

# 10HS SOIL MOISTURE SENSOR



<b>ACCURACY</b>	<p><i>Apparent Dielectric Permittivity</i> (<math>\epsilon_a</math>): <math>\pm 0.5</math> from <math>\epsilon_a</math> of 2 to 10, <math>\pm 2.5</math> from <math>\epsilon_a</math> of 10 to 50</p> <p><i>Soil Volumetric Water Content (VWC)</i>:</p> <ul style="list-style-type: none"> <li>•Using standard calibration equation: <math>\pm 0.03</math> <math>m^3/m^3</math> (<math>\pm 3\%</math> VWC) typical in mineral soils that have solution electrical conductivity <math>&lt; 10</math> dS/m</li> <li>•Using soil specific calibration, <math>\pm 0.02</math> <math>m^3/m^3</math> (<math>\pm 2\%</math> VWC) in any soil</li> </ul>
<b>RESOLUTION</b>	<p><math>\epsilon_a</math>: 0.1 from <math>\epsilon_a</math> of 1 to 30, 0.2 from <math>\epsilon_a</math> of 30 to 50</p> <p>VWC: 0.0008 <math>m^3/m^3</math> (0.08% VWC) in mineral soils from 0 to 0.50 <math>m^3/m^3</math> (0-50% VWC)</p>
<b>RANGE</b>	<p><math>\epsilon_a</math>: 1 (air) to 50</p> <p>VWC: Calibration dependant; up to 0 - 57% VWC with polynomial equation</p>
<b>MEASUREMENT TIME</b>	10 ms (milliseconds)
<b>SENSOR TYPE</b>	Capacitance (frequency domain)
<b>OUTPUT</b>	300 - 1250 mV, <b>independent</b> of excitation voltage
<b>OPERATING ENVIRONMENT</b>	<p><i>Survival Temperature</i>: -40 - 50°C</p> <p><i>Operating Temperature</i>: 0 - 50°C</p>
<b>POWER REQUIREMENTS</b>	3 VDC @ 12 mA to 15 VDC @ 15 mA
<b>CABLE LENGTH</b>	5 m standard; custom cable lengths available
<b>CABLE CONNECTOR TYPES</b>	3.5mm "stereo" plug, or stripped and tinned lead wires (3)
<b>SENSOR DIMENSIONS</b>	14.5 cm x 3.3 cm x 0.7 cm
<b>DATA LOGGER COMPATIBILITY (NOT EXCLUSIVE)</b>	<p><i>Decagon</i>: Em50 series loggers, ProCheck, ECH<sub>2</sub>O Check</p> <p><i>Campbell Scientific</i>: CR10X, CR21X, CR23X, CR850, CR1000, CR3000, etc.</p> <p><i>Other</i>: Any data acquisition system capable of 3-15 VDC excitation and single ended voltage measurement at 12 bit or better resolution.</p>
<b>WARRANTY</b>	One year, parts and labor