Wireless Weather Station with Multi-channel Temperature Sensor
Model: WH0310

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1 Introduction

Thank you for your purchase of this WH0310 Wireless Weather Station with Multi-channel Temperature Sensor. This device measures indoor temperature, humidity and barometric pressure. Also 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

We recommend fresh alkaline batteries for outdoor temperature ranges between -4 °F and 140 °F(-20℃ - 60℃) and fresh lithium batteries for outdoor temperature ranges between -40 °F and 140 °F(-40℃ - 60℃).

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

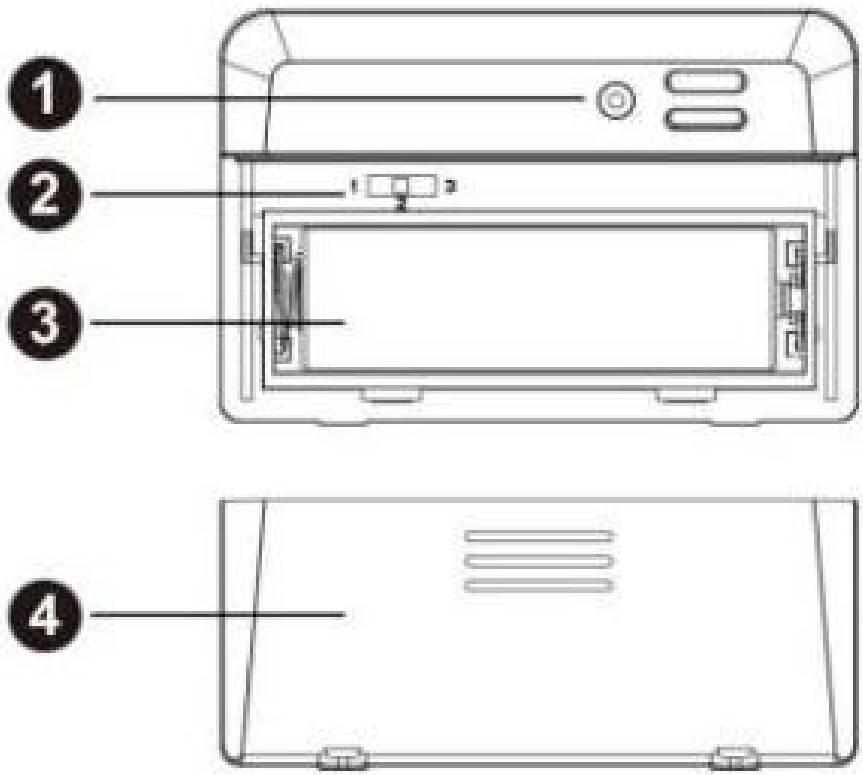

Figure 1

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

2. Set RF sensor channel.
3. Insert one AA battery.
4. 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.
5. 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, rechargeable) battery in the back of the display console.

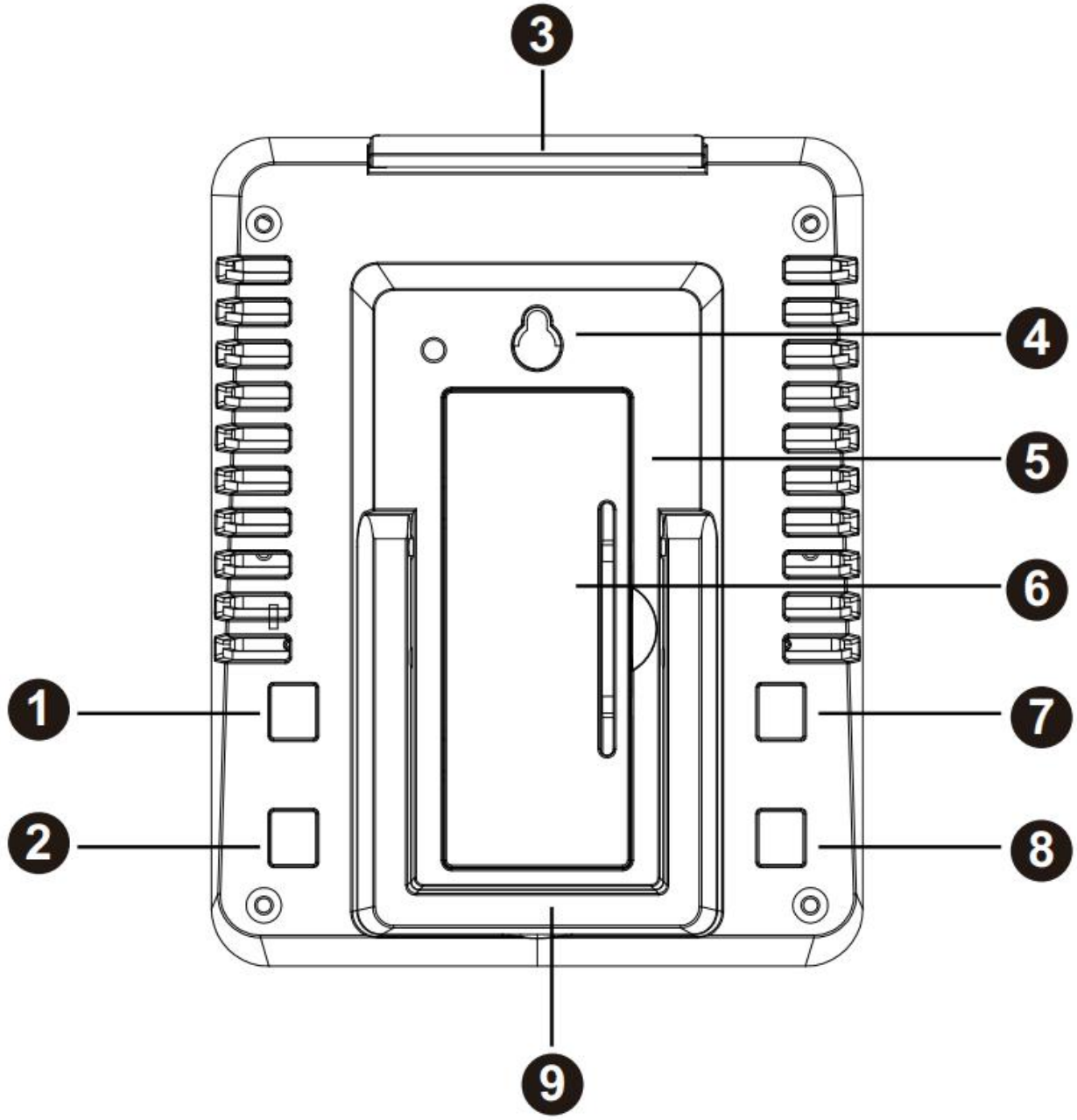

Figure 2

Number	Button	Function
1	+	Switch between display of 24H/7 days barometer graph (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) ; 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	Switch between ABS/REL barometer (press once); 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 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 contact the customer service.

2.4.1 Display Console Layout

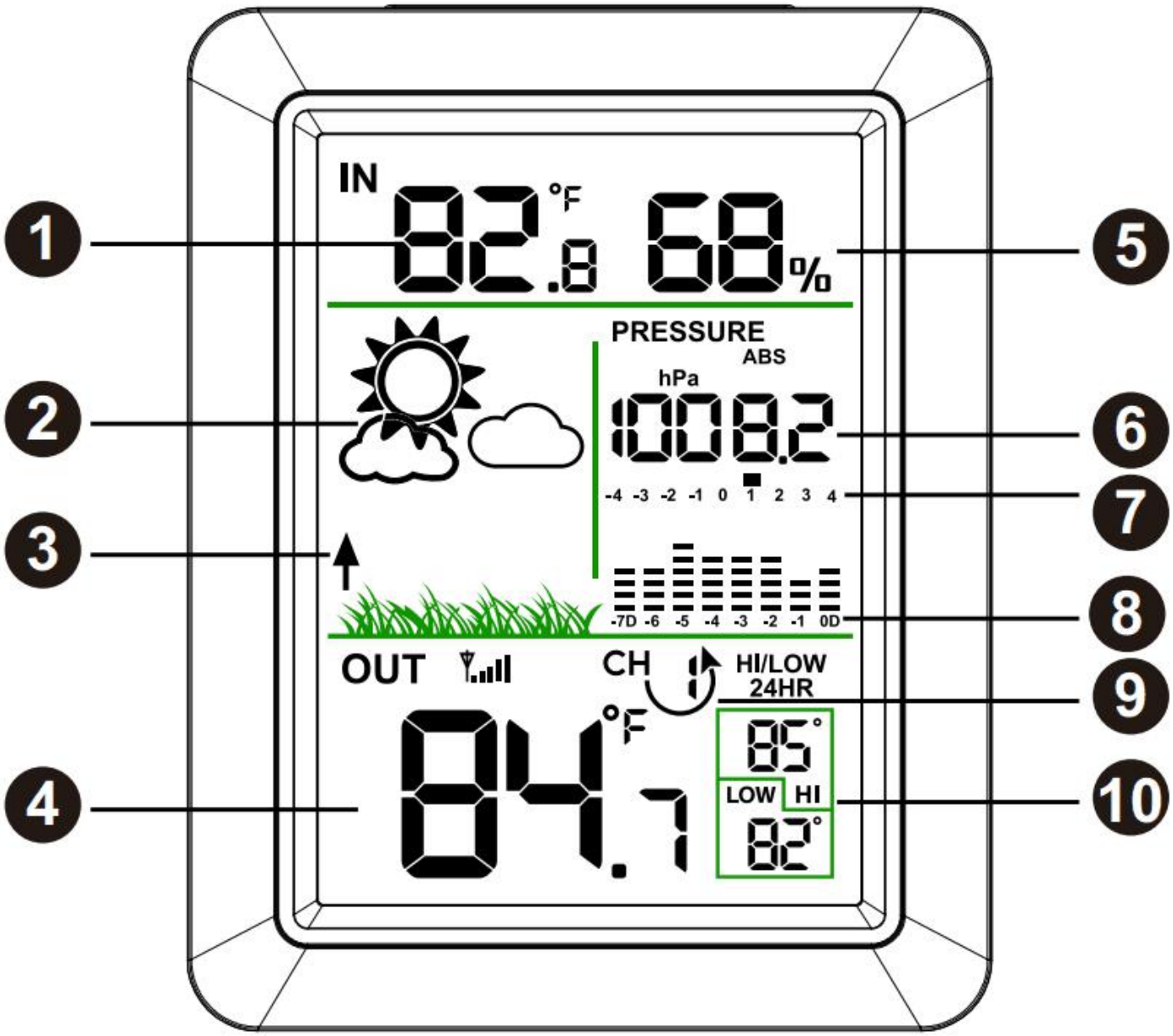

Figure 3

1	Indoor temperature
2	Weather forecast
3	Barometric pressure changing trend
4	Outdoor/multi-channel temperature
5	Indoor humidity
6	ABS/REL barometric pressure
7	Pressure tendency indicator
8	24H/7days history graph for ABS barometric pressure
9	Cycle Mode icon/ RF channel number
10	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 +-2°F/1℃ (the accuracy is ± 1°F/℃). 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 eve.

3.1 Mounting with Zip Tie

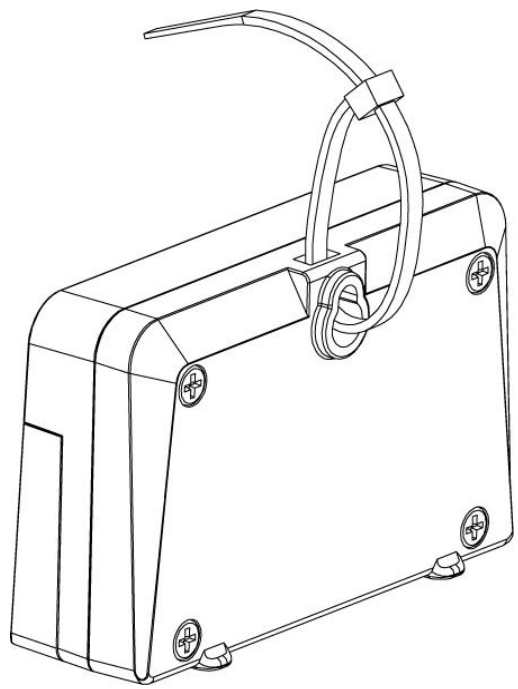

Figure 4

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 ABS/REL Barometer display

In normal mode, press the **MODE** button once to switch the display of barometer (ABS/REL).

4.2 Setting Mode

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

- Temperature display unit: C/F

- Barometer display unit: hPa/mmHg/inHg
- REL barometric pressure calibration (range: 300.0-1200.0hPa / 8.86-35.44inHg / 225.0-900.1mmHg)

Note: To calibrate the barometric pressure, we recommend you to go to this link to check the operation: http://www.ecowitt.com/news/102.html

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 Pressure Tendency Indicator

Pressure change tendency (updating every 60 second) is reflected by the scale indicator located under pressure display digits. Usually this is an indicator of weather change: when pressure is going in upward direction, it normally mean weather is getting better.

4.4 24H/7days History Graph

Figure: Last 24H graph

Figure: Last 7days graph

With different time scale selected, the pressure history graph can be used to display past 24h or 7 days pressure change (updating every 60 second).

4.5 Weather Forecast Algorithm

1. Weather Forecast: comparison between past 24 hour average against past 30 day average pressure.

Pressure Difference	Weather status
>=4hpa	Sunny
-0.5hpa to 3.5hpa	Partly cloudy
-3.5hpa to -1hpa	Cloudy
<=-4hpa	Rainy

2. **Storm forecast**:
   If there is a sudden pressure decrease due to storm approaching reason, weather forecast will having “Rainy” displayed and flashing. This is to tell there might be a storm approaching.

4.6 RF channels setting and sensor resynchronization

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

In cycle mode, indicated by an arrow icon with the channel number, different channel sensor(s) data will be toggled for display on LCD. Press **CH** button once can exit the cycle mode and display the current channel sensor data all the time.

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.

4.7 High Low Record

4.7.1 Check latest 24 hours High / Low record

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

4.7.2 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 outdoor/multi-channel 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 .

4.8 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

- Line of sight wireless transmission (in open areas): 300 feet, 100 feet under most conditions.
- Frequency: 433 MHz
- Sensor Update Rate: 60 seconds
- Weather forecast update rate: 10 minutes(based on the barometric pressure changing)
- Barometric pressure trend arrow update rate: 60 seconds(compared with last 3H value)

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℃	± 1 °F/℃	0.1 °F/℃
Indoor Humidity	10-99%	±5%	1%
Outdoor Temperature	-40 to 140 °F/-40 to 60℃	± 1 °F/℃	0.1 °F/℃
Barometric Pressure	300.0hPa ~1200.0hpa	+/-3hPa	0.1hPa

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)

6 Warranty Information

We disclaim any responsibility for any technical error or printing error, or their consequences.
All trademarks and patents are recognized.

We provide 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 us for problem determination and service procedures.

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.