

Type 8710A50M1, 8710A50M5, 8710A50M8

8710A CONTINUOUS DUTY K-SHEAR® ACCELEROMETERS

The 8710A50 family of low impedance, voltage mode accelerometers are designed for continuous operation in a wide variation of temperature environments. The standard M1 version spans an operating temperature range of -54 to 120°C while the M5 high temperature version and the M8 low temperature version operate

over a range of -54 to 165 °C and -195 to 120 °C respectively. Both the 8710A50M5 and 8710M50M8 are light weight titanium units compared to the standard stainless steel 8710A50M1; one third less weight. The rugged design of these units make them ideally suited for many industrial applications where the precision of a

Continued

- Low impedance voltage mode
- High temperature (165°C) low temperature (-195°C) versions
- Ultra-low thermal transient response
- Hermetically sealed
- Ground isolated
- Conforming to CE



Technical Data	Units	8710A50M1	8710A50M5	8710A50M8
Acceleration Range	<i>g</i>	± 50	± 50	± 50
Acceleration Limit	<i>g</i> _{pk}	± 300	± 300	± 300
Transverse Acceleration Limit	<i>g</i>	± 300	± 300	± 300
Threshold nom.	<i>g</i> _{rms}	0.002	0.002	0.002
Sensitivity ±10%	mV/ <i>g</i>	100	100	100
Resonant Frequency mounted nom.	kHz	28	24	24
Frequency Response ±5%	Hz	0.3 ... 7000	1 ... 7000	1 ... 7000
±10%	Hz	0.1 ... 10000	0.5 ... 10000	0.5 ... 10000
Amplitude Non-linearity	%	± 1	± 1	± 1
Time Constant nom.	s	1.5	1	1
Transverse Sensitivity typ. (max.)	%	1.5 (3)	1.5 (3)	1.5 (3)
Base Strain Sensitivity @ 250 µε	g/µε	<0.004	<0.004	<0.004
Shock Limit 1ms pulse max.	<i>g</i> _{pk}	2000	2000	2000
Long Term Stability	%	±1	±1	±1
Temperature Coefficient of Sensitivity	%/°F	-0.016	-0.016	-0.016
	%/°C	-0.03	-0.03	-0.03
Temperature Range Operating (4 mA supply current)	°F	-65 ... 250	-65 ... 330	-320 ... 250
	°C	-54 ... 120	-54 ... 165	-195 ... 120
Storage	°F	-100 ... 300	-100 ... 330	-320 ... 300
	°C	-74 ... 150	-74 ... 165	-195 ... 150
Output				
Bias nom.	VDC		11	
Impedance	Ω		≤100	
Voltage F.S.	V		±5	
Current	mA		2	
Source				
Voltage	VDC		20 ... 30	
Constant Current	mA		2 ... 20	
Impedance min.	kΩ		100	

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

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Kistler Instrument Corporation, 75 John Glenn Drive, Amherst NY 14228
Phone 716-691-5100, Fax 716-691-5226, e-mail: kicsales@kistler.com, www.kistler.com

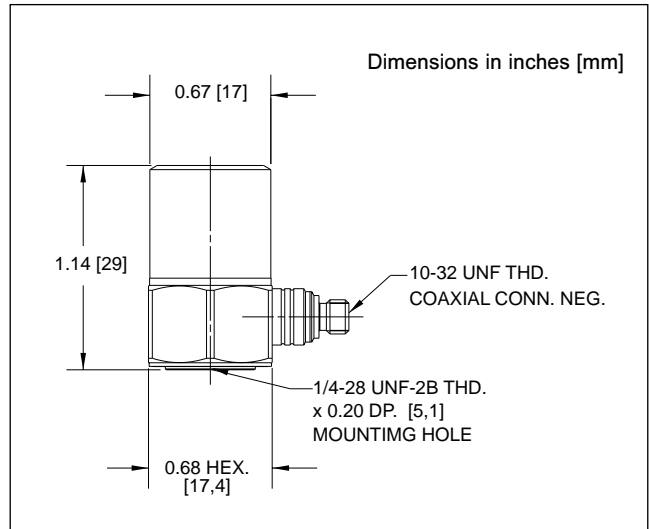
Technical Data	Units	8710A50M1	8710A50M5	8710A50M8
Construction				
Sensing Element	type	quartz/shear	quartz/shear	quartz/shear
Housing/Base	material	St. Stl	titanium	titanium
Sealing	welded	hermetic	hermetic	hermetic
Connector	type	10-32 neg	10-32 neg	10-32 neg
Ground Isolation min.	MΩ	10	10	10
Weight	g	43	29	29
Mounting Torque	lbf-in (Nm)	18 (2)	18 (2)	18 (2)

laboratory sensor is required. 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. 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. Constructed in a heavy duty, hermetically sealed case, these sensors can withstand a multitude of environmental conditions. A ground isolated base eliminates ground loops between the sensor and coupler.

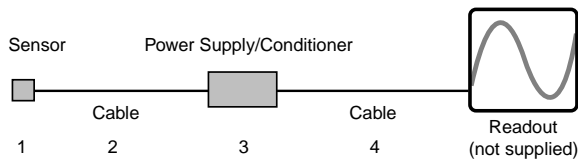
Applications

These sensors are ideal for testing applications where a rugged accelerometer with a wide frequency range is required. Due to the sturdy construction and high temperature characteristics of the 8710A50M5, it is well suited for many precision automotive, ESS and industrial applications. The high frequency response makes this sensor ideal for monitoring and analyzing gears and other high frequency producing machinery.

Kistler's premium cables feature stainless steel connectors, a double O-ring seal and built-in strain relief. Request data bulletin KI 15.300 for more detailed cable information.



Ordering Information



Specify:

- 1 - 8710A50M1 mid temperature range accelerometer or
- 8710A50M5 high temperature accelerometer
- 8710A50M8 low temperature accelerometer
- 2 - 1631C... premium cable, 10-32 pos. to BNC pos., recommended for use with 8710A50M8 in low temperature applications, specify length in meters
- 1761B... non low noise sensor 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

- 8410 mounting stud 1/4-28 to 10-32
- 8412 mounting stud 1/4-28
- 8421 mounting stud 1/4-28 to M8; supplied only outside N. A.

Optional Accessories

- 8506 triaxial mounting cube
- 8456 mounting magnet

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