Ambient Weather WS-06 Wireless Outdoor Thermometer with Indoor Thermo-Hygrometer Jumbo Display User Manual

Table of Contents

1 Introduction

Thank you for your purchase of the Ambient Weather WS-06 Wireless Outdoor Thermometer with Indoor Thermo-Hygrometer Jumbo Display. The following user guide provides step by step instructions for installation, operation and troubleshooting. To download the latest manual and additional troubleshooting tips, please visit:

http://ambientweather.wikispaces.com/ws06

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 WS-06 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): 4.50 x 3.75 x 1.00 in LCD Dimensions (LxW): 2.75 x 1.75" LCD Segment Height: 0.59 inches
1	Thermometer transmitter (FT004T) Dimensions (LxHxW): 4.5" x 2.0" x 0.75"

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 .
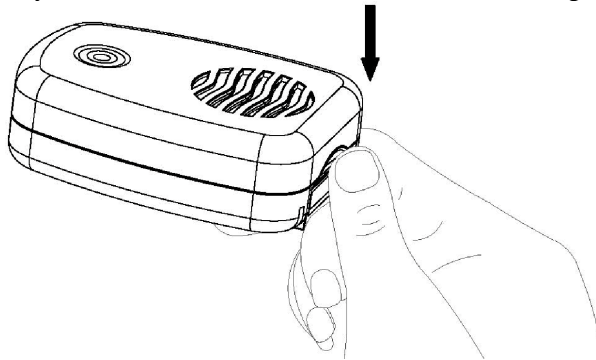
Figure 1

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. Do not use rechargeable batteries. We recommend fresh alkaline batteries for outdoor temperature ranges between -4 °F and 140 °F and fresh lithium batteries for outdoor temperature ranges between -40 °F and 140 °F.

Figure 2

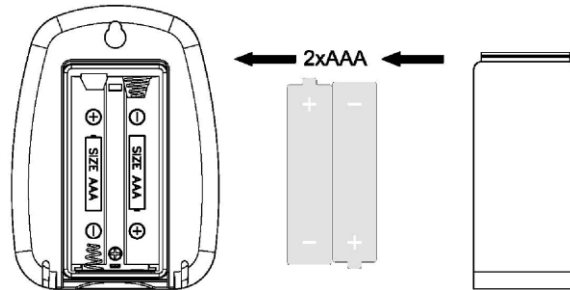3. Close the battery door as shown in Figure 3. Make sure the gasket (around the battery compartment) is properly seated in its trace prior to closing the door.
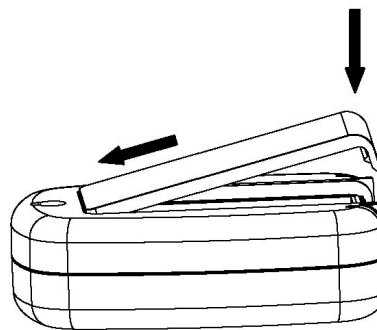
Figure 3

4. After inserting the batteries, the remote sensor LED indicator will light for 4 seconds, and then flash once per 48 seconds thereafter, as shown in Figure 4 (note that the LED is underneath the plastic).
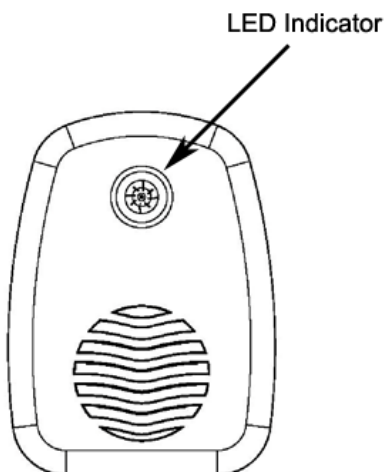
Figure 4

2.4 Display Console Set Up

Move the remote thermometer about 5 to 10' away from the display console (if the sensor is too close, it may not be received by the display console).

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.
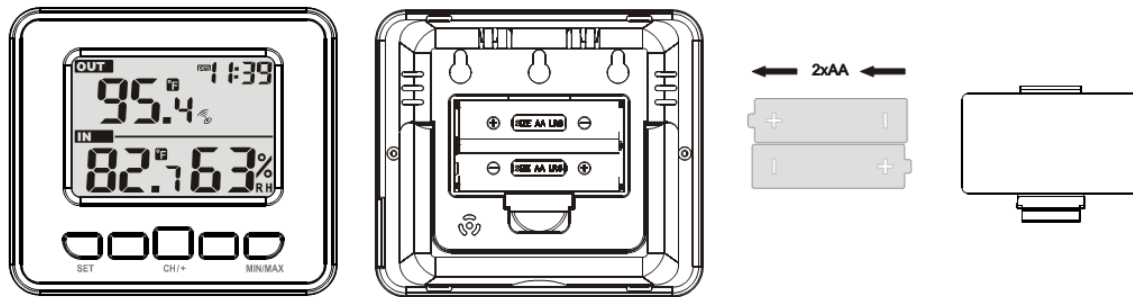

Figure 5

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 🔳 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 once 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.

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

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.
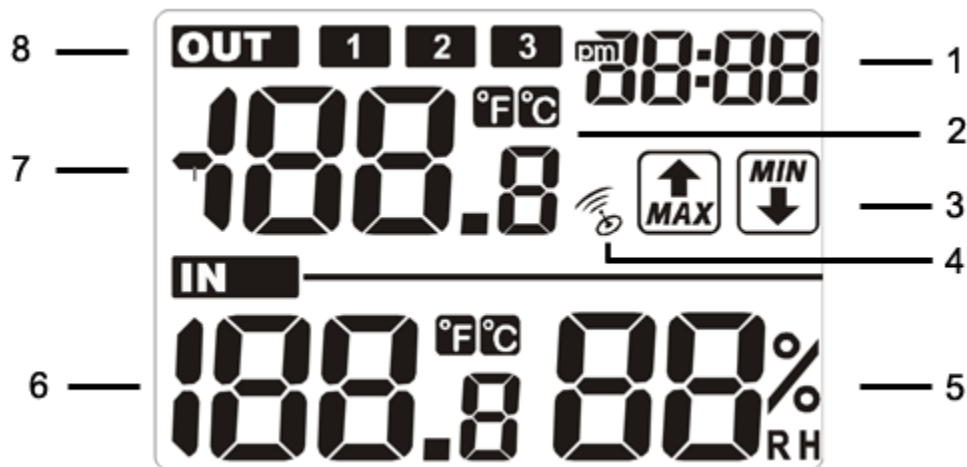
Figure 6

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 indictor

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 5 to 10' apart). The sensors should be within 2°F (the accuracy is ± 1°F). 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 eve. Use a screw or nail (not included) to affix the remote sensor to the wall, as shown in Figure 7.

Remote Sensor

Figure 7
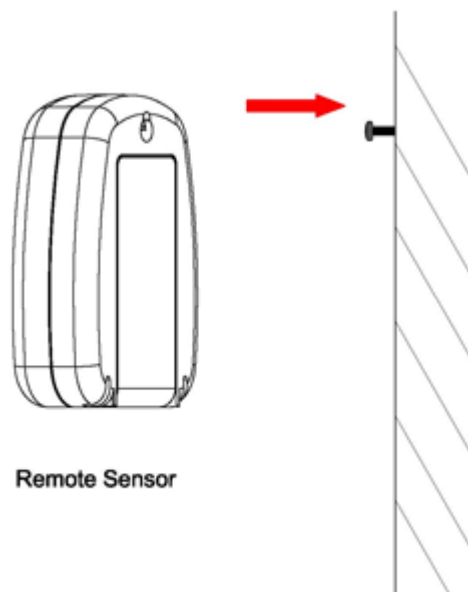
4 Console Operation

📝 **Note:** The console has three buttons for easy operation: **SET**, **CH/+** and **MIN/MAX** button. The remaining two buttons have no functionality (the same console is used for different products and therefore, are not used for this product).

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 ± 5%. To improve this accuracy, the indoor and outdoor 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): 300 feet, 100 feet under most conditions.
- Frequency: 433 MHz
- Update Rate: 48 seconds

6.2 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	1 to 99 %	± 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 (use lithium batteries in cold weather climates less than -4 °F)

7 Troubleshooting Guide

If your question is not answered here, you can contact us as follows:

1. Email Support: support@ambientweather.com
2. Live Chat Support: www.ambientweather.com/chat.html (M-F 8am to 4pm Arizona Time)
3. Technical Support: 480-283-1644 (M-F 8am to 4pm Arizona Time)

Problem	Solution
Wireless remote (thermometer) not reporting in to console. There are dashes on the display console.	The maximum line of sight communication range is 300' and 100' under most conditions. Move the sensor assembly closer to the display console. If the sensor assembly is too close (less than 10'), move the sensor assembly away from the display console. Reacquire the sensor search mode (reference Section 6.3). Install a fresh set of batteries in the remote thermometer. 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. Radio Frequency (RF) Sensors cannot transmit through metal barriers (example, aluminum siding) or multiple, thick walls.
Temperature sensor reads too high in the day time.	Make sure the thermometer is mounted in a shaded area on the north facing wall. Consider the following radiation shield if this is not possible: http://www.ambientweather.com/amwesrpatean.html
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 °F (the sensor accuracy is ± 1 °F).
Display console contrast is weak	Replace console batteries with a fresh set of batteries.

8 Accessories

The following software and hardware accessories are available for this weather station at www.AmbientWeather.com .

Accessory	Description
Energizer AAAS Lithium Battery (2-pack) - Batteries for Long Life and Cold Climates	AAA lithium batteries for cold weather climates.
Ambient Weather SRS100LX Temperature and Humidity Solar Radiation Shield	Solar Radiation Shield improves temperature accuracy for hot weather climates. Remove the rain guard and install over thermometer.
Ambient Weather Humidity Calibration Kits	One step calibration kits for digital hygrometers use salt slurry formula to accurately calibrate the indoor and outdoor hygrometers.

9 Liability Disclaimer

Please help in the preservation of the environment and return used batteries to an authorized depot. The electrical and electronic wastes contain hazardous substances. Disposal of electronic waste in wild country and/or in unauthorized grounds strongly damages the environment.

Reading the "User manual" is highly recommended. The manufacturer and supplier cannot accept any responsibility for any incorrect readings and any consequences that occur should an inaccurate reading take place.

This product is designed for use in the home only as indication of weather conditions. This product is not to be used for medical purposes or for public information.

The specifications of this product may change without prior notice.

This product is not a toy. Keep out of the reach of children.

No part of this manual may be reproduced without written authorization of the manufacturer.

Ambient, LLC WILL NOT ASSUME LIABILITY FOR INCIDENTAL, CONSEQUENTIAL, PUNITIVE, OR OTHER SIMILAR DAMAGES ASSOCIATED WITH THE OPERATION OR MALFUNCTION OF THIS PRODUCT.

10 FCC Statement

Statement according to FCC part 15.19:
This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:
1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Statement according to FCC part 15.21:
Modifications not expressly approved by this company could void the user's authority to operate the equipment.
Statement according to FCC part 15.105:
NOTE: 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.

11 Warranty Information

Ambient, LLC provides a 1-year limited warranty on this product against manufacturing defects in materials and workmanship.

This limited warranty begins on the original date of purchase, is valid only on products purchased and only to the original purchaser of this product. To receive warranty service, the purchaser must contact Ambient, LLC for problem determination and service procedures.

Warranty service can only be performed by a Ambient, LLC. The original dated bill of sale must be presented upon request as proof of purchase to Ambient, LLC.

Your Ambient, LLC warranty covers all defects in material and workmanship with the following specified exceptions: (1) damage caused by accident, unreasonable use or neglect (lack of reasonable

and necessary maintenance); (2) damage resulting from failure to follow instructions contained in your owner's manual; (3) damage resulting from the performance of repairs or alterations by someone other than an authorized Ambient, LLC authorized service center; (4) units used for other than home use (5) applications and uses that this product was not intended (6) the products inability to receive a signal due to any source of interference or metal obstructions and (7) extreme acts of nature, such as lightning strikes or floods.

This warranty covers only actual defects within the product itself, and does not cover the cost of installation or removal from a fixed installation, normal set-up or adjustments, claims based on misrepresentation by the seller or performance variations resulting from installation-related circumstances.