

SENOFEE

ITEM NO: FOG500



Single Axis Gyroscope Fiber

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General Description

As an interference type digital closed-loop single-axis fiber optic gyroscope, FOG50 has the advantages of low cost, large working bandwidth, high resolution, small zero drift, high linearity, short starting time, impact resistance and vibrat.can be applied to the application requirements of medium and high-precision inertial navigation systems such as I- and positioning and orientation, vehicle north finder, airborne attitude, and marine gyro - compass.

Specifications

Zero bias stability: $\leq 0.3^\circ/\text{hr}(1\sigma)$

Measuring axis: Single-axis

Power supply voltage range: 9-35v

Anti-vibration performance: $>2000g$

Store temperature : $-55^\circ\text{C}\sim+100^\circ\text{C}$

Zero temperature drift ($-40^\circ\text{C} \sim 85^\circ\text{C}$): $\pm 0.005^\circ$

Random walk coefficient: $\leq 0.01^\circ/\text{hr}$

Measuring range: $\pm 500^\circ$

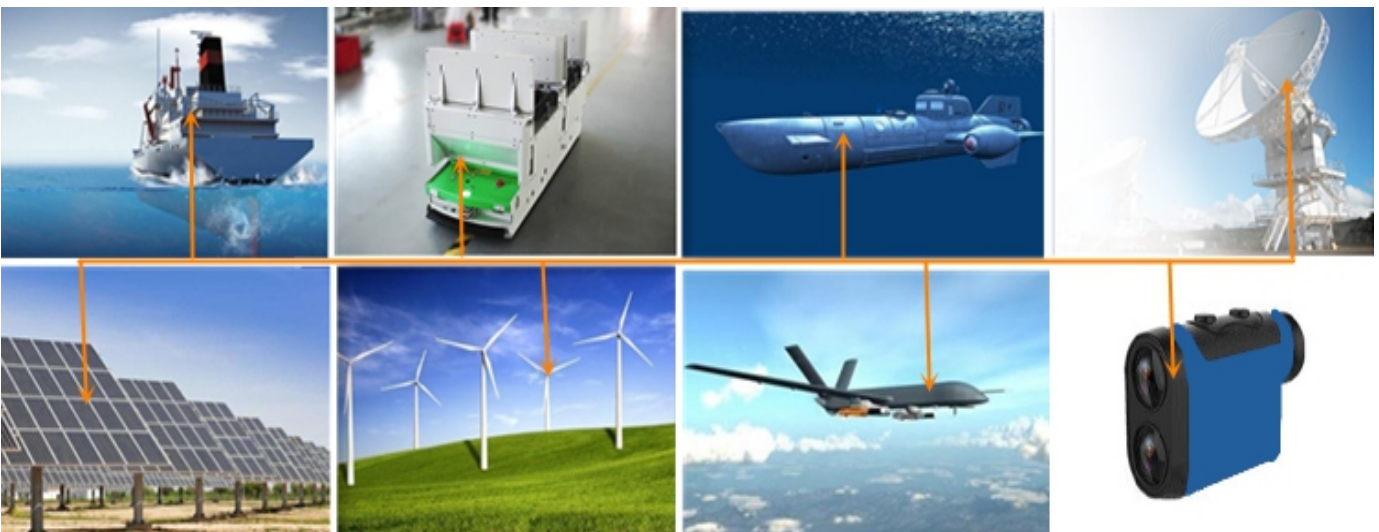
Output signal: RS422 output

Wide temperature working: $-40^\circ\text{C} \sim +85^\circ\text{C}$

Applications

- 1: Motion attitude control
- 3: Servo tracking
- 5: Automatic cargo truck
- 7: Oil drilling
- 9: Drone
- 11: Airborne attitude

- 2: Damping of high speed train swing
- 4: Robot balance
- 6: Locking of the aiming system
- 8: Monitoring structural deformation
- 10: Building monitoring



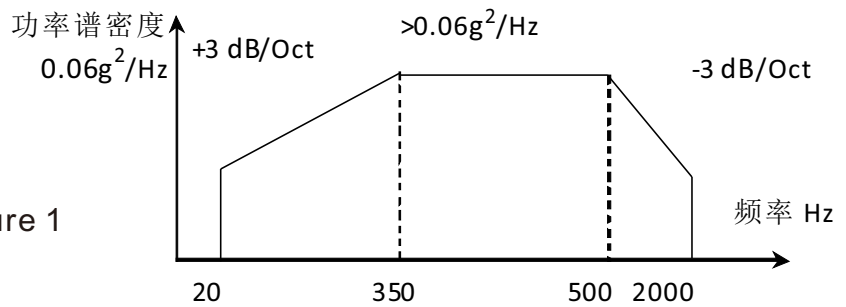
Performance Specification

Parameter	FOG500	FOG501	FOG502
Measuring range	-500°/S~+500°/S	-500°/S~+500°/S	-500°/S~+500°/S
Zero bias stability	≤0.3°/hr(1σ)	≤0.5°/hr(1σ)	≤0.8°/hr(1σ)
Zero Bias repeatability	≤0.2°/hr(1σ)	≤0.5°/hr(1σ)	≤0.8°/hr(1σ)
Random walk coefficient	≤0.01°/hr	≤0.01°/hr	≤0.01°/hr
Scale factor nonlinearity	≤50ppm(1σ)	≤50ppm(1σ)	≤50ppm(1σ)
Scalefactor asymmetry	≤50ppm(1σ)	≤50ppm(1σ)	≤50ppm(1σ)
Data refresh rate	200~2000	200~2000	200~2000
Total temperature scale factor repeatability	≤1000	≤300	≤200
Magnetic field sensitivity	-	-	-
Baud rate(bps)	115200~921600		
Frequency bandwidth	≥200Hz		
Start time	1S		
Working temperature	-40 ~ +60°C		
Storage temperature	-45~+80°C		
OutPut mode	RS422		
Size (mm)	50×50×36.5mm		
Weight (g)	130±10		
Connector	J30-15ZK		

Sinusoidal sweep vibration

The gyroscope is fixed on the vibrating table through tooling according to the vibration direction, and the gyroscope performs sinusoidal scanning in 3 directions, corresponding to the X-axis, Y-axis, and Z-axis directions. Vibration step: add excitation to the vibrating table, power up the gyroscope, warm up for a certain period of time (gyro-start time), test the gyroscope output value, about 5min; perform sinusoidal vibration. Vibration conditions: 20Hz-2000Hz, scan time 5min, amplitude 4.2g. During the vibration, record the gyroscope output.

Random vibration
 Vibration frequency: 20Hz~2000Hz
 Vibration time: 5min for each axis
 Vibration direction: X, Y, Z axis
 Vibration spectrum: see attached picture 1



picture 1

Indicator requirements:

The fiber optic gyroscope has no resonance in the sine frequency sweeping range of 20HZ ~ 2000Hz;

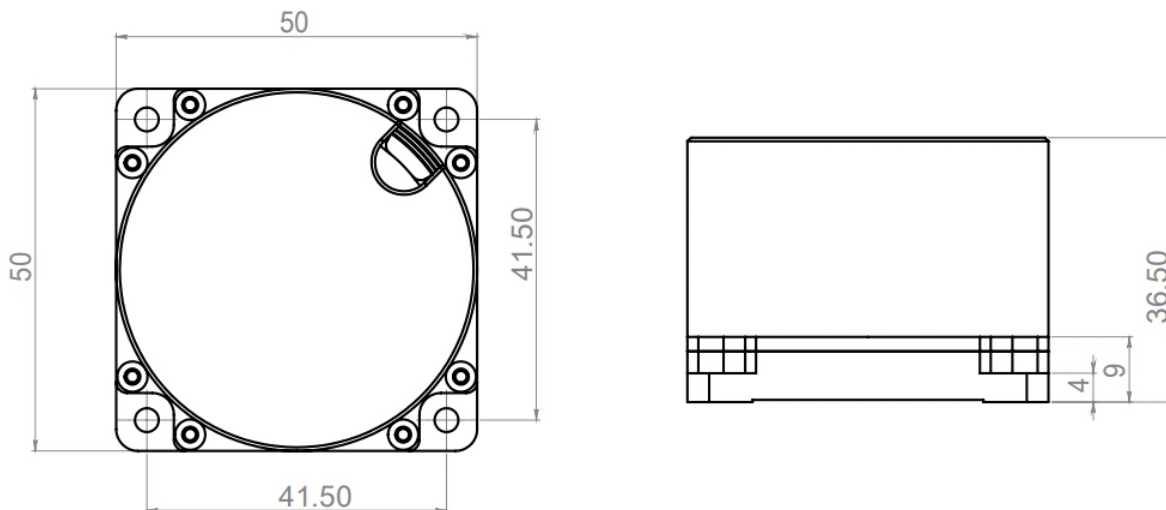
Random vibration: the absolute value of the zero offset value in the vibration and the average value of the front and back zero offsets must be less than 0.5°/h.

Impact test conditions

Peak acceleration (g)	30
Duration (ms)	10
Number of impacts	3 times in each direction
Waveform	Half sine wave
Direction	X、Y、Z
Note: The interval between two impacts is not less than 1.5s	

During the impact, the product is in the energized state, and the product should be able to work normally after completing the mechanical impact. The zero change value before and after the impact is less than 0.3°/h.

Product size chart



Definition of output interfaces

Node number	Definition	Remark
1	T+	X gyroscope output signal+
2	T-	X gyroscope output signal-
3	R+	R gyroscope output signal+
4	R-	R gyroscope output signal-
5、13	+5V	+5V power input
6、7	±5VGND	GND

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