Ambient Weather WS-07-C Display Console with Jumbo Display User Manual

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1 Introduction

Thank you for your purchase of the Ambient Weather WS-07-C Display Console with Jumbo Display. The following user guide provides step by step instructions for operation and troubleshooting. To download the latest manual and additional troubleshooting tips, please visit:

http://ambientweather.wikispaces.com/ws07

2 Getting Started

Note: The Ambient Weather WS-07-C Display Console was designed as a wireless display receiver for the wireless thermo-hygrometer transmitter (FT007TH). However, the console can be used as a standalone product. In addition, you can add as many consoles as you like to the WS-07 Wireless Weather Station.

The WS-07-C weather station consists of a display console, and this User Manual.

2.1 Parts List

QTY	Item
1	Display Console Frame Dimensions (LxHxW): 4.50 x 5.0 x 1.00 in LCD Dimensions (LxW): 3.75 x 3.50” LCD Segment Height: 1.25 inches

2.2 Display Console Set Up

1. Remove the battery door on the back of the display, as shown in Figure 1. Insert four AAA (alkaline or lithium, avoid rechargeable) batteries in the back of the display console.

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

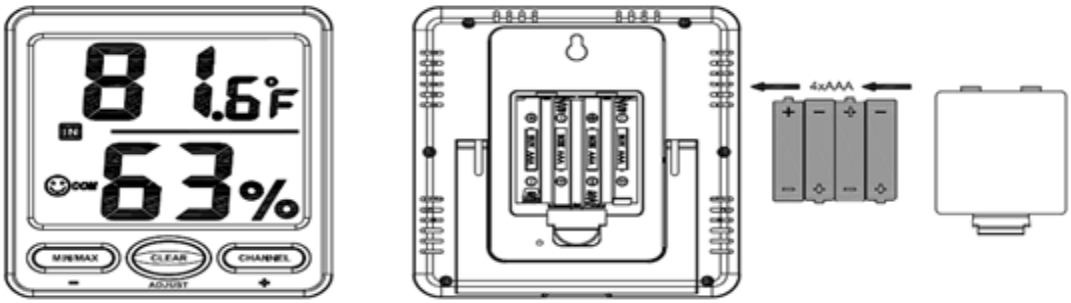

Figure 1

2. 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. If you own the optional remote sensor, the remote temperature and humidity will update on the display within a few minutes on the appropriate channel.

Download the full manual here:

http://ambientweather.wikispaces.com/ws07

if you add the optional remote wireless remote sensor for operation.

2.2.1 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.

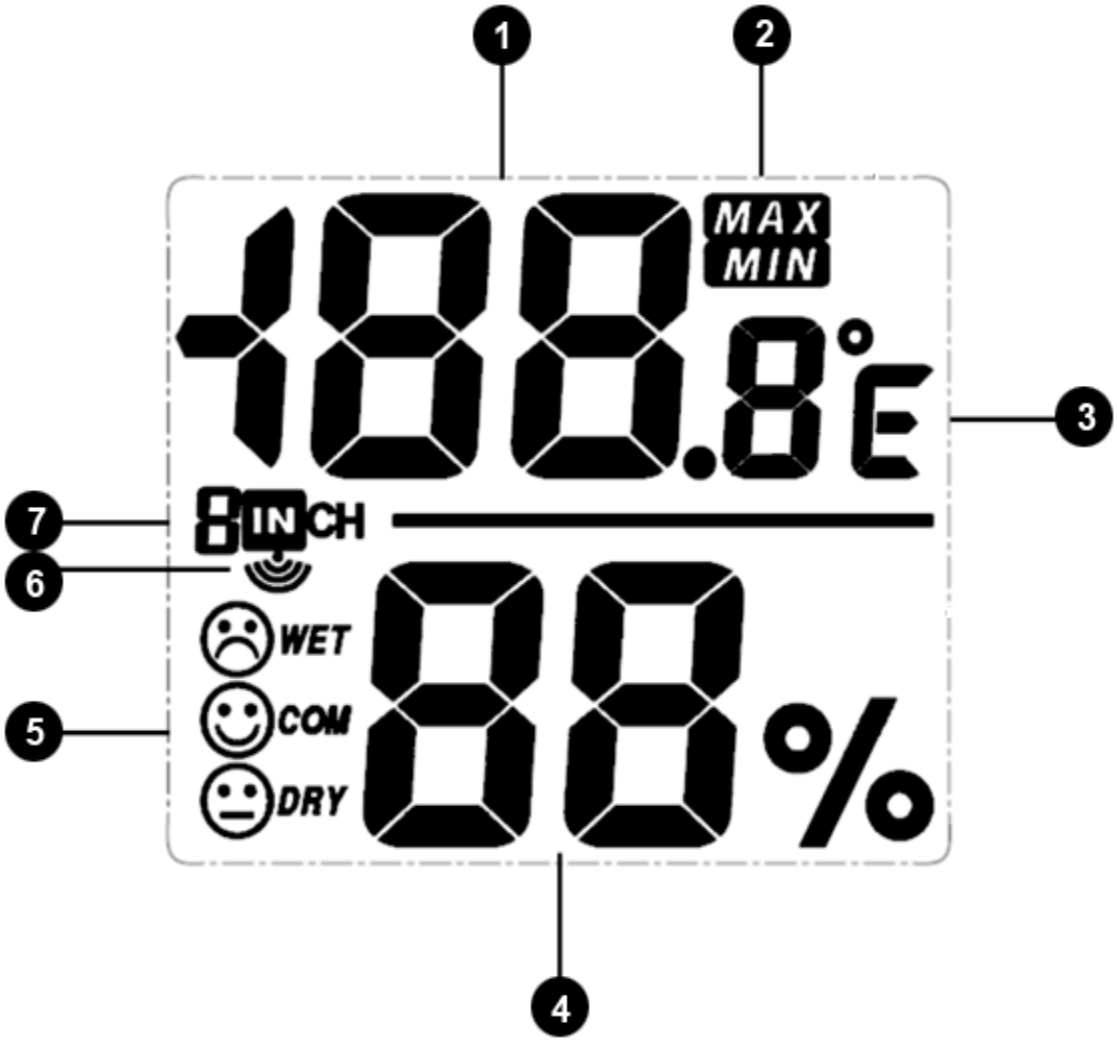

Figure 2

1. Temperature
2. Min/Max Record mode
3. Temperature units (°F or °C)
4. Relative Humidity (%)
5. Humidity Comfort Icon
6. Reception Icon (solid when searching, flashes when updating)
7. Channel 1,2,3,4,5,6,7,8, IN indictor

3 Display Features

3.1 Comfort Icon

The comfort icon is based on humidity ranges specified in Figure 3. The icon is displayed for indoor humidity, remote channel 1 humidity and optional remote channels 2 through 8 humidity.

RH<45%	RH 45%~65%	RH >65%
😐	☺	☹
Dry	Comfortable	Wet

Figure 3

4 Console Operation

Note: The console has three buttons for easy operation: **MIN/MAX/-** button, **CLEAR/ADJUST** button, and **CHANNEL/+** button.

4.1 Min/Max Mode

The Min/Max mode displays the minimum and maximum temperature and humidity (since reset of the unit) for the indoor, remote channel 1 through 8 sensors.

Prior to entering the MIN/MAX mode, press the **CHANNEL/+** button to select the temperature and humidity 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 **CLEAR** button 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 **CLEAR** button for 3 seconds.

To return to normal mode, press the **MIN/MAX** button again.

4.2 Temperature Units of Measure

The default temperature units of measure are degrees Fahrenheit. To toggle between degrees Celsius and degrees Fahrenheit, press and hold the **MIN/MAX** button for 3 seconds.

4.3 Adjustment or Calibration

Note: The calibrated value can only be adjusted on the console. The 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 your weather station is to measure conditions of your surroundings, which vary significantly from location to location.

4.3.1 Humidity Calibration

To enter the humidity calibration mode, press and hold the **ADJUST and MIN/MAX** buttons at the same time for 5 seconds and the humidity value will begin flashing. Press the **CHANNEL/+** 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 **CHANNEL/+** or **MIN/MAX/-** button.

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

Once the displayed humidity equals the calibrated source, press and hold the **ADJUST** button for three seconds, or 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:

http://www.ambientweather.com/mafaredspslp.html

or one step humidpak calibration kits (reference Section 8). You can also use common table salt, water and a plastic bag:

http://ambientweather.wikispaces.com/ws07

4.3.2 Temperature Calibration

To enter the temperature calibration mode, press and hold the **ADJUST** button for 5 seconds and the temperature value will begin flashing. Press the **CHANNEL/+** button to increase the temperature and the **MIN/MAX/-** button to decrease the temperature reading in 0.1° increments. To rapidly increase (or decrease) the temperature reading, press and hold the **CHANNEL/+** or **MIN/MAX/-** button.

To return the temperature to the actual or uncalibrated measurement, press the **ADJUST** button.

Once the displayed temperature equals the calibrated source, press and hold the **ADJUST** button for three seconds, or wait 15 seconds for timeout, and the temperature value will stop flashing.

Discussion: Temperature errors can occur when a sensor is placed too close to a heat source..

To calibrate temperature, we recommend a mercury or red spirit (fluid) thermometer. Bi-metal (dial) and other digital thermometers are not a good source and have their own margin of error. Using a local

weather station in your area is also a poor source due to changes in location, timing (airport weather stations are only updated once per hour) and possible calibration errors (many official weather stations are not properly installed and calibrated).

Place the sensor in a shaded, controlled environment next to the fluid thermometer, and allow the sensor to stabilize for 48 hours. Compare this temperature to the fluid thermometer and adjust the console to match the fluid thermometer.

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 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 %

6.2 Power Consumption

- Base station (display console) : 4 x AAA 1.5V Alkaline or Lithium batteries (not included)
- Battery life: Minimum 12 months for base station

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
Temperature inaccurate	Allow up to one hour for the sensor to stabilize due to signal filtering. Use the calibration feature to match the indoor and outdoor temperature to a known source.

Problem	Solution
Humidity inaccurate	Allow up to one hour for the sensor to stabilize due to signal filtering. 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.

8 Accessories

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

Accessory	Description
Ambient Weather F007TH Wireless Thermo-Hygrometer for WS-07 Weather Stations	Add additional remote thermo-hygrometers. Supports up to eight remote sensors.
Ambient Weather Humidity Calibration Kits	One step calibration kits for digital hygrometers use salt slurry formula to accurately calibrate.

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.

