



LandMark™ 005 IMU

Ultra Small High Performance 0.6"

QMS & CERTS
AS9100C
ISO9001:2008

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
- Smallest (0.6" cube) IMU in its Performance Class
- Up to 490°/sec & 15g Range
- Low Gyro Noise $\leq 0.0028^\circ/\text{sec}/\sqrt{\text{Hz}}$
- Low Accel Noise $\leq 0.075\text{mg}/\sqrt{\text{Hz}}$
- Wide Sensor Bandwidth 250 Hz
- Gyro Bias In-Run $5^\circ/\text{hour } 1\sigma$
- Bias Over Temperature $\leq 0.05^\circ/\text{sec } 1\sigma$
- Compensated Misalignment $\leq 0.5 \text{ mrad } 1\sigma$
- G-Sensitivity $\leq 0.001^\circ/\text{sec}/g^2 \ 1\sigma$
- Full Temperature Calibration (*Bias & SF*)
- Vibration $8g_{\text{rms}}$
- Shock Resistant 600g
- Light Weight $\leq 18 \text{ grams}$
- Ultra Low Power $< 200 \text{ mW typical}$
- Output Data Rate up to 2.5 kHz (*selectable*)
- External Sync up to 6 kHz (*selectable*)

Applications

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

Export Classification:
Commerce
ECCN7A994 (NLR)

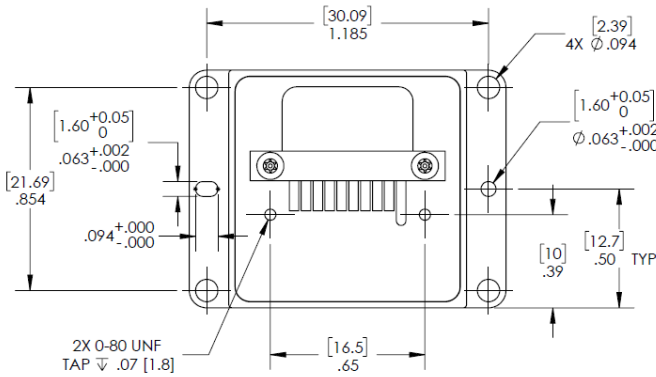


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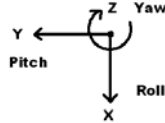


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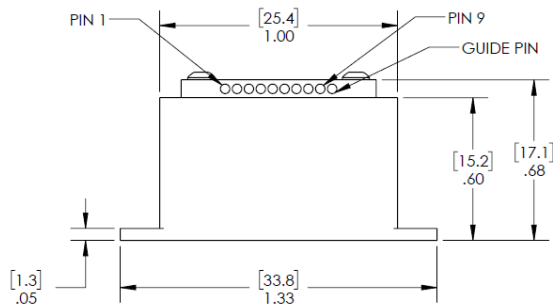


Axes (Top View)
Right Hand Rule



LMRK005 IMU

LMRK005IMU-490-15-100



Specification

PARAMETER	RATE AXES	ACCEL AXES
Range	± 490°/sec	± 15 g's
ARW / VRW	0.0028° /sec/√Hz 1σ 0.12°/√hour 1σ	0.075mg/√Hz 1σ 0.031 m/s/√hour 1σ
Bias In-Run Stability	5°/hour 1 σ	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	0.5 mrad 1σ
G-Sensitivity / g ²	0.001°/sec/g ² 1σ	1 mg/g ² 1σ
Shock	600g's ½ sine 1 msec powered	
Vibration	8g _{RMS} (20 Hz to 3 kHz)	
Output Data Rate	Up to 2.5 kHz	
External Sync	Up to 6 kHz	
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	+3.8 V to +5.5 V Max. Input (single sided)	
Power Consumption	200 mW at 5 V <i>Typical</i> 270 mW at 5 V <i>Maximum</i>	
Weight	≤ 18 grams	
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	
Self Test On	Δ 4°/s ± 1.5°/s	Δ 0.03g ± 0.025g
Mounting	4ea No.2-56 Screws	
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	+3.8 V to +5.5 V Max Input Power
6	External Sync Input (up to 6 kHz, 3.3 V logic)
7	Signal Ground
8	Self Test Input (3.3 V logic)
9	Case

If Pins 6 or 8 are 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 <i>typical</i>

Specification subject to change without notice

