13207A/23207A Accelerometer

measurement
S P E C I A L T I E S™

±10 g to ±70 g
Accelerometers with
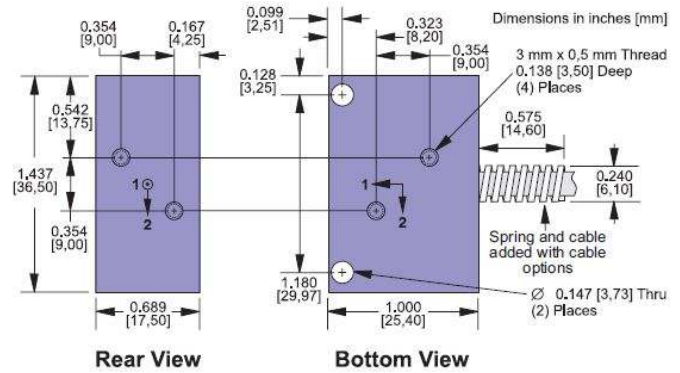## Wide Bandwidth to 10 kHz

Analog Accelerometer

The Measurement Specialties 13207A (uniaxial) and 23207A (biaxial) analog accelerometers offer a frequency response from 0 to 10 kHz while accurately measuring ±10 g, ±20 g, ±30 g, ±40 g, ±50 g, ±60 g or ±70 g accelerations on one or two axes. Their tough, compact housing holds potted electronics and their small size and built-in power regulation allow installation where other accelerometers can't. Choose the bandwidth and range options best suited for your application.

The voltage output of the 13207A and 23207A is directly proportional to the acceleration along the axis. Each DC-coupled output is fully scaled, referenced, and temperature compensated. Users are supplied with a calibration certificate listing sensitivity and offset for each sensor, as well as the on-axis and transverse alignment parameters needed to ensure rapid and efficient system implementation. Increased offset compensation can be obtained with Option C002.

The accelerometers have a nominal full scale output swing of ±2 Volts. The zero g output level is nominally +2.5 Volts. Custom versions can be provided.
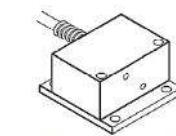
FEATURES

- Wide Bandwidth to 10 kHz
- High Accuracy and Linearity over Wide Temperature Range
- Rugged for Harsh Environments
- Small Size
- Built-in Power Supply Regulation
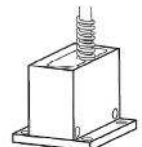- Easy Installation
- Three Year Warranty

APPLICATIONS

- Vehicle dynamics
- Construction Equipment
- Research & Development
- Test & Measurement
- Military/Aerospace

dimensions

Rear View **Bottom View**
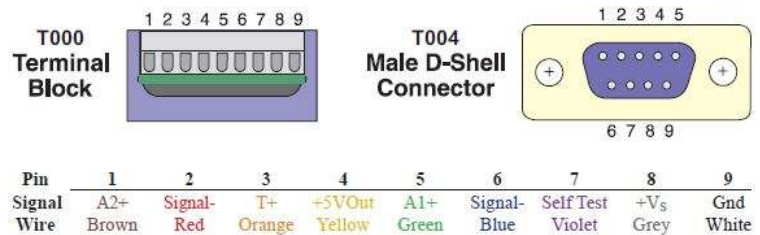
Two through holes and four 3 mm x 0.5 mm threaded holes are provided for mounting.

Mounting adapters (sold separately)

35173A Horizontal   35172A Vertical

connections

T000 Terminal Block   1 2 3 4 5 6 7 8 9

T004 Male D-Shell Connector   1 2 3 4 5   6 7 8 9

Pin	1	2	3	4	5	6	7	8	9
Signal	A2+	Signal-	T+	+5VOut	A1+	Signal-	Self Test	+Vs	Gnd
Wire	Brown	Red	Orange	Yellow	Green	Blue	Violet	Grey	White

performance specifications

$T_A = T_{min}$ to T_{max} ; $8.5 \le V_S \le 36$ V; Acceleration = 0 g unless otherwise noted; within one year of calibration. Improved specifications available upon request.

PARAMETERS	Min	Typical	Max	Units	Conditions/Notes
Range: Measurement Full Scale	±10		±70	g	On each axis. Must specify via Option Rnnn
Sensitivity					
At 25ºC, Option R070		±29*		mV/g	Precise values on cal certificate
Drift Tmin to Tmax		±0.5		%	Percent of sensitivity at 25ºC
Zero g Bias Level					
At 25 ºC		2.500		V	Precise values on cal certificate
Drift to Tmin or Tmax, Option C001		±1.5		g	At <1.25ºC/min. temperature rate of change
Drift to Tmin or Tmax, Option C002		±250		mg	At <1.25ºC/min. temperature rate of change
Alignment					
Deviation from Ideal Axes		±1.0	±3.0	degrees	Precise values on cal certificate. Can be compensated if required
Transverse Sensitivity		±0.25		%	Inherent sensor error, excluding misalignment
Nonlinearity		±0.25		% FSR	Best fit straight line
Frequency Response	0		10	kHz	Upper cutoff per option Bnnn, -3 dB pt ±10%
Noise Density		4		mg/√Hz	
Self-Test Input Impedance	10			kΩ	Pullup. Logic "1"≥3.5 V, Logic "0"≤1.5 V; "0" causes self-test
Temperature Sensor					Accuracy ±1 ºC over temperature
Sensitivity		6.45		mV/ºC	
0ºC Bias Level		509		mV	
Outputs					
Output Voltage Swing	0.25		4.75	V	I_{out} = ±0.5 mA
Capacitive Drive Capability	1000			pF	
Power Supply (V$_S$)					
Input Voltage Limits	-80		+80	V	-80 V continuous, >38 V if ≤550 ms, duty <1%
Input Voltage - Operating	+8.5		+36	V	Continuous
Input Current		15		mA	No load, quiescent
Rejection Ratio		>120		dB	DC
Temperature Range (T$_A$)	-40		+85	ºC	
Mass		35		grams	Excludes cable; T000 values on cal certificate
Shock Survival	-4000		+4000	g	Any axis for 0.5 ms, powered or unpowered

*Scale linearly with range option Rnnn; see Ordering Information

ordering info

23207A - **R070** - **B1k0** - **T004** - **C002**

Instrument
23207A
13207A

Range
R070 : ±70 g
R060 : ±60 g
R050 : ±50 g
R040 : ±40 g
R030 : ±30 g
R020 : ±20 g
R010 : ±10 g

Bandwidth
B10k : 0 to 10 kHz
B5k0 : 0 to 5 kHz
B1k0 : 0 to 1 kHz

Termination
T004 : 4 ft. cable with DB9M
T000 : Terminal block
Tnnn : Custom length, nnn ft. (call SI)

Calibration
C001 : Std room temp calibration only
C002 : C001 cal plus -40 to +85°C offset compensation