



LandMark™ 60 IMU

Low Noise MEMS IMU

QMS & CERTS
AS9100D

Cage Code: 47L11
Division of
LKD Aerospace
SAM Registered
JCP certified

**Low Noise Inertial MEMS
Rugged Low Cost Sensors & Systems**

Automated Testing

- Comprehensive ERP
Environmental Test Lab:
- Shock
 - Vibration
 - Temperature Calibration
 - G-Sensitivity
 - Axis Alignment
 - Centrifuge
 - GPS Simulation

Products:

- Gyros
- Accelerometers
- IMU
- VG
- AHRS
- VG/GPS
- GPS/AHRS
- INS/GPS

- NON-ITAR MEMS IMU
- Ultra Low Gyro Noise $0.0016^\circ/\text{sec}/\sqrt{\text{Hz}}$
- Low Accel Noise $0.05 \text{ mg}/\sqrt{\text{Hz}}$
- Wide Sensor Bandwidth $\geq 250 \text{ Hz}$
- Gyro Bias In-Run $3^\circ/\text{hour } 1\sigma$
- Bias Over Temperature $\leq 90^\circ/\text{hour } 1\sigma$
- Compensated Misalignment $< 0.5 \text{ mrad}$
and g-Sensitivity $< 0.001^\circ/\text{sec}/g \ 1\sigma$
- Full Temperature Calibration (Bias & SF)
- 16/24/32-bit Data Format (selectable)
- RS-422/485 Message Rate $\leq 5 \text{ kHz}$ (selectable)
- External Sync up to 6 kHz
- CAN bus 2.0B 1 MHz
- Vibration $8g_{\text{rms}}$
- Shock 600g
- Light Weight $\leq 115 \text{ grams}$
- Low Power $< 500 \text{ mW typical}$

Applications

- Airborne Platform Stabilization
- Antenna Stabilization
- Antenna Pointing
- EO/IR Stabilization
- LIDAR Stabilization
- Navigation
- Flight Testing

Export Classification:
Commerce
ECCN7A994 (NLR)

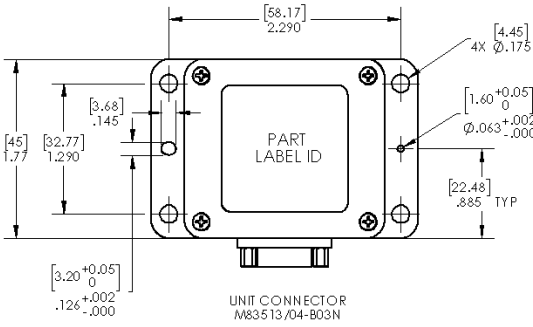


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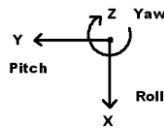


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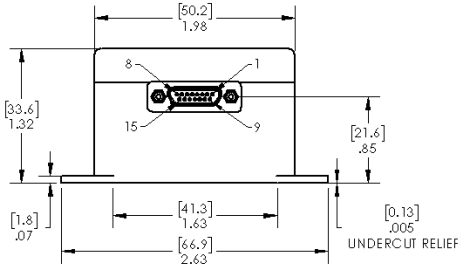
LandMark™ 60 IMU



Axes (Top View)
Right Hand Rule



LMRK60 IMU
LMRK60IMU-250-06-100 or -15
LMRK60IMU-490-06-100 or -15



Mating Connector: M83513/03-BN

Pin No.	Assignment
1	RS-485 A (+) (Twisted Pair)
2	RS-485 B (-) (Twisted Pair)
3	Power Ground
4	Analog/Digital Input (0 V to 5 V)
5	+7 V to +36 V Input Power
6	External Sync Input (up to 6 kHz)
7	+5 V Regulated Output
8	Signal Ground
9	Self Test
10	CAN High
11	CAN Low
12	CAN Gnd
13	N C
14	N C
15	Case

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

Outputs	Serial Sequence
1	Roll Gyro (X)
2	Pitch Gyro (Y)
3	Yaw Gyro (Z)
4	X Accelerometer
5	Y Accelerometer
6	Z Accelerometer
7	Temperature $\pm 0.5^\circ\text{C}$ typical

PARAMETER	RATE AXES		ACCEL AXES	
Range	± 250 °/sec	± 490 °/sec	± 6 g/s	± 15 g/s
ARW / VRW	0.0016° /sec/ $\sqrt{\text{Hz}}$ 1σ		0.04mg/ / $\sqrt{\text{Hz}}$ 1σ	0.05mg/ / $\sqrt{\text{Hz}}$ 1σ
	0.07° / $\sqrt{\text{hour}}$ 1σ		0.017 m/s / $\sqrt{\text{hour}}$ 1σ	0.021 m/s / $\sqrt{\text{hour}}$ 1σ
Bias In-Run Stability	3°/hour 1σ	5°/hour 1σ	0.025mg 1σ	0.03mg 1σ
	90°/hr 1σ		< 1.0mg 1σ	< 1.5mg 1σ
Bias Over Temp.			< 1.0mg 1σ	< 1.5mg 1σ
Scale Factor Error %	≤ 500 ppm (over temperature) 1σ			
Non-Linearity of Full Scale %	0.05%	0.1%	0.05%	0.1%
	< 0.5 mrad 1σ			
G-Sensitivity	< 0.001°/s/g 1σ		0.25 mg/g ² 1σ	
Shock	600g's ½ sine 1 msec powered			
Vibration	8g _{RMS} (20 Hz to 3 kHz 15g accelerometers)			
Data Format	16/24/32-bit (user selectable)			
LSB	See Software User Guide			
Output Data Rate	Up to 5 kHz (user selectable)			
External Sync	Up to 6 kHz (user selectable)			
CAN bus 2.0B	1 MHz			
Bandwidth	≥ 250 Hz			
Temp Range	Operating:		-40°C to +85°C	
	Non-Operating:		-55°C to +85°C	
Start-up Time	< 0.3 sec			
Input Power	+7 V to +36 V Max. Input (single sided)			
Power Consumption	500 mW Typical		550 mW Maximum	
	≤ 115 grams			
Weight	≤ 115 grams			
	Size	U.S.: 1.975 x 1.77 x 1.325 = 4.6 in ³ Metric: 5 x 4.5 x 3.4 = 76 cm ³		
Mounting	4ea No.8 or M4 Screws			
Self Test On	$\Delta 50$ °/s ± 25 °/s		$\Delta 0.150$ ± 0.075 g	
	Logic 1 = 3 V to 5 V at Pin 9			
MTBF	53,869 hrs (per MIL-STD-217F, Notice 2 based on AIC environment with ambient temperature at 40°C)			

Specification subject to change without notice