



4-170

Accelerometers

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 +500°F (+260°C)
- Available in 10, 20 or 50 pC/g sensitivity

Description

The CEC Model 4-170 is a self-generating, piezoelectric accelerometer designed for medium temperature vibration measurement applications. This instrument provides a high sensitivity and stable output for continuous operation at temperatures as high as +500°F (+260°C). 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 100,000 ohm source resistance.

The 4-170 piezo ceramic sensing element is housed within a rugged case, where both the case and connector are made from Inconel 625. The mounting base incorporates a standard three-point mounting pattern on a 1.188" diameter B.C., common to many applications. The 4-170 series provides a balanced differential output that is isolated from the case ground.



4-170 Piezoelectric Accelerometer

Performance Specifications

DYNAMIC

Reference Sensitivity

- 4-170-0010: 10 pC/g RMS 5% referenced @ 100 Hz
- 4-170-0020: 20 pC/g RMS 5% referenced @ 100 Hz
- 4-170-0050: 50 pC/g RMS 5% referenced @ 100 Hz

Frequency:

5 to 3000 Hz

Frequency Response:

5 to 10 Hz, ±10% of reference
10 to 3000 Hz, ±5% of reference

Transverse Sensitivity:

< 5%

Amplitude Linearity:

1% up to 100 g 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 +500°F (+260°C)

Pin to Case Resistance:

25M Ω minimum at +500°F (+260°C)

Grounding:

Two pins (differential output) isolated from case ground

PHYSICAL

Sensing Element:

Piezo Ceramic in a single-ended compression design

Weight:

2.3 oz (-0010, -0020)
4 oz (-0050)

Case Material:

Inconel 625

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): 1000 g

Shock: 2000 g

Temperature Range:

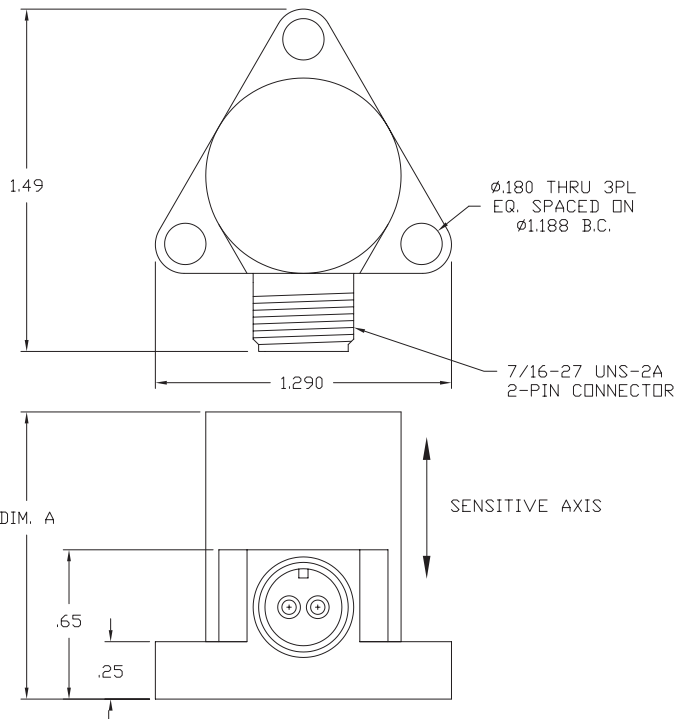
-65°F to +500°F (-54°C to +260°C)

Altitude:

Not affected

Construction:

Hermetically sealed by welding and ceramic-to-metal fusion



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

NOTE: All dimensions are in inches

Ordering Information

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

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