



NeuLog ORP Logger Sensor Guide NUL-258



NeuLog ORP logger sensor NUL-258

The NeuLog ORP (Oxidation Reduction Potential) sensor can be used to quantify whether a substance is a strong oxidizing agent or a strong reducing agent. For example, the ORP electrodes are used to measure the oxidizing ability of chlorine in swimming pools.

The electrode has two components: a measuring half-cell comprised of platinum metal immersed in the solution in which the redox reaction is taking place, and a reference half-cell (sealed gel-filled Ag/AgCl) to which the platinum half-cell is referenced.

Possible experiments that can be performed with the NUL-258 sensor are: Redox titration, Water treatment and quality monitoring, Ozone treatment, Bleach production, Fruit and vegetable washing, Pulp bleaching, Chlorine addition for swimming pools and spas, oxidation in aquariums etc.

Sensor setup

The sensor comes pre-calibrated so you can start experimentation right out of the box using this guide.

Reading a sample with the electrode:

1. Remove the bottle from the electrode.
2. Rinse the electrode with distilled water and blot with a lab wipe.
3. Place the electrode in a beaker containing the sample.
4. Stir the sample with the Pasteur pipette until the reading stabilizes.
5. When the reading is stable you can read it.

After finishing an experiment:

1. Remove the electrode from the sample; rinse the electrode with distilled water over the "waste" beaker.
2. Blot the electrode dry with a lab wipe.

Included with sensor

- NeuLog General Guide.
- NeuLog ORP logger sensor.
- NeuLog electrode with storage solution container (attached to the sensor).

Sensor specifications	
Range and operation modes	-1500 mV to 1500 mV
ADC resolution	16 bit
Resolution	-1000 to 1000: 0.1 mV Over 1000: 1 mV Below -1000: 1 mV
Max sample rate (S/sec)	100
Temperature range	0-60°C

Experiment Duration: 1 second to 31 days.

Sensor's features

- Fully digital data.
- Rugged plastic ergonomic case.
- Pushbutton switch for Start/Stop experiments in off line mode.
- LED indicator of experiment status (blinks while collecting data).
- Attached electrode cased in a storage bottle or protective boot covering the electrode tip. The bottle or boot contains a foam or a cotton ball moist with distilled water.

Note: NeuLog products are intended for educational use.

Videos and experiment examples

- Videos, literature and other probes can be found at www.neulog.com.
- In order to access the ORP sensor's page, choose "Products" on the main menu and then "ORP logger sensor".
- In order to access the ORP sensor's experiments, choose "Example Labs":

Reduction and Oxidation (C-33)

Technical background

The philosophy behind NeuLog's plug and play technology is based on each sensor's ability to store its own data due to an internal flash memory chip and micro-controller in each plastic NeuLog body. This technology allows the sensor to collect and then store the digital data in the correct scientific units (for example: °C, °F, Lux, %, ppm).

The sensor is pre-calibrated at the factory. The built-in software in the logger can be upgraded for free at any time using the provided firmware update.

The electrode has two components: a measuring half-cell comprised of platinum metal immersed in the solution in which the redox reaction is taking place, and a reference half-cell (sealed gel-filled Ag/AgCl) to which the platinum half-cell is referenced. The difference in these two voltages is the oxidizing/reducing capacity of the solution, as measured in millivolts.

Maintenance and storage

- Never submerge the NeuLog sensor's plastic body in any liquid.
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- The ORP electrode should always remain moist.
- When storing for long periods, store the electrode in the storage bottle or boot which came with the electrode. Ensure that the foam or cotton ball remains moist with distilled water.
- Contamination of the sensing element often results in slow response and inaccurate readings. Clean the element by one of the following procedures:
 - * Inorganic deposits: immerse electrode tip in 0.1 N HCl for 10 minutes. Wash the tip with distilled water.
 - * Organic oil and grease films: wash electrode tip in a liquid detergent and water.
 - * After above treatment, soak the electrode tip in alcohol for 5 minutes, then in quinhydrone saturated pH 4.01 for 15 minutes; rinse with distilled water afterwards.

Note:

Do not attempt to sand or polish the sending element with sand paper or other polishing material.

Warranty

We promise to deliver our module free of defects in materials and workmanship for a period of 2 years from the date of purchase. Our warranty does not cover damage of the product caused by improper use, abuse, or incorrect storage. Sensors with a shelf life such as ion selective probes have a warranty of 1 year. Should you need to act upon the warranty please contact your distributor. Your module will be repaired or replaced.

Thank you for using NeuLog.