Petasense Vibration Mote

Wireless Vibration + Temperature Sensor
for monitoring industrial rotating machines

Real-time Asset Monitoring

Machine Learning Analytics

Enterprise Grade Security

Web + Mobile Dashboard

Petasense

Petasense Vibration Mote

Wireless sensor for continuous asset monitoring

The Vibration Mote is a wireless, triaxial vibration and temperature sensor

It is powered by a standard battery and communicates via WiFi or Bluetooth

Simply mount on rotating equipment and start collecting data instantly

Truly Wireless
Eliminate costs and hassles of wiring with battery powered, WiFi enabled sensors

Easy Installation
Start collecting data in minutes by installing with epoxy or stud mounting

Smart Device Access
Take on-demand measurements from nearby machines with Bluetooth

Enterprise-grade Security
TLS protocol with AES encryption ensures secure device-to-cloud communication

Industrial Compliance
Class 1 Div 2 for hazardous environments, food-safe enclosure, FCC, RoHS and NEMA 250 compliant

Model 1 1.6 kHz bandwidth

Detect imbalance, misalignment, structural and rotating looseness and late stage bearing wear

Model 2 5.5 kHz bandwidth

Everything in Model 1 plus early stage bearing wear, pump cavitation, gear teeth problems and more

Petasense Cloud + Mobile

Access real-time asset health, anywhere anytime

Scalable & Fault Tolerant
Collect, store and analyze data in a robust cloud platform, securely hosted on Microsoft Azure

Machine Health Dashboard
Access the real-time health of your assets with a simple color-coded machine condition system

Reports and Alerts
Receive machine condition reports and instant alerts when vibration levels exceed alarm limits

Vibration Analysis Software
Explore trend, waveform and spectrum charts with interactive cursors and sidebands

RESTful Web APIs
Easily integrate with SCADA, data historians and EAM/ERP systems

Machine Learning Analytics

A key feature of Petasense technology, Machine Learning utilizes advanced data-science algorithms and multi-parameter analysis to provide a health score for your machines.

The machine health score helps you make informed maintenance decisions without the need for vibration analysis expertise.

Petasense Infrastructure

Designed for a variety of applications

Connect

Petasense Motes

Collect

Petasense Cloud

Analyze

Machine Learning

Monitor

Web & Mobile

Making Industrial IoT possible for a variety of industries and assets including

Power Generation

Chill and boiler pumps
Cooling towers
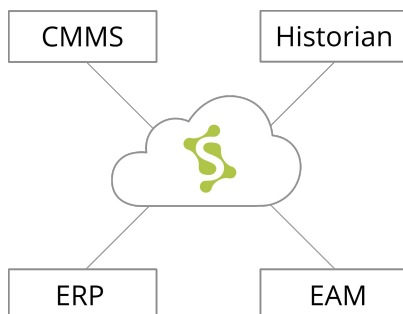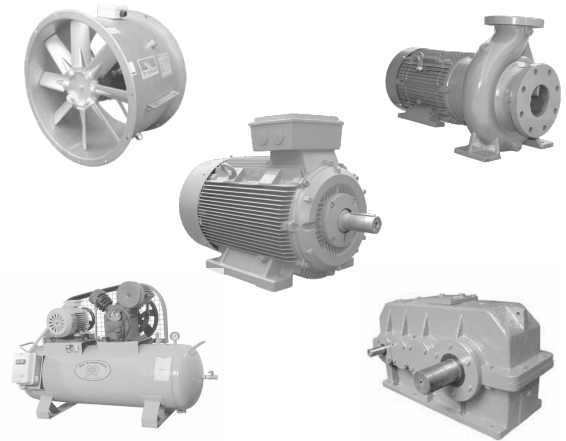Generator fans

Critical Facilities

Air handler units
Exhaust fans
Chillers

Oil & Gas

Gas compressors
Centrifugal pumps
Gearboxes

Pharmaceuticals

Homogenizers
Agitators
Mixers

Integrating with existing enterprise systems

The Petasense Cloud can easily integrate with data historians, like OSIsoft Pi or eDNA, and EAM software from leading vendors like IBM, SAP and Oracle

Petasense Vibration Mote

Specifications

Smart Features

- Triaxial accelerometer and temperature sensor
- WiFi and Bluetooth enabled
- Standard lithium battery (CR123 A - 1500 mAh 3V)

Rugged Enclosure

- Food-grade plastic cover
- Corrosion resistant stainless steel base (SS316)
- Ingress protection (IP67/IPX9K)

Model 1

Accelerometer	Tri-axial MEMS sensor
Frequency Response	2 to 1600 Hz (+/- 3 dB)
Measurement Range	+/- 0.004g to +/- 8g
Transverse Sensitivity	< 10%
AD Conversion	14 Bit
Resolution	Up to 4000 LOR
Sensitivity	0.976 mg/LSB
Sampling Rate	6 options from 20 Hz to 6666 Hz

Model 2

Accelerometer	Tri-axial Piezoelectric sensor
Frequency Response	10 to 5500 Hz (+/- 3 dB)
Measurement Range	+/- 0.004g to +/- 5.17g
Transverse Sensitivity	< 10%
AD Conversion	12 Bit
Resolution	Up to 8192 LOR
Sensitivity	50 mV/g
Sampling rates	Up to 20 kHz

The following features are common to both models

Physical

Dimensions	Base diameter: 37.5 mm Height: 56.8 mm
Weight	125 g
Mounting (epoxy or stud)	*Adhesive:* food-contact safe cyanoacrylate or industrial grade two-part epoxy *Stud:* 6.35 mm (¼") 28 UNF tapped hole
Shock Resistance	2 meter fall, 16 g continuous vibration, UV resistant (optional)

Configuration & Storage

User Interface (web + mobile)	*Petasense Web:* internet browser access *Petasense Mobile:* iOS mobile application (no software installations needed)
Security	Petasense Motes and Cloud communicate using TLS protocol with AES encryption
Qualifications	Location Safety E114224 Class 1 Div 2 Group ABCD FCC 2AJW7-00001 IP67, NEMA 250, RoHS Compliant

Environmental

Temperature Measurement Range	-40°C to 85°C (-40°F to 185°F) (+/- 5% accuracy)
Operating Temperature Range	-40°C to 85°C (-40°F to 185°F)
Storage Temperature	< 85°C (185°F) without battery

Power

Source	CR123 A Lithium 1500 mAh 3V battery
Battery Life	1-2 years with 8 measurements a day, event detection and Bluetooth enabled, 0 to 40°C (32 to 104°F)* *20% reduced battery life if operating in temperatures below -10°C (15°F)

Connectivity

Wireless Protocol	802.11 b/g/n WiFi 2.4 GHz Bluetooth Low Energy 2.4 GHz
Antenna	Integrated antenna with 2.5dBi max gain
Processor	32-bit 144 MHz ARM Cortex M4F processor - remote firmware updates