

Current (± 2.5 A)

DT005



The Current (± 2.5 A) sensor can be connected to the Nova5000, MultiLogPRO or TriLink data loggers.

The Current sensor is an Ampere meter, measuring current values between -2.5 and 2.5 A. It is a differential sensor, capable of measuring both direct and alternate current and is ideal for use in a wide range of experiments in Physics and Chemistry.

The sensor has no *Floating Ground*.

The sensor is housed in the Fourier Systems plastic sensor case, and has two durable banana plugs for easy connection.

Typical Experiments

- EMF and Internal Resistance
- V-I Characteristics of a Wire, a Light Bulb and a Diode
- Resistance of a Wire – Ohm's Law
- Series and Parallel Circuits
- Magnetic Field of a Solenoid vs. Current
- AC Circuit - RCL Resonance

How it Works

The Current sensor should be wired in series with the circuit.

Inside the sensor is a resistor of 0.1Ω .

According to Ohm's Law, the voltage measured on that resistor will be 1/10 of the current in the resistor. The measured voltage passes an amplifier unit and is adjusted to the range of 0-5 V, which is the range accepted by the Analog-Digital converter.

The proper result is then recorded into the data logger's memory.



Sensor Specification

Range:	± 2.5 A
Input Current:	AC or DC
Accuracy:	± 3 % over entire range
Resolution (12-bit):	1.25 mA
Default Sample Rate:	10 samples per second
Input Resistance:	0.1 Ω
Maximum Input Current:	5 A

Technical Notes

- Short the two leads of the Current (± 2.5 A) sensor before connecting it to the data logger sensor inputs.
- For accurate measurements connect its negative input (black) to the power source negative input (ground).

Calibration

The Current (± 2.5 A) sensor requires no calibration.

Using the Current Sensor with your Data Logger and MultiLab Software

1. Launch the MultiLab software (from either your PC or Nova5000).
2. Connect the Current (± 2.5 A) sensor to the data logger's sensor input (starting from I/O-1). The sensor is automatically recognized by the MultiLab software.
3. Click **Setup** on the main toolbar and program the data logger's sample rate and number of samples. Click **Run** on the main toolbar to start the measurement.

An Example of using the Current (± 2.5 A) Sensor

The Magnetic Field in a Solenoid

The magnetic field in the center of a solenoid is proportional to the current through the solenoid. The graph of the Magnetic Field B vs. Current is a straight line and shows that the magnetic field increases linearly with the current. See screenshot below.

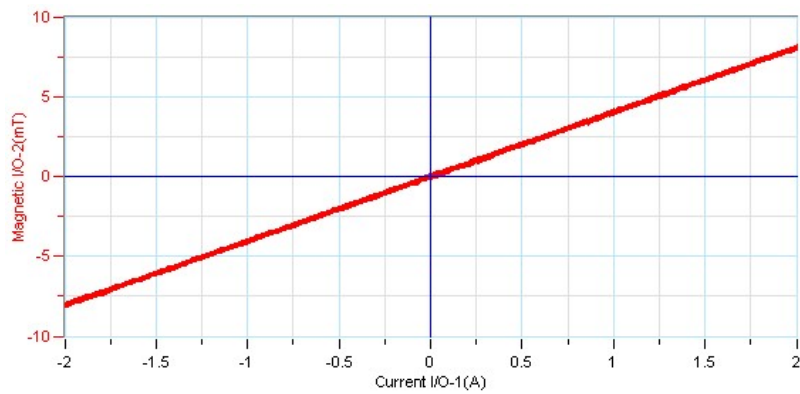


Figure 1: Magnetic Field vs. Current

Technical Support

Please contact Fourier technical support as follows:

Web: http://www.fourier-sys.com/support_support.html

Email: support@fourier-sys.com

Consult the FAQs before contacting technical support:

http://www.fourier-sys.com/support_faq.html

Copyright and Warranty

All standard Fourier Systems sensors carry a one-year warranty, which states that for a period of twelve months after the date of delivery to you, it will be substantially free from significant defects in materials and workmanship.

This Warranty does not cover breakage of the product caused by misuse or abuse.

This Warranty does not cover Fourier Systems consumables such as electrodes, batteries, EKG stickers, cuvettes and storage solutions or buffers.