SpO2 Sensor
Data Sheet

SPECIFICATIONS

> **Infrared emitter***
>>Peak emission: 950nm
>>Centroid wave: 940nm
>>Spectral bandwitdth: 42nm
>>Radiant intensity: 2mW/sr

> **Red emitter***
>>Peak emission: 660nm
>>Centroid wave: 655nm
>>Spectral bandwitdth: 17nm
>>Radiant intensity: 2.6mW/sr

> **Detector***
>>Wavelength of max sensitivity: 920nm
>>Range of sensitivity: 400nm-1100nm
>>Radiant sensitive area: 1.3x1.3 (mm)
>>Spectral sensitivity(940nm): 0.77A/W

> **Infrared/Red emitter**
>>Duty cycle: 25%
>>Min current: 0.20mA
>>Max current: 50mA

> **Resolution**: 16bit
> **Sampling frequency**: 500Hz

FEATURES

> Adjustable current for each LED using the API
> Subtracts ambient light
> Pre-conditioned digital output
> High signal-to-noise ratio
> Medical-grade raw data output
> Ready-to-use form factor

APPLICATIONS

> Oximetry
> Heart rate & heart rate variability
> Life sciences studies
> Biomedical research
> Human-Computer Interaction

GENERAL DESCRIPTION

The SpO2 (peripheral capillary oxygen saturation) sensor uses two emitting LED's one in the red region and the other in the infrared region of the spectrum. The reflected light of each one of these LED's is absorbed by a photodiode that converts this current into a digital value that is sent via SPI. This sensor can be used to estimate the oxygen saturation level

Fig. 1. Miniaturized form factor for minimally-intrusive application on the subjects

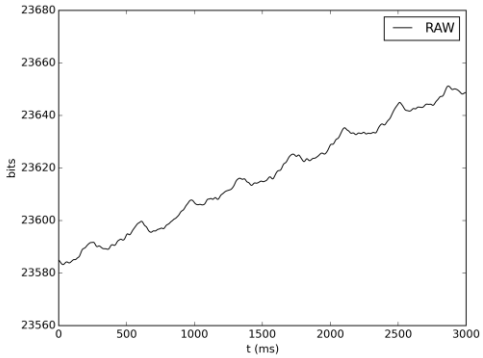

Fig. 2. Typical reflected red light raw data (acquired with biosignalsplux).

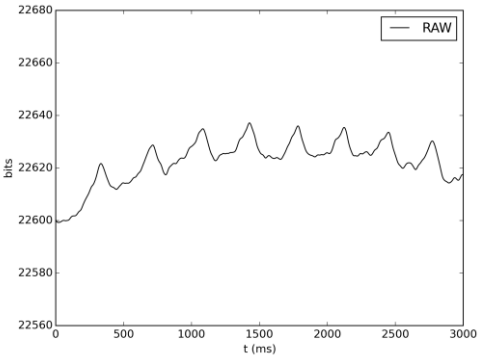

Fig. 3. Typical reflected infrared light raw data (acquired with biosignalsplux).

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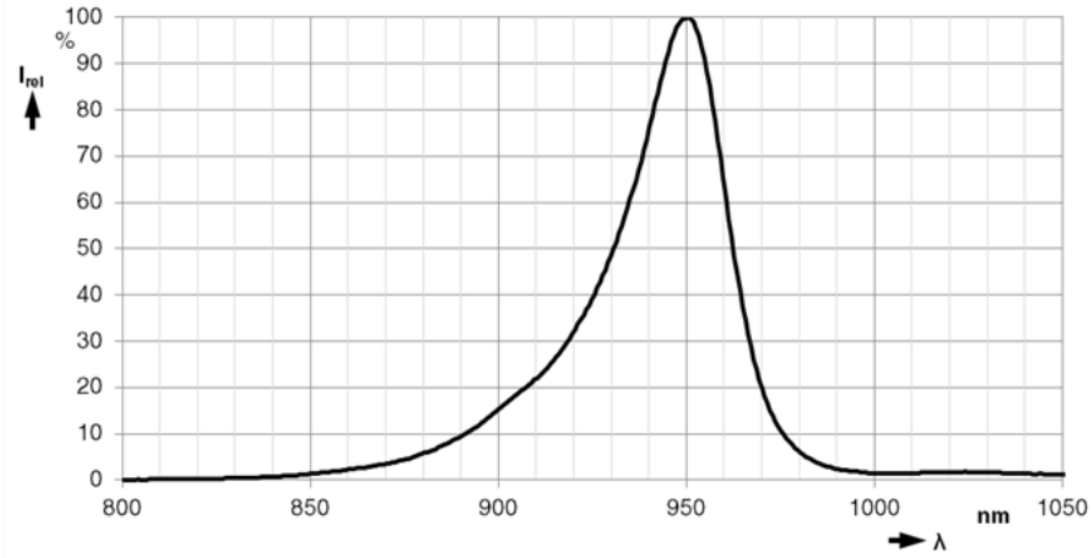
REV A

* For additional parameters please contact plux@plux.info

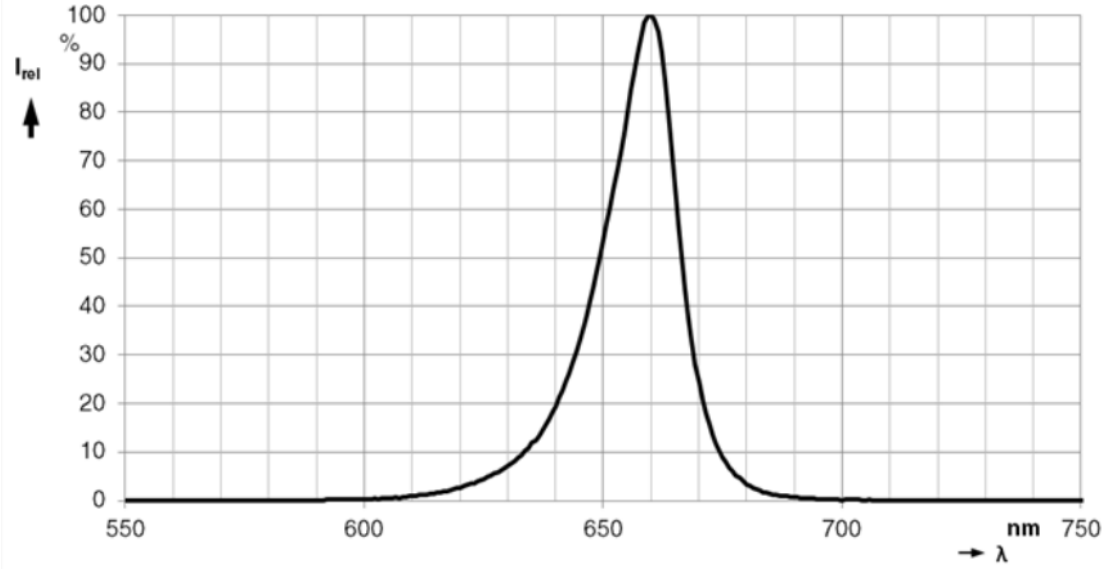
on the blood with +/- 2% accuracy compared to a medical sensor.

PHYSICAL CHARACTERISTICS

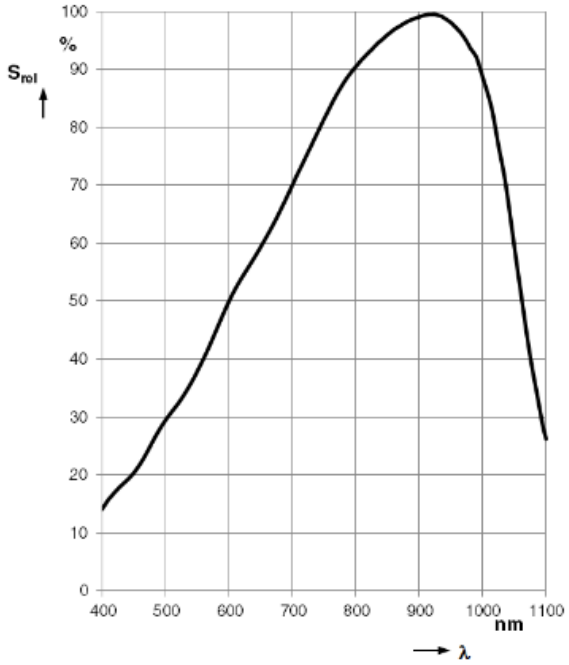
Infrared emitter relative spectral emission
$I_{rel}=f(\lambda)$, $T_A=25ºC$, $I_F=20$ mA



Red emitter relative spectral emission
$I_{rel}=f(\lambda)$, $T_A=25ºC$, $I_F=20$ mA



Detector relative spectral sensitivity
$S_{rel}=f(\lambda)$, $T_A=25ºC$



Function used to convert the photodiode current to a digital value:

$$V_{digital} = \frac{I_{pd} \times G}{1.2V \times 2^n}$$

$$I_{pd}: \ Photodiode \ current \ in \ Amperes$$
$$G: \ Transimpedance \ Gain \ (1MOhm)$$
$$n: \ Number \ of \ bits \ (8 \ or \ 16)$$

ORDERING GUIDE

Reference	Package Description