WR2 Wireless Sensor

User Manual

Manual del usuario
Manuel de l'utilisateur
Benutzerhandbuch
Manuale dell'utente
Gebruikershandleiding
Manual do Utilizador
Εγχειρίδιο χρήσης
Kullanıcı Kılavuzu



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Safety Information

Symbols used in this manual:

Symbol alerts the user to the presence of un-insulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock.

Symbol alerts the user to the presence of important operating or maintenance (servicing) instructions.

Interference With Other Electronic Devices

All radio transmitters broadcast energy through the air. This energy may interfere with other electronic devices in close proximity to the WR2 Wireless Sensor. To lower the risk of electronic interference:

- Do not place sensitive electronics (computers, telephones, radios, etc.) in close proximity to the Controller Interface or Sensor.
- Use clip-on ferrite sleeves on the connection or power cables of affected electronic device(s).

THE IRRIGATION CONTROLLER / TIMER SHOULD BE ISOLATED VIA A CIRCUIT BREAKER OR CUTOFF SWITCH.

BATTERIES REMOVED FROM THE SENSOR SHOULD BE DISPOSED OF IN ACCORDANCE WITH LOCAL REGULATIONS.

CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.



Introduction

Congratulations on your purchase of the WR2 Wireless Sensor.

The Rain Bird Wireless Rain Sensor is designed for residential and commercial irrigation systems. It saves water and extends irrigation system life by automatically sensing precipitation and interrupting irrigation during rain and low temperature events.

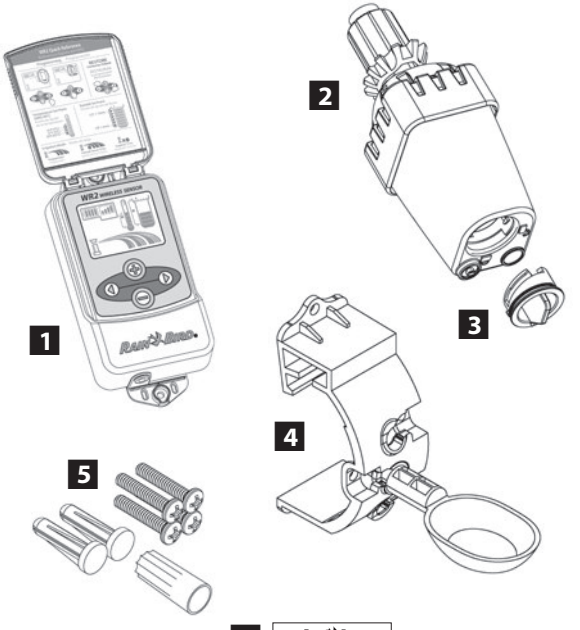
Programming logic can suspend irrigation using the "Quick Shut Off" feature or when the amount of rainfall exceeds the rainfall set point. Likewise, the **Wireless Rain / Freeze Sensor** will suspend irrigation when the sensor temperature reading is below the temperature set point.

At Rain Bird, we are focused on developing products and technologies that use water in the most efficient manner possible. The rain and rain / freeze sensor illustrate Rain Bird's commitment to this Intelligent Use of Water. The product is part of Rain Bird's family of water conservation solutions that include the Soil Moisture Sensor, U-Series and Rotary Nozzles, the ESP-SMT and ET Manager Controllers.

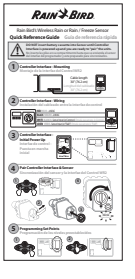
Please read through these instructions in their entirety or refer to the programming demo (www.rainbird.com/WR2) before installing your WR2 Wireless Sensor. Also, reference your irrigation system controller / timer installation instructions for the proper connection of rain sensors.

WR2 Components

1. Controller Interface
2. Sensor
3. Battery Cassette and Lithium CR2032 Battery
4. Sensor Mounting Bracket Assembly
5. Mounting Hardware
6. User's Manual
7. Quick Reference Guides
8. WR2 Quick Reference Labels









NOTE: *Tools needed for installation: drill, drill bit, and Phillip's head screwdriver*

WR2 Benefits

- All settings are programmed through the Controller Interface device
- Large easy to understand icons communicate irrigation mode and sensor status.
- Sensor LED indicator enables one-person setup, reducing installation time
- Battery is easy to install / replace
- Aesthetic appearance - no external antennas
- Easy to install, self-levelling sensor bracket mounts to flat surfaces or rain gutters
- "Quick Shut Off" interrupts active irrigation cycle during a rain event
- Enhanced antenna array provides superior signal reliability that overcomes most line-of-sight obstructions.

1 Mounting the Controller Interface

Choose a location near the irrigation controller / timer.

The cable harness is 30 inches (76.2 cm) long, so before mounting the device, ensure the wires easily reach the irrigation controller's connection terminals.

- Select a flat surface adjacent to the irrigation controller.
- For best performance, the Controller Interface should be installed at least five feet (1.5m) above the ground.
- It is recommended that the Controller Interface be installed away from sources of electrical interference (such as transformers, generators, pumps, fans, electrical meter boxes) and metal objects to maximize communication range.
- Use the mounting hardware supplied. Attach the Controller Interface to the wall.

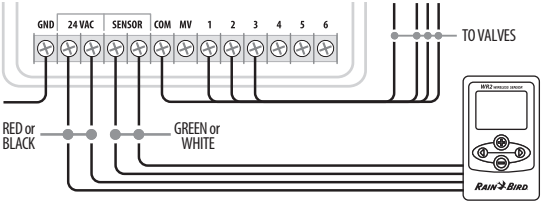


2 Wiring the Controller Interface to the Irrigation Controller

This unit is designed to be installed in conjunction with 24VAC circuits only. Do not use with 110 or 220/230 VAC circuits.

The Controller Interface has 4 wires that must be connected to the irrigation controller / timer. If your timer does not have an internal 24VAC power source, you will need to splice the red and black Controller Interface wires to a 24VAC transformer (example: Rain Bird part number 63747301S).

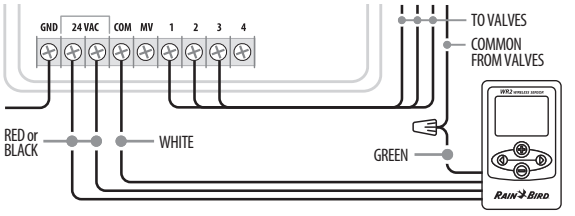
Controllers with sensor inputs (with or without pump start / master valve)



1. Disconnect power to the irrigation controller.
2. Connect the red and black wires to the 24 volt AC power on the irrigation controller.
3. If present, remove "jumper wire" between sensor terminals.
4. Connect the white and green wires to the sensor inputs.
5. Reconnect power to the irrigation controller.

Ensure the sensor switch on the irrigation controller panel is in the active position.

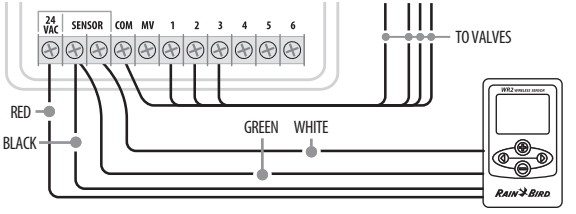
Controllers with no sensor inputs (with or without pump start / master valve)



1. Disconnect power to the irrigation controller.
2. Connect the red and black wires to the 24 volt AC power on the irrigation controller.
3. Disconnect the wires from the Common terminal on the controller.
4. Connect the green wire to these disconnected wires using a wire connector.
5. Connect the white wire to the Common terminal on the controller.
6. Reconnect power to the irrigation controller.

Ensure the sensor switch on the irrigation controller panel is in the active position.

ESP-MC and ESP LX Modular Controllers

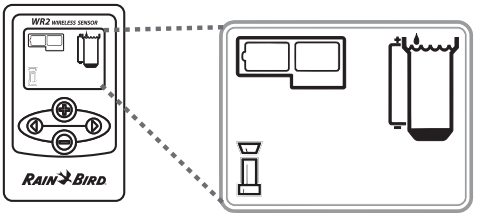


1. Disconnect power to the irrigation controller.
2. Connect the red wire to the 24 volt AC terminal on the irrigation controller.
3. Connect the green and black wires to one of the sensor terminals.
4. Connect the white wire to the other sensor terminal on the controller.
5. Reconnect power to the irrigation controller.

Ensure the sensor switch on the irrigation controller panel is in the active position.

3 Initial Power Up

After power is applied, the Controller Interface displays the following icons.



Controller Interface Display Icons

Sensor Status

Battery Life Remaining: Four (4) dark bars indicate full battery strength. Replace battery when only one (1) bar remains.



Signal Strength: Illustrates strength of the radio signal between Sensor and Controller Interface. Four (4) dark bars indicate maximum signal strength.



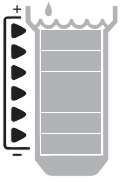
Sensor Indicator / Pairing Status: The Sensor and Controller Interface synchronize communication addresses. Battery Life and Signal Strength will flash while synchronizing, and then stop when paired.



Environmental Conditions

Rainfall Set Point:

Select from six (6) set points ranging from 1/8" (3mm) to 1/2" (13mm). A set point closer to the top of the icon allows for more precipitation to occur before irrigation is suspended.



Rainfall Indicator:

Illustrates approximate amount of rainfall relative to Rainfall Set Point.



Rainfall Trip Indicator:

Displays when the Sensor has suspended irrigation due to "Quick Shut Off" or satisfying rainfall set point.



Temperature Set Point (Rain/Freeze Sensor only):

Select from three (3) set points: 33°F (0.5°C), 37°F (3°C), or 41°F (5°C). Selecting a lower set point allows irrigation at lower temperatures.



Temperature Indicator (Rain/Freeze Sensor only):

Illustrates approximate temperature relative to Temperature Set Point



Temperature Trip Indicator (Rain/Freeze Sensor only):

Only displays when the Sensor has suspended irrigation due to temperature reading that is below the temperature set point.



Irrigation Modes

Programmed Irrigation:



WR2 Wireless Sensor is actively managing the irrigation controller / timer. Once a set point is satisfied by environmental conditions, or the "Quick Shut Off" feature is activated, irrigation is suspended. An X and corresponding trip indicator (rainfall, temperature, or both) will automatically display when irrigation is suspended.

Suspend Irrigation for 72 Hours:



User has elected to temporarily suspend irrigation for 72 hours. System will automatically resume programmed irrigation mode after 72 hours (Note: X and trip indicator will be displayed when returning to programmed irrigation mode if set points are satisfied).

Override Sensor for 72 Hours:

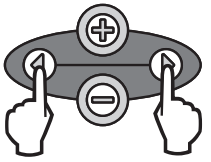


User has elected to permit irrigation in accordance with the timer schedule regardless of environmental conditions (i.e. rainfall or low temperature is detected by the sensor). System will automatically resume programmed irrigation mode after 72 hours (Note: X and trip indicator will be displayed when returning to programmed irrigation mode if set points are satisfied).

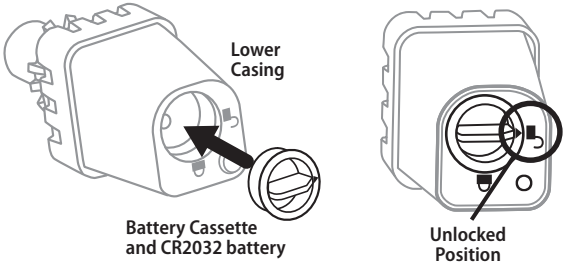
4 Synchronize the Sensor and Controller Interface

After the Controller Interface is wired to the irrigation timer, the Sensor and Controller Interface need to establish a radio communication link. When the link is established, the Sensor and Controller Interface are considered "paired."

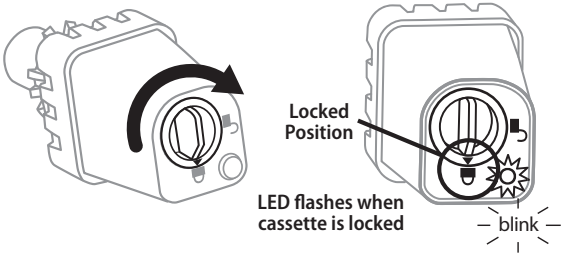
1. On the Controller Interface, push and hold both arrow buttons simultaneously to begin the installation sequence.



2. After the "Sensor Indicator / Pairing Status" icon flashes, remove the label from the bottom of the sensor.
3. The flashing "Sensor Indicator / Pairing Status" icon prompts you to insert the battery cassette with battery into the Sensor lower casing as shown. Align the arrow on the battery cassette with the unlocked indicator on the bottom of the Sensor.



4. Rotate the battery cassette clockwise until the arrow points toward the locked indicator. The light on the bottom of the Sensor will blink once to indicate that the sensor is now powered up.

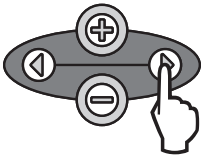


5. The Sensor is successfully paired to the Controller Interface when the "Sensor Indicator / Pairing Status" icon stops flashing. Once paired, sensor signal strength and battery life are communicated via the Controller Interface icons. Additionally, a blinking light on the bottom of the Sensor indicates signal strength for 20 minutes immediately following successful pairing. These "self test" features are an indication that your WR2 Wireless Sensor is operational.

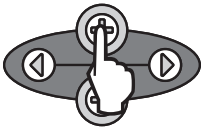
5 Programming the Set Points

The WR2 Wireless Sensor allows the contractor to establish rainfall and temperature set points appropriate for local environmental and soil conditions. Alternately, the contractor may elect to use the "Standard Setting": temperature 37°F (3°C), rain fall ¼" (6mm) and "programmed irrigation" mode. The "Standard Setting" is programmed at the factory and is active after successful pairing.

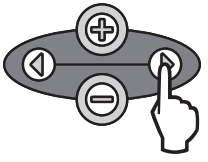
Rainfall Set Point



1. Push left or right arrow on keypad to navigate to the Rainfall Indicator icon.

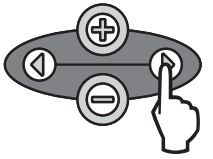


2. When the Rainfall Indicator icon flashes, press the + / − button on the keypad to set programming details. Each press of the button adjusts the set point. Select from six (6) set points ranging from 1/8" (3mm) to 1/2" (13mm).

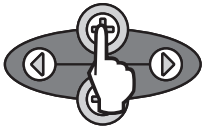


3. Press the left or right arrow to accept programming details and to navigate to next icon.

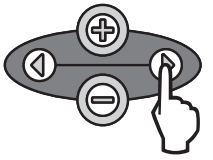
Temperature Set Point (Rain/Freeze Sensor only)



1. Push left or right arrow on keypad to navigate to the Temperature Indicator icon.

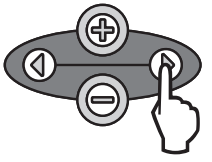


2. When the Temperature Indicator icon flashes, press the + / − button on the keypad to set programming details. Select one of three temperature settings: 33°F (0.5°C), 37°F (3°C), or 41°F (5°C).

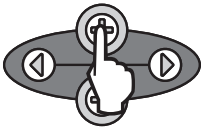


3. Press the left or right arrow to accept programming details and to navigate to next icon.

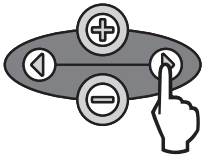
6 Programming Irrigation Modes



1. Push left or right arrow on keypad to navigate to the Irrigation Mode icon.



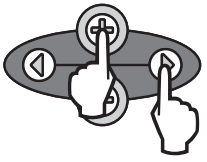
2. When the Irrigation Mode icon flashes, press the + / − button on the keypad to set programming details. Manually set one of three irrigation modes. See Irrigation Modes.



3. Press the left or right arrow to accept programming details and to navigate to next icon.

7 Saving, Resetting and Restoring Settings

Save Contractor Default Settings



Once the Controller Interface is completely programmed, press + and right arrow buttons simultaneously for five (5) seconds to save contractor default setting. All programmed icons will flash in unison one time to indicate program is saved.

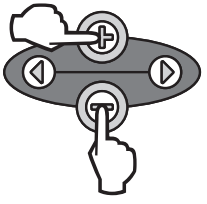
Reset Contractor Default Settings

The Contractor default setting stores programming details related to rainfall and temperature set points.

Reset and save programming details in accordance with Section 5 and 7.

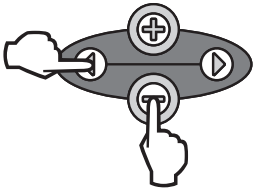
Restore Contractor Default Settings

If this programming is inadvertently changed, it is simple to restore.



Press + and − buttons simultaneously for five (5) seconds, or until the screen goes blank. When icons reappear, contractor default settings are restored.

Restore Standard Setting



Press the − and left arrow buttons simultaneously for five (5) seconds, or until the screen goes blank, to cancel the Contractor default setting and restore the "Standard Setting": temperature 37°F (3°C), rain fall ¼" (6mm) and "programmed irrigation" mode. When icons reappear, "Standard Setting" is active.

8 Select the Sensor Location

The communication range for the WR2 Wireless Sensor is 700 feet (213.4 meters).

- A blinking light on the bottom of the Sensor indicates signal strength for 20 minutes immediately following successful pairing. The Sensor updates its signal strength every 3 seconds (i.e. 1 blink = reliable signal strength, series of 4 blinks = strongest signal strength). If the signal strength is not optimum in one location, try another location. Even as little as a few feet difference in placement can improve signal strength.

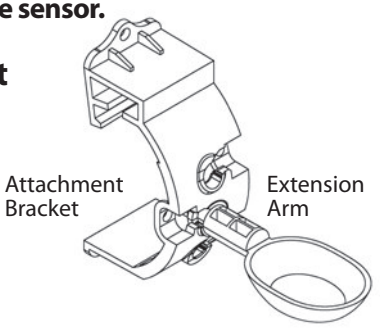
Signal	Sensor LED
GOOD Install	1-4 Blinks
POOR DO NOT install	Does not blink

- Select a mounting location where the rain-sensor will receive direct rainfall. Make sure the sensor extends beyond the roof line, tree limbs and any other obstructions. Install the Rain Sensor in an area that receives as much rain and sunlight as the landscape. Be sure to mount the sensor above spray from the sprinklers.

9 Sensor Mounting Instructions

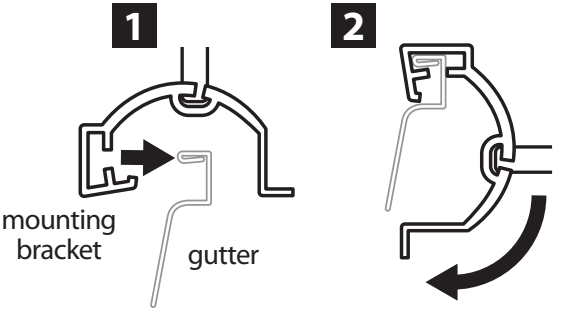
This section provides detailed instructions on how to install the sensor.

Sensor Bracket Assembly Components:



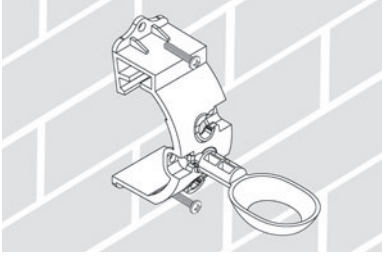
Attaching the bracket to a gutter.

Slide the top portion of the attachment bracket over the lip of the gutter. Rotate the bracket downward over the gutter as shown in the following installation steps.



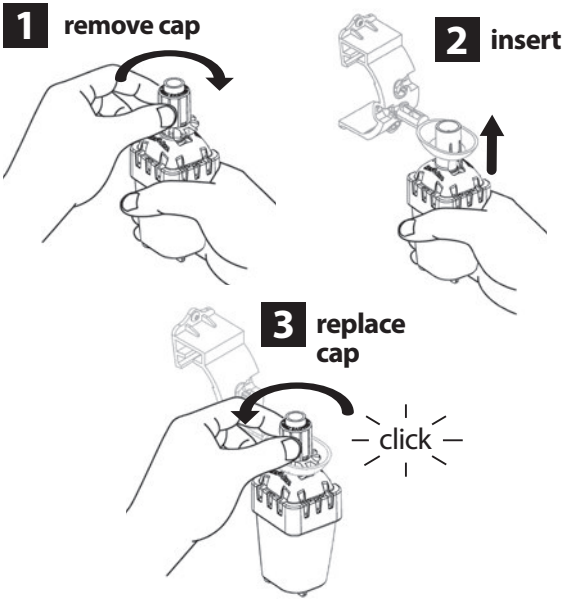
Attaching the bracket to a Flat Surface.

Use the supplied hardware to mount the attachment bracket to a flat surface such as a wall or fence.



Installing the Sensor in the attachment bracket.

To insert the Sensor in the attachment bracket you must first remove the Sensor cap. Hold the sensor body in one hand; gently twist the cap with your other hand. Slide the neck of the sensor up through the opening of the extension arm. Reinstall the cap. A clicking sound indicates that the two latches on the sensor body have fully re-engaged the cap.



10 Using Multiple Controller Interface Units

Up to four (4) Controller Interface units can be paired to one (1) sensor.

1. Ensure all Controller Interface Units are powered up.
2. Synchronize the Sensor to the first Controller Interface in accordance with Section 4.
3. As you approach the second Controller Interface, remove the battery cassette from the Sensor. Push both arrow buttons simultaneously on the second Controller Interface. Wait 5 seconds. Reinsert the battery into the

Sensor. The Controller Interface "Sensor Indicator / Pairing Status" icon stops flashing when the device is synchronized to the Sensor. Continue with programming the second Controller Interface.

4. Repeat step 3 to pair additional Controller Interface units to the Sensor.
5. When multiple Controller Interface units are paired to one sensor, rely on the LCD screen signal strength indications only.

WR2 Wireless Sensor Alerts & Troubleshooting

The unique two-way communication technology of the Rain Bird Wireless Rain and Rain/Freeze Sensor provides continuous monitoring of the Sensor status and communicates the following Controller Interface alerts.

Alert	LCD Display	Description	Resolution
Initial Power Up Failure	LCD screen is blank	Initial Power up screen / icons do not appear indicating the Controller Interface is not receiving power.	Confirm correct wiring of the Controller Interface to the Irrigation Controller.
No Sensor Paired	"Sensor Indicator / Pairing Status" icon continues to flash	During Installation: The sensor does not pair and is not communicating with the Controller Interface.	1. Pair the sensor (see Section 4). 2. If step 1 does not correct the situation, then check/replace the battery.
Sensor Pairing Broken	"Sensor Indicator / Pairing Status" icon does not communicate battery life or signal strength	After the WR2 Wireless Sensor is in operation: A sensor that does not communicate battery life / signal strength to the Controller Interface is no longer paired.	1. First check/replace the battery. If a new battery is installed, the sensor automatically reacquires the Controller Interface. 2. If you replace a sensor that is paired to the Controller Interface, you will have to pair the new sensor to the Controller Interface.
Low Battery	"Battery Life Remaining" icon has only one (1) bar illuminated	The Sensor has transmitted a signal that battery life is low.	Replace the battery. 1. Remove battery cassette from sensor. 2. Remove battery from cassette. 3. Insert new battery using label on battery cassette to properly orient battery. 4. Insert battery cassette into sensor. 5. Sensor LED blinks once to indicate the sensor is powered up. Under normal operation, battery should last for four (4) or more years.

Replacement or Spare Parts

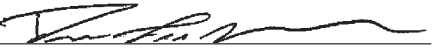
- WR2 Battery - #651009S
- WR2 Disk Assembly - #637810S

Declaration of Conformity

Application of Council Directives:	2004/10S/EC 1999/5/EC
Standards To Which Conformity Is Declared:	EN55014-1:2006 EN55022:2006 EN55014-2: 1997 +Al:2001 EN61000-4-2 EN61000-4-3 EN61000-4-8 EN 300 220-2 V2.1.2
Manufacturer's Name:	Rain Bird Corp.
Manufacturer's Address:	9491 Ridgehaven Court San Diego, CA 92123 619-674-4068
Equipment Description:	Irrigation Controller
Equipment Class:	Class B
Model Numbers:	WRS

I the undersigned, hereby declare that the equipment specified above, conforms to the above Directive(s) and Standard(s).

Place: San Diego, Ca.

Signature: 

Full Name: Ryan Walker

Position: Controls Manuf. Division Director