TEROS 12

Advanced Soil Moisture Sensor + Temperature and EC

YOU NEED SENSOR LONGEVITY

Soil can be highly variable in space, requiring many measurements and frustrating amounts of your research dollars. Not to mention the extra cost and hassle of replacement sensors if you need long-term data. Make large sensor networks simpler, longer-lasting, and more affordable with the ultra-dependable TEROS 12 soil moisture, temperature, and EC sensor.

BETTER ACCURACY—VERIFIED

The TEROS 12 soil moisture sensor 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 ±1.0% VWC accuracy, the TEROS 12 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 standard. 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.

FEATURES

- Increased volume of influence (1010 mL)

- Easy installation with Borehole installation tool (minimizes air gaps for cleaning readings)

- Dependable, long-life soil moisture sensor

- Reduced sensor-to-sensor variability

- 3-year long-life guarantee

- Check installation or troubleshoot with the ZSC Bluetooth sensor interface

- Repeatability can be checked with an accuracy verification standard

- Robust, epoxy body for tough field conditions

- Minimizes salinity and textural effects by using 70 MHz frequency capacitance technology

- Steel needles cut through the soil for better soil-sensor contact

- Easy-to-use SDI-12 communication for non-METER data loggers

- Ferrite core eliminates cable noise

SPECS

Volumetric Water Content Range	**Mineral Soil Calibration:** 0.00–0.70 m³/m³ **Soilless Media Calibration:** 0.0–1.0 m³/m³ **Apparent Dielectric Permittivity (ε_a):** 1 (air) to 80 (water) **NOTE: The VWC range is dependent on the media the sensor is calibrated to. A custom calibration will accommodate the necessary ranges for most substrates.**
VWC Resolution	0.0010 m³/m³
VWC Accuracy	**Generic Calibration:** ±0.03 m³/m³ (±3.00% VWC) typical in mineral soils that have solution EC <8,000 µS/cm **Medium Specific Calibration:** ±0.01–0.02 m³/m³ in any porous medium **Apparent Dielectric Permittivity (ε_a):** 1–40 (soil range), ±1 ε_a (unitless) 40–80, 15% of measurement
Temperature	**Range:** −40 to +60 °C **Resolution:** 0.10 °C **Accuracy:** ±0.5 °C from 0 to +60 °C and ±1.0 °C from −40 to 0 °C
Dielectric Measurement Frequency	70 MHz
Bulk Electrical Conductivity (EC)	**Range:** 0–20,000 µS/cm (bulk) **Resolution:** 1 µS/cm **Accuracy:** ± (5% + 10 µS/cm) from 0–10,000 µS/cm ± 8% from 10,000–20,000 µS/cm
Communication Output	DDI serial or SDI-12 communications protocol
Data Logger Compatibility	METER ZL6, EM60, and Em50 data loggers or any data acquisition system capable of 4.0- to 15-VDC power and serial or SDI-12 communication
Dimensions	**Length:** 9.4 cm (3.70 in) **Width:** 2.4 cm (0.95 in) **Height:** 7.5 cm (2.95 in)
Needle Length	5.5 cm (2.17 in)
Operating Temperature Range	**Minimum:** -40.00 °C **Typical:** NA **Maximum:** 60.00 °C **NOTE: Sensors may be used at higher temperatures under certain conditions; Contact Customer Support for assistance.**
Cable Length	5 m (standard) 75 m (maximum custom cable length) **NOTE: Contact Customer Support if a nonstandard cable length is needed.**
Cable Diameter	0.165 ±0.004 in (4.20 ± 0.10mm) with minimum jacket of 0.030 (0.760 mm)
Connector Types	Stereo plug connector or stripped and tinned wires
Stereo Plug Connector Diameter	3.5 mm
Conductor Gauge	22-AWG / 24-AWG drain wire