Willburger GmbH Kreativität & Handel
Auf der Schuchen 11, 82418 Seehausen/Germany

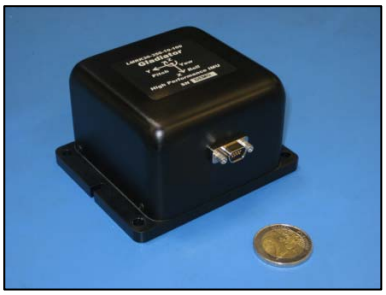
LandMark™ 30 Vertical Gyro (VG) "LN Series"

- **Low Noise & High Performance Silicon MEMS Digital Vertical Gyro**
- **Vertical Gyro** *(No Magnetometers)*
  Pitch & Roll Angles ±0.25° typical
- **Low Gyro Noise** *0.003º/sec/√Hz*
- **Low Accel Noise** *0.035mg/√Hz*
- **In-Run Gyro Bias** *8°/hour 1σ*
- **Fully Temperature Compensated Bias and Scale Factor**
- **Compensated Misalignment** *1mrad* **and g-Sensitivity** *<0.01°/sec/g typical*
- **Input Power** *+6V to +36V (single sided)*
- **Light Weight** *388 grams*
- **Small Size** *< 321cm³/19.6in³*
- **RS485 Data Rate** *100 Hz (user selectable)*
- **Wide Sensor Bandwidth** *500 Hz*
- **Bandwidth Filtering Capability**
- **External Sync** *(1 kHz or 1 pps)*
- **Precision Alignment**
- **Shock Resistant** *500g's*
- **6 Internal Temperature Sensors**
- **Self Test & No Wearout Modes**

High Performance MEMS VG with Low Noise & Low Bias Performance

Export Classification: Commerce ECCN7A994

The all new LandMark™ 30 VG is our premium performance model offering pitch and roll angle output of 0.25° and featuring both our lowest noise *"LN Series"* MEMS G100Z gyros and accelerometers that offer outstanding bias in-run and bias over temperature. The **MEMS performances offered in this VG are open-loop FOG class**, but available at much lower cost. Velocity input is built-in with 2 formats, analog 0 to 5V or digital pulse counts supplied by the customer.



The LandMark™ 30 VG is ideal for applications requiring high inertial performance, small size and light weight. The signature feature of the LandMark™ 30 VG is the **high performance gyros and accelero-meters,** which enable precision measurement and excellent in-run and bias over temperature as well as reduced jitter on the attitude indicator display. The VG's performance is optimized with **fully temperature compensated bias and scale factor and compensated misalignment and g-sensitivity.** The unit operates on standard aircraft input power and has long life MTBF all with rugged packaging, environmental-sealing and EMI protection. The unit is well suited for the harsh environments of commercial aircraft, automotive and motorcycle testing, motorsports racing, commercial aircraft and sea applications that require both low cost and high performance as well as rugged durability. Custom ranges available (consult factory).

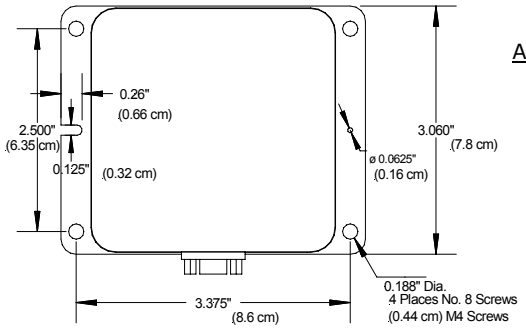
QMS
AS9100 Rev B &
ISO 9001:2000
Cert# FM 509639

Gladiator Technologies, Inc.

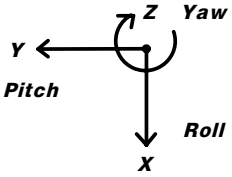
Rev. Aug1610
SN: 150

Tel.: +49 8841 3028; Fax.: +49 8841 5158; www.willburger-gmbh.eu; info@willburger.de

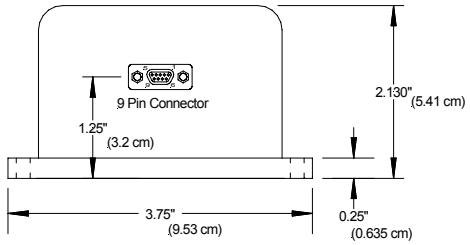
LandMark™ 30 Vertical Gyro (VG) "LN Series"



Axes (Top View) Right Hand Rule



Standard LandMark™ 30 VG
LMRK30VG-025-**02**-100 or -**06** or -**10**
LMRK30VG-100-**02**-100 or -**06** or -**10**
LMRK30VG-175-**02**-100 or -**06** or -**10**
LMRK30VG-350-**02**-100 or -**06** or -**10**



Mating Connector: M83513/01-AN

Preliminary Specification

Pin No.	Assignment
1	RS-485 A (+)
2	RS-485 B (-)
3	Power Ground
4	Analog/Digital Input (0V to 5V)
5	+6.0V to +36V Input Power
6	External Sync Input (1kHz)
7	+5V Regulator Out
8	Signal Ground
9	Self Test

Outputs	Serial Sequence at 100Hz
1, 2, 3	Gyros: Roll (X), Pitch (Y), Yaw (Z)
4, 5, 6	Accelerometers: (X), (Y), (Z)
7	IMU Temperature
8, 9 , 10	No Magnetometers: (X), (Y), (Z)
11	No Pressure
12, 13, 14	Angles: Roll, Pitch, Zero Yaw
15, 16, 17	AC Velocities: (X), (Y) & Vertical Velocity: (Z)
18, 19, 20	No Altitude, Temp, Forward Velocity (As Input)

PARAMETER	*LandMark™ 30 VG "LN Series"*						
	RATE AXES				ACCEL AXES		
Range	±25°/sec	±100°/sec	±175°/sec	±325°/sec	±2 g's	±6 g's	±10 g's
Bias (Over Temp.)	<0.03°/sec *2σ*				<0.15mg *typical*	<0.4mg *typical*	<0.8mg *typical*
Bias (In Run Stability)	8°/hour *1 σ*				0.02mg *typical*	0.04mg *typical*	0.08mg *typical*
Scale Factor Error %	≤0.08% *(over temperature)*						
Resolution ≤	0.002°/sec	0.002°/sec	0.0025°/sec	0.003°/sec	0.01mg	0.02mg	0.03mg
Angle Random Walk	0.003°/sec /√Hz	0.0035°/sec /√Hz	0.005°/sec /√Hz	0.006°/sec /√Hz	0.035mg/ √Hz	0.07mg/ √Hz	0.12mg/ √Hz
Pitch & Roll	± 0.25° *typical*						
Alignment	1mrad *typical*						
G-Sensitivity	<0.01°/sec/g *typical*						
Self Test On	Δ 50°/s ± 25 °/s	Δ 50°/s ± 25 °/s	Δ 50°/s ± 25 °/s	Δ 50°/s ± 25 °/s	Δ 0.2 ±0.1g	Δ 0.2 ±0.1g	Δ 1.25 ±0.75g
	Logic 1 = 3V to 5V at Pin 9						
Temp Range Operating: Non-Operating:	-40°C to +85°C -55°C to +100°C						
Update Rate	100 Hz *(user selectable)*						
Temp Sensors	6 Internal Temperature Sensors						
Start-up Time	< 1.0 sec *AHRS 200 Hz Spec Mode*						
Input Power	+6.0V to +36V Max. Input *(single sided) (Input Transient Protection to 80V)*						
Power Consumption	2200 mW at +12V *typical* 2350 mW at +12V *maximum*						
Size U.S.: Metric:	3.0 x 3.06 x 2.13 = 19.6 in^3 7.62 x 7.8 x 5.4 = 321cm^3						
Weight	388 grams						
Mounting	4ea No.8 or M4 Screws						
Shock	500g's ½ sine 30 msec powered						
Vibration	6 gRMS *(20Hz - 2KHz ~ 10g accelerometers)*						
MTBF	No inherent wear out modes for long life.						

Specification subject to change without notice

Gladiator Technologies, Inc.

Gladiator Technologies, Inc.
8022 Bracken Place SE
Snoqualmie, WA 98065 USA
Tel: 425.396.0829 Fax: 425.396.1129
Email: sales@gladiatortechnologies.com
Web: www.gladiatortechnologies.com

Rev. Aug1610
SN: 150