



gIMU[®]-H

Tactical Grade IMU System

The gIMU[®]-H is ultra miniature tactical grade Inertial Measurement Unit based on most advanced commercially available MEMS-Based sensors.

The gIMU[®]-H contains Hi-Performance best-in-class tactical 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.

The gIMU[®]-H provides some advanced features making it suitable for different environments; the very-low VRE (< 100 $\mu\text{g}/\text{g}^2$) making it ideal for dynamic, hi-vibration arenas, the rugged design allow it to face extreme environments, the dual supply voltage options (5 VDC & 9-32VDC) and various communication physical interfaces (RS422/RS232) and protocols (serial, SDLC) provides flexibility to accommodate to different tasks and more.

The gIMU[®]-H is factory-calibrated over Temperature, Bias, Scale-Factor, Cross-Axis & Mis-Alignment and g-Sensitivity.

Main Features

- Tactical Grade Gyro & Accelerometer
- Very Low VRE < 100 $\mu\text{g}/\text{g}^2$
- Update Rate of up to 2,000 Hz
- Voltage input Range 5 VDC (Optional 9 - 32 VDC)
- Low Power < 185mA @ 5 VDC
- Miniature, Rugged & Light Weight
- ITAR Free

Applications

- UAV/UGV
- Smart Ammunition
- Gimbale Cameras
- Platform Stabilization
- Loitering Ammunition
- 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 ToTo Day-to-Day One Year Over Full Temp Over 20°C Span Hysteresis	< 20 µg ± 300 µg < 400 µg 1,500 µg < 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)	< 100 µg/g2	< 1 °/hr/g2	3g RMS, 20-2000 Hz
g-Sensitivity	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
Digital Interface	RS422
Protocols	Proprietary, SDLC
Frame Rate	0...2000 Hz
Start Up Time	< 200 mSec
Warm-Up Time To Full Performance	< 5 sec

Power & Mechanical

Input Voltage	5 VDC (optional 9 - 32 VDC)
Power Consumption	180 mA @ 5 VDC
Connectors	14 pin Header
Size	65 x 51 x 36 mm
weight	< 140 gr

Environmental Conditions (Design-to-Spec)

Temp Operation	-40° C to +71° 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 6 Grms, 20-2000 Hz	Operational 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