



Rain Sensor

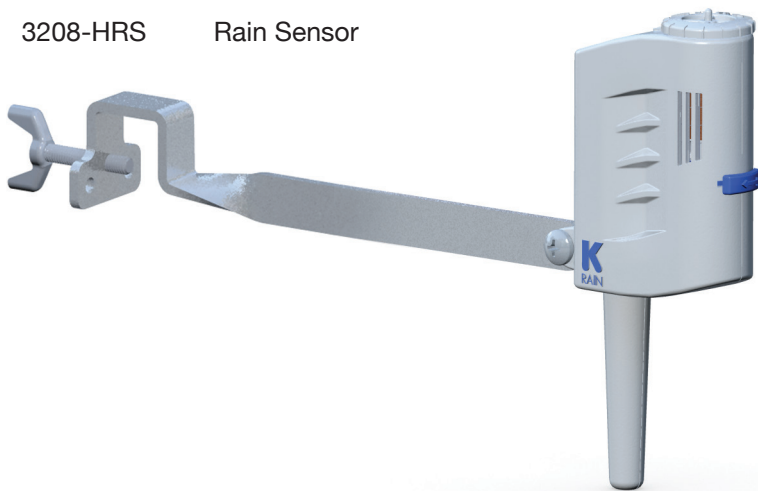
Suspends Automatic Irrigation Systems

OWNER'S MANUAL AND INSTALLATION INSTRUCTIONS

3208-WRFS Wireless Rain/Freeze Sensor

3208-HRFS Rain/Freeze Sensor

3208-HRS Rain Sensor



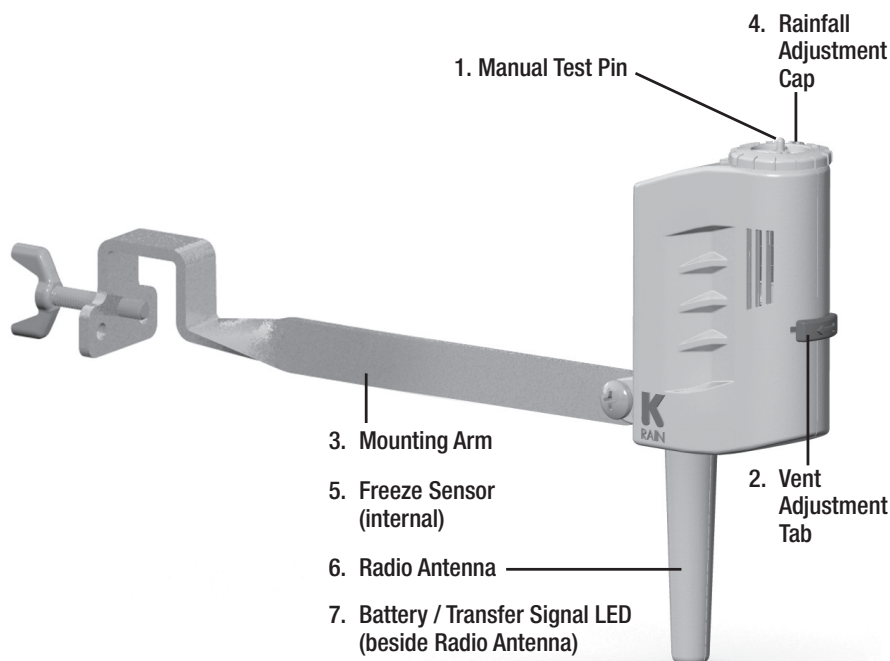
***Save water and ensure healthy
landscapes by suspending your irrigation
system on rainy days. K-Rain sensors
offer flexible, multiple rainfall settings
which are quick and easy to adjust.***

K-Rain Manufacturing Corp.

1640 Australian Avenue | Riviera Beach, FL 33404 USA

561.844.1002 | FAX: 561.842.9493 | **1.800.735.7246**

www.krain.com



RAIN SENSOR COMPONENTS

1. **Manual Test Pin.** Press and hold for three seconds to confirm proper operation.
2. **Vent Adjustment Tab.** Used to adjust the dry out time of the sensor.
3. **Mounting Arm.** Metal extension arm for mounting the sensor.
4. **Rainfall Adjustment Cap.** The rain sensor cap can be adjusted to suspend watering when rainfall amounts of 1/8" (minimum setting) and 1/2" or more has fallen.
5. **Freeze Sensor** (for models 3208-WRFS and 3208-HRFS only). Prevents the irrigation system from starting when temperatures drop to 37°F or below. When temperatures rise above 37°F, the sensor will enable automatic watering.

Additional Components of the Wireless Rain-Freeze Sensor model 3208-WRFS:

6. **Radio Antenna.** Transmits a wireless signal to the receiver, up to 500 feet.

NOTE: Unit needs to be mounted with the radio antenna in a vertical position.

7. **Battery / Transfer Signal LED.** Pressing the Manual Test Pin for three seconds allows the user to see the LED flashing ON / OFF; indicating that the battery is functioning and is transmitting the signal to receiver.

TABLE OF CONTENTS

Rain Sensor Components	1
Introduction	2
Features	2
Installation	3
Mounting the Rain Sensor	7
Adjustments and Operation	8
Specifications	9
Troubleshooting	9
FCC Declaration of Conformity	10
Warranty and FCC Notice	11

INTRODUCTION

Thank you for selecting a K-Rain® Rain Sensor. This sensor will turn your irrigation controller into an expert water manager by efficiently suspending watering during rain and/or freeze periods. After a set amount of rain has fallen and/or freezing temperatures exist (for models with freeze sensor), the sensor will trigger the controller to suspend watering. The freeze sensor option interrupts your sprinklers and reduces the hazards of standing water freezing on your driveway, sidewalks, and patios when temperatures drop below 37°F [3°C]. Once the rain sensor has dried sufficiently, the sensor allows normal sprinkler operation. Works with most new and existing sprinkler systems. This rain sensor will NOT work with open circuit timers.



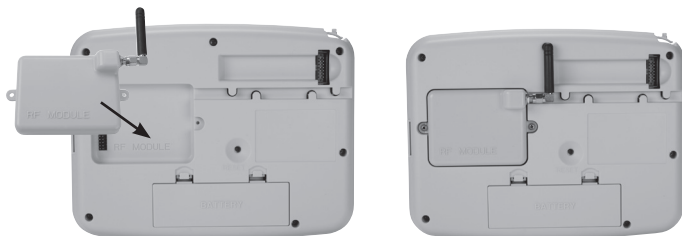
WARNING! These sensors are designed to operate with 24 V AC power only. Connecting any of these rain sensors to 120 or 240V AC power may result in severe equipment damage.

FEATURES

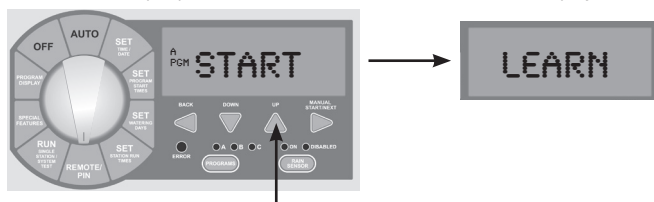
- Weather resistant. Engineered with impact modified, UV resistant polymer for outdoor exposure.
- Maintenance free. No batteries to replace.
- Unlike other Rain Sensors in the market, model 3208-WRFS (K-Rain wireless rain-freeze sensor) can be paired with multiple K-Rain Pro EX 2.0 Wifi enabled controllers within range, providing additional value for the end user.
- 2 in 1 mounting. Provides flexible installation with standard flat and gutter mounting.
- Models 3208-WRFS and 3208-HRFS include a freeze sensor that prevents the irrigation system from starting when temperatures drop to 37°F or below.
- Quick Installation. The Wireless Rain-Freeze Sensor 3208-WRFS provides the advantage of extremely quick installation and eliminates unsightly wires.

INSTALLATION: 3208-WRFS

1. Install the RF Module receiver (Model 3206) into your Pro EX 2.0 Controller.



2. Pair your 3208 Wireless Rain-Freeze Sensor with the Pro EX 2.0 Controller.
 - a. Place dial on pin position. Press UP button until "LEARN" is displayed on the LCD.

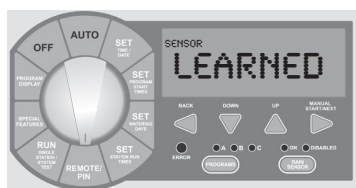


- b. Press the START button, and the word "LEARN" will flash.

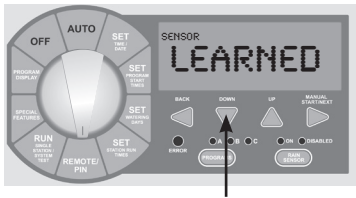


- c. Press the Manual Test Pin for three seconds to enable the wireless rain sensor to transmit the signal

- d. The controller will display "LEARNED" once the wireless rain sensor has been paired with the controller.



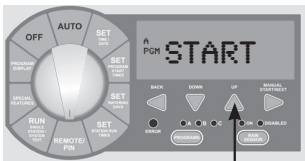
e. Press the DOWN button to complete the process. Move the dial back to AUTO.



NOTE: The manual activation of some controllers bypasses the sensor inputs. The controller must be in Automatic mode in order for the sensor to work properly.

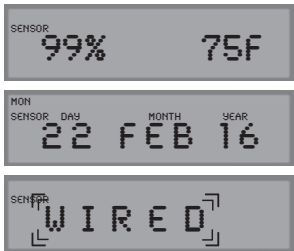
Additional Features of the 3208-WRFS (Wireless Rain Freeze Sensor)

- The Pro EX 2.0 Wifi enabled controller comes from the factory with wired rain sensor terminal enabled. Once a wireless rain sensor has been paired with the Pro EX 2.0 Wifi enabled controller the terminals for a wired rain sensor become disabled.
- The Pro EX 2.0 Wifi enabled controller stores the temperature and date of the last day watering was suspended by either a rain event or by the freeze sensor (when ambient temperature fell below freezing point).



To display this information, put the controller dial on the REMOTE / PIN location. Press the UP button, until it displays the SENSOR information screen.

This screen shows the user the battery % remaining of their wireless rain sensor, and the temperature at the last time the rain sensor was triggered.



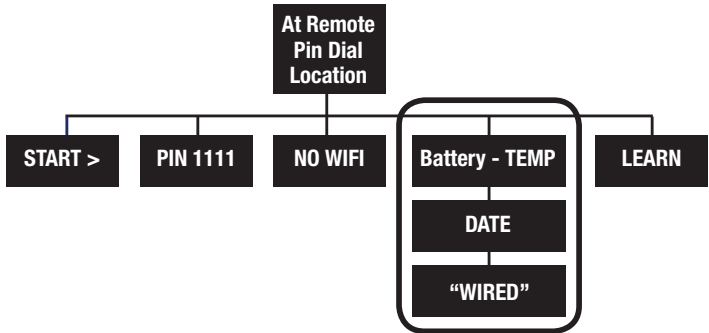
NOTE: The user can always change the temperature unit of measurement to Celsius degree by pressing the BACK and NEXT buttons SIMULTANEOUSLY on this screen.

To go to the next sensor feature, press the NEXT Button and the screen will display the DATE when the rain sensor was last triggered.

The last screen in this section shows the word “Wired” flashing.



This procedure is used to deactivate the wireless rain sensor and enable the wired rain sensor terminals of the Pro EX 2.0 Wifi enabled controller. To do so, press the BACK and NEXT buttons SIMULTANEOUSLY until the word WIRED has stopped flashing.



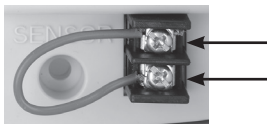
INSTALLATION: 3208-HRFS/3208-HRS

WIRING Models 3208-HRFS (Rain Freeze Sensor) or 3208-HRS (Rain Sensor)

IMPORTANT: The rain sensor is designed for 24-VAC irrigation controllers only. All wiring must conform to applicable local building codes and regulations. K-Rain Rain Sensors will not work with open circuit timers.

1. Installing the wired rain sensor on Sensor Terminals, simply:

- Find the controller sensor terminals (generally marked “SENSOR”, “SEN” or “S”) and attach the Rain Sensor control wires directly to these terminals in any order.

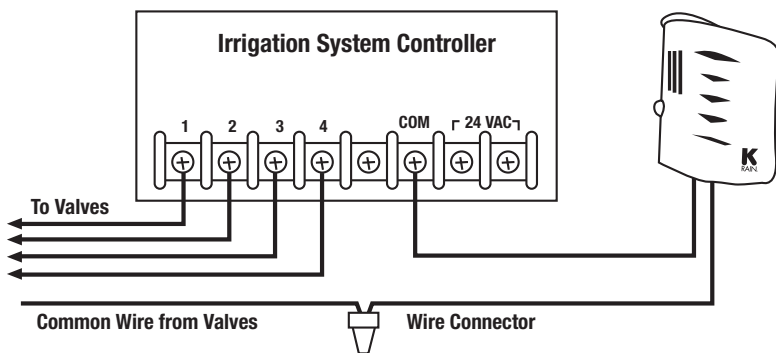


NOTE:

- There may be a jumper tab or wire between the sensor terminals that must be removed.
- If a rain sensor will not be installed, the preinstalled jumper wire must remain installed on the SENSOR terminals.
- The manual activation cycle of some controllers bypasses the sensor inputs. The controller must be in Automatic mode in order for the sensor to work properly.

2. Installing the wired rain sensors 3208-HRFS or 3208-HRS into controllers without sensor terminals and without pump start/master valve:

FIGURE 1

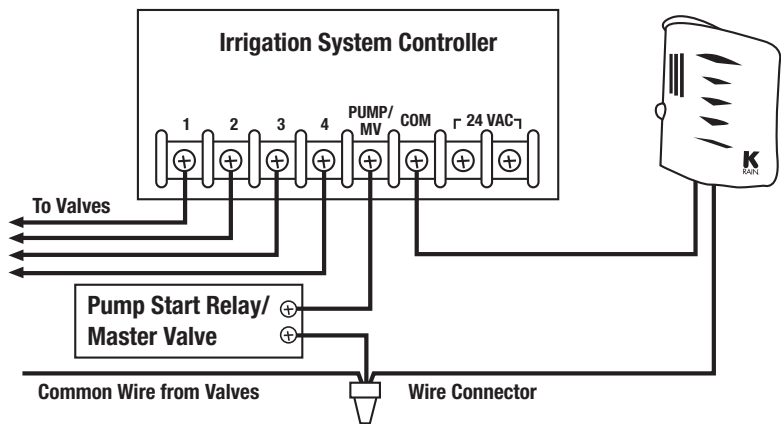


- A. 24-VAC Solenoid Valves Only (No Pump Start Relay See Figure 1). With the two wires from the rain sensor at the controller, locate the “common ground” wire of the solenoid valves. If it is connected to the common terminal on the controller disconnect it. Attach one wire of the rain sensor to the “common” terminal (usually marked “COM”) on the controller. Attach the other wire of the rain sensor to the common wire leading to the valves.

NOTE: The common wire to the valves does not have to be interrupted at the controller. The rain sensor may be wired anywhere along the common wire line.

3. Installing the wired rain sensors 3208-HRFS or 3208-HRS into controllers with pump start/master valve terminal; and without sensor terminals:

FIGURE 2



B. 24-VAC Solenoid Valves with Pump Start Relay (See Figure 2). Locate the common wire to the solenoid valves and the common wire lead to the coil of the relay that starts the pump. If these two wires are connected to the “common” terminal on the controller, disconnect both of them. Twist these two wires together along with one wire from the rain sensor and secure with a wire nut. Attach the other wire of the rain sensor to the “common” terminal on the controller.

FOR ALL INSTALLATION METHODS:

Once the rain sensor is mounted, run the wire to the controller, using wire clips every few feet to fasten it. If an extension to the wire provided is needed, use the following table to determine the minimum wire gauge needed:

Extension Needed	25-50 ft.	50-100 ft.	100 ft. or more
then use:	20 AWG	18 AWG	16 AWG

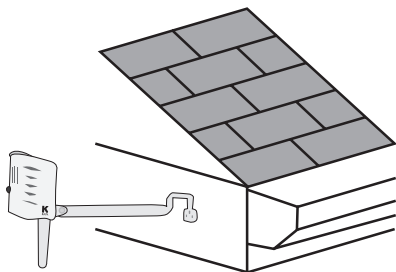
CHECK TO VERIFY CORRECT WIRING

Turn on one zone of the sprinkler system that is visible while you are in reach of the rain sensor. Manually depress the manual test pin at top of the rain sensor until you hear the switch “click” off. The sprinkler zone should stop instantly. If it does not, check wiring for correct installation.

MOUNTING THE RAIN SENSOR

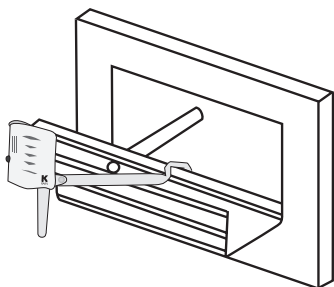
STANDARD FLAT MOUNTING

Mount the sensor on a surface that is unobstructed to rain fall, but away from the path of the sprinkler water spray.



GUTTER MOUNTING

Allows the rain sensor to be mounted directly to the side of the gutter. Position the gutter mount on the edge of the gutter and twist the thumbscrew to secure it in place.



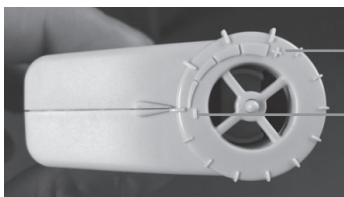
HINTS FOR MOUNTING

- a. When looking for a suitable location such as the side of a building or post, the closer the Rain Sensor is to the controller the better.
 - i. For the wired models, This will cause the wire run to be shorter, which minimizes the possibility of wire breaks
 - ii. For the wireless model, the signal transmission will be better avoiding interference to the wireless signal.
- b. Mount in the highest possible position where rain can fall directly upon the rain sensor.
- c. The rain sensor mounting location will affect the reset rate (amount of time it takes the rain sensor to dry out sufficiently for the sprinkler system to reactivate). For example, mounting the rain sensor on a very sunny, southeastern end of a building may cause the rain sensor to dry out sooner than desired. Similarly, mounting on the northern end of a building with constant shade may keep the rain sensor from drying out at all. Some experimentation with the “vent adjustment tab” will usually yield satisfactory results.

ADJUSTMENTS AND OPERATION

When the Rain Sensor activates due to sufficient rainfall (after rainfall quantities of 1/8" through 1/2" or more), the sprinkler system will become inactive until the moisture-absorbent discs inside the Rain Sensor have dried out. To adjust to the desired quantity of rainfall, rotate the cap on the rain sensor housing to the range desired (See Figure 3).

FIGURE 3



HIGH END

LOW END

Adjust the dial to the amount of rainfall you wish to trigger the rain sensor to suspend watering.

Low end= 1/8", high end=1/2"

The time that it takes the rain sensor to reset for normal sprinkler operation after the rain has stopped is determined by weather conditions (wind, sunlight, humidity, etc.). These conditions will determine how fast the hygroscopic discs will dry out, the same conditions your soil experiences.

Note that there is an adjustment capability on the rain sensor that will slow down the reset rate. By turning the "Vent Adjustment Tab" (See Figure 4) to completely or partially cover the ventilation holes, the hygroscopic discs will dry more slowly. This adjustment can compensate for an "overly sunny" installation location or peculiar soil conditions. Experimenting with the vent ring will best determine the ideal vent setting.

FIGURE 4



Bypassing the Rain Sensor

The Rain Sensor can be temporarily bypassed or deactivated using any one of the following methods:

- Use the controller's sensor bypass switch (if equipped).
- Temporarily disconnect the Rain Sensor from the controller's wiring.

NOTE: Always disconnect power to the controller before performing any wiring tasks.

SPECIFICATIONS

Mounting: 2 in 1 bracket for standard flat and gutter installation

Sensor Type: Industry-standard hygroscopic disc stack with adjustable rainfall sensitivity

Rating: 3 amp, 24 V AC, NC (Normally Close contacts)

Operating Temperature Range: 14°F to 149°F (-10°C to 65°C)

Hardware: Stainless steel

Housing: UV-resistant engineered polymer

Rain Sensor Warranty: Two years

ADDITIONAL SPECS FOR WIRELESS VERSION:

Rain/Freeze Wireless Range: Up to 400 feet or 120 meters (Line of Sight)

Freeze Set Point: 37°F for 3208-WRFS (Wireless Rain Freeze Sensor)

Average Battery Life: Designed to operate up to 8 years (under normal conditions)

ADDITIONAL SPECS FOR WIRED VERSIONS:

Control Wire: 25' outdoor-rated, 2-wire cable, UL approved

Freeze Set Point: 37°F for 3208-HRFS (Rain Freeze Sensor)

TROUBLESHOOTING

Follow these simple steps before replacing your rain sensor:

System will not turn on:

- Check to see that the rain sensor discs are dry and switch “clicks” on and off freely by pressing the top of the spindle.
- Look for breaks in the wire leading to the rain sensor and check all wire junctions.
- If the rain sensor is dry and the wire leading to it is good, check the rain sensor switch by nicking the insulation of the two “outer” wires near the unit to expose copper. Turn one sprinkler zone on, and apply a “jumper wire” across the two exposed wires. If the sprinkler now comes on, the switch is bad. Wrap all nicked wires with electrical tape.
- The rain sensor is wired to function with most controllers (**normally closed**). If you are unable to make the sensor work with the suggestion above you may have a unique controller (**normally open**).

System will not shut off even after heavy rainfall:

- Check wiring for correct installation (See “Adjustments and Operation” section).
- Check sensitivity setting on rain sensor, and move the cap to a more sensitive setting. The rain sensor is an accurate rain gauge and can be verified by setting up a “tube” type rain gauge in the same vicinity and making periodic readings.
- Check for obstructions to rainfall such as overhangs, trees or walls.

FCC DECLARATION OF CONFORMITY

Trade Name	Wireless Rain Freeze Sensor
Model Number	3208-WRFS
Compliance Test Report Number	16FAB01000511
Compliance Test Report Date	March 22, 2016
Responsible Party	K-Rain Manufacturing Corporation
Address	1640 Australian Ave, Riviera Beach, FL 33404
Telephone	561-844-1002

This equipment has been tested and found to comply with the limits for class B digital devices, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, please refer to your user's manual for instructions on correcting the problem. The undersigned, hereby declare that the equipment specified above conforms to the above requirements.