Light (LUX) Sensor Data Sheet

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.](image)

![Fig. 2. Typical raw LUX response to a synchronization light source (acquired with BITALINO).](image)

BELTALINO

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**TRANSFER FUNCTION**

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

- \( LUX(\%) \) – LUX value in percentage (%)
- \( ADC \) – Value sampled from the channel
- \( n \) – Number of bits of the channel

\[ ^1 \] 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 (\( n = 6 \)).