

LandMark™ 70 IMU



- High Performance NON-ITAR MEMS IMU
- Ultra Low Gyro Noise $0.0009^\circ/\text{sec}/\sqrt{\text{Hz}}$
 $\sim 0.038^\circ/\sqrt{\text{hr}}$
- Low Accel Noise $0.02\text{mg}/\sqrt{\text{Hz}}$ (2g)
- In-Run Gyro Bias $1^\circ/\text{hour } 1\sigma$
- Fully Compensated Bias and Scale Factor Over Temperature -40°C to $+85^\circ\text{C}$
- Compensated Misalignment $< \frac{1}{2} \text{ mrad}$
- G-Sensitivity $< 0.002^\circ/\text{sec}/\text{g}$ typical
- Input Power $+7\text{V}$ to $+36\text{V}$ (single sided)
- RS422/RS485 Data Rate to 2.5kHz (selectable)
- CANBUS 2.0B 1MHz
- Wide Sensor Bandwidth 200 Hz
- Light Weight 450 grams
- Small Size $< 321\text{cm}^3/19.6\text{in}^3$
- Bandwidth Filtering Capability
- External Sync (5 kHz)
- Precision Alignment
- Internal Vibration Isolation 6 gRMS
- Shock Resistant $500\text{g}'\text{s}$
- 6 Internal Temperature Sensors
- Self Test

Export Classification:
Commerce ECCN7A994



Applications

- Platform Stabilization
- EO/IR Stabilization
- Antenna Stabilization & Pointing
- Railway Motion Monitoring
- Flight Control
- Navigation
- Automotive Testing
- Laboratory Use

**High Performance MEMS IMU with
Ultra Low Noise & Bias Performance**

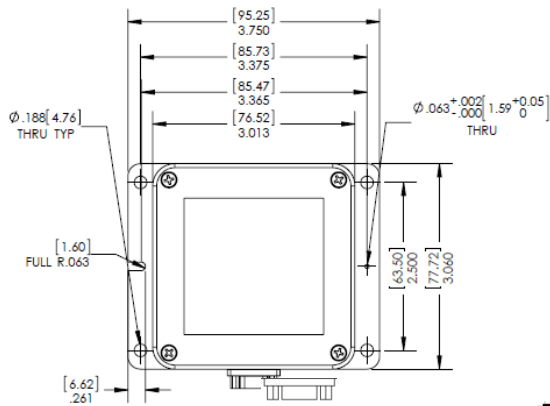


Gladiator Technologies
Division of LKD Aerospace
High Performance Inertial MEMS

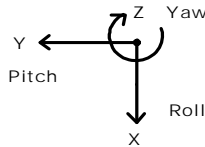
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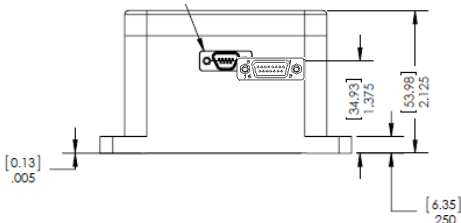
**Axes (Top View)
Right Hand Rule**



LandMark™ 70 IMU		
LMRK70IMU-100-02-100	or -06 or -10	
LMRK70IMU-175-02-100	or -06 or -10	
LMRK70IMU-300-02-100	or -06 or -10	

Specification

MATING CONNECTOR:
Mating Connector: M83513/03-BN



Pin No.	Assignment
1	RS-422/RS-485 A (+)
2	RS-422/RS-485 B (-)
3	Power Ground
4	Analog/Digital Input (0V to 5V)
5	+7.0V to +36V Input Power
6	External Sync Input (5kHz)
7	+5V Regulator Out
8	Signal Ground
9	Self Test
10	CAN H
11	CAN L
12	CAN Gnd
13	NC
14	NC
15	Case

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

Outputs	Serial Sequence at 2k Hz
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

PARAMETER	LandMark™ 70 IMU					
	RATE AXES			ACCEL AXES		
Range	±100°/sec	±175°/sec	±300°/sec	±2 g's	±6 g's	±10 g's
Bias (In Run Stability)	1°/hr	1.5°/hr 1σ	2°/hr	0.02	0.025 mg 1σ	0.03
Angle Random Walk	0.0009°	0.0012° /sec/√Hz 1σ	0.0015°	0.02	0.05 mg/√Hz 1σ	0.055
Bias (Over Temp.)	<0.01°/sec	<0.02°/sec 1σ	<0.02°/sec	<1.0mg	<0.5mg 1σ	<1.0mg
Scale Factor Error %	≤0.06% (over temperature)					
Non-Linearity % of FS	<0.1	<0.5	<2	<0.025	<0.05	
Sensor Resolution	0.0005°/sec	0.0012°/sec	0.0015°/sec	0.02mg	0.03mg	0.03mg
Alignment	< 0.5 mrad 1σ					
G-Sensitivity	<0.002°/sec/g 1σ					
Self Test On	N/A			Δ 1 ±0.25g	Δ 0.35 ±0.2g	Δ 0.35 ±0.2g
Temp Range	Operating: Non-Operating:			-40°C to +85°C -55°C to +100°C		
RS422/485 Update Rate	2.5kHz, 1kHz, 500Hz, 200Hz, 100Hz, or 10Hz (user selectable) (internally sampled at 10kHz) 921.6k baud					
CAN 2.0B Data Rate	1MHz					
Temp Sensors	6 Internal Temperature Sensors					
Start-up Time	< 0.3 sec at 200 Hz					
Input Power	+7.0V to +36V Max. Input (single sided) (Input Transient Protection to 80V)					
Power Consumption	825 mW at +12V typical 900 mW at +12V maximum					
	U.S.:	3.0 x 3.06 x 2.13 = 19.6 in³				
	Metric:	7.62 x 7.8 x 5.4 = 321cm³				
Weight	≤ 450 grams					
Mounting	4ea No.8 or M4 Screws					
Shock	500g's ½ sine 2 msec powered					
Vibration	6 gRMS (20Hz - 2KHz ~ 10g accelerometers)					
MTBF	17,341 hrs (per MIL-STD-217F, Notice 2 based on AIC environment with ambient temperature at 40°C)					

Specification subject to change without notice



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