F012TH Wireless Indoor Thermo-Hygrometer User Manual

1. Introduction

Thank you for your purchase of the F012TH Wireless Indoor Thermo-Hygrometer. The following user guide provides step by step instructions for installation, operation and troubleshooting.

2. Getting Started

Note: The power up sequence must be performed in the order shown in this section (insert batteries in the remote transmitter(s) first, Display Console second).

Indoor Thermo-Hygrometer Sensor Set Up

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

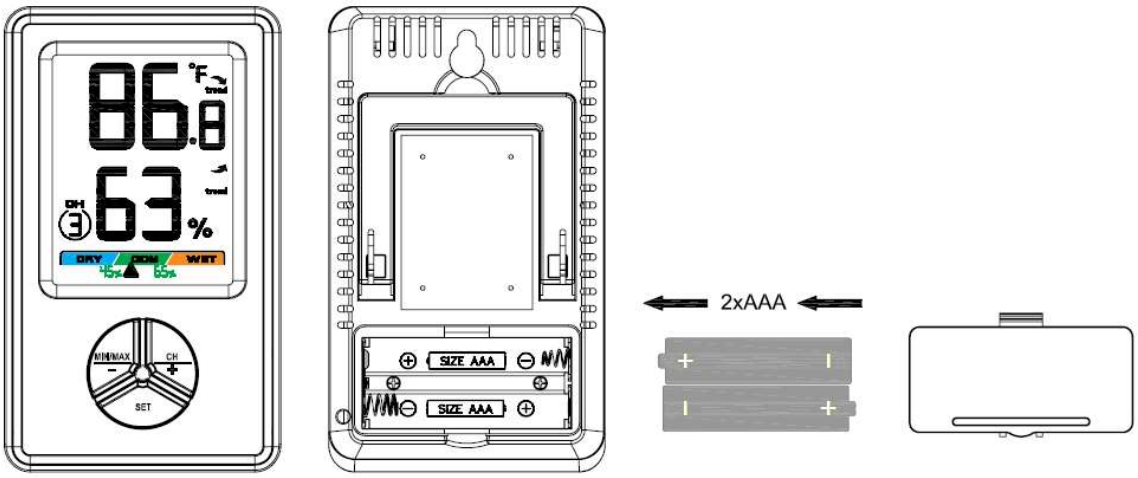

Figure 1

After inserting the batteries, All of the LCD segments will light up for a few seconds to verify all segments are operating properly. and then icon flash once per 60 seconds thereafter. Each time it flashes, the sensor is transmitting data.

2. Verify the correct channel number (CH) and temperature units of measure (°F vs. °C) are on the display, as shown in Figure 2.

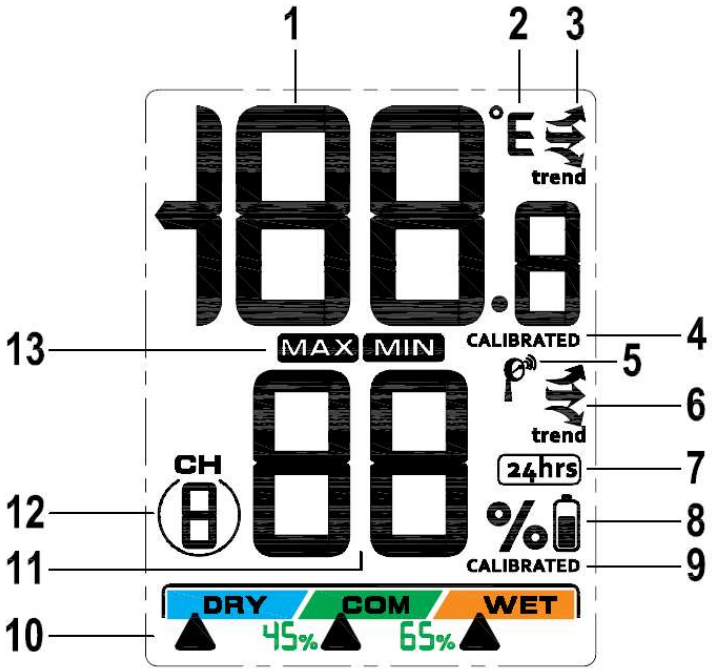

Figure 2

1. Temperature
2. Temperature units (°F or °C)
3. Temperature, Rate of Change indicator
4. Temperature Calibrated Icon (when the calibration is displayed)
5. Emission Icon (flashes when updating)
6. Humidity, Rate of Change indicator
7. Min/Max Clears daily mode
8. Low power indicator
9. Humidity Calibrated Icon (when the calibration is displayed)
10. Humidity Comfort Colorful Icon
11. Relative Humidity (%)
12. Channel 1,2,3,4,5,6,7,8 indictor
13. Min/Max Record mode

3. Close the battery door. Put on the table or on the wall.

3. Display Features

3.1 Comfort Colorful Icon

The comfort icon is based on humidity ranges specified in Figure 3.

RH<45%	RH 45%~65%	RH >65%
		

Dry	Comfortable	Wet

Figure 3

3.2 Rate of Change Icon

The rate of change icon  detects rapid changes in temperature and humidity. If the arrow points upward, the temperature is increasing at a rate of +4°F per 30 minutes (or greater), or humidity is increasing at a rate of +5% per 30 minutes (or greater). If the arrow points downward, the temperature is decreasing at a rate of -4°F per 30 minutes (or less), or humidity is decreasing at a rate of -5% per 30 minutes (or less).

4. Indoor Thermo-Hygrometer Sensor Operation

Note: The indoor sensor has three buttons for easy operation: **MIN/MAX/-** button, **SET** button, and **CH/+** button.

4.1 Indoor Sensor Channel Setting

Press and hold the **CH/+** button 3 seconds to switch the display scroll mode . In scroll mode, press the **CH/+** button to set up channel 1 through 8. Press and hold the **CH/+** button 3 seconds to exit channel setting. Scroll sign disappears.

Note: BEFORE inserting the receiver batteries, set each indoor sensor channel number **FIRST** (the default is Channel 2, Outdoor sensor default is Channel 1) ,The FT012TH supports up to eight transmitters.

4.2 Min/Max Mode

The Min/Max mode displays the minimum and maximum temperature and humidity (since reset of the unit) for the indoor sensor.

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** 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 **MIN/MAX** button for 3 seconds.

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

4.3 Clearing Min/Max Daily

The minimum and maximum can be set to clear daily (at midnight) or manually. Press and hold the **SET** button for 3 seconds to switch between 24hrs and Clears Manually.

When you manually clear the minimum and maximum, the Clears 24h function will clear every **0:00** hours from the time you clear it.

4.4 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 in normal mode.

1. Backlight Operation

To temporarily turn on the back light for five seconds, press the **any** button on the indoor sensor.

6. Adjustment or Calibration

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.

6.1 Humidity Calibration

To enter the humidity calibration mode, press and hold the **SET and MIN/MAX** buttons at the same time for 3 seconds and the 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 humidity to the actual or uncalibrated measurement, press the **SET** button. **CALIBRATED** will be displayed when the humidity calibrated measurement.

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

6.2 Temperature Calibration

To enter the temperature calibration mode, press and hold the **SET and CH/+** buttons for 3 seconds and the temperature value will begin flashing. Press the **CH/+** button to increase the temperature and the **MIN/MAX/-** button to decrease the temperature reading in 0.F° increments. To rapidly increase (or decrease) the temperature reading, press and hold the **CH/+** or **MIN/MAX/-** button.

To return the temperature to the actual or uncalibrated measurement, press the **SET** button. **CALIBRATED** will be displayed when the humidity reading is a calibrated one.

Once the displayed temperature equals the calibrated source, press and hold the **SET** 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 (such as a building structure, the ground or trees).

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.

6.3 Sensor Operation Verification

Verify the indoor and outdoor humidity match closely with the console and sensor array in the same location (about 5 to 10' apart). The sensors should be within 10% (the accuracy is ± 5%). Allow about 30 minutes for both sensors to stabilize.

Verify the indoor and outdoor temperature match closely with the console and sensor array in the same location (about 1.5m to 3m apart). The sensors should be within 4°F(the accuracy is ± 2°F). Allow about 30 minutes for both sensors to stabilize.

7. Indoor Sensor Installation

Indoor use only. It is recommended you mount the Indoor sensor on a north facing wall, in a shaded area. Direct sunlight and radiant heat sources will result in inaccurate temperature readings. Use a screw or nail (not included) to affix the indoor sensor to the wall, as shown in Figure 4

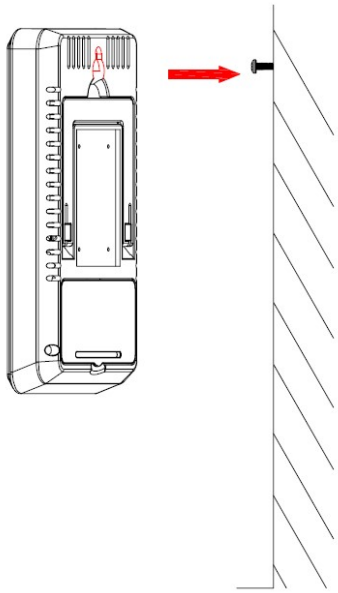

Figure 4

Or put it on the table, Place the console at least three feet away from computers, TVs and wireless

phones. Avoid transmitting through solid metal barriers. as shown in Figure 5

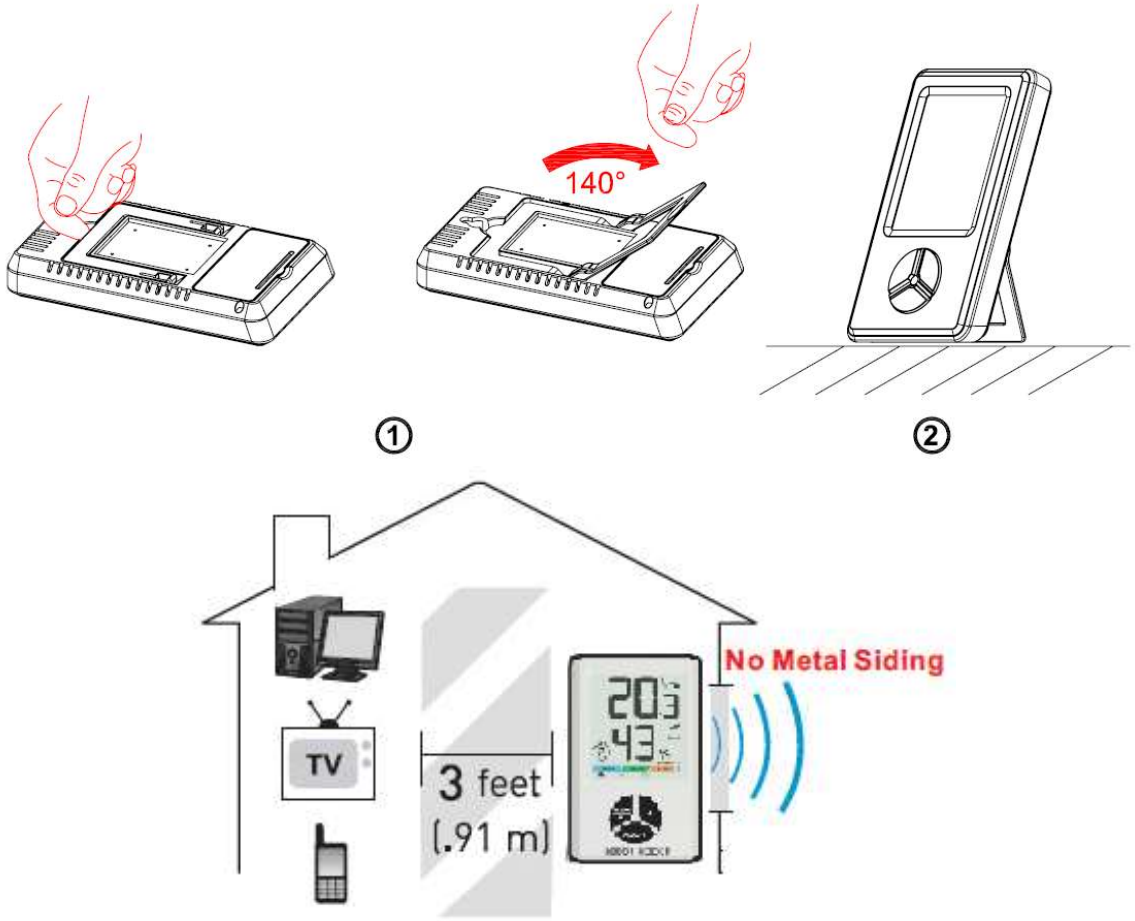

Figure 5

8. Best Practices for Wireless Communication

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.

9. Specifications

9.1 Wireless Specifications

- Line of sight wireless transmission (in open air): 150 feet, 100 feet under most conditions.
- Frequency: 433 MHz
- Update Rate: 60 seconds

9.2 Measurement Specifications

The following table provides specifications for the measured parameters.

Measurement	**Range**	**Accuracy**	**Resolution**
Channel 1-8 Temperature	32 to 14°F	± 2 °F	0.1 °F
Channel 1-8 Humidity	10 to 99 %	± 5% (only guaranteed between 20 to 90%)	1 %

9.3 Power Consumption

- 2 x AAA 1.5V Alkaline or Lithium batteries (not included)
- Battery life: Minimum 12 months for indoor sensor. Backlight often light may reduce the battery life.