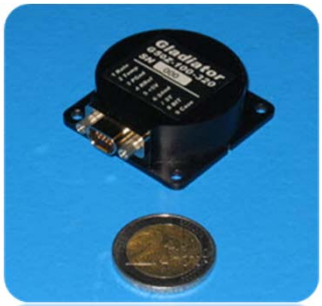
G50Z Gyro

- G50Z Low Noise MEMS Single Axis Gyro
- Low Noise *0.005°/sec/√Hz Typical*
- Short Term Bias *≤0.002°/sec 1σ*
- Bias Over Temperature *≤0.05°/sec 1σ*
- G-Sensitivity *≤0.005°/sec/g Typical*
- Axis Alignment *<4mrad Typical*
- Low Power *< 50 mA Typical*
- Single Sided or Bipolar "VSG" Compatible Signal *G50Z –XXX-420*
- Light Weight *< 34 grams*
- Low Voltage *+5V (single sided power)*
- Bandwidth *140Hz*
- Voltage Output
- Internal Temperature Sensor
- Environmentally Sealed with MILSPEC Connector
- Built-In-Test (BIT)/Self-Test
- Shock Resistant *500g*
- Vibration *6 gRMS*
- MTBF *81,000 hours (MIL-STD-217F)*

Export Classification:
Commerce ECCN7A994 (NLR)



Applications

Airborne Platform Stabilization
Antenna Stabilization & Pointing
EO/IR Stabilization
LIDAR Stabilization
Navigation
Flight Testing
Racing Yacht Marine Compass

Low Noise, G-Sensitivity and Bias Over Temperature

Gladiator Technologies
Division of LKD Aerospace
High Performance Inertial MEMS

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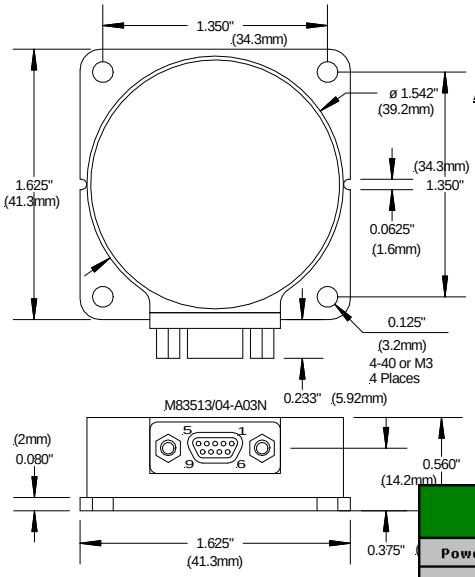
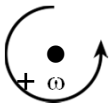
G50Z Gyro



Mating Connector: M83513/01-AN

Axes (Top View) Right Hand Rule



G50Z *"LN Series"* Configuration Options		
Part Number	**Bandwidth**	**Output**
G50Z-XXX-**320**	140Hz	Single Sided
G50Z-XXX-**420**	140Hz	Bipolar "VSG"

Pin No.	-3XX Assignment
1	Gyro Rate Output Voltage +2.5V *Nominal**
2	Gyro Temperature +2.5V @ 20°C*
3	Power Ground
4	Gyro +2.5V Reference Voltage*
5	+4.75V to +5.25V DC Input
6	Signal Ground
7	Self Test Input
8	BIT Output
9	Case

For -3XX: Rate output is Pin 1 with respect to Pin 4.
Pin 4 Vref has 1.25k Ohm Source Impedance

Pin No.	-4XX Assignment (VSG Signal)
1	Gyro Rate Output Voltage 0V *Nominal**
2	Gyro Temperature +2.5V @ 20°C*
3	Power Ground
4	Gyro +2.5V Reference Voltage*
5	+4.75V to +5.25V DC Input
6	Signal Ground
7	Self Test Input
8	BIT Output
9	Case

For -4XX: Rate output is Pin 1 with respect to Pin 6.

BIT Conditions	Self Test	BIT
Normal	0 or open	1
Fail (during operation)	0 or open	0
Fail (during Self Test)	1	1
Pass	1	0

Temperature is Pin 2 with respect to Pin 6. Self Test On is 4V to 5V on Pin 7. Self Test Off is open or 0V tp 1V.
*Loads: RL>5K Gyro:<100pf Vref & Temp: <500pf

Specification

PARAMETER	*"LN Series" MILSPEC Connector*				
	G50Z-025-XXX	G50Z-050-XXX	G50Z-100-XXX	G50Z-175-XXX	G50Z-350-XXX
Power Requirements					
Input Voltage	+5V DC (±5%)				
Input Current *Typical (Max)*	50mA (60mA)				
Performance					
Standard Full Scale Ranges	±25°/sec	±50°/sec	±100°/sec	±175°/sec	±350°/sec
Full Scale Output *(Nominal) -320*	+2.5V ±2.2V DC				
Full Scale Output *(Nominal) -420*	0V ±5.0V DC				
Scale Factor *Nominal -320*	80mV/°/sec	40mV/°/sec	20mV/°/sec	12mV/°/sec	6mV/°/sec
Scale Factor *Nominal -420*	180mV/°/sec	90mV/°/sec	45mV/°/sec	27mV/°/sec	13.5mV/°/sec
Scale Factor Over Temperature	±5%				
Temperature Sensor	2.5V ±0.05V DC Nominal at 20°C				
Temperature Sensor Scale Factor	8.4mV/°C Nominal				
Bias Factory Set *2σ*	≤0.1°/sec	≤0.1°/sec	≤0.1°/sec	≤0.1°/sec	≤0.2°/sec
Bias Variation Over Temperature *1σ*	≤0.05°/sec	≤0.07°/sec	≤0.1°/sec	≤0.15°/sec	≤0.25°/sec
Short Term Bias Stability *1σ (150 sec at constant temp.)* °/sec	≤0.002°/sec	≤0.002°/sec	≤0.003°/sec	≤0.004°/sec	≤0.005°/sec
°/hr	7°/hr	8°/hr	10°/hr	14°/hr	18°/hr
Long Term Bias Stability *(1 Year)*	≤0.1°/sec	≤0.1°/sec	≤0.1°/sec	≤0.1°/sec	≤0.2°/sec
G-Sensitivity *2σ*	≤0.005°/sec/g	≤0.01°/sec/g	≤0.02°/sec/g	≤0.04°/sec/g	≤0.08°/sec/g
Axis Alignment *(Typical)*	<4mrad				
Start-Up Time	<0.05 sec				
Bandwidth (-3 dB)	140 Hz				
Non-Linearity *(of Full Range)*	≤0.5%				
Threshold/Resolution	≤0.002°/sec	≤0.002°/sec	≤0.002°/sec	≤0.0025°/sec	≤0.003°/sec
Output Noise *(Typical)*	0.005°/sec/√Hz	0.0055°/sec/√Hz	0.006°/sec/√Hz	0.008°/sec/√Hz	0.01°/sec/√Hz
MTBF	81,000 hrs *(per MIL-STD-217F, Notice 2 based on AIC environment with ambient temperature at 40°C)*				
Environments					
Operating Temperature	-40°C to +85°C				
Storage Temperature	-55°C to +100°C				
Vibration Operating	6 gRMS (20Hz to 2KHz)				
Shock	500g, any axis 30msec 1/2 sine				
Weight	< 34 grams				

Specification subject to change without notice

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