

# INTEGRAL ELECTRONICS (IEPE) PIEZOELECTRIC ACCELEROMETER

**MODEL 2016A** 

- Outstanding Dynamic Range
- Wide Bandwidth
- Low Impedance Output
- Top Connector
- Stud Mounted

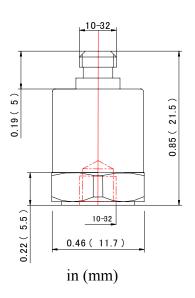


The VIP Sensors Model 2016A is a stud mounted piezoelectric accelerometer designed for general vibration measurement on structures and objects. It features a high signal-to-noise ratio, a high output sensitivity, and a wide bandwidth. The accelerometer transmits its low impedance voltage output through the same cable that supplies the constant current power.

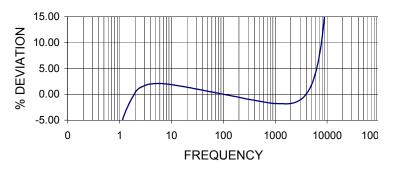
The Model 2016A design is sealed against external contamination. Signal ground is connected to the outer case of the unit. When used with an isolated mounting stud, the accelerometer is electrically isolated from ground. The accelerometer features a 10-32 top connector that is used with coaxial cable for error-free operation.

VIP Sensors Signal Conditioner Models 5005, 5100 and 5102 are recommended for use with this low impedance accelerometer.

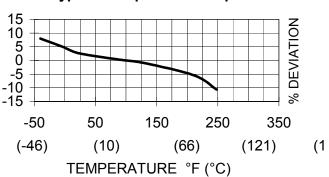








## **Typical Temperature Response**



# INTEGRAL ELECTRONICS (IEPE) PIEZOELECTRIC ACCELEROMETER

**Innovations** 

# **MODEL 2016A**

# **SPECIFICATIONS**

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The following performance specifications conform to ISA-RP-37.2 (1964) and are typical values, referenced at +75°F (+24°C) and 100 Hz, unless otherwise noted. Calibration data, traceable to National Institute of Standards and Technology (NIST), is supplied.

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| DYNAMIC CHARACTERISTICS      |      |                        |                                  |
|------------------------------|------|------------------------|----------------------------------|
| Range                        | g    | (m/s <sup>2</sup> )    | 50 (490.3)                       |
| Voltage Sensitivity, typical | mV/g | (mV/m/s <sup>2</sup> ) | 100 (10.02)                      |
| Transverse Sensitivity       |      | %                      | <b>≤ 5</b>                       |
| Frequency Response           |      |                        | See Typical Amplitude Response   |
| Resonance Frequency          |      | Hz                     | 15,000                           |
| Amplitude Response           |      |                        |                                  |
| <u>+</u> 5 %                 |      | Hz                     | 2 – 6,000                        |
| <u>+</u> 1 dB                |      | Hz                     | 0.5 - 8,000                      |
| Temperature Response         |      |                        | See Typical Temperature Response |
| Amplitude Linearity          |      | %                      | < 1                              |

#### **ELECTRICAL CHARACTERISTICS**

Output Polarity Acceleration directed from base into the transducer defined as positive

Power Source Voltage VDC +12 to +28
(Constant Current)
Supply Current mA 2 to 10
Pigg Voltage V 7 +1

Supply Current TIMA 2 to 10 Bias Voltage V  $7 \pm 1$  Full Scale Output Voltage (peak) Vp  $\leq 5$  Output Impedance  $\Omega$  < 100 Noise mg (mm/s²) < 5 (< 49.0)

Grounding Signal ground connected to case

### **ENVIRONMENTAL CHARACTERISTICS**

Temperature Range -4°F to 248°F (-20°C to +120°C)

Thermal Transient Sensitivity equiv. g /°C 0.12

#### PHYSICAL CHARACTERISTICS

Weight oz (grams) 0.35 (10)
Case Material Stainless Steel

Mounting 10-32, torque 2 N-m (18 lbf-in)

Piezoelectric Material PZT-5

Structure Center Compression

Output Connector 10-32 receptacle, top mounting

#### **ACCESSORIES**

Included: Optional:

9005L10 Coaxial Cable 10-32/BNC, 10ft (3.3 m) 9006L10 Coaxial Cable 10-32/10-32, 10 ft (3.3 m) 9504-8 10-32/10-32 Mounting Stud 9505-8 10-32/10-32 Isolated Mounting Stud 9505-11 10-32/Adhesive Mounting Plate

Calibration Sheet

## **NOTES**

 Short duration shock pulses, such as those generated by metal-to-metal impacts, may excite transducer resonance and cause linearity errors.