Light (LUX) Sensor Data Sheet

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

FEATURES
> Adapted to human eye responsiveness
> 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 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.

Fig. 1. Pin-out and physical dimensions.

Fig. 2. Typical raw LUX response to a synchronization light source (acquired with BiTalino (r)evolution).
Light (LUX)
Sensor Data Sheet

TRANSFER FUNCTION
[0%, 100%]

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

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

ORDERING GUIDE

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

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 \((n = 6)\).