



**Delta-T Devices**

## The SM150T measures soil moisture and temperature with research-grade accuracy

- Research grade sensor at a great price
- Soil moisture and temperature
- Dependable moisture accuracy  $\pm 3\%$
- Robust and buriable

### Research grade sensor

Patented sensor electronics produce a highly dependable sensor with exceptional salinity and temperature stability. The SM150T is built to withstand long term burial - the sensor, connectors and cable are all environmentally protected to IP68. Moisture accuracy is 3% (after soil specific calibration) and the built-in temperature sensor achieves 0.5°C accuracy.

### Data logging and readout

The SM150T is a dual purpose probe - it can be used portably for instant moisture readings, or left installed in the soil for continuous logging - to provide moisture and temperature data.

**For installed sensors** - The SM150T can be logged by any Delta-T data logger and by many loggers from other manufacturers (simple 0-1 V output).

**For portable applications** - The SM150T is available as the convenient SM150 Kit, complete with carry case and HH150 readout meter\* (NB: the HH150 does not provide temperature indication from the SM150T Sensor). Please see overleaf for more about SM150 Kits.

### Installation

The SM150T's sharp pins minimise soil disturbance, preserving the original soil structure around the measurement rods, and making the probe easy to insert and install. For burial at depth the cylindrical shape facilitates installation in augered holes. Optional extension tubes assist with placement and removal (50 cm and 100 cm lengths, connectable).

\*The HH150 Meter supplied with the SM150 Kit is a readout-only device. If PC connectivity for data download is a requirement, the SM150T should be used with the HH2 Moisture Meter. Please see page 8 of our Soil Moisture Measurement catalogue for details of the HH2 Moisture Meter.

# SM150T

## Soil Moisture and Temperature Sensor



### Calibration

The SM150T is provided with general calibrations for mineral and organic soils. A two-point soil specific calibration can be performed for greater accuracy if required.

### Applications

**Soil science** - The SM150T is easy to install and provides accurate measurement of soil moisture and temperature - simplifying the vertical profiling of both parameters.

**Horticulture** - With a length of only 143 mm (rods 51 mm), the SM150T can be installed in grow-bags and plant pots. For portable use, the SM150 Kit provides a simple, rugged solution to checking the uniformity of growing conditions across many types of growing media. Substrate calibrations include perlite, coir, peat, and mineral wool, as well as soils.

**Irrigation** - The accuracy and ruggedness of the SM150T makes it a natural choice for system integrators – a separate SM150T Integrator data sheet is available.

### Specification

<b>Accuracy</b>	± 0.03 m <sup>3</sup> .m <sup>-3</sup> (3%) volumetric water content (VWC) ± 0.5°C (0 to 40°C for temp sensor)
<b>Soil moisture measurement range</b>	0 to 1.0 m <sup>3</sup> .m <sup>-3</sup> (100%) but less accurate above 70% VWC
<b>Salinity range</b>	50 to 1000 mS.m <sup>-1</sup> ± 5% vol over 100 to 1000 mS.m <sup>-1</sup> and 0-60% VWC
<b>Temperature range</b>	Full accuracy over: 0 to 60°C
<b>Output</b>	0 to 1.0 V differential Corresponding to 0 to ~0.6 m <sup>3</sup> .m <sup>-3</sup>
<b>Power requirement</b>	5-14 V, ~18 mA for 1s Minimum 5 V with 100 m cable
<b>Environmental</b>	IP68 with Delta-T supplied cables
<b>Sample volume</b>	~55 x 70 mm diameter Sample volume is weighted towards soil immediately surrounding the rods
<b>Dimensions and weight</b>	Overall: 143 x 40 mm diameter Rods: 51 mm x 2.5 mm diameter Weight: 0.1 kg (exc. cable)
<b>Sensor calibrations</b>	Individual sensors are interchangeable Recalibration advised every 3 years (depending on use)
<b>Soil calibrations</b>	Generalised <b>Mineral</b> and <b>Organic</b> soil calibrations are supplied

### SM150 Kit

- Complete kit for soil and substrate moisture measurement
- ± 3% accuracy
- Easy to use and highly portable



The SM150 Kit is an affordable tool for obtaining reliable moisture measurements with minimal soil disturbance. The cable and connector are watertight – an essential requirement for potentially wet environments. The kit comprises an SM150T Soil Moisture Sensor, a dedicated HH150 Moisture Meter and a carry case. The kit comes with substrate calibrations for perlite, coir, peat, and mineral wool, as well as soils.

The HH150 hand held meter is light weight and is very easy to use, being a readout-only device (no data recording or PC complications). To make a measurement, just insert the SM150T into the substrate and press the Read button.

*NB: The HH150 Moisture Meter does not provide temperature indication from the SM150T Sensor*



The HH150 Moisture Meter

### Ordering information

<b>SM150T</b>	Soil moisture sensor with built-in temperature sensor. NB: cable must be ordered separately
<b>SM150-KIT</b>	Portable soil moisture kit including SM150T sensor, HH150 meter, 1 m fitted cable, manuals and carrying case
<b>Cable options and accessories</b>	
<b>SMSC/lw-05</b>	5 m cable terminating in bare wires for connection to data loggers. 200 mm flying leads.
<b>EXT/5W-01 EXT/5W-05 EXT/5W-10 EXT/5W-25</b>	1 m, 5 m, 10 m and 25 m extension cables, M12 connectors
<b>HH2</b>	HH2 Moisture Meter with integral 25 pin D-connector
<b>SMSC/d-HH2</b>	90 cm cable, M12 to 25-way D-socket, for connection to an HH2 Meter
<b>ML/EX50</b>	0.5 m extension tube
<b>ML/EX100</b>	1.0 m extension tube
<b>SM-AUG-100</b>	45 mm spiral auger, length 1.2 m