13207A/23207A Accelerometer



± 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

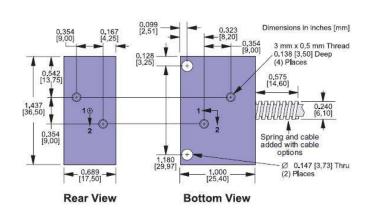
- Wide Bandwidth to 10 kHz
- High Accuracy and Linearity over Wide Temperature Range
- Rugged for Harsh Environments
- Small Size
- **Built-in Power Supply Regulation**
- Easy Installation
- Three Year Warranty

APPLICATIONS

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



dimensions



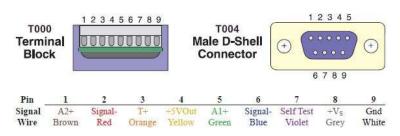
Two through holes and four 3 mm x 0.5 mm threaded holes are provided for mounting.

Mounting adapters (sold separately)





connections



The information in this sheet has been carefully reviewed and is believed to be accurate; however, no responsibility is assumed for inaccuracies. Furthermore, this information does not convey to the purchaser of such devices any license under the patent rights to the manufacturer. Measurement Specialties, Inc. reserves the right to make changes without further notice t any product herein. Measurement Specialties, Inc. makes no warranty, representation or quarantee regarding the suitability of its product for any particular purpose, nor does Measuremen Specialties, Inc. assume any liability arising out of the application or use of any product or circuit and specifically disclaims any and all liability, including without limitation consequential or incidental damages. Typical parameters can and do vary in different applications. All operating parameters must be validated for each customer application by customer's technical expert Measurement Specialties, Inc. does not convey any license under its patent rights nor the rights of others.



performance specifications

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

Sensitivity At 25°C, Option R070 ± 29° mV/g Precise values on cal certificate Drift Tmin to Tmax ± 0.5 % Percent of sensitivity at 25°C Zero g Bias Level 2.500 V Precise values on cal certificate Drift to Tmin or Tmax, Option C001 ± 1.5 g At <1.25°C/min. temperature rate of change Drift to Tmin or Tmax, Option C002 ± 250 mg At <1.25°C/min. temperature rate of change Drift to Tmin or Tmax, Option C002 ± 250 mg At <1.25°C/min. temperature rate of change Drift to Tmin or Tmax, Option C002 ± 250 mg At <1.25°C/min. temperature rate of change Drift to Tmin or Tmax, Option C002 ± 250 mg At <1.25°C/min. temperature rate of change Drift to Tmin or Tmax, Option C002 ± 250 degrees Precise values on cal certificate. Can be compensated if required Transverse Sensitivity ± 0.25 % Best fit straight line Transverse Sensitivity ± 0.25 % FSR Best fit straight line Frequency Response 0 10 kHz Upper cutoff per option Bnnn, -3 dB pt ±10% Noise Densit						
Sensitivity At 25°C, Option R070 ±29° mV/g Precise values on cal certificate Drift Tmin to Tmax ±0.5 % Percent of sensitivity at 25°C Zero g Bias Level Secondary W Precise values on cal certificate At 25°C 2.500 V Precise values on cal certificate Drift to Tmin or Tmax, Option C001 ±1.5 g At <1.25°C/min. temperature rate of change	PARAMETERS	Min	Typical	Max	Units	Conditions/Notes
At 25°C, Option R070	Range: Measurement Full Scale	±10		±70	g	On each axis. Must specify via Option Rnnn
Drift Tmin to Tmax ±0.5 % Percent of sensitivity at 25°C Zero g Bias Level X Percent of sensitivity at 25°C At 25°C 2.500 V Precise values on cal certificate Drift to Tmin or Tmax, Option C001 ±1.5 g At <1.25°C/min. temperature rate of change Drift to Tmin or Tmax, Option C002 ±250 mg At <1.25°C/min. temperature rate of change Alignment Best first of the precise values on cal certificate. Can be compensated if required Can be compensated if required Transverse Sensitivity ±0.25 % Inherent sensor error, excluding misalignmen Nolinearity ±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/NHz MR Pullup. Logic *1*23.5 V, Logic *0*≤1.5 V; *0* Self-Test Input Impedance 10 kΩ Pullup. Logic *1*23.5 V, Logic *0*≤1.5 V; *0* Pullup. Logic *1*23.5 V, Logic *0*≤1.5 V; *0* 3censitivity 6.45 mV/°C Pullup. Logic *1*23.5 V, Logic *0*≤1.5 V; *0* Pullup. Logic *1*25.5 V, Logic *0*≤1.5 V; *0* Pullup. Logic *1*2	Sensitivity					
Zero g Bias Level At 25 °C 2.500 V Precise values on cal certificate Drift to Tmin or Tmax, Option C001 ±1.5 g At <1.25°C/min. temperature rate of change	At 25°C, Option R070		±29*		mV/g	Precise values on cal certificate
At 25 °C	Drift Tmin to Tmax		±0.5		%	Percent of sensitivity at 25°C
Drift to Tmin or Tmax, Option C001 ±1.5 g At <1.25°C/min. temperature rate of change Drift to Tmin or Tmax, Option C002 ±250 mg At <1.25°C/min. temperature rate of change Alignment Beside of the processor of the pro	Zero g Bias Level					
Drift to Tmin or Tmax, Option C002 ±250 mg At <1.25°C/min. temperature rate of change Alignment ±1.0 ±3.0 degrees Precise values on cal certificate. Can be compensated if required Transverse Sensitivity ±0.25 % Inherent sensor error, excluding misalignment of compensated if required 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/NHz 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 °C over temperature Sensitivity 6.45 mV/°C 0°C Bias Level 509 mV Output Voltage Swing 0.25 4.75 V I _{out} = ±0.5 mA Capacitive Drive Capability 1000 pF Power Supply (Vs) Input Voltage Limits -80 +80 V -80 V continuous, >38 V if ≤550 ms, duty <1 Input Voltage - Operating +8.5 +80 V	At 25 °C		2.500		V	Precise values on cal certificate
Alignment ±1.0 ±3.0 degrees compensated if required compensated if required Precise values on cal certificate. Can be compensated if required Transverse Sensitivity ±0.25 % Inherent sensor error, excluding misalignme Nonlinearity ±0.25 % FSR Best fit straight line Frequency Response 0 10 kHz Upper cutoff per option Bnnn, -3 dB pt ±10% mg/Hz Noise Density 4 mg/Hz Upper cutoff per option Bnnn, -3 dB pt ±10% 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 °C over temperature Accuracy ±1 °C over temperature Sensitivity 6.45 mV/°C 0°C Bias Level 509 mV Ovtput Sensitivity 1000 pF Output Voltage Swing 0.25 4.75 V I _{out} = ±0.5 mA Capacitive Drive Capability 1000 pF Power Supply (Vs) 1000 pF Input Voltage Limits -80 +80 V -80 V continuous, >38 V if ≤550 ms, duty <1	Drift to Tmin or Tmax, Option C001		±1.5		g	At <1.25°C/min. temperature rate of change
Deviation from Ideal Axes ±1.0 ±3.0 degrees compensated if required Precise values on cal certificate. Can be compensated if required Transverse Sensitivity ±0.25 % Inherent sensor error, excluding misalignme Nonlinearity ±0.25 % FSR Best fit straight line Frequency Response 0 10 kHz Upper cutoff per option Bnnn, -3 dB pt ±10% mg/Hz Self-Test Input Impedance 10 kΩ Pullup. Logic "1"≥3.5 V, Logic "0"≤1.5 V; "0" causes self-test Femperature Sensor Accuracy ±1 °C over temperature Sensitivity 6.45 mV/°C 0°C Bias Level 509 mV Output Selvel 509 mV Output Voltage Swing 0.25 4.75 V I _{out} = ±0.5 mA Capacitive Drive Capability 1000 pF P Power Supply (V _S) 1 +80 V -80 V continuous, >38 V if ≤550 ms, duty <1	Drift to Tmin or Tmax, Option C002		±250		mg	At <1.25°C/min. temperature rate of change
Transverse Sensitivity ±0.25 % Inherent sensor error, excluding misalignment sensor sensor % FSR Best fit straight line Frequency Response 0 10 kHz Upper cutoff per option Bnnn, -3 dB pt ±10% 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 °C over temperature Sensitivity 6.45 mV/°C 0°C Bias Level 509 mV Over Bias Level 509 mV Outputs V Input Voltage Swing 0.25 4.75 V Input = ±0.5 mA Capacitive Drive Capability 1000 pF P Power Supply (V _S) PF P Input Voltage Limits -80 +80 V -80 V continuous, >38 V if ≤550 ms, duty <1	Alignment					
Nonlinearity ±0.25 % FSR Best fit straight line Frequency Response 0 10 kHz Upper cutoff per option Bnnn, -3 dB pt ±10% proprion Bnnn, -3 dB pt ±10% propri	Deviation from Ideal Axes		±1.0	±3.0	degrees	
Frequency Response 0 10 kHz Upper cutoff per option Bnnn, -3 dB pt ±10% Moise 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 °C over temperature Sensitivity 6.45 mV/°C 0°C Bias Level 509 mV Outputs 0.25 4.75 V Iout = ±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	Transverse Sensitivity		±0.25		%	Inherent sensor error, excluding misalignment
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 °C over temperature Sensitivity 6.45 mV/°C 0°C Bias Level 509 mV Outputs V Iout = ±0.5 mA Capacitive Drive Capability 1000 pF Power Supply (Vs) Input Voltage Limits -80 +80 V -80 V continuous, >38 V if ≤550 ms, duty <1 limits -80 V continuous No load, quiescent Input Current 15 mA No load, quiescent Rejection Ratio >120 dB DC Temperature Range (T _A) -40 +85 °C Mass 35 grams Excludes cable; T000 values on cal certifica	Nonlinearity		±0.25		% FSR	Best fit straight line
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 °C over temperature Sensitivity 6.45 mV/°C 0°C Bias Level 509 mV Output Voltage Swing 0.25 4.75 V I _{out} = ±0.5 mA Capacitive Drive Capability 1000 pF Power Supply (Vs) 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 °C Mass 35 grams Excludes cable; T000 values on cal certifica	Frequency Response	0		10	kHz	Upper cutoff per option Bnnn, -3 dB pt ±10%
Temperature Sensor Sensitivity 6.45 $mV/^{\circ}C$ 0°C Bias Level 509 mV Outputs Output Voltage Swing 0.25 Capacitive Drive Capability 1000 Power Supply (V _s) Input Voltage Limits -80 +80 +80 V -80 V continuous, >38 V if ≤550 ms, duty <1 Input Voltage - Operating 15 mA No load, quiescent Rejection Ratio 70 Temperature Range (T _A) Ass 35 Grams Excludes cable; T000 values on cal certifica	Noise Density		4		mg/√Hz	
Sensitivity 6.45 mV/°C 0°C Bias Level 509 mV Outputs Output Voltage Swing 0.25 4.75 V Iout = ±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	Self-Test Input Impedance	10			kΩ	Pullup. Logic "1"≥3.5 V, Logic "0"≤1.5 V; "0" causes self-test
0°C 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 °C Mass 35 grams Excludes cable; T000 values on cal certifica	Temperature Sensor					Accuracy ±1 °C over temperature
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	Sensitivity		6.45		mV/°C	
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	0°C Bias Level		509		mV	
Capacitive Drive Capability 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 °C Mass 35 grams Excludes cable; T000 values on cal certifica	Outputs					
Power Supply (V _S) Input Voltage Limits -80 +80 V -80 V continuous, >38 V if ≤550 ms, duty <1	Output Voltage Swing	0.25		4.75	V	$I_{out} = \pm 0.5 \text{ mA}$
Input Voltage Limits -80 +80 V -80 V continuous, >38 V if ≤550 ms, duty <1	Capacitive Drive Capability	1000			pF	
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 °C Mass 35 grams Excludes cable; T000 values on cal certifica	Power Supply (V _S)					
Input Current 15 mA No load, quiescent Rejection Ratio >120 dB DC Temperature Range (T _A) -40 +85 °C Mass 35 grams Excludes cable; T000 values on cal certifica	Input Voltage Limits	-80		+80	V	-80 V continuous, >38 V if ≤550 ms, duty <1%
Rejection Ratio >120 dB DC Temperature Range (T _A) -40 +85 °C Mass 35 grams Excludes cable; T000 values on cal certifica	Input Voltage - Operating	+8.5		+36	V	Continuous
Temperature Range (T _A) -40 +85 °C Mass 35 grams Excludes cable; T000 values on cal certifica	Input Current		15		mA	No load, quiescent
Mass 35 grams Excludes cable; T000 values on cal certifica	Rejection Ratio		>120		dB	DC
	Temperature Range (T _A)	-40		+85	°C	
Shock Survival -4000 +4000 g Any axis for 0.5 ms, powered or unpowered	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 Calibration 北京赛斯维测控技术有限公司 C001: Std room temp 北京市朝阳区望京西路48号 calibration only 金隅国际C座1002 Instrument C002: C001 cal plus -40 to +85°C offset compensation 电话: +86 010 8477 5646 23207A **Termination** 13207A 传真: +86 010 5894 9029 Range T004 : 4 ft. cable with DB9M T000 : Terminal block 邮箱: sales@sensorway.cn R070: ±70 g R060: ±60 g Tnnn: Custom length, nnn ft. (call SI) http://www.sensorway.cn R050: ±50 g **Bandwidth** R040: ±40 g B10k: 0 to 10 kHz R030: ±30 g B5k0:0 to 5 kHz R020 : ±20 g R010 : ±10 g B1k0:0 to 1 kHz