

COMPACT WIRELESS VIBRATION SENSOR



ORDER CODE: AT-105
PRODUCT CATEGORY: SENSORS

Smart Vibration Sensing – Safeguard Your Equipment.



PRODUCT OVERVIEW

General Description

E4A's AT-105 wireless sensor is a compact, lightweight, battery-powered device designed for versatile environmental monitoring. Equipped with a robust 6-axis accelerometer, it accurately measures vibration, making it ideal for monitoring equipment health. Additionally, the sensor features integrated ambient light, temperature, and humidity sensors to provide comprehensive insights into environmental conditions.

Simple mounting options make it easy to place on a wide range of equipment, enabling real-time data collection from virtually any location. Powered by a reliable CR2450 coin cell battery, the AT-105 ensures long-lasting performance and seamless connectivity via Bluetooth® 5.

MEASURED PARAMETERS

VIBRATION



Monitors 6-axis vibration of equipment and structures.

TEMPERATURE



Tracks thermal variations to prevent equipment overheating.

HUMIDITY



Monitors humidity levels to prevent asset corrosion.

AMBIENT LIGHT



Measures light levels to detect environmental changes.

PRODUCT BENEFITS AND FEATURES

- 01 Equipment Reliability**
Detects early signs of equipment degradation, prolonging equipment life and preventing costly breakdowns
- 02 Reduced Labor Costs**
Eliminates manual vibration checks, freeing maintenance staff for higher-value tasks and reducing routine inspections
- 03 Value-Based Maintenance**
Continuous vibration monitoring enables maintenance only when needed, reducing unnecessary part replacements
- 04 Low Maintenance**
Energy-efficient design reduces battery replacements and maintenance intervals, keeping operational costs low
- 05 Simple Installation**
Compact sensor design enables easy installation with mounting options including screws, magnets, or adhesive
- 06 Multi-Sensor Insights**
Measures vibration, ambient temperature, humidity, and ambient light to provide a complete view of your operations

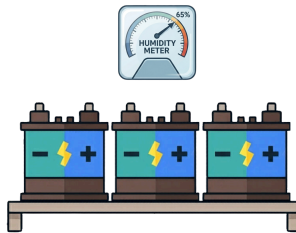
TYPICAL APPLICATIONS

Industrial Pump Monitoring



Insight: Protect your critical infrastructure by mounting the sensor directly to motor or pump housings. Detecting abnormal vibration signatures early, can prevent unplanned downtime and catastrophic motor or pump failure.

Humidity Protection



Insight: Keep batteries and sensitive equipment within safe humidity limits. Real-time alerts prevent degradation, corrosion, or failure due to excessive and unanticipated moisture levels.

Site Condition Awareness



Insight: Observe variations in ambient light to understand changing conditions. Receive alerts if the monitored asset moves outside its normal range, protecting light-sensitive equipment from exposure or damage.

QUICK START: DEPLOYING YOUR COMPACT VIBRATION SENSOR

STEPS TO GET STARTED



1. Connect Gateway to Network

Connect your E4A Gateway to the internet via LTE, Wi-Fi, or Ethernet



2. Pair Sensor Device to Gateway

Utilizing the device pushbutton, pair the sensor to the E4A Gateway



3. Connect to E4A IoT Manager

Login to [E4A IoT Manager](#) to monitor real-time data and setup alerts



4. Install the Device

Place the sensor device wherever equipment or environmental monitoring is required

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TECHNICAL SPECIFICATIONS

Power Supply

Main Power	Internal Battery CR2450 coin cell
Nominal Voltage	3VDC
Typical Capacity	600mAh
Average Current	24µA

Operating Specifications

Operating Temperature	-20°C to +60°C
Storage Temperature	-20°C to +70°C (battery installed) -20°C to +70°C (without battery)
Permissible Humidity	20-85% (operating and storage)
Ingress Protection Rating	IP30
Pollution Degree	2
Altitude	2000m

Measurement Characteristics

Accelerometer	6-axis, ±16g FSR
Light Exposure	0 to 100% relative light Up to 220 lux
Temperature	-40°C to +120°C ±0.5°C accuracy (15°C to 40°C)
Humidity	0 to 100% relative humidity ±3.5 accuracy

Physical Characteristics

Housing Material	Flame Retardant Polycarbonate/ABS
Physical Dimensions	Height: 15mm / 0.6inch Width: 75mm / 2.9inch Depth: 50mm / 1.9inch
Weight	35g
Mounting	Screw mount Magnetic mount Double sided adhesive

Communications

Wireless Module	2.4GHz Bluetooth® 5 transceiver
Communication Range	125m line of sight
Communication Interval	User programmable in 10s increments

Security

Encryption	AES 128-bit crypto accelerator ECC and RSA public key accelerator (PKA) SHA2 accelerator (full suite to SHA-512) True Random Number Generator (TRNG)
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User Interface

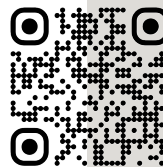
Pushbuttons	1 pushbutton (device reset and device pairing)
Status LED	2 status LED's (red, green)



PRODUCT CERTIFICATIONS

FCC ID	2AXVKWAT01
Industry Canada	26661-WAT01
Standards	UL 61010-1 3rd Edition: 2023 CSA C22.2 No. 61010-1-12 UPD 1: July 2015, UPD 2: April 2016; UPD 3: June 2023; and AMD 1:2018

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