200350 and 200355 Accelerometers

Datasheet

Cordant™

164804 Rev. T



1.1 Description

The 200350 and 200355 Accelerometers are general purpose, case-mounted seismic transducers designed

for use with Trendmaster Pro Constant Current Direct Input Card, part number 149811-02 and the Seismic Direct Input Card, part number 164746-01.

The 200350 and 200355 Accelerometers are contained within a hermetically sealed, stainless steel case. The design provides an extremely rugged transducer, well suited for harsh industrial environments. Each transducer's top mounted, 2-pin connector (MIL-C-5015) allows for easy installation and removal of the interconnecting signal cable. A ¼-28 threaded hole on the bottom of the casing accommodates multiple mounting options.

The 200350 and 200355 Accelerometers contain a piezoelectric sensing device, which generates charge when subjected to vibration. This charge is then converted electronically to a differential voltage signal, which is proportional to the acceleration that is parallel to the sensitive axis of the transducer.

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Most common machine malfunctions (unbalance, misalignment, etc.) occur on the rotor and originate as an increase (or at least a change) in rotor vibration. For any individual casing measurement to be effective for overall machine protection, the system must continually transmit a significant amount of rotor vibration to the machine casing, or mounting location of the transducer.

In addition, be careful to install the accelerometer transducer on the bearing housing or machine casing. Improper installation may decrease the transducer amplitude and frequency response and/or generate false signals that do not represent actual vibration. Refer to the appropriate instruction manuals and Application Notes.

Upon request, Bently Nevada provides engineering services that can identify the appropriate machine housing measurements and installation assistance if needed.

1.2 Specifications

Parameters are specified from +20 to +30 °C (+68 to +86 °F) and 100 Hz unless otherwise indicated.

Safety Caution

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

Do not use sensor part number 200350 for negative excitation voltage (-Vex).

Electrical

	200350	200355
Sensitivity	100 mV/g ±20% (10.2 mV/m/s^2 ±20%)	100 mV/g ±5% (10.2 mV/m/s^2 ±5%)
Frequency Range (±3 dB)	30-600,000 cpm (0.5-10,000 Hz)	12-600,000 cpm (0.2-10,000 Hz)
Measurement Range	± 50 g	
Transverse Sensitivity	≤ 7%	≤ 5%
Amplitude Linearity	± 1%	
Mounted Resonant Frequency	1500 kcpm (25 kHz)	1250 kcpm (20.8 kHz)
Broadband Electrical Noise (1-10kHz)	350 µg (3,434 µm/s^2)	50 µg (491 µm/s^2)
Output Bias Voltage	8 to 12 VDC	
Excitation Voltage	18 to 28 VDC	
Constant Current Excitation	2 to 20 mA	

Settling Time (within 1% of bias)	≤ 2.0 sec	≤ 5.0 sec
Output Impedance	< 150 ohms	< 100 ohms
Discharge Time Constant	≥ 0.3 sec	≥ 0.8 sec
Electrical Isolation (Case)	> 10^8 ohms	

Environmental

Operating Temperature Range	-65°F to +250 °F (-54°C to +121 °C)
Shock Survivability	5,000 g pk
Relative Humidity	100% relative, condensing, non-submerged
Enclosure Rating	IP68

Physical

	200350	200355
Hex Size	11/16" (18 mm)	7/8" (22mm)
Height	1.65" (42.4 mm)	2.06" (52.3 mm)
Weight	1.8 oz (51 grams)	3.3 oz (94 grams)
Mounting Thread	1/4-28 Female	
Mounting Torque (Maximum)	2 to 5 ft-lb (2.7 to 6.8 N-m)	

Sensing Element	Ceramic
Sensing Geometry	Shear
Housing Material	Stainless Steel
Sealing	Welded Hermetic
Electrical Connector	2-Pin Mil-C-5015
Electrical Connection Position	Top
Recommended cable length (assuming max vibration of 50g, frequency 10 kHz, and cable capacitance 200 pf/m.) For longer lengths, contact Bently Nevada Tech Support.)	104 ft (31 m)

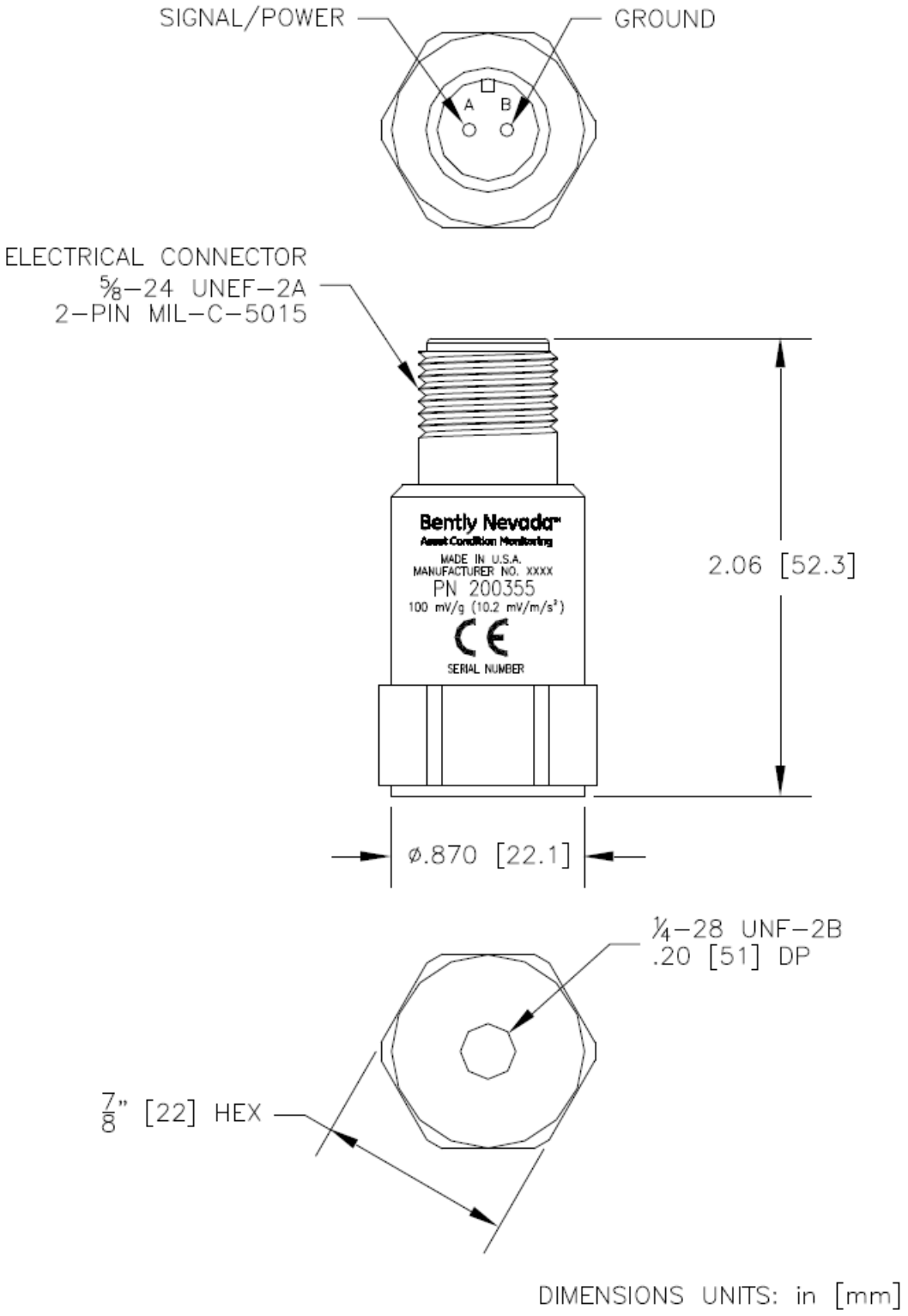


Figure 3 - 2: 200355 Accelerometer Dimensional Drawing

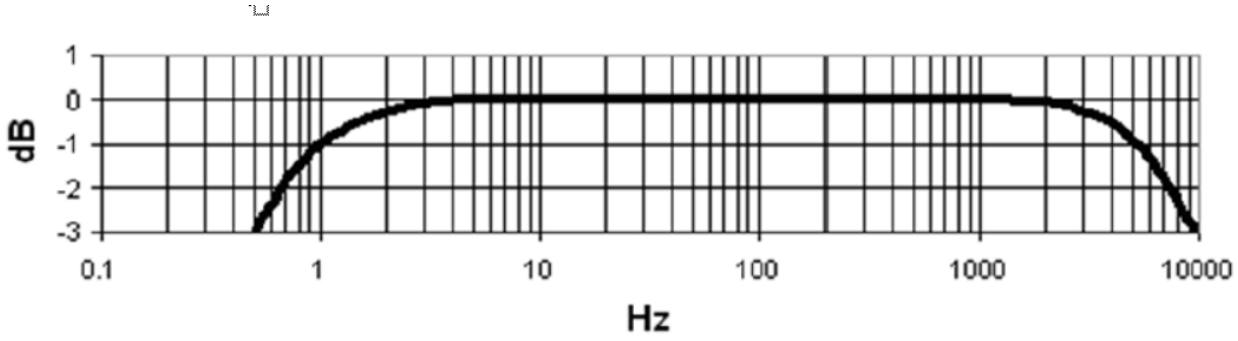


Figure 3 - 3: 200350 Accelerometer Frequency Response

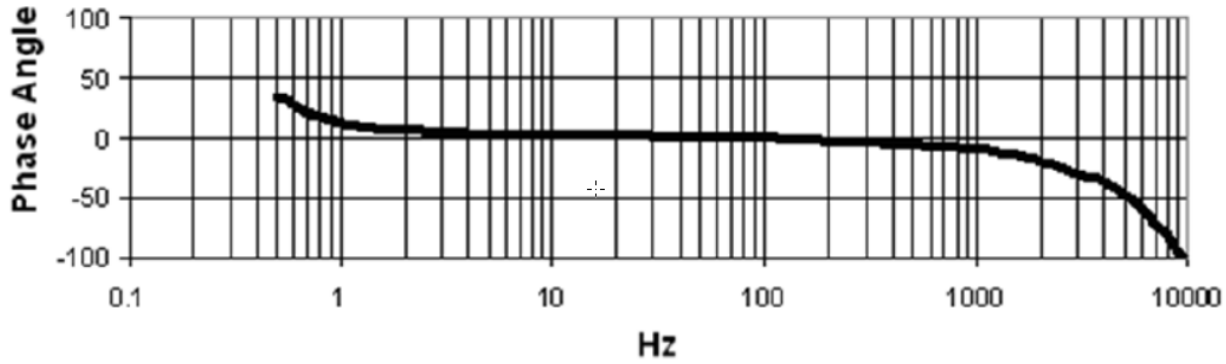


Figure 3 - 4: 200350 Accelerometer Phase

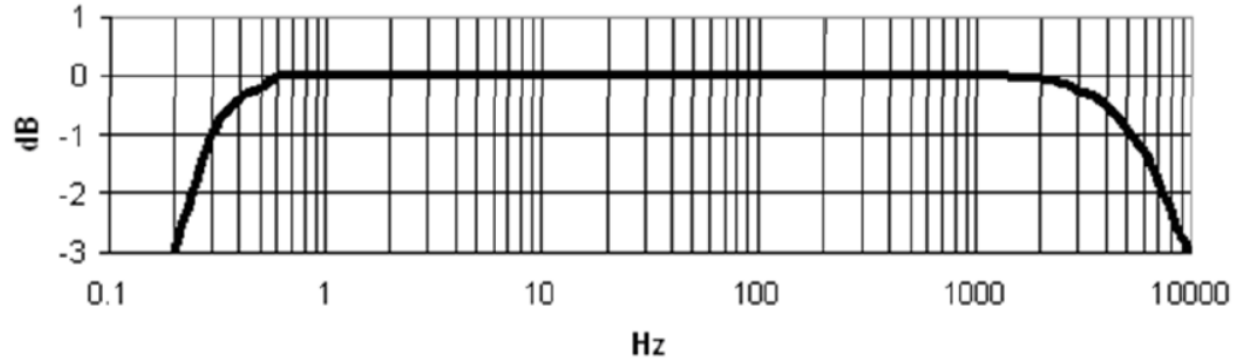


Figure 3 - 5: 200355 Accelerometer Frequency Response

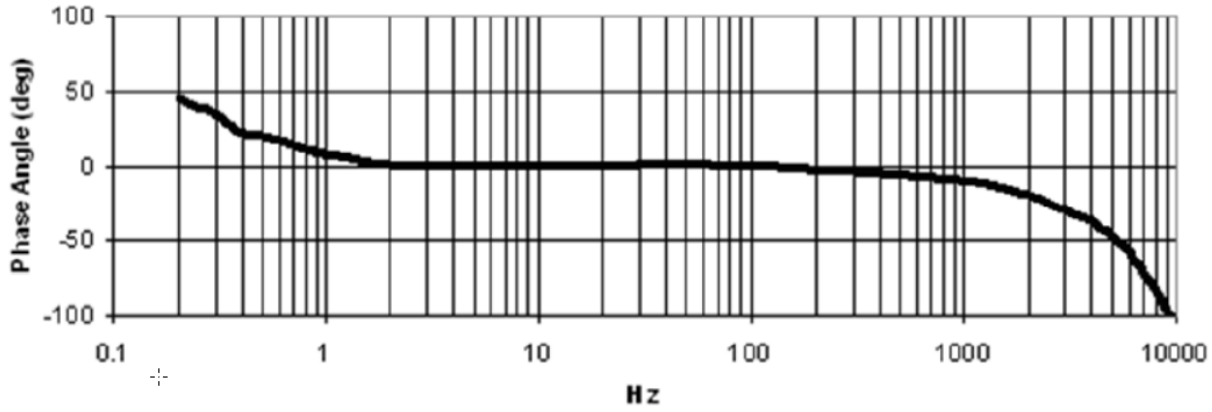


Figure 3 - 6: 200355 Accelerometer Phase

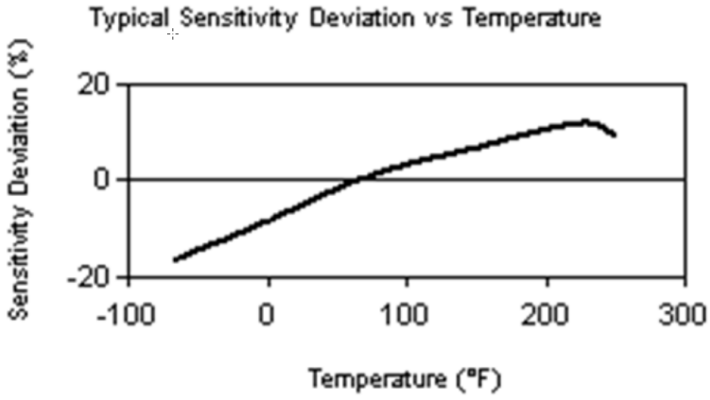
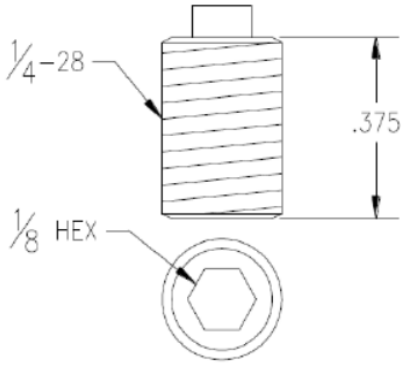


Figure 3 - 7: Temperature Sensitivity Curve



¼-28 Stud