

## NEULOG CURRENT LOGGER SENSOR GUIDE



### NeuLog current logger sensor NUL-202

The NeuLog current sensor can be used for any science experiment which utilizes current readings. It is used in the fields of Physics, Electronics, Chemistry, Biology, etc.

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

Among hundreds of possible experimental subjects that can be studied with the NUL-202 sensor are: fuel cells, electrical parallel circuits, electrical series circuits and electronics. The current sensor's measurement units are: Amperes (A): Amperes are the SI base unit of electric current.

### Included with sensor:

- NeuLog General Guide
- Red (positive probe) and black (negative probe) wires with 4 mm plugs connected directly to the sensor's body

Sensor specifications	
Range and operation modes	±2500 mA
ADC resolution	15 bit
Accuracy	1%
Resolution	1 mA
Max sample rate (S/sec)	3000

Experiment Duration: 50 milliseconds to 31 days.

### Sensor's features:

- Fully digital data
- Rugged plastic ergonomic case
- 4 mm power and ground plugs for easy connectivity
- Push button switch for Start/Stop experiments in off line mode
- LED indicator of experiment status (blinks while collecting data)
- Pre-calibrated sensing equipment

Note: NeuLog products are intended for educational use.

### Videos and experiment examples:

- Videos, literature and other probes can be found at [www.neulog.com](http://www.neulog.com)
- In order to access the current sensor's page, choose "Products" on the main menu and then "Current logger sensor".
- In order to access the current sensor's experiments, choose "Example Labs":
  - Ohm's Law (P-10)
  - How Incandescent Light Bulbs Work? (P-11)
  - Basic Electromagnetism (P-16)
  - Circuits and Series Resistance (P-24)
  - Current Variations and Generation of a Magnetic Field (P-27)

### 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 (°C, °F, Lux, %, ppm, for example).

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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 NeuLog current sensor houses a shunt resistor and an amplifier. The circuit's current passes through the shunt resistor and its electric potential is measured using a very fast, high input impedance differential operational amplifier with protected inputs. Using ohm's law ( $I = V/R$ ) the current is calculated from the known resistance and voltage values. The protection is up to 5 A.

### Maintenance and storage:

- Never submerge the NeuLog plastic body in any liquid.
- Do not allow liquid into the current sensor's body.
- After using the probe, wipe off all excess material, liquid or residue from the sensor.
- Store in a box at room temperature out of direct sunlight.

### Warranty:

We promise to deliver our sensor free of defects in materials and workmanship. The warranty is for a period of 3 years from the date of purchase and 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 sensor will be repaired or replaced.

Thank you for using NeuLog!



Flexible, simple, fast, forward thinking.

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