



VIBRATING STRUCTURE GYROS

Description:

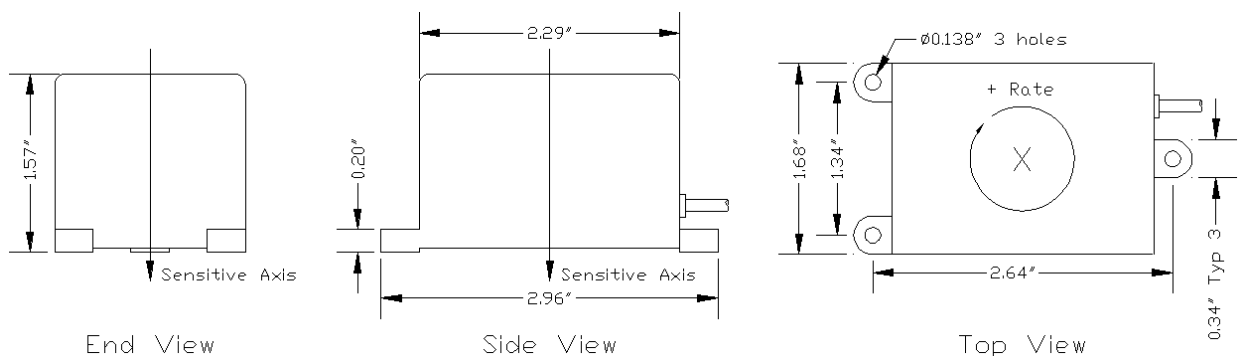
The Vibrating Structure Gyro is a solid state rate sensor that is designed around a piezoceramic cup that can measure coriolis forces. This allows the VSG to produce a highly accurate output that is proportional to the rate of turn. Electronics for filtering, control, drive and demodulation are all packaged along with a single axis sensing element inside a small package. Wide ranges of input rates (up to 3000° per second) are available. Unipolar or bipolar output voltage configurations are available for many input ranges.



The Watson VSG features:

- High Accuracy
- High Reliability
- Input Ranges up to 3000° per second
- Low Noise
- Low Power
- Small Size and Weight
- Low Cost
- Two Year Warranty
- Engineering Support

Single Axis Watson VSG



Watson Industries, Inc.

3041 Melby Road Eau Claire, Wisconsin 54703 U.S.A
Phone: +1 (715) 839-0628 Fax: +1 (715) 839-8248
e-mail: support@watson-gyro.com Website: www.watson-gyro.com

VSG-E Series Gyro Specifications

Angular Rate

| | | |
|--------------------------------|---------------------|----------------------------|
| Range: | ±100°/sec | Up to ±3000°/sec available |
| Resolution: | 0.025°/sec | |
| Analog Scale Factor: | 20°/sec/V (Typical) | See table below |
| Scale Factor Accuracy: | 1% | Constant temperature |
| Scale Factor Temp Coefficient: | +1% to -6% | Over temperature range |
| Bias: | < ±0.02°/sec | |
| Bias: Zero Bias | 0.1°/sec | Run-To-Run |
| Bias: Over Temp Range | ±2.0°/sec | |
| Warmup Drift: | ±2.0°/sec | |
| Non-Linearity: | < 0.03% | Full scale range |
| Bandwidth: | > 70 Hz | |
| Noise: | < 0.02°/sec rms | 1 Hz to 100 Hz |

Environmental

| | | |
|------------------------|----------------|------------------|
| Temperature: Operating | -30°C to +60°C | |
| Temperature: Storage | -55°C to +85°C | |
| Vibration: Operating | 5g rms | 20Hz to 2kHz |
| Vibration: Survival | 10g rms | 20Hz to 2kHz |
| Shock: Survival | 500g | 10ms ½ sine wave |

Electrical

| | | |
|-------------------|-----------------|-----------------|
| Input Power: | 8.5 to 16VDC | 0.7W |
| Input Current: | 80mA | |
| Analog Output | ±5VDC (Typical) | See table below |
| Output Impedance: | 1000 Ohm | |

Physical

| | | |
|----------------------------------|--------------------------|-------------------------|
| Size: Including Mounting Flanges | 1.68"W x 2.96"L x 1.57"H | 4.27 x 7.52 x 3.99 (cm) |
| Weight: | 4.6oz (0.31lb) | 130g (0.1kg) |
| Connection: | Wire bundle | |
| Life: | > 100,000 Hours MTBF | |

Specifications are subject to change without notice

Watson Industries VSG models*

| <u>Model</u> | <u>WPN</u> | <u>Range</u> | <u>Output</u> | <u>Zero Ref (0°/sec)</u> | <u>Scale Factor</u> |
|--------------|------------|--------------|---------------|--------------------------|---------------------|
| VSG-E555 | 99555 | ±50°/sec | 0 to 5 VDC | 2.5 VDC | 20°/sec/V |
| VSG-E469 | 99469 | ±50°/sec | ±5 VDC | 0.0 VDC | 10°/sec/V |
| VSG-E053 | 99053 | ±100°/sec | 0 to 5 VDC | 2.5 VDC | 40°/sec/V |
| VSG-E470 | 99470 | ±100°/sec | ±5 VDC | 0.0 VDC | 20°/sec/V |
| VSG-E601 | 99601 | ±200°/sec | ±5 VDC | 0.0 VDC | 40°/sec/V |

*Custom ranges are available



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