

Light (Triple Range)

DT009-4



The Light (Triple Range) sensor can be connected to the Nova5000, MultiLogPRO or TriLink data loggers.

This is a high precision, quick response light sensor, designed for measurements of three ranges:

- 0 – 600 lx
- 0 – 6 klx
- 0 – 150 klx.

The sensor is equipped with a switch for choosing the desired range.

The Light (Triple Range) sensor is an ideal sensor for both indoor and outdoor light measurements and can be used in Chemistry, Physics, and Biology experiments.

Typical Experiments

- Investigating the relationship between light intensity and distance
- Studying interference/diffraction/polarization of light
- Studying the affect of light on photosynthesis rate
- Demonstrating the flicker of the florescent lamps and other lamps

How it Works

The Light (Triple Range) sensor is a high precision Photoelectric cell. Inside this photoelectric cell there is a small plate made of elements called *pin-diodes*. When a reversed fixed voltage is applied to the photoelectric cell, any photon that hits the pin-diodes causes the photoelectric cell to release an electron. The result is that when light levels are higher, the current through the photoelectric cell is higher. The current from the cell then passes through a resistor. The voltage is measured on this resistor and adjusted to the range of 0 - 5 V that is accepted by the Analog-Digital converter



of the data logger. The proper result is then recorded and stored in the data logger's memory.

Sensor Specification

Range:	0 – 600 lx 0 – 6000 lx 0 – 150 klx
Accuracy:	±4 % over entire range
Resolution (12-bit):	For: 0 – 600 lx : 0.15 lx For: 0 – 6000 lx : 1.5 lx For: 0 – 150 klx : 37 lx
Default Sample Rate:	10 samples per second
Spectral Response:	Visible light


Calibration

The Light sensor (Triple Range) requires no calibration.

Using the Light sensor with Fourier Data Loggers and MultiLab Software

1. Launch the MultiLab software.
2. Connect the Light 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.

Setting the Current Reading of the Light Sensor to Zero

1. Launch the MultiLab software (from either your PC or Nova5000).
2. Connect the Light 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.
4. Click **Properties**  next to the Light sensor input.
5. Click the **Set Zero** tab.
6. Check the box next to **Set the current reading to zero**.

7. Click **OK**.
8. 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 Light (Triple Range) sensor

Light intensity

In this experiment, we investigate the relationship between the light intensity and the distance from the light source.

The light intensity, modified by placing the light source at different distances from the experimental system, is measured with the Light sensor.

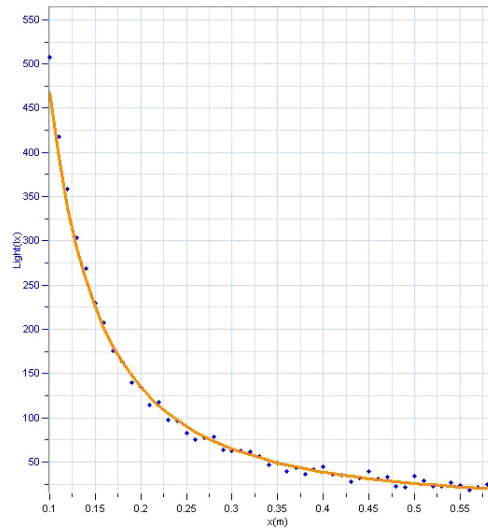


Figure 1: Light intensity vs. distance

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.