# 512A

## Single axial IEPE accelerometer

## Features

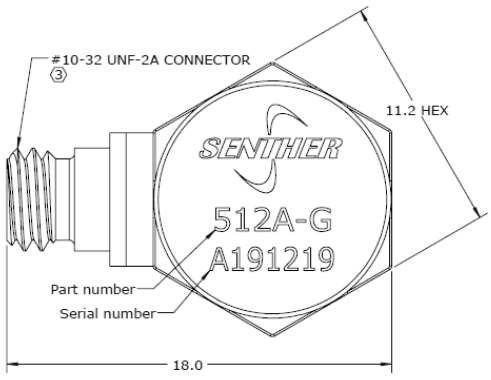
- Side connector output
- Adhesive or stud mounting
- Hermetic seal
- Annular shear mode
- Wide temperature range
- Wide frequency response

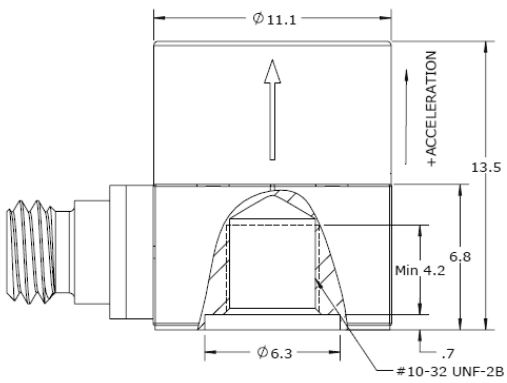
## Application

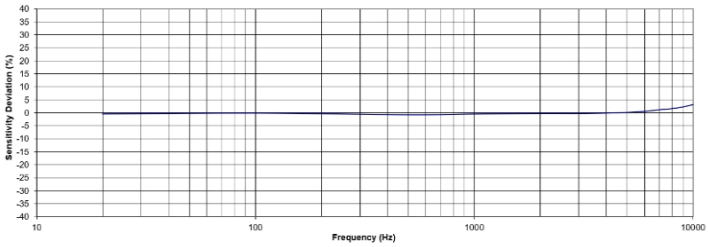
- Vibration monitoring
- Shock testing
- Road testing
- Modal analysis
- Aircraft testing

## Description

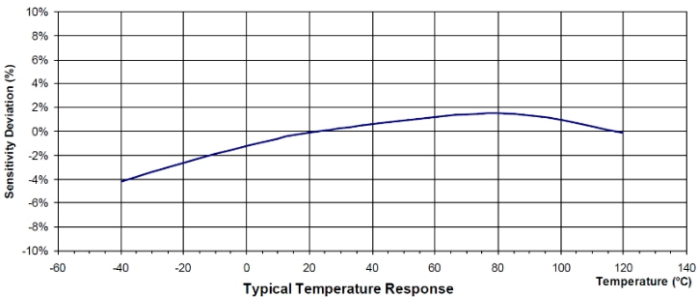
Model 512A is an IEPE single axial accelerometer permitting simultaneous shock and vibration measurements. 512A features an annular shear ceramic crystal which exhibits excellent output stability over time. The accelerometer incorporates an internal circuit with TEDS(optional) in a two-wire IEPE system which transmits its low impedance voltage output through the same cable that supplies the constant current power. Signal ground is connected to the outer case of the unit. Isolated mounting studs or housing are available. Polarity inversion protection for the amplify circuit is inherent in the circuit design. The welded stainless-steel construction provides a lightweight hermetic housing. The miniature 10-32 glass insulated connector provides long-term stability over the operating temperature range. In addition to adhesive mounting, the 512A has 10-32 threaded holes for stud mounting on the test object. The 512A provides wide frequency response, which is ideal for dynamic vibration and shock measurement especially for lightweight structures and drop testing for the packaging industry. Senther's model 11-3 is a 10-32 to BNC breakout cable for the sensor.




Typical Frequency Response




Typical Temperature Response

## Specification

Typical at +24°C (+75°F), 24Vdc, 4 mA and 100Hz, unless otherwise stated.

| Part Number | -10 | -50 | -100 | -250 | -500 | -1000 | -2000 | |
|---|---|---|---|---|---|---|---|---|
| **Measurement Range** | 10 | 50 | 100 | 250 | 500 | 1000 | 2000 | g |
| **Sensitivity ±10%** | 500 | 100 | 50 | 20 | 10 | 5 | 2.5 | mV/g |
| **Frequency Range ±5%** | 2-4000 | 1-7000 | 1-7000 | 1-7000 | 1-7000 | 1-7000 | 1-7000 | Hz |
| **Frequency Range ±10%** | 1.5-10000 | 1-10000 | 1-10000 | 1-10000 | 1-10000 | 1-10000 | 1-10000 | Hz |
| **Frequency Range ±3dB** | 0.6-12000 | 0.5-15000 | 0.5-15000 | 0.5-15000 | 0.5-15000 | 0.5-15000 | 0.5-15000 | Hz |
| **Resonant Frequency** | 38 | 38 | 38 | 38 | 38 | 38 | 38 | kHz |
| **Transverse Sensitivity** | <5 | <5 | <5 | <5 | <5 | <5 | <5 | % |
| **Temperature response -55 to +125°C** | ±10 | ±10 | ±10 | ±10 | ±10 | ±10 | ±10 | % max. |
| **Broadband Resolution** | 0.0002 | 0.0005 | 0.0005 | 0.0012 | 0.0012 | 0.0012 | 0.0012 | Equiv. g RMS |
| **Non-Linearity** | ±1 | ±1 | ±1 | ±1 | ±1 | ±1 | ±1 | % FSO |
| **Shock Limit** | ±5000 | ±5000 | ±5000 | ±5000 | ±5000 | ±5000 | ±5000 | g pk |
| **Weight (Excluding Cable)** | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | Grams |

| PARMETERS | VALUE | UNITS |
|---|---|---|
| **Bias Voltage (Room Temp.)** | 8-12 | Vdc |
| **Bias Voltage (-50~125) °C** | 6-13 | Vdc |
| **Output Impedance** | <100 | Ω |
| **Full Scale Output Voltage** | ±5 | V |
| **Insulation Resistance** | >100 | MΩ |
| **Supply Voltage** | 18-30 | VDC |
| **Supply Current** | 2 to 10 | mA |
| **Operating and Storage Temperature** | -50~+125 | °C |
| **Sensing Element** | Piezo Ceramic | |
| **Sensing Geometry** | Shear | |
| **Housing Material** | Stainless Steel | |
| **Sealing** | Welded Hermetic | |
| **Grounding** | Signal return connected to case | |

## Accessories

Calibration certificate included.

| Part Number | Description | Availability |
|---|---|---|
| **PM0231** | Mounting stud 10-32 to 10-32 thread | One stud Included |
| **PM0356** | Mounting stud 10-32 to M5 thread | |
| **MB0012** | Magnet mounting adapter | Optional |
| **PM0276** | Adhesive mounting adapter | Optional |
| **11-3** | 3 meter mating cable with 10-32(male) to BNC(male) connector | Optional |
| **10-3** | 3 meter mating cable with 10-32(male) to 10-32(male) connector | Optional |
| **IN-03** | 3 channels IEPE signal conditioner | Optional |
| **IN-91** | Portable vibration analyzer | Optional |
| **IN-3062** | 8 channels data acquisition system | Optional |

## Measurement configuration

| Sensor | Mating cable | Signal conditioner | BNC cable | Data acquisition | Computer |
|---|---|---|---|---|---|
|  |  |  |  |  |  |

## Ordering information

| 512 | A | - | 50 | - | A |
|---|---|---|---|---|---|
| **Model** | Output signal | - | Range | - | Mounting stud |
| **512** | A=IEPE output<br>E=IEPE output with TEDS | - | 10=10g<br>50=50g<br>100=100g<br>250=250g<br>500=500g<br>1000=1000g<br>2000=2000g | - | A= 10-32 to 10-32<br>B= 10-32 to M5<br>C*=Special |



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