

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)

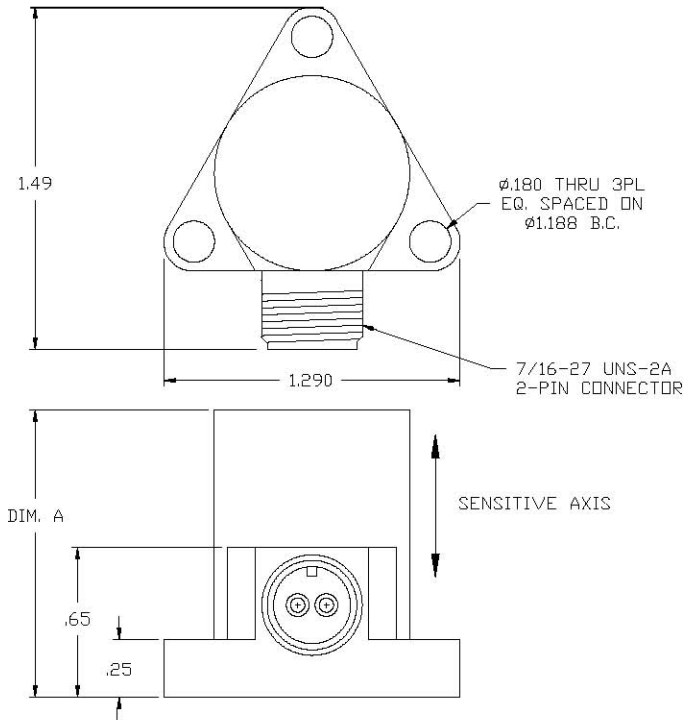
Grounding: Two pins (differential output) isolated from case ground

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

