RotoSense™

Rotational Vibration Sensor

Sentinel Motion™

Part of the Sentinel Suite™ Family
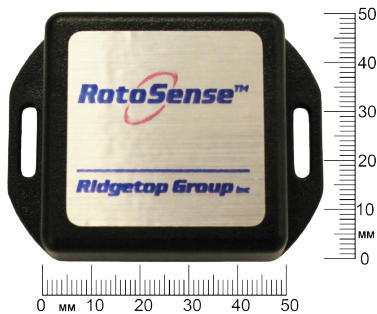
Features and Benefits

- Precision measurement of rotating and vibrating components

- Embeddable in transmissions, drive trains, and other harsh environments

- Real-time reliability data for advanced diagnostics and prognostics & health management (PHM) applications

- Discoverable IP addresses and wireless technology make RotoSense IoT (Internet of Things)-compatible

- Fast data download

- High sensitivity

- Triaxial measurements

- Supports hundreds of nodes in a sensor network

CERTIFIED QUALITY
+ISO9001:2008
AS9100C
CERTIFICATE No.:
1107004
MANAGEMENT SYSTEM

General Description

Ridgetop Group's RotoSense advanced rotational vibration sensor (RVS) enables easy extraction of high-resolution acoustic signatures from rotating components in harsh environments.

Ridgetop's innovative IP-addressed Internet of Things (IoT)-compatible RotoSense wireless instrument (shown below) helps engineers perform dynamic analysis of rotating interaction, and develop improved designs for rotating components. In addition, data from this instrument can be used with Sentinel Motion algorithms that detect and predict faults based on external acoustic signatures, for diagnostic and prognostic purposes. The result is an improvement in safety and performance as well as a reduction in maintenance costs for future generations of rotating components.
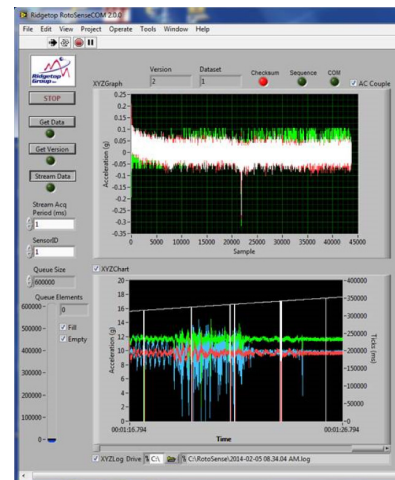
Sensors can be packaged for different applications, such as inside pinion and planetary gears, or other types of enclosures for sensing non-rotational vibration.

Integration

Low-cost development kits (shown on next page) are available to assist in rapidly deploying RotoSense as a monitoring device in mechanical systems.

Ridgetop application engineers are also available to help with integration.

RotoSense package type 2
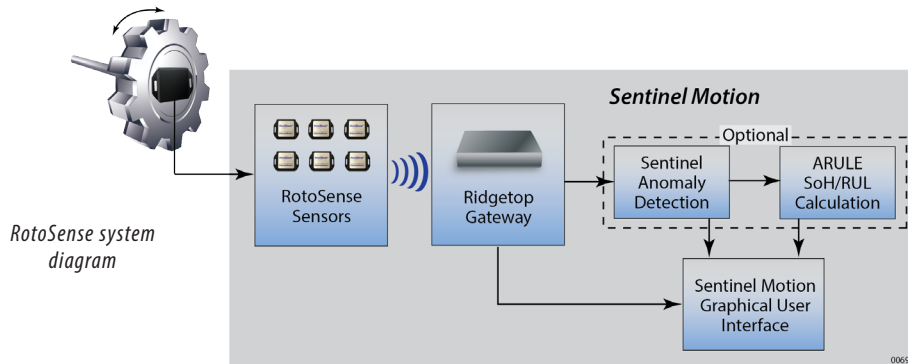

Sample output of RotoSense

Preliminary Specifications

PARAMETER	SPECIFICATION
On-board accelerometers	3 discrete MEMS accelerometers, 2 tangential and 1 radial
RPM maximum limit	6,000
Accelerometer range	±70 g or ±250 g or ±500 g
Measurement sensitivity	16 mV/g or 4.4 mV/g or 2.2 mV/g
Temperature sensor range	0 to 70 ℃
Anti-aliasing filter bandwidth	6,000 Hz
Analog-to-digital (A/D) converter	Three successive approximation, 16-bit resolution ADCs
Synch sampling	Single-node support
Variable sampling rate	1 to 100 KHz
Data storage capacity	1 MB of on-board nonvolatile RAM
Data logging mode	1 MB
RF data packet standard	IEEE 802.15.4 (ZigBee) open communication architecture
RF data downloading	1 minute to download full memory buffer mode/streaming mode
*Battery	3.6 V Tadiran battery
*Power consumption	0.1 W (typical); multiple power consumption modes available
*Operating temperature	0 to 70 ℃
*Maximum acceleration limit	±500 g
*Enclosure	Plastic
*Dimensions	H = 0.79 in. (20 mm), L = 2.6 in. (66.3 mm), W = 2 in. (50 mm)
*Weight	1.6 oz. (45.359 grams)
Software	Monitoring interface Windows 7, 32- or 64-bit compatible
Gateway communication protocol	USB and Ethernet

*for RotoSense package type 2 (shown on first page); other packaging is available

RotoSense Development Kit

Applications include:

- Sensing tool wear, chatter, or spindle balance in CNC
- Real-time monitoring of downhole drill vibration in oil and gas exploration
- Detection of vibrational signatures in rotational shafts for early fault warnings
- Building structure vibration
- Train wheel abnormal vibration detection
- Inclination sensing

RotoSense system diagram

Need modified or custom design? Contact Ridgetop at +1 520-742-3300 to discuss your ideal solution!

Corporate Headquarters

3580 West Ina Road

Tucson, Arizona 85741 USA

OFFICE +1 520 742 3300

INFO@RIDGETOPGROUP.COM

Worldwide Locations

Ridgetop Group Inc. has support and sales locations in Belgium, Japan, China, Taiwan, South Korea, India, and the United States.

For office locations and contact information, please call the corporate headquarters or visit us on the web: **www.ridgetopgroup.com**