Soil Moisture Sensor

With Precision Temperature

Precision Sensor

From the same Digital TDT® Soil Moisture Sensor family that has been so successful at saving water and helping scientists in field research--This model is accurate to 0.1° C in its temperature reporting.

Features:

- Accurately measures soil temperature to within 0.1° C.
- Accurately measures apparent soil permittivity to within 1% accuracy
- Sensor requires no calibration
- Works in all soils
- Highly stable under a wide range of soil conductivity and temperature
- Range of 0-100% Volumetric Water Content (VWC)
- Cabling is stranded and insulated with a UV resistant PVC sheath for greater flexibility
- Made with durable inert materials
- High value for low cost
- SDI-12 version 1.3 compliant
- Very low power operation for long battery life

Model #: ACC-SEN-SDIP

The Acclima Digital TDT® Soil Moisture Sensor represents a revolutionary advance in the irrigation industry. It is the first moisture sensor to incorporate the accuracy of digitized wave-form Time Domain Transmissometry in a low-cost instrument, providing highly accurate, absolute readings of soil moisture under all conditions of temperature and soil chemistry under which crops will grow. No other sensor on the market matches its accuracy and stability. Independent test data from leading soil physicists verifies this extraordinary claim and is available upon request.

This precision version of our SDI-12 Digital TDT® Sensor incorporates enhanced technology to accurately measure soil temperature with 0.1 degree centigrade accuracy. The cable is stranded and uses a UV resistant PVC sheath for its superior durability and greater flexibility with less danger of disturbing the sensor's position in the soil.

With its SDI-12 interface, it is capable of connecting directly to Acclima data recorder products or any other SDI-12 version 1.3 compliant device. When used with Acclima data recorders, all devices on the bus are automatically detected and addressed.

Acclima

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Precision Sensor

SDI-12 Sensor with Precision Temperature

Precision SDI-12 Characteristics

Physical Characteristics:

Dimensions (without cable):	20 cm X 5.33 cm X 2 cm
Weight (with 3 meter cable):	220g
Composition (exposed to soil):	type 304 stainless steel, epoxy potting compound
Cable Type and Length:	3 conductor, 22 Ga. UV resistant PVC sheath, 10 meter length

Environmental Characteristics:

Operating Temperature Range:	1 C to 50 C
Storage Temperature Range:	-20 C to 75 C
Lightning and Surge Protection:	6kV @ 3kA, 8/50us

Operational Characteristics:

Volumetric Water Content Range:	0% to 100%
Resolution:	0.06% VWC
Absolute VWC Accuracy:	±2% (typical)
Apparent Permittivity Accuracy:	±1% of full scale (typical)
VWC Temperature Stability:	±1% of full scale 1° C to 50° C
VWC Soil EC Stability:	±1% of full scale 0 to 5 dS/m Bulk EC
Temperature Reporting Accuracy:	±0.1° C over the range of -10° C to +50° C

Architectural Characteristics:

Technology:	Waveform Digitizing Time Domain Transmissometry
Effective Acquisition Bandwidth:	200 Giga-samples/sec.
Propagation Time Resolution:	5 ps
Waveform Propagation Resolution:	1.5 mm in air, 0.16 mm in water
Waveguide Length:	30 cm
Permittivity to VWC Calculation:	Modified Dielectric Mixing Model
Propagated Waveform Bandwidth:	>2 GHz

Communications Characteristics:

Communications Protocol:	SDI-12 Revision 1.3
Maximum Cable Length:	60 meters (200ft)
Maximum Devices per Cable:	10

Power Characteristics:

Operating Voltage Range:	4 – 15 VDC
Listening/Sleep Mode Current:	15 uA (18 uA at 50 C)
Communications Current:	2.5 mA typical, 4 mA max
Read Moisture Comm Time:	425 ms total for each read cycle
Moisture Sense Current:	30 mA at 12 VDC input voltage 55 mA at 6 VDC input voltage 75 mA at 4 VDC input voltage
Moisture Sense Time:	450 ms for each moisture sensing operation