REMOTELY MEASURE SOIL MOISTURE WITH AQUA-TEL-TDR SENSOR

Monitor soil moisture from the comfort of your home!

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, independent of soil texture.

Improve profits:

- Optimizing yield by utilizing the “right” amount of water at the “right” time
- Reducing personnel mileage and human error through automatic remote monitoring
- Avoiding laborious soil sampling
- Minimizing water usage
- Minimizing energy usage
- Reducing runoff, thus saving material and cleanup costs

Features

- High stability
- Maintenance-free operation
- Distributed measurement averaged over 18”
- Replaces several one point sensor needed for averaging
- Easy installation
- Independent of soil texture

How AQUA-TEL-TDR Works

Water is the primary factor in determining the dielectric constant of 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 one end of the cylindrical probe. A 10-foot cable is provided to supply power and read out the soil moisture signal as well as an optional temperature signal. Exposed material is epoxy.

Remote Operation

AQUA-TEL-TDR soil moisture sensors are compatible with Automata's DATA ⇌ LYNX® telemetry system and other brands of meters, loggers and telemetry equipment. AQUA-TEL-TDR soil moisture sensors, as well as other desired sensor readings, are read at the monitoring site and transmitted through DATA ⇌ LYNX® to your office computer. At the office computer, the readings are accumulated so that you can have real-time data on which to base decisions such as irrigation scheduling. For instance, if a dry soil is being indicated, a warning can automatically sound at the computer site to alert personnel that it may be time to begin irrigation. Automatic controls can start and stop pumps or open and close valves, and so forth. It's that simple! Moreover, with some additional sensors, it is possible to compute evapotranspiration (ET) as well as Crop Water Stress Index (CWSI). These three irrigation-scheduling techniques (ET, CWSI, and soil moisture) can be compared to provide maximum assurance that the crop is managed properly.

Specifications

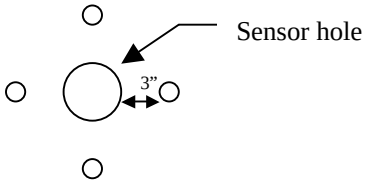
Power Requirements:	12 VDC ± 20% @ 40 mA
Output:	0-1 mA. Note: This can be converted to voltage by a shunting resistor (brown wire to black wire)
Overall Size:	¾" diameter x 27" long
Shipping Weight:	1 lb.
Temperature Output:	1 µA/°K (i.e. 0°C = 273 µA, 50°C=323 µA)
Turn on Time:	1 second from power up

Options:

1. Soil temperature included on the same probe: (Model AQUA-TEL-TDR+T).
2. 4-20 mA output.
3. 0-5V output.

Installation

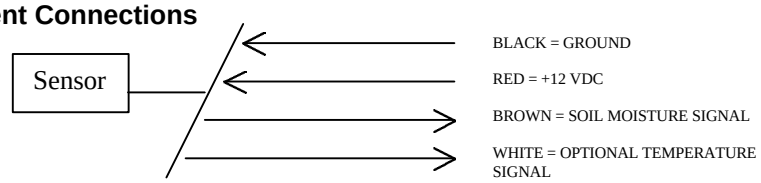
AQUA-TEL-TDR soil moisture sensors measure an 18" section of soil. The first 9" at the end closest to the cable and the bottom ½ " are not included in the measuring area. The sensing area must be in contact with the soil and can be placed in any direction or depth. In deep-rooted crops, such as orchards, it is normally installed vertically. In a vertical installation, make a ¾" hole just deep enough to allow the sensor to drop down to the desired measuring range. It is convenient to use a ¾" 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 ½" 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. Looking down, the pattern would look like this:



Pack dirt over the top to prevent water from preferentially entering the top. 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.

CAUTION: DO NOT leave sensor lying out in the direct sun prior to installation.

Instrument Connections



Brought to you by the producer of the popular AE50 award winning AQUA-TEL94, field-tested for 8 years!