



# **Vibration Transducer**



# Applications

- Industrial Turbines
- Turbine-Driven Machinery
- Power Generators
- Gas Pumping Systems

## Features

- Friction-free design for long life
- Self-generated, high level, low impedance output
- Operates to +700°F (+900°F versions are available)

## Description

The friction-free moving elements in CEC's 4-131 Vibration Transducers assure long life and reliability. Designed for industrial applications on fixed turbines, you can use this instrument in turbine hot sections where high temperatures cause problems with other transducers. The system is simplified due to the low impedence, high level output that can drive AC meters, recorders, and control electronics without using special amplifiers.

The frictionless design also allows measurement of extremely low vibration levels, critical when monitoring precision balanced turbine systems. The low level is limited only by system noise. These transducers use a seismic mass magnet suspended by springs and a coil attached to the case. The output signal results from relative movement between the magnet and coil when the case vibrates. The air damped system operates above its natural frequency, so the output signal is proportional to velocity. The sealed case prevents damage to the instrument when used in difficult environments.

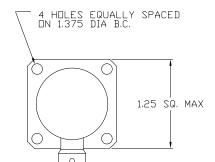


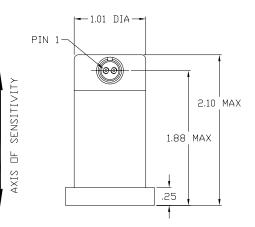
## 4-131 Vibration Transducer

## **Performance Specifications**

Sensitivity:	(refer to table 1) mV/in/sec $\pm 3\%$ at 80 Hz and $+77^{\circ}F$ ( $+25^{\circ}C$ ) $\pm 4^{\circ}F$ at 0.5 in/sec (ips), load impedance is 10,000 $\Omega \pm 2\%$	
Dynamic Range		
Frequency:	15 Hz to 2000 Hz	
Amplitude:	0.07 inch peak-to-peak, maximum	
Acceleration:	0.2 g to 50 g	
Acceleration Threshold:	0.01 g peak	
Linearity:	±6% along straight line between 0.1 & 1.0 ips at 80 Hz & 77°F	
Frequency Response:	±15% of reference sensitivity through the frequency range	
Temperature Range:	-65°F to +700°F (-54°C to +371°C) +900°F available on special order	
Thermal Coefficient of Sensitivity:	±0.02%/°F from reference +77°F	
Sensitivity Shift with Position:	10% maximum	
Damped Resonant Frequency:	ency: Less than 15 Hz nominal	
Excitation:	Self-generating	
Insulation Resistance:	100K Ω, minimum	
Polarity:	Pin 1 is positive when the case is moved upward	
Shock:	50 g's maximum in any direction	
Weight:	5.8 oz. nominal	
Cross Axis:	Must not exceed 2 g's maximum in continous operation	
Coil Resistance:	450 to 550 Ω @ 77°F ±4°F	
Approvala		

Table 1			
	Part Number	Sensitivity	Max Temp
	4-131-0001	135 mV	+700°F (+371°C)
	4-131-0103	150 mV	+700°F (+371°C)
	4-131-0107	145 mV	+700°F (+371°C)
	4-131-0116	200 mV	+700°F (+371°C)
	4-131-0123	135 mV	+900°F (+482°C)





#### **Approvals**

North American: Intrinsically Safe Class I, Division 1, Groups A, B, C & D Hazardous Locations (without barrier) Class I, Division 2, Groups A, B, C, & D

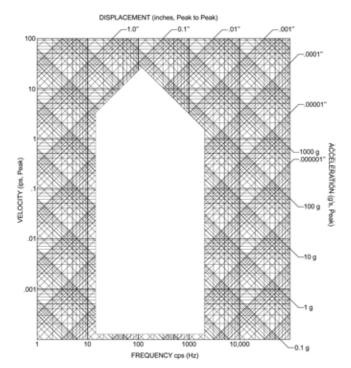
European: EEx ia IIB or IIC T1...T6 EEx nA II T1...T6 X

### **Ordering Information**

In keeping with CEC's policy of continuing product improvement, specifications may be changed without notice.

#### **Optional Accessories**

- 1. Cable and connector assembly P/N 169500-XXXX (length is identified in inches; e.g.: 60-inch cable is P/N 169500-0060)
- 2. Connector P/N 173960



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