LandMark™ 20 IMU

- *Ultra Low Noise* Small MEMS IMU
- Low Gyro Noise *0.01°/sec/√Hz*
- Low Accel Noise *0.05mg/√Hz (2g)*
- In-Run Gyro Bias *15°/hour 1 σ*
- *Rugged* Environmentally Sealed Packaging & MILSPEC Connector
- Fully Temperature Compensated Bias and Scale Factor
- Compensated Misalignment *1mrad* and g-Sensitivity *<0.02°/sec/g 1σ*
- External Sync Input *(1kHz or 1pps)*
- Low Power *<400 mW Typical*
- Low Voltage *+3.3V (single sided power)*
- Light Weight *≤ 110 grams*
- Small Size *< 72cm³/4.4in³*
- Sensor Bandwidth *140 Hz*
- Bandwidth Filtering Capability
- RS485 Data Rate *500 Hz (user selectable)*
- Internal Vibration Isolation
- Precision Alignment
- Internal Temperature Sensors

Export Classification:
Commerce ECCN7A994 (NLR)

Applications

Airborne Platform Stabilization
Antenna Stabilization & Pointing
EO/IR Stabilization
LIDAR Stabilization
Navigation
Flight Testing
Racing Yacht Marine Compass

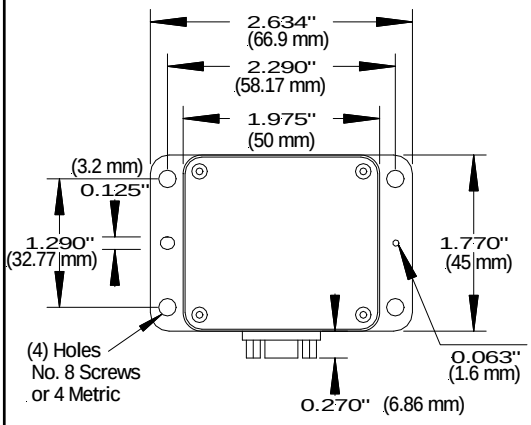
Rugged Low Noise MEMS IMU with Small Size & Low Power

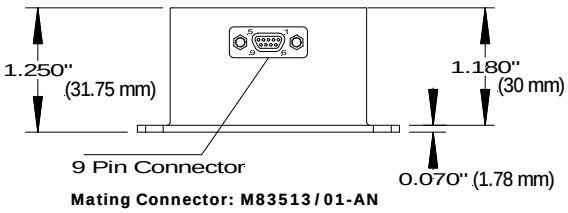
Gladiator Technologies
Division of LKD Aerospace
High Performance Inertial MEMS

Gladiator Technologies Division
LKD Aerospace, Inc
8020 Bracken Place SE
Snoqualmie, WA 98065 USA

Rev. 15April16
SN: 200

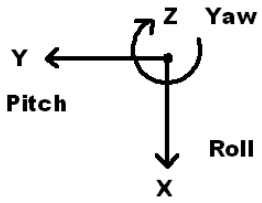
LandMark™ 20 IMU





Mating Connector: M83513/01-AN

Axes (Top View) Right Hand Rule



LandMark™ 20 IMU
LMRK20IMU-075-**02**-300 or -**10** LMRK20IMU-150-**02**-300 or -**10** LMRK20IMU-300-**02**-300 or -**10**

Specification

PARAMETER	RATE AXES			ACCEL AXES	
Range	±75°/sec	±150°/sec	±300°/sec	±2 g's	±10 g's
Bias (Over Temp.)	<0.05°/sec *1 σ*			< 1.0mg	< 1.5mg *1 σ*
Bias (In Run Stability)	15°/hour *1 σ*			0.02mg	0.1mg *1 σ*
Scale Factor Error %	≤0.1% *(over temperature) 1 σ*				
Sensor Resolution	0.005°/sec			0.025mg	0.08mg
Angle Random Walk	0.01°/ /sec/√Hz *1 σ*			0.05mg	0.16mg /√Hz *1 σ*
Alignment	1mrad *1 σ*				
G-Sensitivity	<0.02°/sec/g *1 σ*				
Self Test On	Δ 50 ± 25°/sec			Δ 1.5 ±0.5g	Δ 0.3 ±0.2g
	Logic 1 = 5V at Pin 9				
Temp Range Operating: Non-Operating:	 -40°C to +85°C -55°C to +85°C				
Update Rate	500 Hz, 200 Hz, 100 Hz, or 10 Hz *(user selectable)*				
Temp Sensors	Internal Temperature Sensors				
Start-up Time	< 0.3 sec *at 200 Hz*				
Input Power	**+3.1V to 5.5V Max. Input (*single sided*)**				
Power Consumption	400 mW at 3.3V *Typical* 450 mW at 3.3V *Maximum*				
Size U.S.: Metric:	1.97 x 1.77 x 1.25 = 4.4 in^3 5 x 4.5 x 3.2 = 72 cm^3				
Weight	≤ 110 grams				
Mounting	4ea No.8 or M4 Screws				
Shock	500g's ½ sine 1 msec powered				
Vibration	6gRMS *(20Hz to 2KHz ~ 10g accelerometers)*				
MTBF	55,279 hrs *(per MIL-STD-217F, Notice 2 based on AIC environment with ambient temperature at 40°C)*				

Pin No.	Assignment
1	RS-485 A (+)
2	RS-485 B (-)
3	Power Ground
4	Analog/Digital Input (0V to 5V)
5	**+3.1V to +5.5V Input Power**
6	External Sync Input (1kHz or 1pps)
7	+5V Regulator Out
8	Signal Ground
9	Self Test

Note: Any unused inputs (Pins 4, 6, 9) must be connected to signal ground (Pin 8).

Outputs	Serial Sequence at 200Hz
1	Roll Gyro (X)
2	Pitch Gyro (Y)
3	Yaw Gyro (Z)
4	X Accelerometer
5	Y Accelerometer
6	Z Accelerometer
7	Temperature ± 0.5° C *typical*

Specification subject to change without notice

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