

## 724-1710 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 rain 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.

## Install Batteries

### TX17R Rain sensor:

1. Press the white tabs on each end of the rain sensor and lift off funnel portion.
2. The battery compartment is under the rocker. Firmly squeeze all four blue tabs and lift battery compartment off the base and turn upside down.
3. Insert 2 "AA" Alkaline batteries into the TX17R rain sensor.
4. Position the battery compartment over base and press down so all four blue tabs lock in place.
5. Remove the piece of cardboard from beneath the rocker.

6. Match the UP arrow on the front of the blue base and the DOWN arrow on the front of the white funnel portion.

**Note:** It is important to match up the arrows as the rocker is offset by the antenna; the funnel needs to center over the rocker.

7. Press the funnel portion onto the base until the white tabs lock back into place.

#### **TX17T Temperature sensor:**

1. Insert 2 *new* AA batteries (not included) into the TX17T outdoor temperature sensor. Observe the correct polarity.
2. The red LED will flash during transmission.

#### **724-1710v2 Rain Station**

1. Insert 2 *new* AA batteries (not included) into the 724-1710 Rain monitor. Observe the correct polarity.
2. Leave the rain monitor and sensors sit 5 -10 feet apart for 15 minutes to lock in both sensors.
3. Both the temperature and the rain sensor should appear on the rain station in the first minute.
4. Do not press buttons during the first 15 minutes.
5. You can tip the rocker of the rain sensor to simulate rain and receive a reading to the rain station.

#### **Rain Station Factory Restart**

- ✓ For best results please bring the rain gauge and outdoor sensor 5 feet from the display unit.
- ✓ Remove batteries from both sensors and batteries from the display.
- ✓ 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.
- ✓ It is important with most of our displays to remain without power for at least 15 minutes.
- ✓ NOTE: Failure to allow a display to rest for 15 minutes can result in failure to connect with the outdoor sensors or missing segments on the display. The instruction manual describes a setup for a new unit that has not had time to build up residual electricity.
- ✓ Please be sure you are using fresh batteries testing to a minimum of 1.48, on a voltmeter that reads in numbers.
- ✓ Place batteries into the rain sensors and outdoor sensor first. Make sure they are installed according to the diagrams in the battery compartment.
- ✓ Install batteries into the display according to the diagram in the battery compartment.
- ✓ Allow the sensors 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 and zeros for rainfall in the first minute.
- ✓ PLACE SENSOR OUTSIDE: For optimum 915MHz transmission, place the outdoor sensor a distance of no more than 330 feet (100 meters, open air) from the Rain station.
- ✓ See the section on mounting and distance/resistance/interference for details on mounting the outdoor sensor.

**Note:** This may not clear the Rain Daily History (Days Ago) Records.

## Outdoor Sensors

### Compatible Outdoor Sensors

- ✓ The TX17T Temperature sensor and TX17R Rain sensor (915MHz) will work with this station.

### Power Requirements

- ✓ TX17T-2-AA batteries
- ✓ TX17R-2-AA batteries
- ✓ We recommend alkaline batteries for the sensor.

### Quick Sensor Search

- ✓ Hold the RAIN button for 5 seconds to search for the **rain** sensor.
- ✓ The strength signal icon will animate until the sensor signal is received or for 3 minutes if no signal is available.
- ✓ Hold the ▼ button for 5 seconds to search for the **outdoor temperature** sensor. Dashes will flash in the outdoor temperature area.

## Rain

### Rain Readings

Press and release the **RAIN** button to view different rain readings in the Rain Window:

- ✓ **CURRENT:** This measures from the start of rainfall until there is no rain accumulation for 30 minutes. The display will reset to zero when no rain has fallen for 30 minutes.
- ✓ **1 HR:** The rainfall accumulated in the last 1-hour increment. Resets to zero at the top of each hour.  
Example: If rain did not start until 5:50, then 5:50 to 5:59 is considered within the 5:00 to 6:00 hour rain increment. The data from 6:00 to 7:00 will be the next hour.
- ✓ **24 HR:** Based on the past 24 1-hour increments. This is a running total that changes hourly.
- ✓ **7 DAYS:** Based on the last 7 24-hour readings. This is not a subject to the calendar. Be sure time and date are set.
- ✓ **MONTH:** Total rainfall from the first day of the month to last day of the month.
- ✓ **TOTAL:** Total rainfall since powered on or reset.

**Note:** As time passes without rain, the 1 hour, 24 hour, and 7 day rain totals will count down to zero.

## Rain History

This rain station will hold rainfall history for 365 days. View rainfall history by toggling back one day at a time or select a date to view.

### One Day at a Time:

1. Press the **▲/CLEAR** button to view the rain history when DAYS AGO heading and the date appear.
2. Press the **▲/CLEAR** button repeatedly, to scroll back one day at a time to view the rainfall daily record (365 days of record history maximum)

### By Date Search:

1. Press the **▲/CLEAR** button to view the rain history when DAYS AGO heading and the date appear.
2. In DAYS AGO mode, hold the **▲/CLEAR** button until the rain station beeps. The Year will flash.
3. Press the **▲/CLEAR** and **▼** buttons to select the Year, Month and Date to view the rainfall.
4. Press **SETTINGS** button to confirm each setting.

**Settings order:** 1. Year 2. Month 3. Date

If no buttons are pressed for 20 seconds, the rain station will default to normal mode.

## Reset Current and History Rainfall Readings

1. Press the **RAIN** button to select the value you wish to clear.
2. Hold the **▲/CLEAR** button (on back) to clear a value.
3. Each value will need to be cleared individually.
4. Clearing the current values will not change the Days Ago records.

### Clear Rainfall Daily History Records:

The 365 day rain history may remain during a battery change to the rain station.

1. To clear these records, after inserting batteries, hold the **▲/CLEAR** and **▼** buttons together.

## 24 Hour Rainfall Alert

The rain station offers a programmable 24 hour rainfall alert.

1. Press the **ALERT** button to enter Rain Alert Mode.
2. In Alert mode, hold the **ALERT** button until the rain station beeps, to enter set mode, for the 24 hour rainfall alert.
3. Press the **▲/▼** buttons to adjust the alert value.
4. Press the **ALERT** button to confirm and exit alert mode.
5. The rainfall alert is automatically armed when set.

### **Arm/disarm alert:**

- ✓ Press the **ALERT** button to enter Rain Alert Mode.
- ✓ In alert mode, press and release the **ALERT** button to arm or disarm the alert.
- ✓ The alert bell icon will show when armed.
- ✓ When the alert value is reached, the alarm will beep for 5 seconds, then once each minute.
- ✓ Press any button to stop the alert from sounding.

### **Rain Cylinder Graph**

The rain cylinder graph, reflects and changes with the rainfall amounts shown on the top.

- When you are showing Total rain, the cylinder will reflect the total rainfall amount.
- When you are showing 24 hour rain, the cylinder will reflect the 24 hour rainfall amount etc.
- ✓ Press and release the **RAIN** button to view different rainfall amounts and observe the changes to the cylinder graph.

### **Rain reads low**

- ✓ Low rain readings indicate the rain sensor and Professional weather station are connected.
- ✓ Check that the rocker tips freely.
- ✓ Check the funnel and the inside of the rain sensor for insect nests or debris that may cause loss of rocker motion.
- ✓ Be sure to mount the rain sensor level.

### **Complete a Manual Tip Test and a Water Tip Test and compare them:**

Manual Tip test: Write down the Total Rain reading or reset the Rain Total to 0.00. Use the eraser end of a pencil to manually tip the rocker of the rain sensor 10 times (five each way). Wait at least 2 minutes for all the rain to collect.

Water Tip Test: Write down the Total Rain reading or reset the Rain Total to 0.00. With Rain Sensor mounted slowly pour water into the funnel to tip the rocker of the rain sensor 10 times (five each way). Wait at least 2 minutes for all the rain to collect.

- ✓ Compare these tests. If they are the same, then the rain is reading correctly. If the rain readings are different, repeat the test 3 times to avoid human error. Then look for causes such as mounting too tight or debris clogging the funnel.

### **Rain reads high**

- ✓ Check for sources of RF (radio frequency) interference such as other wireless rain sensors, ham radios or electric transformers.
- ✓ Keep the Professional weather station six feet from cordless phones or wireless routers etc.
- ✓ Complete a Manual Tip Test and a Water Tip Test and compare them:

## **Complete a Manual Tip Test and a Water Tip Test and compare them:**

Manual Tip test: Write down the Total Rain reading or reset the Rain Total to 0.00. Use the eraser end of a pencil to manually tip the rocker of the rain sensor 10 times (five each way). Wait at least 2 minutes for all the rain to collect.

Water Tip Test: Write down the Total Rain reading or reset the Rain Total to 0.00. With Rain Sensor mounted slowly pour water into the funnel to tip the rocker of the rain sensor 10 times (five each way). Wait at least 2 minutes for all the rain to collect.

- ✓ Compare these tests. If they still read high then contact support.

### **Rain shows zeros**

Zeros indicate the Indoor Station and rain sensor are connected.

- ✓ Check that the pin the rocker tips on is all the way to the back and that the rocker tips freely.
- ✓ Check that there is no cardboard below the rocker. This should be removed after unboxing.
- ✓ Check that the funnel is positioned over the rocker. They are offset due to the antenna.
- ✓ Check the funnel and the inside of the rain sensor for insect nests or debris that may cause loss of rocker motion.
- ✓ Check for proper battery installation.
- ✓ Check the battery compartment is on firmly and squarely on the station.
- ✓ Mount the rain sensor level and check that the mounting screws are not too tight (most common issue).
- ✓ Use the eraser end of a pencil to manually tip the rocker of the rain sensor 10 times (five each way).
- ✓ Wait at least 2 minutes for all the rain to collect.
- ✓ Check the Total Rain on the Indoor Station for a reading.
- ✓ Complete a factory restart.

### **Rain shows dashes**

Dashes indicate the Indoor Station and rain sensor are not connected.

- ✓ Check that the battery cover is securely on the rain gauge.
- ✓ Distance/Resistance can cause loss of sensor signal. This rain gauge reads directly to the display. Try moving the rain gauge closer to the display.
- ✓ Check batteries in the rain sensor and the Indoor Station. This is our primary warranty issue.
- ✓ Orient the Indoor Station 90 degrees towards the rain sensor for better reception.
- ✓ Complete a factory restart.

### **Outdoor Temperature**

#### **Dashes shown for Outdoor Temperature**

- ✓ Dashes means the connection is lost between the rain station and the outdoor sensor.
- ✓ Check the reading on the sensor display.

- ✓ Batteries often resolve the connection.
- ✓ Distance/Resistance can cause loss of connection between the sensor and the Rain station.
- ✓ Reorientation of the Rain station 90 degrees towards the outdoor sensor may provide better reception by the antenna.
- ✓ Try the factory restart.

### Inaccurate Outdoor Temperature Reading

- ✓ The outdoor sensor reads the environment. When mounted in the home it will read inside temperature.
- ✓ 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 Rain 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 rain 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.
- ✓ Move the outdoor sensor to a closer location.
- ✓ **Freezer test:** Confirm the rain station is reading the correct outdoor sensor. Place the sensor in the freezer for an hour and watch the temperature drop on the rain station.
- ✓ **Indoor distance test:** Please complete the Restart with sensor and rain station 5-10 feet apart and inside to establish a strong connection.
- ✓ After 15 minutes if there is a reading in the outdoor temperature area, move the sensor to another room with one wall between the sensor and the rain 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 Sensor Fell and No Longer Works

- ✓ If there is no physical damage to the outdoor sensor, the fall may not have caused internal damage.
- ✓ An outdoor sensor that has fallen into a puddle or other standing water or snow may have water damage.
- ✓ Sensors are water resistant, not waterproof.
- ✓ 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.
- ✓ Complete a Restart with fresh batteries.
- ✓ 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.

### 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. This is helpful in determining the problem.
- ✓ Check the distance and resistance between the sensor and rain 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.
- ✓ Battery life is over 24 months when using reputable battery brands for both Alkaline and Lithium batteries.

### Outdoor Temperature Is Stuck or OFL

- ✓ Check Batteries. Overpowered or underpowered batteries can cause this reading.
- ✓ Replace outdoor sensor.

### Fahrenheit/Celsius

- ✓ Enter the program menu to switch from Fahrenheit to Celsius.

### Mounting/Positioning Outdoor Sensors

#### **Rain:**

- ✓ Mount in an open area for a more accurate rain count.
- ✓ Install the Rain sensor on a level platform that is stationary.
- ✓ Insert two mounting screws (not included) through the holes in the base of the rain sensor. Do not over tighten.
- ✓ Ideally, the Rain sensor should be mounted at least 6 ft in the air and have a direct line of sight to the display.
- ✓ The rain sensor should be accessible to allow for periodic cleaning of debris or insects.
- ✓ Avoid other wireless rain sensors as this can cause inaccuracy.
- ✓ The maximum wireless transmission range to the rain station is over 300 feet (91 meters) in open air, not including walls or floors.

#### **Temperature:**

- ✓ 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. Generally, 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 it is well 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 signal.
- ✓ Outdoor sensors are water resistant but not water proof.
- ✓ Avoid more than one wall between the sensor and the rain 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 rain 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.

### Position Rain station

- ✓ The Rain station has a wide base to sit on a desk or table.
- ✓ Choose a location 6 feet or more from electronics such as cordless phones, gaming systems, televisions, microwaves, routers, baby monitors, etc., which can prevent signal reception.
- ✓ Place within range of the outdoor sensors.
- ✓ Be aware of electrical wires and plumbing within a wall. This will interfere with signal reception.
- ✓ The maximum transmitting range in open air is 300-feet (91 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 300-feet (91 meters) between the outdoor sensor and the rain station.
- ✓ Consider what is in the signal path between the rain station and the sensor.
- ✓ Consider the distance the rain station is located away from other electronic 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 rain station (300 feet open air) cut that distance in half for each wall, window, tree, bush or other obstruction in the signal path.
- ✓ Closer is better.
- ✓ 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 rain station.

- ✓ Sometime a simple relocation of the sensor or the rain station will correct the interference issue.
- ✓ Windows can reflect the radio signal.
- ✓ Metal will absorb the RF (radio frequency) signal.
- ✓ Stucco is held to the wall by a metal mesh.
- ✓ Transmitting antennas (ham radio, emergency dispatch center, airports, military base etc.)
- ✓ Electrical wires (utilities, cable etc.)
- ✓ Vegetation is full of moisture and reduces signal.
- ✓ Dirt: Trying to receive a signal through a hill is difficult.

## Rain station

### How Tall are the Time Numbers?

- ✓ The time numbers are 0.47 inches tall.

## 12-Hour or 24-Hour Time Format

- ✓ Choose to display time in 12-hour or 24-hour format.
- ✓ Default is 12-hour time.
- ✓ Use the Program Menu to switch time formats.

## Power Requirements

- ✓ The Rain station is powered by 2-AA alkaline batteries.

## Manually Set Time/Date: Program Menu

- Hold the **SETTINGS** button to enter time set mode.
- Press the ▲/▼ buttons (back) to adjust a value.
- Press the **SETTINGS** button to confirm and move to next item.

## PROGRAM MENU

1. Hold the **SETTINGS** button for five seconds.
2. **12Hr** will flash. Press the ▲/▼ buttons (back) to select 12 hour or 24 hour time format.
3. Press the **SETTINGS** button to confirm and move to set the year.
4. The **year** will flash. Press the ▲/▼ buttons (back) to adjust the year.
5. Press the **SETTINGS** button to confirm and move to set the month.
6. The **month** will flash. Press the ▲/▼ buttons (back) to adjust the month.
7. Press the **SETTINGS** button to confirm and move to set the date.
8. The **date** will flash. Press the ▲/▼ buttons (back) to adjust the date.
9. Press the **SETTINGS** button to confirm and move to set the hour.
10. The **hour** will flash. Press the ▲/▼ buttons (back) to adjust the hour.
11. Press the **SETTINGS** button to confirm and move to set the minutes.
12. The **minutes** will flash. Press the ▲/▼ buttons (back) to adjust the minutes.
13. Press the **SETTINGS** button to confirm and move to set the weekday language.
14. **ENG** will flash. Press the ▲/▼ buttons (back) to select French (FRE) or Spanish (SPA).
15. Press the **SETTINGS** button to confirm and move to select Fahrenheit or Celsius temperature display.

16. °F will flash. Press the ▲/▼ buttons (back) to select °C.
17. Press the SETTINGS button to confirm and move to select inches or millimeters for rain reading.
18. IN will flash. Press the ▲/▼ buttons to select mm.
19. Press the SETTINGS button to confirm and exit.

**Note:** The rain station will default out of set mode when no buttons are pressed for 20 seconds

### Dashes, OFL or Stuck Indoor Temperature

- ✓ This is generally a power related issue.
- ✓ Batteries may be overpowered or underpowered. Remove batteries from rain station.
- ✓ Press any button 20 times. Leave the rain station unpowered for 1-2 hours.
- ✓ Install fresh alkaline batteries with correct polarity.
- ✓ If the indoor temperature is still dashes or OFL, the rain station may need to be replaced.

### Inaccurate Indoor Temperature Reading

- ✓ **Side-by-side test:** Bring the outdoor sensor in the house and place it next to the rain 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 reflected heat of cold.

### Set Time Alarm

1. Press the SNOOZE button to view alarm time.
2. While in alarm mode, hold the SNOOZE button until rain station beeps, to enter alarm set mode.
3. The alarm hour digit will flash in the time display.
4. Press and release the ▲/CLEAR and ▼ buttons to select the hour.
5. Press and release the SNOOZE button to set the minutes.
6. The minute digits will flash.
7. Press and release the ▲/CLEAR and ▼ buttons to select the minutes.
8. Confirm with the SNOOZE button and exit.
9. The bell icon will show indicating the alarm is active.
10. The bell icon will flash when the alarm is sounding.

**Note:** The rain station will default out of alarm set mode if no buttons are pressed for 20 seconds.

**Note:** This station has a crescendo alarm that will sound for 2 minutes, then shut off completely.

### Activate/Deactivate Time Alarm

- ✓ The alarm automatically arms when the alarm is set.

- ✓ While viewing Alarm Time, press the SNOOZE button to disarm the time alarm.
- ✓ The bell icon will disappear.

### Snooze Alarm

- ✓ When the alarm sounds, press the SNOOZE button to silence the alarm for 10 minutes.
- ✓ The snooze function may be repeated.
- ✓ Hold the SNOOZE to exit snooze mode.
- ✓ Press any other button to stop the alarm for one day.

### Rain station has Missing Segments

- ✓ This is generally a power related issue.
- ✓ Batteries may be overpowered or underpowered. Remove batteries from Rain station.
- ✓ Press any button 20 times. Leave the Rain station unpowered for 1-2 hours.
- ✓ Install fresh alkaline batteries with correct polarity.

### Rain station is Dim

- ✓ Most rain stations have a gray background. Place the rain station at eye level. Is it still dim?
- ✓ Rain 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 rain station.
- ✓ Press any button 20 times. Leave the rain station unpowered for 1-2 hours.
- ✓ Install fresh alkaline batteries with correct polarity.

### Rain station has Distorted Display

- ✓ On a brand new rain station, check for thin plastic films of printed scratch guard that may be on the screen. This thin piece of plastic has printed numbers for store displays.
- ✓ With all power removed the rain station should be blank.
- ✓ If numbers still appear, please check for scratch guard.
- ✓ Check that the batteries polarity is correct.
- ✓ This is generally a power related issue.
- ✓ Batteries may be overpowered or underpowered. Remove batteries from Rain station.
- ✓ Press any button 20 times. Leave the batteries out of the display for 2 hours.

### Rain station Display is Frozen

- ✓ On a brand new rain station, check for thin plastic films of printed scratch guard that may be on the screen. This thin piece of plastic has printed numbers for store displays. This can make the rain station display appear "frozen".
- ✓ With all power removed the rain station should be blank.
- ✓ If numbers still appear, please check for scratch guard.
- ✓ Check that the batteries are installed correctly.

- ✓ This is generally a power related issue.
- ✓ Batteries may be overpowered or underpowered. Remove batteries from rain station.
- ✓ Press any button 20 times. Leave the batteries out of the display for 2 hours.

#### **Rain station is Blank: No Letters, Numbers or Dashed Lines**

- ✓ Check that the batteries are installed with correct polarity.
- ✓ Batteries may be overpowered or underpowered. Remove batteries from rain station.
- ✓ Press any button 20 times. Leave the batteries out of the display for 2 hours.

#### **Rain 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 rain station.
- ✓ Battery life is over 12 months when using reputable battery brands.