MONNIT®

The Leader in Low-Cost, Remote Monitoring Solutions

G-FORCE
MAX & AVG

Wireless Accelerometer - G-Force Max & Avg

General Description

The RF Wireless Accelerometer is a digital, low power, low profile, capacitive sensor that is able to measure acceleration on three axes. Four different accelerometer types are available from Monnit.

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

Accelerometer samples at 800 Hz over a 10 second period, and reports the measured MAXIMUM value for each axis in g-force and the AVERAGE measured g-force on each axis over the same period, for all three axes. (Only available in the AA version.) This sensor reports in every 10 seconds with this data. Other sampling periods can be configured, down to one second and up to 10 minutes*. The data reported is useful for tracking periodic motion. Sensor data is displayed as max and average.

Example:

- *Max X: 0.125 Max Y: 1.012 Max Z: 0.015*
- *Avg X: 0.110 Avg Y: 1.005 Avg Z: 0.007*

* Customer cannot configure sampling period on their own. Contact Monnit to reset the period to be monitored.

Example Applications

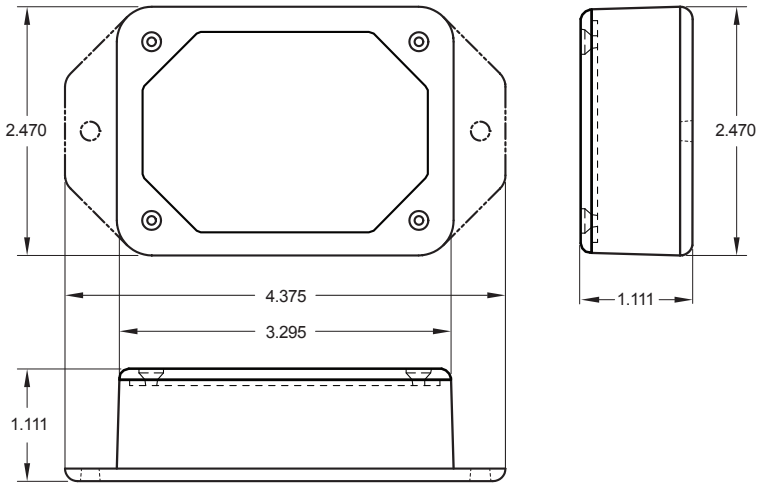
- Inclination and vibration testing
- Assembly Line Monitoring
- Orientation sensing
- Smart machines, smart structures and smart materials
- Impact Load Sensing
- And many more...

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



Commercial AA Wireless Accelerometer - G-Force Max & Avg Sensor - Technical Specifications	
Supply Voltage	2.0 - 3.6 VDC (3.0 - 3.6 VDC Using Power Supply) *
Current Consumption	0.7 µA (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 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)
Sensitivity	4096 count/g
Sensitivity Range Selections	+/-2 G, +/-4 G, +/-8 G
Measurement Accuracy	±2.5 % (Force: X, Y, Z)
Minimum G Force to Turn On/Wake Up	0.050 g - 0.100 g
Bandwidth for Data Measurement	800 Hz
Wireless Range	250 - 300 ft. (Through walls, ceilings and floors) Range may vary according to environmental variables.
Weight	3.7 Ounces
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).

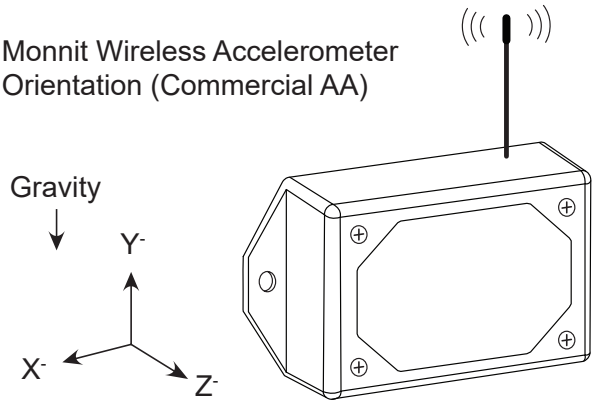
* Circuits cannot withstand negative voltage. Please take care when installing batteries.
** At temperatures above 100°C, it is possible for the board circuitry to lose programmed memory.

Line-Power Option

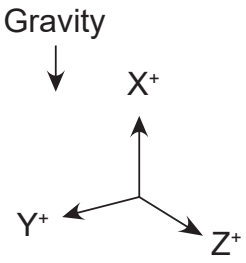
Two replaceable 1.5V AA sized batteries are included with the standard model. A line-power version with battery backup is also available - allowing it to be powered by a standard 3.0 - 3.6V power supply and use the internal batteries if there is a power interruption.

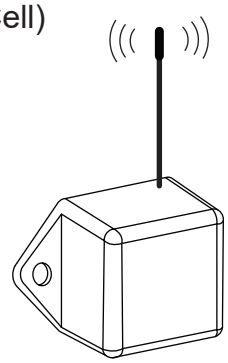
Power options must be selected at time of purchase as the internal hardware of the sensor must be changed to support the selected power requirements.

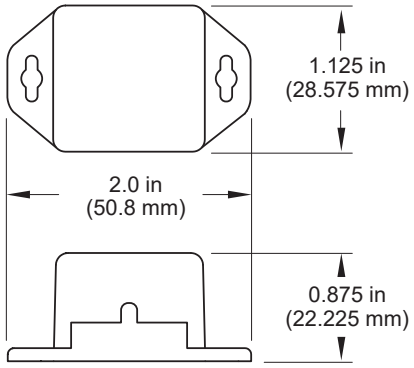
Monnit Wireless Accelerometer Orientation (Commercial AA)



Monnit Wireless Accelerometer Orientation
(Commercial Coin Cell)



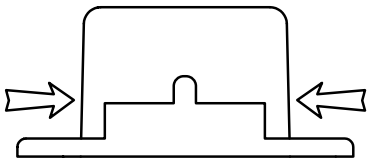




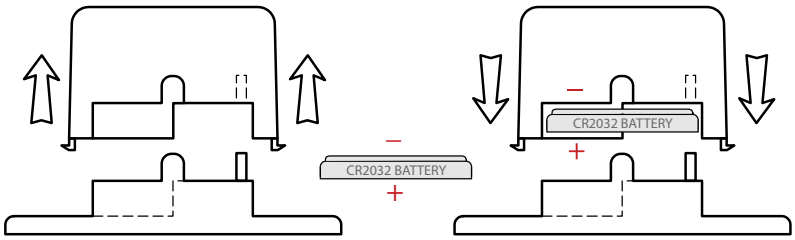
Commercial Coin Cell Wireless Accelerometer - G-Force Max & Avg Sensor - Technical Specifications	
Supply Voltage	2.0 - 3.6 VDC (3.0 - 3.6 VDC Using Power Supply) *
Current Consumption	0.7 µA (Sleep Mode) 2 mA (radio idle/off mode) 2 mA (measurement mode) 25 mA (radio RX mode) 35 mA (radio TX mode)
Operating Temperature Range (Board Circuitry and 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)
Sensitivity	4096 count/g
Sensitivity Range Selections	+/-2 G, +/-4 G, +/-8 G
Measurement Accuracy	±2.5 % (Force: X, Y, Z)
Minimum G Force to Turn On/Wake Up	0.050 g - 0.100 g
Bandwidth for Data Measurement	800 Hz
Wireless Range	250 - 300 ft. (Through walls, ceilings and floors) Range may vary according to environmental variables.
Weight	0.7 oz.
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).

* Circuits can not withstand negative voltage. Please take care when installing batteries.
** At temperatures above 100°C, it is possible for the board circuitry to lose programmed memory.

PinchPower™ Enclosures

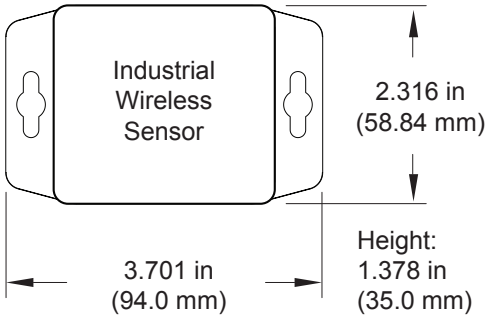


Pinch
(press in on the sides)

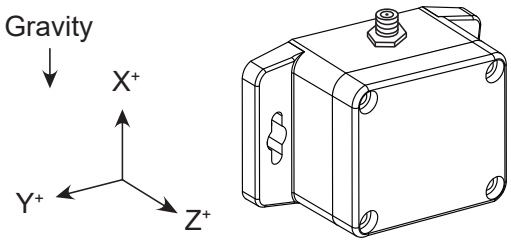


Pull
(sensor away from base)

Press
(sensor back into base)



Monnit Wireless Accelerometer
Orientation (Industrial)



Industrial Wireless Accelerometer - G-Force Max & Avg Sensor - Technical Specifications

Supply Voltage		2.0 - 3.6 VDC (3.0 - 3.6 VDC Using Power Supply) *
Current Consumption		0.7 µA (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)		-40°C to +85°C (-40°F to +185°F) **
Included Battery	Max Temperature Range:	-40° to +85°C (-40° 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)
	Charging Efficiency:	5% ***
	Luminous Sustainability:	Minimum of 10,000 LUX ***
Sensitivity		4096 count/g
Sensitivity Range Selections		+/-2 G, +/-4 G, +/-8 G
Measurement Accuracy		±2.5 % (Force: X, Y, Z)
Minimum G Force to Turn On/Wake Up		0.050 g - 0.100 g
Bandwidth for Data Measurement		800 Hz
Wireless Range		250 - 300 ft. (Through walls, ceilings and floors) Range may vary according to environmental variables.
Weight		4.7 oz.
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)
Certifications Industry Canada		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).

* Cicuits cannot withstand negative voltage. Please take care when installing batteries.
** At temperatures above 100°C, it is possible for the board circuitry to lose programmed memory.
*** Solar feature only chargable outside in full sunlight.

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 product 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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