

## APPLICATIONS

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

## FEATURES

- Easy installation
- Plug and play salinity measurement
- Scientific accuracy
- Calibrated
- Data sheet supplied

## ORDERING INFORMATION

### Manual Operation

**5000M** Salinity Meter

**5000** Salinity Sensor

### Logging System

**5000SSA** Soil Salinity Smart Interface + Salinity Sensor

**SL5** Smart Logger

# Soil Salinity Sensor

Soil salinity sensors are ideal for efficient in situ field monitoring of soil salinity with minimal disturbance to the soil profile. At a selected depth, sensors can monitor salinity with high accuracy over a long period. The sensors are also suitable for use with soil columns in the laboratory.



## Detect dynamic changes in soil salinity

The soil salinity sensor can measure salinity values over time without continuous disturbance to the soil by connecting the salinity sensor with the Smart Logger. Dynamic changes in soil salinity can be recorded at regular intervals of time.

## Ceramic element

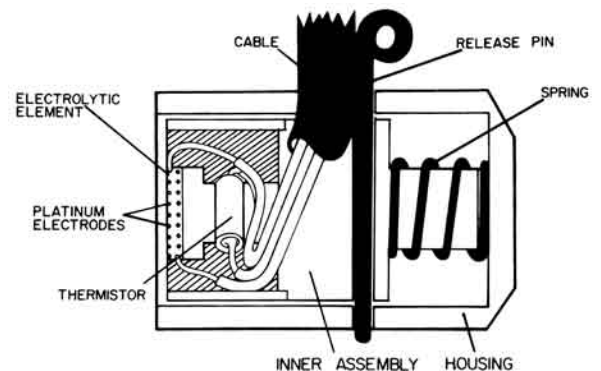
The soil salinity sensor consists of a pair of platinum electrodes embedded in a fine-textured electrolytic element, and a thermistor. The electrolytic element is fabricated from ceramic with a pore size fine enough to remain saturated throughout a soil suction range of 0–1,500 kPa (0–15 bars). Moisture saturating the ceramic element comes to equilibrium with the soil water to give constant salinity measurements.

The sensor is spring loaded with a stainless-steel spring to ensure good hydraulic contact between the sensor and the soil. 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 and press the ceramic into the soil. Once the ceramic element contacts the soil and the soil water saturates the element, the sensor is ready to record the salinity values.

## Construction

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 leads from the sensor to an external Smart Interface that consists of an integrated microprocessor. At the interface a serial output of the salinity value can be read directly by the Smart Logger in salinity units of dS/m. The interface can also be plugged directly to the serial port of a computer to enable real time changes in bulk electrical conductivity to be measured. The unit is exceptionally weather and corrosion proof.

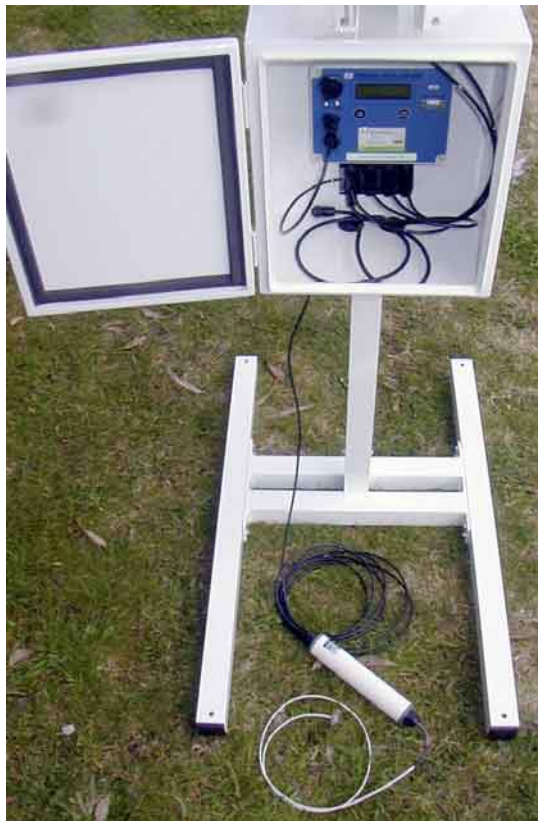


## SSA Smart Interface

The SSA Soil Salinity Smart Interface provides full plug & play compatibility and functionality when used with an SL5 Smart Logger.

The soil temperature is measured by reading the resistance of the thermistor. The SSA Smart Interface then corrects the conductivity measurement of the soil solution by calculating a normalised value of soil salinity to 25°C. It is necessary to correct for temperature since the conductivity of soil solutions vary by approximately 2% per °C.

The microprocessor controlled interface provides the power input, calibration and serial output in order that this electrically complex sensor can be a “Plug and Play” device for ease of operation. The interface is designed such that any power supply voltage of between 9 and 28 volts is suitable. This is typically available from a solar panel and battery system for field use or a wall charger for laboratory use. This interface contains a 1000 Hertz, AC resistance bridge for power input to the sensor from the power supply voltage. It is impossible to provide this power requirement with a conventional datalogger system. Every soil salinity sensor has its own individual calibration which is programmed into the interface. The calibrated output is normalized to 25 °C and the outputs are in engineering units for temperature of °C and soil salinity of d/Sm.



## Calibration

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

## SPECIFICATIONS

### Measuring Range:

0–40 dS/m

**Resolution:** 0.01 dS/m

**Accuracy:** ±0.5 dS/m

**Temperature range:** 0–40°C

**Temperature compensated**

**Soil moisture range:**

0–1500 kPa

**Resistance:**

2,000 ohms @ 10% at 25°C

### Sensor Output:

**Smart output:** Serial data

**Soil salinity:** dS/m normalised at 25°C

**Soil temperature:** °C

### Dimensions:

**Weight:** 0.33 kg

**Sensor**

**Length:** 30 mm

**Diameter:** 15 mm

**Interface**

**Length:** 202 mm

**Diameter:** 27 mm

### Cable:

**Length:** 5 m

### Power requirements:

9–28 V DC unregulated

### Related Products:

**5000SSA/w**

Soil Salinity Smart Interface + Salinity Sensor with Analogue Output

**SL5:** Smart Logger

**5000M:** Salinity Meter

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