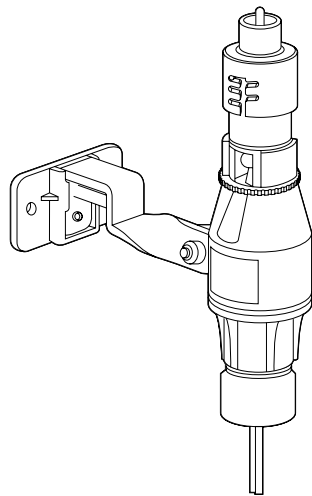




# **HRC-990-RS-MD**

## **Hard Wire Rain/Freeze Sensor**

### **INSTRUCTION MANUAL**



## INTRODUCTION

Thank you for selecting the HRC-990-RS-MD Hydro-Rain® sensor module. This sensor is built for use with the Hydro-Rain® HRC-990 isolation controller only. It is equipped with a wire plug in feature that inserts directly into the base of the HRC-990 (See front cover illustration). After a set amount of rain has fallen the sensor engages a switch that will prevent the timer from watering. The added freeze sensor bonus feature will provide peace of mind by interrupting your sprinklers controlled by the HRC-990 timer and reduce 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 or the freeze sensor temperature rises above 37°F (3°C), the sensor allows normal sprinkler operation.

## INSTALLATION INSTRUCTIONS

### Mounting

The HRC-990-RS-MD sensor includes 3 mounting options.

1. ½" Slip Adapter for mounting on a PVC riser
2. ½" Threaded Adapter for mounting on a PVC or metal threaded riser
3. Rain Gutter or flat surface adapter

Mount the sensor where it will be exposed to direct, unobstructed rainfall (but away from sprinkler spray). The switch-housing portion must be upright (see Figure 1).

### Hints for mounting:

- A. Because the wire provided with the module is 30' long. You must install the sensor within 30' of the timer.
- B. Mount in the highest possible position where rain can fall directly upon the sensor.
- C. As described in the "Adjustments and Operation" section of this manual, "reset rate" refers to the amount of time it takes the sensor to dry out sufficiently for the sprinkler system to be allowed to come back on. The mounting location will affect this rate and should be taken into consideration should

extreme conditions exist. For example, mounting the sensor on a very sunny, southeastern end of a building may cause the sensor to dry out sooner than desired. Similarly, mounting on the northern end of a building with constant shade may keep the sensor from drying soon enough. Some experimentation and use of the "vent ring" (as described later) will usually yield satisfactory results.

Once the sensor is mounted, run the wire and wiring jack to the HRC-990 timer. Plug the jack into the base of the timer marked "Sensor". The rain sensor is now ready for use. (See Figures 2 and 3)

### Wiring

Important: The sensor is sold and designed for use with the HRC-990 timer only. Any alteration of this product for use with 24 Volt irrigation timers voids the warranty.

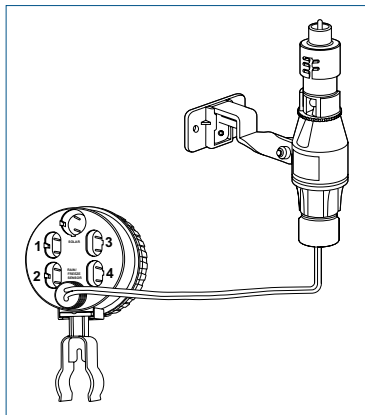


Figure 2

## OPERATION CHECK TO VERIFY CORRECT WIRING

Turn on one zone of the sprinkler system that is visible while you are in reach of the sensor. Manually depress the spindle at the top of the sensor until you hear the switch “click” off. The sprinkler zone should stop instantly. If it does not, check wiring jack to insure proper contact is made with the HRC-990 base.

## ADJUSTMENTS AND OPERATION

The sensor can keep the irrigation system from starting or continuing after rainfall quantities of  $\frac{1}{8}$ ",  $\frac{1}{4}$ ",  $\frac{1}{2}$ ",  $\frac{3}{4}$ ", or 1". To adjust to the desired quantity of rainfall, rotate the cap on the switch housing so that the pins are located in the proper slots (See Figure 4). Do not forcibly twist the cap as this might break the pins. The time that it takes the 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 dry out, and since the landscape is also experiencing the same conditions, their respective drying rates will roughly parallel each other. There is an adjustment capability on the sensor that will slow down the reset rate. By turning the “vent ring” (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 rings will best determine the ideal vent setting.

## DISPLAY

When the optional Rain/Freeze Sensor is installed with the HRC-990 Hydro-Rain® timer and the unit is operating under <DELAY>, <AUTO> or <MANUAL> mode, the unit will enter a special <RAIN DELAY> operation where the LCD will display the following:



## FREEZE SENSOR OPTION

The temperature at which the optional freeze off sensor feature is activated is  $37^{\circ}\text{F} \pm 2^{\circ}$  ( $3^{\circ}\text{C} \pm 1^{\circ}$ ) (temperature range adjustment is not available).

## BYPASSING THE SENSOR

Should you desire to bypass the operation of the sensor for any reason (i.e., turn on your system even though the sensor has shut “off” due to rainfall or temperature), unplug the sensor from the bottom of the timer. Plug it back in to resume normal sensor operation.

## MAINTENANCE

There is no required maintenance for the unit. The sensor does not have to be removed or covered for winterizing purposes. All parts are easily replaceable if they become damaged or lost. The spindle assembly is designed to stay with the cap. Do not pull them apart.

## TROUBLESHOOTING

Follow these simple checks before replacing your sensor:

### System will not come on at all:

- Check to see that the sensor discs are dry and the switch “clicks” on and off freely by pressing the top of the spindle.
- Look for breaks in the wire leading to the sensor and check all wire junctions.

### System will not shut off even after heavy rainfall:

- Check wiring for correct installation. (See “Operation Check to Verify Correct Wiring”.)
- Check sensitivity setting on sensor, and move the cap to a more sensitive setting. The 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.

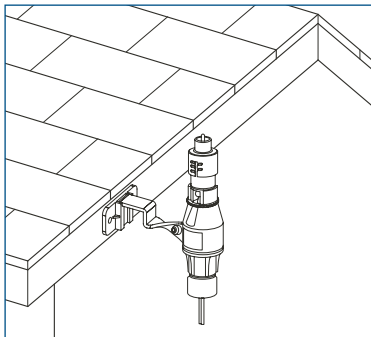


Figure 1: Mounting Rain Sensor

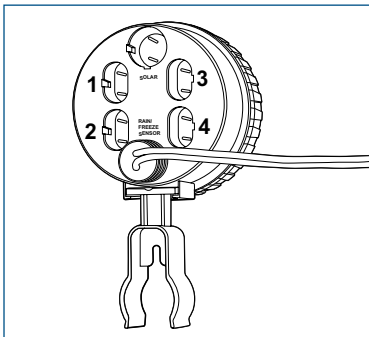


Figure 3: The Module to the HRC-990 Controller Base

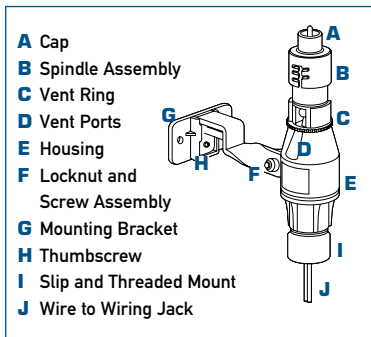


Figure 4: Parts Diagram

**HELP:** Before returning this sprinkler controller to the store, contact Hydro-Rain® Technical Service at 1-888-HYDRORAIN.

### WARRANTY

Hydro-Rain® warrants to its customers that its HRC-990-RS-MD product will be free from defects in materials and workmanship for a period of three years from the date of purchase. We will replace, free of charge, the defective part or parts found to be defective under normal use and service for a period of up to three years after purchase (proof of purchase required). We reserve the right to inspect the defective part prior to replacement. Hydro-Rain® will not be responsible for consequential or incidental cost or damage caused by the product failure. Hydro-Rain® liability under this warranty is limited solely to the replacement or repair of defective parts. To exercise your warranty, return the unit to your dealer with a copy of the sales receipt. The microswitch is UL-approved for electrical safety.