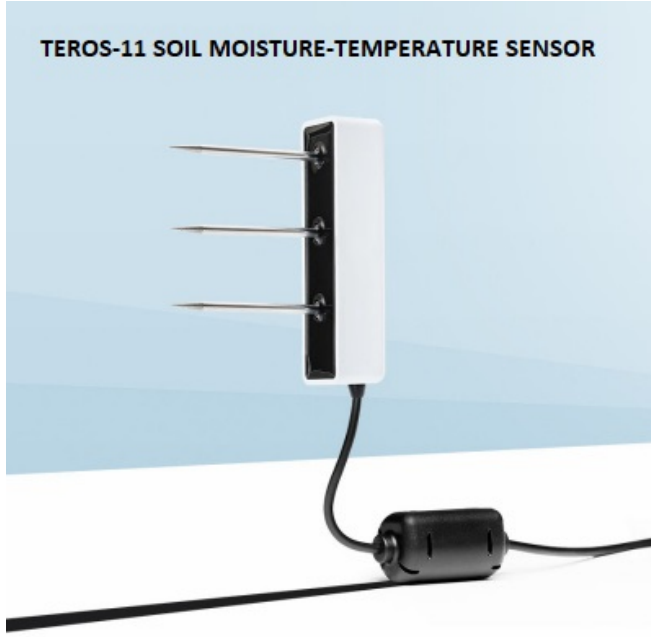




## TEROS-11 SOIL MOISTURE-TEMPERATURE SENSOR

### METER

TEROS-11 delivers the best volume of influence to sensor size on the market so you're less susceptible to soil variability errors. We've optimized the circuitry in this 9.4-cm sensor to deliver an incredible one-liter volume of influence. Not only that, you can cut your installation time in half or more when you install with the new Borehole Installation tool. The tool mistake-proofs installation, eliminating common errors that cause uncertainty in the data-like air gaps, or preferential flow.



TEROS BORE HOLE INSTALLATION TOOL



TEROS-11 uses a completely new calibration procedure that maximizes accuracy and minimizes sensor-to-sensor variability while keeping the cost reasonable. So you can be confident that every sensor you install is going to read exactly like the next one.

Unlike other sensors on the market which spec an unverifiable  $\pm 1.0\%$  VWC accuracy, TEROS-11 was rigorously tested by our soil physicists across a challenging range of soil types and EC levels so you can be confident in the accuracy of your data.

Plus, TEROS sensor repeatability can be checked with an accuracy verification clip. No other soil moisture sensor has this ability. Just slide the verification clip onto a sensor and plug it into a logger. If it reads within the right range, your sensor is good to go.

Easy and reliable data collection is part of TEROS-11 experience. Combine TEROS-11 with the new ZL6, where all data is connected and delivered through the cloud. Collect data in near real time, from the comfort of your office. So all you have to do is sit back and let the data flow.

### Features

- Increased volume of influence (1010 mL)
- Reduced sensor-to-sensor variability
- 3-year long-life guarantee
- Easy installation with borehole installation tool (minimizes air gaps for cleaner readings)
- Check installation or troubleshoot with the ZSC Bluetooth sensor interface.
- Repeatability can be checked with an accuracy verification clip
- Robust epoxy body for tough field conditions
- Minimizes salinity and textural effects by using 70 MHz frequency capacitance technology
- Ferrite core eliminates cable noise
- Easy-to-use SDI-12 communication for non-METER data loggers



# TEROS-11

## SOIL MOISTURE-TEMPERATURE SENSOR

### METER

#### Specifications

##### MEASUREMENT SPECIFICATIONS

<b>Volumetric water content (VWC)</b>	<b>RANGE</b> <b>Mineral soil calibration:</b> 0.00-0.70 m <sup>3</sup> /m <sup>3</sup> <b>Soilless media calibration:</b> 0.0-1.0 m <sup>3</sup> /m <sup>3</sup> <b>Apparent dielectric permittivity (<math>\epsilon_a</math>):</b> 1 (air) to 80 (water) <b>RESOLUTION</b> 0.001 m <sup>3</sup> /m <sup>3</sup> <b>ACCURACY</b> <b>Generic calibration:</b> $\pm 0.03$ m <sup>3</sup> /m <sup>3</sup> ( $\pm 3.00\%$ VWC) typical in mineral soils that have solution EC <8 dS/m <b>Medium specific calibration:</b> $\pm 0.01$ -0.02 m <sup>3</sup> /m <sup>3</sup> ( $\pm 1$ -2% VWC) in any porous medium <b>Apparent dielectric permittivity (<math>\epsilon_a</math>):</b> 1-40 (soil range), $\pm 1\epsilon_a$ (unitless) 40-80, 15% of measurement
<b>Dielectric measurement frequency</b>	70 MHz
<b>Temperature</b>	<b>Range:</b> -40 to 60°C <b>Resolution:</b> 0.1°C <b>Accuracy:</b> $\pm 1$ °C from -40 to 0°C $\pm 0.5$ °C from 0 to +60°C

##### COMMUNICATION SPECIFICATIONS

<b>Output</b>	DDI serial or SDI-12 communication protocol
<b>Temperature</b>	<b>Operating range:</b> -40 to 60°C
<b>Data logger compatibility</b>	METER data loggers (ZL6, EM50/60 series) or any data acquisition systems capable of 4.0-15 VDC power and serial or SDI-12 communication.

##### PHYSICAL SPECIFICATIONS

<b>Dimensions</b>	<b>Length:</b> 9.4 cm <b>Width:</b> 2.4 cm <b>Height:</b> 7.5 cm
<b>Needle/Probe length</b>	5.5 cm
<b>Cable length</b>	5 m (standard) 75 m (maximum custom cable length)
<b>Connector types</b>	3.5-mm stereo plug connector or stripped and tinned wires

##### ELECTRICAL AND TIMING CHARACTERISTICS

<b>Operating temperature range</b>	<b>Minimum:</b> -40°C <b>Typical:</b> NA <b>Maximum:</b> 60°C
<b>Measurement duration</b>	<b>Minimum:</b> 25 ms <b>Typical:</b> NA <b>Maximum:</b> 150 ms

<b>COMPLIANCE (CE Mark)</b>	Manufactured under ISO 9001:2015 EM ISO/IEC 17050:2010 2014/30/EU and 2011/65/EU EN61326-1:2013 and EN55022/CISPR 22
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