MaxGyro®
Angular Rate Sensor

Description:

Watson Industries has been designing and making solid-state gyros since 1980. We now provide a new series of rate gyros, the MaxGyro®. This breakthrough new gyro is built, using a monolithic three-dimensional tuning fork resonator, to be a VSG replacement and much more. Based on proven technology, this gyro is built with new features including built-in test.

The MaxGyro® has best-in-class performance for stability, acceleration insensitivity, low mounting sensitivity and excellent vibration rejection. This is achieved by having a much larger sensing element that is solidly mounted. The larger element allows better relative tolerances for tuning and better signal to noise performance. Solid mounting holds the gyro sensing element in a stable alignment. In contrast, all the competitive MEMS gyros use sensing elements that are supported by thin filaments as springs that are resonant at disturbingly low frequencies. These springs allow the sensing element to shift and resonate under shock and vibration, which affects their performance significantly.

MaxGyro® features:

- Accurate in severe environments
- Excellent performance (time, temperature, vibration)
- Rugged
- Wide bandwidth
- Low drift
- Low noise
- High reliability
- One-year warranty

Applications:

- Aircraft flight instrumentation and control
- Platform stabilization (antenna, camera, etc.)
- Robotics
- Short-term navigation
- Vehicle test instrumentation
- Train tilt controls

Watson Industries MaxGyro® Models*

Model	Range	Output	Zero Ref (0°/sec)	Scale Factor
MAX-122-1A	±50°/sec	±10 VDC	0.0 VDC	200mV/°/sec
MAX-132-1A	±100°/sec	±10 VDC	0.0 VDC	100mV/°/sec
MAX-142-1A	±200°/sec	±10 VDC	0.0 VDC	50mV/°/sec

*Custom ranges are available

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MaxGyro® Specifications

Angular Rate

Range:	±100°/sec (Typical)	See table above
Resolution:	0.006°/sec	
Analog Scale Factor:	100mV/°/sec (Typical)	See table above
Scale Factor Accuracy:	1%	Constant temperature
Scale Factor Temp Coefficient:	1%	Over temperature range
Bias: Room Temperature	±0.6°/sec	
Bias: Over Temp Range	±0.3°/sec	
Bias: Stability	< 20°/hr rms	Constant temp - 1hr
Warmup Drift:	±0.2°/sec	30 min
Non-Linearity:	< 0.03%	Full scale range
Bandwidth:	> 70 Hz	
Noise:	< 0.03°/sec rms	0.1 Hz to 100 Hz

Environmental

Temperature: Operating	-40°C to +85°C	
Temperature: Storage	-55°C to +85°C	
Noise Under Vibration: (0.1 to 100Hz)	< 0.1°/sec/g	12g rms (20 to 2KHz)
Vibration: Survival	12g rms	20 Hz to 2 KHz
Shock: Survival	300g (2mS ½ sine wave)	50g (11mS ½ sine wave)

Electrical

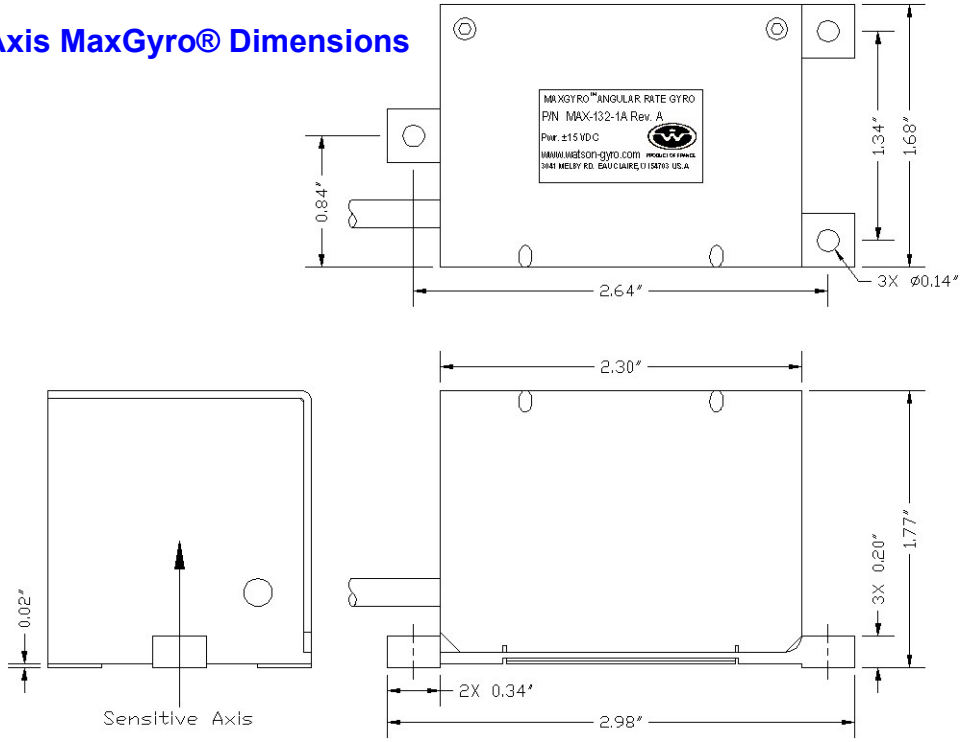
Startup Time:	< 1 sec	
Input Power: Positive	+15VDC ±5%	1.0 W
Input Power: Negative	-15 VDC ±5%	0.5 W
Analog Output:	±10VDC	

Physical

Size: Including Mounting Flanges	1.68"W x 2.98"L x 1.77"H	4.3 x 7.6 x 4.5 (cm)
Weight:	8.1 oz (0.5lb)	230 grams (0.2Kg)
Connection:	Wire Bundle	
Life:	> 40,000 Hrs MTBF	

- Specifications are subject to change without notice.
- This product may be subject to export restrictions. Export Classification ECCN 7A994.

Single Axis MaxGyro® Dimensions



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