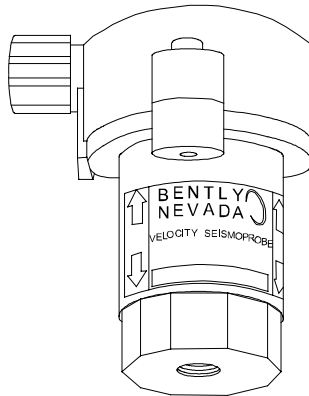


# Specifications and Ordering Information 86205 Velocity Transducer Systems



## Description

The 86205 is a moving-coil velocity transducer designed exclusively for use with Bently Nevada's Trendmaster® 2000 system.

### ⚠ 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 decrease of the transducer amplitude and frequency of the transducer amplitude and frequency response 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.

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## Specifications

At +22°C (+72°F) and 25 mm/s (1 in/s) peak at 100 Hz (6,000 cpm) unless otherwise specified.

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### Electrical

<i>Frequency Response:</i>	10 Hz to 1000 Hz (600 cpm to 60,000 cpm), -3 dB typical.
<i>Sensitivity:</i>	20 mV/mm/s (500 mV/in/s) ±5 % at 100 Hz (6,000 cpm) and 25 mm/s (1 in/s) peak with a mounting tolerance of ±2° for both vertical and horizontal orientations when operated with a 24.9 k Ω load.
<i>Orientation Sensitivity Change:</i>	less than or equal to 2% at ±20° (vertical) or ±10° (horizontal).



<i>Input Load:</i>	24.9 k $\Omega$ $\pm$ 1%
<i>Amplitude Linearity Error:</i>	$\pm$ 5% at 100 Hz (6,000 cpm) from 2.5 to 100 mm/s (0.1 to 4.0 in/s) peak.
<i>Amplitude Range:</i>	0.81 mm (32 mils) peak-to-peak, maximum
<i>Transverse Sensitivity:</i>	<12% typical over operating frequency
<i>Coil Resistance:</i>	395 $\Omega$ $\pm$ 5%
<i>Temperature Coefficient:</i>	0.022%/degree C (-0.04%/degree F) typical.
<i>Polarity of Output Signal:</i>	When case movement is toward the connector, the center male pin provides positive signal relative to the adjacent pins.

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### Environmental Limits

<i>Operating Temperature:</i>	-30°C to +82°C (-22°F to +180°F)
<i>Storage Temperature:</i>	-34°C to +82°C (-30°F to +180°F)
<i>Relative Humidity:</i>	100%, non-submerged. (NEMA 4X requirement).

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### Physical

<i>Reference Height:</i>	77 mm (3.05 in) with cap assembly
<i>Case Body Diameter</i>	
<i>Cap:</i>	46 mm (1.8 in) nominal
<i>Body:</i>	33 mm (1.3 in) nominal
<i>Reference Weight:</i>	200 g (7 oz)
<i>Case Material:</i>	Molded polyphenylene sulfide with 304 SST threaded insert.
<i>Mounting:</i>	3/8-in 24 UNF-2B female threaded insert is standard. Adhesive-mount base kits and threaded mounting studs are available by ordering the standard Mounting Adapter option.

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### Mechanical

<i>Maximum Shock:</i>	50 g (490 m/s <sup>2</sup> )
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### Hazardous Areas

For hazardous areas, the **86205** is approved by BASEEFA and Canadian Standards Association (CSA). BASEEFA approvals are for Zone 1, Group II C. CSA approvals are for Divisions 1 and 2, all Groups and Classes.

Approvals are based on using the **86205** Velocity Seismoprobe® with the Trendmaster® 2000 System.

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## Ordering Information

### Seismoprobe® Velocity Sensor

A 5-pin cable connector and cover are included for cable connection.

#### 86205 -AXX- BXX

#### Option Descriptions

<i>A: Transducer Orientation Option</i>	<b>0 1</b>	Vertical (0 $\pm$ 20)
	<b>0 2</b>	Horizontal (90 $\pm$ 10)
<i>B: Mounting Adapter Option</i>	<b>0 1</b>	3/8-in 24 UNF
	<b>0 2</b>	1/2-in 20 UNF
	<b>0 3</b>	Adhesive kit, 3/8-in 24 UNF
	<b>0 4</b>	M6 x 1
	<b>0 5</b>	Adhesive kit, M6 x 1
	<b>0 6</b>	1/4-in 28 UNF

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## Accessories

**87364-01** User Manual

#### *Transducer Cable*

**105189-XX** 4-conductor cable with drain wire; 18 AWG (1.0 mm<sup>2</sup>). Maximum recommended cable length per transducer is 99 feet (30 metres).

**XX** = 10 to 99 feet (3 to 30 metres)

*Cable Connectors* When ordering the transducer, a connector to the transducer cable is provided. The following spare parts are available:

**00523103** 5-pin, 18 AWG (1.0 mm<sup>2</sup>) connector for interfacing cable to transducer.

**00523104** Cover for 00523103 connector.

*Cable Connection Tools*

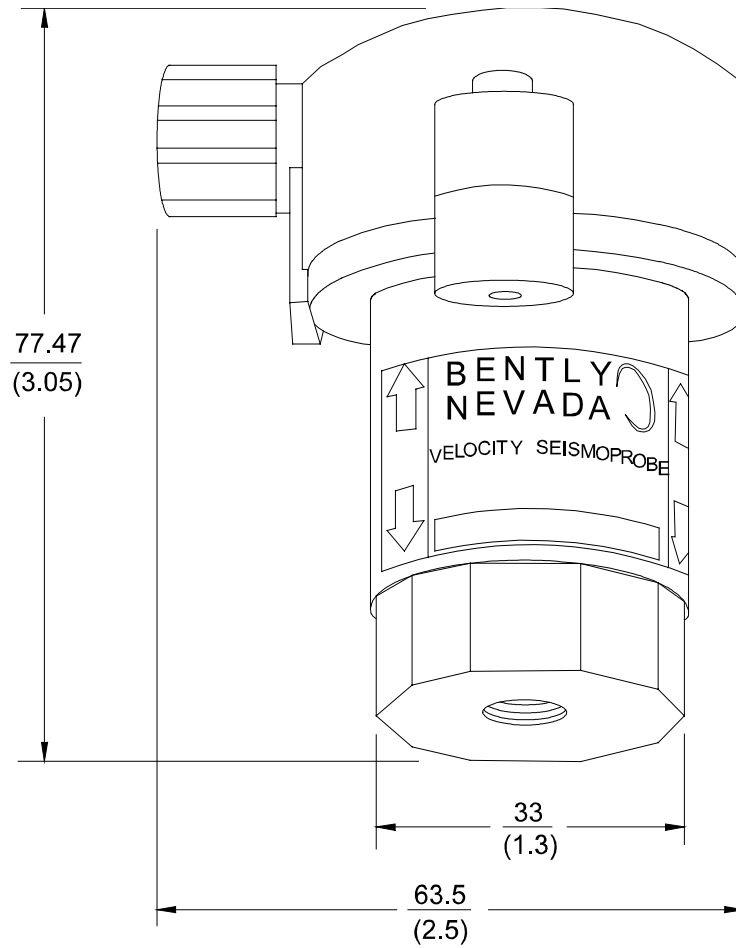
**85718-01** Crimp tool assembly for attaching connectors to cable. One is required for cable installation.

**89138-01** Cable armor adaptor; 5/16-in armor.

*Adhesive-mount Base Kits* Adhesive-mount base kits are available for quick and easy transducer mounting. The kit contains materials (adhesive and bases) for adhesive-mount bases for Seismoprobe® Velocity Sensors.

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# Transducer Dimensions



**Figure 1: 86205 Velocity Transducer**  
Dimensions are in millimetres (inches)

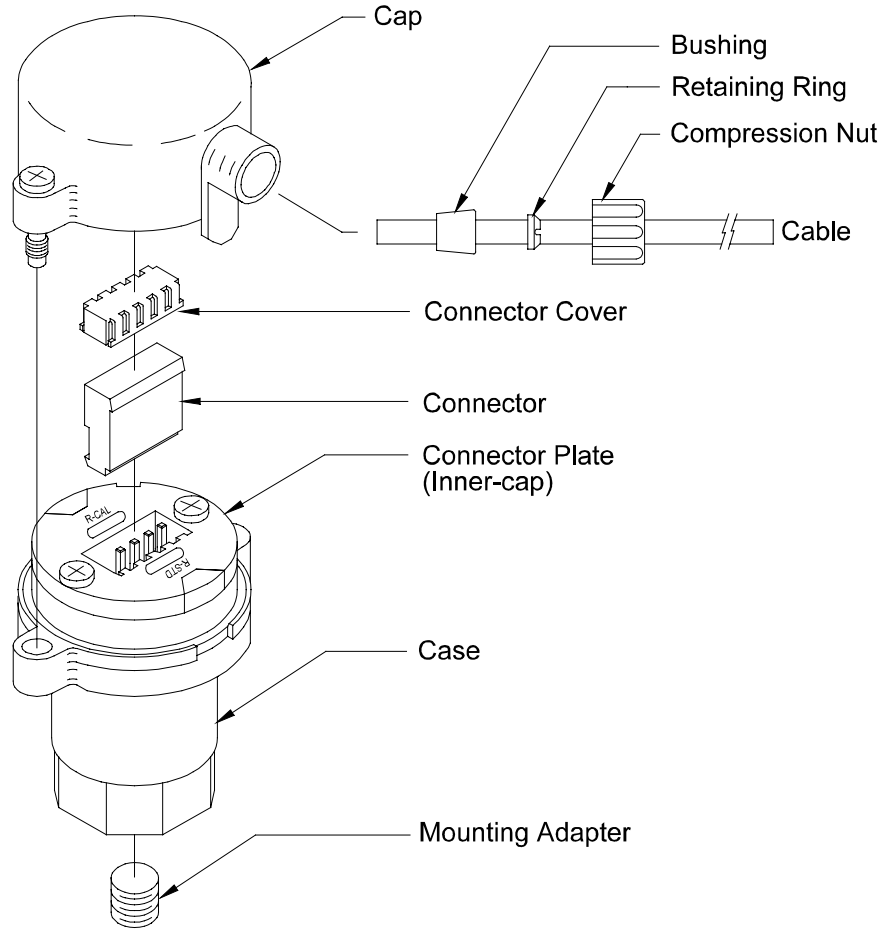


Figure 2: Velocity Transducer System details

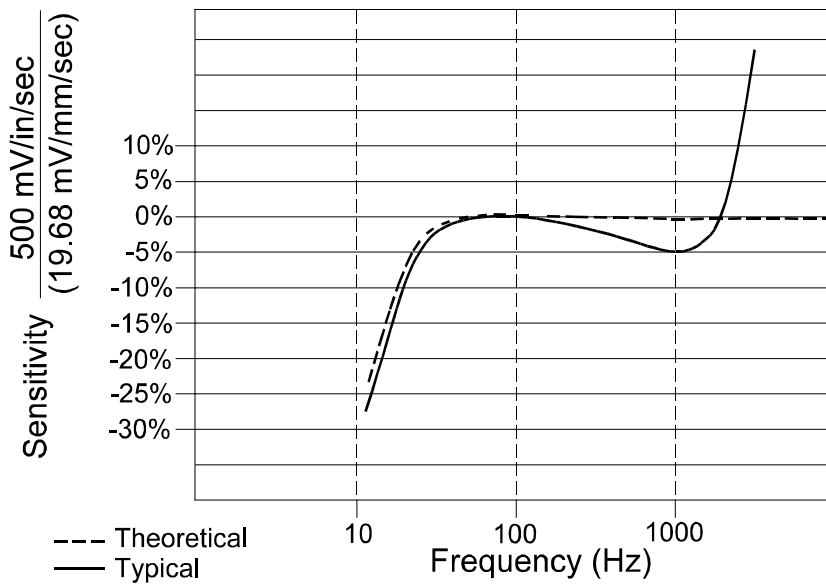


Figure 3: 86205 Velocity Transducer Frequency Response