

**Model: 3991A1020KG**

High Amplitude MEMS Shock Accelerometer

MEMS Shock Accelerometer, 20 Kg, thru hole mount, 094 integral Aramid cable (ITAR Controlled)

	ENGLISH	SI	
<b>Performance</b>			
Sensitivity ( $\pm 50\%$ ) (at 10 VDC excitation)	0.010 mV/g	0.001 mV/(m/s <sup>2</sup> )	[1]
Sensitivity	0.001 mV/V/g	0.0001 mV/V/(m/s <sup>2</sup> )	[3]
Measurement Range	$\pm 0$ to 20000 g	$\pm 0$ to 196100 m/s <sup>2</sup> pk	
Frequency Range (1 dB)	0 to 10000 Hz	0 to 10000 Hz	
Resonant Frequency	>60 kHz	>60 kHz	
Damping Ratio	5 % Critical	5 % Critical	[2]
Non-Linearity	$\pm 1\%$	$\pm 1\%$	
Transverse Sensitivity	$\leq 3\%$	$\leq 3\%$	
<b>Environmental</b>			
Overload Limit (Shock)	$\pm 60000$ g pk	$\pm 588400$ m/s <sup>2</sup> pk	[4][5]
Overload Limit (Mechanical Stops)	$\geq 30000$ g	$\geq 294200$ m/s <sup>2</sup> pk	
Temperature Range (Operating)	-65 to 250 °F	-54 to 121 °C	
Temperature Coefficient of Sensitivity	-0.11 %/°F	-0.20 %/°C	[2]
Zero g Offset Temperature Shift	$\pm 10$ mV	$\pm 10$ mV	[6]
Base Strain Sensitivity	0.10 g/ $\mu\epsilon$	0.98 (m/s <sup>2</sup> )/ $\mu\epsilon$	[2]
<b>Electrical</b>			
Excitation Voltage (Maximum)	15.0 VDC	15.0 VDC	
Current Consumption	<3 mA	<3 mA	
Input Resistance ( $\pm 2000$ Ohm)	6000 Ohm	6000 Ohm	[2][1]
Output Resistance ( $\pm 2000$ Ohm)	6000 Ohm	6000 Ohm	[2][1]
Offset Voltage	$\pm 40$ mVDC	$\pm 40$ mVDC	[1]
Settling Time	0.01 sec	0.01 sec	[7]
Electrical Isolation (Base)	$\geq 100000000$ Ohm	$\geq 100000000$ Ohm	[5]
<b>Physical</b>			
Sensing Element	Piezoresistive MEMS	Piezoresistive MEMS	
Sensing Geometry	Full Active	Full Active	
Housing Material	Titanium	Titanium	
Sealing	Epoxy	Epoxy	
Size - Height	0.12 in	3.05 mm	
Size - Length	0.56 in	14.22 mm	
Size - Width	0.28 in	7.11 mm	
Weight (without cable)	0.045 oz	1.28 gm	[2]
Electrical Connector	Integral Cable	Integral Cable	
Electrical Connection Position	Side	Side	
Cable Type	094 4-cond, Aramid reinforced, PFA jacket	094 4-cond, Aramid reinforced, PFA jacket	
Cable Termination	Pigtail Ends	Pigtail Ends	
Cable Length	3 ft	0.91 m	
Mounting	Through Holes (2)	Through Holes (2)	

All specifications are at room temperature unless otherwise specified.

**Product Notes**

[1] Verified with test data provided on supplied calibration certificate.

[2] Typical.

[3] Sensitivity is proportional to excitation voltage, and at other excitation values, sensitivity can be predicted from the 10VDC calibrated value with a small (&lt;~.5%) increase in uncertainty.

[4] Half-sine pulse duration,  $\geq 20$   $\mu$ sec.

[5] Individually tested to ensure compliance with specified value.

[6] -65 to +250 °F, ref. 75 °F (-54 to +121 °C, ref. 24 °C)

[7] Settling Time is the maximum time after power-up for the Offset Voltage to be within +/-2% of Measurement Range output of the final offset value. Mounting surface must be at thermal equilibrium.

**Accessories:****Supplied**

081A110 Mounting Screw (4-40 x 1/4" SHCS) (2)

ACS-62 Shock Calibration of Piezoresistive High Amplitude Accelerometers (1)