SENOFEE

ITEM NO: FOG170A

Single Axis Gyroscope Fiber

Email:info@senofee.com / http://www.senofee.com

FOG170A Single Axis Gyroscope Fiber

General Description

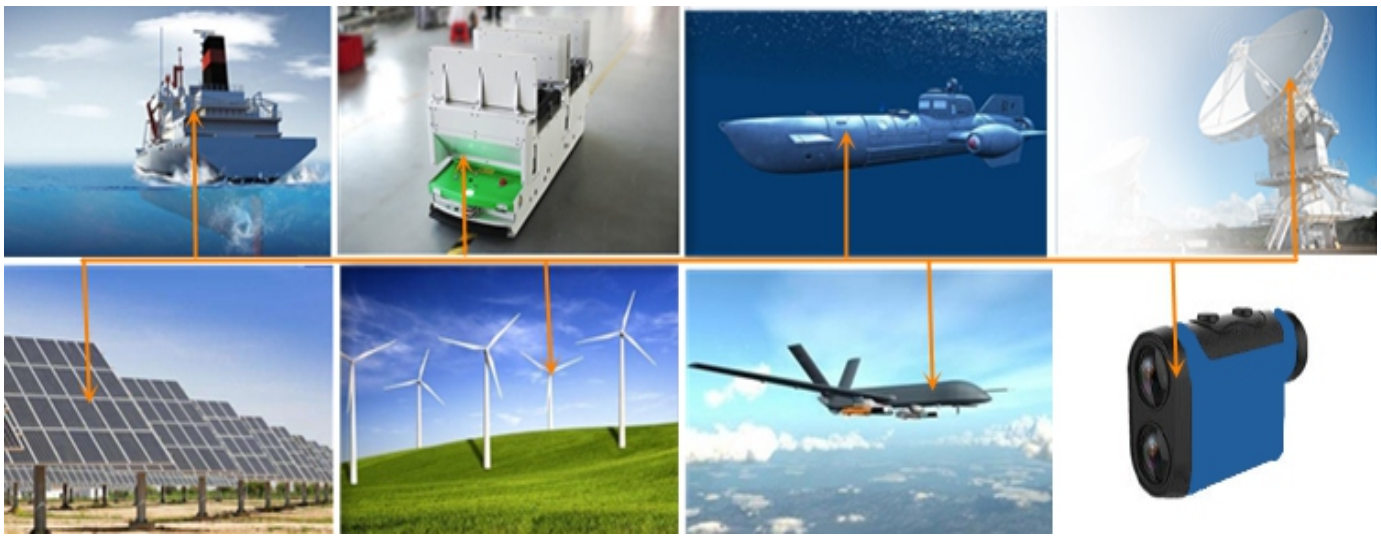
As a new type of all-solid-state gyroscope, fiber optic gyroscope has the advantages of fast start-up, wide measurement range and high reliability. FOG170A The single-axis low- and medium-precision fiber optic gyroscope can be used in land positioning and orientation, vehicle north finder, airborne attitude, marine gyro compass, etc.Application requirements of medium and high precision inertial navigation system.This manual is only applicable to FOG170A products, including performance indicators, technical conditions, overall dimensions and installation and use.Among them, the technical conditions include the environmental range, electrical performance, and physical characteristics of the product.

Specifications

Zero bias stability:≤0.05°/hr(1σ)
Random walk coefficient:≤0.02°/$\sqrt{hr}$
Measuring axis: Single-axis
Measuring range: ±500°/s
Power supply voltage range: 9-35v
Output signal:RS422 output
Anti-vibration performance: >2000g
Wide temperature working: -40°C ~ +85°C
Store temperature : -55°C~+100°C
Zero temperature drift (-40 ° C ~ 85 ° C): ± 0.005 °

Applications

1:Motionattitude control
2:Damping of high speed train swing
3: Servo tracking
4: Robot balance
5: Automatic cargo truck
6: Locking of the aiming system
7: Oil drilling
8: Monitoring structural deformation
9:Drone
10:Building monitoring
11.Airborne attitude



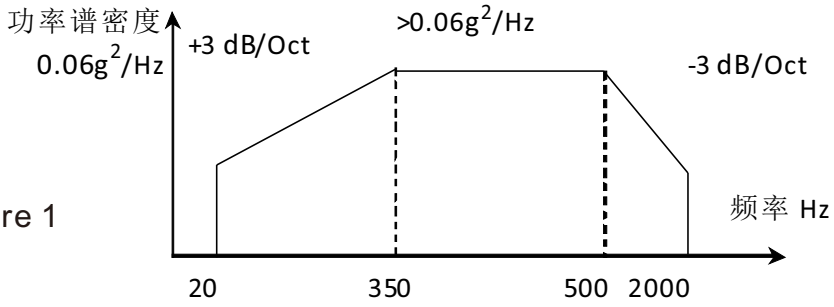
Performance Specification

Measuring range	±400°/s	±400°/s
Zero bias stability	≤0.05°/hr(1σ,10s)	2h continuous test, 10s smooth result
Zero Bias repeatability	≤0.05°/hr(1σ)	6 test data calculation results
Random walk coefficient	≤0.005°/ √hr	
Total temperature scale factor repeatability	≤300 ppm(1σ)	-40℃ ~ +60℃
Scale factor nonlinearity	≤20 ppm(1σ)	Room temperature
Scalefactor asymmetry	≤20 ppm(1σ)	Room temperature
Full temperature offset repeatability	≤0.3°/hr	-40℃ ~ +60℃
Magnetic field sensitivity	≤0.02°/hr/Gs	
Vibration conditions	4.2g,20Hz ~ 2000Hz	
Start time	1S	
Working temperature	-40℃ ℃ ~ ~ +70℃	
Storage temperature	-50℃ ℃ ~ ~ +70℃	
Connector	J30-15ZK	
OutPut mode	RS422	

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.

Definition of output interfaces

Node number	Definition	Remark	colour
1	T+	X gyroscope output signal+	Yellow
2	T-	X gyroscope output signal-	Orange
3	R+	R gyroscope output signal+	Blue
4	R-	R gyroscope output signal-	Green
5、13	+5V	+5V power input	Red
6、7	±5VGND	GND	Black

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