indoors.
16. Place the console at least 3m away from Integrated Wind Sensor.
17. Integrated Wind Sensor array at least 1.5m from any building, structure, ground, or roof top.
18. Any metal object may attract a lightning strike, including your weather station mounting pole. Never install the weather station in a storm.
19. 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.
20. If you are mounting the weather station to a house or structure, consult a licensed electrician for proper grounding. A direct lightning strike to a metal pole can damage or destroy your home.
21. The contents of this manual may not be reproduced without the manufacturer's permission.
22. The technical specifications of this product and the contents of the user manual are subject to change without notice.
23. When replacement parts are required, make sure that the service technician uses replacement parts specified by the manufacturer that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.

3. PARTS LIST

The weather station consists of the following parts (as referenced in Figure 1).

QTY	Item	Image
1	Display Console Frame Size :7.5x 3.5x1.5inch (190x39x89mm） LCD Size: 4.33 x 2.32 inch (110 x 59 mm)	
1	Remote Thermo-hygrometer Sensor (No.016TH) Dimensions: 75x53x22mm	
1	Integrated Wind Sensor (No.0214W) Dimensions: 205x195x155mm	
1	Foot Mounting (with pole insert) Dimensions:101x76x37mm	
1	Mounting Bracket Back Plate (pole mount) Dimensions: 76x75x20mm	
1	Mounting Pole, Dimensions: 300x30x20mm	
2	Pole mounting nuts(M3) / boltsØ3	
4	Pole mounting nuts(M5)/ bolts(Ø5)	
6	Tapping screws 2pcs for Rain gauge	
1	Manual-EN; and Power Adapter (EU/US/UK/AU plug)	

Figure 1

4. DISPLAY

1) Layout of Display Console

The following illustration shows the segment of LCD display for feature description purposes only in Figure 2.

1) Outdoor temperature HI/LO alarm
2) Outdoor temperature display
3) Low voltage icon
4) Outdoor feels like icon

5) Wind gust HI/LO alarm icon
6) Wind gust display
7) Wind speed units of measure
8) Indoor temperature HI/LO alarm icon
9) Indoor temperature display
10) Date
11) Time
12) Time alarm 1 and alarm 1 icon
13) SYNC icon
14) Snooze icon
15) Wi-Fi Connection icon
16) Indoor humidity display
17) Indoor humidity HI/LO alarm icon
18) Console connects website icon
19) Min/Max reset for 24h icon
20) Wind speed average display
21) Wind average HI/LO alarm icon
22) Wind direction
23) Outdoor humidity display
24) Outdoor humidity HI/LO alarm
25) Channel Selection
26) Outdoor DEW Point icon

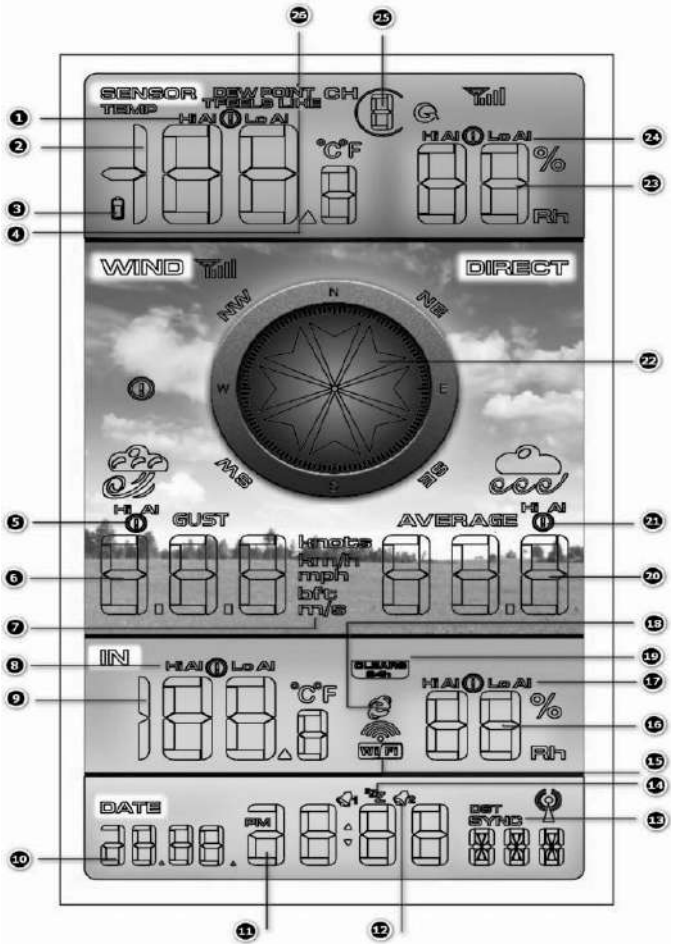


Figure 2

2) Display of Thermo-hygrometer Sensor

Verify the correct channel number (CH) and temperature units of measure (°F vs. °C) are on the display, as shown in Figure 3.

(1) temperature.

(2) temperature units (°F vs. °C)

(3) channel number.

(4) relative humidity.

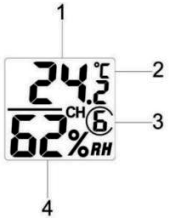


Figure 3

5. BATTERY INSTALLATION

Note: Powering up with batteries for the integrated wind sensors and remote thermo-hygrometer sensor first, and the display console with power adapter second. (Batteries for display console are a backup option, only the power adapter keeps the backlight on permanently)

Note: Do not press any button until all the remote sensors report in the display screen, otherwise the display console will terminate to connect with remote sensors.

Note: Do not install the batteries backward. You can permanently damage the sensors. Do not use rechargeable batteries (Solar panel doesn't charge the battery and it is an auxiliary power supply).

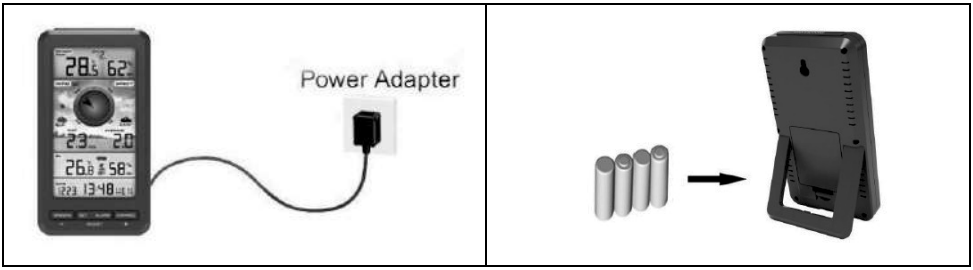
Note: We recommend installing Lithium batteries in cold weather condition.

Console Power ON with Adapter

1） Power on with adapter to keep the backlight on. The battery is a back-up option, saving console settings when powered off from adaptor.

Note: Power the console with adapter first, not the batteries, otherwise the backlight will not light on constantly and the Wi-Fi icon will not flash for online connection.

2） Remove the battery door on the back of the display, install 4x AAA batteries and close the door, place on the desk or mount on the wall.



Insert Batteries into Wind Sensor

1) Locate the battery door on the back of the wind sensor, push outwards along the arrow direction and open the battery compartment upwards.

Note: If the battery door is closed tightly, push harder to open the battery door (Make sure there is no water on your hands).

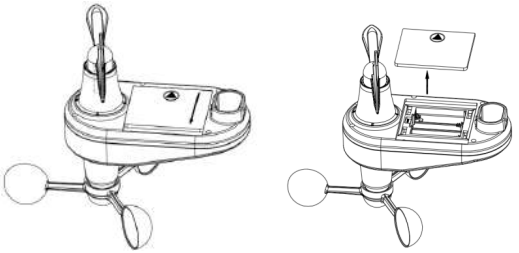


Figure 4

2) Inserting 4xAAA batteries in the battery compartment, and close the battery door.

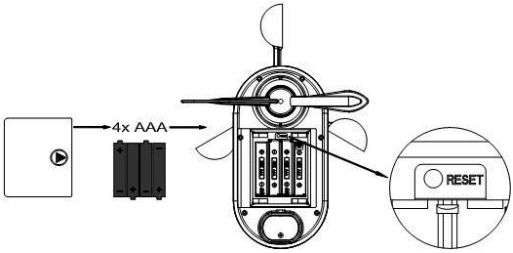


Figure 5

The wind sensor LED indicator will light for 4 seconds, and then flash once per 16 seconds thereafter. Each time it flashes, the sensor is transmitting data.

Note: If the wind sensor does not power up after inserting the batteries, press the reset button inside of the battery door as show on above image.

Insert Batteries into The Thermo-hygrometer Transmitter

Locate the battery door on the back of the Thermo-hygrometer sensor, **push downwards along the arrow direction** and open the battery compartment.

Note: If the battery door is closed tightly, push harder to open the battery door (Make sure there is no water on your hands), as shown in Figure 6.

BEFORE inserting the batteries, locate the dip Figure 7



Figure 6.



Figure 7.

1) Switches on the inside cover of the lid of the transmitter.
2) All four switches in the OFF position (factory default setting) as shown in Figure 6.

Channel Number: The product supports up to eight transmitters. To set each channel number (The default is Channel 1), change Dip Switches 1, 2 and 3, as referenced in Table 1

DIP SWITCH				FUNCTION
1	2	3	4	
DOWN	DOWN	DOWN	---	Channel 1
DOWN	DOWN	UP	---	Channel 2
DOWN	UP	DOWN	---	Channel 3
DOWN	UP	UP	---	Channel 4
UP	DOWN	DOWN	---	Channel 5
UP	DOWN	UP	---	Channel 6
UP	UP	DOWN	---	Channel 7
UP	UP	UP	---	Channel 8
---	---	---	DOWN	°F
---	---	---	UP	°C

Table 1

3) **Temperature Units of Measure:** To change the transmitter display units of measure (°F vs. °C), change Dip Switch 4.
4) Insert two AAA batteries (The negative terminal of the battery is in contact with each spring). Lithium batteries are recommended for cold weather environments.
5) After inserting the batteries, the remote sensor LED indicator will light for 4 seconds, and then flash once per 60 seconds thereafter. Each time it flashes, the sensor is transmitting data.

6. SENSOR INSTALLATION

Recommend Tools

- Precision screwdriver (for small Phillips screws).
- Compass or GPS (for wind direction calibration).

- Hammer and nail for hanging remote Thermo-hygrometer sensor.
- Adjustable Wrench.

Site Survey Before Installation

Do a site survey before installing the weather station. Take the following points into Consider:

1) **Avoid radiant heat transfer from buildings and structures.**

In general, install the sensor array at least 5ft (1.5m) from any building, structure, ground, or roof top.

2) **Avoid wind 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 20ft (6m)
tall, install 4 x (20 – 6)' = 56ft (17m) away. Use common sense. If the weather station is installed next to a tall building, the wind will not be accurate.

3) **Wireless Range.**

The radio communication between display console and transmitter in an open field can reach a distance of up to 330ft (100m), assume there are no interfering obstacles such as buildings, trees, vehicles, high voltage lines.

Wireless radio signals will not penetrate metal buildings. Most wireless applications will only reach up to100ft (30m) due to building obstructions, walls and interference.

4) **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 display console or mounting locations.

Best Practices for Wireless Communication

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

- **Electro-Magnetic Interference (EMI)**. Keep the console several feet away from computer monitors and TVs.
- **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 wireless transmitters or receivers to avoid intermittent communication.
- **Line of Sight Rating.** This device is rated at 300ft line of sight (no interference, barriers or walls) but typically you will get 100ft maximum under most real-world installations, which include passing through barriers or walls.

- **Metal Barriers.** Radio frequency will not pass-through metal barriers such as aluminum 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%

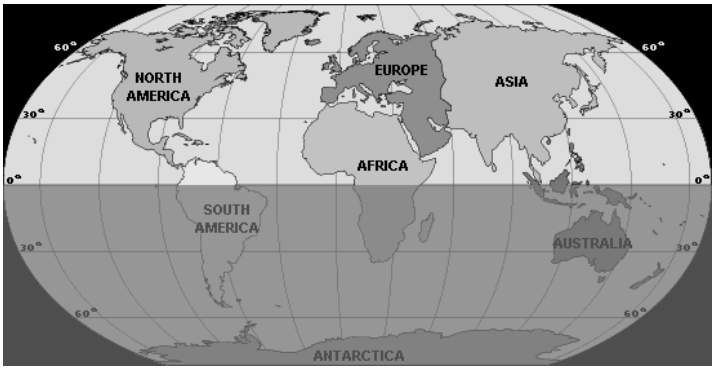
Table 2

Wind Sensor Installation

This Professional Weather Station can be used in both the Northern and Southern Hemispheres. Prior to installation, you will need to calibrate the wind direction.

Note: There are four alphabet letters of N, E, S and W around the wind direction. (N is North, E is East, S is South, W is West)

Northern Hemispheres



Southern Hemispheres

Figure 8

Northern Hemispheres (NOR) References.

The cardinal directions (S) molded on the body of the outdoor sensor are indicators for the Northern Hemisphere only.

Step 1: There is a "S" indicator on the wind vane that indicates South, as shown in Figure 9. Check the wind directions with compass and align this "S" marker in the direction of south.

Figure 9

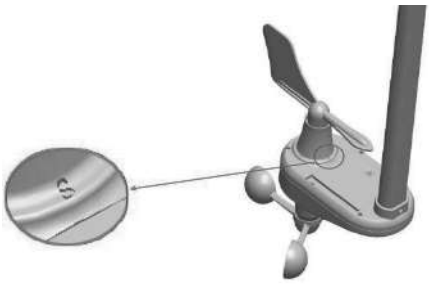


Figure 9

Step 2: Console operation set to Northern Hemispheres (**NOR** in the time area) in Location division.

- **Southern Hemispheres (SOU) References.**

For Southern Hemisphere installations, ignore the direction (N, S, E, W).

Step 1: Install the Integrated outdoor transmitter and face "S" marker in the direction of North.

Step 2: Console operation set to Southern Hemispheres (**SOU** in the time area) in Location division.

Note: The location division (NOR or SOU) on the Display Console and the directions of the sensor have to be adjusted to match with your real location.

If the wind direction sensor is not positioned correctly during installation, permanent wind direction error will be introduced.

- **Mounting & Fixing the Sensor Vertically**

Fasten the integrated outdoor sensor to the mounting pole brackets with foot-mounting, two Ø3 bolts and M3 nuts. Then tighten the mounting pole to your existing mounting pole with the four bolts(Ø5) and nuts(M5), or fix it on the flat surface with four tapping screws, as show in Figure10.

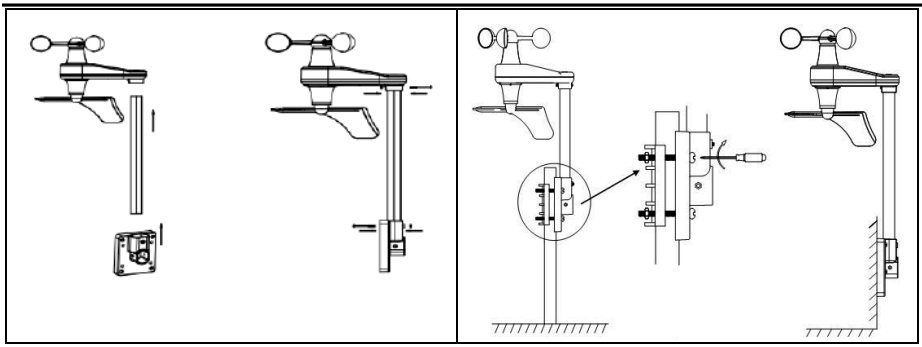


Figure 10

- **Mounting & Fixing the Sensor Horizontally**

Fasten the integrated outdoor sensor to the mounting pole brackets with foot-mounting, two Ø3 bolts and M3 nuts. Then tighten the mounting pole to your existing mounting pole with the four bolts(Ø5) and nuts(M5), or fix it on the flat surface with four tapping screws, as show in Figure11.

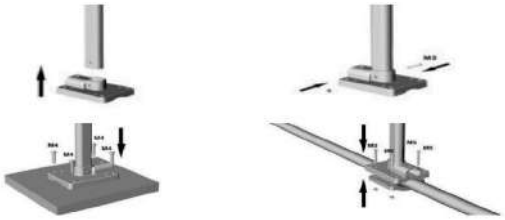


Figure 11

- **Sensors Operation Verification**

The following steps verify proper operation of the sensors prior to installing the sensor array.

1） **Verify Wind Speed.** Rotate the wind cups manually or with a constant speed fan. Verify the wind speed is not reading 0.0.

2） **Verify In/Outdoor Temperature.** Verify the indoor and outdoor temperature match closely with the console and sensors in the same location (about 5 to 10' (1.5 to 3 meters) apart). The sensors should be within 4°F /2°C (the accuracy is ± 2°F/1°C). Allow about 30 minutes for both sensors to stabilize.

3） Verify In/Outdoor Humidity. Verify the indoor and outdoor humidity match closely with the console and sensors in the same location (about 5 to 10' (1.5 to 3 meters) apart). The sensors should be within 10% (the accuracy is ± 5%). Allow about 30 minutes for both sensors to stabilize.

- **Thermo-hygrometer Transmitter Installation.**

It is recommended you mount the Thermo-hygrometer sensor outside in a shaded area. A north facing wall is preferred because it is in the shade most of the day. Direct sunlight and radiant heat sources will result in inaccurate temperature readings. Although the sensor is water resistant, it is best to mount in a well-protected area, such as under an eve. Use a screw or nail (not included) to affix the remote sensor to the wall, as shown in Figure 12.

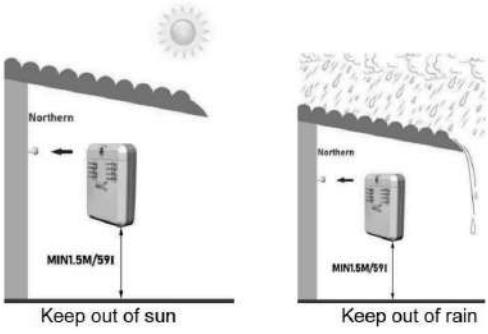


Figure 12

7. CONSOLE OPERATION

【Time/Week/Date Toggle Display】

In Normal Mode, Press (do not hold) the ***SET*** key, and the time area will flash. Press *CHANNEL/+* or *MAX/MIN/-* key to toggle between time, week(seconds), and date(year). Press SET key again to exit.

CH1 Temp/Dew Point/Feels like Toggle Display

Press (do not hold) SET key again, the CH1 temp area will flash. Press *CHANNEL/+* or *MAX/MIN/-* key to toggle between **Temp, Dew Point, and Feels like**. Press SET key again to exit.

***Note**: If the sensor temp channel display CH (1-8), then it will display the specific CH (1-8) in quick display mode adjustment.*

【Set (Program) Mode】

Note: In the SET mode, press the ***CHANNEL/+*** key or ***MAX/MIN/-*** key to change or scroll the setting value. Hold the ***CHANNEL/+*** key or ***MAX/MIN/-*** key for 3 seconds to increase/decrease rapidly.

Note: To exit the Set mode at any time, press the ***SNOOZE*** button of the display console. In Normal Mode, **Long Press** the ***SET*** key for 3 seconds to enter the SET Mode. The parameters

value will begin flashing as follows.

	Press ***SET*** Key to skip entering into the following features and flash.	Press the ***CHANNEL***/+ or ***MAX***/***MIN***/- key to set up the following features.
1	12/24 Hour Format	12 hour or 24-Hour Format
2	Hour	Hour value up or down
3	Minute	Minute value up or down
4	Date Format	MM-DD-YY or DD-MM-YY
5	Month	Calendar month up or down
6	Day	Calendar day up or down
7	Year	Calendar year up or down
8	Max/Min Clearing	ON (Clears 24h) or OFF(Manually)
9	Temperature Units	°F or °C
10	Wind Speed Units	m/s, km/h, mph, knots, Bft or ft/s
11	Time SYNC	Internet SYNC time ON or OFF ***(Synchronize the internet time when console Wi-Fi connected successfully)***
12	Wind Direction Location ***(Default NOR in Northern Hemisphere, Default SOU in Southern Hemisphere)***	Northern Hemisphere (NOR) or Southern Hemisphere (SOU).

【Max Record Viewing and Reset】

In normal mode, press (do not hold) the ***MAX***/***MIN***/- key, the **MAX** icon will be displayed in date area.

Press the ***SET*** key to view Max values of wind (Gust and Average), sensor temp and humidity (dew point and feels like), indoor temp and humidity.

Press the ***CHANNEL***/+ button to switch the display between remote thermo-hygrometer sensors 1 through 8 to view Max values.

Press the ***MAX***/***MIN***/- key for 3 seconds to clear all Max values.

【Min Record Viewing and Reset】

Press the ***MAX***/***MIN***/- key again (do not hold), the **MIN** icon will be displayed.

Press the ***SET*** key to view Min values of sensor temperature and humidity (dew point and feels like), indoor temperature and humidity.

Press the ***CHANNEL***/+ button to switch the display between remote thermo-hygrometer sensors 1 through 8 to view Min values.

Press the ***MAX/MIN***/- key for 3 seconds to clear all Min values.

Press the ***SNOOZE*** key to exit the min/max checking and reset mode, return to normal display mode.

Note: The Maximum/Minimum values will display the current values after reset.

Note: If you own more than one thermo-hygrometer sensor, the minimum and maximum value of all sensors will be cleared in the reset mode.

【Alarm Mode】

The weather station includes the following alarms:

- Time (Alarm 1 and Alarm 2)
- Wind Gust
- Wind Average
- Sensor Temperature
- Sensor Humidity
- Sensor Feels Like Temperature
- Sensor Dew Point
- Indoor Temperature
- Indoor Humidity

【View High/Low Alarm Value】

To view the current alarm settings, press the ***ALARM*** key to enter the alarm mode. **HI AL 1** will be displayed in the date area. At the same time Alarm 1 time and other HI alarm parameters are displayed.

Press ***SET*** key to view Alarm 2 time.

Press ***ALARM*** key again to view the LOW alarms along with the alarm clock time in the same way as HI alarms.

Press ***ALARM*** key again to return to normal mode.

Note: Press the ***SNOOZE/LIGHT*** key at any time to return to the normal mode in HI/Low alarm mode.

【Setting High/Low Alarm】

Press ***ALARM*** key to enter the alarm mode.

Press and hold the ***SET*** key for 3 seconds. The first alarm parameter will begin flashing (alarm hour).

To save the alarm setting and proceed to the next alarm parameter, Press (do not hold) the ***SET*** key.

To adjust the alarm parameter, press the ***CHANNEL/+*** key or ***MAX/MIN/-*** key to increase or decrease the alarm settings, or press and hold the ***CHANNEL/+*** key or ***MAX/MIN/-*** key for 3 seconds to increase or decrease the alarm settings rapidly.

Press the ***ALARM*** key to turn on (the alarm icon will appear) and off the alarm.

Press the ***SNOOZE/LIGHT*** key once at any time to return to the normal mode.

The following is a list of the individual alarm parameters that are set (in order):

1.Alarm hour (alarm 1)
2.Alarm minute (alarm 1)
3.Alarm hour (alarm 2)
4.Alarm minute (alarm 2)
5.Wind Gust HI alarm
6.Wind average HI alarm
7.Sensor temp HI alarm
8.Sensor temp low alarm
9.Sensor humidity HI alarm
10.Sensor humidity low alarm
11.Sensor feels like HI alarm
12.Sensor feels like low
13.Sensor dew point HI alarm
14.Sensor dew point low alarm
15.Indoor temperature HI alarm
16.Indoor temperature low alarm
17.Indoor humidity HI alarm
18.Indoor humidity low alarm

Note: To prevent repetitive temperature alarming, there is a 0.9 °F(0.5°C) tolerance band. For example, if you set the high alarm to 80.0°F(26.7°C) and silence the alarm, the alarm icon will continue to flash until the temperature falls below 80.0°F (26.7°C), at which point, the alarm will reset and must increase above 80.0°F(26.7°C) to activate again.

Note: To prevent repetitive alarming of humidity, there is a 4% tolerance band in humidity alarm.

For example, if you set the high alarm to 60% and silence the alarm, the alarm icon will continue to flash until the humidity falls below 56%, at which *at which point, the alarm will reset and must increase above 60% to activate again.*

【Alarm Triggered】

When an alarm condition is exceeded, the alarm icon will flash (visual) and the alarm beeper will sound (audible). To silence the beeper, press any key.

【Button Beeper ON/OFF】

In normal mode, press and hold the ***ALARM*** key for 3 seconds to toggle the **BZ ON** (beeper on) or **BZ OFF** (beeper off) depending on the current setting.

Display console return to normal mode without any operation in 3 seconds.

【Sensor Search Mode】

If a sensor loses communication, dashes (--. -) will be displayed. If the specific ***CH**** is lost, press the ***CHANNEL***/+ button to display that channel prior to entering the search mode.

To reacquire the lost signal, ***press and hold*** the ***CHANNEL***/+ button for 3 seconds to enter the sensor search mode.

The icon **CH*** will appear in the time area. Press the ***CHANNEL***/+ key or ***MAX/MIN***/- key to toggle between the following sensors:

CH*. Synchronizes Channel 1-8 Sensors (dependent on which channel is displayed before entering the Sensor Search Mode).

WIN. Synchronizes Wind Sensors.

ALL. Synchronizes All Sensors.

NOT. Do nothing and exit the Sensor Search Mode.

After selecting one of the above options, press the ***SET*** key to re-sync, and the display will return to normal mode. **Do not press any buttons** until the synchronization is complete. The remote search icon  will display constantly for 3 minutes until the signal is reacquired.

【Low Battery Mode】

A low battery indicator icon is shown in the display window for thermo-hygrometer sensor. When the low battery icon appears (The thermo-hygrometer sensor battery voltage is lower than 3.6V), replace the batteries with fresh batteries.

Note: Be sure to never mix old and new batteries, and never mix battery types such as alkaline and lithium together.

【Snooze Mode】

If the time alarm sounds, and you wish to silence the alarm, press the ***SNOOZE/LIGHT*** key. The time alarm icon will continue to flash and the time alarm will silence for five minutes.

Press any key to permanently exit the ***Snooze*** mode.

【Backlight Mode】

1) There are 3 levels of brightness of the display backlight.

When backlight is on with an adapter, press ***SNOOZE/LIGHT*** key to switch to the brightest level

2) In the brightest level (3), press the ***SNOOZE/LIGHT*** key and the backlight will turn off, the console will show non-colorful display.

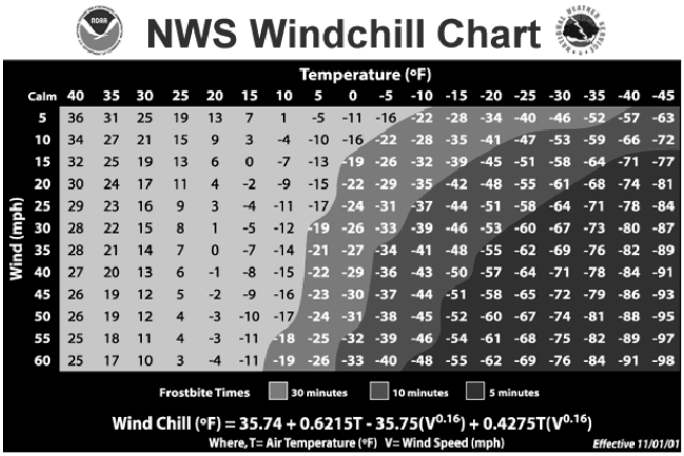
3) When the backlight is in off status, press the ***SNOOZE/LIGHT*** key and the backlight will show colorful display.

Note: If the display console is plugged into an adapter, the backlight will remain on. It is not recommended to leave the display backlight ON for a long period of time when operating on batteries only, or the batteries will run out quickly.

【Feels Like Temperature】

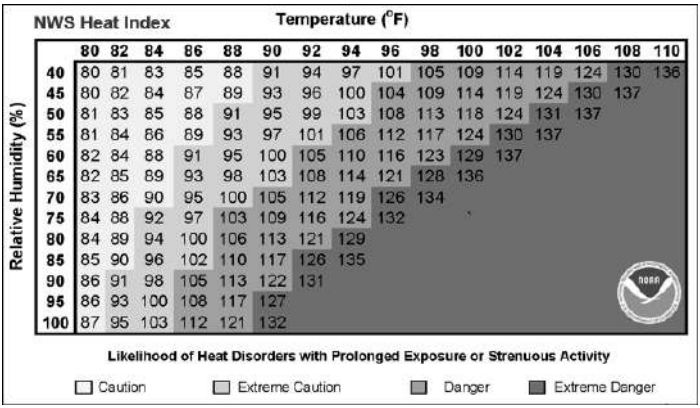
Feels like temperature is a combination of Heat Index and Wind Chill.

Temperatures less than 4.4°C(40°F), the wind chill is displayed, as shown in the National Weather Service Wind Chill Table below:



Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Temperatures greater than 26.7°C(80°F), the heat index is displayed, as shown in the National Weather Service Heat Index Table below:



	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
55	81	84	86	89	93	97	101	106	112	117	124	130	137			
60	82	84	88	91	95	100	105	110	116	123	129	137				
65	82	85	89	93	98	103	108	114	121	128	136					
70	83	86	90	95	100	105	112	119	126	134						
75	84	88	92	97	103	109	116	124	132							
80	84	89	94	100	106	113	121	129								
85	85	90	96	102	110	117	126	135								
90	86	91	98	105	113	122	131									
95	86	93	100	108	117	127										
100	87	95	103	112	121	132										

8. CALIBRATION

Note: The calibrated value can only be adjusted on the display console. The outdoor remote sensor(s) always displays the un-calibrated or measured value.

Note: The measured humidity range is between 10% and 99%. Humidity cannot be accurately measured outside of this range. Thus, the humidity cannot be calibrated below 10% or above 99%.

The purpose of calibration is to fine tune or correct for any sensor error associated with the devices margin of error. The measurement can be adjusted from the console to calibrate to a known source.

Calibration is only useful if you have a known calibrated source, 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. They are in a different location and typically update once per hour.

The purpose of the weather station is to measure conditions of your surroundings, which vary significantly from location to location.

【Temperature Calibration Mode】

In normal mode, **press and hold** the ***SET*** and ***CHANNEL/+*** keys at the same time for five seconds to enter the temp calibration mode. The indoor temperature will begin flashing.

Press the ***CHANNEL/+*** key or ***MAX/MIN/-*** key to increase or decrease the temperature reading (in increments of 0.1). Press and hold the ***CHANNEL/+*** key or ***MAX/MIN/-*** key for 3seconds to increase or decrease rapidly.

Press the ***ALARM*** key to reset current value.

Press the ***SET*** key switch to sensor Temperature (CH1 to 8). To exit the temperature calibration mode at any time, press the ***SNOOZE/LIGHT*** button or ***SET*** key.

【Humidity Calibration Mode】

In normal mode, **press and hold** the ***SET*** and ***MAX/MIN/-*** keys at the same time for five seconds to enter into the humidity calibration mode. The indoor humidity will begin flashing.

Press the ***CHANNEL/+*** key or ***MAX/MIN/-*** key to increase or decrease the humidity reading (in increments of 1%). Press and hold the ***CHANNEL/+*** key or ***MAX/MIN/-*** key for 3 seconds to increase or decrease rapidly.

Press the ***ALARM*** key to reset current value.

Press the ***SET*** key switch to sensor humidity (CH1 to 8). To exit the humidity calibration mode at any time, press the **SNOOZE/LIGHT** button or ***SET*** key.

Note: The Humidity is a difficult parameter to measure accurately and drifts over time. The

calibration feature allows you to zero out this error. To calibrate humidity, you will need an accurate source, such as a sling psychrometer or Humidipaks One Step Calibration kit.

【Wind Speed Calibration Mode】

In normal mode, **press and hold** the ***SET*** and ***ALARM*** keys at the same time for five seconds to enter the wind mode. The letter "CAL" will appear at the screen. The wind speed value will flash (the default is 1.00).

Press the ***CHANNEL/+*** key or ***MAX/MIN/-*** key to adjust the wind speed calibration factor from 0.75 to 1.25, where: Calibrated Wind Speed = Calibration factor x Measured Wind Speed.

Press and hold the ***CHANNEL/+*** or ***MAX/MIN/-*** key for 3 seconds to increase or decrease rapidly.

Press the ***ALARM*** key to reset current value.

To exit the wind speed calibration mode at any time, press the **SNOOZE/LIGHT** button or ***SET*** key.

Note: The wind gust is also affected by the wind speed calibration factor.

Discussion: Wind speed and wind gust are adversely affected by installation constraints. The rule of thumb is to install the weather station four times the distance of the height of the tallest obstruction (for example, a 6m(20ft) house would require an installation 24m(80ft) away).

In many instances, due to trees and other obstructions, this is not possible. The wind speed calibration allows you to correct for these obstructions.

In addition to installation challenges, wind speed bearings (any moving part) wears over time. To correct for wear, the correction value can be increased until the wind cups must be replaced.

Without a calibrated source, wind speed is a difficult parameter to measure. We recommend using a calibrated wind meter and constant, high-speed fan.

【Factory Default Reset】

To reset the display console to factory default, press the ***MAX/MIN/- key*** while plugging in power adaptor at the same time (Take *out batteries before starting the reset operation)*.

9. TROUBLE SHOOTING GUIDE

- **Wireless remote not reporting in to console. There are dashes (--. -) on the display console.**

If any of the sensor communication is lost, dashes **(--. -)** will be displayed on the screen. To reacquire the signal, press and hold the ***CHANNEL***/+ button for 3 seconds, the remote search icon will be constantly displayed. Once the signal is reacquired, the remote search icon will turn off, and the current values will be displayed.

The maximum line of sight communication range is 100m(330ft) and 30m(100ft) under most conditions. Move the sensor assembly closer to the display console.

If the sensor assembly is too close (less than 1.5m/5ft), move the sensor assembly away from the display console.

Make sure the remote sensor LCD display is working and the transmitter light is flashing once per 60 seconds.

Install a fresh set of batteries in the remote sensor. For cold weather environments, install lithium batteries.

Make sure the remote sensors are not transmitting through solid metal (acts as an RF shield), or earth barrier (down a hill).

Move the display console around electrical noise generating devices, such as computers, TVs and other wireless transmitters or receivers.

Move the remote sensor to a higher location. Move the remote sensor to a closer location.

- **Indoor and Outdoor Temperature do not agree.**

Allow up to one hour for the sensors to stabilize due to signal filtering. The indoor and outdoor temperature sensors should agree within 2°C/4°F) (the sensor accuracy is ± 1°C/2°F).

Use the calibration feature to match the indoor and outdoor temperature to a known source.

- **Indoor and Outdoor Humidity do not agree**

Allow up to one hour for the sensors to stabilize due to signal filtering. The indoor and outdoor humidity sensors should agree within 10 % (the sensor accuracy is ± 5 %).

Use the calibration feature to match the indoor and outdoor humidity to known source.

10. PECIFICATIONS

Measurement Specifications

Measurement	Range. Accuracy. Resolution
Indoor Temperature	0 to 60 °C/ (32 to 140°F); ±1 °C/(±2°F); 0.1 °C(°F)
Outdoor Temperature	-40 to 60 °C/ (-40 to 140°F); ±1 °C/(±2°F); 0.1 °C(°F)
Indoor Humidity	10 to 99 %; ± 5% (at 20 to 90%); 1%
Outdoor Humidity	10 to 99 %; ±5% (at 20 to 90%); 1%
Sensors1-8 Temperature	-40 to 60 °C/ (-40 to 140°F); ±1°C
Sensors1-8 Humidity	10 to 99%; ±5% (at 20 to 90%); 1%
Wind Direction	0 - 360º; ±10º (16-point compass); 1º
Wind Speed	2m/s～10m/s; ±0.3m/s; 0.1m/s 10m/s～50 m/s: ±10% (whichever is greater)
Wireless Specifications	
Wireless Transmit Range	100m (330ft) (in open air)
Frequency	433MHz
Data Update Period	Thermo-hygrometer Senso: 60s Wind Sensor: 16s
Power Consumption	
Integrated Wind Sensor	4 x AAA Alkaline or Lithium batteries (not included) Minimum 12 months for sensors (use lithium batteries in cold weather climates less than -20 °C/-4°F)
Thermo-hygrometer Sensor	2 x AAA Alkaline or Lithium batteries (not included)
Display Console	4 x AAA Alkaline or Lithium batteries (not included) Adapter: 5.9V～0.5A(included)

Allow up to one hour for the sensors to stabilize due to signal filtering. The indoor and outdoor temperature sensors should agree within 2°C (4°F) (the sensor accuracy is ± 1°C (± 2°F). The indoor and outdoor humidity sensors should agree within 10 % (the sensor accuracy is ± 5 %).

11. SETTING UP A WI-FI CONNECTION

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

Service	Description
Weather Underground	Site: **https://wunderground.com** provides local & long-range weather forecasts, weather reports, maps & tropical weather conditions for locations worldwide.
Weather Cloud	Site: **https://weathercloud.net** A large network of weather stations reporting data in real time from all over the world.

When the console successfully connects to your Wi-Fi router, the Wi-Fi signal icon will appear on the LCD display (behind the Outdoor humidity). If the Wi-Fi signal is not stable or the console is trying to connect to the router, the icon will flash. If the icon disappears, it means the console is not connected to the Wi-Fi router.

Note: If you own a dual band router (2.4 GHz and 5.0 GHz), make sure you connect to the 2.4 GHz band, otherwise it will fail to connect the weather station to Wi-Fi.

TIME SERVER SYNC STATUS

After the console has connected to the internet, it will attempt to connect to the internet time server to obtain the time. Once the connection succeeds and the console's time has updated, the SYNC icon SYNC will appear on the LCD. The time will automatically synchronize to the internet per an hour.

Note: Time synchronize method: Synchronized through internet UTC time server.

Weather Server Registration Guide

Note: If you have registered the Weathercloud and Wunderground account before, only need to create "New Device" to add your new weather station information.

Note: You can register one or both of Wunderground and weather cloud to upload the weather data.

11.1 Sign up on Weathercloud.net

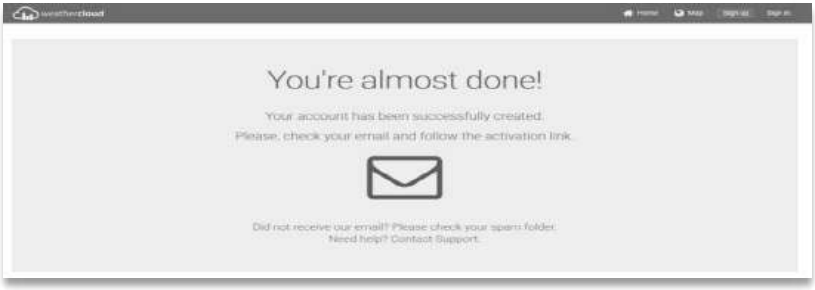
Note: You are advised to register on computer desktop or laptop for better experiences.

1) Visit the **https://www.weathercloud.net** website, then input a Username, Email and Password as below, and click the "Sign up" button to create your free account.



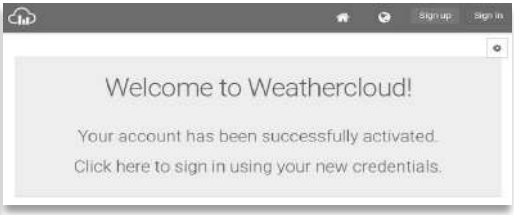
Note: Create and Input new password on "Join us today" page, not your personal Email password. (No privacy will be exposed)

2) You will receive a prompt page from Weathercloud activation Email in your registered mailbox.

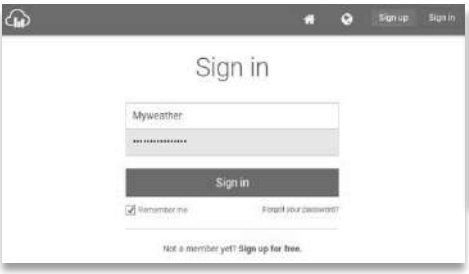


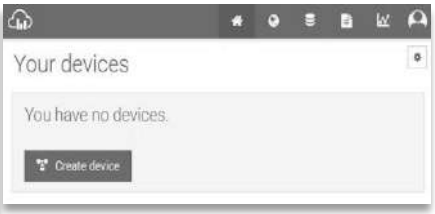
3) Check your registered email, confirm and click "Activate your Weathercloud account" button.





4) Click the “Sign in” button to enter the account login page of Weathercloud.





5) Input the previous “**Sign up** “Username (Email address) and password to log in the Weathercloud

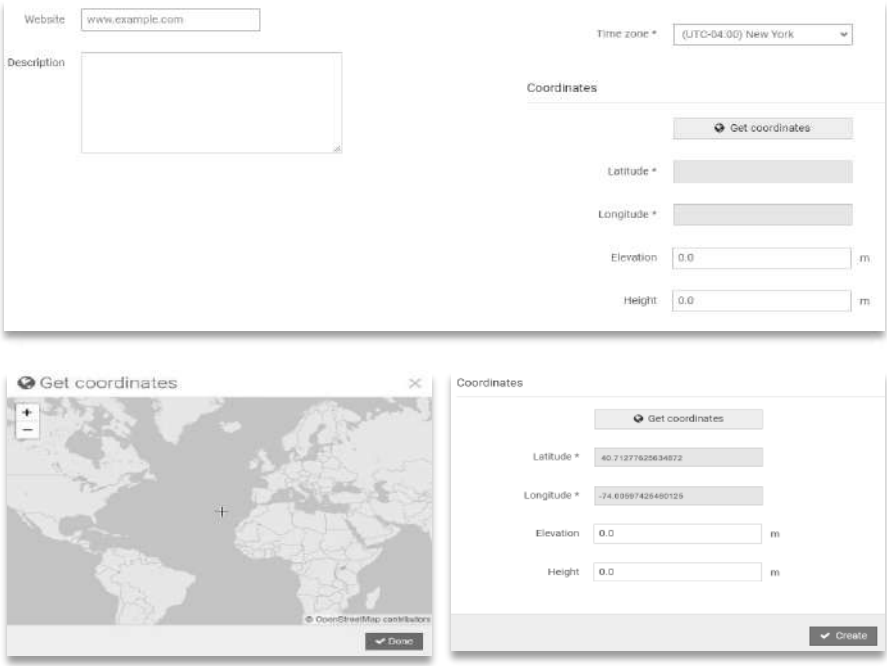
Note: Choose “**Remember me**” to save the Username and password avoid repeated input in the future.

6) Select “**Create device**” button and input the information about your weather station and location. Blanks with **red *** must be filled in.

Note: ***You can select any weather station Model and Link Type here...*** Selection of Model and Link Type does not influence functionality.

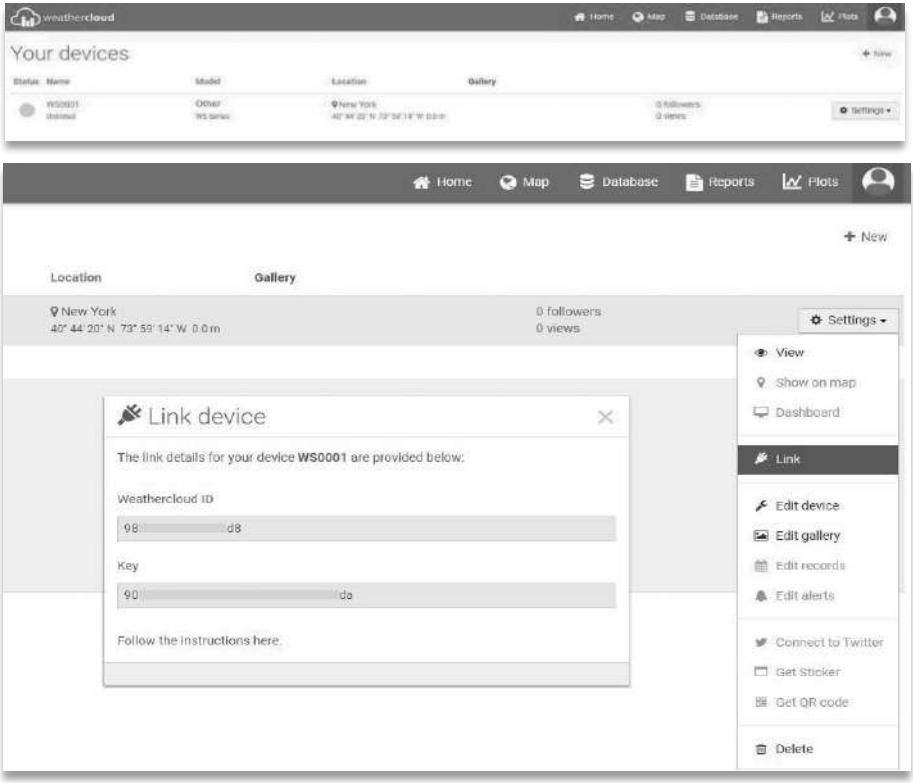


7) Click “**Get Coordinates**” to identify your location on the map. The cross in the middle of the map should mark the current location of your weather station. Use the buttons “+” and “-” to zoom in or out on the map as displayed. You can move the cross on the map to your own accurate location and click the “**DONE**” button.



8) Once complete the parameters of Longitude and Latitude, click the "**Create**" button at the bottom side.

9) The device is successfully added into the Weathercloud as below image. Please click "**link device**" in the settings button to record the "**Weathercloud ID**" and "**Key**" information for later use (Section 3.1).



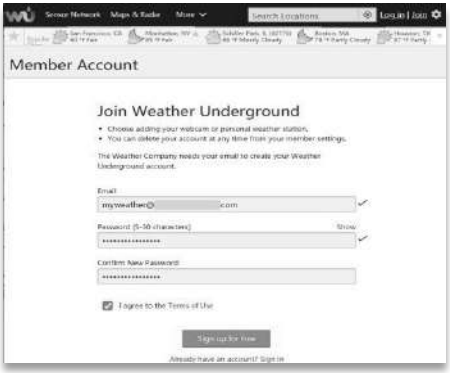
Note: The "**Weathercloud ID**" and "**Key**" will also be sent to your registered email.

11.2 Sign up on Wunderground.com

1) Visit the "**https://www.wunderground.com**" website, and select "**Join**" button to create a free account.



2) When you enter into the **sign-up** page, input the Email and password, then click "**Sign up for free**" button to create your own account.

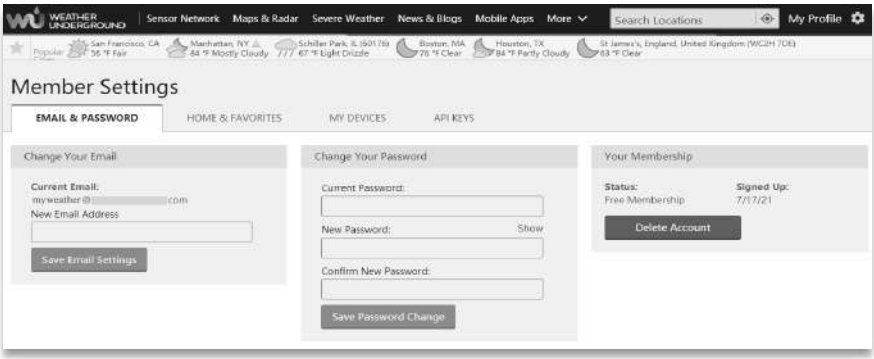




3) When the registration completed successfully, "**Welcome**" prompt page will show.

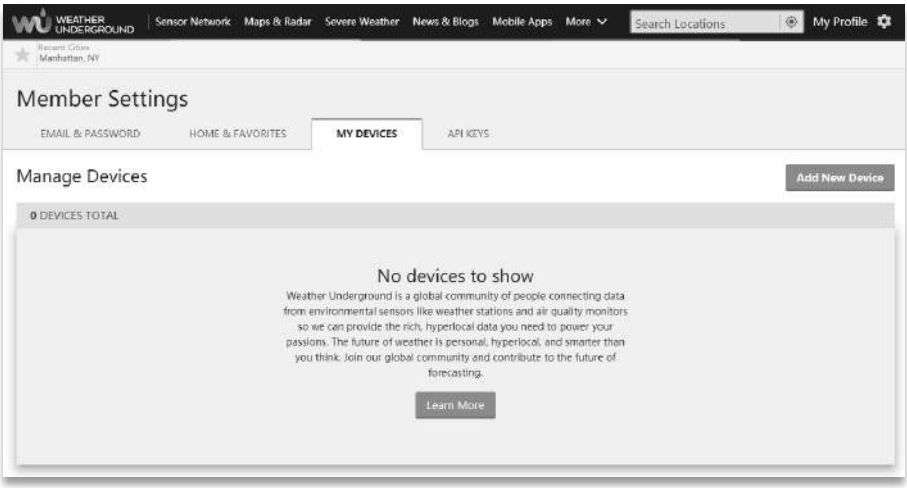
4) Click the "**Log in**" button to input your registered email and password, then click "**Sign in**" button to Member Settings.





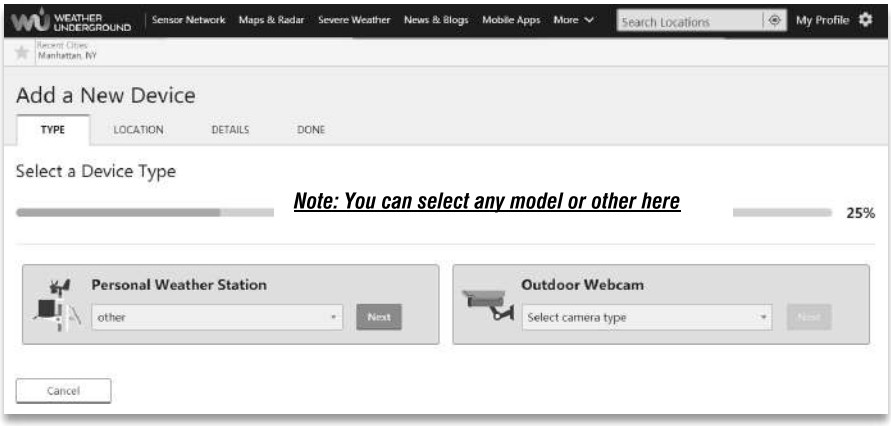
1) Select "**My Devices**" tab and click "**Add New Devices**" button to the "**Select a Device Type**" page.

Note: In "**Add New Devices**" page, set the "**TYPE**", "**LOCATION**", "**DETAILS**" and "**DONE**" page step by step until 100% completion .



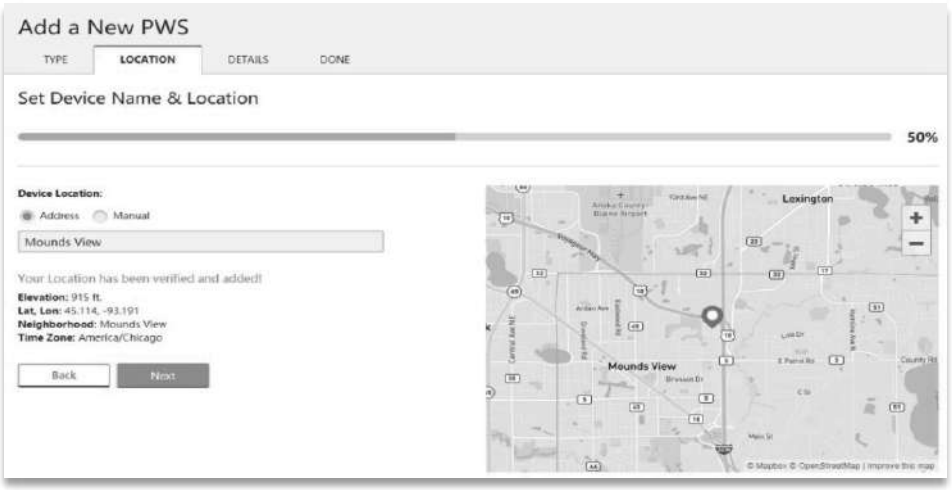
In the "**Type**" page, click "**Personal Weather Station**" drop-down list to select your personal weather station type, and click the "Next" button to the "**Location**" page.

Note: ***You can select any Model or Other in the below Personal Weather Station blank.*** The parameter has no influence on the functionality.

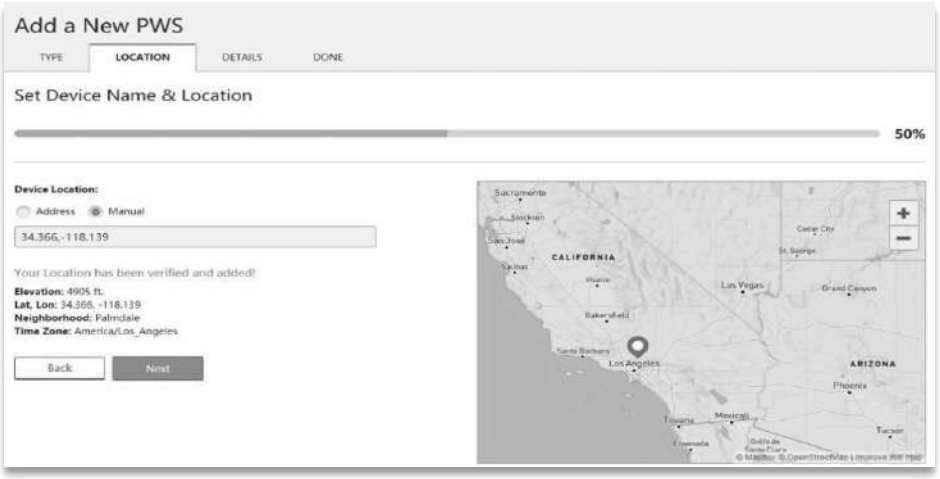


Device Location "**Address**" or "**Manual**" Option Set

Address Option: Simply enter the detailed address close to the location of your personal weather station. The database of **Wunderground** website will automatically find the associated address and shows on the map.

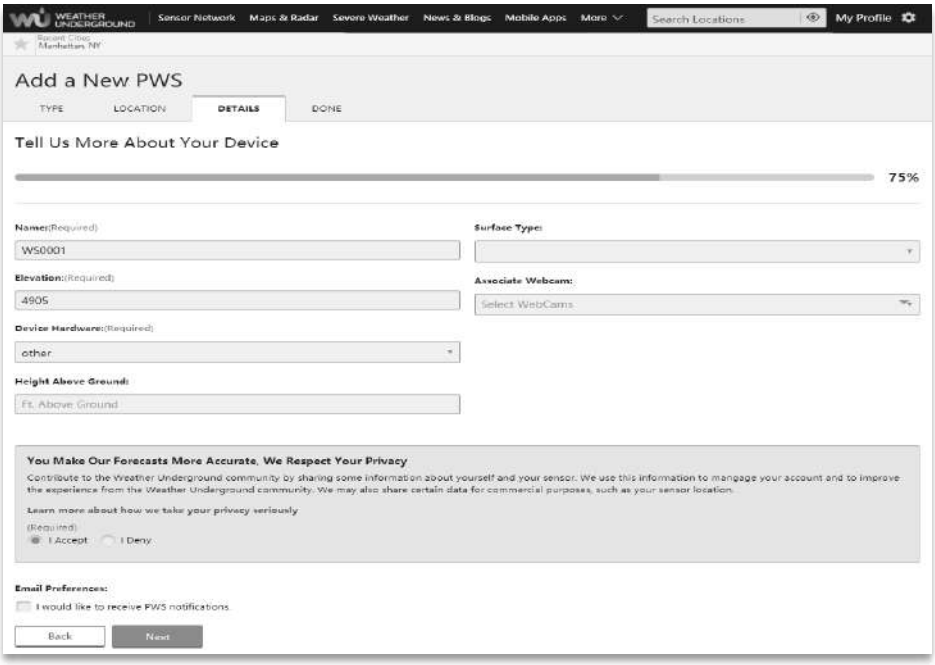


Manual Option: Zoom in or zoom out the map to click the accurate address of your personal weather station on the map and the details will show on the left automatically.

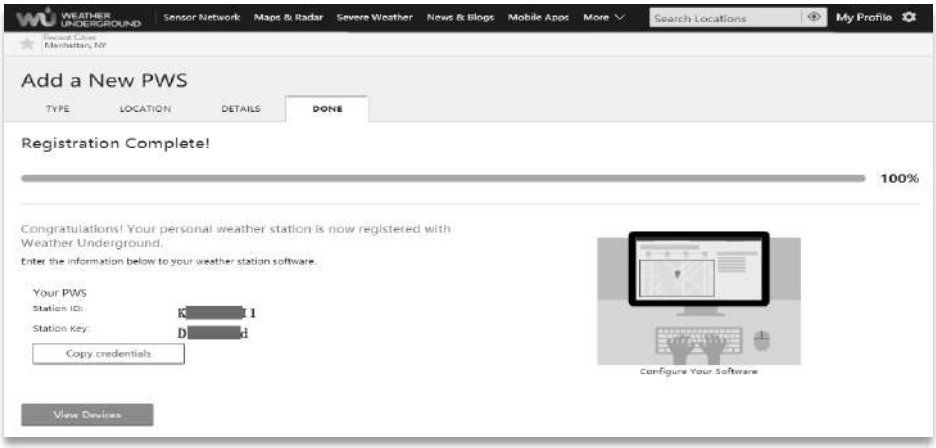


Once finish the "**LOCATION**" page, click the next button to "**DETAILS**" Page.

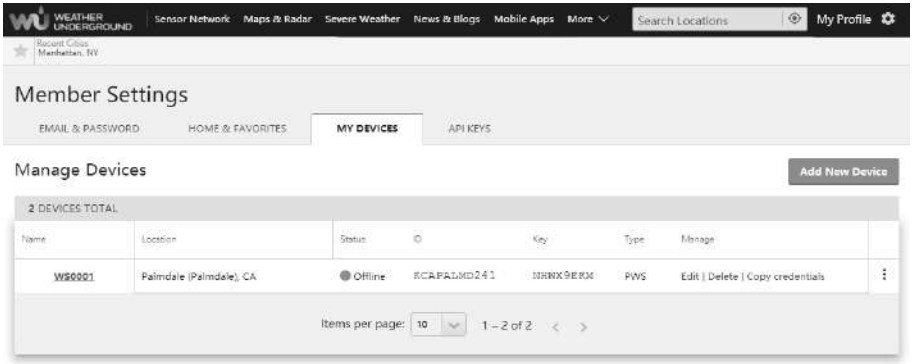
2) In "**DETAILS**" Page, the blanks with red "**Required**" are mandatory fields, and it's no need to change the filled fields. Click the "**I Accep**t" option and "**Next**" button to "**DONE**" Page.



3) In "**DONE**" Page, the device "**Station ID**" and "**Station Key**" are shown, copy and record the information for late use (Section 3.1).



Note: In "**DONE**" Page, click the "**View details**" button, your weather station and the associated station ID and Key will also be displayed.



12. WI-FI SETUP OF DISPLAY CONSOLE

Note: Place the distance between the router and display console less than 16ft (5m) to ensure that the Wi-Fi signal is stable.

Connect End-Device to Display Console Wi-Fi

When you first power up (AC Adapter) the console, or press and hold the MIN/MAX/- button for 3 seconds in normal mode, the Wi-Fi icon will flash to signify that it has entered **WAP (wireless access point) mode**, and is ready for Wi-Fi settings.

You can use your personal Laptop (PC), Tablet, or Smart Phone to connect the Wi-Fi of the display console. The console network name begins with "**Weatherhome**" and a unique code.

Note: After completing the Wi-Fi setting of display console, return your End-Device to your normal default Wi-Fi connection.

Note: You cannot connect two or more devices at the same time when in WAP mode.

12.1 Connect Laptop (PC) to Display Console Wi-Fi

In Windows or MAC, Select the PC network settings of your WLAN icon (or search "change Wi-Fi settings" from computer) and connect to the WLAN network **"Weatherhome"**





Connect Tablet, or Smart Phone to Display Console Wi-Fi

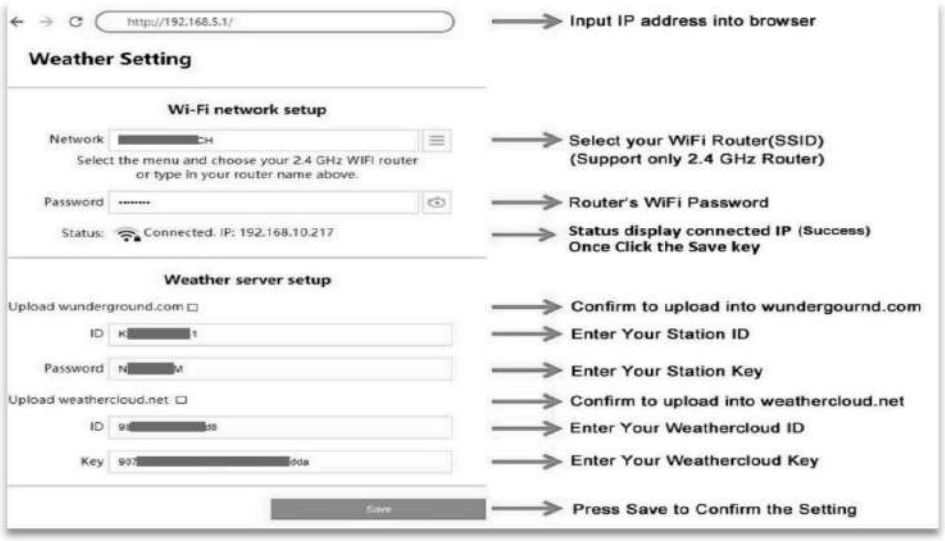
Click the "**Setting**" icon on the Tablet or Smart phone, and select the WLAN, then connect to the "**Weatherhome**".

12.2 Display Console Web Page Configuration

Once you have connected your End-Device to the weather station display console WLAN, enter the following IP address **http://192.168.5.1** into address bar of any internet browser to enter the configuration page of the display console.

Note: Some browsers treat 192.168.5.1 as a search result. In such cases, make sure that you also include the protocol "http://" ("http://192.168.5.1" instead of "192.168.5.1").

1) Console Network and Weather Server Setup

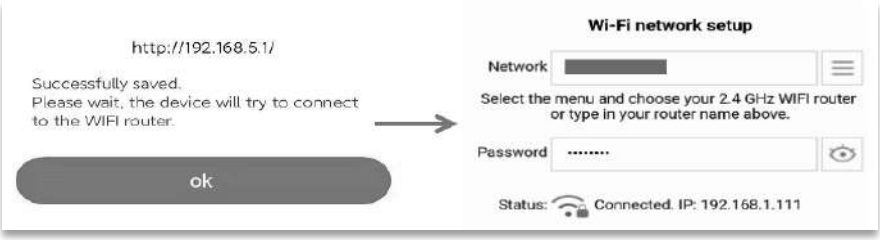


Note: WLAN Networks with hidden SSIDS cannot be recognized for the "Network" entry. If the SSID of your WLAN is hidden, you will have to enter it manually.

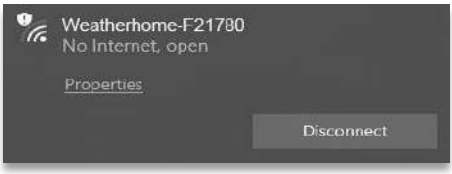
Note: When Input station ID and key, copy and paste source text strictly (Take notice of space and upper or lower case of letters here).

2) Save The Configuration Data Permanently

Check again all the settings you have filled in the configuration website of display console, if you confirm that all information is correct, click the button "**Save**" to confirm finally.



When the web settings have been saved, disconnect your End-Device from the display console WLAN by clicking the "**Disconnect**" Button, or the display console will automatically exit WAP mode.



3) Wi-Fi Connection Status

Wi-Fi icon is always on: The display console is connected with your Wi-Fi router.

Wi-Fi icon keep flashing: Wi-Fi signal is not stable or the display console is trying to connect the router.

Wi-Fi icon is gone: The display console is not connected to the Wi-Fi router.

When the console successfully connects to your any website of weather servers, the data signal icon will appear on the LCD display (at the right of the outdoor humidity). If the data signal icon is flashing, the weather station display console is currently uploading to the server. If the icon disappears, the console is not connected to the weather server for more than 30 minutes.

4) Time Server Sync Status

After the display console has connected to the internet, it will attempt to connect the internet time server to obtain the time. Once the connection succeeds and the console's time has updated, the SYNC icon will appear on the LCD. The time will automatically synchronize to the internet per an hour.

Note: when Wi-Fi connected successfully, the console time will update automatically without manually setting.

13. VIEW THE WEATHER STATION DATA VIA INTERNET

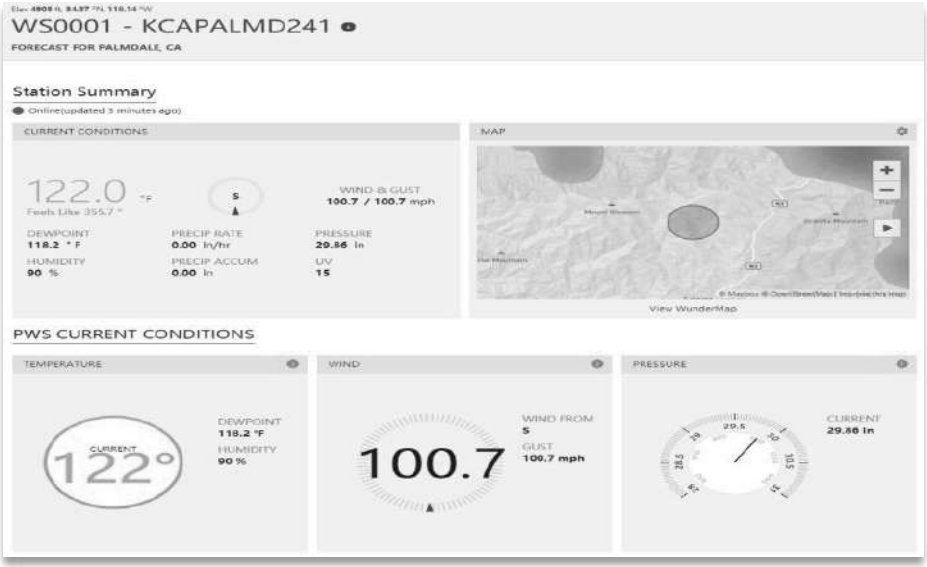
1) View your weather station data on **Weathercloud**. Log into https://www.weathercloud.net/ with your previously registered Email and Password, you will be automatically directed to the weather data of your weather station (If it has recently synced data to **Weathercloud**).



2) View your weather station data on **Wunderground**

Log into https://www.wunderground.com/ with previously registered Email and Password.

Or Visit: https://www.wunderground.com/dashboard/pws/STATIONID, where STATIONID is your weather station ID (Example, KCAPALMD241).

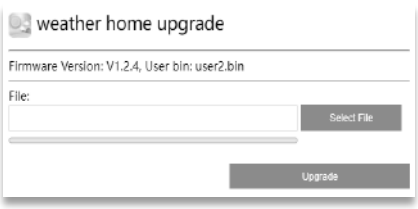


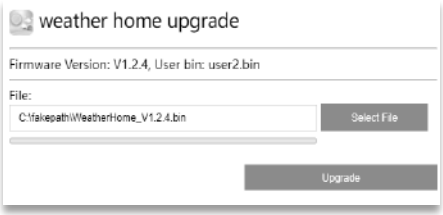
14. FIRMWARE UPGRADE ON DISPLAY CONSOLE

You may get the latest firmware of the console as below (contact us for latest firmware if necessary).

1) Connect the Wi-Fi of Display Console firstly.

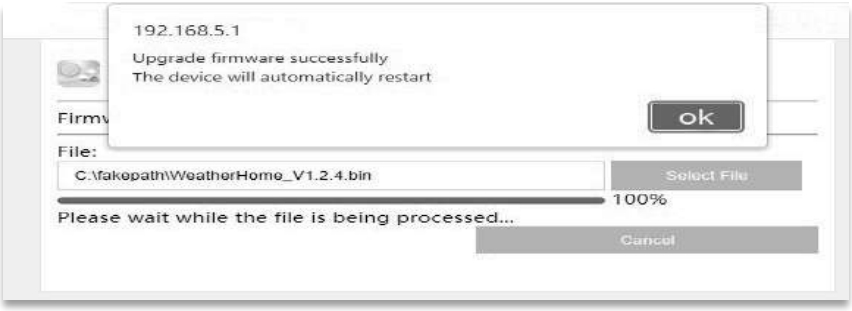
2) Once Wi-Fi connected, enter the following IP address into the browser's address bar: **http://192.168.5.1/upgrade.html**, the following website page will be displayed on your browser.





3) Now click "**Select File**" button and select the binary file (**Extension ".bin"**) intended for updating your display console.

4) Click "**Upgrade**" and start to update. Once the process has been successfully completed, a prompt page will remind you that the Wi-Fi firmware will automatically restart.



Note: In this upgrade process, only update the Wi-Fi firmware, the console doesn't reset, once the upgrade is completed, the console will automatically exit WAP mode.

15. TROUBLE SHOOTING GUIDE OF WI-FI CONNECTION

- **Wi-Fi does not display on console.**

Check Wi-Fi symbol on the display. If wireless connectivity is successful the Wi-Fi icon will be displayed all the time

Make sure your modem Wi-Fi settings are correct (network name, and password).
Make sure the console is plugged into AC power. The console will not connect to Wi-Fi when powered by batteries only.
The console only supports and connects to 2.4GHz routers. If you own a 5 GHz router, and it is a dual band router, you will need to select 2.4GHz in operation. The console does not support guest networks.

- **Data not reporting to www.wunderground.com or www.weathercloud.net.**

Confirm your station key 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, $worknet is not a valid password, but worknet$ is valid.Confirm your station ID is correct.

16. WI-FI SPECIFICATIONS

WIFI Standard	802.11 b/g/n
Wi-Fi Console RF Frequency	2.4 GHz
Device Compatibility	Build-in Wi-Fi with WAP Mode, Smart Device (laptops, computers, smart phones and smart pads).
Web Browser Compatibility	HTML 5 (such as the latest versions of Chrome, Safari, IE, Edge, Firefox or Opera)
Range Wi-Fi RF transmission	20m (80ft). in open air

Manufacturer: STARMETER INSTRUMENTS CO., LTD
Building A1, United Industrial Park,Zhancheng Community,Fuhai Subdistrict,Bao'an District
Shenzhen,China

Notes