



4-130/4-137

Vibration Transducer



Applications

- Aircraft Engines
- Industrial Turbines
- Test Cells

Features

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

Velocity Sensors

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 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.



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Performance Specifications

Sensitivity: (Refer to Table 1) Measured at +77°F (+25°C) in the vertical position, with a sinusoidal driving force applied perpendicular to the base at 100 Hz, 1 in/sec RMS (25mm/sec). Load impedance is 10,000 Ω ±2%

Dynamic Range

Frequency: 45 Hz to 1500 Hz

Amplitude: 0.10 inch peak-to-peak max

Acceleration: 1.0 g to 50 g peak vertical
1.5 g to 50 g horizontal

Acceleration Threshold: 0.3 g peak in the vertical position
1.0 g peak in the horizontal position

Frequency Response: ±6% through frequency range referenced to 100 Hz at +77°F (+25°C) 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

Temperature Range

4-130: -65°F to +500°F (-54°C to +260°C)

4-137: -65°F to +700°F (-54°C to +371°C)

Thermal Coefficient of Sensitivity: ±0.02%/°F from reference +77°F (±0.036%/°C from reference +25°C)

Damped Resonant Frequency: 20 Hz

Excitation: Self-generating

Coil Resistance: 450 Ω ±25%

Insulation Resistance: 0.1 megaohm minimum at +700°F (+371°C)

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: 2.5 oz. (70.9 g) maximum

Square base: 3.5 oz. (99.2 g) maximum

Optional Accessories

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

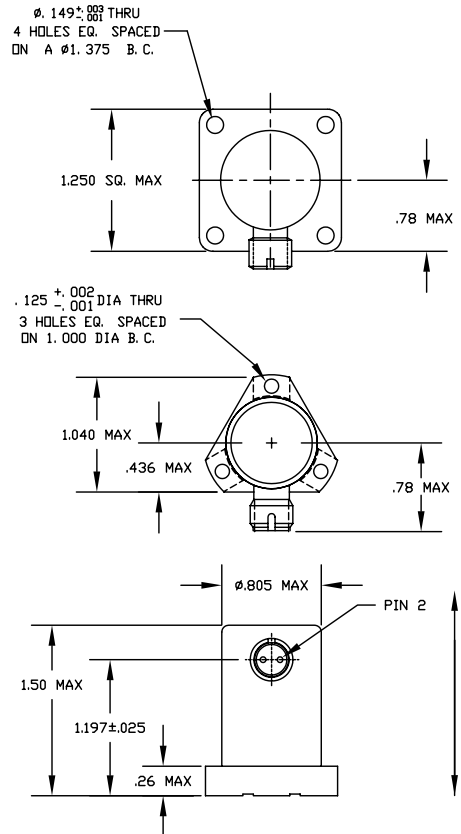
Ordering Information

When ordering, specify the full part 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.

* Note Frequency Range = 45 Hz to 2000 Hz

Table 1

Type	Sensitivity (mV/in/sec)	Configuration
4-130/4-137-0001	60 ±2	Triangle Base, Connector
4-130/4-137-0002	105 ±3	Triangle Base, Connector
4-130/4-137-0003	105 ±3	Square Base, Connector
4-130/4-137-0004	135 ±3	Square Base, Connector
4-130/4-137-0005	145 ±3*	Square Base, Connector



Hazardous Approvals



North America
CSA C/US Class I, Division I, Groups A, B, C and D
Class I, Division 2, Groups A, B, C and D



European
ATEX EEx ia IIB or IIC T6 - T1
EEx nA II T6 - T1 X