



Rain Sensor Installation Guide



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SPECIAL RECOGNITION

Special recognition to Oro Valley Water Utility Staff who provided photos, text translation and most of all, their valuable time in the preparation of the Rain Sensor Installation Guide.

**Shirley Seng
Karn Boyce
Carolyn Schneider**

**Kevin McCaleb
Iris L. Chaparro**

ACKNOWLEDGEMENTS

Mark Moore

Fernando Redo

For an electronic version of the Rain Sensor Installation Guide visit our website: <http://townoforovalley.com> and link to the Water Utility.

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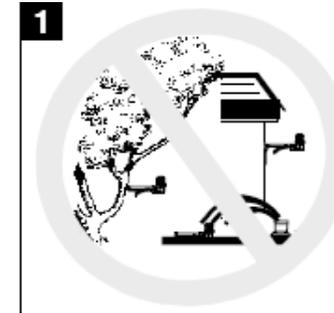
Site Location



Site Selection: The sensor needs to be installed in a location where it can receive unobstructed rainfall. **Do not** mount the sensor under any roof over hangs or under any trees or shrubs.

Select a site that is near the controller: The sensor comes with about 25 feet of wire and if necessary, an additional 50 feet of wire can be added. It is important to mount your sensor in an area that meets these limitations. For applications that require the sensor to be mounted a further distance from the controller, a remote or wireless model would need to be purchased. *****The Utility does not offer these models for this program.***

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Mounting the Sensor

Some acceptable locations include:

- Tops of walls or fences



- Above the drip edge of roofs



- On poles or stakes



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Required Tools



To mount the sensor you will need a hand drill, a 3/16" bit (wood, masonry or metal, (depending upon the material you are attaching it to), fasteners, wire staples, hammer, screw driver and a ladder if installation is over head. *Remember to use appropriate caution when using a ladder to install the sensor.*

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Running the wire: Use wire staples to attach the wire to the wall.



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Wire can be placed into a shallow trench in the ground all the way to the controller if desired.



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Connecting the Sensor to the Controller



Types of Controllers:

Electro mechanical: Works much like a clock. They have gears and motors. It is usually identified by having wheels with pins on the face. *See page 8 if you are connecting the sensor to this type of controller.*

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Electronic/Digital: This type of controller may have a dial, but will not have wheels with pins. Typically has a display window and buttons on the face. *See page 10 if you are connecting the sensor to this type of controller.*



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Connecting the Sensor to Electro-Mechanical Controllers

IMPORTANT!

Before beginning the connection of the sensor, make sure the controller is in the "OFF" position.

Due to the nature of electro-mechanical controllers, the sensor will need to be connected to the valve directly. The control valve may be located in a box just beneath the ground or above the ground near the main water supply into the house. In the case of the control valve being located in a box, you will need to drill a hole in the valve box to insert the sensor wire for connection to the valve.



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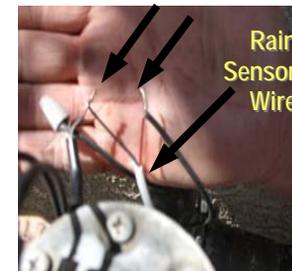
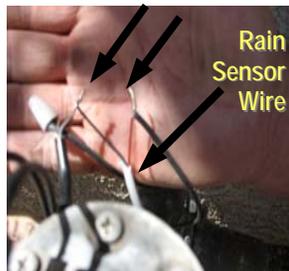
Locate wire nuts on the valve. Remove 1 wire nut from the valve.

Separate one sensor wire to each of the exposed wires. Turn controller switch to manual and go to page #15 for testing.



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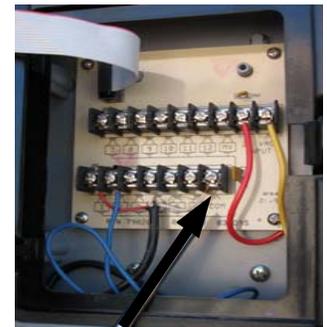
Connecting the Sensor to Electronic/Digital Controllers

Some of the newer controllers will have rain sensor terminals built in. The controller's manual will have that information for you, but if not, look on the face of the controller for a switch marked "sensor" followed by "bypass" or "active". Another method is to open up the wire terminal cover or timer face and locate the terminal block marked **S**, **Sen** or **Sensor**.



Connecting the Sensor to Electronic/Digital Controllers

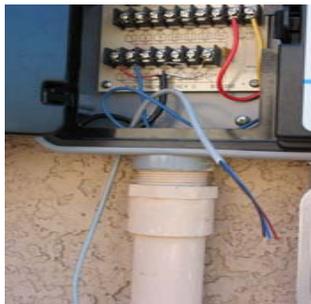
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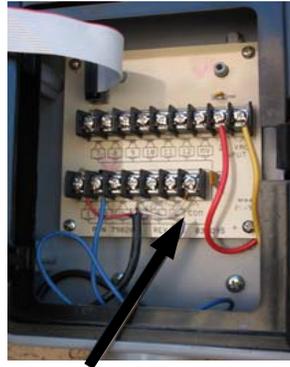
Run Sensor wire up to or down to the controller box and drill a hole into the box itself. Be sure to drill in an area where the bit will not go into any of the wiring/terminals. *Pull enough excess wire through the hole to reach the connection on the terminal then strip the wire of its protective coating.*



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Connecting Rain Sensors to controllers without sensor connections: Look at terminal block and locate the terminal marked C, Com, or Common.



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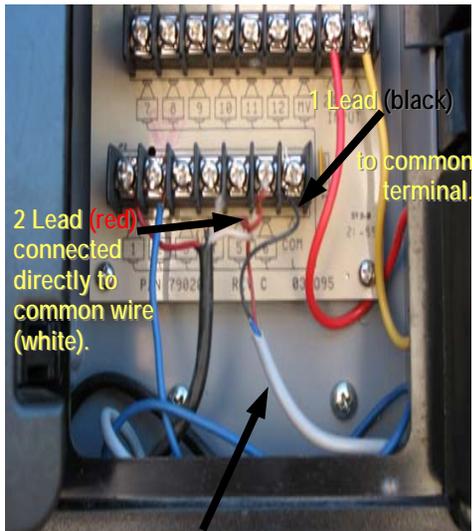
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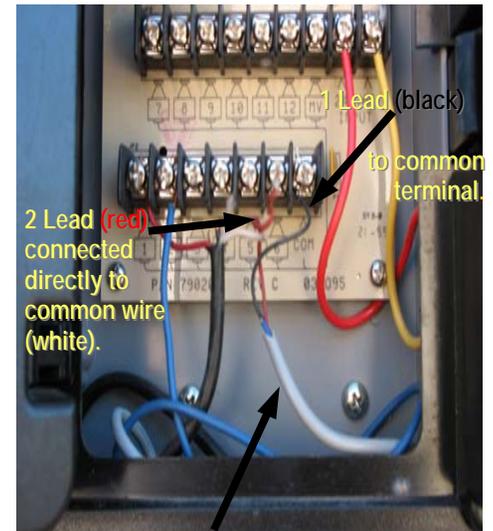
Connect the other lead from the Rain Sensor into the "Common" terminal.
The black and red wire can be interchanged.



Rain sensor wire with end stripped.

Connect one lead from the sensor wire to each terminal.

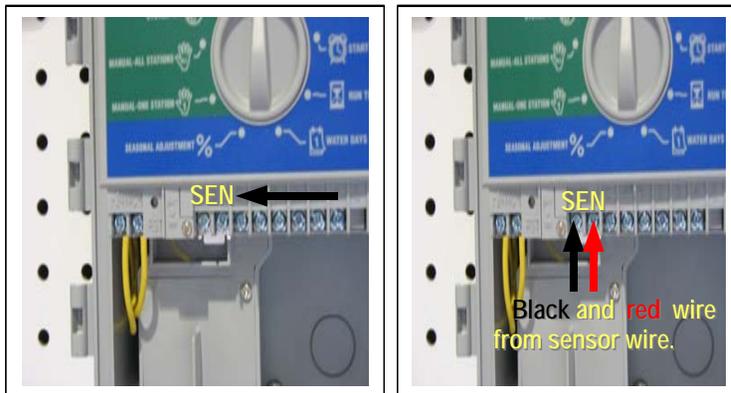
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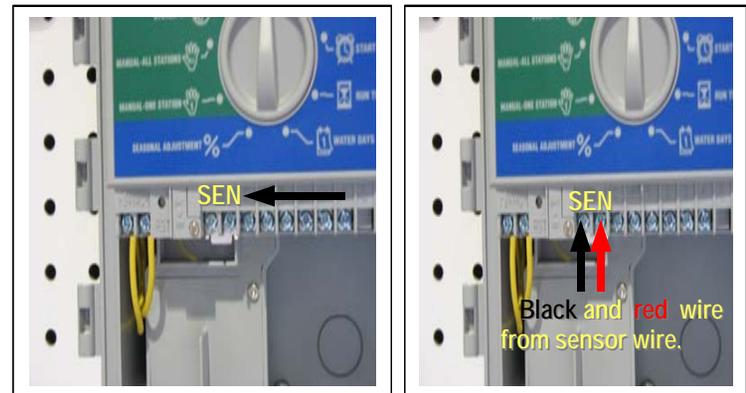
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Connect one lead from the sensor wire to each terminal.

Connecting Rain Sensors to controllers with sensor terminals. Open up face of controller to access wire terminals. Locate the terminal marked **S, Sen or Sensor**. There are normally two terminals bridged either with wire or a metal bridge plate. Remove these from the controller.



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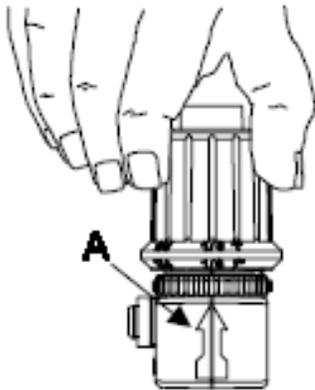
Testing the Sensor

To test the sensor, operate your controller in the "manual" mode. With the water to your irrigation system flowing, depress the pin on the rain sensor with your finger. The water should **STOP**. See **Trouble Shooting and Maintenance**.



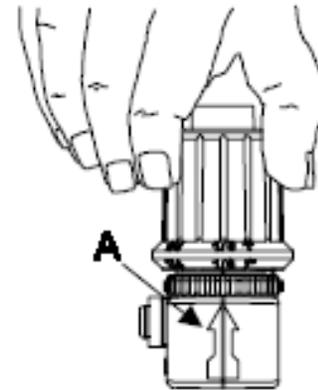
Setting Your Sensor

Adjustments are made by turning the housing bell either right or left. On the top of the ring are increments in inches. Line up the required inches with the arrow (A) on the back of the housing. That will indicate how much rain needs to fall before the sensor will suspend watering. ***For Southern AZ, we recommend it be set on the lowest setting (1/8") for most landscaping. If you have turf, we recommend a setting of (1/4").***

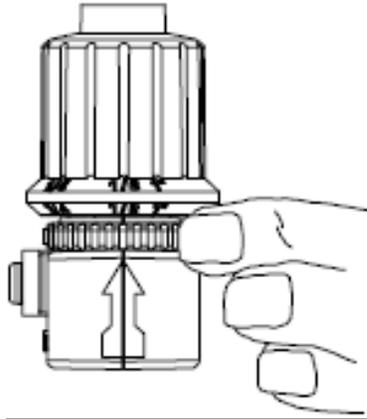


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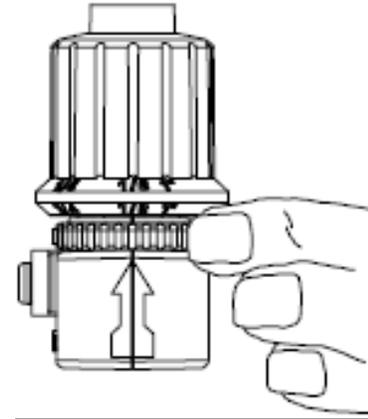
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Air Flow vents: These are the two openings below the housing bell. These allow air to circulate into and around the wafers inside the sensor and help dry out the wafer to reset the system. To close them, turn the ring at the bottom of the housing bell until the openings are covered by the ring. *For Southern AZ, we recommend that the air flow vents be completely closed.*



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Trouble Shooting/ Maintenance

Rain sensors operate virtually trouble free if installed properly. When you have completed the connections as directed and verified that it is operating as it should; there should be little in the way of trouble shooting that needs to be done.

Potential problems:

Rain Sensor will not suspend watering:

Check connections to controller and valves. Insure wire connections are tight and properly installed.

Check setting for rain amount on sensor – is it set too high?

Check sensor switch setting on controller – is it on By-Pass?

Check for any over hanging plant material that could be blocking its access to rain.

Rain Sensor suspends water too quickly:

Check setting for rain amount on sensor – is it set too low?

Check location of sensor to insure it is not near runoff areas.

Check for any over hanging plant material that could be channeling accumulations of rain into the sensor.

Rain Sensor activates irrigation system too quickly or not quickly enough:

Check air flow rings; opening the air flow ring decreases the span of time for the timer to be reactivated; closing increases deactivation duration.

Maintenance: occasionally it is a good idea to remove the covering over the wafers and blow out any debris. Keep shrubbery pruned away from sensor location.

If you have any questions, call Oro Valley Water Utility at (520) 229-5024. Office hours are Monday-Friday 8 am to 5 pm.

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