



SPECIFICATIONS

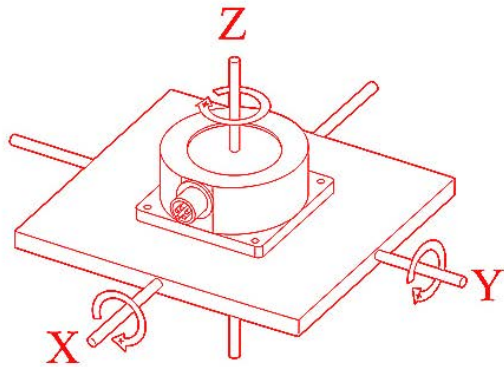
Item No.: TL610D

Description: MEMS Voltage Type Gyroscope

Production implementation standard reference

- Enterprise quality system standards: ISO9001: 2008 standard (certification number: 128101)
- Tilt sensor production standards: GB / T 191 SJ 20873-2003 inclinometer general specification of Level
- The Academy of metrology and quality inspection Calibrated in accordance to: JJF1119-2004 Electronic Level calibration Specification
- Software development reference standard: GJB 2786A-2009 military software development General requirements
- Product environmental testing standards: GJB150
- Electromagnetic anti-interference test standards: GB / T 17626
- Version: Ver.10
- Date: 2014.7.3

TL610D- MEMS Voltage Type Gyroscope



General Description

TL610D is a gyroscope (angle rate sensor) based on the micro mechanical principle, a miniature inertial devices for mainly measuring the angular velocity of a moving object. Product internal with the silicon ultrafine precision ring sensing technology so that it has a high-performance, waterproof, anti-vibration, light weight, anti-electromagnetic interference characteristics and etc. Uninterrupted the machine with self-test technology, the filtering algorithm and the first time in the country by eliminating resonance technology to solve the influence on data because of the surrounding noise or vibration interference source to the ordinary gyroscope. TL610D add another new temperature sensor compensation technology to solve the temperature drift impact problems, with over-temperature stability and long life characteristics etc. to realize the domestic similar products technology-leading technology.

Products with high cost-effective, small volume, more advantages than the FOG in application fields, is now widely used in the automotive, military, marine, moving objects, position control & attitude control, and other applications that require precise angle measurement occasions !

Key Features

- High performance drift stability
- Low noise
- Light weight
- Long life, strong stability
- Cost-effective
- Excellent vibration performance
- All solid state
- Compact & light design
- 0~5V voltage output
- Wide temperature range
- DC+9~36V power supply
- Temperature drift $\pm 0.1^\circ/\text{sec}/^\circ\text{C}$

Application:

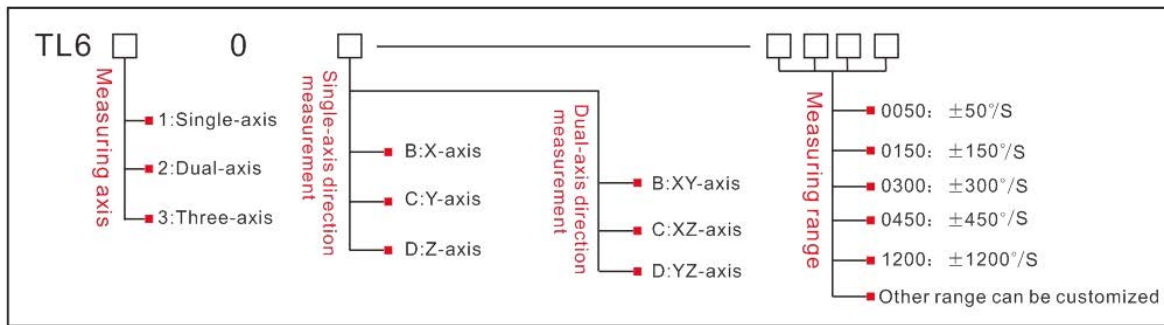
- Military & Industry
- Navigation
- Car navigation
- Platform stability
- Auto safety system
- Remote control helicopters
- Turck-mounted satellite antenna equipment
- Industrial control
- Equipments
- GPS combination
- Camera stability
- Robot
- 3D virtual reality
- Ships electronic needle error compensation on inclined (angle rate) induction equipment



Technical Data

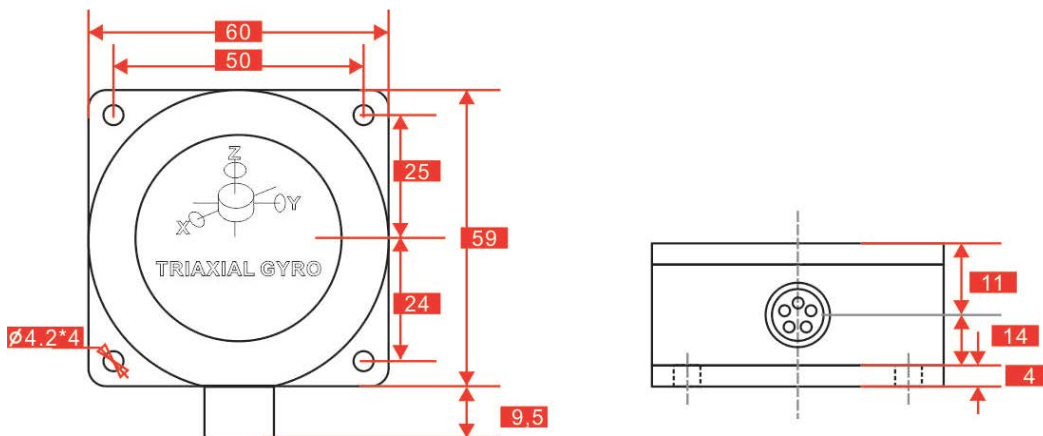
Parameters	TL610D-050	TL610D -150	TL610D -300
Measuring range (°/s)	±50	±150	±300
Measuring axis	X、Y、Z (optional)	X、Y、Z (optional)	X、Y、Z (optional)
Bandwidth(Hz)	>2000	>2000	>2000
Resolution(°/s)	0.1	0.1	0.1
Nonlinear	0.1% of FS	0.1% of FS	0.1% of FS
Temperature drift °/sec	< ±0.1°/sec, /°C	< ±0.1°/sec, /°C	< ±0.1°/sec, /°C
Start time (ms)	5	5	5
Input voltage(V)	+9~36V	+9~36V	+9~36V
Output voltage(V)	0~5V	+0~5V	0~5V
Current(mA)	6	6	6
Working temperature (°C)	-40 to +85	-40 to +85	-40 to +85
Store temperature (°C)	-55to +100	-55to +100	-55to +100
Capacitive load (Pf)	1000	1000	1000
Shock (g)	5g~10g	5g~10g	5g~10g
Impact (g)	200g pk, 2ms, ½sine	200g pk, 2ms, ½sine	200g pk, 2ms, ½sine
Working life	11 years	11 years	11 years
Electromagnetic compatibility	According to EN61000 and GBT17626		
MTBF	≥50000hours/times		
Insulation resistance	≥100M		
Shockproof	100g@11ms、3Times/Axis(half sinusoid)		
Anti-vibration	10grms、10~1000Hz		
Protection class	IP67		
Connector	5 pins air-plug, matched with 1M cable		
Weight	110g(Without cable)		

Ordering Information



E.g: TL610D-0050: Single-axis、Z axis direction measurement、 $\pm 50^\circ/\text{s}$ Selection
 TL620B-0050: Dual-axis、XY Axis direction measurement、 $\pm 50^\circ/\text{s}$ Selection
 TL630B-0050: Three-axis、XYZ Axis direction measurement、 $\pm 50^\circ/\text{s}$ Selection

Dimension



TOP VIEW

UNIT:mm

FRONT VIEW

Size: L60mm *W59 mm *25mm

Mechanical Parameters



- Connector: Waterproof air-plug
- Protection class: IP67
- Enclosure material: Aluminum Ox
- Installation: 4XM4 screws

Typical performance chart

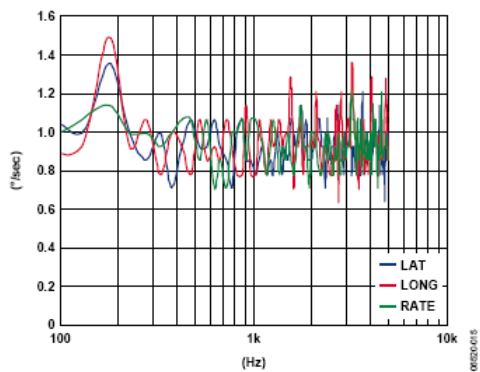


Figure 16. Typical Response to 10 g Sinusoidal Vibration (Sensor Bandwidth = 2 kHz)

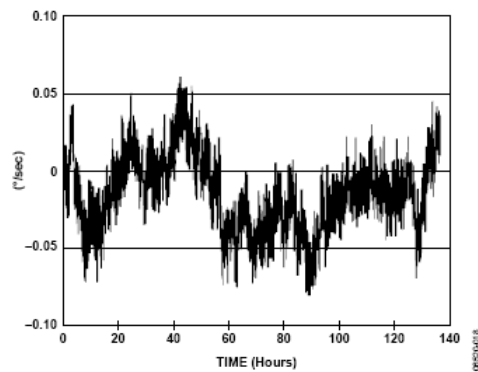


Figure 19. Typical Shift in 90 sec Null Averages Accumulated over 140 Hours

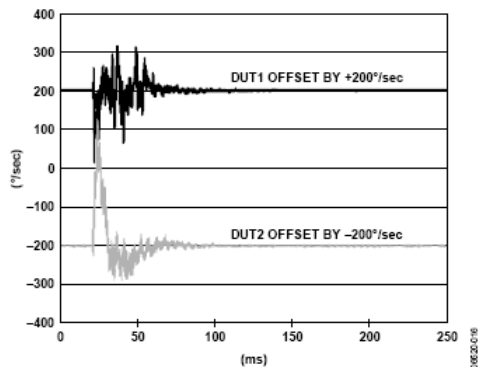


Figure 17. Typical High g (2500 g) Shock Response (Sensor Bandwidth = 40 Hz)

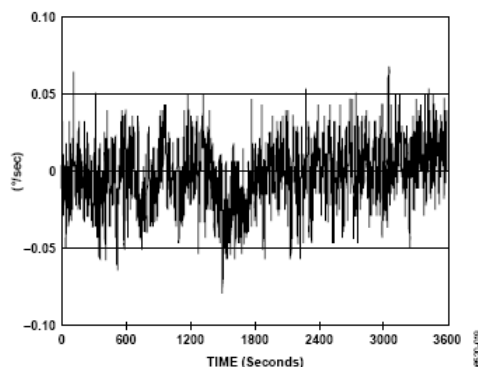


Figure 20. Typical Shift in Short Term Null (Bandwidth = 1 Hz)

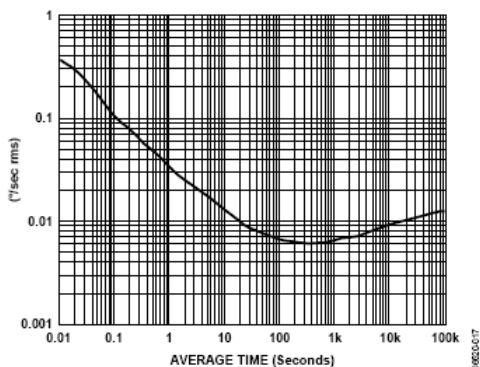


Figure 18. Typical Root Allan Deviation at 25°C vs. Averaging Time

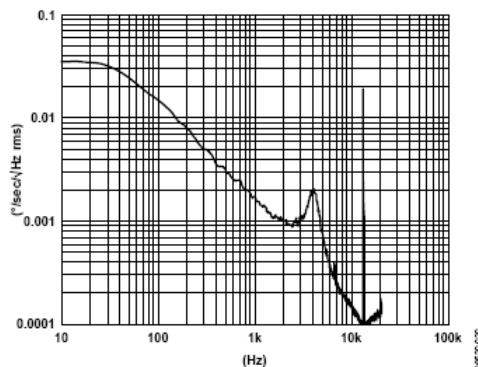
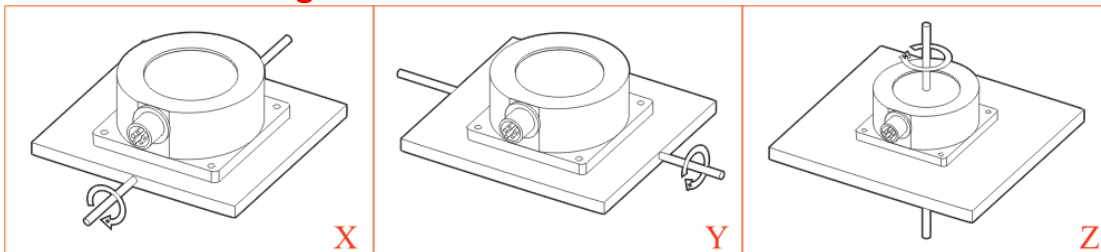


Figure 21. Typical Noise Spectral Density (Bandwidth = 40 Hz)

Products measuring directions



Electrical Connection

3cables socket pin	5cables socket pin	Cable color	Single-axis Gyro	Dual-axis Gyro	Three-axis Gyro
1	1	Red	Power positive	Power positive	Power positive
2	2	White	X Axis voltage signal	X Axis voltage signal	X Axis voltage signal
		Yellow	NC	NC	
	3	Green	NC	Y Axis voltage signal	Y Axis voltage signal
3	4	Black	Power GND	Power GND	Power GND
	5	Blue	NC	NC	Z Axis voltage signal



※More information please visit Rion's company website: www.rion-tech.net



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✓ 倾角传感器 ✓ 倾角（调平）开关 ✓ 数显水平仪 ✓ 陀螺仪
✓ 三维电子罗盘 ✓ 加速度计 ✓ 航姿参考系统 ✓ 寻北仪

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