gIMU-3G®

Tactical Grade IMU System

The gIMU-3G® is ultra miniature tactical grade Inertial Measurement Unit based on most advanced commercially available MEMS-Based sensors.
The gIMU-3G® contains Hi-Performance best-in-class sensors (3-axis Accelerometers, 3-axis Gyros) and can replace FOG-based systems providing superior C-SWaP features and improve system robustness, size, power-consumption and cost.
Built-In 32-Bit ARM Cortex-M7 MicroProcessor handles all data acquisition functions from the sensors, including calculations, compensations/calibration tasks & communication as well.

The gIMU-3G® is factory-calibrated over Temperature, Bias, Scale-Factor, Cross-Axis & Mis-Alignment and G-Sensitivity.

Main Features

- Tactical Grade Gyro & Accelerometer
- Very Low VRE (Vibration Rectification Error)
- Update Rate of up to 2,000 Hz
- Wide Voltage Input Range 9 VDC – 32 VDC
- Low Power < 100mA @ 12 VDC
- Miniature, Light Weight
- Optional Magnetometer & Baro Altimeter
- ITAR Free

Applications

- UAV/UGV
- Smart Ammunition
- Gimbaled Cameras
- Platform Stabilization
- EFIS / Flight Management systems
- Antenna Tracking Systems

	Accelerometer	Gyroscope	Remarks
Full Scale Range	± 10g	± 500 deg/sec	others upon req.
Bandwidth	0…250 Hz	0…250 Hz	
Non Linearity	2000 ppm	200 ppm	1σ, FS
Bias Stability Repeatability Over Full Temp Over 20°C Span Hysteresis	< 20 µg ToTo ± 300 µg Day-to-Day < 400 µg One Year < 1 mg < 500 µg < 150 µg 300 µg	0.8 °/Hr < 20°/Hr < 15°/Hr n/a < 60°/Hr < 20°/Hr < 30°/Hr	Allan-Variance
Scale Factor Repeatability Over Temp	 500 ppm 100 ppm	 500 ppm 500 ppm	
Random Walk	< 0.02 m/sec/√Hr	0.07 °/√Hr	
Noise density	< 20 µg /√Hz	< 0.003 °/sec/√Hz	
VRE (Vibration Rectification Error)	< 200 µg/g2	< 0.001 °/sec/g²	3g RMS, 20-2000 Hz
g-Sensitivityy	n/a	< 10 °/Hr/g	
Latency	< 1 mSec		
Non-Orthogonality	< 300 µRad		1σ
MisAlignment	< 1 mRad		1σ
System & Communication			
Output Options	Ax, Ay, Az, ωx, ωy, ωz, Temp Mx, My, Mz, mBar, Temp Conning & Sculling		
Digital Interface	RS232/RS422		
Frame Rate	0...2000 Hz		
Start Up Time	< 500 mSec		
Warm-Up Time To Full Performance	< 5 sec		
Power & Mechanical			
Input Voltage	9 VDC - 32 VDC		
Power Consumption	< 100 mA @ 12 VDC		
Connectors	9-pin Micro D-Type		
Size	42 x 30 x 24 mm		
weight	< 42 gr		
Environmental Conditions (Design-to-Spec)			
Temp Operation	-40º C to +71º C	Mil-Spec 810-G Method 501.5 Procedure I	
Mechanical Shock Operational Non-Operational	 40g, 10 msec, ½ Sine 500g, 0.5 msec, ½ Sine		
Vibration	3 Grms, 20-2000 Hz Operational 6 Grms, 20-2000 Hz Endurance		
Altitude	70,000 feet	Mil-Spec 810-G Method 500.5 Procedure III	
Enclosure	IP65	EN 595	
MTBF	TBD		
EMC	EN55022 Class B Conducted & Radiation Emission		
ESD	IEC 61000-4-2		

* ***Specification subject to change without notice***

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