

1. Introduction

Thank you for your purchase of the XC-0322 Wireless Outdoor Thermometer with Indoor Thermo-Hygrometer Jumbo Display. The following user guide provides step by step instructions for installation and operation.

2. Getting Started

Note: The power up sequence must be performed in the order shown in this section (remote transmitter(s) first, Display Console second).

The XC-0322 weather station consists of a display console (receiver), and a thermometer (remote transmitter).

2.1 Parts List

QTY	Item
1	Display Console Frame Dimensions (LxHxW): 11.4x9.5x2.5cm LCD Dimensions (LxW): 7.0x4.4cm LCD Segment Height: 0.59 inches
1	Thermometer transmitter Dimensions (LxHxW): 6.3x5.0x2.2cm

2.2 Recommend Tools

Hammer and nail for hanging remote thermometer transmitter.

2.3 Thermometer Sensor Set Up

1. Remove the battery door on the back of the sensor, as shown in **Figure 1**.

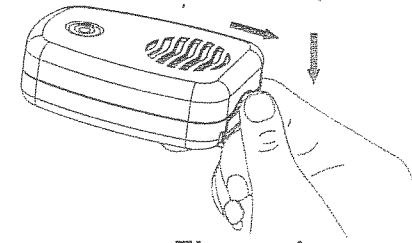


Figure 1

2. Insert two AAA batteries as shown in **Figure 2**.

Note: To avoid permanent damage, please take note of the battery polarity before inserting the batteries.

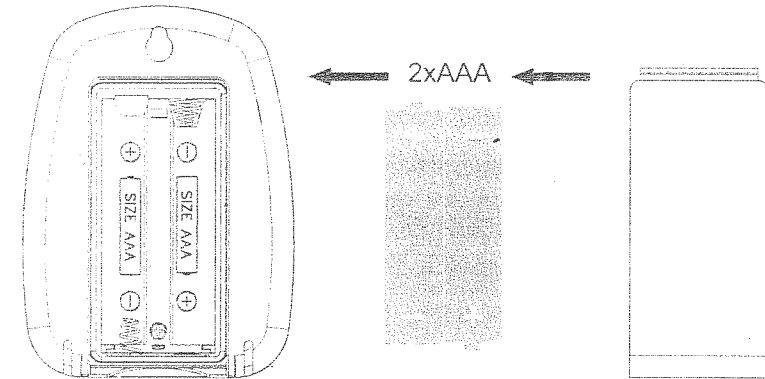


Figure 2

3. Close the battery door as shown in **Figure 3**. Make sure the gasket (around the battery compartment) is properly seated in its trace prior to closing the door.

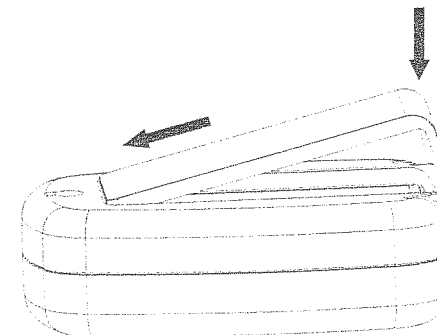


Figure 3

4. After inserting the batteries, the remote sensor LED indicator will light for 4 seconds, and then flash once per 60 seconds thereafter, as shown in **Figure 4** (note that the LED is underneath the plastic).

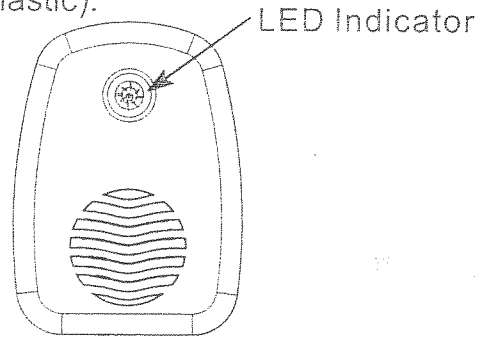


Figure 4

2.4 Display Console Set Up

Remove the battery door on the back of the display, as shown in **Figure 5**. Insert two AA (alkaline or lithium, avoid rechargeable) batteries in the back of the display console.

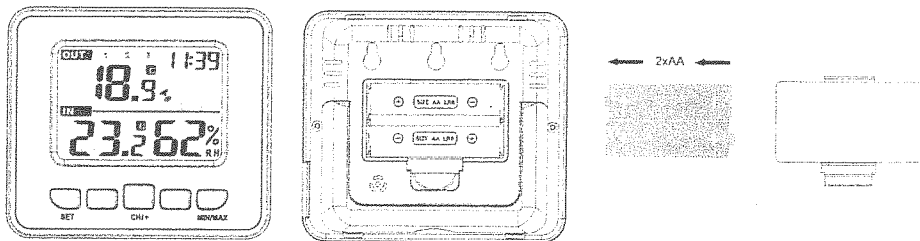



Figure 5

All of the LCD segments will light up for a few seconds to verify all segments are operating properly.


Replace the battery door, and fold out the desk stand and place the console in the upright position.

The console will instantly display indoor temperature and humidity as designated by the **IN** icon. The outdoor

temperature and humidity will update on the display within a few minutes on Channel 1.

While in the search mode, the remote search  icon will be constantly displayed.

If you have more than one remote sensor (up to three remotes are supported), the display will automatically toggle between sensors until all sensors have reported in.

Do not touch any buttons until the remote sensor has reported in, or the radio search icon  is no longer on, otherwise the remote sensor search mode will be terminated. When the remote sensor temperature has been received, the console will automatically switch to the normal mode, and all further settings can be performed.

2.4.1 Display Console Layout

Note: The following illustration shows the full segments of the LCD for description purposes only and will not appear like this during normal operation.

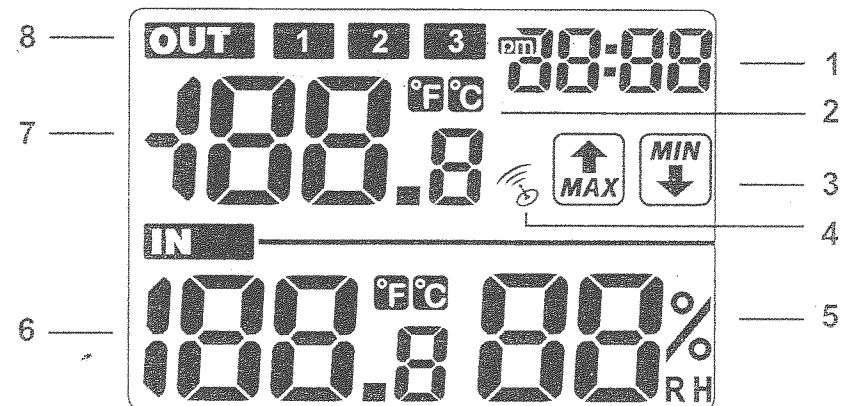


Figure 6

1. Time of Day (hh:mm)
2. Temperature Units (°F or °C)
3. Min/Max Record mode
4. Reception Icon (solid when searching, flashes when updating)
5. Indoor Humidity (%)
6. Indoor Temperature (°F or °C)
7. Outdoor Temperature (°F or °C)
8. OUT Channel 1,2,3 indicator

2.4.2 Sensor Operation Verification

Verify the indoor and outdoor temperature match closely with the console and sensor array in the same location. The sensors should be within 2°C (the accuracy is ± 1°C). Allow about 30 minutes for both sensors to stabilize.

3. Remote Sensor Installation

It is recommended you mount the remote sensor on a north facing wall, in a shaded area. 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 eave. Use a screw or nail (not included) to affix the remote sensor to the wall, as shown in **Figure 7**.

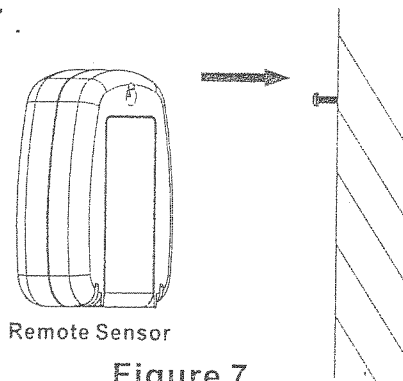


Figure 7

4. Console Operation

Note: The console has three buttons for easy operation: **SET**, **CH/+** and **MIN/MAX** button. The remaining two buttons have no functionality.

4.1 Set Mode

To enter the Set mode, press and hold the **SET** key for 3 seconds.

1. **12/24 Hour.** 12 Hr or 24 hour will begin flashing. Press the **CH/+** button to switch between 12 hour and 24 hour display mode. Press the **SET** button (do not hold) to advance to the next setting.
2. **Hour of Day.** The hour of day will begin flashing. Press the **CH/+** button to increase the hour, and the **MIN/MAX** key to decrease the hour. Press the **SET** button (do not hold) to advance to the next setting.
3. **Minute of Day.** The minute of day will begin flashing. Press the **CH/+** button to increase the minute, and the **MIN/MAX** button to decrease the minute. Press the **SET** button (do not hold) to advance to the next setting.
4. **Temperature Units of Measure.** The °F or °C icon will begin flashing. Press the **CH/+** button to switch between °F and °C. Press the **SET** button (do not hold) to exist the Set Mode.

4.2 Min/Max Mode

The Min/Max mode displays the minimum and maximum indoor and outdoor temperature and indoor humidity (since reset of the unit) for the indoor, remote channel 1, 2 and 3 sensors.

Prior to entering the MIN/MAX mode, press the **CH/+** button to select the temperature values you wish to view.



1. **Display Maximum.** Press the **MIN/MAX** button once to display the maximum. The **MAX** icon will be displayed.
2. **Clear Maximum.** To reset the maximum values to the current values, press and hold the **MIN/MAX** key for 3 seconds.
3. **Display Minimum.** Press the **MIN/MAX** button again to display the minimum. The **MIN** icon will be displayed.
4. **Clear Minimum.** To reset the minimum values to the current values, press and hold the **MIN/MAX** key for 3 seconds.

To return to normal mode, press the **MIN/MAX** button again, or wait 15 seconds for timeout.

4.3 Indoor/Outdoor Channel Selection

Press the **CH/+** button to switch the display between OUT remote sensors 1,2 and 3. Channel 1 is included with the unit. Channels 2 and 3 are optional sensors and purchased separately.

4.4 Sensor Search Mode

If any of the sensor communication is lost, dashes (---) will be displayed on the screen. To reacquire the signal, press and hold the **CH/+** button for 3 seconds, 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.

4.5 Adjustment or Calibration

4.5.1 Calibration Discussion

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

4.5.2 Indoor Humidity Calibration

To enter the indoor humidity calibration mode, press and hold the **SET** and **MIN/MAX** buttons at the same time for 5 seconds and the indoor humidity value will begin flashing. Press the **CH/+** button to increase the humidity and the **MIN/MAX** button to decrease the humidity reading in 1% increments. To rapidly increase (or decrease) the humidity reading, press and hold the **CH/+** or **MIN/MAX** button.

To return the indoor humidity to the actual or uncalibrated measurement, press the **SET** button.

Once the displayed indoor humidity equals the calibrated source, wait 15 seconds for timeout, and the humidity value will stop flashing.

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

Official stations recalibrate or replace humidity sensors on a yearly basis. Due to manufacturing tolerances, the humidity is accurate to $\pm 5\%$. To improve this accuracy, the indoor humidity can be calibrated using an accurate source, such as a sling psychrometer or one step humidpak calibration kits (reference Section 9).

5. Glossary of Terms

Term	Definition
Accuracy	Accuracy is defined as the ability of a measurement to match the actual value of the quantity being measured.
Hygrometer	A hygrometer is a device that measures relative humidity. Relative humidity is a term used to describe the amount or percentage of water vapor that exists in air.
Range	Range is defined as the amount or extent a value can be measured.

6. Specifications

6.1 Wireless Specifications

- Line of sight wireless transmission (in open air): 100 meters, 30 meters under most conditions.
- Frequency: 433 MHz
- Update Rate: 60 seconds

6.2 Measurement Specifications

The following table provides specifications for the measured parameters.

Measurement	Range	Accuracy	Resolution
Indoor Temperature	0 to 50°C	$\pm 1^\circ\text{C}$	0.1°C
Outdoor Temperature	-40 to 60°C	$\pm 1^\circ\text{C}$	0.1°C
Indoor Humidity	1 to 99 %	$\pm 5\%$ (only guaranteed between 20 to 90%)	1%

6.3 Power Consumption

- Base station : 2 x AA 1.5V Alkaline or Lithium batteries (not included)
- Remote sensor : 2 x AAA 1.5V Alkaline or Lithium batteries (not included)
- Battery life: Minimum 12 months for base station
Minimum 12 months for thermometer-hygrometer sensor

