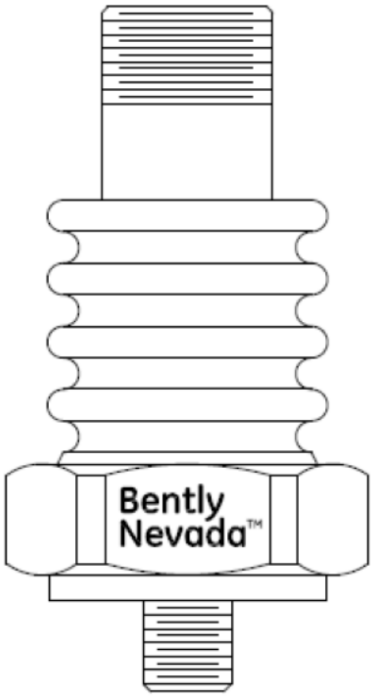
370300 Accelerometer Transducer

Datasheet

Bently Nevada Machinery Condition Monitoring

115M8762 Rev. B



Description

The Bently Nevada 370300 accelerometers are designed to provide high electrical isolation between the base of the transducer and its internal electronics. This isolation offers greater protection against arcing/electrostatic discharge (ESD), as high as 6,000 volts. The transducer provides an amplitude range of 80 g peak and a sensitivity of 100 mV/g.

Most common machine malfunctions (imbalance, misalignment, etc.) originate at the rotor and cause an increase (or at least a change) in rotor vibration. For any housing measurement alone to be effective for overall machine protection, a significant amount of rotor vibration must be accurately transmitted to the bearing housing or machine casing, or more specifically, to the mounting location of the transducer.

In addition, care should be exercised in the physical installation of the transducer. Improper installation can result in a degradation of the transducer's performance, and/or the generation of signals which do not represent actual machine vibration. Integration of the output to velocity can increase degradation. Extreme caution should be exercised if integrating to velocity. For high quality velocity measurements, the 330500 Velomitor sensor should be used.

Upon request, we can provide engineering services to determine the appropriateness of housing measurements for the machine in question and/or to provide installation assistance.

CE

Bently Nevada
a Baker Hughes business

Specifications

Parameters are specified from +20 to +30 °C (+68 to +86 °F) unless otherwise specified.

Operation outside the specified limits may result in false readings or loss of machine monitoring.

Electrical

Sensitivity	10.2 mV/m/s² (100 mV/g) ±5%, 25°C
Acceleration Range	80 g peak (784 m/sec²)
Amplitude Non-linearity	±1% to 784 m/sec² (80 g) peak.
Frequency Response	3 - 5kHz(180 - 300,000 CPM) ±5% 1 - 7k Hz(60 - 420,000 CPM) ±10% 0.5 - 12kHz(30 - 720,000 CPM) ±3dB
Resonance Frequency	25 kHz (1,500 kCPM)
Transverse Sensitivity, Max	5% of axial
Temperature Range	-40 to +248° F (-40 to +120° C)
Dielectric withstand voltage between connector and surface	6,000 VDC1 min 5,000 VAC1 min
Electrical Noise	
Broadband 2. 5 Hz to 25 kHz	700 µg (6.9 x 10-3 m/sec²)
Spectral	
10 Hz	10 µg/√Hz (9.8 x 10-5 m/sec²/√Hz)
100 Hz	5 µg/√Hz (4.9 x 10-5 m/sec²/√Hz)
1000 Hz	5 µg/√Hz (4.9 x 10-5 m/sec²/√Hz)
Output Impedance	100 Ω
Impedance, between connector and base	
DC	>100 Ω
100 Hz	>100 MΩ
1.0 kHz	>10 MΩ
10 kHz	>1 MΩ
Power Requirements	
Excitation Voltage	+24Vdc nominal 18 ~ 30 Vdc
Regulated Current Range	3mA nominal 2 ~ 10 mA
Output Bias Voltage	+12VDC nominal
Grounding	Case isolated, internally shielded

Environmental Limits

Operating and Storage Temperature	-40°F to +248°F (-40°C to +120°C)
Temperature Response	-40° C -10% +120° C +10%
Shock Survivability	49,050 m/s² (5000 g) peak, maximum.
Shock Limit, Mounted	2,000 g peak (19,600 m/sec² peak)
Relative	100% condensing, non-

Humidity	submerged. Case is hermetically sealed.
Electromagnetic sensitivity, equiv g, max	70 µg/gauss (6.9 x 10-4 m/sec2/gauss)

Physical

Weight (no cable)	4.35 oz (122 g)
Diameter	2.54 in (64.4 mm), including mounting stud.
Height	2.3 in (59 mm), including mounting stud.
Connector	2-pin MIL-5015 Receptacle
Mounting Torque	
Integral Mounting	¼ - 28 UNF
Mounting Torque, recommended	30in-lb/3.4 N-m
Integral Mounting	M8 x 1.25
Mounting Torque, recommended	40in-lb/4.5 N-m
Integral Mounting	M6 x 1.00
Mounting Torque, recommended	30in-lb/3.4 N-m
Case Material	303 stainless steel
Mounting Angle	Any orientation
Sealing	hermetic
Base Strain Sensitivity	<0.0002 g/µstrain (<1.9 x 10-3 m/sec2/µstrain)
Sensing	PZT, shear

Element Design	
Sensor Case Material	stainless steel
Isolation Material	ceramic

Compliance and Certifications

FCC

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

EMC

EMC Directive 2014/30/EU

Ordering Information

370300-AA-BB Accelerometer

A: Mounting Thread Option	
0 1	M8 X 1.25
0 2	¼-28 UNF
0 3	M6 x 1.0
B: Agency Approval Option	
0 0	None

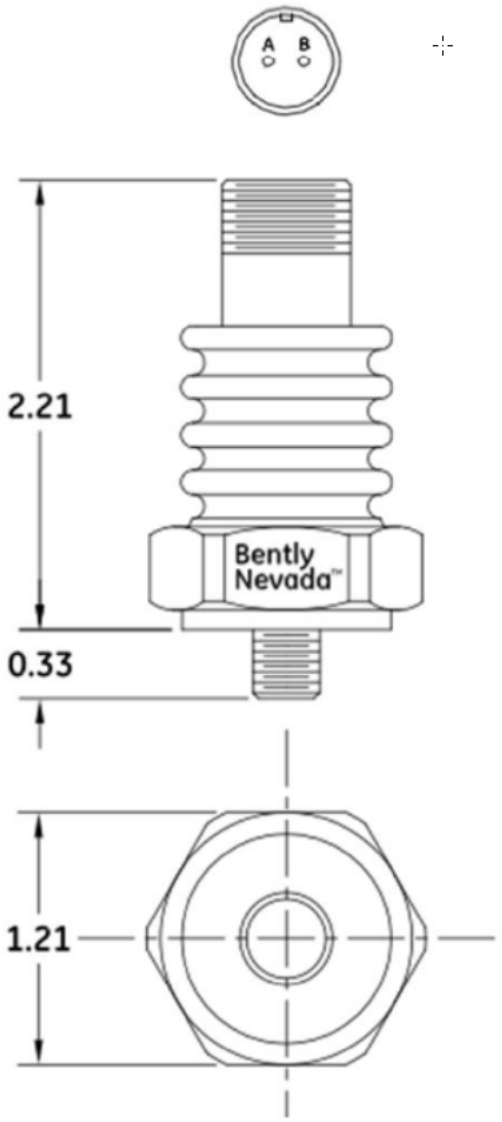
Interconnect Cables

02173034	2- Conductor MIL-C-5015 shielded 0.382mm2 (22AWG) cable. The cable has a splash-proof boot over a female connector at the transducer end and is flush cut at the monitor end. The temperature range of the cable is -55° to 125 °C (-67 ° to 257 °F). The cable is recommended for high electromagnetic noise environments and European Conformance (CE). The length of this cable is 32ft/10m.

Accessories

115M8763	370300 Accelerometer User Guide

Graphs and Figures



MOUNTING STUD OPTIONS:	
370300-01	M8 X 1.25
370300-02	1/4 - 28 UNF
370300-03	M6 X 1.0

Figure 1: Acceleration Transducer Dimensional Drawing

Dimensions are in inches

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