

Type 8704B25M10 ... 8704B100M10

## 8704B...M10 PiezoSMART™ ACCELEROMETER

The 8704B...M10 accelerometer can operate both as a standard low impedance, voltage mode sensor with a conventional analog output signal or in a digital "PiezoSMART Sensor Mode" capable of providing pertinent information stored with in its memory module. Since the design of the accelerometer conforms to a universal standard (IEEE 1451.4), any commercially manufactured TEDS Signal Conditioner, along with a host computer, will address and retrieve the stored information.

The PiezoSmart 8704 is ideally suited for multi-channel industrial vibration monitoring, where the performance of a laboratory type sensor coupled with the convenience of having sensor identification and specification readily available becomes an important test benefit. Kistler's field proven K-SHEAR design ensures extremely low sensitivity to thermal transients, base strain and transverse acceleration. Quartz sensing elements afford the ultimate in long-term stability for years of repeatable and accurate measurements.

Continued

- Low impedance, voltage mode
- Incorporates "TEDS" smart sensor technology
- Ultra-low base strain
- Low thermal transient response
- Lightweight, hermetically sealed titanium case
- Conforming to CE



Technical Data	Units	8704B25M10	8704B50M10	8704B100M10
Acceleration Range	<i>g</i>	±25	±50	±100
Acceleration Limit	<i>g</i> <sub>pk</sub>	±50	±100	±200
Transverse Acceleration Limit	<i>g</i> <sub>pk</sub>	±50	±100	±200
Threshold nom.	<i>g</i> <sub>rms</sub>	0.003	0.006	0.01
Sensitivity (±5%)	mV/ <i>g</i>	200	100	50
Resonant Frequency mounted, nom.	kHz	54	54	54
x Frequency Response ± 5%	Hz	10 ... 7000	3 ... 7000	0.6 ... 9000
± 10%	Hz	3 ... 10 000	1 ... 10 000	0.4 ... 10 000
x Amplitude Non-linearity	%	±1	±1	±1
Time Constant nom.	s	0.5	1.0	1.5
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> <sub>pk</sub>		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.	kΩ		100	

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

Technical Data	Units	8704B...M10
<b>Construction</b>		
<b>Sensing Element</b>	type	quartz/shear
<b>Housing/Base</b>	material	titanium
<b>Sealing - housing/connector</b>	type	hermetic
<b>Connector</b>	type	10-32 neg.
<b>Weight</b>	g	7.5
<b>Mounting Torque</b>	lbf-in (Nm)	18 (2)

A low impedance, voltage output is provided by the embedded Kistler Piezotron® electronic impedance converter. This output allows for the use of inexpensive coaxial cable, while providing high noise immunity and insensitivity to cable motion. The low impedance output is also desirable for operation in a humid environment. The 8704M10 accelerometer series feature a light weight titanium case, hermetically sealed to withstand varied environmental conditions.

**TEDS Data Editing**

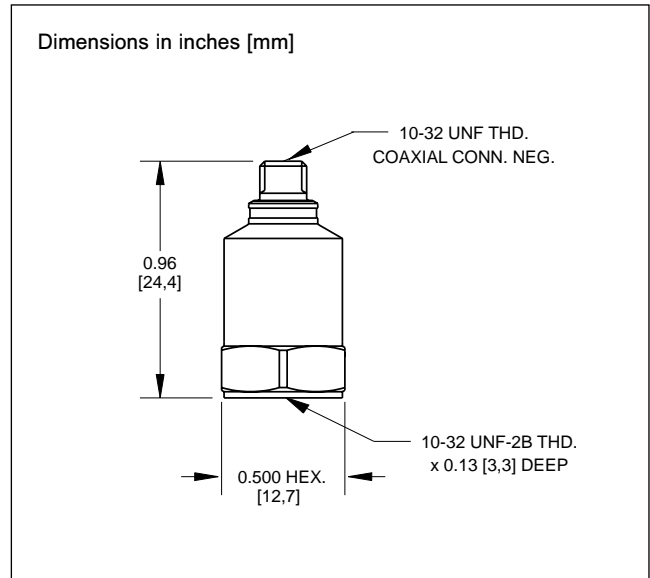
A 5142 smart sensor coupler/programming tool provides for convenient entry of the data fields that are defined during sensor installation or test preparation. A complete system requires a indows-based PC software, to provide appropriate TEDS editing capability. This portable coupler is used to prepare the sensor for information handling by large TEDS capable analysis systems.

**Applications**

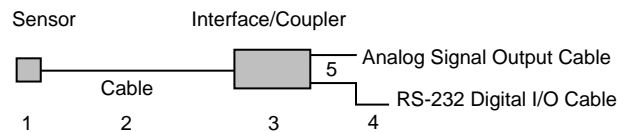
The 8704B...M10 series is ideal for testing applications where a rugged accelerometer with a wide frequency range is required. The sensor's sturdy construction and excellent temperature characteristics, makes it is well suited for many precision automotive, ESS and industrial applications.

**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 - 8704B...M10 PiezoSMART accelerometer, specify range
  - 2 - 1761B... Sensor cable, 10-32 pos. to BNC pos., specify length in meters
  - 3 - 5142 PiezoSMART, IEEE 1451.4 interface/coupler
  - 4 - 1500A20 cable RS-232, DB-9 male to DB-9 male, 6ft (1.8m)
  - 5 - 1511... output cable, BNC pos. to BNC pos., specify length in meters.
- 2860xxxx software, TEDS Programmer Editor

**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

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