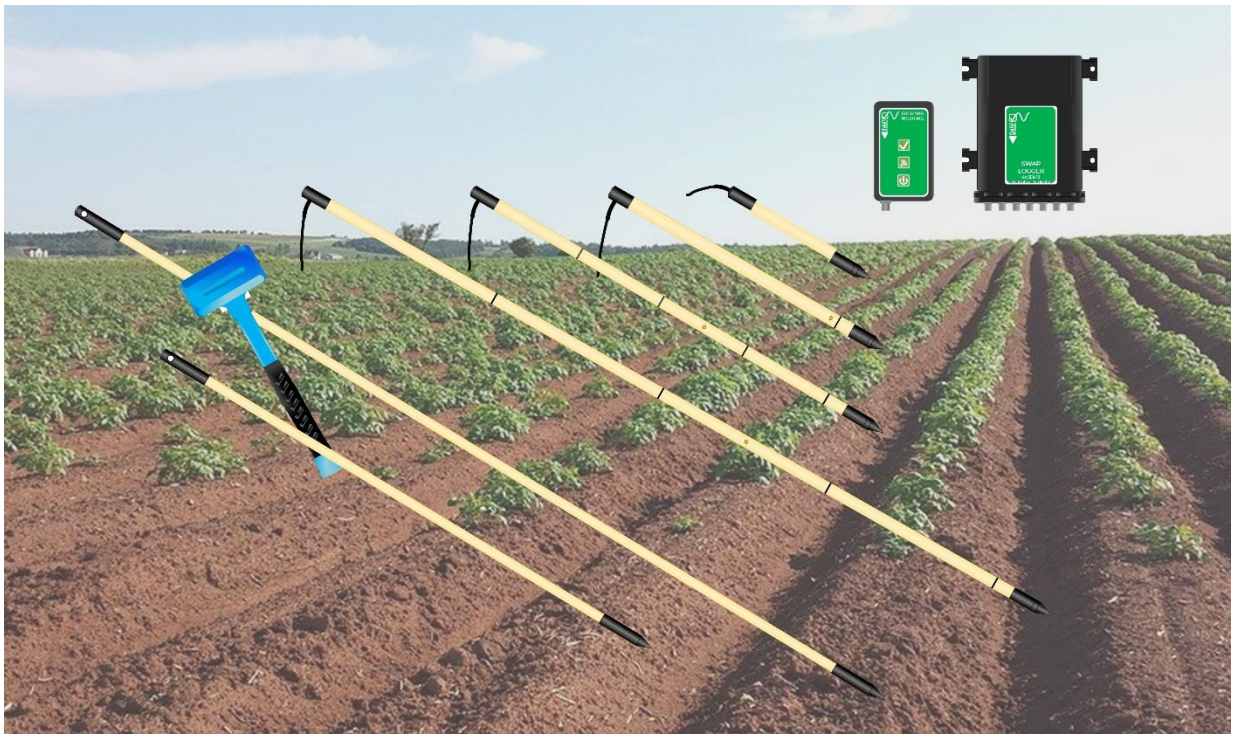
SWAP soil Redox probes

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

SWAP instruments B.V.
Meester Dekkerstraat 4
1901 PV Castricum
The Netherlands

info@swapinstruments.com
www.swapinstruments.com
+31 6 25102980
CC: 80243142