

Large Volume Soil Moisture Sensing

metergroup.com/environment/products/ech20-10hs-soil-moisture-sensor/



Integrate more soil into your measurement

ECH₂O 10HS

Better averaging means better data

If your soil is extremely heterogeneous, 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.

The best volume of influence to sensor size on the market

The 10 cm long 10HS has three times the volume of influence compared to smaller sensors, measuring 1 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.

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 [GS3](#) 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 METER's [EM60G](#) 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.

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Features

- Large volume of influence
- High measurement frequency
- Easy to install
- Plug and play capability with METER loggers
- No-hassle integration with third-party loggers using SDI-12 protocol

Specifications

Accuracy	Apparent dielectric permittivity (ϵ_a): ± 0.5 from ϵ_a of 2 to 10, ± 2.5 from ϵ_a of 10 to 50 Soil Volumetric Water Content (VWC): using standard calibration equation: ± 0.03 m ³ /m ³ ($\pm 3\%$ VWC) typical in mineral soils that have solution electrical conductivity < 10 dS/m; using soil specific calibration, ± 0.02 m ³ /m ³ ($\pm 2\%$ VWC) in any soil
Resolution	ϵ_a : 0.1 from ϵ_a of 1 to 30, 0.2 from ϵ_a of 30 to 50 VWC: 0.0008 m ³ /m ³ (0.08% VWC) in mineral soils from 0 to 0.50 m ³ /m ³ (0-50% VWC)
Range	ϵ_a : 1 (air) to 50 VWC: calibration dependent; up to 0 - 57% VWC with polynomial equation

Measurement time	10 ms
Sensor type	Capacitance (frequency domain)
Output	300 - 1250 mV, independent of excitation voltage
Operating environment	Survival temperature: -40 - 50 °C Operating temperature: 0 - 50 °C
Power requirement	3 VDC @ 12 mA to 15 VDC @ 15 mA
Cable length	Sensors come standard with 5 m cable. Custom cable lengths available. Maximum cable length of 40 m. Please contact METER if you need longer cable lengths.
Cable connectors types	3.5mm "stereo" plug or stripped and tinned lead wires (3)
Sensor dimensions	14.5 cm x 3.3 cm x 0.7 cm
Data logger compatibility	METER Em5b , Em50/50G , EM60/60G , ProCheck , Campbell Scientific
Measurement volume	See comparison article
Warranty	One year, parts and labor

Accessories



Splice Kit



Probe Adaptor Pigtail for CSI Data Loggers



Pigtail-to-Stereo Adaptor



EM60

SOLAR-POWERED DATA LOGGING



EM60G

CELLULAR DATA LOGGING



50 Foot Extension Cable



10 Foot Extension Cable

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: support.environment@metergroup.com

Phone US: +1 509-332-5600

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Downloads

[10HS Manual PDF / 332.14 KB](#)

[ECH₂O CSI – SCWin \(shortcut\) ZIP / 92.91 KB](#)

[ECH₂O Sensor Quick Start PDF / 7.99 MB](#)

Related Products



ECH₂O 5TE

The 5TE's smaller size ensures fast, easy installation, and provides three measurements in one—bulk EC, VWC, and soil temperature.

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[Get pricing](#)



ECH₂O 5TM

Make large sensor networks simple and affordable with the economical 5TM soil moisture and temperature sensor.

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