



Tarts Wireless Resistance Sensor

General Description

The Tarts wireless resistance sensor outputs the resistance across a load. It can be connected to any kind of variable resistance device, such as a transducer or sensor that outputs resistance.

Features

- Measures up to 145 KOhms.
- Accurate to $\pm 3.0\%$ (FS).
- Calibration feature for higher accuracy.


Principle of Operation

The Tarts wireless resistance sensor can be connected across a resistive load to report the measured resistance at user specified intervals. The sensor provides the resistance measurement in ohms. Resistance data is transmitted wirelessly to the gateway (Arduino shield, Raspberry Pi plate or Beagle-Bone Black cape).

Calibration

This sensor can be calibrated for higher accuracy. For highest accuracy, you will need to have an accurate voltage meter.

Technical Specifications

Datum Definition	Type: 70 Name: RESISTANCE RawValue: 234125 FormattedValue: 23412.5 OHMS
Calibration Parameter	void calibrate(float value); Value is the resistance in ohms.
Supply Voltage	2.0 - 3.6 VDC * (ships with CR2032 - 3.0 V coin cell battery and battery clip)
Current Consumption	0.7 μ A (sleep mode) 2 mA (radio idle/off mode) 2 mA (measurement mode) 25 mA (radio RX mode) 35 mA (radio TX mode)
Electronics Operating Temperature Range	-40°C to +85°C (-40°F to +185°F) **
Available Operating Frequencies	900 MHz (25 Channels), 868 MHz (5 Channels) and 433 MHz (15 Channels)
Resistive Range (in Ohms)	0 – 145000***
Specific Resistive Ranges (in Ohms)	0 – 530, 530 – 3500, 3500 – 27200, 27200 - 145000
Resolution (in Ohms)	2047 Unique Values Per Specific Range (11 bit): ~.25, ~1.71, ~13.3, ~70.8.
Accuracy	+/- 3.0% FS of Specific Range (+/- 1.5% FS User Calibrated****)
Lead Wire Length	1 ft. (12 in.)
Antenna	4" wire antenna
Device Range	250 - 300 ft. non-line-of-sight (actual range may vary depending on environment.)
Dimensions	1 inch (W) x 1 inch (L)
Certifications	 900 MHz product; FCC ID: ZTL- RFSC1 and IC: 9794A-RFSC1. 868 and 433 MHz product tested and found to comply with: CISPR 22:2008-09 / EN 55022:2010 - Class B and ETSI EN 300 220-2 V2.4.1 (2012-05).

* Hardware cannot withstand negative voltage. Please take care when connecting a power device.

** At temperatures above 100°C, it is possible to lose programmed memory.

*** The sensor is capable of measuring above 145000 Ohms but may not meet the specified accuracy above this value.

**** For a valid calibration, the resistance under measurement must be maintained in circuit for 1 data transmission before calibration and 1 data transmission after calibration. Calibration is only applied to the specific resistive range, for best results calibrate at a resistance between 10% and 90% of the specific range. In general, calibrating between the 50% and 90% points of the specific range will yield better calibration results for the entire range.

For more product information or to place an order visit us on the web at www.tartssensors.com.
Tarts Sensors | email: info@tartssensors.com | web: www.tartssensors.com