

LoRaWAN Wireless Vibration Sensors



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Sensors > Vibration Sensors

The LoRaWAN™ 868/915MHz wireless vibration sensors measures both vibration and temperature data. This sensor combines an uniaxial or triaxial accelerometer, a data collector, and a radio into one compact, battery-operated device. Designed for harsh environments and is ATEX certified.



Accelerometer Type: **Wireless**

Vibration Sensor Product Type: **Wireless Accelerometers**

Wireless Application: **LoRaWAN**

Frequency Response: **2 to 15000 Hz**

The model 89x1N wireless accelerometer uses the LoRaWAN™ communication protocol, offering a simple, reliable, and secure means of expanding condition based maintenance into plant areas where the cost to install wired systems is prohibitive, making data available to existing process control and information systems.

In addition to that, it offers a Bluetooth Low Energy interface to ease the embedded settings configuration at the sensor installation. The model 8931N incorporates three piezo-electric accelerometers which offer a wide bandwidth to >15kHz, outstanding measurement resolution and superior long-term stability compared to design using MEMS solutions. The accelerometers are oriented at 90° to each other providing data in X, Y, and Z directions. The 89x1N contains digital signal processing capability that provides an FFT analysis of the sensed vibration. The output data describes the center frequency, peak value, bandwidth, and percent of the total spectral content for the eight most significant acceleration peaks in the vibration signal from each axis. Because of this feature, the 89x1N directly provides the data most needed to plot trends and monitor changes in the performance and condition of factory machinery.

Benefits

- Compact design
- Up to 10-year battery life
- -40°C to +60°C operating temperature
- 35kHz resonant frequency
- Embedded FFT signal analysis
- Stud, magnet, or adhesive mounting accessories

Applications

- [Condition based monitoring](#)
- Electric motors
- [Oil & gas equipment](#)
- ICE powerplants
- Pumps for liquids
- Compressors



- Factory equipment
- [Robots and cobots](#)
- Autonomous guided vehicles
- [HVACR equipment](#)

Technical Specifications

- Wireless piezoelectric 1-axis or 3-axis accelerometer
- Designed for condition monitoring
- Programmable and customer configurable
- Corrosion resistant stainless-steel housing
- Wide bandwidth to >15kHz
- Exceptional long term stability
- Superior measurement resolution
- ATEX certified
- Explosive atmospheres certified

Features

Product Type Features

Accelerometer Type	Wireless
Vibration Sensor Product Type	Wireless Accelerometers

Signal Characteristics

Frequency Band (MHz)	868, 915
Frequency Response (Hz)	2 to 15000

Body Features

Product Weight (g)	200
Product Weight (oz)	7.05
Primary Product Material	316L Stainless Steel, Polymer
Number of Sensing Axes	Triaxial, Uniaxial

Usage Conditions

Operating Temperature Range (°C)	-40 - 80
Operating Temperature Range (°F)	-40 - 176

Industry Standards

IP Rating	IP67
Wireless Application	LoRaWAN
Hazardous Area Approval	No, Yes



Other

Overall Acceleration Range (\pm) (g)	50
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Reference Number

TE Internal Number	CAT-WVS0001
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SEE PRODUCTS ON NEXT PAGE

Products (1 of 4)



8911N-NX-A, US 915MHz

8911N-NX-A, US 915MHz w /battery

8911N-NX-E, EU 868MHz w /battery

8931N-NX-A, US 915MHz

TE Part #	20023687-26	20023687-80	20023687-90	20023689-20
Frequency Band	915 MHz	915 MHz	868 MHz	915 MHz
Number of Sensing Axes	Uniaxial	Uniaxial	Uniaxial	Triaxial
Hazardous Area Approval	No	No	No	No
EU RoHS Directive 2011/65 /EU	EU RoHS Compliant	Not Yet Reviewed for EU RoHS	Not Yet Reviewed for EU RoHS	EU RoHS Compliant
EU ELV Directive 2000/53/EC	Not Yet Reviewed for EU ELV	Not Yet Reviewed for EU ELV	Not Yet Reviewed for EU ELV	Not Yet Reviewed for EU ELV

***EU RoHS Directive 2011/65/EU**

These products comply with the substance restrictions of the Restriction on Hazardous Substances Directive 2011/65/EU (RoHS2). The RoHS2 Directive requires that certain electrical and electronic equipment products do not contain mercury, cadmium, hexavalent chromium, PBB, PBDE, lead, DEHP, BBP, DBP and DIBP above defined thresholds. Products indicated as 'Compliant' do not contain any of these substances above the prohibition thresholds. Finished electrical and electronic equipment products will be CE marked as required by the Directive. Components may not be CE marked.

****EU ELV Directive 2000/53/EC**

These products comply with the substance restrictions of the End of Life Vehicles Directive 2000/53/EC (ELV). The ELV Directive requires that materials and components of vehicles do not contain mercury, cadmium, hexavalent chromium, and lead above defined thresholds. Products indicated as 'Compliant' do not contain any of these substances above the prohibition thresholds.



Products (2 of 4)



8931N-NX-A, US 915MHz w /battery

8931N-NX-E, EU 868MHz w /battery

8911N-EX-A, US 915MHz

8911N-EX-E, EU 868MHz

TE Part #	20023689-80	20023689-90	20025127-20	20025127-30
Frequency Band	915 MHz	868 MHz	915 MHz	868 MHz
Number of Sensing Axes	Triaxial	Triaxial	Uniaxial	Uniaxial
Hazardous Area Approval	No	No	Yes	Yes
EU RoHS Directive 2011/65 /EU	Not Yet Reviewed for EU RoHS	Not Yet Reviewed for EU RoHS	EU RoHS Compliant	EU RoHS Compliant
EU ELV Directive 2000/53/EC	Not Yet Reviewed for EU ELV	Not Yet Reviewed for EU ELV	Not Yet Reviewed for EU ELV	Not Yet Reviewed for EU ELV

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Products (3 of 4)



8911N-EX-A, US 915MHz w
/battery



8911N-EX-E, EU 868MHz w
/battery



8931N-EX-A, US 915MHz



8931N-EX-E, EU 868MHz

TE Part #	20025127-80	20025127-90	20025129-20	20025129-30
Frequency Band	915 MHz	868 MHz	915 MHz	868 MHz
Number of Sensing Axes	Uniaxial	Uniaxial	Triaxial	Triaxial
Hazardous Area Approval	Yes	Yes	Yes	Yes
EU RoHS Directive 2011/65 /EU	Not Yet Reviewed for EU RoHS	Not Yet Reviewed for EU RoHS	EU RoHS Compliant	EU RoHS Compliant
EU ELV Directive 2000/53/EC	Not Yet Reviewed for EU ELV	Not Yet Reviewed for EU ELV	Not Yet Reviewed for EU ELV	Not Yet Reviewed for EU ELV

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Products (4 of 4)



8931N-EX-A, US 915MHz w /battery



8931N-EX-E, EU 868MHz w /battery

TE Part #	20025129-80	20025129-90
Frequency Band	915 MHz	868 MHz
Number of Sensing Axes	Triaxial	Triaxial
Hazardous Area Approval	Yes	Yes
EU RoHS Directive 2011/65/EU	Not Yet Reviewed for EU RoHS	Not Yet Reviewed for EU RoHS
EU ELV Directive 2000/53/EC	Not Yet Reviewed for EU ELV	Not Yet Reviewed for EU ELV

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Related Materials

Data Sheet

8931N WIRELESS VIBRATION SENSOR

English

Data Sheet

8911N WIRELESS VIBRATION SENSOR

English

Data Sheet

8511N

English