10HS Large Volume Soil Moisture Sensing

Integrate more soil into your measurement

ECH$_2$O 10HS

Measure more—work less

Soil is a naturally heterogeneous system, which means small soil moisture sensors may not provide good enough answers to your soil moisture questions. The larger 10HS soil moisture sensor is better at averaging varying soil moisture and characterizing spatial variability because it averages soil moisture over a greater volume.

Extra large volume of influence

The 10-cm long 10HS has three times the volume of influence compared to smaller sensors, measuring one liter of soil volume. Most soil sensors that measure this much volume are 20 cm or longer, causing installation headaches. The 10HS provides the perfect balance between volume of influence and sensor size, installing easily into the sidewall of a narrow trench.

(**Note**: Want even easier installation? Many of our 10HS customers now prefer the TEROS 12, which also has a one-liter volume of influence, is even smaller, and can be installed with an installation tool for faster, more consistent, and mistake-proof installation.)

Fast, accurate water content measurements

The 10HS measures volumetric water content by means of capacitance technology. Its high measurement frequency minimizes salinity and textural effects, making this sensor accurate in a large range of mineral soils. Factory calibrations can be used in most typical soils with a saturation extract EC of 8 dS/m or less. (For soilless media, we recommend the TEROS 12 sensor.)

Get more for less

A special coating makes the 10HS soil moisture sensor resistant to salts. Very low power consumption and a high resolution provide increased precision over a longer period of time.

Sublimely simple

Push the 10HS directly into undisturbed soil, plug it in, and start collecting data. It's that easy with the METER ZL6 data logging system.

A sensor that adapts to your needs

The 10HS's analog signal means no-hassle integration with systems manufactured by other companies.

Get the perfect balance

Soil is highly variable in space. The 10HS soil moisture probe with its larger volume of influence can smooth variability and accurately characterize highly heterogeneous soil water content. It's the perfect balance between volume of influence, accuracy, affordability, and ease of installation.

Features

- Large volume of influence
- High measurement frequency
- Easy to install
- Plug and play capability with METER loggers
- Simple integration with third-party loggers as a single-ended voltage reading

Specifications

MEASUREMENT SPECIFICATIONS	
Volumetric water content (VWC)	**RANGE:** Mineral soil calibration: 0−0.57 m^3/m^3 (0%−57% VWC) Soilless media calibration: 0–0.69 m^3/m^3 (0%−69% VWC) Apparent dielectric permittivity (εa): 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.** **RESOLUTION:** 0.0008 m^3/m^3 (0.08% VWC) in mineral soils from 0−0.50 m^3/m^3 (0%−50% VWC) **ACCURACY:** With standard calibration equation, 0.03 m^3/m^3 (3% VWC) typical in mineral soils that have solution electrical conductivity <10 dS/m **NOTE: With soil-specific calibration, ±0.02 m^3/m^3 (±2% VWC) is typical in any soil.**
Measurement volume	See comparison article
COMMUNICATION SPECIFICATIONS	
Output	300−1,250 mV, independent of excitation voltage
Data logger compatibility	METER data loggers (ZL6, EM50/60 series, Em5b) or any data acquisition systems capable of switched 3–15 VDC excitation and single-ended voltage measurement at greater than or equal to 12-bit resolution.
PHYSICAL SPECIFICATIONS	
Dimensions	Length: 16.0 cm (6.3 in) Width: 3.3 cm (1.3 in) Height: 0.8 cm (0.3 in)
Prong length	10 cm (3.94 in)

Operating temperature range	Minimum: –40 °C Typical: NA Maximum: 50 °C **NOTE: Sensors may be used at higher temperatures under certain conditions; contact Customer Support for assistance.**
Cable length	5 m (standard) 40 m (maximum custom cable length) **NOTE: Contact Customer Support if a nonstandard cable length is needed.**
Connector types	3.5-mm stereo plug connector or stripped and tinned wires
ELECTRICAL AND TIMING CHARACTERISTICS	
Supply voltage (VIN to GND)	Minimum: 3 VDC Typical: NA Maximum: 15 VDC
Measurement duration	Maximum 10 ms
COMPLIANCE	Manufactured under ISO 9001:2015 EM ISO/IEC 17050:2010 (CE Mark) 2014/30/EU 2011/65/EU EN61326-1:2013 EN50581:2012

California requires the following notice:

⚠ WARNING: This product may contain chemicals including ethylene glycol, lead, nickel, styrene and cadmium, which are known to the State of California to cause cancer, birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov

Support

Have a question or problem? Our support team can help.

We manufacture, test, calibrate, and repair every instrument in-house. Our scientists and technicians use the instruments every day in our product testing lab. No matter what your question is, we have someone who can help you answer it.

Email: info@edaphic.com.au