

GS3 SOIL MOISTURE SENSOR



ACCURACY	<p><i>Apparent Dielectric Permittivity (ϵ_a):</i> $\pm 1 \epsilon_a$ (unitless) from 1 - 40 (soil range), $\pm 15\%$ from 40 - 80</p> <p><i>Soil Volumetric Water Content (VWC):</i></p> <ul style="list-style-type: none"> Using a generic calibration: $\pm 0.03 \text{ m}^3/\text{m}^3$ ($\pm 3\%$ VWC) typical in mineral soils that have solution electrical conductivity $< 10 \text{ dS/m}$ Using medium specific calibration, $\pm 0.01 - 0.02 \text{ m}^3/\text{m}^3$ ($\pm 1 - 2\%$ VWC) in any porous medium <p><i>Electrical Conductivity (EC):</i> $\pm 10\%$ from 0 to 10 dS/m, user calibration required above 10 dS/m</p> <p><i>Temperature:</i> $\pm 1^\circ\text{C}$</p>
RESOLUTION	<p>ϵ_a: $0.1 \epsilon_a$ (unitless) from 1 - 20, $< 0.75 \epsilon_a$ (unitless) from 20 - 80</p> <p>VWC: $0.002 \text{ m}^3/\text{m}^3$ (0.2% VWC) from 0 to 40% VWC, $0.001 \text{ m}^3/\text{m}^3$ (0.1% VWC) $> 40\%$ VWC</p> <p>EC: 0.001 dS/m from 0 to 23 dS/m</p> <p><i>Temperature:</i> 0.1°C</p>
RANGE	<p>ϵ_a: 1 (air) to 80 (water)</p> <p>EC: 0 - 23 dS/m (bulk)</p> <p><i>Temperature:</i> -40 to 80°C</p>
MEASUREMENT SPEED	150 ms (milliseconds)
SENSOR TYPE	<p>VWC: Frequency domain</p> <p>EC: Two probe design</p> <p><i>Temperature:</i> Thermistor</p>
OUTPUT	Serial TTL, 3.6 Volt Levels or SDI-12
OPERATING ENVIRONMENT	-40°C to 80°C
POWER	3.6 - 15 VDC, 0.3 mA quiescent, 25 mA during 150 ms measurement
CABLE LENGTH	5 m standard, custom cable lengths available upon request
CABLE CONNECTOR TYPES	3.5 mm "stereo" plug, or stripped and tinned lead wires (3)
SENSOR DIMENSIONS	9.3 cm x 2.4 cm x 6.5 cm
DATA LOGGER COMPATIBILITY (NOT EXCLUSIVE)	<p><i>Decagon:</i> Em50, Em50R, Em50G, ProCheck</p> <p><i>Campbell Scientific:</i> Any logger with serial I/O (CR10X, CR850, CR1000, CR3000, etc.)</p> <p><i>Other:</i> Any data acquisition system capable of 3.6-15V excitation and serial or SDI-12 communication</p>
WARRANTY	One year, parts and labor