



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, $\pm 10\%$ of reference
10 to 3000 Hz, $\pm 5\%$ 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 $\phi 1.188$ " bolt circle

ENVIRONMENTAL

Acceleration Limits (in any direction)

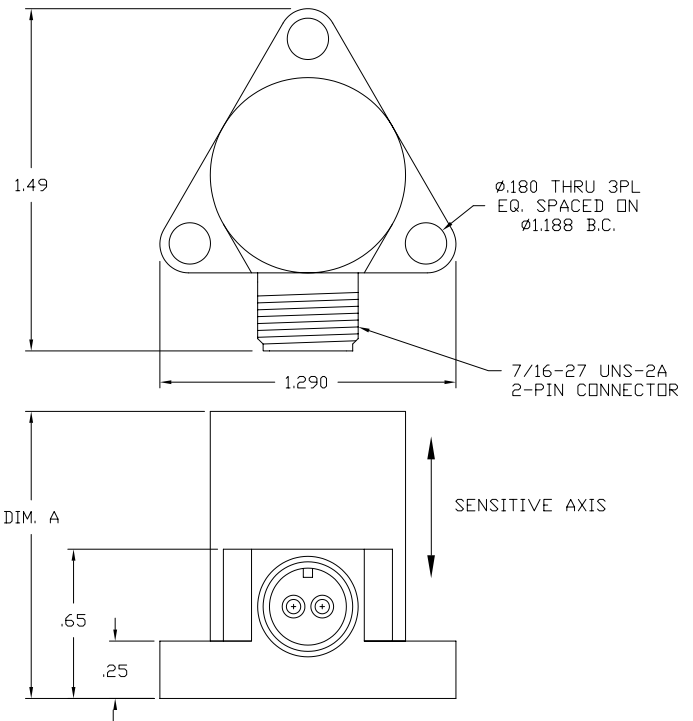
Vibration (sinusoidal): 1000 g

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