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. FoG150 type single-axis low- and e-dium-precision fiber optic gyroscope can be applied to land positioning and orientation, vehicle north finder, airborne attitude, marine gyro compass, etc.Application requirements of e-dium and high precision inertial navigation system.This manual is only applicable to 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:≤0.3°/hr(1σ)

Random walk coefficient:≤0.01°/hr

Measuring axis: Single-axis

Measuring range: ±500°

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 Spectification

Parameter	A	B	C
Measuring range	-500°/S～+500°/S	-500°/S～+500°/S	-500°/S～+500°/S
Zero bias stability	≤0.3°/hr(1σ)	≤0.2°/hr(1σ)	≤0.1°/hr(1σ)
Zero Bias repeatability	≤0.3°/hr(1σ)	≤0.2°/hr(1σ)	≤0.1°/hr(1σ)
Random walk coefficient	≤0.02°/√hr	≤0.02°/√hr	≤0.01°/√hr
Scale factor nonlinearity	≤100ppm(1σ)	≤50ppm(1σ)	≤50ppm(1σ)
Scalefactor asymmetry	≤100ppm(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℃		
Storage temperature	-45～+80℃		
OutPut mode	RS422		
Connector	J30-15ZK		
Weight（g）	130±10		

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, corre sponding 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 vib-ration, 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

功率谱密度

$0.06g^2/Hz$ +3 dB/Oct $>0.06g^2/Hz$ -3 dB/Oct

频率 Hz

20   350   500   2000
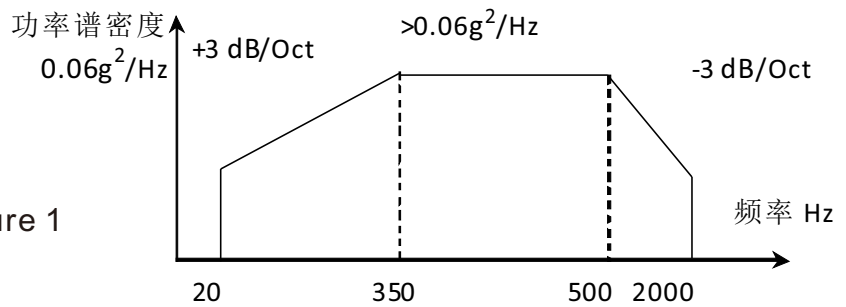
picture 1

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 0.5º/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 0.3º/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

SENOFEE

ITEM NO: FOG150

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