

KA-3000 Accelerometer

Highest inertial navigation-grade performance

For the highest inertial navigation-grade performance available in today's market, Joint Sensor produces the KA3000. Built on the same production line as the industry-standard KA2000 Accelerometer, the KA3000 Accelerometer has the same inherent quality, reliability, and long-term performance characteristics of the KA2000 Accelerometer. Primary applications include spacecraft navigation and control systems.

As with the entire family of accelerometers, The KA3000 features a patented Q-Flex etched-quartz-flexure seismic system. An amorphous quartz proofmass structure provides excellent bias, scale factor, and axis alignment stability.

The integral electronics develops an acceleration-proportional output current providing both static and dynamic acceleration measurement. By use of a customer supplied output load resistor, appropriately scaled for the acceleration range of the application, the output current can be converted into a voltage.

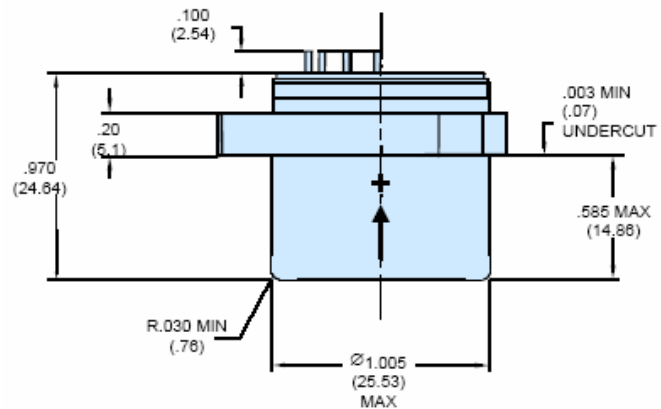
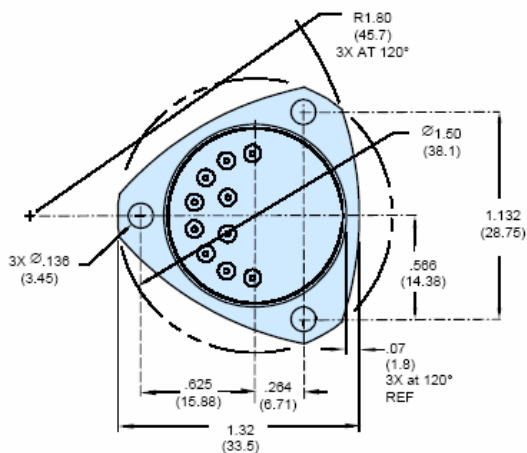


The KA3000 also includes a current -output, internal temperature sensor. By applying temperature-compensating algorithms, bias, scale factor, and axis misalignment performance are dramatically improved.

Features

- Highest performance accelerometer available
- Excellent turn-on repeatability and stability performance
- Environmentally rugged
- Analog output
- Field-adjustable range
- Three fastener precision mounting flange
- Internal temperature sensor for thermal compensation
- Dual built-in test

Configuration Drawings



Performance Characteristics

Additional product specifications, outline drawings and block diagrams, and test data are available on request.

Performance	KA3000-030	KA3000-020	KA3000-010
Input Range [g]	±60	±60	±60
Bias [mg]	<4	<4	<4
One-year Composite repeatability [µg]	<40	<80	<125
Temperature Sensitivity [µg/°C]	<15	<15	<25
Scale Factor [mA/g]	1.20 to 1.46	1.20 to 1.46	1.20 to 1.46
One-year Composite Repeatability [ppm]	<80	<160	<250
Temperature Sensitivity [ppm/°C]	<120	<120	<120
Axis Misalignment [µrad]	<1000	<1000	<1500
One-year Composite Repeatability [µrad]	<70	<80	<100
Vibration Rectification [µg/g ² rms]	<10 (50-500 Hz) <35 (500-2000 Hz)	<15 (50-500 Hz) <40 (500-2000 Hz)	<20 (50-500 Hz) <50 (500-2000 Hz)
Intrinsic Noise [µg-rms]	<7 (0-10 Hz) <70 (10-500 Hz) <1500 (500-10,000 Hz)	<7 (0-10 Hz) <70 (10-500 Hz) <1500 (500-10,000 Hz)	<7 (0-10 Hz) <70 (10-500 Hz) <1500 (500-10,000 Hz)
Environment	KA3000-030	KA3000-020	KA3000-010
Operating Temperature Range [°C]	-28 to +78	-55 to +95	-55 to +95
Shock [g]	100	150	150
Vibration Peak Sine [g]	15 @ 20-2000 Hz	15 @ 20-2000 Hz	15 @ 20-2000 Hz
Resolution/Threshold [µg]	<4	<4	<4
Bandwidth [Hz]	>300	>300	>300
Thermal Modeling	KA3000-030	KA3000-020	KA3000-010
	YES	YES	YES
Electrical	KA3000-030	KA3000-020	KA3000-010
Quiescent Current per Supply [mA]	<16	<16	<16
Quiescent Power [mW] @ ±15 VDC	<480	<480	<480
Electrical Interface	Temp Sensor	Temp Sensor	Temp Sensor
	Voltage Self Test	Voltage Self Test	Voltage Self Test
	Current Self Test	Current Self Test	Current Self Test
	Power / Signal Ground	Power / Signal Ground	Power / Signal Ground
	-10 VDC Output +10 VDC Output	-10 VDC Output +10 VDC Output	-10 VDC Output +10 VDC Output
Input Voltage [VDC]	±13 to ±28	±13 to ±28	±13 to ±28
Physical	KA3000-030	KA3000-020	KA3000-010
Weight [grams]	71± 4	71± 4	71± 4
Diameter below mounting surface [inches]	Ø1.005 Max	Ø1.005 Max	Ø1.005 Max
Height - bottom to mounting surface [inches]	.585 Max	.585 Max	.585 Max
Case Material	300 Series Stainless Steel	300 Series Stainless Steel	300 Series Stainless Steel