

## 4-170 Piezoelectric Accelerometer

### Applications

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

### Features

Self-generating (no external power)  
Balanced Differential Output  
Operates to +500°F (+260°C)  
Ideal for test cell turbine vibration monitoring  
Available in 10, 50 or 100pC/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 source resistance.

The 4-170 piezo ceramic sensing element is housed within a rugged enclosure and connector, both made from 440C S.S. 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. Sensitivities available include 10 pC/g, 50 pC/g and 100 pC/g.

### DYNAMIC

#### Reference Sensitivity

4-170-0001 10 pC/g RMS 5% referenced @100 Hz  
4-170-0002 50 pC/g RMS 5% referenced @100 Hz  
4-170-0003 100 pC/g RMS 5% referenced @100 Hz

Frequency: 5 to 3000 Hz  
Frequency Response: 5 to 10 Hz, 10% of reference sensitivity  
Sensitivity: 10 to 3000 Hz, 5% of reference sensitivity  
Transverse Sensitivity: <5%  
Amplitude Linearity: 1% up to 100g RMS

**ELECTRICAL Output:** Balanced Differential (2-pin floating)  
Transducer Capacitance: 1.14nF  
Pin to Case Capacitance: 23pF

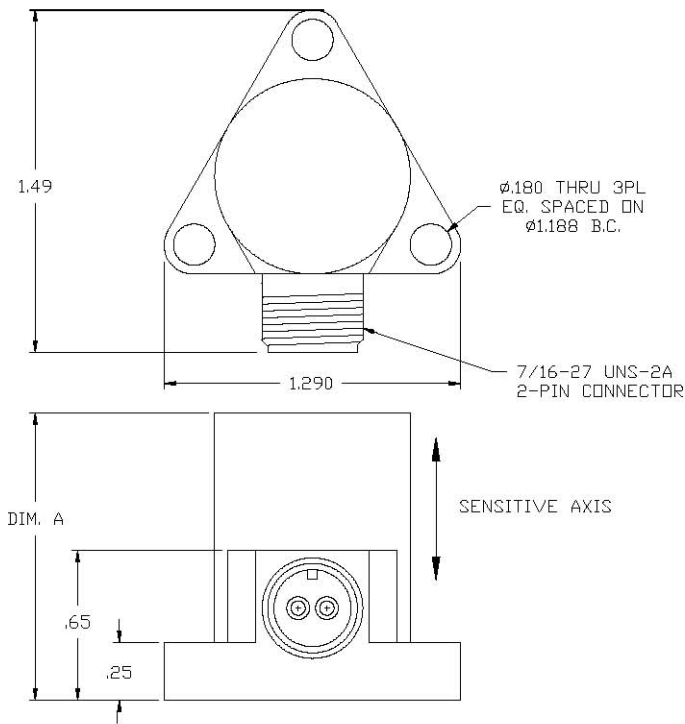
Transducer Resistance: 100kΩ minimum at +260°C (+500°F)  
Pin to Case Resistance: 25MΩ minimum at +260°C (+500°F)

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 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): 1000g  
 Shock: 2000g  
 Temperature Range: -65 to +500°F (-54 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

