



4-171

Accelerometers

High Temperature Piezoelectric Accelerometer



Applications

- Gas Turbine Engine Monitoring
- Ground Test Application
- APU Testing
- Compressor or Gear Box Monitoring

Features

- Self-generated (no external power)
- Balanced Differential Output
- Operates to +900°F
- Available in 10, 20 or 50 pC/g

Description

The CEC Model 4-171 is a self-generating, piezoelectric accelerometer designed for high temperature vibration measurement applications. This instrument provides a high sensitivity and stable output for continuous operation at temperatures as high as +900°F. While the unit does not require power for operation, the accelerometer output must be operated into a charge converter that is designed to accept a 100 kohm source resistance.

The 4-171 piezo ceramic sensing element is housed within a rugged case. The case and connector are both made from Inconel. The mounting base incorporates a standard three-point mounting pattern on a 1.188" diameter B.C., common to many applications. The 4-171 series provides a balanced differential output that is isolated from the case ground. Sensitivities available include 10 pC/g, 20 pC/g and 50 pC/g



4-171 Piezoelectric Accelerometer

Performance Specifications

DYNAMIC

Reference Sensitivity

- 4-171-0010: 10 pC/g RMS 5% referenced @ 100Hz
4-171-0020: 20 pC/g RMS 5% referenced @ 100Hz
4-171-0050: 50 pC/g RMS 5% referenced @ 100Hz

- Frequency: 5 to 2500Hz
Frequency Response: 5 to 10Hz, $\pm 10\%$ of reference
Sensitivity: 10 to 2500Hz, $\pm 5\%$ of reference
Transverse Sensitivity: $\leq 5\%$
Amplitude Linearity: $\leq 1\%$ up to 100g RMS

ELECTRICAL

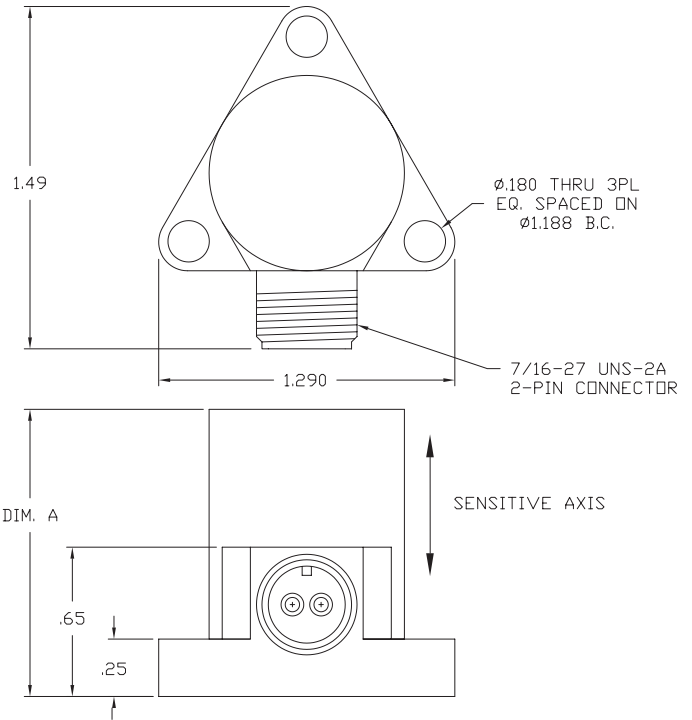
- Output: Balanced differential (2-pin floating)
Transducer Capacitance: 1.14 nF
Pin to Case Capacitance: 23 pF
Transducer Resistance: 100k Ω minimum at +900°F (+371°C)
Pin to Case Resistance: 25M Ω minimum at +900°F (+371°C)
Grounding: Two pins (differential output) isolated from case ground

PHYSICAL

- Sensing Element: Piezo Ceramic in a single-ended compression design
Weight: 4oz (113gm)
Case Material: Inconel
Connector: Two-pin, 7/16-27 threads
Mounting: Three holes .185" Dia. equally spaced on $\phi 1.188$ " bolt circle

ENVIRONMENTAL

- Acceleration Limits (in any direction)
Vibration (sinusoidal): 1000g
Shock: 2000g
Temperature Range: -65 to +900°F
Altitude: Not affected
Construction: Hermetically sealed by welding and ceramic-to-metal fusion



DASH NO.	-0010	-0020	-0050
DIM. A	1.00	1.50	1.50

Ordering Information

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

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