Wireless Thermo-Hygro Monitor

Model: WH0280

Content

1. Introduce

Thank you for your purchasing of this Wireless Indoor/Outdoor Thermometer with indoor humidity. To ensure the best product performance, please read this manual and retain it for future reference.

2. Get Started

Note: The power up sequence must be performed in the order shown in this section: insert batteries in the remote sensor first, display console second.

The weather station consists of a display console (receiver), and up to 3 thermometers (remote sensors), based on your order configuration.

2.1 Package Contents

QTY	Item
1	Display Console
1	Remote sensor
1	Instruction 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 -20°C and 60°C and fresh lithium batteries for outdoor temperature ranges between -40 °C and 60 °C.

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

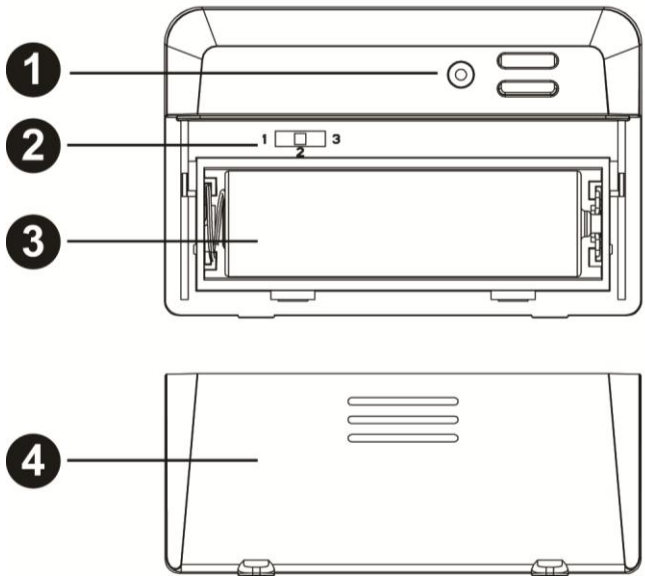


Figure 1

1. LED indicator	2. RF channel 1,2,3
3. Battery compartment	4. Battery compartment door

3. Insert one AA battery in the back of the sensor
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.

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. Insert one AA (alkaline or lithium, avoid rechargeable) battery 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.

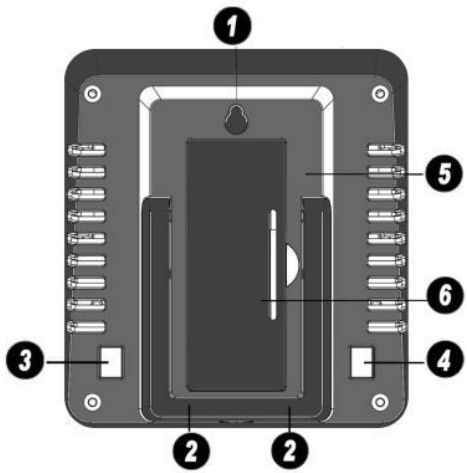


Figure 2

1. Suspension eye for wall hanging	4. MODE key
2**.** Desk Stand	5. Battery Compartment
3. **CH/+** key	6. Battery Compartment door

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.

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

2.4.1 Display Console Layout

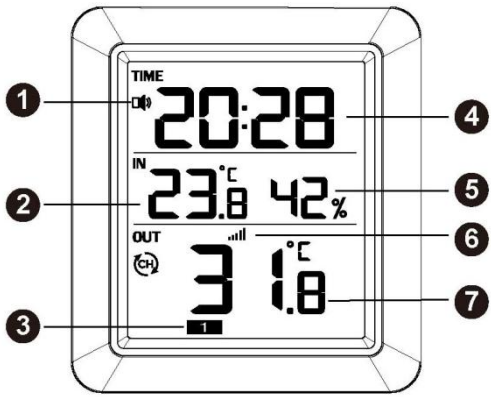


Figure 3

1.Time alarm Icon	5.Indoor Humidity
2.Indoor Temperature	6. Outdoor Reception Icon
3. Barometric Pressure graph	7. Outdoor Temperature
4 Time	

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°C (the accuracy is ± 1°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 eve.

3.1 Mounting with Zip Tie

Mounting the sensor with a zip tie will result in better accuracy when mounting outside, since it is not touching other objects.

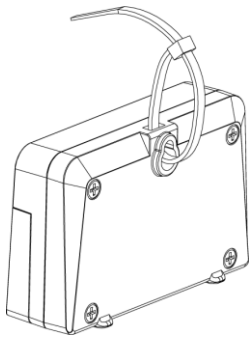


Figure 4

3.2 Mounting with Nail or screw

To mount the sensor with a nail or screw, the cap must be less than or equal to 5mm in diameter.

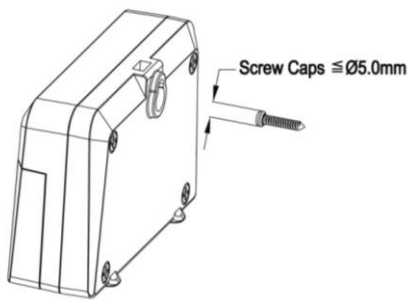


Figure 5

4. Console Operation

The console has two buttons at the back of console for easy operation. If no operation for 30s, display will return back to normal mode.

Key	Description
MODE	● Press and hold to enter the Setting mode. ● Press to switch between normal display mode, time alarm mode and MIN/MAX mode.
CH/+	● Hold both CH/+ and MODE to search the sensor ● Press to view the 3 sensor channel ● While in MIN/MAX mode, press and hold to reset the MIN/MAX value ● While in SET mode, press to increase the value. Press an hold to increase the value rapidly.

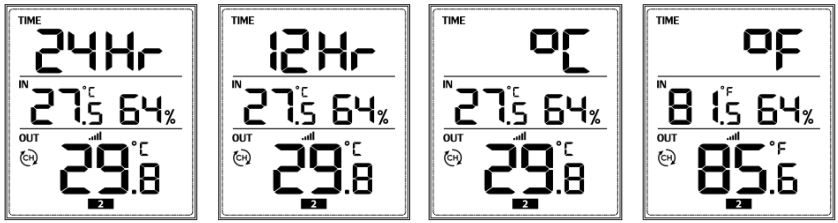
There are five program modes available: Setting mode, Time Alarm Mode, MIN/MAX Mode, Loop display Mode and Sensor Register Mode

4.1 Setting Mode

While in normal display, press the MODE **key** for 2 seconds **to** enter Setting Mode

Press the **MODE** key to select the following settings in sequence:

1. 12/24 Hour format
2. Time setting (hour/minutes)
3. Temperature unit (°C / °F)
4. Complete setting mode and back to normal display



In the Set Mode, press **CH/+** key to change or scrolls the value. Hold the **CH/+** key or or **MODE** key for 3 seconds will increase/decrease digits in great steps.

4.2 Time Alarm Mode

While in normal display, short press the **MODE** key one time to enter Time Alarm Mode

While in time alarm mode, press and hold the **MODE** key for 2 seconds, the alarm hour will begin flashing.

Change Alarm Hour. Press **CH/+** key to adjust the alarm hour up.
Change Alarm Minute. Press the **MODE** key again to set the alarm minute. Press **CH/+** key to adjust the alarm minute. Press **MODE** key again to confirm the setting.

Cancelling the alarm. When the alarm has been triggered, the alarm will sound and the alarm icon will flash for 120 seconds. Press any

button to silence the alarm.

4.3 MIN/MAX mode

While in normal display, press the **MODE** key two times to enter the Minimum mode, and the MIN icon and minimum records will be displayed.

a. Select Channel display. If you have multiple temperature sensors, press **CH/+** to shift display Min value of Channel 1, 2 or 3. If there is no extra outdoor sensor available, it will display --.—
b. Reset the Min value. Press and hold the CH/+ key to reset the minimum value of indoor temperature, humidity and the current display Min outdoor temperature to the current reading

While in normal display, press the **MODE** key three times to enter the Maximum mode, and the MAX icon and maximum records will be displayed.

a. Select Channel display. If you have multiple temperature sensors, press **CH/+** to shift display Max value of Channel 1, 2 or 3. If there is no extra outdoor sensor available, it will display --.—
b. Reset the Max value. Press and hold the CH/+ key to reset the maximum value of indoor temperature, humidity and the current

display Min outdoor temperature to the current reading

4.4 Loop display Mode

While in normal display, press the **CH/+** key to select the outdoor display in the following sequence:

CH1-CH2-CH3- CH

CH means to loop displays the current outdoor temperature value of the RF channel automatically.

5.Sensor Resynchronization

If the remote sensor lost reception or extra sensors to be added, press both the **CH/+** and **MODE** keys at the same time for five seconds.

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

6. 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 100meter line of sight (no interference, barriers or walls) but typically you will get 30 meter 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%

7.Specifications

7.1.Wireless Specifications

- transmission range (in open air): 80meter
- Frequency: 433 MHz
- Update Rate:
  Indoor temperature/humidity 48 seconds
  Outdoor temperature CH1 48 seconds
  Outdoor temperature CH1 49seconds
  Outdoor temperature CH1 50 seconds

7.2 Measurement Specifications

The following table provides specifications for the measured parameters.

Measurement	Range	Accuracy	Resolution
Indoor Temperature	-9.9 to 60 °C	± 1 °C	0.1 °C
Outdoor Temperature	-40 to 60 °C	± 1 °C	0.1 °C
Indoor Humidity	1 0 to 99 %	± 3% (20 to 90%)	1%

7.3Power Consumption

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

8. Troubleshooting Guide

Problem	**Solution**
Wireless remote (thermometer) not reporting in to console. There are dashes (--.-) on the display console.	If sensor communication is lost, dashes (--.-) will be displayed on the screen. To reacquire the signal, To resynchronize, press both the **【CH/+】** and【MODE】 keys at the same time for five 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. The maximum line of sight communication range is 80m and 30m under most conditions. Move the sensor assembly closer to the display console. If the sensor assembly is too close (less than 2m), move the sensor assembly away from the display console. Make sure the remote sensor transmitter light is flashing once per around 50 seconds. Install a fresh set of batteries in the

Problem	**Solution**
	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.
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 2 °C(the sensor accuracy is ± 1 °C). Use the calibration feature to match the indoor and outdoor temperature to a known source.
Display console contrast is weak	Replace console batteries with a fresh set of batteries.

Caution!

The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user authority to operate the equipment.

This booklet may contain errors or misprints. The information it contains is regularly checked and corrections are included in subsequent editions.

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Care and Maintenance

- Do not mix old and new batteries
- Do not mix Alkaline, Standard, Lithium or Rechargeable batteries
- Ensure batteries are installed correctly with regard to polarity +/-