

Type 8702B25, M1 ... 8702B100, M1
8704B25, M1 ... 8704B100, M1

8702B & 8704B K-SHEAR® ACCELEROMETER SERIES

The 8702B side connector and 8704B top connector accelerometer series use a unique shear mode sensing element made of stable quartz crystals. All units are hermetically sealed and are constructed of titanium. An internal circuit Piezotron® impedance converter provides a low impedance output. The quartz crystal sensing elements afford excellent long-term stability that ensure repeatable,

accurate measurements for many years. Other outstanding features include low base strain, thermal transient and transverse sensitivity. Both types are available with ground isolation (M1 versions). The 8702B and 8704B series are designed for general purpose vibration measurement, vehicle or environmental testing (with or without temperature cycling), ESS and modal analysis.

- Low impedance, voltage mode
- Quartz-shear sensing elements
- Ultra-low base strain
- Minimal thermal transient response
- Lightweight, hermetically sealed titanium case
- Conforming to CE



8702



8704

| Technical Data | Units | 8702B25, M1 | 8702B50, M1 | 8702B100, M1 |
|--|--------------|--------------|--------------|----------------|
| | | 8704B25, M1 | 8704B50, M1 | 8704B100, M1 |
| Acceleration Range | <i>g</i> | ±25 | ±50 | ±100 |
| Acceleration Limit | <i>g</i> pk | ±50 | ±100 | ±200 |
| Transverse Acceleration Limit | <i>g</i> pk | ±50 | ±100 | ±200 |
| Threshold nom. | <i>g</i> rms | 0.003 | 0.006 | 0.01 |
| Sensitivity (±5%) | mV/ <i>g</i> | 200 | 100 | 50 |
| Resonant Frequency mounted, nom. | KHz | 54 | 54 | 54 |
| Frequency Response ± 5% | Hz | 10 ... 7000 | 3 ... 7000 | 0.6 ... 9000 |
| | Hz | 3 ... 10 000 | 1 ... 10 000 | 0.4 ... 10 000 |
| Amplitude Non-linearity | % | ±1 | ±1 | ±1 |
| | % | 0.5 | 1.0 | 1.5 |
| Time Constant nom. | s | | | |
| Transverse Sensitivity typ. (max.) | % | | 1.5 (3) | |
| Base Strain Sensitivity @250 µε | <i>g</i> µε | | 0.01 | |
| Shock (1 ms pulse), max. | <i>g</i> pk | | 2000 | |
| Temperature Coefficient of Sensitivity | %/°F | | -0.03 | |
| | %/°C | | -0.06 | |
| Temperature Range Operating (4 mA supply current) | °F | | -65 ... 212 | |
| | °C | | -55 ... 100 | |
| Storage | °F | | -100 ... 250 | |
| | °C | | -75 ... 120 | |
| Output Bias nom. | VDC | | 11 | |
| Impedance max. | Ω | | <100 | |
| Voltage F.S. | V | | ±5 | |
| Current | mA | | 2 | |
| Source Voltage | VDC | | 18 ... 30 | |
| Constant Current | mA | | 2 ... 20 | |
| Impedance min. | Ω | | 100 | |

1 *g* = 9.80665 m/s², 1 inch = 25.4 mm, 1 gram = 0.03527 oz, 1 lbf-in = 0.1129 Nm

| Technical Data | Units | 8702B..., M1 8704B..., M1 |
|----------------|-------|------------------------------|
|----------------|-------|------------------------------|

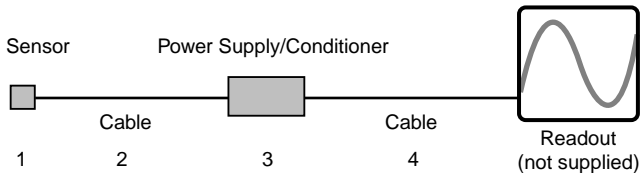
Construction

| | | |
|---------------------------------------|-------------|-------------|
| Sensing Element | type | quart/shear |
| Housing/Base | material | titanium |
| Sealing - housing/connector | type | hermetic |
| Connector | type | 10-32 neg. |
| Ground Isolation (for M1 only) | MΩ | 10 |
| Weight (for M1) | g | 8.6 (9.6) |
| Mounting | type | 10-32 stud |
| Mounting Torque | lbf-in (Nm) | 18 (2) |

Related Products

| | |
|------------|--|
| 8702B500 | K-Shear accelerometer, side connector, 500g range |
| 8702B500M1 | K-Shear accelerometer, side connector, off ground, 500g range |
| 8702B500M5 | K-Shear accelerometer, side connector, 500g range, high temperature 165 °C operation |
| 8702B500M8 | K-Shear accelerometer, side connector, 500g range, low temperature -195 °C operation |
| 8704B500 | K-Shear accelerometer, top connector, 500g range |
| 8704B500M1 | K-Shear accelerometer, top connector, off ground, 500g range |

Ordering Information



Specify:

- 1 - 8702B... accelerometer, side connector, specify range or 8702B... M1 accelerometer, side connector, ground isolated, specify range
- 8704B... accelerometer, top connector specify range or 8704B...M1 accelerometer, side connector, ground isolated, specify range
- 2 - 1761B... general purpose cable, 10-32 pos. to BNC pos., specify length in meters
- 3 - 5100 coupler series or dual mode amplifier
- 4 - 1511... output cable, BNC pos. to BNC pos., specify length in meters.

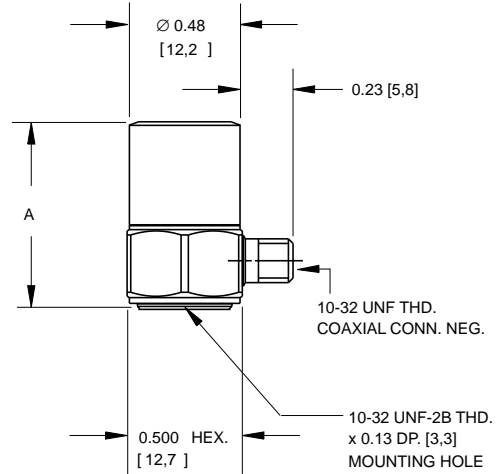
Supplied Accessories

| | |
|------|--|
| 8402 | 10-32 mounting stud |
| 8411 | mounting stud, 10-32 to M6; shipped only outside N. A. |

Optional Accessories

| | |
|-------|------------------------|
| 8452A | mounting magnet |
| 8502 | triaxial mounting cube |

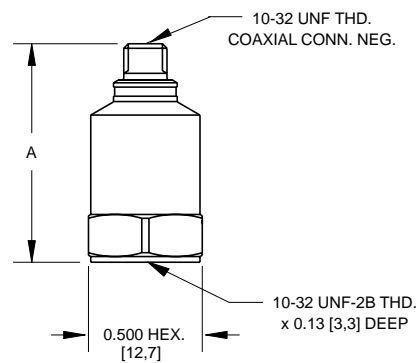
Dimensions in inches [mm]



| | |
|--------------------|-------------|
| "A" dim 8702B... | 0.76 [19,3] |
| "A" dim 8702B...M1 | 0.80 [20,3] |

8702B Series

Dimensions in inches [mm]



| | |
|--------------------|-------------|
| "A" dim 8704B... | 0.96 [24,4] |
| "A" dim 8704B...M1 | 0.98 [24,9] |

8704B Series