MMQ™VG

Miniature MEMS Quartz Vertical Gyro

Ideal for High-Precision Civil & Military Applications:

- Antenna Pointing
- UAVs,Targets & Drones
- EO/IR Stabilization
- Remotely Operated Vehicles (Underwater)
- General Aviation (Experimental)
- Agriculture (Smart Farming)
- Robotics
- Automotive Testing

Key Performance Features:

- **Extremely Small Size**
- **Vertical Gyro Solution for many Dynamic Applications**
- **RS-232 Digital Interface**
- **Low Power Consumption (<5W)**
- **Configurable Output Rate**
- **Jitter-Free Output Rate (400 Hz Max)**
- **Tested to Meet TSO-C4c Bank (Roll) & Pitch Angle Performance**
- **MMQVG Demo Software Supplied to Facilitate Integration**

The MMQ™VG offers a unique combination of the Systron Donner Inertial solid-state MMQ™50 Inertial Measurement Unit (IMU) and advanced software that calculates a Vertical Gyro (VG) solution from the gyro and accelerometer sensors. The MMQ™VG's MEMS quartz rate sensors and MEMS accelerometers make up an IMU system that is used to calculate a highly accurate Roll and Pitch angle solution in varying dynamic applications. The user can configure the MMQ™VG to output data at various sample rates with extremely low output rate jitter, and the data output format is simple to understand containing the 6 sensor outputs, the angle outputs, a Built-In-Test (BIT) word output and a multi-parameter revolving word output that provides system information including version string. The MMQ™VG combines tremendous performance and versatility with an extremely compact size, low power consumption and low weight.

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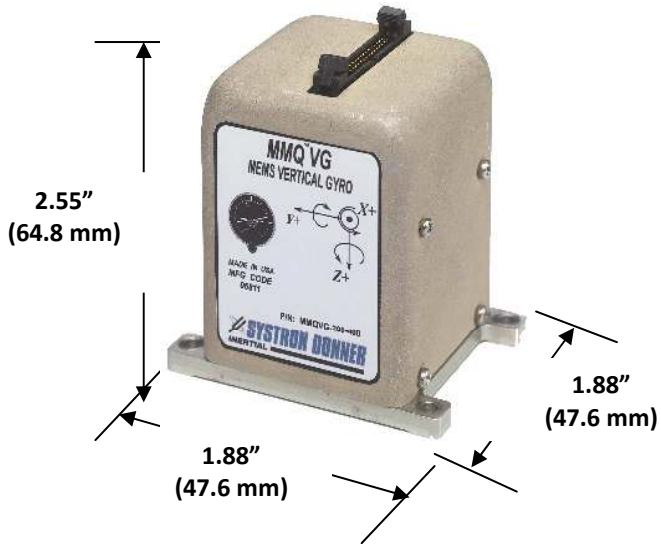

	MMQVG-200-400
Physical Characteristics	
Size (Vol.)	9.0 in^3 (1.88”W x 1.88”D x 2.55”H) (48mm x 48mm x 65 mm)
Weight	<0.50 lbs (<0.227 kg)
Power	+ & – 12 Vdc at <5W total
I/O	RS-232 – 400Hz Output Rate with <100 microsecond jitter
Attitude Performance	
Static Accuracy (Roll/Pitch)	< 0.5 Deg
Dynamic Accuracy (Roll/Pitch)	1.5 Deg RMS – **Tested to TSO-C4c Bank & Pitch Performance Standards**
Rate Channels	
Range	±200°/sec
Bias Turn-on to turn-on Stability	≤100°/hr, 1 σ
Bias In-run Stability (at any temperature)	100°/hr, 1 σ
Bias Instability	<4-15°/hr
Angle Random Walk	0.3°/√hr (0.005 °/sec /√Hz)
Scale Factor error	≤5000 ppm (0.5%)
Alignment	≤5 mrad
Bandwidth (-90° Phase Shift)	50 Hz, nominal
Acceleration Channels	
Range	±10g
Bias Turn-on to turn-on Stability (fixed temp)	≤2.5 mg, 1σ
Bias In-run Stability (at any temperature)	≤3 mg, 1σ
Velocity Random Walk	0.5 mg/√Hz
Scale Factor Error	≤5000 ppm (0.5%)
Alignment	≤5 mrad
Bandwidth (-90° Phase Shift)	50 Hz, nominal
Environmental	
Temperature Range	-54°C to +70°C (operating)
Vibration, Random	$6.0g_{rms}$, 20Hz –2kHz, flat **Meets DO-160D Curves C, C1**
Shock, Operating	30g, powered **Meets DO-160D Operational Shock & Crash Safety**
Altitude	35,000 ft. **Meets DO-160D Category C**

For more information, contact:

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