Datasheet

Wireless Battery-Powered Vibration Sensor

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Category: Sensors

Industrial Wireless Battery-Powered Vibration Sensor

The iQunet Vibration Monitoring Sensor is a device that monitors asset health of rotating equipment which fits well in the predictive maintenance and asset reliability strategy.

The iQunet wireless battery-powered machine condition sensor combines a sensor, data collector and radio into one compact, battery-powered device that measures both vibration and temperature data. The sensor collects triple axis time series vibration data. The sensor is powered with 2 standard CR2032 coin cells (included) which assures function for several years in standard operation mode (>5 years with one measurement a day). Sensor parameters can be set remotely such as sampling rate, samples number, dynamic range, automatic measurement interval, etc.

The sensor makes a network direct to the central Base Station node or via the optional Repeater. Sensor data is visualized in the iQunet Sensor Dashboard on the iQunet Data Server, offering temperature graphs, time series in acceleration (g) and velocity (mm/s), spectrum graphs in (g) and (mm/s) including waterfall plots, RMS trend values and graphs in (g) and (mm/s), crest factor, peak values, etc.

Used in: condition monitoring of bearings, misalignment, unbalance, ... of rotating equipment

Technical specification:
- **Physical:**
  - Dimensions (mm): 57 x 47 x 14
  - Weight: 35g
  - Case material: thermoplastic
  - Sealing: IP65 (IP68 available 2020)
- **Installation:** M3 screws (epoxy adhesive for permanent mount)
- **Operating temperature:** -20°C to +70°C
- **Recommended storage temperature:** +30 °C maximum
- **Certifications:**
  - CE
  - ATEX / IECEx certification (available 2020)
- **Wireless communications range:** up to 50 m typically in plant (actual range depends on specific site topology and device placement)
- **Power supply:**
  - 2 x 3V (replaceable CR2032 battery)
  - Up to 10 year battery life (depending on settings, usage and operating temperature)
- **Measurements:**
  - Amplitude range: 2G, 4G, 8G or 16G
  - Measurement axis: X, Y and/or Z (3 axis)
  - Sampling rate: 12 to 3200 Hz
  - Number of samples: 32 to 8192 samples
  - Units: g or mm/s
  - Activity threshold: 0G to 1G
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Technical specification (continued):

- **Postprocessing:**
  - Time series, frequency or waterfall plots
  - $1/f$ flicker noise detrending (for velocity spectra)
  - DFT averaging for noise reduction
  - Trend tracking: RMS or Kurtosis
  - Configurable high pass cut off filter

- **Temperature sensor on board:** yes

- **Start data acquisition:**
  - Manual trigger (REC button in Sensor Dashboard)
  - Automatic measurements (programmable time interval)
  - Conditional automatic measurements (programmable threshold level)

- **Communication protocols:**
  - Subscribe to sensor parameters and data with OPC UA (setting flag available in 2020)
  - Control sensor settings and start measurements using GraphQL mutations
  - Read out sensor parameters and data using GraphQL queries

- **Data storage:** on iQunet Data Server