



5TM

Soil Moisture and Temperature Sensor



Volumetric Water Content (VWC) and Temperature Sensor

Small, accurate, easy to install and easy to read.

Overview

The 5TM sensor is a perfect solution for people who want to measure Volumetric Water Content (VWC) and Temperature in different types of soils.

The 5TM sensor is equipped with an onboard thermistor to accurately measure soil temperature. The 5TM also uses capacitance/frequency domain technology to determine volumetric water content (VWC) by measuring the dielectric constant of the soil (or other media).

The 5TM sensor uses a 70 MHz frequency which minimizes

salinity and textural effects, making it accurate in most soils and soilless media. The 5TM is factory calibrated to be used in mineral soils, potting soils, rockwool, and perlite.

The small and compact size of the 5TM sensor makes it easy to install and perfect to use in fields, labs and/or greenhouses.

The 5TM sensor comes standard with both serial and SDI-12 communication options to make it easy to integrate with different systems.

Specifications

Accuracy	Apparent Dielectric Permittivity (Ka): ± 1 Ka from 1 – 40 (soil range); $\pm 15\%$ from 40 – 80 Soil.
Volumetric Water Content (VWC)	Using Topp equation: ± 0.03 m ³ /m ³ ($\pm 3\%$ VWC) typical in mineral soils that have solution electrical conductivity less than 10 dS/m. Using medium specific calibration, ± 0.02 m ³ /m ³ ($\pm 2\%$ VWC) in any porous medium.
Temperature	$\pm 1^\circ\text{C}$
VWC	0.0008 m ³ /m ³ (0.08% VWC) from 0 to 50% VWC Temperature: 0.1°C

Range	VWC: 0 – 100% Temperature: -40 – 50°C
Dimensions	10 cm x 3.2 cm x 0.7cm
Cable Length	5 m standard, custom cable lengths available upon request
Measurement Time	150 ms (milliseconds)
Power	3.6 – 15 VDC, 0.3 mA quiescent, 10 mA during 150 ms measurement
Connector Types	Stripped and tinned lead wires.
Output	RS232 or SDI-12
Datalogger Compatibility	*Campbell Scientific: CR10X, CR850, 1000, 3000, etc.

For comprehensive details, visit: www.campbellsci.ca/5tm

