TARTS™
Sensors for Makers™

N
W + E
S

COMPASS

Tarts Wireless Digital Compass

General Description
The Tarts wireless compass uses a highly sensitive 3 axis digital compass to return the orientation of the device in regards to magnetic north.

Features
- 3-axis magnetoresistive sensors.
- 5 milli-gauss accuracy.
- Calibration feature for higher accuracy.

Principle of Operation
The Tarts wireless compass uses a 3-Axis magnetoresistive sensor to accurately measure both the direction and the magnitude of Earth's magnetic fields. The sensor converts any incident magnetic field in the sensitive axis directions to a differential voltage output which the device then converts to directional information which is reported to the gateway (Arduino shield, Raspberry Pi plate or BeagleBone Black cape).

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

Technical Specifications

Datum Definition	Type: 28 RawValue: 106 Name: HEADING FormattedValue: 106 DEG
Calibration Parameter	void calibration(int heading); Heading - 0 (N), 90 (E), 180 (S), or 270 (W)
Supply Voltage	2.0 - 3.6 VDC * (ships with CR2032 - 3.0 V coin cell battery and battery clip)
Current Consumption	0.7 µA (sleep mode) 25 mA (radio RX mode) 2 mA (radio idle/off mode) 35 mA (radio TX mode) 2 mA (measurement 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)
Data Range	0° to 360°, N (~0°), E (~90°), S (~180°), W (~270°)
Field Range (Full scale (FS) - total applied field)	-8 to +8 gauss
Mag Dynamic Range (3-bit gain control)	±1 to ±8
Resolution (VDD=3.0V, GN=2)	5 milli-gauss typ.
Linearity (±2.0 gauss input range)	0.1 ±% FS max
Hysteresis (±2.0 gauss input range)	±25 ppm typ.
Cross-Axis Sensitivity (Cross field = 0.5 gauss)	±0.2% FS / gauss
Output Rate (Continuous Measurement Mode)	0.75 to 75 Hz
Output Rate (Single Measurement Mode)	160 Hz max
Measurement Period	6 msec typ.
Gain Tolerance	±5%
Gain Tolerance (Ambient, unbiased)	-40 to +125°C
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	FC CE 🍁 Industry Canada 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.

For more product information or to place an order visit us on the web at www.tartssensors.com.
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