

## 4-130/4-137 Vibration Transducer

### Applications

- Aircraft Engines
- Industrial Turbines
- Gas Turbine Test Cells
- Power Generation



### Features

- Ceramic bearings provide exceptional life
- Self-generated, high level, low impedance output.
- Operates to 371°C (700°F)

### Description

CEC's 4-130/4-137 Vibration Transducers offer a technology breakthrough in velocity output vibration transducer design. These transducers use a special advanced technology bearing system that extends their service life. Yet, this design preserves the simplicity and reliability that is typical of CEC's self-generating, low impedance vibration transducers.

We designed the 4-130/4-137 Vibration Transducers for turbine applications. Use them in hot sections where high temperatures cause problems with other instruments. They simplify your system because the low impedance, high level output does not require special amplifiers or low-noise cables. They have low sensitivity to transverse accelerations, and you can mount them in any plane. Their rugged construction and new bearing system insure high reliability and long service life.

These instruments are especially valuable where space is limited. They adapt easily to your installation because models are available in a variety of mounting configurations and sensitivities.

CEC 4-130/4-137 Vibration Transducers use a seismic mass magnet that moves on special ceramic bearings. A coil is attached to the case, and movement between the magnet and coil produces the output signal when the case vibrates. This air damped system operates above its natural frequency so the mV output is proportional to velocity.

### 4-137 Specifications

Sensitivity:	(Refer to Table 1). Measured at 25°C (77°F) in the vertical position, with a sinusoidal driving force applied perpendicular to the base at 100 Hz, 1 in/sec RMS (25 mm/sec). Load impedance is 10,000 ohms ±2%
Dynamic Range:	
Frequency:	45 to 1500 Hz
Amplitude:	0.10 inch peak-to-peak, maximum
Acceleration:	1.0 g to 50 g peak vertical 1.5 g to 50 g peak horizontal
Acceleration Threshold:	0.3 g peak in the vertical position 1.0 g peak in the horizontal position
Frequency Response:	45 to 1500 Hz ±6% referenced to 100 Hz at 25°C (77°F) and 1 in/sec RMS (25 mm/sec)
Linearity:	The sensitivity at 100 Hz, measured through the acceleration range of 1 g to 50 g's peak, shall not vary more than ±5% from the mean sensitivity
Transverse Sensitivity:	2% maximum
Temperature Range:	4-130: -54°C to +260°C (-65°F to +500°F) 4-137: -54°C to +371°C (-65°F to +700°F)
Thermal Coefficient of Sensitivity:	±0.036%/°C from reference 25°C (±0.02%/°F from reference 77°F)
Damped Resonant Frequency:	20 Hz

Excitation:	Self-generating
Coil Resistance:	450 ohms $\pm 25\%$
Insulation Resistance:	0.1 Mega Ohm minimum at 371°C (700°F)
Polarity:	Pin 2 is positive when case is moved upward
Shock:	The maximum shock in any direction is 50 g's
Sealing:	Hermetically sealed, all welded construction
Weight:	Triangular base: ..... 70.9 g (2.5 oz.) maximum Square base: ..... 99.2 g (3.5 oz.) maximum

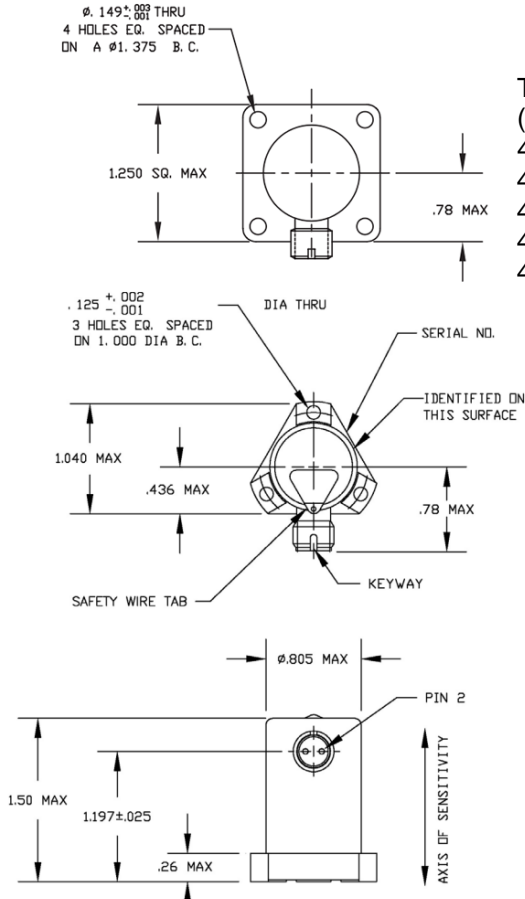
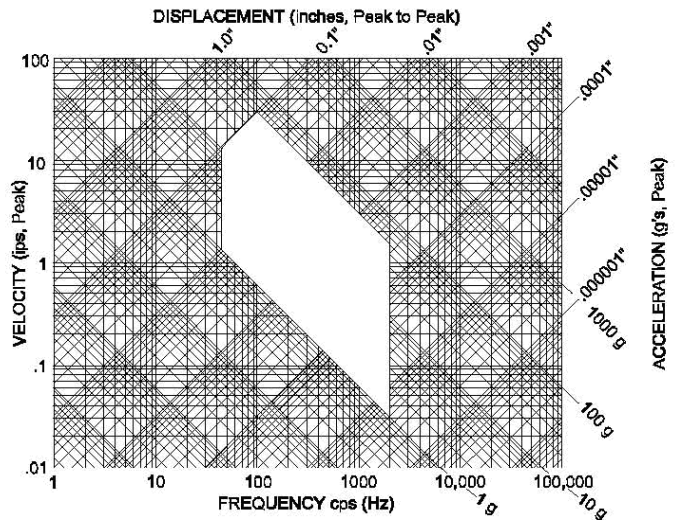


TABLE 1

TYPE (mV/in/sec)	SENSITIVITY	CONFIGURATION
4-130/4-137-0001	60 $\pm$ 2	Triangle Base, connector
4-130/4-137-0002	105 $\pm$ 3	Triangle Base, connector
4-130/4-137-0003	105 $\pm$ 3	Square Base, connector
4-130/4-137-0004	135 $\pm$ 3	Square Base, connector
4-130/4-137-0005	145 $\pm$ 3	Square Base, connector

VIBRATION NOMOGRAPH  
Model 4-130/4-137 Operating Range



**Optional Accessories**

1. Cable and connector assembly; P/N 169500-XXXX (length is identified in inches; e.g. a 36-inch cable is P/N 169500-0036)
2. Connector; P/N 173960

**Ordering Information:**

When ordering, specify the full type number (i.e. 4-130-0001 or 4-137-0001). Refer to Table 1 and the outline drawings to identify the desired unit. Other configurations and sensitivities are available. Please contact CEC for details. Order mating connectors and cable assemblies separately. In keeping with CEC's policy of continuing product improvement, specifications may be changed without notice.

