

Decagon 10HS Soil Moisture Sensor

SOIL

ECH510



The 10HS soil moisture sensor has a larger volume of influence. At being 10 cm long, the 10HS has a 1 liter area of influence. The 10HS determines volumetric water content (VWC) by measuring the dielectric constant of the soil using capacitance/frequency domain technology. Using a 70 MHz frequency minimizes salinity and textural effects, making the 10HS accurate in most soils. Factory calibrations can be used in most typical soils with a saturation extract EC of 10 dS/m.

- IM5041D
- SAR19
- ECH500
- ECH510
- ECH5TM
- ECH5TE
- ECH511
- MD510SM
- AQ600
- TNS103..7
- SEN12512
- SEN13512
- 100SMT
- ECH870E
- ECH871E
- ECH874E
- WM-BUS
- TNS100

Accuracy <i>Apparent Dielectric Permittivity (ϵ_a)</i>	± 0.5 from ϵ_a of 2 to 10, ± 2.5 from ϵ_a of 10 to 50
<i>Soil Volumetric Water Content (VWC)</i>	Using standard calibration equation: $\pm 0.03 \text{ m}^3/\text{m}^3$ ($\pm 3\%$ VWC) typical in mineral soils that have solution electrical conductivity $< 10 \text{ dS/m}$ Using soil specific calibration, $\pm 0.02 \text{ m}^3/\text{m}^3$ ($\pm 2\%$ VWC) in any soil
Resolution ϵ_a VWC	1.1 from ϵ_a of 1 to 30, 0.2 from ϵ_a of 30 to 50 1.2 $0.0008 \text{ m}^3/\text{m}^3$ (0.08% VWC) in mineral soils from 0 to $0.50 \text{ m}^3/\text{m}^3$ (0-50% VWC)
Range ϵ_a VWC	1 (air) to 50 Calibration dependant; up to 0 - 57% VWC with polynomial equation
Measurement Time	10 ms (milliseconds)
Sensor Type	Capacitance (frequency domain)
Output	300 - 1250 mV, independent of excitation voltage
Operating Environment <i>Survival Temperature</i> <i>Operating Temperature</i>	-40 - 50°C 0 - 50°C
Power requirements	3 VDC @ 12 mA to 15 VDC @ 15 mA
Cable Length	5 m standard; custom cable lengths available
Part.no. ECH510	Decagon 10HS Echo probe sensor
Interface	Necessary Interface to connect this sensor with iMetos: ECH870E / ECH871E / ECH874E