Electrodermal Activity (EDA) Sensor Data Sheet

EDA 15022018

SPECIFICATIONS

> **Range:** 0-25µS
> **Bandwidth:** 0-3Hz
> **Consumption:** ~0.72mA
> **Input Impedance:** >1GOhm
> **CMRR:** 100dB

FEATURES

> Skin resistance measurement
> Pre-conditioned analog output
> High signal-to-noise ratio
> Shielded miniaturized cables
> Medical-grade raw data output
> Ready-to-use form factor

APPLICATIONS

> Sympathetic nervous system monitoring
> Arousal detection
> Human-Computer Interaction
> Emotional cartography
> Affective computing
> Physiology studies
> Psychophysiology
> Relaxation biofeedback
> Biomedical devices prototyping

GENERAL DESCRIPTION

Electrodermal Activity (EDA) can be defined as a transient change in certain electrical properties of the skin, resulting from sweat secretion and sweat gland activity. These changes can result from elicited or natural stimuli that trigger a regulatory response by the sympathetic nervous system. Our EDA sensor is capable of accurately measuring the skin activity with high sensitivity in a miniaturized form factor. The low-noise signal conditioning and amplification circuit design provides optimal performance in the detection of even the most feeble electrodermal skin response events. Examples:

http://bit.ly/1HGyYE5
http://bit.ly/1Gw9r1x
http://bit.ly/1JraXmy
http://www.plux.info/files/ftp/docs/PaperMedeTel-HG.pdf

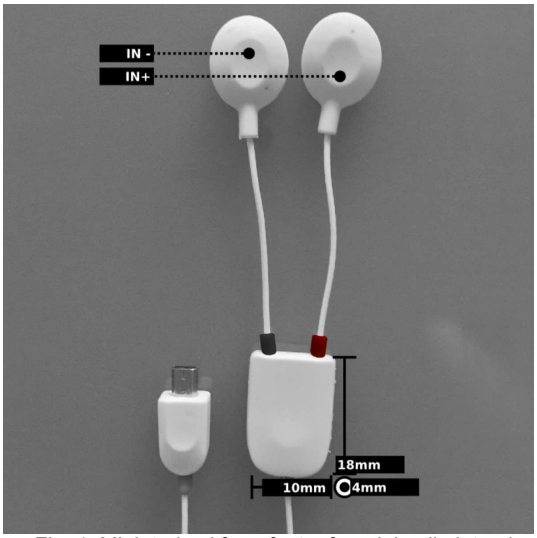


Fig. 1. Miniaturized form factor for minimally-intrusive application on the subjects.

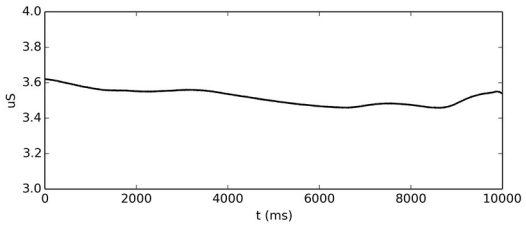


Fig. 2. Typical raw EDA data (acquired with biosignals).

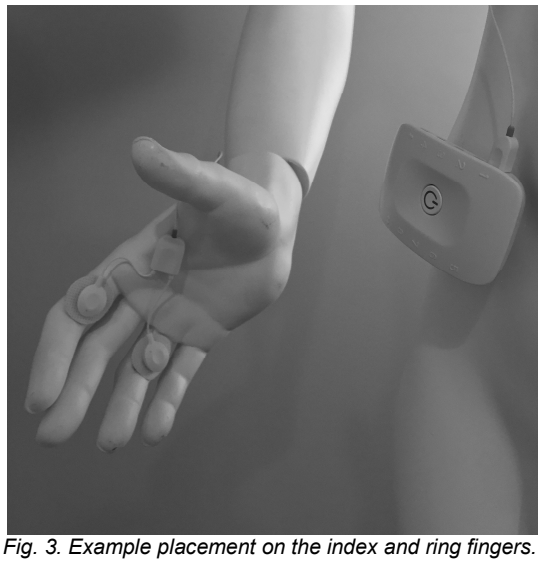


Fig. 3. Example placement on the index and ring fingers.

PLUX – Wireless Biosignals, S.A.
Av. 5 de Outubro, n. 70 – 8.
1050-059 Lisbon, Portugal
plux@plux.info
http://biosignalsplux.com/

REV A

Electrodermal Activity (EDA)
Sensor Data Sheet

TRANSFER FUNCTION

[$0\mu S$, $25\mu S$]

$$EDA(\mu S) = \frac{\frac{ADC}{2^n}.VCC}{0.12}$$

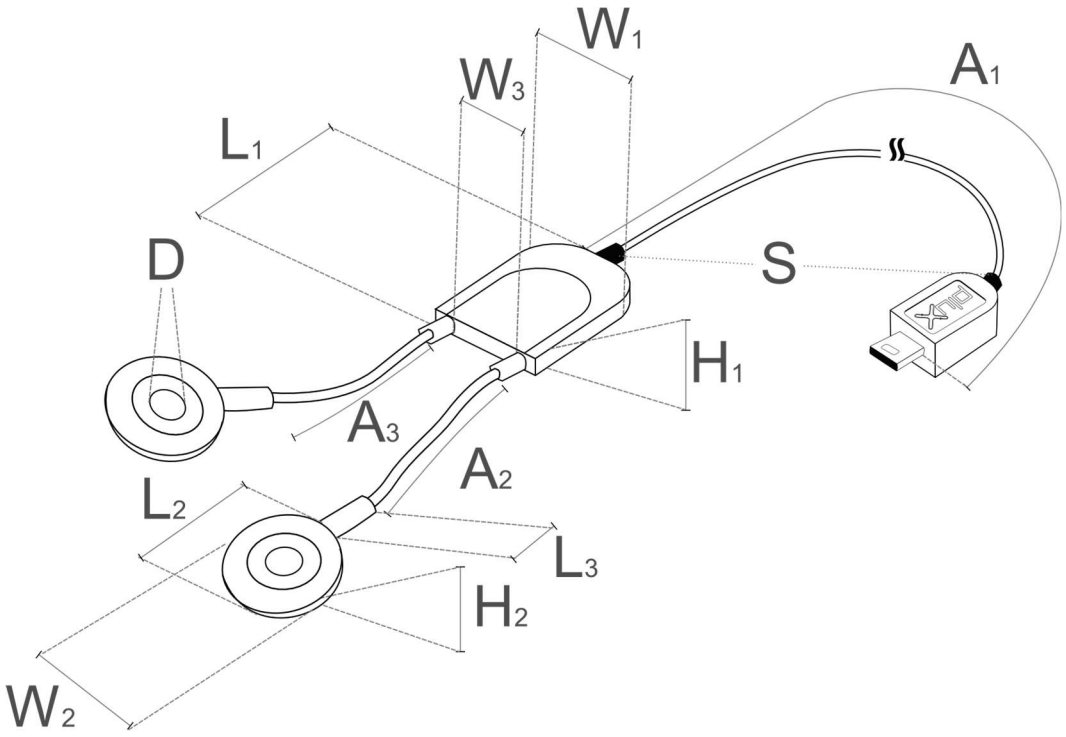
$$EDA(S) = EDA(\mu S).1 \times 10^{-6}$$

$VCC = 3V$ (operating voltage)

$EDA(\mu S)$ – EDA value in microsiemens (μS)
$EDA(S)$ – EDA value in Siemens (S)
ADC – Value sampled from the channel
n – Number of bits of the channel[1]

PHYSICAL CHARACTERISTICS

> **W1 x L1 x H1:** 1.0x1.8x0.4cm
> **W2 x L2 x H2:** 1.5x2.3x0.4cm
> **A1:** 105.0±0.5cm
> **A2:** 5.0±0.5cm
> **A3:** 5.0±0.5cm
> **D:** 0.4cm
> **S:** White, Black, Blue, Green, Red, Yellow, Gray, or Brown



[1] The number of bits for each channel depends on the resolution of the Analog-to-Digital Converter (ADC); in biosignalsplux the default is 16-bit resolution ($n = 16$), although 12-bit ($n = 12$) and 8-bit ($n = 8$) may also be found.

Electrodermal Activity (EDA)
Sensor Data Sheet

ORDERING GUIDE

Reference	Package Description
EDA1	Electrodermal Activity (EDA) sensor with standard physical characteristics and a random cable sleeve color
EDA1-A1-A2-A3-S	Electrodermal Activity (EDA) sensor built with custom lengths A1, A2 and/or A3 (all in cm), and custom sleeve color S; for standard physical characteristics in A1, A2, A3, or S use 0. Examples: > EDA1-200-0-0-0: Otherwise all-standard EDA sensor except for a 200cm cable A1 > EDA1-0-0-0-Yellow: Otherwise all-standard EDA sensor except for a yellow cable sleeve > EDA1-50-10-10-Red: Fully custom EDA sensor with a 50cm cable A1, 10cm electrode cables A2 & A3, and a red cable sleeve