

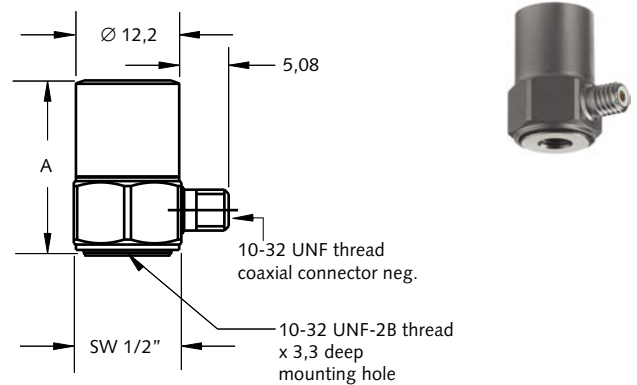
# K-Shear® Accelerometers

Type 8702B...  
8704B...

## General Purpose, Voltage Mode Accelerometers

Small, relatively light weight general purpose accelerometers for vibration measurements in wide range of applications. Available in three measuring ranges 25g, 50g and 100g, all range types are available in a ground isolated option. These accelerometers feature a rugged, hermetically sealed construction.

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



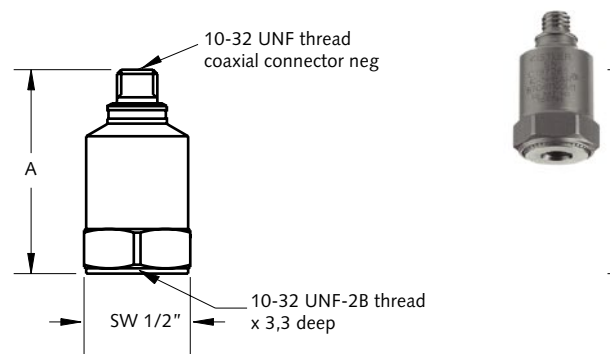
Dim	8702B...	8702B...M1
A	19,3	20,3

### Description

The 8702B... side connector and 8704B... top connector accelerometer series use a unique shear mode sensing element made of stable quartz crystals. The quartz sensing elements afford excellent long-term stability that ensure repeatable, accurate measurements for many years. Additionally the shear element design provides low transverse sensitivity along with an insensitivity to base strain and thermal transients.

All units are hermetically sealed and are constructed entirely of titanium or a combination of titanium and stainless steel. An internal circuit Piezotron® impedance converter provides a high signal level at low impedance output.

Models identified with an M1 are ground isolated versions. All units are hermetically sealed and are constructed entirely of titanium or a combination of titanium and stainless steel.



Dim	8704B...	8704B...M1
A	24,4	24,9

### Application

All types are designed for general purpose vibration measurement in a laboratory or industrial environment. They can be used for environmental testing (with or without temperature cycling), ESS, vehicle tests, automotive NVH testing, rotating machinery vibration analysis.

### Accessing TEDS Data

Accelerometers with a "T" suffix are variants of the standard version incorporating the "Smart Sensor" design. Viewing an accelerometer's data sheet requires an Interface/Coupler such as Kistler's Model 5000M07 PDA based or 5000M04 PC (serial port) based TEDS Editor software. The Interface provides negative current excitation (reverse polarity) altering the operating mode of the PiezoSmart® sensor allowing the program editor software to read or add information contained in the memory chip.

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**Technical Data**

Type	Unit	8702/04B25	8702/04B50	8702/04B100
Acceleration Range	g	±25	±50	±100
Acceleration Limit	gpk	±50	±100	±200
Transverse Acceleration Limit	gpk	±50	±100	±200
Threshold nom.	grms	0,002	0,004	0,006
Sensitivity (±5%)	mV/g	200	100	50
Resonant Frequency mounted, nom.	kHz	54	54	54
Frequency Response, ±5%	Hz	1 ... 8000	0,5 ... 10000	0,5 ... 10000
Amplitude Non-linearity	%FSO	±1	±1	±1
Time Constant nom.	sec	1	2	1,5
Transverse Sensitivity nom., (max. 3)	%	1,5	1,5	1,5
Long Term Stability	%	±1	±1	±1
Environmental:				
Base Strain Sensitivity @ 250µε	g/µε	0,01	0,01	0,01
Shock Limit (1ms pulse)	gpk	2000	2000	2000
Temperature Coefficient of Sensitivity	%/°C	-0,06	-0,06	-0,06
Temperature Range Operating	°C	-55 ... 100	-55 ... 100	-55 ... 100
Temperature Range Storage	°C	-70 ... 120	-70 ... 120	-70 ... 120
Output:				
Bias nom.	VDC	11	11	11
Impedance	Ω	<100	<100	<100
Voltage full scale	V	±5	±5	±5
Current	mA	2	2	2
Source:				
Voltage	VDC	20 ... 30	20 ... 30	20 ... 30
Constant Current	mA	4	4	4
Impedance min.	kΩ	100	100	100
Construction:				
Sensing Element	type	Quartz Shear	Quartz Shear	Quartz Shear
Housing/Base	material	Titanium	Titanium	Titanium
Sealing-housing/connector	type	Hermetic	Hermetic	Hermetic
Connector	type	10-32 UNF neg.	10-32 UNF neg.	10-32 UNF neg.
Weight	8702B... / 8704B...	grams	8,7 / 7,25	8,7 / 7,25
	8702B...M1 / 8704B...M1	grams	9,7 / 8	9,7 / 8
Mounting	type	10-32 UNF-2B thread	10-32 UNF-2B thread	10-32 UNF-2B thread
Mounting Torque	Nm	2	2	2

1 g = 9,80665 m/s<sup>2</sup>, 1 Inch = 25,4 mm, 1 gram = 0,03527 oz, 1 lbf-in = 0,1129 Nm

**Mounting**

A threaded 10-32 UNF stud provides positive attachment of the accelerometer to the test structure. Reliable and accurate measurements require that the mounting surface be clean and flat. The operating instruction manual for the 8702B... and 8704B... series accelerometers provides detailed information regarding mounting surface preparation.

**Accessories Included**

- 10-32 mounting stud **Type** 8402
- Mounting stud, 10-32 to M6; shipped only outside N. America **Type** 8411

**Optional Accessories**

- Mounting magnet **Type** 8452A
- Triaxial mounting cube **Type** 8502

**Ordering Key**

Measuring Range

±25g side connector	25
±50g side connector	50
±100g side connector	100

8702B

Variants

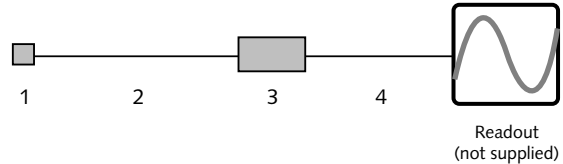
Ground isolated	M1
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TEDS Templates (standard, M1 only)

Standard	-
Default, IEEE 1451.4 V0.9 Template 0 (UTID 1)	T
IEEE 1451.4 V0.9 Template 24 (UTID 116225)	T01
LMS Template 117, Free format Point ID	T02
LMS Template 118, Automotive Format (Field 14 Geometry = 0)	T03
LMS Template 118, Aerospace Format (Field 14 Geometry =1)	T04
P1451.4 v1.0 template 25 - Transfer Function Disabled	T05
P1451.4 v1.0 template 25 - Transfer Function Enabled	T06

**Measuring Chain**

- |   |                                      |                |
|---|--------------------------------------|----------------|
| 1 | Low Impedance Sensor                 | <b>Type</b> 87 |
| 2 | Sensor cable, 10-32 pos. to BNC pos. | 1761B...       |
| 3 | Power Supply/Signal Conditioner      | 51...          |
| 4 | Outout cable, BNC pos. to BNC pos.   | 1511           |



**Ordering Key**

Measuring Range

±25g top connector	25
±50g top connector	50
±100g top connector	100

8704B

Variants

Ground isolated	M1
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TEDS Templates (standard, M1 only)

Standard	-
Default, IEEE 1451.4 V0.9 Template 0 (UTID 1)	T
IEEE 1451.4 V0.9 Template 24 (UTID 116225)	T01
LMS Template 117, Free format Point ID	T02
LMS Template 118, Automotive Format (Field 14 Geometry = 0)	T03
LMS Template 118, Aerospace Format (Field 14 Geometry =1)	T04
P1451.4 v1.0 template 25 - Transfer Function Disabled	T05
P1451.4 v1.0 template 25 - Transfer Function Enabled	T06

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