

# Q-FLEX QA-2000 ACCELEROMETER

## I The inertial navigation standard

Proven time and time again, the Honeywell QA-2000 is the ubiquitous inertial navigation standard by which others are measured. It is used in commercial and military aircraft strap-down inertial navigation systems and a whole host of other challenging applications where performance, size and ruggedness are paramount. The long-term repeatability and superior reliability characteristics of the QA-2000 make it the best value inertial-grade accelerometer available on the market today.

As with the entire Q-Flex family of accelerometers, the QA-2000 features a patented etched quartz flexure. An amorphous quartz proof-mass structure provides excellent bias, scale factor and axis alignment repeatability.

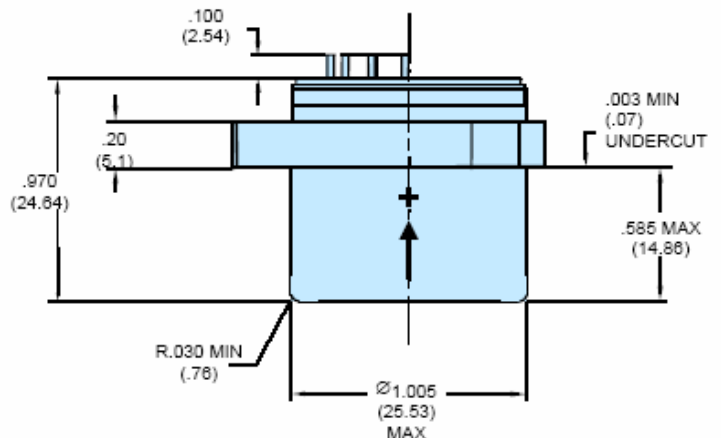
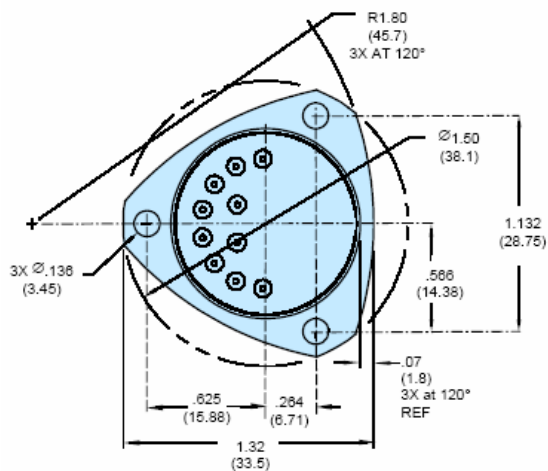
The integral electronics develops an acceleration-proportional output current providing both static and dynamic acceleration measurement. By use of customer supplied output load resistor, appropriately scaled for the acceleration range of the application, the output current can be converted into a voltage.

The QA-2000 also includes a current-output, internal temperature sensor. By applying temperature-compensating algorithms, bias, scale factor and axis misalignment performance are dramatically improved. The QA-2000 has three performance grades to best meet customers' performance requirements.

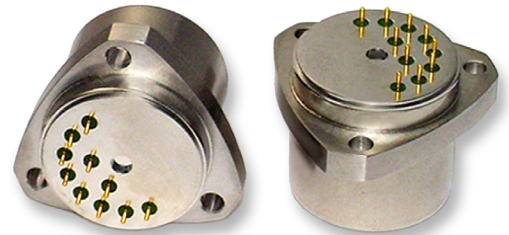
### FEATURES

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

### CONFIGURATION DRAWINGS



Q-Flex QA-2000



PERFORMANCE CHARACTERISTICS			
Performance	QA2000-030	QA2000-020	QA2000-010
Input Range	±60 g	±60 g	±60 g
Bias	<4 mg	<4 mg	<4 mg
One-year Composite Repeatability	<160 µg	<220µg	<550 µg
Temperature Sensitivity	<30 µg/°C	<30 µg/°C	<30 µg/°C
Scale Factor	1.20 to 1.46 mA/g	1.20 to 1.46 mA/g	1.20 to 1.46 mA/g
One-year Composite Repeatability	<310 ppm	<500 ppm	<600 ppm
Temperature Sensitivity	<180 ppm/°C	<180 ppm/°C	<180 ppm/°C
Axis Misalignment	<2000 µrad	<2000 µrad	<2000 µrad
One-year Composite Repeatability	<100 µrad	<100 µrad	<100 µrad
Vibration Rectification	<20 µg/g <sup>2</sup> rms (50-500 Hz) <60 µg/g <sup>2</sup> rms (500-2000 Hz)	<40 µg/g <sup>2</sup> rms (50-500 Hz) <60 µg/g <sup>2</sup> rms (500-2000 Hz)	<40 µg/g <sup>2</sup> rms (50-500 Hz) <150 µg/g <sup>2</sup> rms (500-2000 Hz)
Intrinsic Noise	<7 µg-rms (0-10 Hz) <70 µg-rms (10-500 Hz) <1500 µg-rms (500-10,000 Hz)	<7 µg-rms (0-10 Hz) <70 µg-rms (10-500 Hz) <1500 µg-rms (500-10,000 Hz)	<7 µg-rms (0-10 Hz) <70 µg-rms (10-500 Hz) <1500 µg-rms (500-10,000 Hz)
Environment	QA2000-030	QA2000-020	QA2000-010
Operating Temperature Range	-55 to +95 °C	-55 to +95 °C	-55 to +95 °C
Shock	250 g	250 g	250 g
Vibration Peak Sine	15 g @ 20-2000 Hz	15 g @ 20-2000 Hz	15 g @ 20-2000 Hz
Resolution/Threshold	<1 µg	<1 µg	<1 µg
Bandwidth	>300 Hz	>300 Hz	>300 Hz
Thermal Modeling	QA2000-030	QA2000-020	QA2000-010
	Yes	Yes	Yes
Electrical	QA2000-030	QA2000-020	QA2000-010
Quiescent Current per Supply	<16 mA	<16 mA	<16 mA
Quiescent Power Electrical Interface	<480 mW @ ±15 VDC Temp Sensor Voltage Self Test Current Self Test Power / Signal Ground -10 VDC Output +10 VDC Output	<480 mW @ ±15 VDC Temp Sensor Voltage Self Test Current Self Test Power / Signal Ground -10 VDC Output +10 VDC Output	<480 mW @ ±15 VDC Temp Sensor Voltage Self Test Current Self Test Power / Signal Ground -10 VDC Output +10 VDC Output
Input Voltage	±13 to ±18 VDC	±13 to ±18 VDC	±13 to ±18 VDC
Physical	QA2000-030	QA2000-020	QA2000-010
Weight	71 ±4 grams	71 ±4 grams	71 ±4 grams
Diameter below mounting surface	Ø1.005 in. Max	Ø1.005 in. Max	Ø1.005 in. Max
Height bottom to mounting surface	.585 in. Max	.585 in. Max	.585 in. Max
Case Material	300 Series Stainless Steel	300 Series Stainless Steel	300 Series Stainless Steel

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

### ISO-9001 CERTIFICATION SINCE 1995

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### For More Information

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Accelerometers exported from the United States must be done in accordance with the Export Administration Regulations (EAR) and/or the International Traffic in Arms Regulations (ITAR) as applicable.

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FUTURE  
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