

SOIL MOISTURE, TEMPERATURE AND EC



Specification

ACCURACY	<p>Apparent dielectric Permittivity (ϵ_a): $\pm 1\epsilon_a$ (unitless) from 1-40 (soil range), $\pm 15\%$ from 40-80</p> <p>VWC:</p> <ul style="list-style-type: none"> • Using Topp equation: $\pm 0.03\text{m}^3/\text{m}^3$ ($\pm 3\%$ VWC) typical in mineral soils that have solution electrical conductivity < 10 dS/m • Using medium specific calibration, $\pm 0.01\text{-}0.02\text{m}^3/\text{m}^3$ ($\pm 1\text{-}2\%$ VWC) in any porous medium <p>Electrical Conductivity (EC): $\pm 10\%$ from 0 to 7 dS/m, user calibration required above 7 dS/m</p> <p>Temperature: $\pm 1^\circ\text{C}$</p>
RESOLUTION	<p>ϵ_a: $0.1\epsilon_a$ (unitless) from 1-20, $< 0.75\epsilon_a$ (unitless) from 20-80</p> <p>VWC: $0.0008\text{m}^3/\text{m}^3$ (0.08% VWC) from 0 to 50% VWC</p> <p>EC: 0.01 dS/m from 0 to 7 dS/m, 0.05 dS/m from 7 to 23.1 dS/m</p> <p>Temperature: 0.1°C</p>
RANGE	<p>ϵ_a: 1 (air) to 80 (water)</p> <p>EC: 0-23 dS/m (bulk)</p> <p>Temperature: $-40\text{-}50^\circ\text{C}$</p>
MEASUREMENT SPEED	150ms
SENSOR TYPE	<p>VWC: Frequency domain</p> <p>EC: Two probe design</p> <p>Temperature: Thermistor</p>
OUTPUT	Serial TTL, 3.6 Volt Levels or SDI-12 (contact Decagon for information on SDI-12 mode)
OPERATING ENVIRONMENT	-40°C to 50°C
POWER	3.6-15 VDC, 0.3mA quiescent, 10mA during 150ms measurement
CABLE LENGTH	5m, custom cable lengths available upon request
CABLE CONNECTOR TYPES	3.5mm "stereo" plug or stripped and tinned lead wires (3)
SENSOR DIMENSIONS	10 x 3.2 x 0.7cm
DATA LOGGER COMPATIBILITY (NOT EXCLUSIVE)	<p>Decagon: Em50, Em50R, ProCheck</p> <p>Campbell Scientific: CR200X - series, CR800/CR850, CR1000, CR3000, CR9000X</p> <p>Other: Any data acquisition system capable of 3.6-15V excitation and serial or SDI-12 communication</p>
WARRANTY	One year, parts and labor