Temperature (NTC) Sensor Data Sheet

NTC 12072017

SPECIFICATIONS

> **Range:** 0-50ºC
> **Type:** NTC thermistor
> **Diameter:** 2.04mm
> **Response Time (Air):** 15 seconds
> **Response Time (Water):** 2 seconds

FEATURES

> Medical-grade PVC insulation
> Fast response
> Pre-conditioned analog output
> High signal-to-noise ratio
> Ready-to-use form factor

APPLICATIONS

> Life sciences studies
> Biomedical research
> Human-Computer Interaction
> Robotics & Cybernetics
> Physiology studies
> Psychophysiology
> Biomechanics
> Ergonomics

GENERAL DESCRIPTION

Our high performance NTC sensors have been specifically developed for biomedical applications, and are meant to be used on a range of temperatures suitable for body sensing. These sensors produce a robust, stable, and accurate output with low tolerance values. The geometry and rapid response are also of added value for even the most demanding applications.

Fig. 1. Integrated miniaturized sensor + cable assembly providing unrivalled usability.

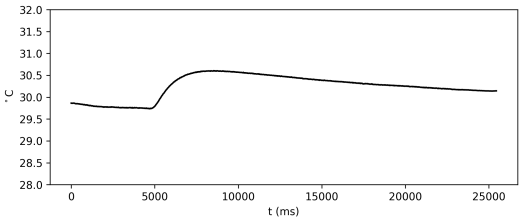

Fig. 2. Example TMP data (acquired with biosignalsplux).

biosignalsplux
wearable body sensing platform

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

REV A

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TRANSFER FUNCTION

$$NTC(V) = \frac{ADC.VCC}{2^n}$$

$$NTC(\Omega) = \frac{1\times10^4.NTC(V)}{VCC - NTC(V)}$$

$$TMP(°K) = \frac{1}{a_0 + a_1.\ln\left(NTC(\Omega)\right) + a_2.\left[\ln\left(NTC(\Omega)\right)\right]^3}$$

$$TMP(°C) = TMP(°K) - 273{,}15$$

$VCC = 3V$ (operating voltage)
$a_0 = 1{,}12764514\times10^{-3}$
$a_1 = 2{,}34282709\times10^{-4}$
$a_2 = 8{,}77303013\times10^{-8}$

$NTV(V)$ – NTC output in Volt (V)
$NTC(\Omega)$ – NTC resistance in Ohm (Ω)
$TMP(°K)$ – Temperature value in Kelvin (*°K*)
$TMP(°C)$ – Temperature value in Celsius (*°C*)
ADC – Value sampled from the channel
n – Number of bits of the channel[1]

ORDERING GUIDE

Reference	Package Description
SENSPRO-TMP	Temperature sensor for peripheral body temperature measurement with standard physical characteristics and random sleeve color.

[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.