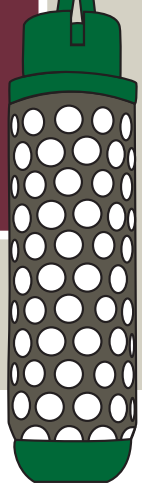
MISSISSIPPI STATE UNIVERSITY EXTENSION

Irrometer Watermark Series: Construction Guide



Graphic by Jacob Rix, MSU Extension Service

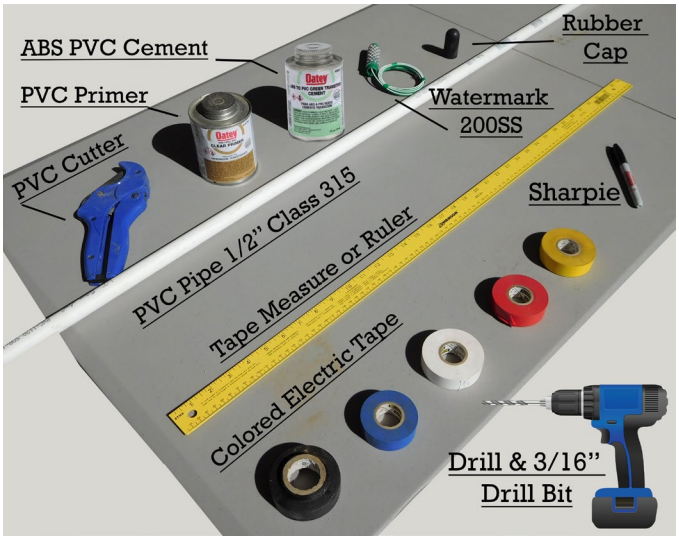
This publication series provides information and recommendations pertaining to the Irrometer Watermark 200SS, a granular matrix sensor commonly used in Mississippi for scheduling irrigation. Future publications will discuss other types of soil moisture sensors. Users should choose tools that best fit their needs.

Introduction

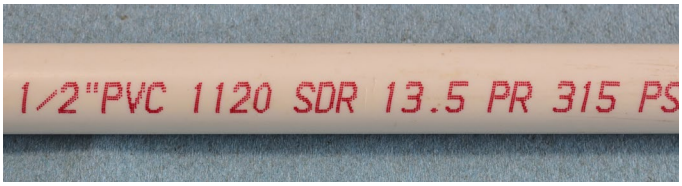
This publication provides a step-by-step guide to proper Watermark sensor construction. Following these steps will make the sensors easier to install at the intended depths and easier to remove at the end of the season.

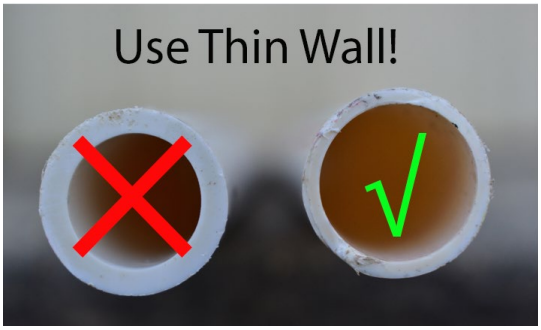
Preparation

The tools and supplies pictured below will be used. Fifteen feet of sensor wires is usually convenient.



One set of 6-inch, 12-inch, 24-inch, and 36-inch sensors will require one 10-foot stick of ½-inch Class 315 PVC pipe. Select the correct PVC specifications to avoid frustrations later.





ABS-PVC transition cement is best for joining the ABS sensor collar to a primed PVC section. Using a different cement can increase the risk of sensor-PVC separation during removal.

Assembly

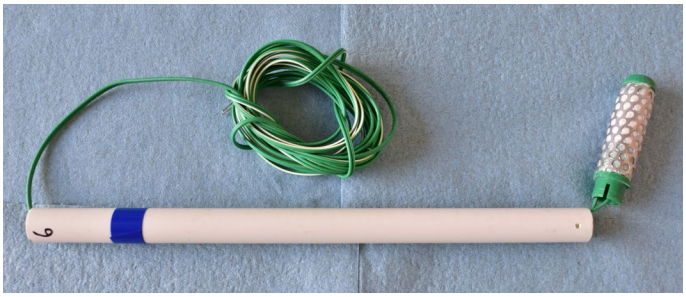
Step 1: Using the PVC cutter, cut a PVC length that is 10 inches longer than the intended sensor depth to simplify sensor removal. Following the color code below for that sensor depth, wrap a ring of colored electrical tape 4 inches from one end of the cut PVC section.

Sensor depth	PVC length	Tape color
6"	16"	blue
12"	22"	white
24"	34"	red
36"	46"	yellow

Step 2: Using the electric drill and a 3⁄16-inch drill bit, make a weep hole ¼ inch from the untaped bottom end of the PVC section.

Step 3: Apply PVC primer at least ½ inch inside the bottom end of the PVC section. Be ready for drips.

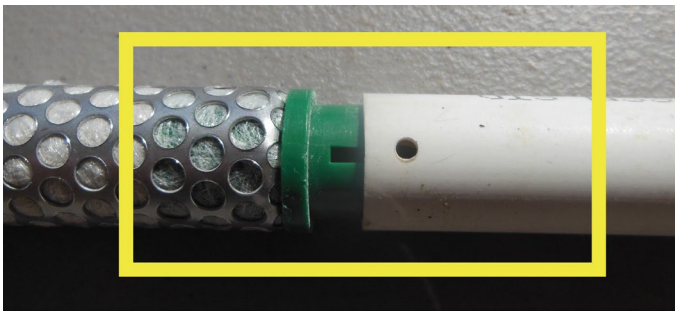
Step 4: After a few minutes of drying, thread the sensor wires from the bottom end of the PVC section to the top end until the sensor collar meets the bottom end. Bundle the extra wire.



Step 5: Carefully apply an appropriate amount of ABS-PVC transition cement to the sensor collar.

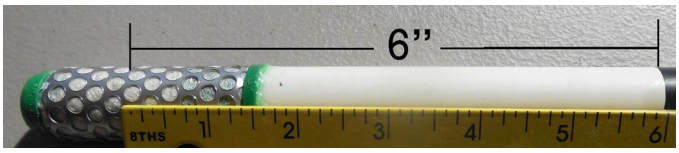
Step 6: While aligning the sensor weep slot with the drilled weep hole, push the sensor collar fully into the bottom end of the PVC section.

Ensure that the weep hole will allow water to drain out.

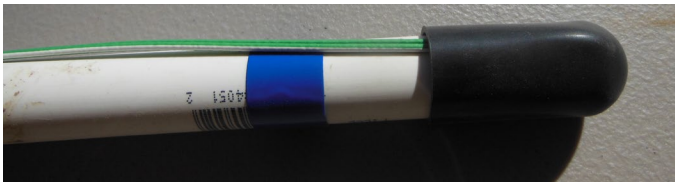


Step 7: Wrap a ring of black electrical tape so that the distance between the bottom of the tape and the middle of the attached sensor equals the intended sensor depth. After installation, the bottom edge of the black electrical tape should be flush with the ground.

Placing a rubber washer around the PVC section can reduce water flow down the installation hole.



Step 8: Slide a rubber cap onto the top end of the PVC section. The construction is now complete!



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