



GS1: Ruggedized Soil Water Content Sensor

Precisely measures moisture level
in soil or soilless media.

Overview

The GS1 is a low cost, ruggedized sensor that can accurately measure the level of moisture in soil or soilless media. The GS1 determines volumetric water content (VWC) by measuring the dielectric constant of the medium using capacitance and frequency domain technology. The GS1 can measure VWC from 0 to 57% and with its two-prong design and the 70 MHz frequency, it minimizes salinity and textural effects, making it accurate in almost any soil or soilless medium. The GS1 delivers research-grade accuracy at a competitive price. The robust sensor design, plus flexible output to connect to most data loggers or systems, makes the GS1 ideal for monitoring water content.

The GS1 sensor is built to last longer in the field under warmer, wetter conditions. The epoxy body withstands water intrusion and the sensor is built for long-term installation.

The GS1 is sensitive across the entire water content range. It can be installed in dry desert soils or in very wet peat. Sensitive to small changes in water content anywhere from 0 – 100% VWC.

The GS1 accepts a wide range of input voltages and has an easy-to-read voltage output. Voltage correlates to soil water content through a simple linear relationship, making this sensor compatible with most data logging, PLC or SCADA systems.

Specifications

Measurement Time	10 ms (milliseconds)
Accuracy	±0.03 m3/m3 in typical soils, up to 8 dS/m saturation extract EC. With soil-specific calibration: ±0.01 to 0.02 m3/m3 in any material
Resolution	0.001 m3/m3 VWC in mineral soils
Power Requirements	3.0 VDC to 15 VDC (absolute maximum) @ 15 mA
Output	1,000 to 2,500 mV
Operating Environment	-40 to 50 °C1

Range of Measurement	0 to 57% VWC
Sensor dimensions	5.1 cm x 2.4 cm x 2.1 cm
Needle Length	5.2 cm
Connector Types	3.5 mm (stereo) plug or stripped & tinned lead wires (Pigtail)
Cable Length	5 m standard; custom cable lengths up to 75 m available upon request
Data logger Compatibility (not exclusive):	* Campbell Scientific: CR10X, CR850, 1000, 3000, etc.

For comprehensive details, visit: www.campbellsci.ca/gs1- 