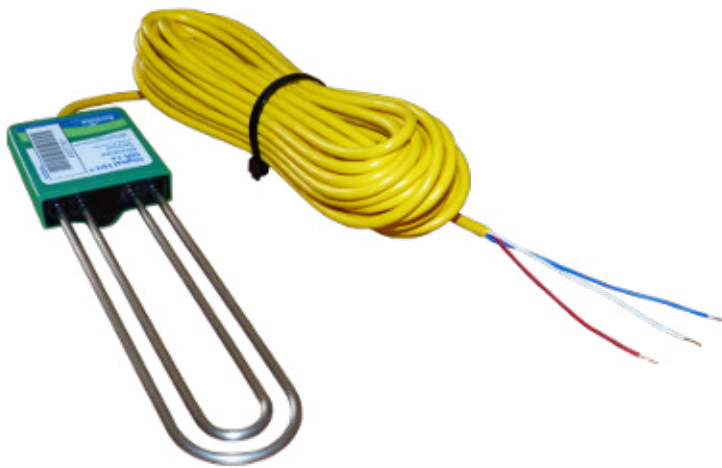


# SDI-12 Soil Moisture Sensor

## Digital TDT®

The Digital TDT soil moisture sensors used so successfully in turf irrigation are now available for use with data loggers using the SDI-12 protocol.



## Features:

- 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
- Made with durable inert materials
- Very low power, battery operable
- SDI-12 version 1.4 compliant
- Low cost

The Acclima Digital TDT® soil moisture sensor represents a revolutionary advance in the irrigation industry. It is the first soil moisture sensor to incorporate the accuracy of digitized Time Domain Transmissometry in a low-cost instrument, providing highly accurate, absolute readings of soil moisture under all conditions of temperature and soil chemistry where 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 are available upon request.

This Digital TDT® sensor incorporates a modified SDI-12 interface capable of connecting directly to Acclima data loggers or any other third party SDI-12 (version 1.4) compliant device. Acclima's modified SDI-12 interface also is capable of auto-detection and address collision repair.

Model # ACC-SEN-SDI

**Acclima**

Acclima, Inc., 1763 W. Marcon Lane, Ste. 175  
Meridian, Idaho 83642 USA  
Toll Free: 866-887-1470 Fax: 208-887-6368  
[www.acclima.com](http://www.acclima.com)

<b>P</b> hysical Characteristics-	
Dimensions (without cable):	20 cm X 5.33 cm X 1.5 cm
Weight (with 7.5 meter cable):	220g
Composition (exposed to soil):	Type 304 Stainless Steel, epoxy-based potting compound
Cable Type and Length:	UV resistant PVC sheath (insulation), 3 conductor, 22 Ga., 10 meter length
<b>E</b> nvironmental Characteristics-	
Operating Temperature Range:	0.5° C to 50° C for VWC (no ice), -20° C to 50° C for the other data.
Storage Temperature Range:	-20° C to 75° C
Lightning and Surge Protection:	6kV @ 3kA, 8/50us
<b>O</b> perational Characteristics-	
Volumetric Water Content Range:	0 to 100%
Resolution:	0.06% VWC
Absolute VWC Accuracy:	±2% (typical )
VWC Soil EC Stability:	±1% of full scale 0 to 5 dS/m Bulk EC
Temperature Reporting Accuracy:	±0.3° C, 0° C to 40° C ±0.5° C, -20° C to -0.1° C & 40° C° to 50° C
<b>A</b> rchitectural 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
<b>C</b> ommunications Characteristics-	
Communications Protocol:	SDI-12 Revision 1.4
Maximum Cable Length:	60 meters (200ft)
Maximum Devices per Cable:	50
<b>P</b> ower Characteristics-	
Operating Voltage Range:	5 – 15 VDC
Listening/Sleep Mode Current:	60 uA at 50 C
Communications Current:	6 mA typical, 8 mA max
Read Moisture Comm Time:	425 ms total for each read cycle
Moisture Sense Current:	84 mA at 12 VDC input voltage 98 mA at 8 VDC input voltage 110 mA at 6 VDC input voltage
Moisture Sense Time:	450 ms for each moisture sensing operation