

# Monnit

## Wireless Digital Compass (AA)



### Technical Overview

#### General Description

The wireless compass sensor uses a highly sensitive 3 axis digital compass to return the orientation of the device in regards to magnetic north. Great for tracking directional behavior and positioning.

#### Features

- 3-Axis Magnetoresistive Sensors.
- North and East Calibration
- Heading Offset (for true north)
- Free iMonnit basic online wireless sensor monitoring and notification system to configure sensors, view data and set alerts via SMS text and email.

#### Principles of Operation

The Monnit Wireless Digital 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 software. A heading offset can be applied via software to achieve true north readings. The software includes a North and East calibration option to improve heading accuracy.

Note: Because of variations in Earth's magnetic field, onsite calibration is required for optimal results.

#### Power Options

The standard version of this sensor is powered by two replaceable 1.5 V AA sized batteries (included with purchase).

This sensor is also available with a line power option. The line powered version of this sensor has a barrel power connector allowing it to be powered by a standard 3.0 - 3.6 V power supply. The line powered version also uses two standard 1.5 V AA batteries as backup for uninterrupted operation in the event of line power outage.

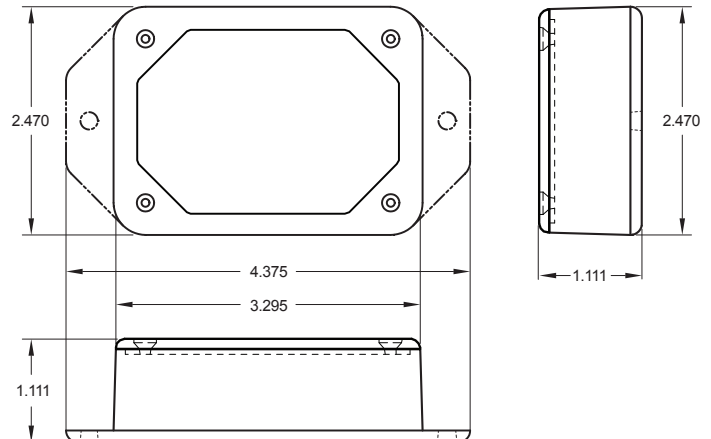
Power options must be selected at time of purchase, as the internal hardware of the sensor must be changed to support the selected power requirements.

#### Monnit Sensor Core Specifications

- Power: Two replaceable 1.5 V AA batteries (Option for line power with battery backup)
- Communication: RF 900, 920, 868 and 433 MHz
- Dimensions: 4.375" x 2.470" x 1.111"
- Antenna: 4" wire antenna
- Operating Temperature: -40° to 85°C (-40° to 185°F)  
Device Range: 250 - 300 ft. non-line-of-sight\*
- Battery Life: At 1 hour heartbeat setting, standard AA batteries will last up to 4 years.\*\*

\* Actual range may vary depending on environment.


\*\* Battery life is determined by sensor reporting frequency and other variables. Other power options are also available.



#### Example Applications

- Digital Compass
- Device Orientation
- Device Directional Movement
- And many more...

**The Leader in Low Cost Wireless Sensors**

Technical Specifications	
Supply Voltage	2.0 - 3.6 VDC (3.0 - 3.6 VDC Using Power Supply)
Magnetic Dynamic Range	±1.3 Gauss
Measurement Period	106 msec typ.
Calibrated Accuracy	± 4° for calibrated North and East Headings (both North and East headings must be calibrated for specified accuracy)**
Gain Tolerance (Ambient, unbiased)	-40 to +125°C
Operating Temperature Range (Board Circuitry and Batteries)	-18°C to 55°C (0°F to 130°F) using alkaline -40°C to 85°C (-40°F to 185°F) using lithium *
Optimal Battery Temperature Range (AA)	+10°C to +50°C ( +50°F to +122°F )
Certifications	 900 MHz product; FCC ID: ZTL- RFSC1 and IC: 9794A-RFSC1. 920 MHz product; ARIB STD-T108 R210-103733. 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).

\* At temperatures above 100°C, it is possible for the board circuitry to lose programmed memory.

\*\* For optimal results calibrate in the immediate area in which the sensor will be used and based on magnetic North. Be aware that other magnetic/ferrous sources in the area can adversely affect readings. As the sensor rotates away from calibrated North and East headings the accuracy may drift.

### Caution/Notice:

This product is designed for application in an ordinary environment (normal room temperature, humidity and atmospheric pressure). Do not use this sensor under the following conditions as these factors can deteriorate the product characteristics and cause failures and burn-out.

- Corrosive gas or deoxidizing gas - chlorine gas, hydrogen sulfide gas, ammonia gas, sulfuric acid gas, nitric oxides gas, etc.).
- Volatile or flammable gas.
- Dusty conditions.
- Under low or high pressure.
- Wet or excessively humid locations.
- Places with salt water, oils chemical liquids or organic solvents.
- Where there are excessively strong vibrations.
- Other places where similar hazardous conditions exist.

Use this product within the specified temperature range. Higher temperature may cause deterioration of the characteristics or the material quality of this product.



For more information about our products or to place an order, please contact our sales department at 801-561-5555.

Visit us on the web at [www.monnit.com](http://www.monnit.com).

Monnit Corporation  
4403 South 500 West  
Murray, UT 84123  
801-561-5555  
[www.monnit.com](http://www.monnit.com)