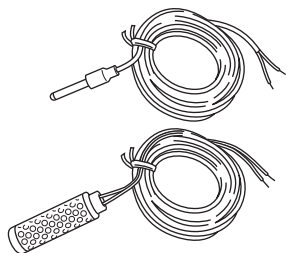




SOIL MOISTURE SENSOR & MULTI-PURPOSE TEMPERATURE PROBE

INSTALLATION INSTRUCTIONS

FOR USE WITH VANTAGE PRO WIRELESS LEAF & SOIL MOISTURE/TEMPERATURE STATIONS

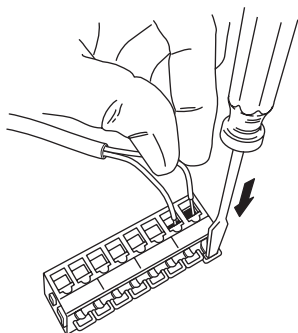


The WATERMARK Soil Moisture Sensor and the Multi-Purpose Temperature Probe are for use with the Vantage Pro Wireless Leaf & Soil Moisture/Temperature Station, #6343. Please refer to your Wireless Leaf & Soil Moisture/Temperature Station Installation Manual for complete details on how to install and use the sensors.

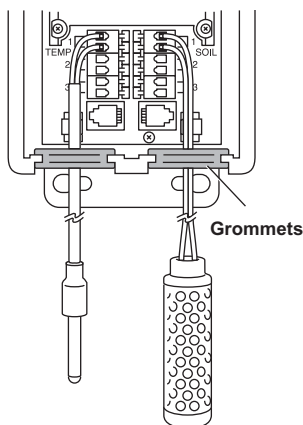
Note: These sensors are also compatible with the Soil Moisture/Temperature Station, #6361.

Connecting the Sensors

1. Run the sensor cables up through the grommets on the bottom of the station housing.
2. Connect the temperature probes to the TEMP connectors.
3. Connect soil moisture probes to the SOIL connectors.
4. Each matched temperature probe and soil moisture pair must use the matching connectors. If a temperature probe is not used, the soil moisture reading can be off as much as 1% for every 1°F (0.5°C) error in the soil temperature.



Connecting Sensor Cables to the Terminal Block

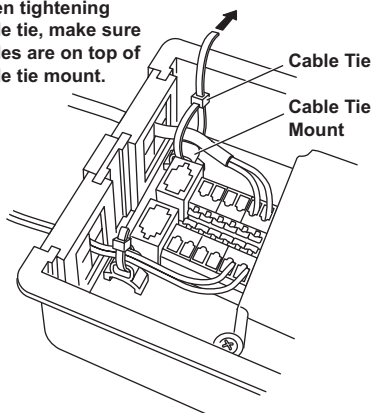


Sensor Cables Run through Grommets

Note: If no soil temperature probe is used, the console will use a default temperature of 75°F (24°C) to compensate the soil moisture sensor readings.

- Secure sensor cables to the cable tie mounts located next to the grommets.

When tightening cable tie, make sure cables are on top of cable tie mount.



Securing Sensor Cables

Installation Procedure

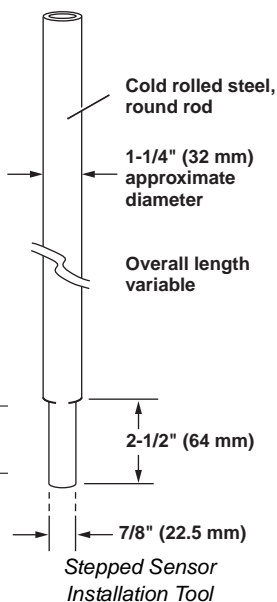
- Soak the soil moisture sensors overnight in water.

- Always “plant” a wet soil moisture sensor.
- If time permits, wet the soil moisture sensor for 30 minutes in the morning and let dry until evening, wet for 30 minutes and let dry overnight, wet again for 30 minutes the next morning and let dry again until evening. Soak over the next night and install wet. This will improve sensor response during the first few irrigations or waterings.

- Make sensor access holes to the depth required with a 7/8” diameter rod.

- Make a hole for the soil moisture sensor and a separate adjacent hole for the temperature probe.
- For very coarse or gravelly soils, an oversize hole of 1” to 1 1/4” may be needed to prevent abrasion damage to the soil moisture sensor membrane. In this case, you will need to “grout in” the sensor with a slurry made from the sample soil to get a snug fit in the soil.

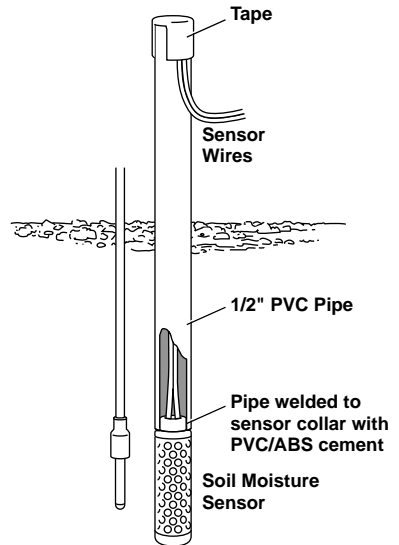
- Always install sensors in the active root system of the crop with a snug fit in the soil.



CAUTION: *In gravelly soils and with deeper sensors, carefully install the sensor to prevent damaging the membrane.*

- Lack of a snug fit is the biggest problem in obtaining good soil moisture sensor readings.
- The ideal method of making the access hole is to have a stepped tool. This makes an oversize hole for the upper portion and an exact sized hole at the bottom where the sensor is located.

4. After installing the soil moisture sensor, the hole needs to be carefully back-filled and tamped down to prevent air pockets which could allow water to channel down to the sensor.
 - Fill the hole with water and push the sensor down into the hole so it bottoms out.
A length of 1/2" Class 315 PVC tubing fits snugly over the sensor collar and can be used to push the sensor. A good snug fit in the soil is important.
 - Carefully backfill the access hole with soil to eliminate any air pockets.
5. You can solvent weld the 1/2" Class 315 PVC tubing to the sensor collar for easier installation and removal.
 - Use a PVC/ABS cement (IPS Weld-on #794 or equivalent).
6. After you have installed the soil moisture sensors, the sensors will need one or two irrigation cycles to "break-in" and acclimate to the soil conditions and provide better accuracy.



PVC Pipe Welded to Soil Moisture Sensor Collar

Installation Procedure for Turf/Lawns

1. Cut a slight "V" shaped trench about 5" wide at the top and about 6" deep into the turf--about 6" long.
2. Lift out the turf plug piece you just cut.
3. Press the sensors into the soil at about a 45 degree angle into the side of the trench to set the sensors about 3"-5" below the soil surface. Make sure they are good and snug in the soil.
4. Set the plug removed from the trench and compact it back into place. It will repair itself in short order.
5. Run the wires to the Soil Moisture Station and connect them as described in "Connecting the Sensors" on page 1.
6. If you withhold irrigation for several days and allow the soil to dry down a bit, you should see the soil moisture readings start to creep upward.
7. Usually, you will not need to water the turf until the reading is in the 25-40 area at the recommended 3"-5" depth.

Removing the Sensors

1. When removing sensors prior to harvest in annual crops, it's a good idea to do this just after the last irrigation when the soil is moist.
2. Do not pull the sensor out by the wires. You may have to dig out, at least partially, any sensors more than 12" deep or any sensors in dry soil. Careful removal prevents sensor and sensor membrane damage.
3. When sensors are removed for winter storage, clean the sensors, dry them, and place them in a clean, dry location.

Wiring Sensors

The soil moisture sensor and the temperature probe both come with a 15' (4.6 m) cable.

- If additional wiring is required, up to 1000' (300 m) of additional wire can be spliced onto the sensor wire.
- The additional wire must be fully waterproof.
- We recommend using #18 gauge wire with UF insulation, and using a 3M Scotchpak or Duraseal heat shrink splice connector.

Note: *Avoid long wire runs near power cables. The transient currents can affect the small current used to read the sensors.*

Contacting Davis Instruments

(510) 732-7814 Technical Support, Monday – Friday, 7:00 a.m. – 5:30 p.m. Pacific Time.

(510) 670-0589 Fax to Customer Service or Tech Support.

www.davisnet.com Copies of User Manuals, Spec Sheets, and Application Notes are available on the "Support" page. Watch for FAQs and other updates. Subscribe to the e-newsletter.

support@davisnet.com E-mail to Technical Support.

Product Numbers: 6440, 6470

Davis Instruments Part Number: 7395.158
Soil Moisture Sensor & Multi-Purpose Temperature Probe Installation Manual
Rev A Manual (5/22/02)

Copyright ©2002 Davis Instruments Corp. All rights reserved.



3465 Diablo Avenue, Hayward, CA 94545-2778 U.S.A.
510-732-9229 • Fax: 510-732-9188
E-mail: info@davisnet.com • www.davisnet.com