

Soil Salinity Meter

APPLICATIONS

- Environmental monitoring
- Soil science research
- Landcare salinity monitoring
- Agricultural research
- Farm management
- Irrigation management
- Leachate testing
- Effluent reuse monitoring

FEATURES

- Easy installation
- Plug & Play salinity measurement
- LCD display
- Convenient Excel spreadsheet for data analysis
- Scientific accuracy
- Calibrated

Handheld Meter to Measure Soil Salinity

Salinity measurements are an important aspect of soil, crop and environmental protection, research and management.

A new Salinity Meter manufactured by ICT International offers scientists and environmental managers a highly accurate, low cost, plug and play solution to measure salinity in the field. The system consists of a meter with LCD display and spreadsheet software. The Software allows conversion of the manually recorded values to soil salinity in dS/m for each individual soil salinity sensor.



Applications

The Salinity Meter is ideal for efficient monitoring of soil salinity. Used in conjunction with the soil salinity sensor, dynamic changes in soil salinity can be measured without continuous disturbance to the soil.

Operation

The 5000M meter is used in conjunction with one or more 5000 Soil Salinity Sensors. To take a measurement, connect the sensor to the socket on top of the 5000M meter. When the meter is switched on, wait for ten seconds, then readings appear in two lines. The reading on the top line of the display shows the impedance of the Soil Salinity Sensor expressed in ohms. These values are entered into the spreadsheet software to determine the soil conductivity in dS/m. The reading on the second line of the display is the soil temperature. This enables calculation of a normalised value of soil salinity corrected to 25°C.

Sensor calibration and installation

Soil salinity sensors are supplied completely assembled, with the sensors calibrated and ready for installation. An individual data sheet is supplied with each sensor.



**ICT International
Pty Ltd**

PO Box 503
Armidale NSW 2350
AUSTRALIA

Ph: [61] 2-6772-6770

Fax: [61] 2-6772-7616

sales@ictinternational.com.au

www.ictinternational.com.au

Salinity Sensor

The Soil Salinity Sensor consists of a pair of platinum electrodes embedded in a fine-textured 1,500 kPa (15 bar) ceramic electrolytic element; with a thermistor behind the element, for soil temperature measurement. The sensor is spring loaded with a stainless-steel spring to ensure good hydraulic contact between the sensor and the soil.



Moisture saturating the ceramic element comes to equilibrium with the soil water to give constant salinity measurements.

The sensors are designed to fit crosswise into a 32 mm diameter cored hole. After the sensor is placed in position a stainless-steel release pin is removed to activate the spring. Once the ceramic element contacts the soil and the soil water saturates the element, a reading can be made.

An outside housing covers the unit apart from the ceramic sensing surface of the electrolytic element in the end of the unit. All sensor elements are solidly potted in place.

A four-conductor electrical cable encased in heavy polythene leads from the sensor to the Salinity Meter.

The unit is exceptionally weather and corrosion proof.

Notes on soil salinity

The level of soluble salts above 4 dS/m in soil moisture inhibits the seed germination and growth of most commercial crops. This adversely affects the biomass production and economic yield. The following table illustrates the various saline conditions and categories of crop tolerance.

EC (dS/m)	Category
< 0.7	All crops
0.7 – 2.0	Most crops
2.0 – 10.0	Salt tolerant crops
10.0 – 32.0	Most halophytes
33.0 >	No crops (sea water)

Units of salinity measurements

1 decisiemen/metre (dS/m)	=	1 millisiemen/centimetre (mS/cm)
	=	1000 microsiemen/centimetre (µS/cm)
	=	1 mmho/centimetre (mmho/cm)
	=	640 milligram/litre (mg/l)
	=	640 ppm

Ordering information

5000M	Salinity Meter
5000	Salinity Sensor

SPECIFICATIONS

Salinity Sensor:

Range: 1.5–40 dS/m

Resolution: 0.01 dS/m

Accuracy: ±0.5 dS/m

Temperature: 0–40°C
Temperature compensated

Soil moisture range:
0–1500 kPa

Resistance:
2000 ohms 10% at 25°C

Weight: 0.12 kg
(including cable)

Cable length: 1 m

Salinity Meter:

Operating range: –20–60°C

Accuracy: ±1%

Response time: 10 seconds

Range: 0–40 dS/m

Resolution: 16 bit

Dimensions: 190 mm x
100 mm x 60 mm

Weight: 0.36 kg

Power:

Battery: 9 V DC, alkaline

Current drain: 1.3 mA

System packing:

Dimensions: 200 mm x
105 mm x 70 mm

Weight: 0.50 kg

Associated products:

5000: Salinity Sensor



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