



**Wireless Accelerometer - Tilt Sensor**

**General Description**

The ALTA Wireless Accelerometer - Tilt Sensor is a digital, low-power, low-profile, capacitive sensor that is able to measure acceleration on three axes to provide a measure of pitch and roll.

- Reports data as pitch and roll

**Principle of Operation**

The ALTA Wireless Accelerometer - Tilt Sensor activates at a set time interval (defined by user) and converts accelerometer measurements to pitch and roll (0 to 180° -> -180° to 0°). The data is displayed in degrees with 0.1° of resolution.

Example: Pitch: 1.6 Roll: -0.1

**Example Applications**

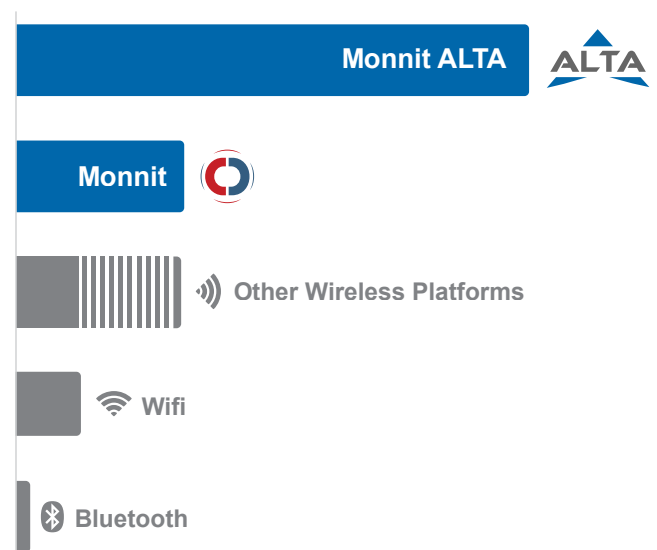
- Inclination monitoring
- Pitch & roll
- Many additional applications

**Features of Monnit ALTA Sensors**

- Wireless range of 1,200+ feet through 12+ walls \*
- Frequency-Hopping Spread Spectrum (FHSS)
- Improved interference immunity
- Improved power management for longer battery life \*\* (12+ years on AA batteries)
- Encrypt-RF® Security (Diffie-Hellman Key Exchange + AES-128 CBC for sensor data messages)
- All ALTA sensors now have up to 3200 readings:
  - 10-minute heartbeats = 22 days
  - 2-hour heartbeats = 266 days
- Over-the-air updates (future proof)
- Free iMonnit basic online wireless sensor monitoring and notification system to configure sensors, view data and set alerts via SMS text and email

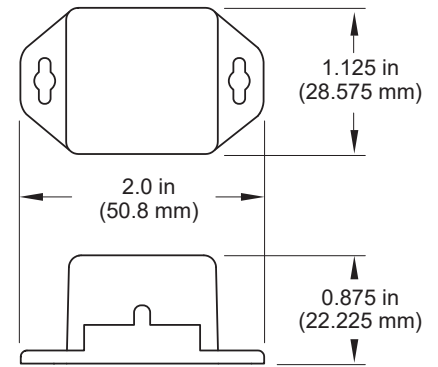
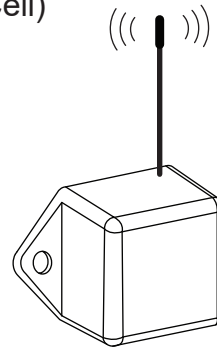
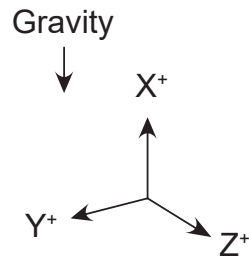
\* Actual range may vary depending on environment.  
 \*\* Battery life is determined by sensor reporting frequency and other variables. Other power options are also available.

**Wireless Range Comparison**






## Monnit Wireless Accelerometer Orientation (Commercial Coin Cell)



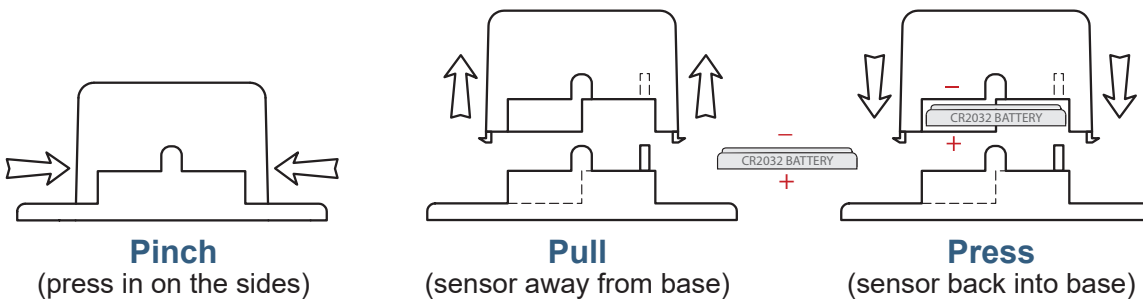
### ALTA Commercial Coin Cell Wireless Accelerometer - Tilt Sensor | Technical Specifications

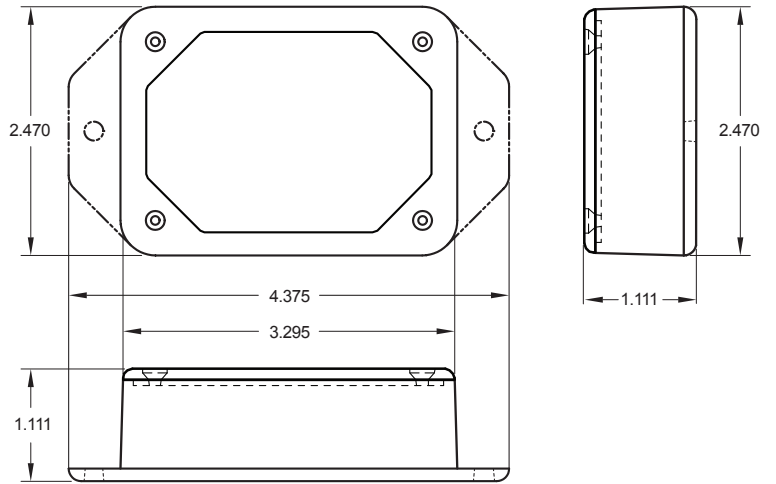
|   |  |
|---|--|
| Supply voltage  | 2.0–3.8 VDC *  |
| Current consumption   | 0.2 $\mu$ A (sleep mode), 0.7 $\mu$ A (RTC sleep), 570 $\mu$ A (MCU idle), 2.5 mA (MCU active), 5.5 mA (radio RX mode), 22.6 mA (radio TX mode)  |
| Operating temperature range (board circuitry and coin cell) | -7°C to +60°C (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  | $\pm$ 2.5 % (force: X, Y, Z)   |
| Minimum g-force to turn on/wake up                          | 0.050–0.100 g  |
| Fastest update interval/heart rate in any configuration     | Heartbeat: 1 minute  |
| Bandwidth for data measurement                              | 800 Hz   |
| Measurement range (profile 4 tilt only)                     | 0° to 180° $\blacktriangleright$ -180° to -0° (Rotating in positive direction)   |
| Measurement resolution (profile 4 tilt only)                | 0.1°   |
| Integrated memory   | Up to 3200 sensor messages   |
| Wireless range  | 1,200+ ft non-line-of-sight  |
| Security  | Encrypt-RF® (256-bit key exchange and AES-128 CTR)   |
| Weight  | 0.7 ounces   |
| Certifications  |  900 MHz product; FCC ID: ZTL-G2SC1 and IC: 9794A-G2SC1. 868 and 433 MHz product tested and found to comply with: EN 300 220-2 V3.1.1 (2017-02), EN 300 220-2 V3.1.1 (2017-02) and EN 60950 |

\* 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™ Enclosures





## ALTA Commercial AA Wireless Accelerometer - Tilt Sensor | Technical Specifications

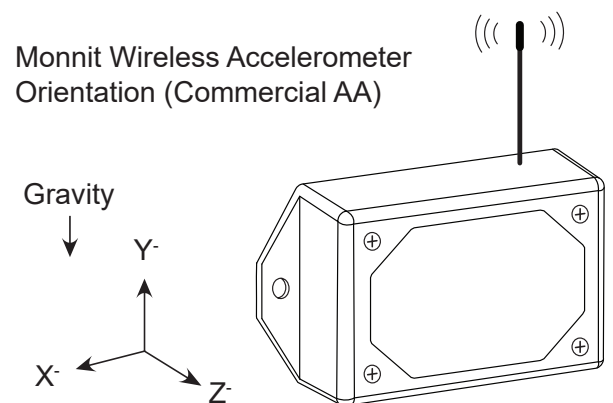
|   |  |
|---|--|
| Supply voltage  | 2.0–3.8 VDC (3.0–3.8 VDC using power supply) *   |
| Current consumption   | 0.2 $\mu$ A (sleep mode), 0.7 $\mu$ A (RTC sleep), 570 $\mu$ A (MCU idle), 2.5 mA (MCU active), 5.5 mA (radio RX mode), 22.6 mA (radio TX mode)  |
| Operating temperature range (board circuitry and batteries) | -18°C to 55°C (0°F to 130°F) using alkaline<br>-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  | $\pm$ 2.5 % (force: X, Y, Z)   |
| Minimum g-force to turn on/wake up                          | 0.050–0.100 g  |
| Fastest update interval/heart rate in any configuration     | Heartbeat: 1 minute  |
| Bandwidth for data measurement                              | 800 Hz   |
| Measurement range (profile 4 tilt only)                     | 0° to 180° ▶ -180° to -0° (Rotating in positive direction)   |
| Measurement resolution (profile 4 tilt only)                | 0.1°   |
| Integrated memory   | Up to 3200 sensor messages   |
| Wireless range  | 1,200+ ft non-line-of-sight  |
| Security  | Encrypt-RF® (256-bit key exchange and AES-128 CTR)   |
| Weight  | 3.7 ounces   |
| Certifications  | <div style="display: flex; align-items: center; gap: 10px;">    </div> 900 MHz product; FCC ID: ZTL-G2SC1 and IC: 9794A-G2SC1. 868 and 433 MHz product tested and found to comply with: EN 300 220-2 V3.1.1 (2017-02), EN 300 220-2 V3.1.1 (2017-02) and EN 60950 |

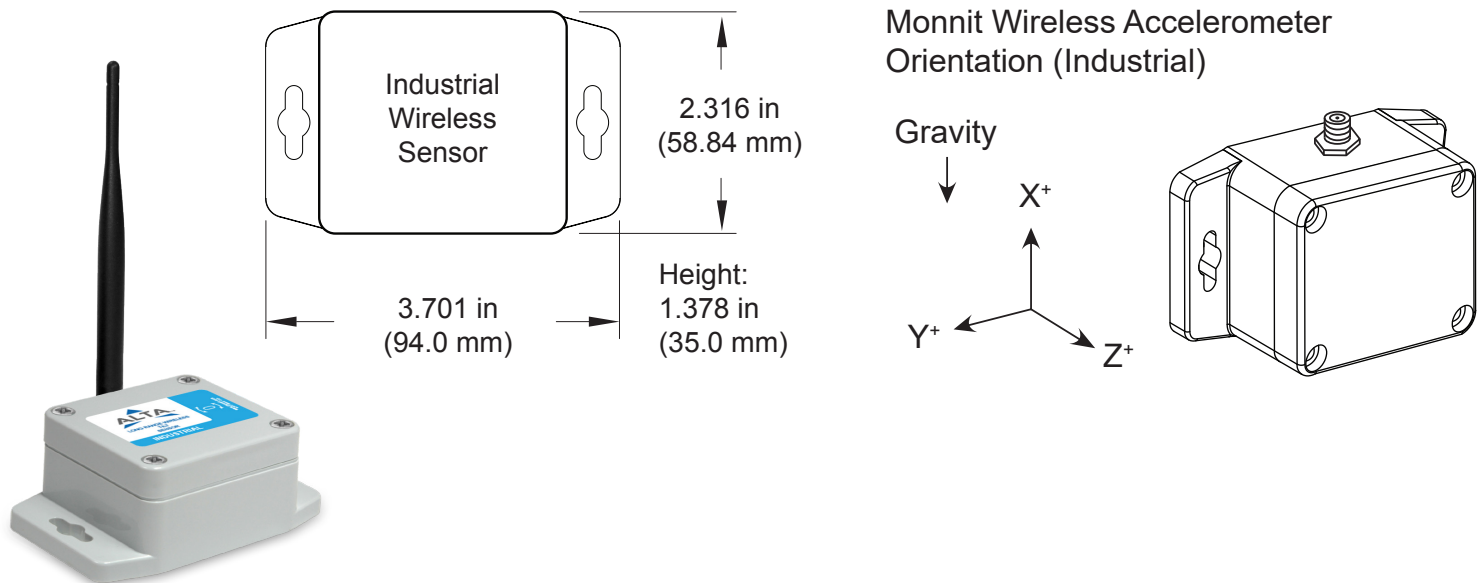
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\*\* At temperatures above 100°C, it is possible for the board circuitry to lose programmed memory.




## 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.





### ALTA Industrial Wireless Accelerometer - Tilt Sensor | Technical Specifications

|   |   |  |
|---|---|--|
| Supply voltage  | 2.0–3.8 VDC (3.0–3.8 VDC using power supply) *  |  |
| Current consumption                                       | 0.2 $\mu$ A (sleep mode), 0.7 $\mu$ A (RTC sleep), 570 $\mu$ A (MCU idle), 2.5 mA (MCU active), 5.5 mA (radio RX mode), 22.6 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)  |
|   | Solar efficiency  | Optimized for high and low-light operation ***   |
| Sensitivity   | 4096 count/g  |  |
| Sensitivity range selections                              | +/-2 G, +/-4 G, +/-8 G  |  |
| Measurement accuracy                                      | $\pm$ 2.5 % (force: X, Y, Z)  |  |
| Minimum g-force to turn on/wake up                        | 0.050–0.100 g   |  |
| Fastest update interval/Heart Rate in Any Configuration   | Heartbeat: 1 minute   |  |
| Bandwidth for data measurement                            | 800 Hz  |  |
| Measurement range (profile 4 tilt only)                   | 0° to 180° ► -180° to -0° (Rotating in positive direction)  |  |
| Measurement resolution (profile 4 tilt only)              | 0.1°  |  |
| Integrated memory   | Up to 3200 sensor messages  |  |
| Wireless range  | 1,200+ ft non-line-of-sight   |  |
| Security  | Encrypt-RF® (256-bit key exchange and AES-128 CTR)  |  |
| Weight  | 4.7 ounces  |  |
| 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-G2SC1 and IC: 9794A-G2SC1. 868 and 433 MHz product tested and found to comply with: EN 300 220-2 V3.1.1 (2017-02), EN 300 220-2 V3.1.1 (2017-02) and EN 60950 |

\* 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.

\*\*\* Light present 25% of day yields 125% of operating power to support 10-minute heartbeats.