



Gladiator Technologies

Division of LKD Aerospace

Low Noise Inertial MEMS



QMS & CERTS

AS9100C

ISO9001:2008

Cage Code: 47L11

Division of

LKD Aerospace

SAM Registered

JCP certified

LandMark™ 005 IMU

Ultra Small High Performance 0.6"

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

- NON-ITAR MEMS IMU
- Smallest (0.6" cube) IMU in its Performance Class
- Low Gyro Noise $\leq 0.0028^\circ/\text{sec}/\sqrt{\text{Hz}}$
- Low Accel Noise $\leq 0.09\text{mg}/\sqrt{\text{Hz}}$
- Wide Sensor Bandwidth 250 Hz
- In-Run Gyro Bias $5^\circ/\text{hour } 1\sigma$
- Bias Over Temperature $\leq 0.05^\circ/\text{sec } 1\sigma$
- Compensated Misalignment $\leq 1/2 \text{ mrad } 1\sigma$
- G-Sensitivity $\leq 0.001^\circ/\text{sec}/\text{g } 2\sigma$
- Full Temperature Calibration (Bias & SF)
- RS422/485 Serial Data to 2.5kHz (selectable)
- External Sync Input (2.5kHz, 3.3V logic)
- Ultra Low Power < 40 mA typical
- Low Voltage +3.8V to +5.5V
- Light Weight ≤ 18 grams
- Shock Resistant 500g

Applications

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

Products:

Gyros

Accelerometers

IMU

VG

AHRS

VG/GPS

GPS/AHRS

INS/GPS

Export Classification:

Commerce
ECCN7A994 (NLR)



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LKD Aerospace

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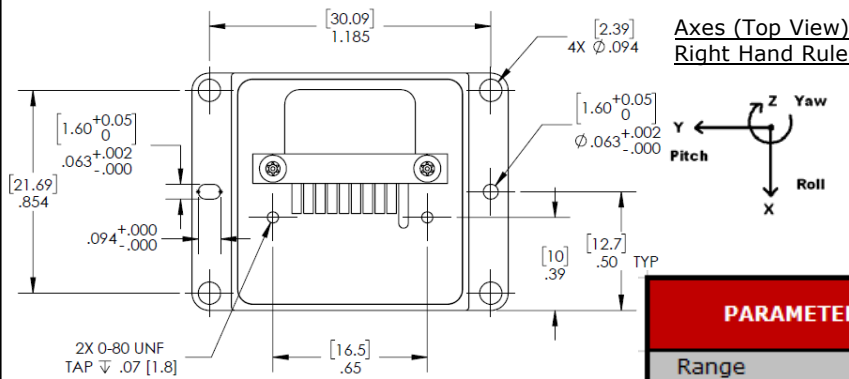
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LandMark™ 005 IMU



LMRKO05 IMU
LMRK005IMU-490-15-100

Preliminary Spec

PARAMETER	RATE AXES	ACCEL AXES
Range	±490°/sec	±15 g's
ARW / VRW	0.0028° /sec/√Hz 1σ	0.09mg/√Hz 1σ
	0.12° /√hour 1σ	0.037 m/s /√hour 1σ
Bias In-Run Stability	5°/hour 1σ	0.045mg 1σ
Bias Over Temp.	< 0.05°/sec 1σ	<1mg 1σ
Scale Factor Error %	≤0.05% 1σ	≤0.05% 1σ
Sensor Resolution	0.001°/sec	0.035mg
Alignment	0.5 mrad 1σ	
G-Sensitivity / g ²	0.001 °/sec/g 1σ	1 mg/g ² 1σ
Output Data Rate	2.5k Hz	
Bandwidth	250 hz	
Self Test On	Δ 4°/s	Δ 0.3
	±1.5°/s	±0.15g
	Logic 1 = 3.3V at Pin 8	
Temp Range	Operating:	-40°C to +85°C
	Non-Operating:	-55°C to +85°C
Start-up Time	< 0.3 sec	
Input Power	+3.8V to +5.5V Max. Input (single sided)	
Power Consumption	200 mW at 5V Typical 270 mW at 5V Maximum	
Size U.S.:	1.0 x 1.0 x 0.6 = 0.6 in ³	
	Metric:	2.54 x 2.54 x 1.52 = 9.8 cm ³
Weight	≤18 grams	
Mounting	4ea No.2-56 Screws	
Shock	500g's ½ sine 1 msec powered	
Vibration	6gRMS (20Hz to 2KHz)	
MTBF	93,636 hrs (per MIL-STD-217F, Notice 2 and ANSI/VITA 51.1-2008 with environment: ACI at 40°C Ambient)	

Pin No.	Assignment
1	RS-422/485 A (+) (Twisted Pair)
2	RS-422/485 B (-) (Twisted Pair)
3	Power Ground
4	N C
5	+3.8V to +5.5V Max Input Power
6	External Sync Input (2.5kHz, 3.3V logic)
7	Signal Ground
8	Self Test Input (3.3V logic)
9	Case

If pin 6 or 8 is not used connect to pin 7.

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

Specification subject to change without notice



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