



24/7 Sprinkler Monitor

The Ultimate Rain/Freeze Sensor

irriGuard™

User's Manual

PIONEER SALES, LTD.

5529 Redfield St. Dallas, TX 75235

Phone: (214) 276-0306 Fax: (214) 631-4218 Toll Free: 1-(866) 501-7745

Table of Contents

Introduction.....	3
Parts List	3
Installation	
Controller	4
Rain Gauge	5
Display	6
Setup and Operation	7
Maintenance.....	10
Bypass.....	10
FCC Compliance	11
Warranty.....	11

Introduction

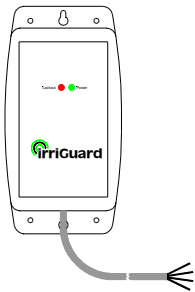
The **irriGuard™** system monitors temperature and rainfall at a remote location, and blocks operation of an irrigation/sprinkler system for a period of time if rain or freezing temperatures make watering unnecessary.

The **irriGuard™** system is composed of at 3 separate units that interpret weather conditions. These 3 units will be referred to as the controller, rain gauge, and display unit.

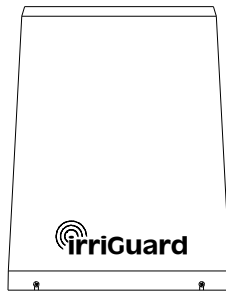
All 3 devices have a radio-frequency (RF) transceiver on board to communicate with the other devices. The relay unit operates from an external power source, so it acts as a data server, constantly listening to the other 2 devices for new data to store or data requests to answer.

Parts List (Components)

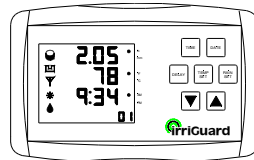
Controller x 1



Rain Gauge x 1



Display x 1



Mounting Hardware

Screws x 4
Wire nuts x 1

9V Battery (not included)
Mounting base x 1
Screws x 2 (gauge to mounting base)
Screws x 3 (mounting base to fence)

9V battery (not included)

Installation Controller

Tools and materials needed: screwdriver

Installation:

Mount the controller close to the sprinkler control system and wire into the controller as needed.

Note: Below is an explanation of wiring for the **irriGuard™** controller. If you are unsure about the proper wiring, consult a qualified contractor. Also be sure to comply with local electrical codes.

WARNING! This unit is designed for 24 VAC/DC power. Do not use with 110 or 220 VAC.

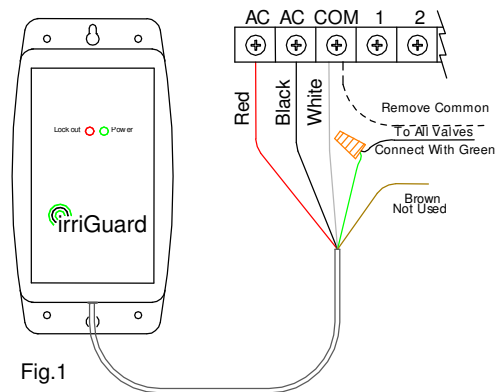


Fig.1

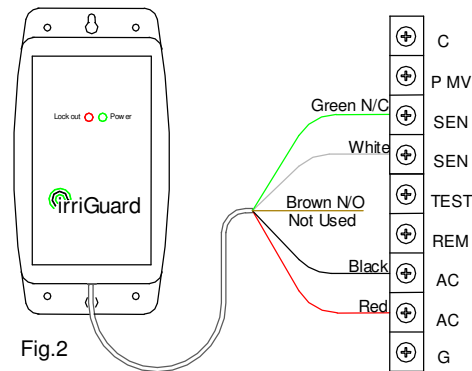


Fig.2

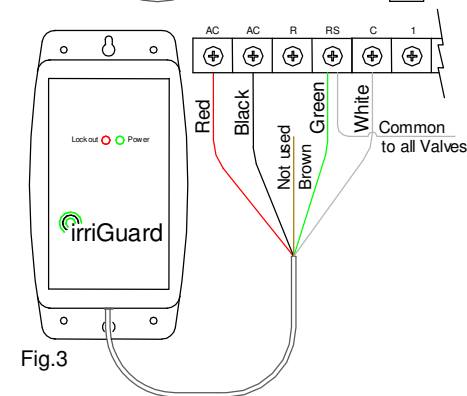


Fig.3

Note: All irrigation controllers are different; consult your controller's manual for specific sensor wiring instructions.

Wiring for the irriGuard™ controller is as follows:

Red: AC power (no polarity),
+ Positive for DC power

Black: AC power (no polarity)
Ground for DC power

White: Relay, Common

Green: Relay, Normally Closed (NC)

Brown: Relay, Normally Open (NO)

Typical Wiring for a controller with no sensor input. (see figure 1)

1. Disconnect power to the sprinkler controller.
2. Connect the red and black wires to AC power. Polarity does not matter.
3. Remove all common wires for the valves and replace with white wire (relay, common).
4. Connect all common wires for the valves to the green wire (relay, normally open).
5. Reconnect power to the sprinkler controller.

Typical wiring for a controller with a sensor input. (see figure 2)

1. Disconnect power to the sprinkler controller.
2. Connect the red and black wires to AC power. Polarity does not matter.
3. Connect the white wire (relay, common) to a "SEN" (sensor) input of the controller.
4. Connect the green wire (relay, normally closed) to the other "SEN" (sensor) input.
5. Reconnect power to the sprinkler controller.

Typical Wiring for a controller with a rain sensor input. (see figure 3)

1. Disconnect power to the sprinkler controller.
2. Connect the red and black wires to AC power. Polarity does not matter.
3. Remove all common wires for the valves and replace with white wire (relay common).
4. Connect all common wires for the valves and the green wire (relay, normally closed) to the "RS" or rain sensor input.
5. Reconnect power to the sprinkler controller.

Note: After wiring in the irriGuard™ controller and re-applying power, the green LED will light up on the controller.

Installation Rain Gauge

Tools and materials needed: screwdriver, 9V battery

Installation:

The rain gauge should be mounted using the included mounting bracket. Simply attach the bracket to a secure surface using the included screws, making sure the bracket is level. Then screw the rain gauge onto the bracket. **Note:** do not over-tighten the screws into the plastic. (see figure 4)

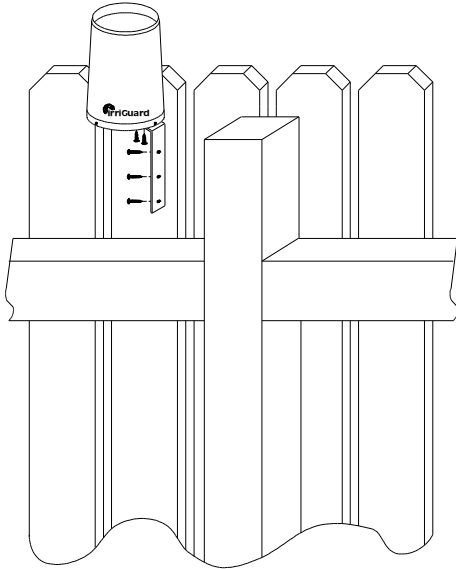


Fig.4

Tips for choosing a location:

1. The rain gauge must be level when mounted.
2. The rain gauge must NOT be in the path of water runoff.
3. Choose a location which is easily accessible for normal cleaning and changing the battery.
4. Make sure the rain gauge has full exposure to rainfall.
5. Avoid placing in direct sunlight. May cause inaccurate temperature readings.

Battery installation and replacement:

Loosen the 3 screws holding the cover on the rain gauge and remove the cover. Place a 9V battery in the battery holder and secure it with the Velcro strap. Attach the battery connector to the battery. Replace the cover and tighten the screws. (see figure 5)

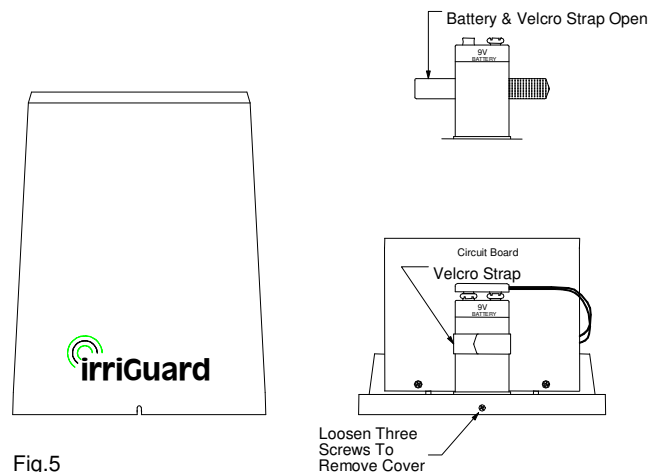


Fig.5

Installation Display

Installation:

No installation is necessary for the display unit. (see figure 6) It is a wireless device that operates within approximately 300 ft of the controller if no significant structural interferences exist. The unit can stand upright for desktop/tabletop placement, or wall mounting is available through keyholes in the back. (see figure 7)

Battery installation and replacement:

Remove the 9V battery cover on the back of the display by sliding it in the direction of the arrow. Install or replace the 9V battery. Replace the 9V battery cover. (see figure 7)

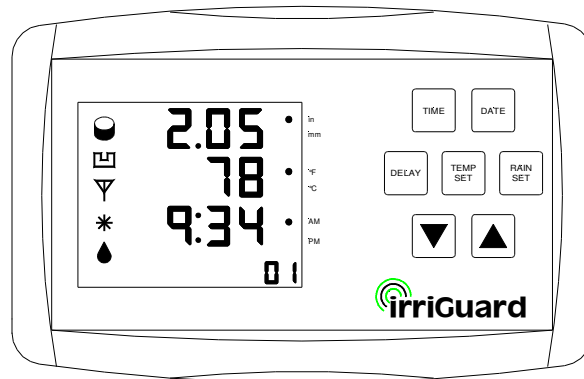


Fig.6

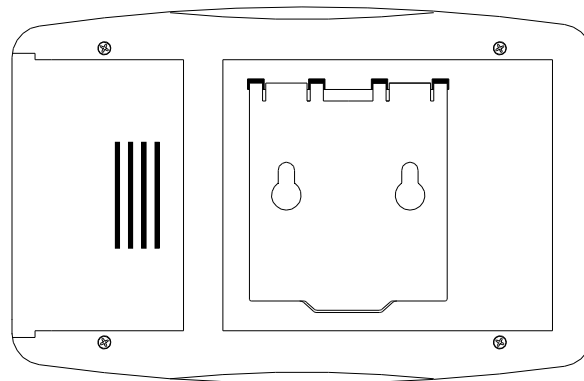


Fig.7

Setup and Operation (Display Unit)

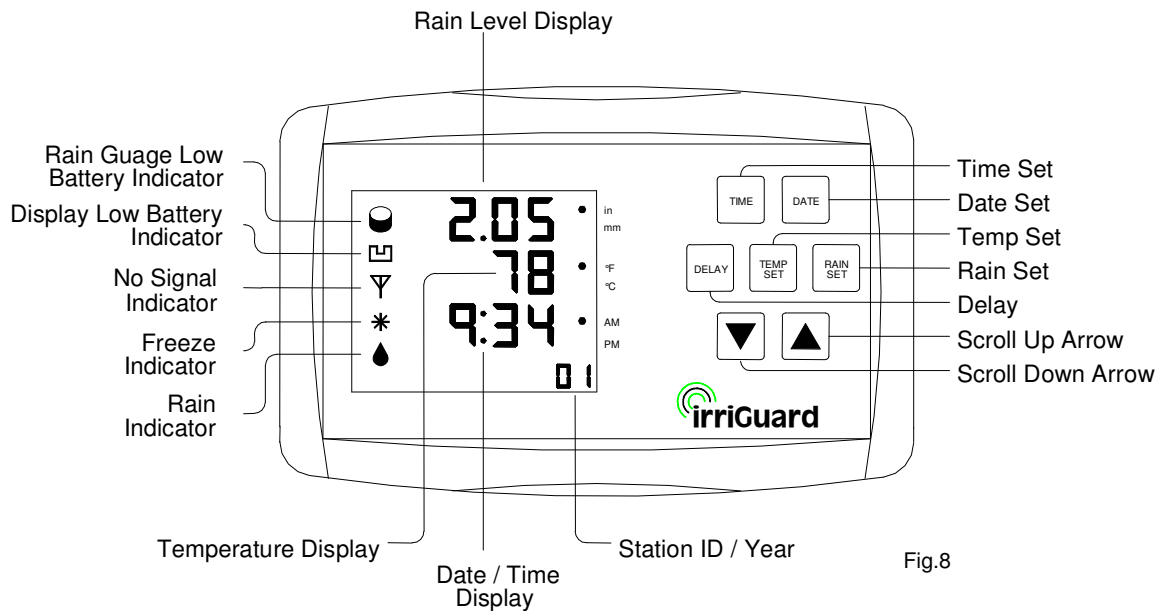


Fig.8

Rain Level Display

The rain level will appear on the display LCD if the relay has seen a valid data packet from the rain gauge unit, and the display unit is able to retrieve this data. The level can be in inches or in millimeters depending on whether the rain trip level was set by the user as mm or inches.

The controller clears the rainfall accumulator to 0" every night at midnight, so that the rainfall level displayed is the rainfall since midnight.

Note: Communications with the controller and rain gauge must be established for the display unit to accurately display Rain or Temperature.

Note: The display unit data can be updated at any time by pressing the up or down arrows while no relay parameter is currently being set.

Temperature Display

The temperature at the rain gauge will appear on the display LCD when the relay has seen a valid data packet from the rain gauge unit, and the display unit is able to retrieve this data. The level can be in Fahrenheit or Celsius depending on whether the rain trip level was last set by the user as mm or inches.

Date/Time Display

The Date and Time can be displayed in this section. The display automatically scrolls between date and time every 30 seconds.

Station ID / Year

Station ID is not used in standard applications but is designed to allow multiple rain and freeze sensors to report on one display. This display can also be used to display the current year when the display is reporting the date.

Setup and Operation (Continued) See figure 8

Scroll Up

When setting any of the parameters you can use the scroll up button to increment the currently selected set point.

Note: Pushing the scroll-up button when no parameter is being set will allow you to view the previous day's rainfall total.

Note: Holding down the up or down arrow for more than 5 seconds while setting a parameter will put the display into 'rapid setting' mode. The setting will increment much faster than normal.

Scroll Down

When setting any of the parameters you can use the scroll down button to decrement the currently selected set point.

Note: Pushing the scroll-down button when no parameters are being set will immediately cause the display to update all of its readings and settings. However continuous forced updating will significantly reduce battery life.

Time Set

To set the time, push the Time Set button. The time will flash on the display. Push the arrow up or arrow down buttons until the time reads correctly. The time will be set when the arrow buttons have not been pressed for 5 seconds.

Every time the time is set on the display unit, the display unit transmits the new time setting to the relay unit.

Date Set

To set the date, push the Date Set button. The date will flash on the display. Push the arrow up or arrow down buttons until the date reads correctly. The date will be set when the arrow buttons have not been pressed for 5 seconds.

Every time the date is set on the display unit, the display unit transmits the new time setting to the relay unit.

Rain Set

To set the rainfall lockout amount, push the Rain Set button. The rainfall lockout amount and the in/hr dot will flash in the Rain Level field of the display. If you wish to set and view the units in mm/hr, push the Rain Set button again, making the mm/hr dot flash. Push the arrow up and arrow down buttons until the rainfall lockout amount is where you desire. The rainfall level will be set when the arrow buttons have not been pressed for 5 seconds.

Note: To verify that the setting was received by the controller correctly, push the Rain Set button and verify that the rainfall lockout amount has not changed.

Note: The rain gauge is designed to measure in increments of one-one hundredth of an inch (0.01") or twenty-five hundredths of a millimeter (0.25 mm)

Temp Set

To set the temperature lockout amount, push the Temp Set button. The temp lockout amount and the °F dot will flash in the Temp Level field of the display. If you wish to set and view the units in °C, push the Temp Set button again, making the °C dot flash. Push the arrow up and arrow down buttons until the temperature lockout amount is where you desire. The Temperature lockout will be set when the arrow buttons have not been pressed for 5 seconds.

Note: To verify that the setting was received by the controller correctly, push the Temp Set button again and verify that the temperature lockout amount has not changed.

Setup and Operation (Continued) See figure 8

Delay

Delay or Lockout period is the amount of time in hours that the irrigation/sprinkler system will be disabled after a rain or temperature event ends.

To set the lockout period, push the Delay button. The lockout period will flash in the Time field of the display. Push the arrow up and arrow down buttons until the length of the lockout period is correct. The lockout will be set when the arrow buttons have not been pressed for 5 seconds.

Note: To verify that the setting was received by the controller correctly, push the Delay button again and verify that the lockout period has not changed.

Note: Setting the lockout period to 0 disables the system ability to block sprinkler operation, while still allowing rainfall and temperature to be viewed on the display unit.

Rain Gauge Low Battery Indicator

Notifies you of a low battery in the rain gauge unit. The icon will blink initially to indicate a low battery and stay on constantly when the battery is completely dead.

Display Low Battery Indicator

Notifies you of a low battery in the display unit. The icon will blink initially to indicate a low battery and stay on constantly when the battery is completely dead.

No Signal Indicator

This indicates that the display unit is not receiving a signal from the controller.

Note: The rain display and temperature display will not appear if the controller is not receiving a signal from the rain gauge.

Freeze Indicator

This indicator comes on if the controller has disabled the irrigation system due to freezing temperatures.

Rain Indicator

This indicator comes on if the controller has disabled the irrigation system due to rainfall.

Maintenance

1. For greatest accuracy, clear the rain gauge's funnel of debris at least once or twice a year or as needed.
2. Change the 9V batteries in the rain gauge and display unit at least once a year. 9V Lithium batteries are recommended for longest life and durability in cold weather.

Bypass

To bypass the rain and freeze sensor simply change the delay to zero (0) hours.

Application Tip: The bypass function can be used to toggle your sprinkler system on and off remotely. This is useful when testing your sprinkler system. Simply turn on the zone of your sprinkler system that needs testing. Then adjust the temperature or rainfall setpoint to force a delay or lockout. (i.e. change the temperature set to a few degrees above the ambient temperature.) Now you can toggle your sprinkler system on or off by adjusting the delay time from zero (0) to one (1) hour with the portable display. (Be sure to reset your delay and setpoints when finished.)

Special Notes:

Each **irriGuard™** system comes with a specific communications ID to prevent interference from other nearby **irriGuard™** systems. Therefore, the display, controller, and rain/temperature gauge are not interchangeable with other units. Consult the factory if information on resetting an ID is necessary.

The display unit is not waterproof and is not intended to get wet. The controller and the rain gauge can be mounted outside; however they are not intended to be submerged.

FCC Compliance Notice

This device complies with FCC rules Part 15. Operation is subject to the following two conditions:

1. This device may not cause harmful interference and
2. This device must accept any interference that may be received, including interference that may cause undesired operation.

Warranty

We warrant our products to be free of defects in material and workmanship for 30 days from the date of original purchase. While we make every effort to carefully manufacture our products to the highest standards of quality, occasionally parts may be found to be missing, defective, or damaged.

If you have a defective part, return the entire product to us, shipping charges prepaid. Include proof of purchase and a written explanation of the trouble. During the warranty period, we will, at our option, either repair or replace the product free of charge.

This warranty does not cover damage due to improper installation or use, lightning, negligence, accident, or unauthorized service, or to incidental or consequential damages beyond the Pioneer Sales products themselves. Implied warranties are limited in duration to the life of this limited warranty.

Pioneer Sales will also extend the above warranty for a period of 1 year warranty from the date of purchase. By filling out and returning the registration form below and including a proof of purchase the warranty will automatically be extended.

Mail to: Pioneer Sales, Ltd.
Attn: Product Registration
5529 Redfield St.
Dallas, TX 75235

Extended Warranty Registration



Name:	_____	
Company (if any):	_____	
Address:	_____	
City:	State:	Zip:
Phone*:	_____	
e-mail*:	_____	
Where did you purchase this item:	_____	
Comments:	_____	
_____	_____	
*optional information	_____	