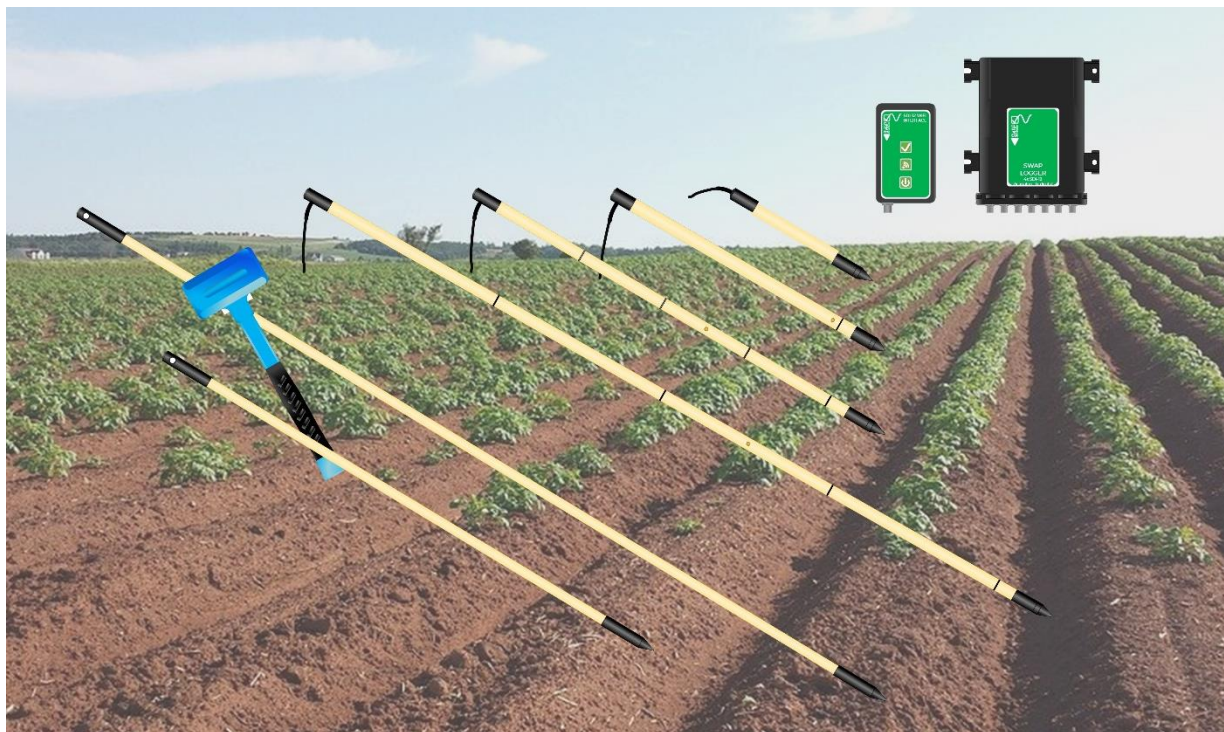


SWAP soil Redox probes

SMART Redox probes for measuring the oxidation and reduction potential in soils



With our innovative soil Redox probes, soil oxidation and reduction potentials can be measured accurately in laboratory, agricultural, environmental and industrial applications. The SWAP soil Redox probes contain single or multiple Pt electrodes in different configurations, with or without integrated reference electrode and temperature sensor. Accuracy, durability, versatility, low maintenance at a cost-effective pricing! It is connectable to a wide range of data loggers.

- ✓ Ideal for investigative, industrial and environmental monitoring
- ✓ Redox ranging from -2500 to +2500mV
- ✓ Integrated Ag-AgCl reference electrode and temperature sensor
- ✓ Easy connection to a variety of data loggers, both SDI-12 and analog
- ✓ Low maintenance
- ✓ Low power
- ✓ Cost effective pricing

Product information

Application

The SWAP soil Redox probes are designed for measuring and monitoring oxidation and reduction processes (ORP/REDOX) in soils. Both single and multiple electrode ORP probes, so called profile probes, are available. The probes can be used all year round under the harshest industrial and field conditions.

Design

High purity (99.99 %) Pt electrodes are used in the Redox probes. These electrodes are integrated in a glass fibre epoxy shaft with a diameter of 1.4 cm. Most standard probes have an integrated reference electrode and temperature sensor.

Standard probe dimensions are:

- ✓ 1 Redox electrode, 36.5 cm long, Pt electrode at ~ 30 cm from probe top side, Analog, 3 meter PUR screened cable, open wire ends
- ✓ 4 Redox electrode, 46.5 cm long, Pt electrode at ~ 10, 20, 30 and 40 cm from probe top side, Analog, 3 meter PUR screened cable, open wire ends
- ✓ 4 Redox electrode, 86.5 cm long, Pt electrode at ~ 20, 40, 60 and 80 cm from probe top side, Analog, 3 meter PUR screened cable, open wire ends
- ✓ 1 Redox electrode, 39 cm long, Pt electrode at ~ 30 cm from probe top side, Analog, 3 meter PUR screened cable, BNC connector, integrated reference electrode
- ✓ 1 Redox electrode, 39 cm long, Pt electrode at ~ 30 cm from probe top side, Analog, 3 meter PUR screened cable, open wire ends, integrated reference and temperature sensor
- ✓ 4 Redox electrode, 49 cm long, Pt electrode at ~ 10, 20, 30 and 40 cm from probe top side, Analog, 3 meter PUR screened cable, open wire ends, integrated reference and temperature sensor
- ✓ 4 Redox electrode, 89 cm long, Pt electrode at ~ 20, 40, 60 and 80 cm from probe top side, Analog, 3 meter PUR screened cable, open wire ends, integrated reference and temperature sensor
- ✓ 1 Redox electrode, 39 cm long, Pt electrode at ~ 30 cm from probe top side, SDI-12, 5 meter PUR cable, M8 connector, integrated reference and temperature sensor
- ✓ 4 Redox electrodes, 49 cm long, Pt electrodes at ~ 10, 20, 30 and 40 cm from probe top side, SDI-12, 5 meter PUR cable, M8 connector, integrated reference and temperature sensor
- ✓ 4 Redox electrodes, 89 cm long, Pt electrodes at ~ 20, 40, 60 and 80 cm from probe top side, SDI-12, 5 meter PUR cable, M8 connector, integrated reference and temperature sensor

Cable length is 1.2 meter (analog: BNC) or 3 meter (analog) to 5 meter (SDI-12), extendable per 10 meter.

Custom-designed Redox probes can be made upon request.

Installation and operation

To ensure perfect contact of the soil Redox ORP probe with the surrounding soil, it is recommended to pre-drill a hole before inserting the probe. This will result in accurate and durable Redox measurements. Pre-drilling equipment (50 cm or 100 cm long) and a non-recoil hammer are available at SWAP instruments.

Interfacing

The microcontroller-based electronics transforms the signal to the output signals. Either 0-1 V for general interfacing or data logging, SDI-12 digital environmental communication protocol or the 4-20 mA as industrial standard can be selected by configuration.

Ordering

For pricing and ordering send an e-mail to sales@swapinstruments.com

Specials

In case of special needs please inform at sales@swapinstruments.com

Design changes

SWAP Instruments B.V. reserves the right to change designs, specifications and technical data of its products at any time without prior notification.

Specifications

Redox	
<i>Pt (1,2,3,4)</i>	1.4 x Platinum 99.99%
<i>Reference electrode</i>	Ag-AgCl (3 M KCl gel)
<i>Measuring range</i>	-2500 mV to +2500 mV
<i>Input impedance amp</i>	≥ 100 GΩ
<i>Bias current amp</i>	≤ 10 pA @25°C
<i>Calibration accuracy</i>	5 mV (for Hanna ORP test solution 240 mV at 25 °C)
<i>Resolution</i>	1 mV
Temperature	
<i>Measuring range</i>	-10 to + 50 °C
<i>Accuracy</i>	0.2 °C (range 0 to + 20 °C)
<i>Resolution</i>	0.1 °C
<i>Response rate</i>	10 sec (90 %)
Supply	
<i>Voltage rating</i>	5-16 V DC, polarisation and overvoltage protected, SDI-12 operation 12V
<i>Current consumption</i>	operating 4 mA
Settings	
<i>aXCy</i>	SDI-12 command set, extended user parameters (offset, scale, compensation, filtering)
Output	
<i>SDI-12</i>	Pt1, Pt2, Pt3, Pt4 potential (mV), Temperature (°C)
<i>0-1 volt</i>	Pt1 potential (mV)
	0-1 V = -2500 to + 2500 mV
<i>4-20mA</i>	Pt1 potential (mV)
	4-20 mA = -2500 + 2500 mV
General	
<i>CE</i>	Pre-compliance tested
<i>Operating temp.</i>	0 to + 50 °C
<i>Environmental</i>	IP67
<i>Dimensions</i>	Length: 36.5 to 89 mm Diameter: 1.4 cm
<i>Cable</i>	1.2 meter (analog: BNC) or 3 meter (analog) to 5 meter (SDI-12) PUR, connector 4 pole gold plated M8 industry standard Extension cable 10 meter, other cable lengths upon request