

Monnit

Wireless Accelerometer - Vibration Meter (AA)

Technical Overview



General Description

The Monnit Wireless Vibration Meter Sensor uses an accelerometer to measure vibration speed and frequency and report on 3 axes.

Features

- Reports data as speed (mm/s) and frequency (Hz) on all three axes, and how long the sensor was measuring during the interval.
- Adjustable measurement methods: RMS, peak data only, and absolute mean.
- Free iMonnit basic online wireless sensor monitoring and notification system to configure sensors, view data and set alerts via SMS text and email.

Principle of Operation

The Vibration Meter uses an accelerometer to measure g-force on all axes and then determine speed and frequency. It can be set to only capture when a vibration occurs and sleep when no vibrations are present, or it can be set to measure at a given assessment interval regardless of whether a vibration has occurred. If it is set to always measure, the sensitivity can be further adjusted to filter out noise. The Vibration Meter will also report the duty cycle, or how long the sensor was measuring vibrations throughout the heartbeat.

Power Options

The standard version of this sensor is powered by two replaceable 1.5V AA sized batteries (included with purchase). This sensor is also available in a line power version with battery backup, allowing it to be powered by a standard 3.0 - 3.6V power supply and use the internal batteries if there is a power interruption.

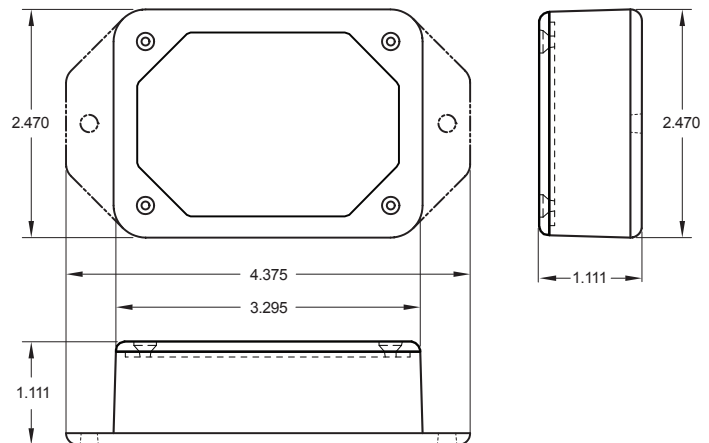
Power options must be selected at time of purchase as the internal hardware of the sensor must be changed to support the selected power requirements.

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: Standard AA batteries will last up to 2 years. Configurations can be altered to get more or less battery life. **

* Actual range may vary depending on environment.


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



Example Applications

- Vibration Monitoring
- Smart Machines, Smart Structures & Smart Materials
- Bridge and Building Seismic Activity Monitoring
- Assembly Line Monitoring

The Leader in Low Cost Wireless Sensors

Technical Specifications	
Supply Voltage	2.0 - 3.6 VDC *
Current Consumption	6 μ A (accelerometer listening for vibrations) 0.7 μ A (sleep mode after measurement) 2 mA (radio idle/off mode) 2 mA (measurement mode) 25 mA (radio RX mode) 35 mA (radio TX mode)
Operating Temperature Range (Board Circuitry and Batteries)	-18°C to 55°C (0°F to 130°F) using alkaline -40°C to 60°C (-40°F to 140°F) using lithium **
Optimal Battery Temperature Range (AA)	+10°C to +50°C (+50°F to +122°F)
Speed Measurement Range	0 to 25.5 mm/s
Speed Measurement Resolution	0.1 mm/s
Frequency Measurement Range	0 to 256 Hz
Frequency Measurement Resolution	1.5625 Hz rounded down to nearest 1 Hz
Vibration Intensity Threshold Range	0 to 1.701 g
Vibration Intensity Threshold Resolution	0.063 g
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).

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

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

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.

Monnit Corporation
4403 South 500 West
Murray, UT 84123
801-561-5555
www.monnit.com