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MMQ50 IMU



Applications

The MMQ50 has a wide variety of applications.

- General Aviation (DO-160)
- Unmanned Underwater Vehicles
- Land Navigation
- Antenna Stabilization
- Antenna Pointing
- Unmanned Aerial Vehicles
- Robotics

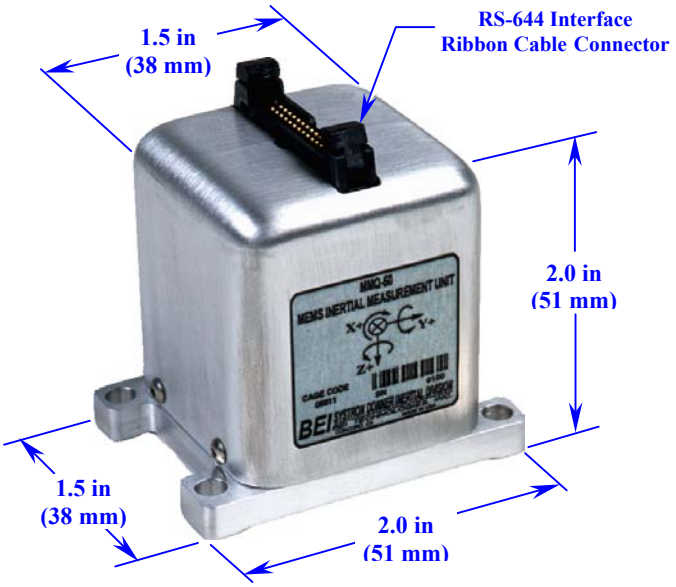


Description

The MMQ50 IMU offers substantial performance for a very attractive price. It features a full six Degrees-of-Freedom sensing capability in an extremely compact size of less than 5 cubic inches (80 cubic centimeters). It uses three of SDID's patented GyroChip® rate sensors, which employ a dual-ended quartz tuning fork. The MMQ50 uses high performance, low cost MEMS accelerometers.

- RS644 Serial Temperature Compensated, Digital Outputs
  - Delta Velocity and Delta Angle
  - Three (3) Axes of Angular Rate
  - Three (3) Axes of Acceleration
- Non Hermetic Design Ideal for Embedded Applications

Inertial Measurement Unit



- Extremely Small Size ~5 in^3 (80 cm^3)
- Low Unit Price
- Low Power Consumption (<4W)
- Very Light Weight: 5 oz (140 g)
- DC Voltage Input
- Proven MEMS Technology
- Data Transmission in 16 Bit Words
- Optional Developer's Kit Converts the RS644 Output to RS232 for Operation with a Host PC
- Suitable for DO-160D Physical Environment (Fixed Wing, Cockpit, in an embedded System)

	-PRELIMINARY-	
PART NUMBER	**MMQ50-100-100**	**MMQ50-100-102**
GENERAL		
Input Voltage	+/- 8.0 to +/- 9.0 V DC, regulated	+/- 8.0 to +/- 9.0 V DC, regulated
Output	RS644 LVDS (Low voltage differential)	RS644 LVDS (Low voltage differential)
Dimensions	2.0" x 1.5" x 2.0", excluding connector, max (51mm x 38mm x 51mm)	2.0" x 1.5" x 2.0", excluding connector, max (51mm x 38mm x 51mm)
Weight	5 oz (140 g)	5 oz (140 g)
RATE CHANNELS		
Range	200°/ sec	200°/ sec
Bias Turn-on to turn-on Stability (fixed temp)	≤100°/hr, 1 σ	≤100°/hr, 1 σ
Bias In-run Stability (at any temperature)	50-200°/hr, 1 σ	50-200°/hr, 1 σ
Noise floor (15 mins)	4-15°/hr, 1σ	4-15°/hr, 1σ
White Noise (angle random walk)	0.3 °/rt-hr (0.005 °sec/rt-Hz)	0.3 °/rt-hr (0.005 °sec/rt-Hz)
Scale Factor	0.01°/sec/count	0.01°/sec/count
Scale Factor error	≤5000 ppm (0.5%)	≤5000 ppm (0.5%)
Alignment	≤5 mrad	≤5 mrad
Bandwidth	50 Hz, nominal	50 Hz, nominal
ACCELERATION CHANNELS		
Range	+/- 10g	+/- 10g
Bias Turn-on to turn-on Stability (fixed temp)	≤2.5 mg, 1σ	≤6.25 mg, 1σ
Bias In-run Stability (at any temperature)	≤3 mg, 1 σ	≤7.5 mg, 1 σ
Noise Floor (15 mins)	0.2 mg, 1 σ	0.5 mg, 1 σ
White noise (velocity random walk)	0.5 mg/rt-Hz	1.25 mg/rt-Hz
Scale Factor Error	≤5000 ppm (0.5%)	≤5000 ppm (0.5%)
Alignment	≤5 mrad	≤5 mrad
Bandwidth	50 Hz, nominal	50 Hz, nominal
ENVIRONMENTAL		
Temperature, operating	-54°C to +70°C	-54°C to +70°C
Temperature, storage	-54°C to +85°C	-54°C to +85°C
Vibration, random	2.0g rms, 20Hz –2kHz, flat Meets DO-160D Curves B, B1, B2	6.0g rms, 20Hz –2kHz, flat Meets DO-160D Curves C, C1
Shock, operating	20g, 11ms half sine, powered Meets DO-160D operational shock and crash safety	20g, 11ms half sine, powered Meets DO-160D operational shock and crash safety
Altitude	35,000 ft. Meets DO-160D Category C	35,000 ft. Meets DO-160D Category C

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