



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, ±10% of reference
Sensitivity:	10 to 2500Hz, ±5% of reference
Transverse Sensitivity:	≤ 5%
Amplitude Linearity:	≤ 1% up to 100g RMS

ELECTRICAL

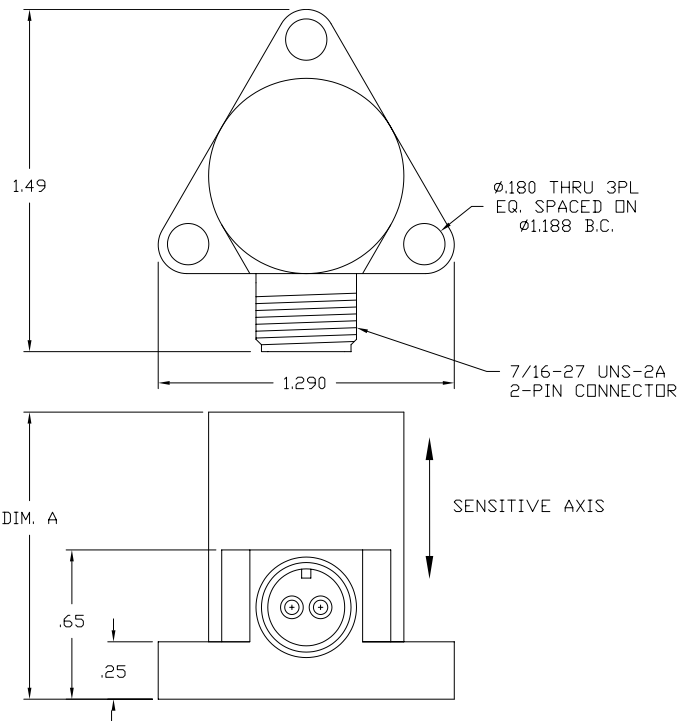
Output:	Balanced differential (2-pin floating)
Transducer Capacitance:	1.14 nF
Pin to Case Capacitance:	23 pF
Transducer Resistance:	100k Ω minimum at +900°F (+371°C)
Pin to Case Resistance:	25M Ω minimum at +900°F (+371°C)
Grounding:	Two pins (differential output) isolated from case ground

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 ø1.188" 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.