

McCrometer CONNECT AQUA-TEL-TDR Soil Moisture Sensor

OVERVIEW

AQUA-TEL-TDR monitors soil moisture reliably in all types of soils at all moisture levels. Soil moisture in fields, turf, landscapes, and greenhouses may be monitored equally well. The sensor output signal may be used to directly control irrigation. AQUA-TEL-TDR reads the percent of available moisture by volume using Time Domain Reflectometry Technology. For absolute moisture content it must be calibrated for the specific soil.

The AQUA-TEL-TDR soil moisture sensor measures the dielectric constant, which is directly related to water content in reasonable growing conditions. The probe consists of a small electronic module encapsulated for environmental protection attached to the top of the cylindrical probe. The lower 18" of the probe is used to measure the water content. A 10-foot cable is provided to supply power and read the soil moisture signal and an optional soil temperature signal. Additional cable is available at an additional cost.



SPECIFICATIONS

Power Requirements: 12VDC \pm 10% @ 40mA

Output: 0-1mA, 4-20mA, 0-5V (Note: Can be converted from 0-1mA to voltage by a shunting resistor (brown wire to black wire).)

Overall Size: 3/4" diameter x 27" long

Shipping Weight: 1 lb.

Temperature Output: 1 μ A⁰K (i.e. 0°C = 273 μ A, 50°C=323 μ A)
0-500 μ A range

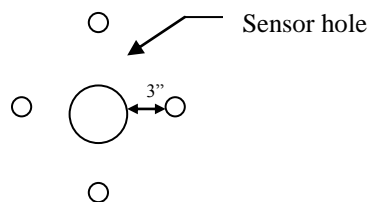
Turn on Time: 1 second from power up

Ordering TDR Part Numbers: 630-8019-005 (0-5V), 630-8019-004 (4-20mA), 630-8019-000 (0-1mA)

Ordering TDR+T Part Numbers: 630-8019-105 (0-5V+Temp), 630-8019-104 (4-20mA + Temp), 630-8019-100 (0-1mA + Temp)

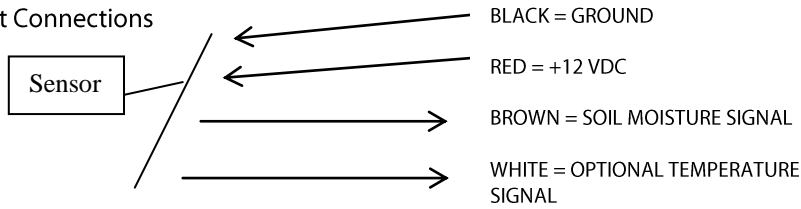
INSTALLATION

AQUA-TEL-TDR soil moisture sensors measure an 18" section of soil. The first 9" at the end closest to the cable and the bottom 1/2" are not included in the measuring area. The sensing area must be in contact with the soil and can be placed in any direction or depth. In deep-rooted crops, such as orchards, it is normally installed vertically. In a vertical installation, make a 3/4" hole just deep enough to allow the sensor to drop down to the desired measuring range. It is convenient to use a 3/4" soil sampler to make the hole. **The sensor must be in intimate contact with the soil.** To make sure the soil is packed around the sensor; drive a rod about 1/2" in diameter into the ground about 3" away from the sensor, to the same depth as the sensor. Be sure the rod goes in parallel to the sensor to avoid hitting and breaking the sensor. Remove the rod and drive it down 3" away from the opposite side of the sensor. Then repeat the procedure at 90 degrees to the first set of 2 holes. Pack dirt over the top to prevent water from preferentially entering the top. Looking down, the pattern would look like this:

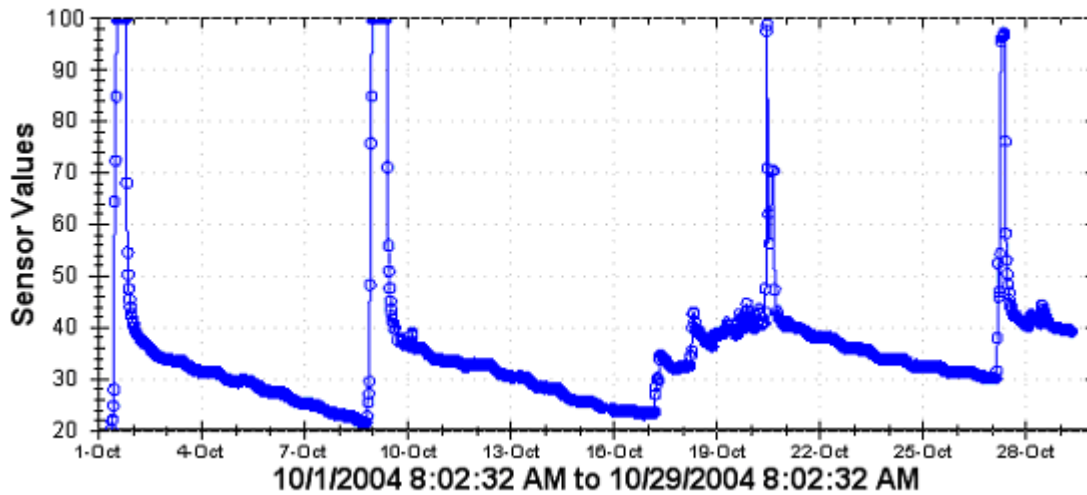


An alternate method of packing the soil against the sensor is to prepare slurry from the native soil and fill the hole. Then insert the sensor. The slurry will help fill the space between the sensor and the soil. Horizontal sensors would be installed in a trench and then back filled and packed. For further information log onto our web site, click on "products" and scroll down to the "instruction manual for TDR." CAUTION: DO NOT leave sensor lying out in the direct sun prior to installation.

Instrument Connections



Station Graph



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