Light (LUX)
Sensor Data Sheet

LUX 090616

SPECIFICATIONS

> **Range:** 360-970nm (with VCC = 3.3V)
> **Consumption:** ~50µA
> **Input Voltage Range:** 2.0-6.0V
> **Angle of Half Sensitivity:** ±60º

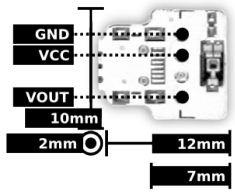

Fig. 1. Pin-out and physical dimensions.

FEATURES

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

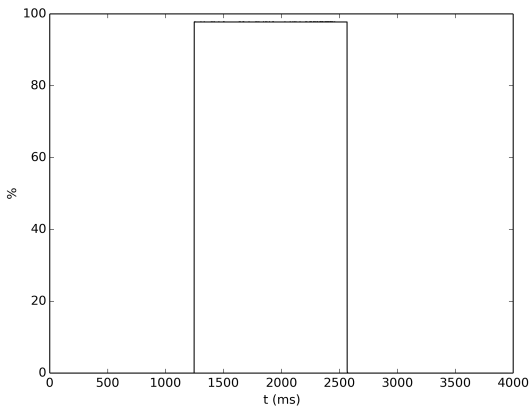

Fig. 2. Typical raw LUX response to a synchronization light source (acquired with BITalino (r)evolution).

APPLICATIONS

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

GENERAL DESCRIPTION

Light (LUX) sensors are typically used for ambient light measurement. However, a common need when working with biosignals is the synchronization of the recorded data with specific light 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 such device can trigger an LED), in applications where it is important to have electrical decoupling between devices.

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REV A

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

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TRANSFER FUNCTION

[0%, 100%]

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

$LUX(\%)$ – LUX value in percentage (%)
ADC – Value sampled from the channel
n – Number of bits of the channel[1]

ORDERING GUIDE

Part #	Description
SENS-LUX-NC	Light (LUX) sensor without connectors
SENS-LUX-UCE6	Light (LUX) sensor with UC-E6 socket for seamless plug & play connection to a BITalino (r)evolution Plugged or Core
SENS-LUX-SHER4	Light (LUX) sensor with a Molex Sherlock 4-pin socket for easy power and signal cable connection or pin breakout using PCB wires

[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 may be sampled using 6-bit ($n = 6$).