

Wireless Indoor / Outdoor Thermometer with Indoor Humidity

User Manual



Table of Contents

1 Introduction	4
2 Getting Started	4
2.1 Parts List.....	5
2.2 Recommend Tools.....	5
2.3 Thermometer Sensor Set Up.....	6
2.4 Display Console Set Up.....	8
2.4.1 Display Console Layout.....	11
2.4.2 Sensor Operation Verification.....	12
3 Wireless Sensor Installation	12
3.1 Mounting with Zip Tie	12
4 Console Operation.....	13
4.1 Temperature Units of Measure	13
4.2 High Low Record	14
4.3 Sensor Resynchronization	15
4.3.1 Best Practices for Wireless Communication	15
5 Glossary of Terms	18

6 Specifications.....	18
6.1 Wireless Specifications.....	18
6.2 Measurement Specifications.....	19
6.3 Power Consumption.....	19
7 Troubleshooting Guide.....	20

1 Introduction

Thank you for your purchase of this Wireless Indoor/Outdoor Thermometer with Indoor Humidity. The following user guide provides step by step instructions for installation, operation and troubleshooting.

2 Getting Started



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

This 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): 3 x 3.5 x 1 in LCD Dimensions (LxW): 2.5 x 2.25" LCD Segment Height: 0.75 inch
1	Thermometer transmitter Dimensions (LxHxW): 2.75" x 1.75" x 0.75"
1	User Manual

2.2 Recommend Tools

Hammer for hanging remote thermometer transmitter.

2.3 Thermometer Sensor Set Up



Note: Do not use rechargeable batteries. They tend to have a lower operating voltage, do not have a wide temperature range, and do not last as long as non-rechargeable batteries.

We recommend fresh alkaline batteries for outdoor temperature ranges between $-4\text{ }^{\circ}\text{F}$ and $140\text{ }^{\circ}\text{F}$ (-20°C - 60°C) and fresh lithium batteries for outdoor temperature ranges between $-40\text{ }^{\circ}\text{F}$ and $140\text{ }^{\circ}\text{F}$ (-40°C - 60°C).

1. Remove the battery door on the back of the sensor by sliding the compartment door down, as shown in Figure 1 .



Figure 1

1	Integrated hanger for zip tie
2	Wireless transmitter LED
3	AA Battery
4	Battery Compartment Cover

2. Insert one AA battery.
3. After inserting the battery, 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.
4. Close the battery door.

2.4 Display Console Set Up

1. Move the remote thermometer(s) about 2 to 3m away from the display console (if the sensor is too close, it may not be received by the display console).
2. Remove the battery door on the back of the display, as shown in Figure 2. Insert one AA (alkaline or lithium, avoid rechargeable) battery in the back of the display console.

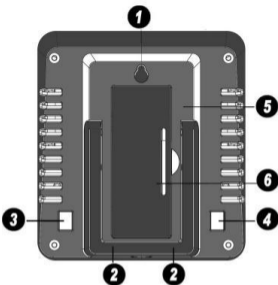



Figure 2

1	Suspension eye for wall hanging
2	Desk Stand
3	°C / °F button
4	High / Low Record button
5	Battery Compartment
6	Battery Compartment door

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

3. 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. The remote temperature will update on the display within a few minutes.

While in the search mode, the reception search icon  flash.

If the remote does not update, please reference the troubleshooting guide in Section 7.

2.4.1 Display Console Layout

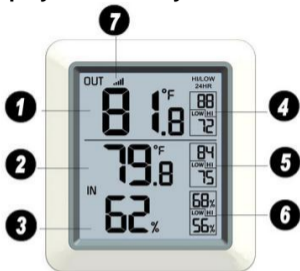


Figure 3

1	Outdoor Temperature
2	Indoor Temperature
3	Indoor Humidity
4	Outdoor Temperature High / Low Record
5	Indoor Temperature High / Low Record
6	Indoor Humidity High / Low Record
7	Wireless Reception Icon

2.4.2 Sensor Operation Verification

Verify the indoor and outdoor temperature match closely with the console and sensor array in the same location (about 2 to 3m apart). The sensors should be within 2°F/-16.67°C (the accuracy is ± 1°F/°C). Allow about 30 minutes for both sensors to stabilize.

3 Wireless Sensor Installation

It is recommended you mount the remote sensor 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.

3.1 Mounting with Zip Tie



Figure 4

4 Console Operation



Note: The console has two buttons for easy operation: °C / °F button (on the left), and **High / Low Record** button (on the right).

4.1 Temperature Units of Measure

To change the temperature units of measure, press the °C / °F button (on the left).

4.2 High Low Record

4.2.1 Check history High / Low record

In normal mode, the station will display the history high/low records for indoor/outdoor temperature and indoor humidity since power on or last clear.

Long press HI&LOW button 5s to clear current high/low record.


4.2.2 Check latest 24 hours High / Low record

In normal mode, short press HI/LOW button(the HI/LOW
24HR icon will appear) to check the latest 24 hours High / Low record for indoor/outdoor temperature and indoor humidity.

Long press HI&LOW button 5s to clear current high/low record.

4.3 Sensor Resynchronization

If the remote sensor is lost, dashes will be displayed. To resynchronize, press both the °C / °F and **High / Low Record** buttons at the same time for five seconds.

While in the search mode, the reception search icon  flash.

4.3.1 Best Practices for Wireless Communication



Note: To insure proper communication, mount the remote sensor on a vertical surface, such as a wall. **Do not lay the sensor flat.**

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

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

monitors and TVs.

2. **Radio Frequency Interference (RFI).** If you have other 433 MHz devices and communication is intermittent, try turning off these other devices for troubleshooting purposes. You may need to relocate the transmitters or receivers to avoid intermittent communication.
3. **Line of Sight Rating.** This device is rated at 300 feet line of sight (no interference, barriers or walls) but typically you will get 100 feet maximum under most real-world installations, which include passing through barriers or walls.
4. **Metal Barriers.** Radio frequency will not pass through metal barriers such as 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%

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): 300 feet (100 meters)

- 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	14 to 140 °F/-10 to 60°C	± 1 °F/°C	0.1 °F/°C
Outdoor Temperature	-40 to 140 °F/-40 to 60°C	± 1 °F/°C	0.1 °F/°C
Indoor Humidity	1 to 99 %	± 5% (20 to 90%)	1 %

6.3 Power Consumption



- Base station (display console) : 1 x AA Alkaline or Lithium batteries (not included)
- Remote sensor : 1 x AA 1.5V Alkaline or Lithium batteries (not included)

- Battery life: About 2 years for base station with one sensor and excellent reception. Intermittent reception and multiple sensors may reduce the battery life.
Minimum 12 months for thermometer sensor (use lithium batteries in cold weather climates less than -4 °F)

7 Troubleshooting Guide

If your question is not answered here, please contact our customer service.

Problem	Solution
Wireless remote (thermometer) not reporting in to console.	If sensor communication is lost, dashes (--.-) will be displayed on the screen. To reacquire the signal, To resynchronize, press both the °C / °F and High / Low Record buttons at the same time for five seconds., and the remote

Problem	Solution
<p>There are dashes (--.) on the display console.</p>	<p>search icon  will flash. Once the signal is reacquired, the remote search icon  will turn on, and the current values will be displayed.</p> <p>The maximum line of sight communication range is 265' and 100' under most conditions. Move the sensor assembly closer to the display console.</p> <p>If the sensor assembly is too close (less than 5'), move the sensor assembly away from the display console.</p> <p>Make sure the remote sensor transmitter light is flashing once per 60 seconds.</p> <p>Install a fresh set of batteries in the</p>

Problem	Solution
	<p>remote thermometer. For cold weather environments, install lithium batteries.</p> <p>Make sure the remote sensors are not transmitting through solid metal (acts as an RF shield), or earth barrier (down a hill).</p> <p>Move the display console around electrical noise generating devices, such as computers, TVs and other wireless transmitters or receivers.</p> <p>Move the remote sensor to a higher location. Move the remote sensor to a closer location.</p>
<p>Temperature sensor reads too high in the day time.</p>	<p>Make sure the thermometer is mounted in a shaded area on the north facing wall.</p>

Problem	Solution
Indoor and Outdoor Temperature do not agree	<p>Allow up to one hour for the sensors to stabilize due to signal filtering. The indoor and outdoor temperature sensors should agree within 2 °F (the sensor accuracy is ± 1 °F).</p> <p>Use the calibration feature to match the indoor and outdoor temperature to a known source.</p>
Display console contrast is weak	Replace console batteries with a fresh set of batteries.