Specifications and Ordering Information

330400 and 330425 Accelerometer Acceleration Transducers

Description

These accelerometers are intended for critical machinery applications where casing acceleration measurements are required, such as gear mesh monitoring. The 330400 is designed to address the requirements of American Petroleum Institute Standard 670 for accelerometers. It provides an amplitude range of 50 g peak and a sensitivity of 100 mV/g. The 330425 is identical except it provides a larger amplitude range (75 g peak) and a sensitivity of 25 mV/g.

⚠ Caution

If housing measurements are being made for overall protection of the machine, thought should be given to the usefulness of the measurement for each application. Most common machine malfunctions (imbalance, misalignment, etc.) originate at the rotor and cause an increase (or at least a change) in rotor vibration. In order for any housing measurement alone to be effective for overall machine protection, a significant amount of rotor vibration must be faithfully 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.

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

Specifications

Parameters are specified at +25±5°C (+77±9°F) unless otherwise indicated.
Note: Operation outside the specified limits will result in false readings or loss of machine monitoring.

Electrical

330400

Sensitivity:	10.2 mV/m/s^2 (100 mV/g) ±5% at 100 Hz
Acceleration range:	490 m/s^2 (50g) peak overall acceleration within the 1 Hz to 20 kHz frequency span. Vibration at frequencies above 20 kHz, especially at the transducer's resonance, will significantly decrease this range.

Amplitude linearity	±1% to 490 m/ s^2 (50 g) peak
Noise floor:	0.004 g rms 10 Hz to 20 kHz

330425

Sensitivity:	2.5 mV/m/s^2 (25 mV/g) ±5% at 100 Hz
Acceleration range:	735 m/s^2 (75 g) peak overall acceleration within the 1 Hz to 20 kHz frequency span. Vibration at frequencies above 20 kHz, especially at the transducer's resonance, will significantly decrease this range.
Amplitude linearity:	±1% to 735 m/s^2 (75 g) peak
Noise floor:	0.01 g rms 10 Hz to 20 kHz

Both Units

Frequency response:	10 Hz to 15 kHz (600 cpm to 900,000 cpm) ±3dB; 30 Hz to 10 kHz (1800 cpm to 600,000 cpm) ±10%
Mounted resonant frequency:	30 kHz minimum 33 kHz typical
Amplitude of resonant peak:	20 dB max
Transverse sensitivity:	Less than 5% of the Sensitivity at 100 Hz
Base strain sensitivity :	0.100 g/µstrain 0.0005 g/µstrain with 37439-01 Mounting Base
Power requirements	
dc voltage:	-24 Vdc
Bias current:	2 mA nominal
Output bias voltage:	-8.5 Vdc nominal
Grounding:	Case isolated
Maximum cable length:	305 metres (1000 ft) with no degradation of signal
Electromagnetic Compatibility:	Meets all European EMC directives.
Hazardous Area Classification:	Multiple approvals for hazardous areas certified by Canadian Standards Association (CSA/NRTL/C) in North America and by LCIE/CENELEC in Europe.
CSA/NRTL / C:	Exia for Class I, Division 1, Groups A, B, C and D; Class II, Division 1, Groups E, F and G; Class III, Division 1, when installed with an approved zener barrier or galvanic isolator per drawing 132525. T3C @ Ta=100ºC, T5 @ Ta=40ºC Non-incendive for Class I, Division 2 when installed per drawing 132524.
EUROPEAN:	EEx ia for Zone 0, Group IIC, LCIE certificate number LCIE 98 ATEX6013 X, when installed with an approved zener barrier or galvanic isolator. T4 @ Ta=100ºC, T5 @ Ta=40ºC

Mechanical

Mounting Surface:	32 µinch rms
Mounting torque:	3.4 N•m (30 in•lb.)
Case material:	300 Series stainless steel
Connector:	3-pin MIL-C-5015 Receptacle
Weight (no cable):	80 g (2.5 oz), typical
Mounting angle:	Any orientation

Environmental Limits

Operating and storage temperature:	-55°C to +121°C (-67°F to +250°F)
Relative humidity:	100% condensing, non-submerged. Case is hermetically sealed.

Electromagnetic Compatibility

Electrostatic discharge:	EN 61000-4-2 (1991), Criteria B
Electrical fast transients:	EN 61000-4-4 (1988), Criteria B
Radio frequency interference (radiated):	EN 50140 (1993), Criteria A
Radio frequency interference (conducted):	EN 50141 (1993), Criteria A

Ordering Information

330400 Accelerometer
330400-AXX-BXX

330425 Accelerometer
330425-AXX-BXX

Option Descriptions

A: Mounting Thread Option	**0 1**	1/4-28 UNF integral stud
	0 2	M8 X 1 integral stud
B: Agency Approval Option	**0 0**	None
	0 5	Multiple Approvals

Note: (CSA/NRTL/C) in North America and by LCIE / CENELEC in Europe

Accessories

Standard Cables

130539-XX 3-conductor shielded 1.0 mm^2 (18 AWG) cable with 3-socket plug and fluorosilicone elastomer boot at one end, terminal lugs at the other end. Cable length can be ordered in 1 foot increments. Maximum length 99 feet.

A manual is available to assist with installation of this cable (part number 133080-01).

16925 (22 AWG) cable with 3-socket plug at one end, terminal ring lugs at the other end.

16710 3-conductor shielded 0.5 mm^2 (22 AWG) armored cable with 3-socket plug at one end, terminal ring lugs at the other end.

Part Number-AXX Cable Length Option in feet.

Order in increments of 1.0 foot
Minimum length (armored): 3.0 ft (0.9 m)
Minimum length (unarmored): 2.0 ft (0.6 m)
Maximum length (armored): 99 ft (21 m)
Maximum length (unarmored): 99 ft (30 m)
Examples:
1 5 = 15 ft (4.57 m)
2 0 = 20 ft (6.10 m)

127088-01 User Guide.

00531080 Mating connector for 330400 Accelerometer.

37439-01 Mounting Base, ¼-28 to ¼-28. Reduces base strain sensitivity.

43217 Accelerometer Mounting Kit used with extension part number 108576-01 and O-ring part number 04290422 to allow room for the 330400 or 330425 accelerometer. (See separate datasheet.)

Dimensional drawing

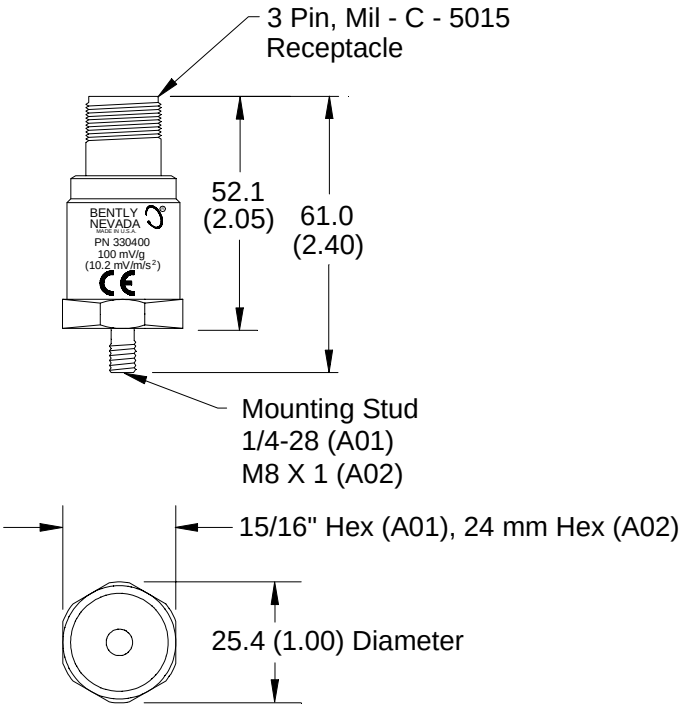

Figure 1: Acceleration Transducer dimensional drawing
Dimensions are in millimetres (inches)

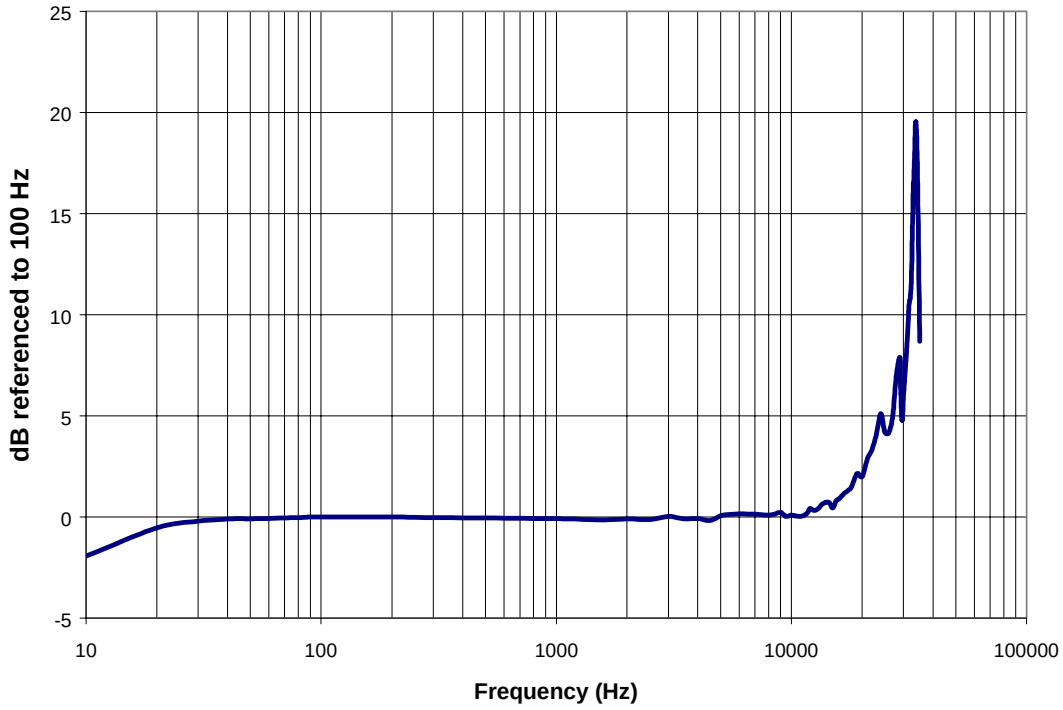

Figure 2: Typical Amplitude Response

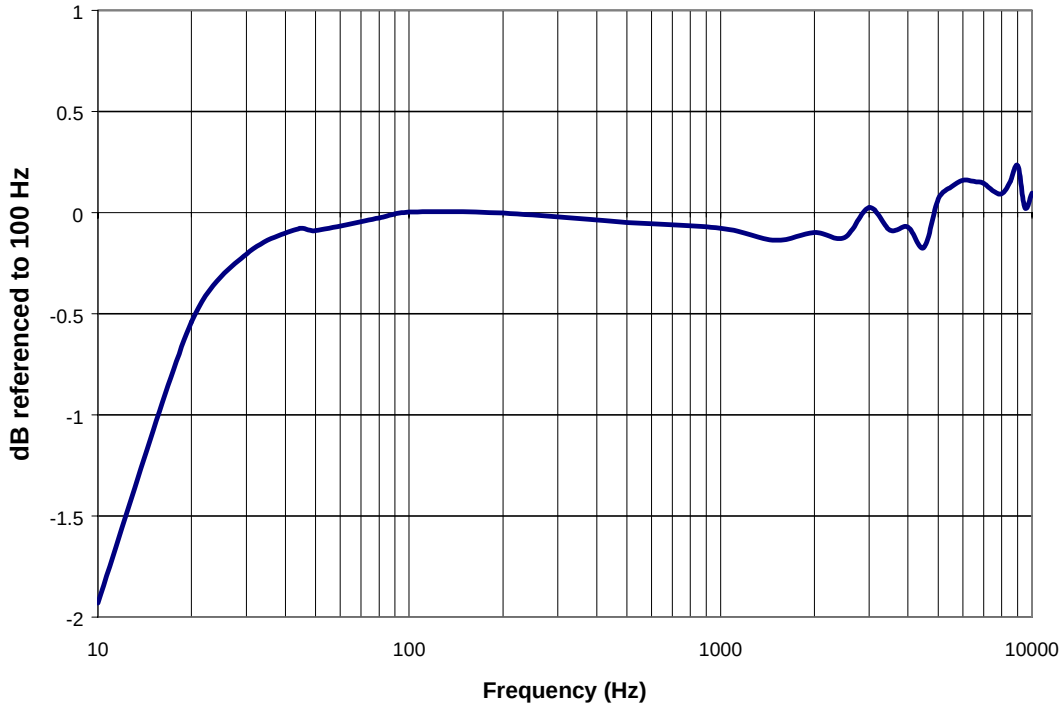

Figure 3: 10 – 10,000 Hz Typical Amplitude Response Detail