

Wireless Accelerometer - Vibration Meter

General Description

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

- 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

Monnit Vibration Meters utilize accelerometers for g-force measurements on 3 axes and then determines speed and frequency from this measurement. The sensor will measure vibrations once every Measurement Interval, which can be set as low as 1 minute and as high the Heartbeat Interval. The sensor is designed to measure continuous vibration and be low powered so it captures vibration for less than a second during its Measurement Interval. The sensor uses a Sensitivity Threshold to filter noise or low level vibrations. If this threshold is set to 0 then any vibration captured during the Measurement Interval will contribute to the duty cycle and be analyzed, even very low level vibrations. The Vibration Meter will also report the duty cycle, or how long the sensor was measuring vibrations throughout the heartbeat.

Example Applications

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

Monnit Sensor Core Specifications

- Wireless Range: 250 - 300 ft. (non line-of-sight / indoors through walls, ceilings & floors) *
- Communication: RF 900, 920, 868 and 433 MHz
- Power: Replaceable batteries (optimized for long battery life - Line-power (AA version) and solar (Industrial version) options available
- Battery Life (at 1 hour heartbeat setting): **
 - AA battery > 4-8 years
 - Coin Cell > 2-3 years.
 - Industrial > 4-8 years

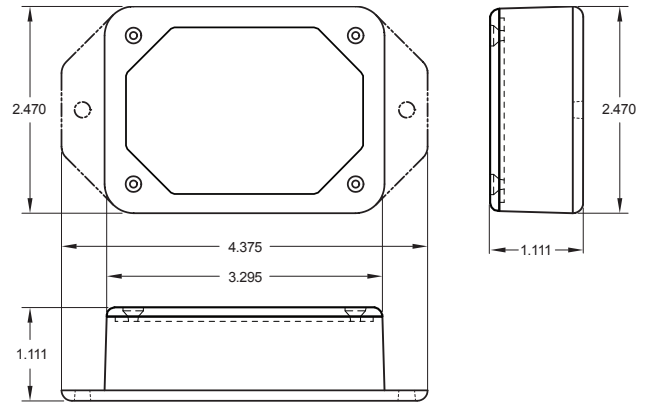
* Actual range may vary depending on environment.

** Battery life is determined by sensor reporting frequency and other variables.

Sensor Types & Options

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Wireless Accelerometer - Vibration Meter (AA)



Technical Specifications	
Supply Voltage	2.0 - 3.6 VDC (3.0 - 3.6 VDC Using Power Supply) *
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
Weight	3.7 oz.
Wireless Range	250 - 300 ft. (Through walls, ceilings and floors) Range may vary according to environmental variables.
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).



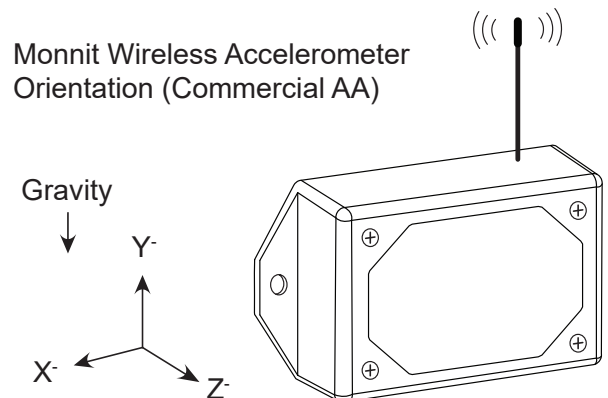
* Hardware cannot withstand negative voltage. Please take care when connecting a power device.

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

Line-Power Option

Two replaceable 1.5V AA sized batteries are included with the standard model. A line-power version with battery backup is also available - 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.

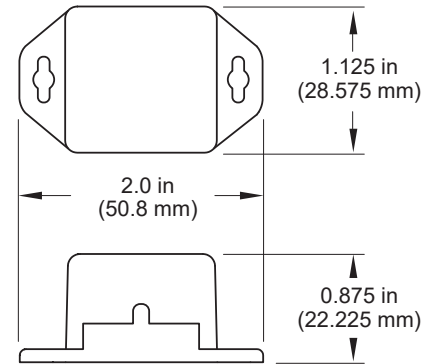
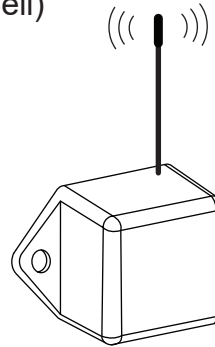
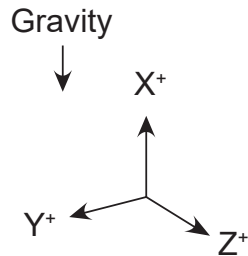
Power options must be selected at time of purchase as the internal hardware of the sensor must be changed to support the selected power requirements.



Wireless Accelerometer - Vibration Meter (Coin Cell)



Monnit Wireless Accelerometer Orientation (Commercial Coin Cell)



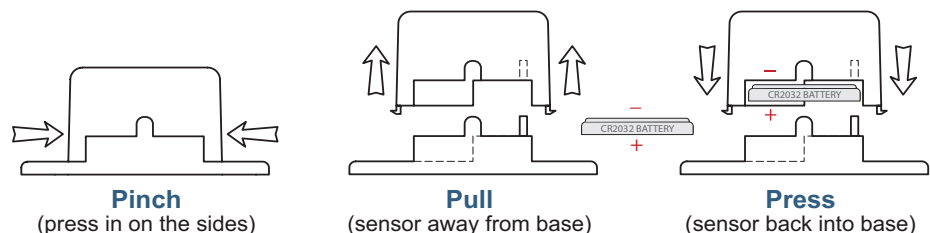
Technical Specifications

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 Coin Cell)	-7°C to +60°C (20°F to +140°F)**
Optimal Battery Temperature Range (Coin Cell)	+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
Weight	0.7 oz
Wireless Range	250 - 300 ft. (Through walls, ceilings and floors) Range may vary according to environmental variables.
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).

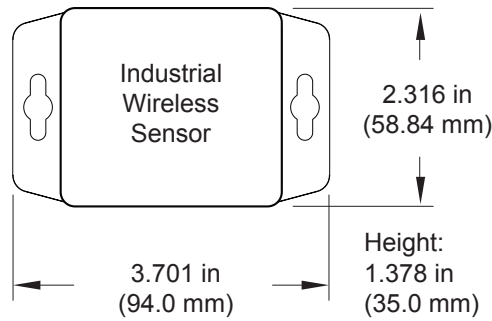


* Hardware cannot withstand negative voltage. Please take care when connecting a power device.
** At temperatures above 100°C, it is possible for the board circuitry to lose programmed memory.

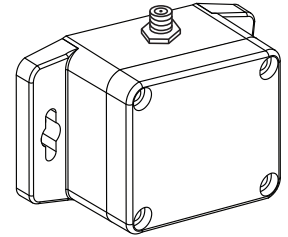
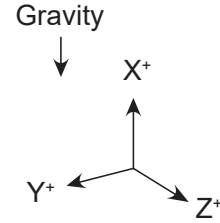
PinchPower™ Enclosure



Wireless Accelerometer - Vibration Meter (Industrial)



Monnit Wireless Accelerometer Orientation (Industrial)



Technical Specifications

Supply Voltage	2.0 - 3.6 VDC *	
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)	
Operating Temperature Range (Board Circuitry and Battery)		
Included Battery	Max Temperature Range:	-40°C to +85°C (-40°F to +185°F) **
	Capacity:	1500 mAh
Optional Solar Feature	Solar Panel:	5VDC / 30mA (53mm x 30mm)
	Charging Temperature Range:	0° to 45°C (32° to 113°F)
	Max Temperature Range:	-20° to 60°C (-4° to 140°F)
	Included Rechargeable Battery:	600 mAh / >2000 Charge Cycles (80% of initial capacity)
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	
Enclosure Rating	NEMA 1, 2, 4, 4x, 12 and 13 rated, sealed and weather proof	
UL Rating	UL Listed to UL508-4x specifications (File E194432)	
Weight	4.7 oz	
Wireless Range	250 - 300 ft. (Through walls, ceilings and floors) Range may vary according to environmental variables.	
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 cannot 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.

*** Solar feature is only chargeable outside on full sunlight.



Solar Power Option

Monnit Industrial Sensors are powered by a replaceable 3.6V Lithium battery (included). An optional solar powered version is also available. The solar powered sensor uses a Lithium Iron Phosphate rechargeable battery in conjunction with a solar power cell to extend battery life.

Options

Commercial Grade Sensors

Monnit commercial grade sensors are designed for applications in ordinary environments (normal room temperature, humidity and atmospheric pressure). Do not use these sensors 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 these products within the specified temperature range. Higher temperature may cause deterioration of the characteristics or the material quality.

Industrial Grade Sensors - Type 1, 2, 4, 4X, 12 and 13 NEMA Rated Enclosure

Monnit's Industrial sensors are enclosed in reliable, weatherproof NEMA rated enclosures. Our NEMA rated enclosures are constructed for both indoor or outdoor use and protect the sensor circuitry against the ingress of solid foreign objects like dust as well as the damaging effects of water (rain, sleet, snow, splashing water, and hose directed water).

- Safe from falling dirt.
- Protects against wind-blown dust.
- Protects against rain, sleet, snow, splashing water, and hose directed water
- Increased level of corrosion resistance
- Will remain undamaged by ice formation on the enclosure



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.

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