

## WS-9160U-IT FAQs

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## Batteries

- ✓ Half of all warranty issues can be resolved with fresh batteries of the appropriate voltage.
- ✓ We suggest name brand alkaline batteries for indoor displays such as Temperature Stations.
- ✓ Use batteries dated at least six years in advance of the current year. Batteries dated earlier than six years from now may still work, but may be unstable in performance.
- ✓ Alkaline batteries manufactured this year will have an expiration date 10 years in the future. Battery technology has improved and batteries will maintain voltage longer in storage. However, the environment the batteries reside in for the 10 years can deplete the power.
- ✓ Good name brand batteries make less noise, which reduces the chance of RF (radio frequency) interference from the battery compartment. A minimum voltage of 1.48V for each battery is necessary for proper performance.
- ✓ **Outdoor Sensors:** Use Alkaline batteries (or Lithium for temperatures below - 20°F/-28.8°C).
- ✓ **Temperature Stations:** Use alkaline batteries. Overpowered or underpowered batteries may cause loss of indoor readings, missing segments, dim display, etc.

## Temperature Station Factory Restart

### FACTORY RESTART:

1. For best results, please bring the outdoor sensor in the house and place 5 feet from the display unit.
2. Remove batteries from the sensor and batteries from the display.
3. With the power removed, press one of the buttons on the display at least 20 times to clear all memory. Please do this even if the display is blank to remove any random electricity. Verify the display is blank.
4. It is important with most of our displays to remain without power for at least 15 minutes.
5. **Note:** Failure to allow a display to rest for 15 minutes can result in failure to connect with the outdoor sensor or missing segment on the display. The instruction manual describes a setup for a new unit that has not had time to build up residual electricity.
6. Please be sure you are using fresh batteries testing to a minimum of 1.48, on a voltmeter that reads in numbers.
7. Place batteries into the outdoor sensor first. Make sure they are installed according to the diagrams in the battery compartment.
8. Install batteries into the display according to the diagram in the battery compartment.
9. Allow the sensor and display to remain 5 feet apart for 15 minutes to establish a strong connection. Do not press buttons at this time. You should see a reading on the outdoor temperature area in the first minute.

- ✓ See the section on [mounting](#) and [distance/resistance/interference](#) for details on mounting the outdoor sensor.

## Outdoor Temperature Sensor

### Compatible Outdoor Sensors

- ✓ The TX29U-IT (915MHz) will work with this station.

### Fahrenheit/Celsius Temperature Display

Use the [program menu](#) to switch time format and temperature display.

- ✓ 12hour time = Fahrenheit temperature reading.
- ✓ 24 hour time = Celsius temperature reading.

### Dashes shown for Outdoor Temperature

- ✓ Dashes mean the connection is lost between the Temperature Station and the outdoor sensor.
- ✓ Check channels. You may be reading the sensor on a different channel. This can happen if more than one sensor is in the area and the station locks into a distant sensor first.
- ✓ [Batteries](#) often resolve the connection.
- ✓ [Distance/Resistance](#) can cause loss of connection between the sensor and the Temperature Station.
- ✓ Reorientation of the Temperature Station 90 degrees towards the outdoor sensor may provide better reception. This allows more antenna surface to face the sensor signal.
- ✓ Try the [factory restart](#).

### Power requirements

- ✓ 2-AA [batteries](#) power the outdoor sensor.
- ✓ We recommend alkaline batteries for the sensor.
- ✓ You may choose to use lithium batteries for temperatures below - 20°F/-28.8°C.

### Outdoor Temperature changes constantly

- ✓ Check channels. You may be reading the sensor on a different channel.
- ✓ You may have an additional compatible outdoor sensor within [range](#).
- ✓ Occasionally a neighbor will have a compatible outdoor sensor that is within range.

### Inaccurate Outdoor Temperature reading

- ✓ The outdoor sensor reads the environment. When mounted in the home, it will read inside temperature.
- ✓ Check channels. You may be reading the sensor on a different channel. This can happen if more than one sensor is in the area and the station locked into a distant sensor first.

- ✓ When the sensor reads high during the day, but not at night, it is a [positioning](#) problem.
- ✓ **Side-by-side test:** Bring the outdoor sensor in the house and place it next to the Temperature Station for 2 hours.
- ✓ Compare indoor and outdoor temperature. The temperatures should be within 4 degrees to be within tolerance.
- ✓ If the sensor reads correctly when next to the Temperature Station, then try a different location outside.
- ✓ Look for heat sources such as sunlight, door or window frames, or reflected heat.

### Intermittent Outdoor Temperature

- ✓ RF (radio frequency) communication may come and go occasionally. This can be normal in some environments (e.g. moister climates). If sensor signal is lost, please wait 2-4 hours for the signal to reconnect on its own.
- ✓ Check channels. You may be reading the sensor on a different channel. This can happen if more than one sensor is in the area and the station lock into a distant sensor first.
- ✓ Move the outdoor sensor to a closer location.
- ✓ **Freezer test:** Confirm the Temperature Station is reading the correct outdoor sensor. Place the sensor in the freezer for an hour and watch the temperature drop on the Temperature Station.
- ✓ **Indoor distance test:** Please complete the [Restart](#) with sensor and Temperature Station 5-10 feet apart and inside to establish a strong connection.
- ✓ If there is a reading in the outdoor temperature area after 15 minutes, move the sensor to another room with one wall between the sensor and the Temperature Station. Observe to see if the temperature remains on consistently for 1 hour.
- ✓ If the temperature remains on while in the house, then it is likely a [distance/resistance](#) issue. Move the sensor to different locations outside to find a location where the temperature reading will hold.
- ✓ [Distance/Resistance](#) can cause loss of sensor signal.
- ✓ Check [Batteries](#).

### Outdoor Temperature is stuck or OFL.

- ✓ Check [Batteries](#). Overpowered or underpowered batteries can cause this reading.
- ✓ Replace outdoor sensor.

### Outdoor sensor fell, now the sensor does not work.

- ✓ If there is no physical damage to the outdoor sensor, the fall may not have caused internal damage.
- ✓ A fall can shock the sensor or the batteries in the sensor. Batteries that have fallen on a hard surface may be damaged and unable to function properly.
- ✓ An outdoor sensor that has fallen into a puddle, snow, or other standing water, it may have water damage.
- ✓ Sensors are water resistant, not waterproof.
- ✓ Complete a [Restart](#) with fresh batteries.
- ✓ Use [Batteries](#) dated at least six years in advance of the current year.

## Outdoor Sensor drains batteries quickly.

- ✓ Test a new set of alkaline batteries. Write down the date of installation and the voltage of the batteries.
- ✓ When the batteries fail, please note the date and voltage again.
- ✓ Check the [distance](#) and [resistance](#) between the sensor and Temperature Station. Sensors at the end of the range may work while batteries are fresh, but not after they drain a bit.
- ✓ Check for leaking batteries, which may damage the sensor.

## View and reset MIN/MAX Temperature readings.

- ✓ Press the MIN/MAX button repeatedly to view the MIN/MAX indoor temperature and MIN/MAX outdoor temperature sequentially.
- ✓ Hold MIN/MAX button for 5 seconds to reset all the indoor and outdoor temperature to current temperatures.

## Mounting/Positioning Outdoor Sensor

- ✓ Mount outdoor temperature sensors vertically and under a bit of an overhang.
- ✓ Protect the outdoor sensor from standing rain or snow, and from the overhead sun, which can cause it to read incorrectly. Mounting under an eave or deck rail works well.
- ✓ Construct a small roof or box for the sensor if you do not have an overhang. Please be sure the box is vented.
- ✓ Mount the sensor on the North side to prevent sun from causing incorrect readings.
- ✓ Mount at least 6 feet in the air for a strong RF (radio frequency) signal.
- ✓ Outdoor sensors are water resistant but not waterproof.
- ✓ Avoid more than one wall between the sensor and the Temperature Station.
- ✓ Do not mount near electrical wires, transmitting antennas or other items that will [interfere](#) with the signal.
- ✓ RF (radio frequency) signals do not travel well through moisture or dirt.
- ✓ Place the outdoor sensor and the Temperature Station in the desired shaded locations, and wait approximately 1 hour before permanently mounting the sensor to ensure that there is proper reception.
- ✓ Do not mount the sensor on a metal fence. This significantly reduces the effective [range](#).

### MOUNT

- ✓ Choose a location for the sensor that is within [range](#) of the Temperature Station and under an overhang for accuracy.
- ✓ Mount the sensor vertically and under a bit of an overhang.
- ✓ Protect the sensor from standing rain or snow, and from the overhead sun, which can cause it to read incorrectly.
- ✓ Outdoor sensors are water resistant but not waterproof. Mounting under an eave or deck rail works well.
- ✓ It is best to mount the sensor with screws as tape can fail causing the sensor to fall.

- ✓ Tape is great for positioning to determine the best location for the sensor to maintain contact with the display.
- ✓ Distance/Resistance can cause loss of sensor signal. Avoid more than one wall, window, tree etc., between the display and the sensor. UV coated windows may actually reflect the signal. Stucco walls will absorb the signal.
- ✓ It is best to mount the sensor on the North side of the building to prevent sun from causing incorrect readings.

### Position Temperature Station

- ✓ The Temperature Station has a pull out stand to sit on a desk or table.
- ✓ Place within range of the outdoor sensor.
- ✓ Choose a location 6 feet or more from electronics such as cordless phones, wireless gaming systems, televisions, microwaves, routers, baby monitors, etc., which can prevent signal reception.
- ✓ Be aware of electrical wires and plumbing within a wall. This will interfere with RF (radio frequency) signal reception.
- ✓ The maximum transmitting range in open air is 330 feet (100 meters).
- ✓ Obstacles such as walls, windows, stucco, concrete and large metal objects can reduce the range.

### Distance/Resistance/Interference

#### Distance:

- ✓ The maximum transmitting range in open air is over 330 feet (100 meters) between the outdoor sensor and the Temperature Station. This range is in open air with ideal conditions.
- ✓ Consider what is in the signal path between the Temperature Station and the sensor.
- ✓ Consider the distance the Temperature Station is located away from electronics in the home.

#### Resistance:

- ✓ Obstacles such as walls, windows, stucco, concrete and large metal objects can reduce the range.
- ✓ When considering the distance between the sensor and the Temperature Station (330 feet open air) cut that distance in half for each wall, window, tree, bush or other obstruction in the signal path.
- ✓ Closer is better.
- ✓ Windows reflect the RF (radio frequency) signal.
- ✓ Metal absorbs the signal and reduces the range.
- ✓ Stucco is attached to the wall with a metal mesh that absorbs the signal.
- ✓ Do not mount the sensor on a metal fence. This significantly reduces the effective range.

#### Interference:

- ✓ Consider items in the signal path between the sensor and the Temperature Station.
- ✓ Sometime a simple relocation of the sensor or the Temperature Station will correct the interference issue.
- ✓ Windows can reflect the radio signal.

- ✓ Metal will absorb the RF (radio frequency) signal.
- ✓ Stucco is backed by a metal mesh that holds it to the wall.
- ✓ Transmitting antennas cause interference such as ham radio, emergency dispatch centers, airports, military bases, etc.
- ✓ Electrical wires (utilities, cable, etc.)
- ✓ Vegetation is full of moisture and reduces signal.
- ✓ Transmitting a signal through a hill is difficult.

## Temperature Station

### Power requirements

- ✓ 2-AAA alkaline batteries power the Temperature Station.

### 12-Hour or 24-Hour time format

- ✓ Display the time in 12-hour or 24-hour format.
- ✓ Default is 12-hour time.
- ✓ Use the [Program Menu](#) to switch time formats.  
**Note:** 12hour time = Fahrenheit temperature reading. 24 hour time = Celsius temperature reading.

### Dashes, OFL or stuck Indoor Temperature

- ✓ This is generally a power related issue.
- ✓ [Batteries](#) may be overpowered or underpowered. Remove batteries from Temperature Station.
- ✓ Press any button 20 times. Leave the Temperature Station unpowered for 1-2 hours.
- ✓ Install fresh alkaline batteries with correct polarity.
- ✓ If the indoor temperature is still dashes or OFL, the Temperature Station may need replacement.

### Inaccurate Indoor Temperature reading

- ✓ **Side-by-side test:** Bring the outdoor sensor in the house and place it next to the Temperature Station for 2 hours.
- ✓ Compare indoor and outdoor temperature. The temperature should be within 4 degrees to be within tolerance.
- ✓ Look for heat sources such as sunlight, door or window frames, or items that will reflect heat of cold to the Temperature Station.

### Fahrenheit/Celsius

- ✓ Use the [program menu](#) to switch from Fahrenheit to Celsius.
- ✓ When in 24-hour mode, Temperature will read in Celsius.
- ✓ When in 12-hour mode Temperature will read in Fahrenheit.

### Time is off by hours.

- ✓ This Temperature Station has manual set time.
- ✓ Use the [program menu](#) to set the time.

### Manually Set Time/Date: Program Menu

There are four function buttons: SET, PLUS (+), MIN/MAX, and CH. Begin by holding the SET button until the display flashes. When you press and release the SET button after each step, you will move to the next step.

- ✓ 12H/24H Time: Press and hold the SET button and a **12 HR. or 24 HR.** will appear indicating if you want 12-Hour time or 24-Hour time. Press the PLUS (+) button to change. Press and release SET button to move to the Hour setting.  
**Note:** When in 24-hour mode, temperature will change from °F to °C
- ✓ HOUR: The **Hour** will flash. Press the PLUS (+) button to change the Hour. Press SET button again to move to the Minutes setting.
- ✓ MINUTES: The **Minutes** will flash. Press the PLUS (+) button to change.

**Note:** When no buttons are pressed for ten seconds, the Temperature Station will save the last change and default back to normal mode.

### Temperature Station has missing segments.

- ✓ This is generally a power related issue.
- ✓ Check that the batteries are installed correctly.
- ✓ [Batteries](#) may be overpowered or underpowered.
- ✓ Remove batteries from Temperature Station.
- ✓ Press any button 20 times. Leave the batteries out of the display for 2 hours.
- ✓ Insert fresh batteries into the Temperature Station.

### Temperature Station is dim.

- ✓ Most Temperature Stations have a gray background. Place the Temperature Station at eye level. Is it still dim?
- ✓ Temperature Stations that sit in the sunlight can develop a cloudy film over time.
- ✓ This is generally a power related issue.
- ✓ [Batteries](#) may be overpowered or underpowered. Remove batteries from Temperature Station.
- ✓ Press any button 20 times. Leave the Temperature Station unpowered for 1-2 hours.
- ✓ Install fresh alkaline batteries with correct polarity.

### Temperature Station has distorted display.

- ✓ On a brand new Temperature Station, check for thin plastic films of printed scratch guard that may be on the upper and lower screen of the Temperature Station. This thin piece of plastic has printed numbers for store displays.
- ✓ With all power removed, the Temperature Station should be blank.



- ✓ If numbers still appear, please check for scratch guard.
- ✓ Check that the batteries are installed correctly.
- ✓ [Batteries](#) may be overpowered or underpowered.
- ✓ Remove batteries from Temperature Station.
- ✓ Press any button 20 times. Leave the batteries out of the display for 2 hours.
- ✓ Insert fresh batteries into the Temperature Station.

#### Temperature Station display is frozen.

- ✓ On a brand new Temperature Station, check for thin plastic films of printed scratch guard that may be on the upper and lower screen of the Temperature Station. This thin piece of plastic has printed numbers for store displays. This can make the Temperature Station display appear "frozen".
- ✓ With all power removed the Temperature Station should be blank.
- ✓ If numbers still appear, please check for scratch guard.
- ✓ This is generally a power related issue.
- ✓ Check that the batteries are installed correctly.
- ✓ [Batteries](#) may be overpowered or underpowered.
- ✓ Remove batteries from Temperature Station.
- ✓ Press any button 20 times. Leave the batteries out of the display for 2 hours.
- ✓ Insert fresh batteries into the Temperature Station.

#### Temperature Station is blank: No letters, numbers or dashed lines.

- ✓ Check that the batteries are installed correctly.
- ✓ [Batteries](#) may be overpowered or underpowered.
- ✓ Remove batteries from Temperature Station.
- ✓ Press any button 20 times. Leave the batteries out of the display for 2 hours.
- ✓ Insert fresh batteries into the Temperature Station.

#### Temperature Station drains batteries quickly.

- ✓ Test a new set of alkaline batteries. Write down the date of installation and the voltage of the batteries.
- ✓ When the batteries fail, please note the date and voltage again. This is helpful in determining the problem.
- ✓ Check for leaking batteries, which may damage the Temperature Station.
- ✓ Battery life is over 12 months when using reputable battery brands.