WiiMine - The Vibration Sensor

The heart of vibration monitoring system, enables quick, easy, and affordable vibration measurement, deployed in the most inaccessible corners of your facility, monitoring the machine conditions.

Features

- Capacitive MEMS (digital) accelerometer;
- No hard wires - support wireless connectivity and have inside battery;
- Easy installation: adhesive mounting or magnet mounting;
- Optimized for low energy, long battery life;
- Expandable to hundreds of nodes per system;
- Factory calibrated average vibration output;

Applications

- Machine vibration monitoring, e.g. fan motors, air compressors, speed reducers;
- Vibration measurement and alarm triggering;
- Tilt, angle measurement and alarm triggering;

Overview

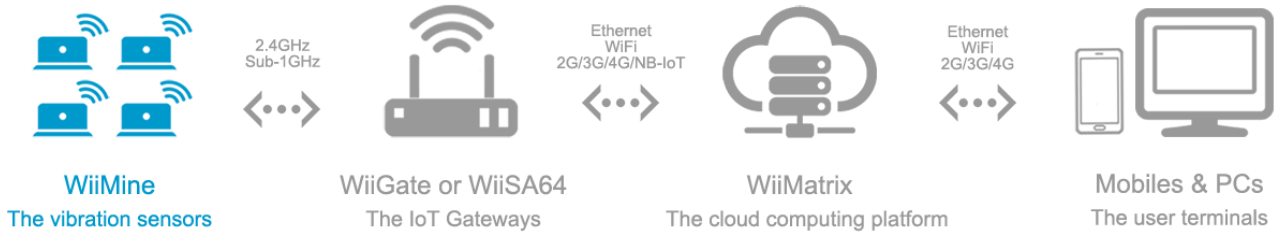
WiiMine incorporates 3-axial accelerometer, temperature sensor, wireless connectivity and battery into one, easy-to-use product. Its measurement range (up to 16 g acceleration), sampling rates (up to 1.6 kHz), long battery life (1 year typical), and small, portable model make it ideal for many vibration measurement and monitoring applications.

WiiMine supports two mounting methods: adhesive mounting and magnet mounting. Adhesive mounting is used with industrial strength double-sided tape for dielectric surface targets, while magnet mounting is used for metal surface targets. Its rugged enclosure assures WiiMine of accurate vibration data acquisition.

WiiMine performs RMS (root mean squared) averaging for vibration measurement. Because acceleration signals are extremely fast by nature, they require high speed sampling and computationally intensive processing. The onboard RMS algorithm provides a slow moving output so that it can be easily measured by a low speed system, greatly simplifying vibration monitoring and measurement works.

Topology

In a WSN topology, multiple WiiMines (as many as 100 sensors) can send vibration data to a gateway (the WiiGate or the WiiSA64) via a wireless protocol (Bluetooth Smart or Sub-1 GHz). The gateway connecting to the Internet would in turn transmit data to the cloud-based computing platform (the WiiMatrix). Users can monitor or measure the vibration data through web-based device such as a mobile phone or a PC.



Tech Specifications

Vibration Measurement	
Sensor	3-axial MEMS accelerometer
Measurement range	±16 g
Resolution	0.001 g
Sampling rate per channel	Up to 1.6 KHz
Frequency response	0 Hz to 800 Hz
Filter	Digital filtering (RMS) for stable measurement
Angle Measurement	
Range	360° single axis angle measurement
Resolution	0.09°
Temperature Measurement	
Range	0 to 60 °C
Accuracy	± 0.5 °C, 15 to +40 °C
Humidity Measurement	
Range	0 to 100% relative humidity
Accuracy	± 3.5% rH, 20 to +80% rH
Wireless Connectivity	
Radio	Vibration/angle measurement: 2.4GHz ISM Bluetooth Smart; Vibration/angle alert: Bluetooth Smart/Sub-1 GHz;
Range	20 m line-of-sight
Antenna	Built-in PCB antenna
Power	
Power source	Built-in lithium battery
Battery life	1 year @ data uploading rate every 5 minutes (typical)
Mechanical	
Dimensions	52 mm * 36 mm * 20 mm (main body)
Weight	60 g
Environmental	
Operating Temp	-15 °C to 75 °C
IP Rating	IP68

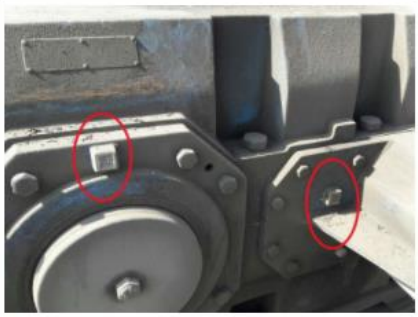
Gallery

Front view

Angled view

QR code for each WiiMine

Support magnet mounting



Monitoring speed reducer

Monitoring speed reducer

Monitoring air compressor

Monitoring air compressor