

Accelerometer KA-1400



Cost-effective inertial-grade sensor

For the most cost-effective inertial-navigation grade solution, Joint Sensor produces the KA1400 for a variety of industrial and laboratory applications.

It has an amorphous quartz proof-mass structure, which provides excellent bias, scale factor, and axis alignment stability.

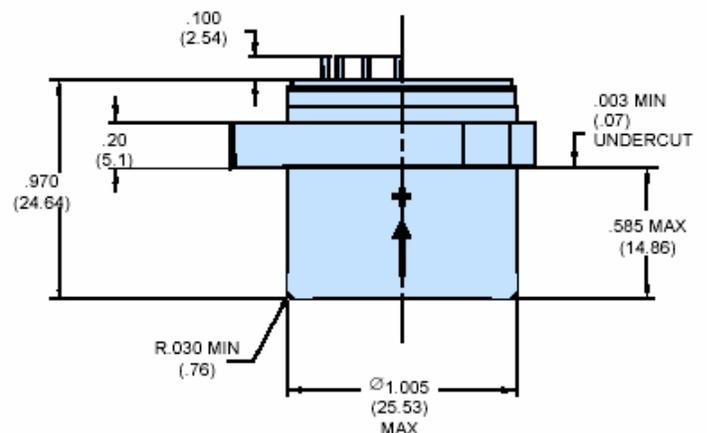
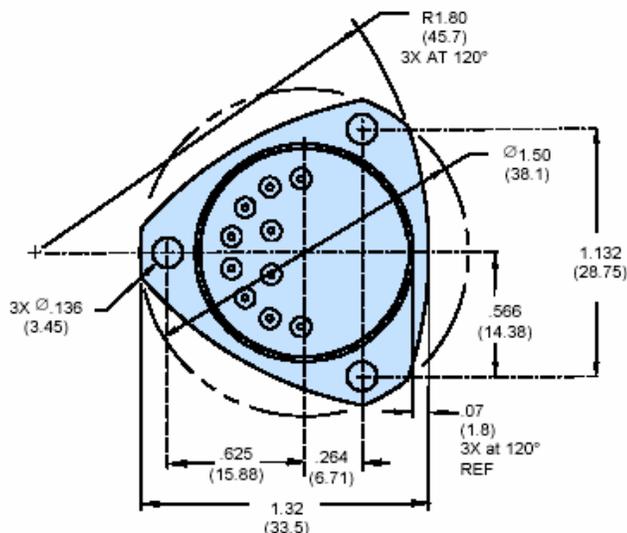
The integral electronics develops an acceleration-proportional output current providing both static and dynamic acceleration measurements. By use of a customer supplied output load resistor, appropriately scaled for the acceleration range of the application, the output current can be converted into a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

The KA1400 also includes a current-output, internal temperature sensor. By applying temperature-compensating algorithms, bias, scale factor, and axis misalignment performance are dramatically improved. Implementation of the thermal modeling results in bias residual errors as low as $\pm 200 \mu\text{g}$ and scale factor errors as low as $\pm 400 \text{ ppm}$.

Features

- Excellent turn-on composite 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
- Selectable bias temperature sensitivity

Configuration Drawings



Performance Characteristics

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

Performance	
Input Range [g]	±60
Bias [mg]	<5
One-year Composite Repeatability [µg]	<1000
Temperature Sensitivity [µg/°C]	<90
Scale Factor [mA/g]	1.20 to 1.46
One-year Composite Repeatability [ppm]	<1000
Temperature Sensitivity [ppm/°C]	<180
Axis Misalignment [µrad]	<7000
One-year Composite Repeatability [µrad]	<200
Vibration Rectification [µg/g ² rms]	<60 (50-500 Hz) <150 (500-2000 Hz)
Intrinsic Noise [µg-rms]	<7 (0-10 Hz) <70 (10-500 Hz) <1500 (500-10,000 Hz)
Environment	
Operating Temperature Range [°C]	-55 to +95
Shock [g]	250
Vibration Peak Sine [g]	20 @ 20-2000 Hz
Resolution/Threshold [µg]	<1
Bandwidth [Hz]	>300
Thermal Modeling	
	YES
Electrical	
Quiescent Current per Supply [mA]	<16
Quiescent Power [mW] @ ±15 VDC	<480
Electrical Interface	Temp Sensor Voltage Self Test Current Self Test Power / Signal Ground -10 VDC Output +10 VDC Output
Input Voltage	±13 to ±28
Physical	
Weight [grams]	71 ±4
Diameter below mounting surface [inches]	Ø1.005 Max
Height - bottom to mounting surface [inches]	.585 Max
Case Material	300 Series Stainless Steel