

SPECIFICATIONS

Range: Zero-to-saturated volumetric water content.

Measurement time: 10 ms

Accuracy: $\pm 3\%$ typical $\pm 1\%$ with soil specific calibration

Resolution: 0.002 m/m or (0.2 VSW%)

Operating temperature: 0–50°C

Sensor output:

EC20/EC10 Raw Voltage

Output: Voltage proportional to volumetric water content - 375 mV (dry soil) to 1000mV (saturated soil)

SME4 Smart Interface Output:

Serial data ASCII format

SME4 Optional 4-20mA Output:

Analogue current loop is proportional to water content 4 mA (dry soil) to 20 mA (saturated soil)

Power requirements:

EC-20: 2.5 VDC @ 3 mA

EC-10: 2.5V DC @ 3 mA

SME4: 5-28V DC unregulated @ 3 mA

SME4-20: 12-24 VDC @ 250 ohm input impedance

Cable lengths:

EC-20/EC10: Standard cable length is 3 m. Maximum cable length 100m

SME4: Standard cable length 5m. Maximum cable length 4km using Monibus communications

Dimensions :

EC-20: 254 x 31.7 x 1.5 mm

EC-10: 155 x 31.7 x 1.5 mm

SME4: 115 x 65 x 40 mm

Weight (including cables):

EC-20: 300gm

EC-10: 250gm

SME4: 950gm

Related products:

EnviroStation™ Automatic Weather Station

SL5 Smart logger

SME4 Four channel Smart interface for ECHO sensors

Warranty: 1 year.

DocRef: Ver1.6

ECH₂O Soil Moisture Sensor

A low cost sensor for measuring volumetric soil water content

Measuring or monitoring soil moisture content helps determine when to irrigate, how much water to apply, depth of wetting, patterns of soil moisture extraction by roots, and trends in soil moisture content with time. Soil moisture determines the transport and storage of dissolved nutrients and pollutants and the availability of water to plants.

Principle of measurement

ECH₂O is a capacitance probe that measures dielectric permittivity of the surrounding medium. In soil, dielectric permittivity is directly related to the water content. The ECH₂O probe outputs a voltage proportional to the dielectric permittivity, and therefore the water content of the soil.

Smart interface

The ICT International SME4 smart interface is an additional module that can accept upto four ECH₂O sensors. The SME4 automatically converts the raw voltage signals from the ECH₂O sensors to a calibrated volumetric soil water content (VSW%).



The interface contains all the required information to allow autonomous operation of the sensor, including power requirements, and logging interval. Once the data has been converted in serial format it can be read by the SL5 smart logger offering true plug & play functionality and virtually unlimited cable lengths.

Optional 4-20 mA output

Using the SME4 smart interface the ECH₂O sensor can be configured with an analogue current loop output of 4-20 mA. This option can be used directly by industry standard irrigation controllers and cabling power systems. It is ideal for use in Parks and Gardens, Golf Courses and similar installations.



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