

Light (LUX) Sensor Data Sheet

LUX 151015

SPECIFICATIONS

- > **Range:** 360-970nm (with VCC = 3.3V)
- > **Consumption:** ~0.05mA

FEATURES

- > Pre-conditioned analog output
- > High signal-to-noise ratio
- > Small form factor
- > Raw data output
- > Easy-to-use

APPLICATIONS

- > Synchronization with a computer screen
- > Optical marker detector
- > Ambient light monitoring

GENERAL DESCRIPTION

Light (LUX) sensors are typically used for ambient light detection. A common need when working with biosignals is the synchronization of the recorded data with external sources (e.g. a computer screen for visual evoked potentials). If applied to the computer screen, our LUX sensor can be used to detect chromatic changes in the stimuli, hence providing a synchronization source. The LUX sensor can also be useful for optical synchronization with third-party devices (provided that the third-party device can trigger an LED), in applications where it is important to have electrical decoupling between devices.

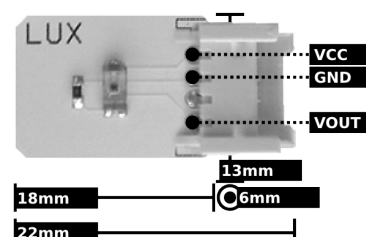


Fig. 1. Pin-out and physical dimensions.

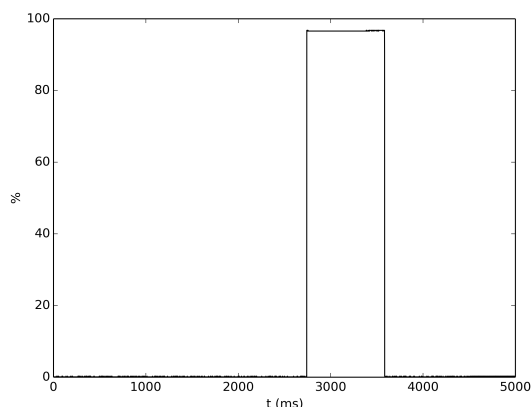


Fig. 2. Typical raw LUX response to a synchronization light source (acquired with BITalino).



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BEWARE: DIRECT OR INDIRECT COUPLING TO THE MAINS MAY RESULT IN SHOCKING HAZARD



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TRANSFER FUNCTION

[0%, 100%]

$$LUX(\%) = \frac{ADC}{2^n} \cdot 100\%$$

LUX(%) – LUX value in percentage (%)

ADC – Value sampled from the channel

n – Number of bits of the channel¹

¹ The number of bits for each channel depends on the resolution of the Analog-to-Digital Converter (ADC); in BITalino the first four channels are sampled using 10-bit resolution ($n = 10$), while the last two are sampled using 6-bit ($n = 6$).