

Temperature (TMP) Sensor Data Sheet

TMP 151015

SPECIFICATIONS

- > **Range:** [-40°C; +125°C]
- > **Accuracy:** $\pm 2^{\circ}\text{C}$
- > **Linearity:** $\pm 0.5^{\circ}\text{C}$
- > **Consumption:** $\sim 0.05\text{mA}$

FEATURES

- > Calibrated directly in $^{\circ}\text{C}$
- > Small form factor
- > Raw data output
- > Easy-to-use

APPLICATIONS

- > Body temperature measurement
- > Environmental analysis
- > Psychophysiology
- > Biofeedback
- > Biomedical devices prototyping

GENERAL DESCRIPTION

Our calibrated Temperature (TMP) sensor has been especially selected for seamless operation with BITalino, targeting body and environmental temperature measurement. Its small form factor enables easy application on the any surface. Typical applications include peripheral temperature data acquisition.

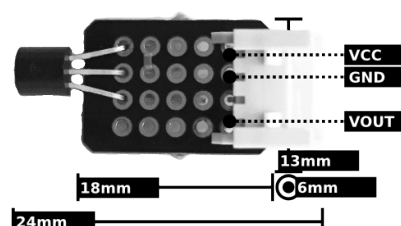


Fig. 1. Pin-out and physical dimensions.



REV A

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BEWARE: DIRECT OR INDIRECT COUPLING TO THE MAINS MAY RESULT IN SHOCKING HAZARD



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TRANSFER FUNCTION

[-40°C, +125°C]

$$TMP(^{\circ}C) = \left(\frac{ADC}{2^n} \cdot VCC - 0.5 \right) \cdot 100$$

$$TMP(^{\circ}F) = TMP(^{\circ}C) \cdot \frac{9}{5} + 32$$

$VCC = 3.3V$ (operating voltage)

$TMP(^{\circ}C)$ – TMP value in degrees Celsius ($^{\circ}C$)

$TMP(^{\circ}F)$ – TMP value in degrees Celsius ($^{\circ}F$)

ADC – Value sampled from the channel

n – Number of bits of the channel¹

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 ($n = 6$).