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1.Introduction

Thank you for your purchase of the -WS0368 Lite Professional WIFI Wireless Weather station. The following user guide provides step-by-step instructions for installation, operation and troubleshooting.

2.Warnings

⚠**Warning:** Metal objects, such as your weather station mounting pole, may attract a lightning strike. DO NOT install the weather station in a storm. If you plan to set up the outdoor transmitter on your roof, please assemble the lightning rod.

⚠**Warning:** Install your weather station in a high location may result in injury or death. Perform as much of the initial check out and operation.

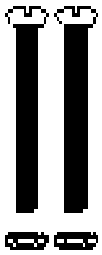
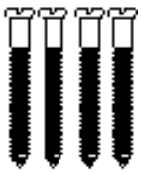
3.Getting Started

The WS0368 Lite weather station consists of one Display console, one Integrated Outdoor Sensor, and some mounting hardware.

3.1 Parts List

The WS0368 Liteweather station consists of the following parts.

Image	Item	QTY
	**Display Console** Frame Dimensions (L x W x H): 6.4" x 0.7" x 5.3" LCD Dimensions (L x W): 5.0" x 3.1"	1
	**Integrated Outdoor Sensor** Dimensions (L x W x H)： 11.8” x 5.9” x 11”	1

	**Foot Mounting (with pole insert)** Dimensions: 3.3” x 6.0” x 8.5”	1
	**Mounting Bracket Back Plate (pole mount)** Dimensions: 3.0” x 4.7” x 1.5”	1
	**Mounting Pole** Dimensions: 1.2” x 0.8” x 11.8	1
	**Screws and Nuts M3 x 29mm** For pole mounting	2
	**Screws and Nuts M5 x 35mm** For fixing the mounting foot together with the mounting bracket plate to an tube	4
	**Universal Screws M4 x 35mm** For fixing the mounting foot to a wooden surface, or together with dowels on a stone or concrete	4
	User Manual	1

	100…240V AC Power Adapter	1

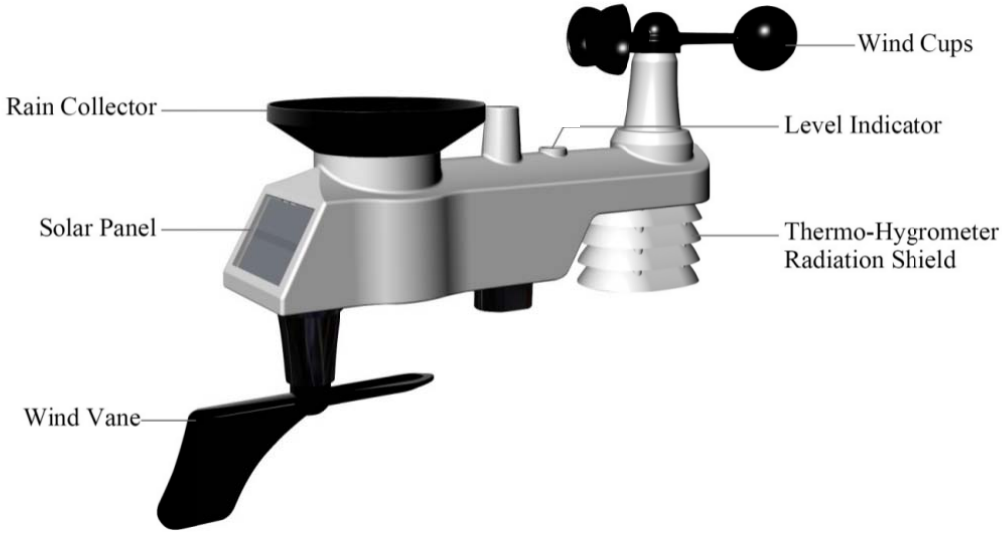
3.2 Recommended Tools

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

3.3 Get Ready for Installation

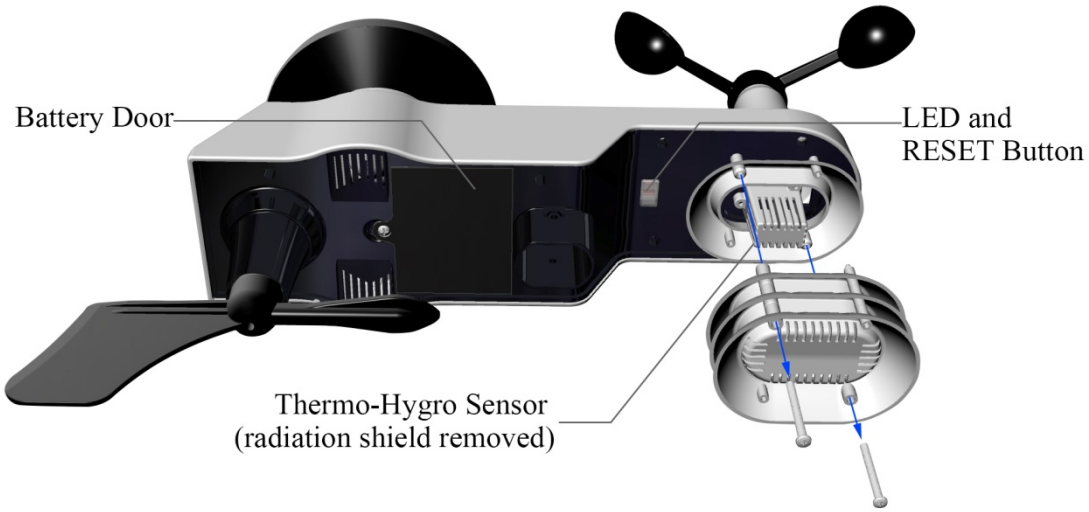
Note: The solar panel could offer power for the outdoor sensor in sunlight, but also need battery-powered in dark. So the sensor array must be powered and updating before powering up the console, or the console will stop scanning and connecting with the sensors.

The following image shows the full segment of Integrated Outdoor Sensor: It consists of Thermo-Hygrometer，Anemometer, Rain gauge, and Solar panel.



3.3.1 Install Batteries into the Integrated Outdoor Sensor.

Locate the battery lid at the bottom of the sensor, and open the battery compartment.



Remove the battery lid on the back of the sensor by removing the set screw.

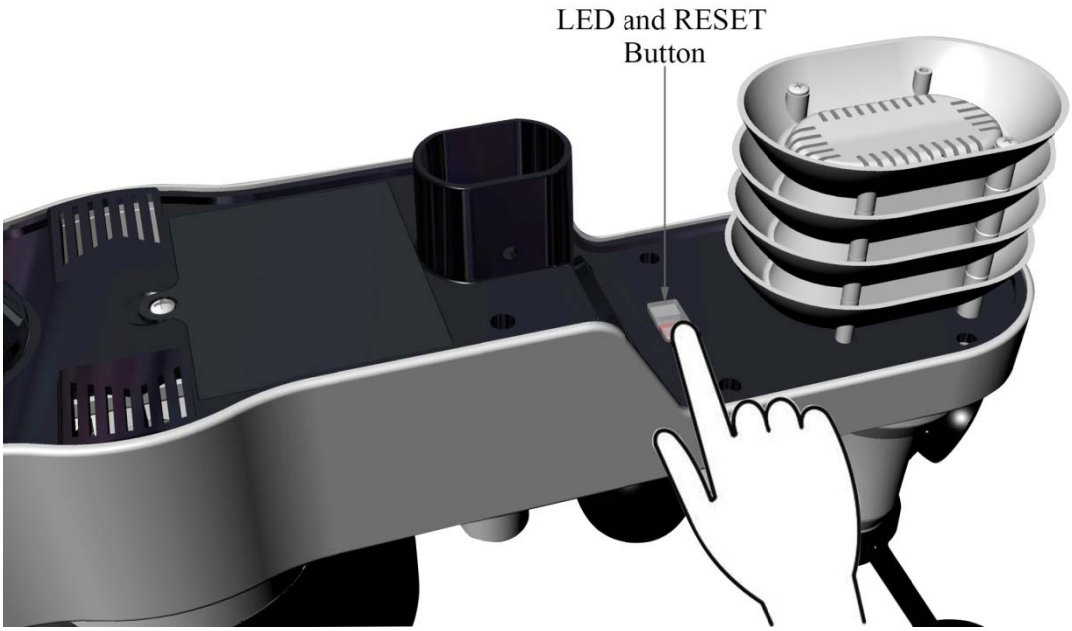
Install 3 AA brand new batteries (recommend using Li-ion batteries, which generally can last over 1 year) in the battery compartment.

Close the battery lid. To prevent being flooded with water in the battery compartment, make sure the gasket (around the battery compartment) is properly seated in its trace prior to close the door. Tighten the set screw.

 Warning: DO NOT install the batteries in a wrong way. You may permanently damage the sensors. The solar panel does not charge the batteries, so rechargeable batteries are not recommended.

Note: We recommend installing Lithium AA batteries for sensors. (When the outdoor temperature is lower than -20°C (-4°F), the battery might not work properly.)
The sensor LED indicator will light for 3 seconds, and then flash once per 16 seconds thereafter. Each time it flashes, the sensor is transmitting data. Replace the battery lid and push to tighten it.

Note: If the sensor does not power up after install the batteries, press the reset button at the bottom of sensor.

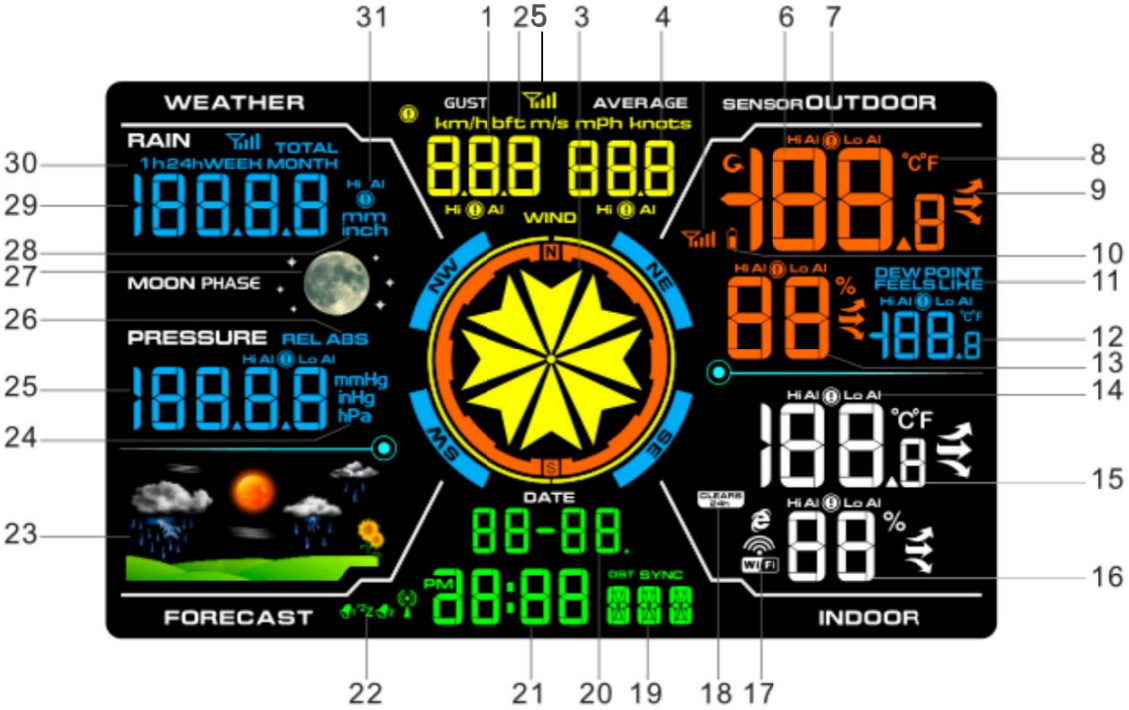


3.4 Display Console

3.4.1 Layout of Display Console

The display console will instantly display Temperature, Humidity, Pressure, Tendency, Moon phases, and Time, Wind speed, Wind gust, Wind direction, Rain.

Note: The character contrast is best from a slightly el ited viewing angle.

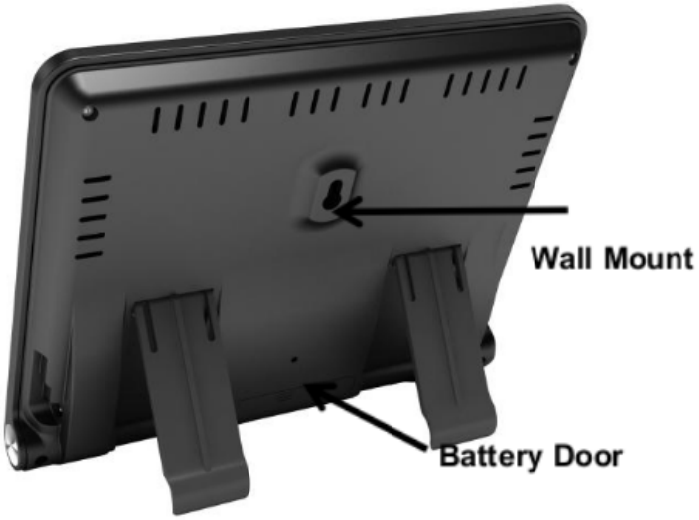


1) Wind gust display 2) Wind speed units of measure 3) Wind direction 4) Wind speed average display 5) - 6) Outdoor temperature display 7) Outdoor temperature HI/LO alarm icon 8) Temperature units (°F or °C) 9) Sensor temp change indication 10) Battery low voltage icon 11) Outdoor dew point and feels like icon 12) Outdoor dew point and feels liketemperature display 13) Outdoor humidity display 14) Indoor temperature and humidity HI/LO alarm icon	15) Indoortemperaturedisplay 16) Indoor humidity display 17) WIFI network 18) Min/Max reset for 24h icon 19) Week 20) Date 21) Time 22) Time alarm icon 23) Weather forecast 24) Pressure units of measure 25) Pressure (REL and ABS) display 26) Relative and absolute pressure 27) MOON phase 28) Rainfall units of measure 29) Rainfall display(1h, 24h,WEEK,MONTH, TOTAL) 30) Rainfall relative time 31) RainfallHI alarm icon

3.4.2 Setup the Display Console

1) Install the Batteries into the Display Console

Remove the battery lid on the back of the display, install three AAA (alkaline or lithium) batteries in the battery compartment. The display will beep once and layout of display will light up for a few seconds.



Replace the battery lid, and unfold out the desk stand and place the console in the upright position.

2) Plug in the Display Console with adapter

Note: It is recommended to plug in the power adapter to reduce the battery consumption and extend the service life.

Note: If the power adapter is plugged in, **BL ON** will display in the Time area for three seconds when power up. Conversely, **t**he icon will display .

3.4.3 Connect the Sensors with Display Console

Once the display console is powered up, it will automatically scan the nearby Integrated Outdoor Sensors.

When connected with the Integrated Outdoor Sensor, the measured values (Outdoor temperature, Humidity, Rainfall, Pressure, Wind speed, Wind direction,etc) will show up on the display console.

Note: Make sure that place the distance between the weather station sensor and the display console is about 3m-30m. If the weather station is too close or too far away, it may not receive a proper signal.

Note: DO NOT press any menu buttons until the outside sensor report display on the screen, otherwise the outdoor sensor will be terminated to connect with the console.

3.5 Sensor Operation Verification

The following steps verify proper operation of the sensors prior to install the sensor array.
1. Verify proper operation of the rain gauge. Tip the sensor array back and forth several times. You should hear a "clicking"sound within the rain gauge. Verify the rain reading on the display console is not reading 0.00. Each "click"represents 0.1 inch of rainfall.
2. Verify proper operating of the wind speed. Rotate the wind cups manually or with a constant speed fan. Verify the wind speed is not reading 0.0.
3. Verify proper operation of the indoor and outdoor temperature. Verify the indoor and outdoor temperature match closely with the console and sensor array in the same location
(about 3m apart). The sensors should be within 4°F (the accuracy is ±2°F).Allow about 30 minutes for both sensors to stabilize.
4. Verify proper operation of the indoor and outdoor humidity. Verify the indoor and outdoor humidity match closely with the console and sensor array in the same location (about 10ft apart). The sensors should be within 10% (the accuracy is ± 5%). Allow about 30 minutes for both sensors to stabilize

4.Sensors Pre-installation

4.1 Site SurveyBefore Installation

Do a site survey before install the weather station. Take the following points into consideration:
1. You must clean the rain gauge once per year and change the batteries every two 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’ from any building, structure, ground, or rooftop.
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, install 4 x (20 – 6)’ =56 away. Use common sense. If the

weather station is installed next to a tall building, the wind and rain will not be accurate.
4. Wireless Range. The radio communication between receiver and transmitter in an open field can reach a distance of up to 300ft (91.4m), providing there are no interfering obstacles such as buildings, trees, vehicles, high voltage lines. Wireless signals will not penetrate metal buildings. Most applications will only reach 100ft due to building obstructions, walls and interference.
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.

4.2 Test the Sensors before Fixing

We recommend test the weather station for one week before install it in the permanent location, so that you can check out all of the functions, ensure proper operation, and familiarize yourself with the weather station and calibration procedures. This will also allow you to test the wireless range of the weather station.

4.3 Best Practices for Wireless Communication

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 300ft（(91.4m) 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.
4. **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.

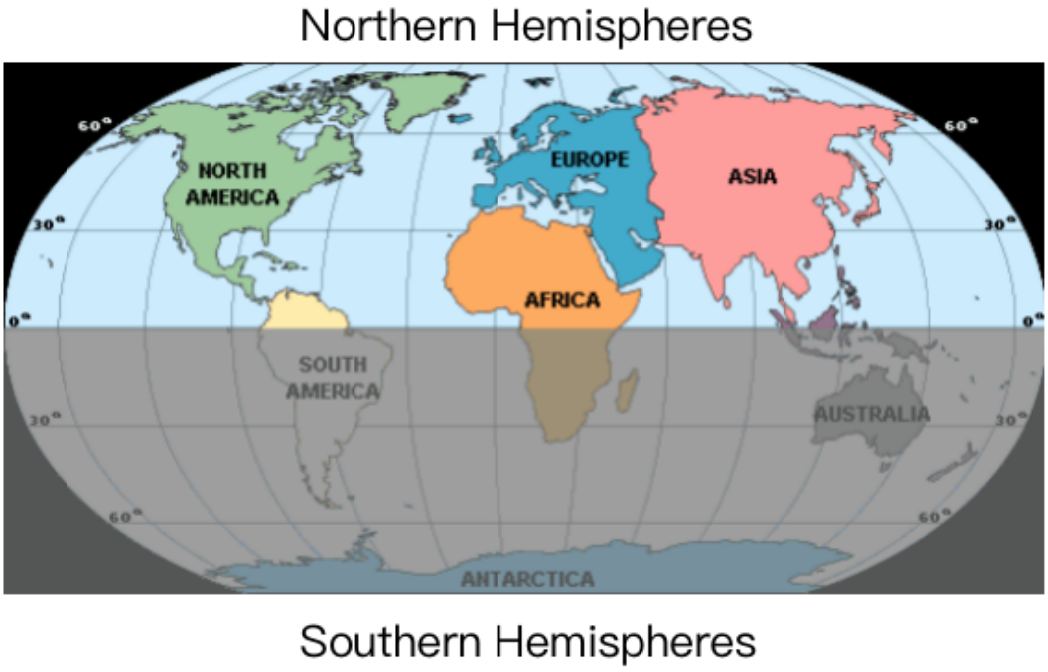
Material	RF Signal Strength Reduction
Glass (untreated)	5-15%
Plastics	10-15%
Wood	10-40%
Brick	10-40%
Concrete	40-80%
Metal	90-100%

5.Final Installation of Sensors

5.1 Installation of Integrated Outdoor Sensor

WS0368 Lite can be used in both the Northern and Southern Hemispheres. Prior to installation, you will need to calibrate the wind direction.

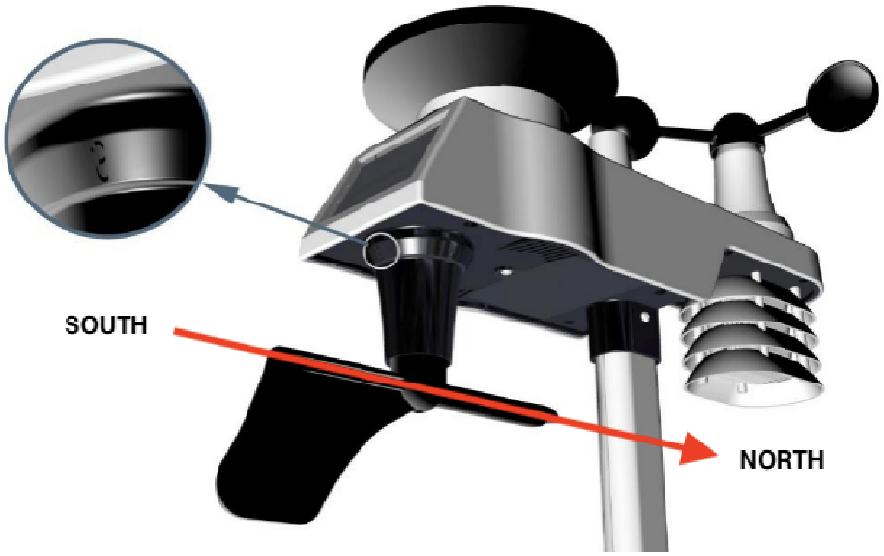
*There are four alphabet letter of "N","E","S"and "W" around the wind direction, ("N" is North, "E" is East, "S" is South, "W" is West.)



5.1.1 ForNorthern Hemispheres (NOR) Reference.

The cardinal directions (N, S, E, W) 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, check the directions with the compass and align this "S" marker in the direction of South.

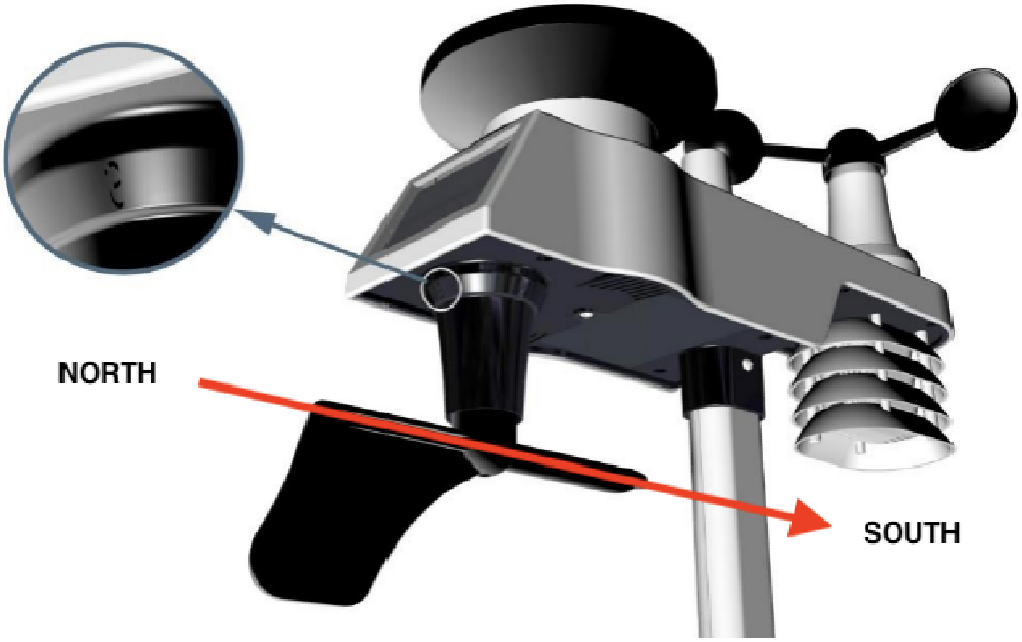


Step 2: Console operation is set toNorthern Hemispheres(**NOR**in the time area) in Location division. (Check the detail step of setting the time area in the part 17 of chapter 7.2)

5.1.2 ForSouthern Hemispheres (SOU) Reference.

For Southern Hemisphere installations, ignore the direction (N, S, E, W) and face **the solar panel to the North** (and in a sunny position) when it comes to install the Integrated Outdoor Sensor.

Step 1: Install the Integrated Outdoor Sensor and face the solar panel to the North.

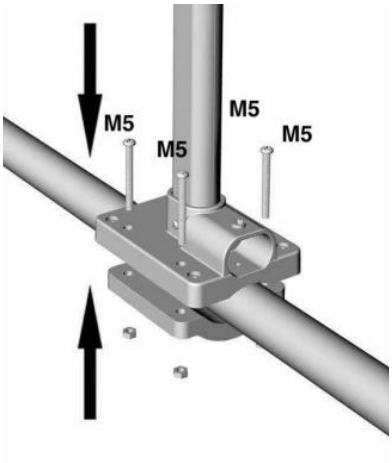


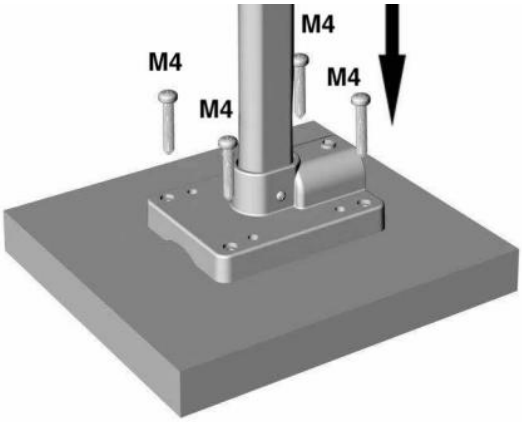
Step 2: Console operation is set to Southern Hemispheres (**SOU**in the time area) in Location division. (Check the detail step of setting the time area in the part 17 of chapter 7.2)

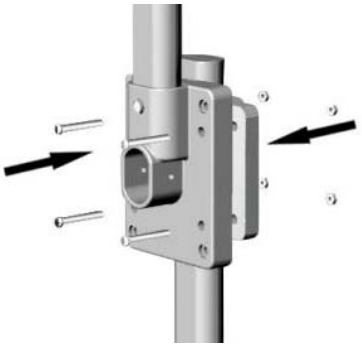
Note: The location division (NOR or SOU) on Display Console and the directions of the sensor have to be adjusted to match with your real location.
If the wind direction sensor is not positioned correctly during installation, permanent wind direction error will be introduced.

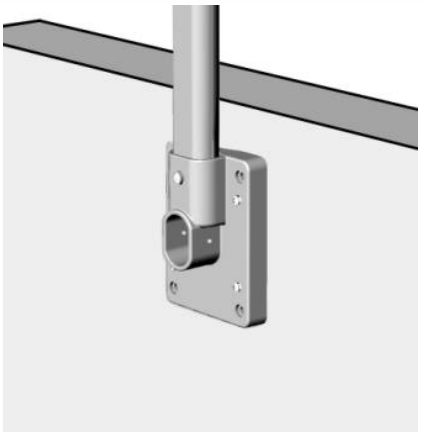
5.1.3 Mounting Foot Installation

After locate the correct direction, than start to fix the mounting foot.
First mount the mounting foot on a flat, as small as possible (so as not to falsify the measured values) surface.
Alternatively, you can also use the four M5 x 49mm screws and M5 nuts supplied to attach the mounting base to an existing pipe together with the rear mounting plate, or fix it on the wall with four M4 universal screw.



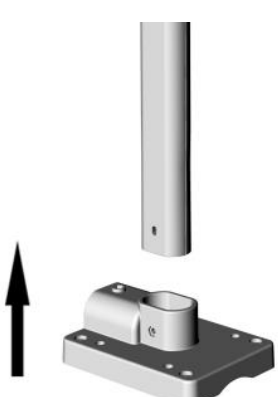


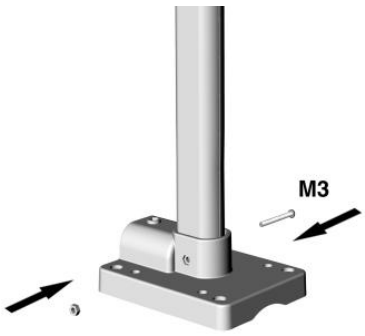




5.1.4 Mounting Pole Installation

Then insert the mounting pole into the corresponding receptacle on the mounting bracket. Screw both with a screw M3 x 29mm and a matching M3 nut.





5.1.5 Outdoor Sensor Installation

Finally, plug the outdoor sensor onto the other end of the mounting pole and screw it accordingly with an M3 x 29mm screw and an M3 nut.

6.Low Battery Icon

A low battery indicator icon is shown in the display window for Integrated Outdoor Sensor. When the low battery icon display (Integrated Outdoor Sensor's battery voltage is lower than 3.6V), replace the batteries in the sensor with fresh batteries. Be sure to never mix old and new batteries, and never mix battery types such as alkaline and lithium together.

7.Console Operation

Note: The console has five keys for easy operation: **MAX/MIN/-**key, **ALARM** key, **SET** key, **CHANNEL/+**and **SNOOZE/LIGHT** key.

7.1 Quick Display Mode

Note: To exit the Quick Display Mode at any time, press the **SNOOZE/LIGHT** key of the display console.

供应商版本：

While in Normal Mode, press (do not hold) the **SET** key to enter the Quick Display Mode as follows:

- once for time, time/week and second
- Twice for rainfall
- three for pressure
- four for sensor temperature

1. Time, Time/Week and Second. Press the *CHANNEL/+* or *MAX/MIN/-* key to toggle between time, time/week and second.
2. Rainfall. Press the *CHANNEL/+* or *MAX/MIN/-* key to toggle between 1h,24h week, month and total.
To clear the total rain, press the *CHANNEL/+* or *MAX/MIN/-* button until total rain is displayed. The total rain will flash. Press and hold the **SET** button for five seconds until total rain reads 0.0.
3. Absolute Pressure and Relative Pressure. Press the *CHANNEL/+* or **MAX/MIN/-** key to toggle between absolute pressure and relative pressure.
4. Outdoor Temperature. Press the CHANNEL/+ or MIN/MAX/- key to toggle between temperature, dew point and feels like.

7.2 Set (Program) Mode

While in Normal Mode, press **and hold** the **SET** key for at least three seconds to enter the Set Mode. The first setting will begin flashing. You can press the **SET** key again to skip any step, as defined below.

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

Note: To exit the Set mode at any time, press the **SNOOZE/LIGHT** button of the display console.

1. **12/24 Hour Format (default: 12h):**.Press the **SET** key again to adjust the 12/24 hour format setting (FMT). Press the **CHANNEL/+** key or **MAX/MIN/-** key to change between 12 hour and 24 hour format.
2. **Change Hour.** press the **SET** key again to set the hour. Press the **CHANNEL/+** key or **MAX/MIN/-** key to adjust the hour up or down. Note the PM icon is present during afternoon hours.
3. **Change Minute.** Press the **SET** key again to set the minute. Press the **CHANNEL/+** key or **MAX/MIN/-** key to adjust the minute up or down.
4. **Date Format (default: D-M): Press** the **SET** key again to enter the day/month format mode. Press the **CHANNEL/+** key to switch between M-D, D-M.
5. **Change Month.** Press the **SET** key again to set the calendar month. Press the **CHANNEL/+** key or **MAX/MIN/-** key to adjust the calendar month.
6. **Change Day.** Press the **SET** key again to set the calendar day. Press the **CHANNEL/+** key or **MAX/MIN/-** key to adjust the calendar day.
7. **Change Year. Press** the **SET** key again to set the calendar year. Press the **CHANNEL/+** key or **MAX/MIN/-** key to adjust the calendar year.

8. **Max/Min Clearing (default: ON)**. Press the **SET** key again to set the max/min clearing mode (CLR). The Max/Min can be programmed to clear daily (at midnight) or manually. Press the **CHANNEL/+** key or [**Temperature Units of Measure (default:** °F**-**] key to switch between "Clears 24h" and Clears Manually.)
9. Press the **SET** key again to change the temperature units of measure. Press the **CHANNEL/+** key or **MAX/MIN/-** key to switch between °F and °C units of measure.
10. **Wind Speed Units of Measure (default: m/s)**. Press the **SET** key again to change the wind speed units of measure . Press the **CHANNEL/+** key or **MAX/MIN/-** key to toggle the wind speed units between m/s, km/h, mph, knots or bft.
11. **Rainfall Units of Measure (default: mm)**. Press the **SET** key again to change the Rainfall units of measure. Press **CHANNEL/+** key or **MAX/MIN/-** key to toggle the rainfall units between mm and inch.
12. **Barometric Pressure Display Units(default: hPa)**. Press the **SET** key again to change the pressure units of measure. Press the **CHANNEL/+** key or **MAX/MIN/-** key to toggle the pressure units between mmhg, inHg or hPa.
13. **Pressure Threshold Setting (default level 2).** Press the **SET** key again to change the pressure threshold. Press the **CHANNEL/+** key or **MAX/MIN/-** key to change pressure threshold 2 mbar/hour to 4 mbar/hour.(For detailed info of this part please refer to 9.5)
14. **Weather Icons Setting (default: partly cloudy).** Press the **SET** key again to change the initial weather icon. Press the **CHANNEL/+** key or **MAX/MIN/-** key to select the initial weather icon of Sunny, Cloudy, Partly Cloudy or Rainy. (For detailed info of this part please refer to 9.1 and 9.2)
15. **Location division.(default: Northern Hemisphere).**Press the **SET** key again to change the location division. Press the **CHANNEL/+** key or **MAX/MIN/-** key to toggle the sunlight units Northern Hemisphere (NOR)or Southern Hemisphere(SOU).(**refer to 5.0 Final Installation of Integrated Outdoor Sensor**)

7.3 Sensor Search Mode

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

To reconnect the display console, press and hold the **CHANNEL/+** button for 3 seconds to enter the sensor search mode.

7.4 **Max/Min RecordViewing and Reset**

7.4.1 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 rainfall (1h, 24h, week or month), wind gust and average (m/s, bft, knots,mph or km/h), pressure (ABS or REL), outdoor temperature and humidity (temperature, dew point or feels like) and indoor temperature and humidity.

Press the **MAX/MIN/-** key for three seconds to clear all Max values.(Rainfall, wind gust and average, pressure, temperature and humidity maximum values).

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

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

7.4.2 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 pressure (ABS or REL), outdoor temperature and humidity (temperature, dew point or feels like), and indoor temperature and humidity.

Press the **MAX/MIN/-** key for three seconds to clear all Min values.(pressure, temperature and humidity minimum values).

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

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

7.5 Snooze Mode

If the alarm sounds, and you wish to silence the alarm, press the **SNOOZE/LIGHT** key, the backlight will turn on. The alarm icon will continue to flash and the alarm will silence for five minute. press any key (**MAX/MIN/-** ,**ALARM**,**SET**, **CHANNEL/+**) to permanently exit the **Snooze** mode.

7.6 Back Light Mode

If the LED is off, Press the **SNOOZE/LIGHT** button once. The backlight will turn on for five seconds, and if no operation is performed for three seconds, the backlight will turn off.

The backlight operation is different when operating on batteries to save power.

7.6.1 Adjustable Brightness of Backlight

There are 3 levels of brightness of backlight. When the backlight is on press SNOOZE/LIGHT key to switch between the 3 levels.

When backlight is off, press and hold the **SNOOZE/LIGHT** key for two seconds, the backlight will turn on permanently, and **BL ON** icon will be displayed for three seconds in the date area.
To turn off the backlight at any time press and hold the **SNOOZE/LIGHT** key for two seconds. **BL OFF** icon will be displayed for three seconds in the date field.

Note: If plugged into AC power, the time area will display AC ON and the backlight will remain on. It is not recommended leaving the backlight on for a long period of time when operating on batteries only, or the batteries will run down quickly.

8 Alarm Mode

The WS0368 Lite includes the following alarms:

1. Time (Alarm 1 and Alarm 2) 2. Wind Gust 3. Wind Average 4. Outdoor Temperature 5. Outdoor Humidity 6. Outdoor Feels Like Temperature	7. Outdoor Dew Point 8. Hourly Rainfall 9. 24 Hour Rainfall 10. Absolute Pressure 11. Relative Pressure 12. Indoor Temperature 13. Indoor Humidity

8.1 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.

8.2 Check the Max and Min Alarms 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 HI alarm parameters of indoor temperature and humidity, outdoor temperature and humidity, 1h rainfall, absolute pressure, wind gust, wind average are displayed.

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

Press ALARM key again to return to normal mode.

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

8.3 Setting the Alarms

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

Press and hold the **SET** key for three 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/+** or **MAX/MIN/-** key to increase or decrease the alarm settings, or press and hold the **CHANNEL/+** or **MAX/MIN/-** key for three 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. After 30 seconds of inactivity, the alarm mode will time out and return to 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.Outdoor temp HI alarm 8.Outdoor temp low alarm 9.Outdoor humidity HI alarm 10.Outdoor humidity low alarm 11.Outdoor feels like HI alarm 12.Outdoor feels like low alarm	13.Outdoor dew point HI alarm 14.Outdoor dew point low alarm 15.Rainfall (1h) HI alarm 16.Rainfall (24h) HI alarm 17.Absolute pressure HI alarm 18.Absolute pressure low alarm 19.Relative pressure HI alarm 20.Relative pressure low alarm 21.Indoor temperature HI alarm 22.Indoor temperature low alarm 23.Indoor humidity HI alarm 24.Indoor humidity low alarm

Note: To prevent repetitive temperature alarming, there is a 0.5 °F tolerance band. For example, if you set the high alarm to 26.7 °F and silence the alarm, the alarm icon will continue to flash until the temperature falls below 26.2°F, at which point, the alarm will reset and must increase above 26.7 °F 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 point, the alarm will reset and must increase above 60% to activate again.

8.4 Alarm and Key Beeper ON/OFF

Randomly click the any button to silence the alarm sound.

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

The **BZ ON** (beeper on) or **BZ OFF** (beeper off) icon will appear in the time area for three seconds. press and hold the **ALARM** key again for three seconds to toggle the **BZ ON** or **BZ OFF** command.

9. Other Features of Display Console

9.1 Weather Forecasting

Note: The weather forecast or pressure tendency is based on the rate of change of barometric pressure. In general, when the pressure increases, the weather improves (sunny to partly cloudy) and when the pressure decreases, the weather degrades (cloudy to rain).

The weather forecast is an estimation or generalization of weather changes in the next 24 to 48 hours, and varies from location to location. The tendency is simply a tool for projecting weather conditions and is never to be relied upon as an accurate method to predict the weather.

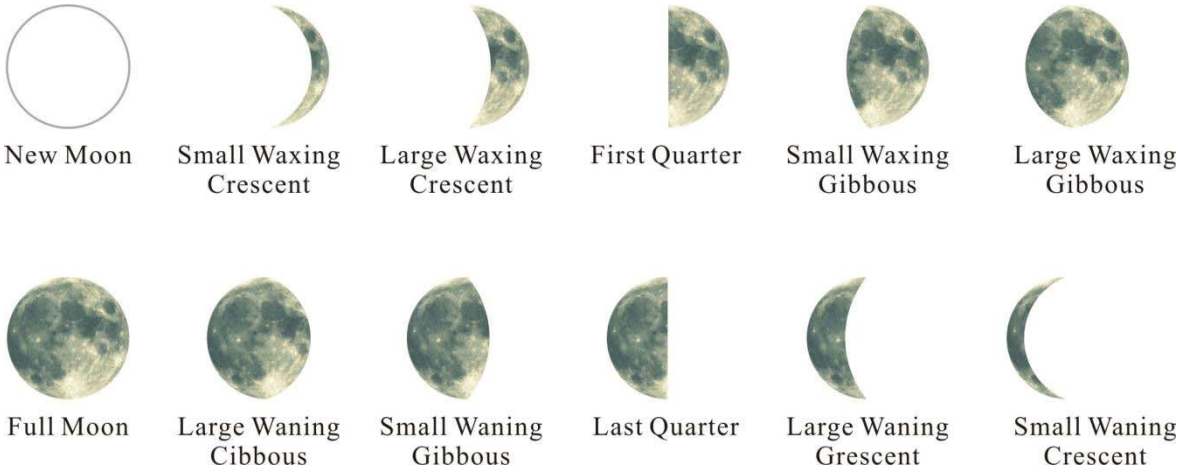
9.2 Weather Icons

Condition	Icon	Description
Sunny		Pressure is rising and the previous condition is partly cloudy.
Partly Cloudy		Pressure is falling and the previous condition is sunny or Pressure is rising and the previous condition is cloudy.
Cloudy		Pressure is falling and the previous condition is partly cloudy or Pressure is rising and the previous condition is rainy.

Rainy		Pressure is falling and the previous condition is cloudy.

9.3 Moon Phases

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

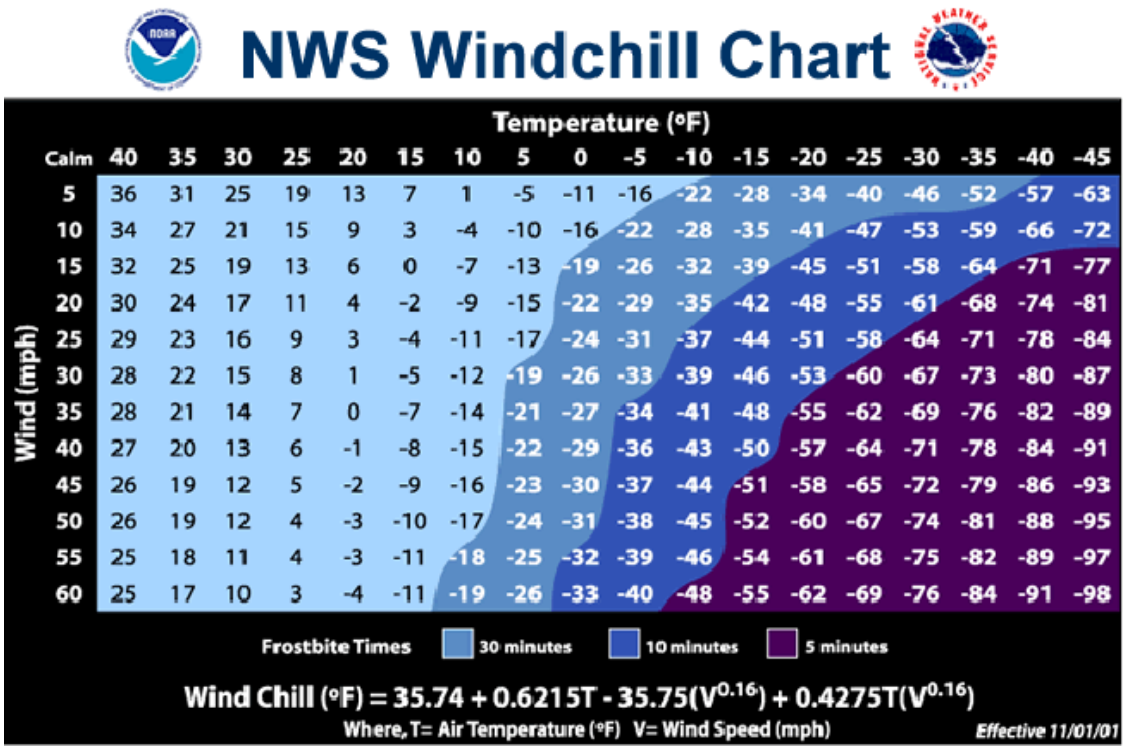


9.4 Feels Like Temperature

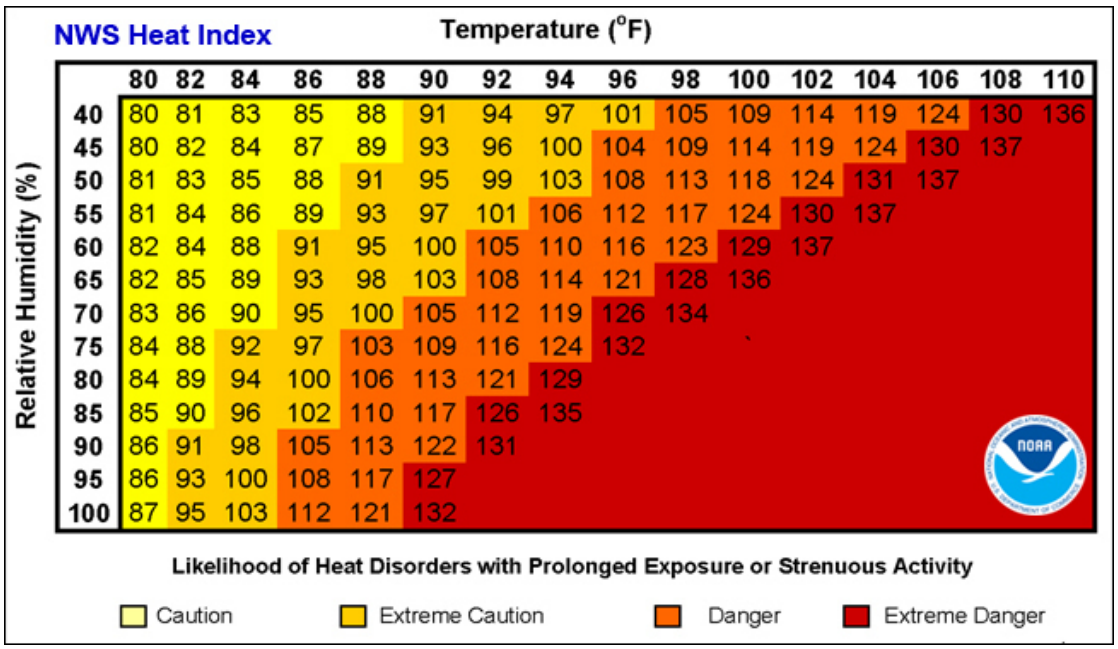
9.4.1 Feels Like Temperature

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

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



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



When the temperature is between 40°F and 80°F, the OUT temperature is displayed (Feels Like temperature is the same as OUT temperature).

9.5 Pressure Threshold Setting

The pressure threshold (the negative or positive rate of change of pressure signifying a change in the weather) can be adjusted from 2 mbar/hour to 4 mbar/hour (default level 2 mbar/hour).

The lower the level pressure threshold setting, the higher sensitivity for weather forecast changes. Locations that experience frequent changes in air pressure require a higher setting compared to locations where the air pressure is typically stagnant.

9.6 Optional Calibration

The purpose of calibration is to adjust or correct any sensor errors associated with the measurement accuracy of the device or the location of the measurement. The measurement can be corrected from the display unit in order to calibrate it with the help of a known measured variable.

Calibration is only useful when you have a known calibrated source with which you can compare the measured values of your weather station, therefore it is optional.

The following contents of the sensor calibration practices, procedures, and sources, to reduce manufacturing and variance tolerances. Under no circumstances should you compare your readings with sources such as the Internet, radio, television, or newspapers. The weather data used for this was determined at other locations and is usually only updated once an hour.

The purpose of your weather station is to measure the conditions of your current location area. These can vary greatly from place to place.

 Note: The calibrated value can only be set on the display unit. The radio sensor (s) always shows the uncalibrated value or the value measured by the local radio sensor.

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

9.6.1 Optional Calibration of Temperature

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

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

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

To exit the calibration mode at any time, press the **SNOOZE/LIGHT** button on the top of the display console. If no operation is performed, the calibration mode will automatically close in 30 seconds.

9.6.2 Optional Calibration of Humidity

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

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

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

To exit the calibration mode at any time, press the **SNOOZE/LIGHT** button.
If no operation is performed, the calibration mode will timeout in 30 seconds.

Note: 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.

9.6.3 Optional Calibration of Sensor

1) Step by Step Guide
press and hold the **SET** and **ALARM** buttons at the same time for five seconds to enter the barometer, wind speed, rainfall calibration mode. To skip over a parameter, press the **SET** button. The word CAL will appear at the bottom of the screen.

2) Absolute Pressure Calibration
In the calibration mode, the “ABS” symbol will display at the PRESSURE section, the absolute pressure offset will flash. The default offset is 0.00 inHg.

Press the **CHANNEL/+** or **MAX/MIN/-** button to increase or decrease the absolute pressure offset.
Press and hold the **CHANNEL/+** or **MAX/MIN/-** button for three seconds to increase or decrease rapidly.
Press the **ALARM** button to reset current value

Example: The calibrated pressure source measures 28.00 inHg. The display absolute pressure reads 28.83 inHg on the console.

Offset = 28.00 – 28.83 = 0.83 inHg.

3) Relative Pressure Calibration
In the calibration mode, press the **SET** button once, the “REL” symbol will display at the PRESSURE section, the relative pressure offset will flash. The default is 0.00 inHg

Press the **CHANNEL/+** or **MAX/MIN/-** button to increase or decrease the relative pressure offset.
Press and hold the **CHANNEL/+** or **MAX/MIN/-** button for three seconds to increase or decrease rapidly.
Press the **ALARM** button to reset current value.

Example: The local official barometer measures 30.00 inHg. The display relative pressure reads 29.92 inHg on the console.

Offset = 30.00 – 29.92 = 0.08 inHg.

Note: The display console displays two different pressures: absolute (measured) and relative (corrected to sea-level).

To compare pressure conditions from one location to another, meteorologists correct pressure

to sea-level conditions. Because the air pressure decreases as you rise in altitude, the sea-level corrected pressure (the pressure your location would be at if located at sea-level) is generally higher than your measured pressure.

Thus, your absolute pressure may read 28.62 inHg (969 mb) at an altitude of 1000 feet (305 m), but the relative pressure is 30.00 inHg (1016 mb).

The standard sea-level pressure is 29.92 in Hg (1013.2hpa). This is the average sea-level pressure around the world. Relative pressure measurements greater than 29.92 inHg (1013.2hpa) are considered high pressure and relative pressure measurements less than 29.92 inHg are considered low pressure.

To determine the relative pressure for your location, locate an official reporting station near you (the internet is the best source for real time barometer conditions, such as Weather.com or Wunderground.com), and set your weather station to match the official reporting station.

4) Wind Gain Calibration

In the calibration mode, press the **SET** button twice and the wind speed value will flash. The default is 1.00 (the display will show 100 but it is actually 1.00. There is no provision for the decimal point).

Press the **CHANNEL/+** or **MAX/MIN/-** button 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/-** button for three seconds to increase or decrease rapidly.
Press the **ALARM** button to reset current value.

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

Note: 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 6 m house would require an installation 24 m 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.

5) Rain Calibration

In the calibration mode, press the **SET** button for 3 times, the Rain Calibration value will begin flashing (the default is 1.0). Press the CHANNEL/+ or MAX/MIN/- button to adjust the rain calibration factor from 0.75 to 1.25

Calibrated Rain = Calibration Factor x Measured Rain

Press and hold the **CHANNEL/+** or **MAX/MIN/-** button for three seconds to increase or decrease rapidly.
Press the **ALARM** button to reset current value.

Note: The rain collector is calibrated at the factory based on the funnel diameter. The bucket tips every 0.01” of rain (referred to as resolution). The accumulated rainfall can be compared to a sight glass rain gauge with an aperture of at least 4”.

Note: that debris and insects can collect inside the tipping mechanism (they make a good spiders nest). Carefully remove the funnel and inspect the tipping mechanism for debris prior to calibration.

7) Quick Reference Guide:

Command* Order	Mode	Default	Settings
SET + ALARM + 5 seconds	Absolute Barometer Offset	0.00	Press **CHANNEL/+** or **MAX/MIN/-** to adjust the absolute pressure up or down. **Note** that you normally not calibrate absolute pressure unless you have a specific application example, measuring air density.
SET	Relative Barometer Offset	0.00	Press **CHANNEL/+** or **MAX/MIN/-** to adjust the relative pressure offset up or down. See discussion below on how to calibrate relative pressure based on conditions at a local airport.
SET	Wind Gain	1.00	Press **CHANNEL/+** button or **MAX/MIN/-** to adjust the wind gain up or down.
SET	Rain Gain	1.00	Press **CHANNEL/+** button or **MAX/MIN/-** to adjust the rain gain up or down.
SET	Exit Calibration Mode		

* **SET** + ALARM + 5 seconds = press and hold the **SET** and ALARM buttons at the same time for 5 seconds.
SET = press (but do not hold) the **SET** button

14. Restore Factory Default

To reset the console to factory default (WiFinetwork ,Weather server and display), press and hold the **MAX/MIN/-** key for 3 seconds while the console is only battery-powered. The display console must not be supplied with voltage via the plug-in power supply during this process.

15. Maintenance

1) Clean the rain gauge of Integrated Outdoor Sensor every 3 months.

- Unscrew the rain collector funnel by turning it 30°counter clockwise.
- Gently remove the rain collector funnel.
- Clean and remove any debris or insects.
- Install the collector funnel after it has been cleaned and completely dried.

A: Remove the rain collector funnel

B: Install the collector funnel.

2) Replace the wind, rain and thermo-hygrometer sensor batteries every 1-2 years

16.Troubleshooting Guide

Problem	Solution

Problem	Solution
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, choose the lost sensor and 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 300ft and 100ft under most conditions. Move the sensor assembly closer to the display console. If the sensor assembly is too close (less than 1.5m), 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 thermo-hygrometer. 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.
Temperature sensor reads too high in the day time.	Make sure the thermo-hygrometer is mounted in a shaded area. The pre preferred location is a north facing wall because it is in the shade most of the day.
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 4 °F (the sensor accuracy is ± 4 °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 a known source.
Display console contrast is weak	Replace console batteries with a fresh set of batteries.

Problem	Solution
WiFi does not display on console.	Check your router for problems. 1. **Check WiFi symbol on the display.** If wireless connectivity is successful the WiFi icon will be displayed in the time field. 2. Make sure your modem WiFi settings are correct (network name, and password). 3. Make sure the console is plugged into AC power. The console will not connect to WiFi when powered by batteries only. 4. The console only supports and connects to 2.4 GHz routers. If you own a 5 GHz router, and it is a dual band router, you will need to disable the 5 GHz band, and enable the 2.4 GHz band. 5. The console does not support guest networks.
Data not reporting to www.wunderground.com or www.weathercloud.net	1. **Confirm your password or 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. 2. **Confirm your station ID is correct.** 3. Make sure the date and time is correct on the console. If incorrect, you may be reporting old data, not real time data. 4. Make sure your time zone is set properly. If incorrect, you may be reporting old data, not real time data. 5. Check your router firewall settings. The console sends data via Port 80.

17. Specifications

17.1 Measurement Specifications

The following table provides specifications for the measured parameters.

Measurement	Range	Accuracy	Resolution
Indoor Temperature	32 to 140 °F	± 1 °F	0.1 °F
Outdoor Temperature	-40 to 140 °F	± 1 °F	0.1 °F
Indoor Humidity	10 to 99 %	± 5% (only guaranteed between 20 to 90%)	1 %
Outdoor Humidity	10 to 99%	± 5% (only guaranteed between 20 to 90%)	1 %
Rain	0 to 396in	<0.6in: ±0.04in, 0.6in to 396in: ±7%	<39.4in (0.012in) >39.4in (0.04in)
Wind Direction	0 - 360 º	± 10º (8 point compass)	± 1º (8 point compass)
Wind Speed	0 to 112mph	4.5 mph ~22.4mph: ±0.67mph, 22.4mph ~112mph: ±10% (whichever is greater)	0.1mph
Barometric Pressure:	8.85 to 32.50 inHg	± 0.08 inHg	0.01 inHg

17.2 Wireless Specifications

Wireless Transmit Range (in open air)	100m
Frequency	433 MHz
Integrated Outdoor Sensor Data Update Period	16 seconds

17.3 Power Consumption

Item	Power Source	Battery life
Display Console	3xAAA 1.5V Alkaline or Lithium batteries (not included)	Over 12 months (Should place the location less than -4°F)

Integrated Outdoor Sensor	3xAA alkaline batteries or Lithium batteries (not included)	Over 12 months (Should place the location less than -4°F). The batteries provide backup power when there is limited solar energy
	Solar panel	-
Adapter	6V~ 500mA	-

17.4 WiFi Specifications

WIFI Standard	802.11 b/g/n
WiFi Console RF Frequency	2.4 GHz
Device Compatibility	Build-in WiFi with WAP mode smart device, including 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.)
WiFi RF Transmit Range (in open air)	80 feet

FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.
-- Increase the separation between the equipment and receiver.
-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

⚠**Warning:** The user should be 20CM away from the product when it is used.