ioX-Connect®

Intelligent Wireless Monitoring Solutions

Wireless Motion Detection Sensor

General Description

The Wireless Motion Detection Sensor uses an infrared sensor to accurately detect movements made by people/animals within 15 ft (4.5 m) range.

Features

- Software adjustable range (15 ft/12 ft/9 ft)
- Standard and wide angle lens options (80° / 110°)
- Accurately detects occupancy and movement
- Use ioX-Connect wireless sensor monitoring and notification system to configure sensors, view data and set alerts via SMS text and email

Principle of Operation

The Wireless Motion Detection Sensor detects motion and movement using a passive infrared (PIR) motion sensing element. The element detects relative changes in temperature caused by warm bodies moving through the viewing area. Once the sensor detects movement it communicates with the sensor portal via a gateway. The sensor portal stores all data in the online system where the data can be reviewed and exported as a data sheet or graph. Notifications can be set up through the online system to alert the user when motion has been detected.

Example Applications

- Monitor area access
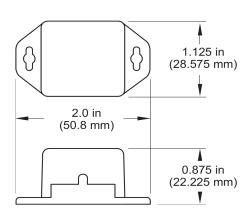- Detect when people enter a room
- Additional applications

Features of Wireless Sensors

- Wireless range of 1,200+ feet through 12+ walls *
- Frequency-Hopping Spread Spectrum (FHSS)
- Best in class interference immunity
- Best in class power management for longer battery life **
- Encrypt-RF® Security (Diffie-Hellman Key Exchange + AES-128 CBC for sensor data messages)
- Datalogs 2000 to 4000 readings if gateway connection is lost (non-volatile flash, persists through the power cycle):
    - 10-minute heartbeats = ~ 22 days
    - 2-hour heartbeats = ~ 266 days
- Over-the-air updates (future proof)
- Free 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.
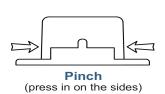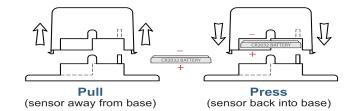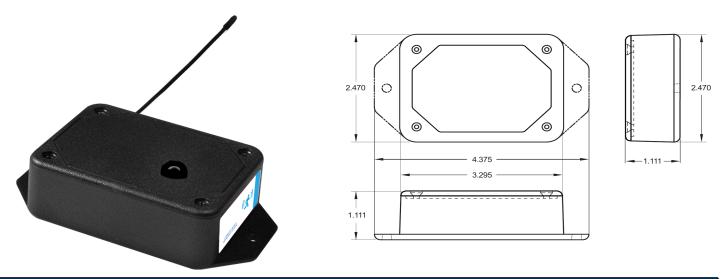
1.125 in
(28.575 mm)

2.0 in
(50.8 mm)

0.875 in
(22.225 mm)

Commercial Coin Cell Wireless Motion Detection Sensor | Technical Specifications	
Supply voltage	2.0–3.8 VDC *
Current consumption	1.0 µA (Sleep) 570 µA (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)
Software adjustable sensor detection range	15 ft (4.5 m)/12 ft (3.7 m)/9 ft (2.7 m)

Datalogging	Datalogs 2000 to 4000 readings if gateway connection is lost (non-volatile flash, persists through the power cycle):
	   - 10-minute heartbeats = ~ 22 days
	   - 2-hour heartbeats = ~ 266 days

Wireless range	1,200+ ft non-line-of-sight
Security	Encrypt-RF® (256-bit key exchange and AES-128 CTR)
Weight	0.4 ounces (11.3 g)
Certifications FC CE 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.

PinchPower™ Enclosures

Pinch
(press in on the sides)

Pull
(sensor away from base)

Press
(sensor back into base)

AA Wireless Motion Detection Sensor | Technical Specifications	
Supply voltage	2.0–3.8 VDC (3.0–3.8 VDC using power supply) *
Current consumption	1.0 μA (Sleep) 570 μA (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 -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)

Datalogging	Datalogs 2000 to 4000 readings if gateway connection is lost (non-volatile flash, persists through the power cycle):
	    - 10-minute heartbeats = ~ 22 days
	    - 2-hour heartbeats = ~ 266 days

Wireless range	1,200+ ft non-line-of-sight
Security	Encrypt-RF® (256-bit key exchange and AES-128 CTR)
Weight	2.9 ounces (82.2 g)
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.
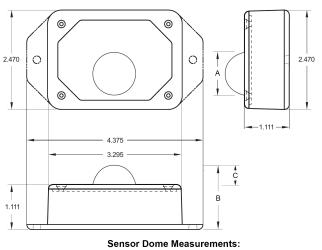
Power Options

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.
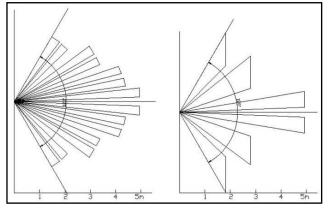
Sensor Dome Measurements:
(A) 22.8 mm wide (B) 38.8 mm tall in case (C) 28 mm above case

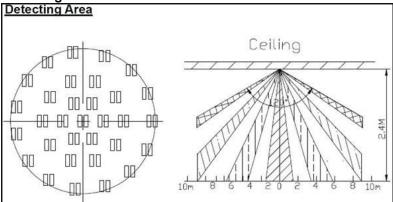| AA Wireless Motion Detection Sensor - Wide Angle PIR | Technical Specifications	
Supply voltage	2.0–3.8 VDC (3.0–3.8 VDC using power supply) *
Current consumption	1.0 µA (Sleep) 570 µA (MCU idle) 2.5 mA (MCU active) 5.5 mA (radio RX mode) 22.6 mA (radio TX mode)
Operating temperature range (board circuitry and batteries)	-18°C to 55°C (0°F to 130°F) using alkaline -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)

Datalogging	Datalogs 2000 to 4000 readings if gateway connection is lost (non-volatile flash, persists through the power cycle):
	   - 10-minute heartbeats = ~ 22 days
	   - 2-hour heartbeats = ~ 266 days

Wireless range	1,200+ ft non-line-of-sight
Security	Encrypt-RF® (256-bit key exchange and AES-128 CTR)
Weight	2.94 ounces (83.3 g)
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.

Sensor Specifications	
Motion Sensing Technology	Quad Array Passive Infrared (PIR) Sensing Element
Quad Array Passive Infrared (PIR) Sensing Element	
Current Consumption	3 uA
Typical Response Time	1 to 3 Seconds[1]
Operating / Storage Temperature	-40°C to 85°C (-40°F to 185°F)
Lens	

Lens		
Standard Lens	Viewing Angle	80° [4]
	Max Range	13.1 to 16.4 ft (4 to 5 m)[4]
	Configurable Range	15 ft / 12 ft / 9 ft (Software Configurable)[2]
Wide Angle Lens	Viewing Angle	110°
	Max Range	29.5 to 32.8 ft (9 to10 m)[4]
	Configurable Range	30 ft / 24 ft / 18 ft (Software Configurable)[2,3]
Data		
UI: Motion Detected or No Motion		Raw: 0 = Motion Detected, 1 = No Motion Detected

Standard Lens[4]

Wide Angle Lens[4]

1. The response time may be enlongated by up to 3 seconds after a radio transmission. The sensor is most responsive when used with less frequent heartbeats. Heartbeats of 10 seconds or greater is recommended.
2. The range assumes a 5' 8", 170 lb person moving across the sensor face from left to right wearing pants and a t-shirt. If the target is fully covered with insulating material or moving toward (not across) the sensor face the actual detection range may be reduced.
3. The software interface for the wide angle lens may indicate options of 15 / 12 / 9 ft, assume this means 30 / 24 / 18 ft because of the range doubling properties of the wide angle lens.
4. The maximum range is greatest when the target is centered on the sensor, as the target moves farther from the center of the sensor in any direction the range reduces gradually (Ex: On standard lens, 5 M range when centered on sensor, 4 M on edge of widest detection angle). Standard lens has a potential viewing angle of 120° but range is reduced to ~2 M beyond 80°.

Commercial Grade Sensors

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 burnout.

- 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
- Low-pressure or high-pressure environments
- 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.

ioX-Connect.®

ioX-Connect is an EAMS Technologies Inc. brand.
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For information about our products or to place an order, please contact our sales department at: sales@iox-connect.com or (888) 420-1786

Visit our website at **www.iox-connect.com**