

Wireless Thermometer with Multi-channel Temperature Sensor Model: WH0300



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1 Introduction

Thank you for your purchase of this WH0300 Wireless Thermometer with Multi-channel Temperature Sensor. This device supports to add max three temperature sensors (additional two sensors sold separately) to monitor multi places.

The following user guide provides step by step instructions for installation, operation and troubleshooting.

2 Getting Started



Note: The power up sequence can be performed in the order shown in this section : insert batteries in the remote transmitter(s) first, display console secondly.

2.1 Parts List

QTY	Item
1	Display Console
1	Multi-channel Thermometer sensor
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, and not having a wide temperature range, or not lasting 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

2. Figure 1 .

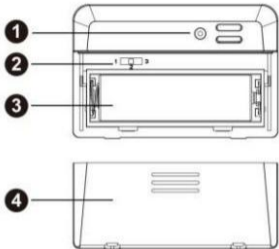


Figure 1

1	Wireless transmitter LED
2	1, 2, 3 RF Channels
3	AA Battery
4	Battery Compartment Cover

3. Set RF sensor channel.
4. Insert one AA battery.
5. 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.
6. Close the battery door.

Repeat for the additional remote transmitters (sold separately), verifying each remote is on a different channel.

2.4 Display Console Set Up

1. Move the remote thermometer(s) about 5 to 10' 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.

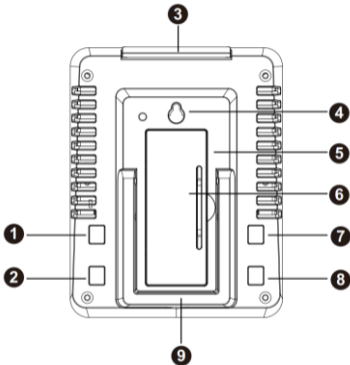



Figure 2

Number	Button	Function
1	+	Switch between C/F(press once); also functions as a “+” or “increase” button while in setup mode
2	CH	Enable or disable the Cycle Mode(press once); Cycle between display of RF channels sensor data
3	Light	Enable/disable the screen backlight(press once) ; Enable Snooze function; or return from setup mode to display mode
4	/	Hanging hole
5	/	Battery Compartment
6	/	Battery Compartment door
7	-	Switch between display of history and last 24h High / Low record(press once); also functions as a “-” or

		“decrease” button while in setup mode
8	MODE	Used to enter setup mode(hold for 2s); also functions as a “next” button in setup mode

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. 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 6.

2.4.1 Display Console Layout

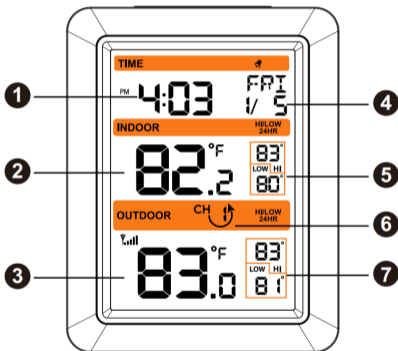


Figure 3

1	Time
---	------

2	Indoor temperature
3	Outdoor/multi-channel temperature
4	Date; week
5	Indoor temperature 24H high/low record
6	Cycle Mode icon/ RF channel number
7	Outdoor/multi-channel temperature 24H high/low record

2.4.2 Sensor Operation Verification

Verify the indoor and outdoor temperature match closely with the console and sensor in the same location (about 5 to 10' apart). The sensors should be within $\pm 2^{\circ}\text{F}/1^{\circ}\text{C}$ (the accuracy is $\pm 1^{\circ}\text{F}/^{\circ}\text{C}$). Please 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 weather resistant, it is best to mount in a well-protected area, such as under an eave.

3.1 Mounting with Zip Tie

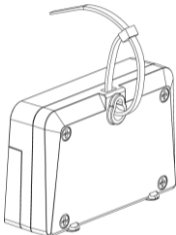


Figure 4

4 Console Operation



Note: The console has five buttons for easy operation: **+** and **CH** button (on the left); **-** and

MODE button (on the right); **Light** button (on the top).

Any program mode can be exited at any time by either pressing the **LIGHT** button, or waiting for the 30-second time-out to take effect.

4.1 Temperature Units of Measure

In normal mode, press the **+** button once to switch the display of temperature units of measure ($^{\circ}\text{C}/^{\circ}\text{F}$).

4.2 Time setting

In normal mode, hold the **MODE** button for 2 seconds to enter setting mode. The following items can be set:

- BEEP ON/OFF
- 24H/12H
- Hour setting
- Minute setting

- D-M/M-D format
- Year setting
- Month setting
- Day setting

Use the **MODE** button to move to the next settings. Press the **+** or **-** button to change the settings for the selected item.

Press the **Light** button can return to normal mode.

4.3 Alarm clock setting

In normal mode, press the **MODE** button once to enter alarm clock display mode. In this mode, hold the **MODE** button for 2 seconds to enter alarm clock setting mode. The following items can be set:

- Alarm clock ON/OFF
- Alarm hour setting

- Alarm minute setting

Use the **MODE** button to move to the next settings. Press the **+** or **-** button to change the settings for the selected item.

Press the **Light** button can return to normal mode.

Note: When time ALARM is triggered, press any button to close the sound alarm; press the **LIGHT** button can enter snooze mode(snooze time: 10 minutes).

4.4 RF channels setting and sensor resynchronization

The default display mode for the outdoor/multi channel sensor(s) data is Cycle Mode.

In cycle mode, an arrow icon will display and the

station will cycle between display of multi channel sensor(s) data. In this mode, press the **CH** button once can exit the cycle mode and display the current channel sensor data fixedly.

In non-cycle mode, press **CH** button once can switch the display of multi channel sensor data in the following sequence:

CH1 – CH2 – CH3 – Cycle Mode

If the remote sensor signal is lost, dashes –'-- will display on the console.

In cycle mode, hold the **CH** button for 2 seconds will re-register all the channels sensors.

In non-cycle mode, hold the **CH** button for 2 seconds will re-register the current channel sensor.

While in the search mode, the reception search

icon  will flash.

Note: If you only purchased one multi channel temperature sensor, the other two channels will display --'--.

You can cancel the cycle mode to make the console only display the current channel data.

4.5 High Low Record

4.5.1 Check latest 24 hours High / Low record

In normal mode, the console will display the latest 24 hours High / Low record for indoor/outdoor temperature.

In normal mode, hold the + button for 2 seconds can clear the current high/low record for indoor sensor.

4.5.2 Check history High / Low record

In normal mode, press the - button (the ^{HI/LOW} _{24HR} icon will disappear) to check the history high/low records for indoor/outdoor temperature since power on or last clear.

In cycle mode, hold the - button for 2s can clear the high/low record for all the channels sensors .

In non-cycle mode, hold the - button for 2s can clear the high/low record for the current channel sensor .

4.6 Best Practices for Wireless Communication



Note: To ensure 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 Specifications

5.1 Wireless Specifications

- Transmission range (in open areas): 80meter.
- Frequency: 433 MHz
- Update Rate:

Indoor temperature 60 seconds

Outdoor temperature CH1 48 seconds

Outdoor temperature CH1 49seconds

Outdoor temperature CH1 50 seconds

5.2 Measurement Specifications

The following table provides specifications for the measured parameters.

Measurement	Range	Accuracy	Resolution
Indoor Temperature	32 to 122 °F/0 to 50°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
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5.3 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)

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6 Troubleshooting Guide

Problem	Solution
Wireless remote	If sensor communication is

Problem	Solution
<p data-bbox="94 129 358 253">(thermometer) not reporting in to console.</p> <p data-bbox="94 305 363 471">There are dashes (---) on the display console.</p>	<p data-bbox="441 129 948 661">lost, dashes (---) will be displayed on the screen. To reacquire the signal, To resynchronize, press both the 【CH】 keys for two seconds., and the remote 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 data-bbox="441 707 943 965">The maximum line of sight communication range is 80m and 30m under most conditions. Move the sensor assembly closer to the display console.</p>

Problem	Solution
	<p data-bbox="443 129 940 299">If the sensor assembly is too close (less than 2m), move the sensor assembly away from the display console.</p> <p data-bbox="443 348 948 474">Make sure the remote sensor transmitter light is flashing once per around 50 seconds.</p> <p data-bbox="443 523 943 735">Install a fresh set of batteries in the remote thermometer. For cold weather environments, install lithium batteries.</p> <p data-bbox="443 785 926 999">Make sure the remote sensors are not transmitting through solid metal (acts as an RF shield), or earth barrier (down a hill).</p>

Problem	Solution
	<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>
Temperature sensor reads too high in the day time.	Make sure the thermometer is mounted in a shaded area on the north facing wall.
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

Problem	Solution
	<p>2 °C(the sensor accuracy is ± 1 °C).</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.