



AgileLight-300C Series

Digital closed-loop **Triaxial**
Fiber Optic Gyro

Technical Manual

V3.2
2023-3-21



Introduction

AgileLight-300C is digital closed-loop triaxial fiber optic gyroscope. It has the characteristics of large working bandwidth, high resolution, low zero drift, high linearity, short start-up time, shock resistance, vibration resistance, and low cost. It is an alternative product to traditional mechanical gyroscope.

The AgileLight-300C fiber optic gyroscope adopts unique Intelli-Process technology, which not only eliminates the influence of temperature changes on the performance of the gyroscope to the greatest extent, but also significantly improves the bias stability, angle random, linearity of the scale factor, stability and other fiber optic gyroscopes. Key indicators. The extremely low bias stability, angular random walk and strong anti-vibration capability make it perfect for various industrial occasions. Its high performance, adaptability to harsh environments, compact structure and competitive price make it the first choice for motion sensing, platform stability, navigation and precise aiming.

Main Feature

- All-fiber optics technology: Angular velocity sensor with long life, small size, high stability and anti-interference
- Intelli-Process Technology: Built-in high-performance digital signal processing chip to realize all-digital working mode. Adaptive filtering technology reduces the zero drift and angular velocity random walk of the gyro by 50%-75% compared to similar products
- Integrated optical fiber polarization technology: reduce insertion loss, improve extinction ratio, and provide better resistance for temperature, mechanical shock and vibration for the optical path
- Compact and highly stable package: adapt to various harsh environments, widely used in various civil and military occasions
- Quick Launch technology: Realize instant start of gyroscope without external calibration
- Optimal working wavelength: Under the same structure, size, and cost, the sensitivity can be increased by nearly 50%
- Noise isolation and compression technology: significantly reduce angular velocity random walk
- Self Track and Self-phase tracking technology: improve the dynamic range of the gyroscope

Application

- Motion control
- Servo tracking
- Damping of high-speed train swing
- Antenna/radar/optical platform stability
- Inertial North Seeking
- Robot balance
- Guidance and navigation
- Locking of the aiming system
- Oil drilling
- Small inertial group/inertial navigation

Product Features



Electrical Index

Voltage (V)	DC18-32V (customized)
Power consumption (W)	Instantaneous power consumption 11.76W
	Stable power consumption 7.2W
Working temperature(°C)	-40~+60
Storage temperature (°C)	-45~+85



Performance Index

Axis	three axis
Measuring range (°/s)	±600
Zero bias stability at constant temperature (°/h)	≤0.5
Zero bias repeatability at room temperature (°/h)	≤0.5
Random walk coefficient (°/√hr)	≤0.05
Scale factor (LSB/°/s)	111000±2000
Scale factor nonlinear (ppm)	≤70
Scale factor asymmetry (ppm)	≤70
Data refresh rate (Hz)	500
Baud rate (bps)	460800
Frequency bandwidth (Hz)	>200
Start-up time (s)	≤1
Size (mm)	112mm×112mm×77.5mm
Weight (kg)	≤1.18

Output method	broadcast(default)/triggered(customized)
Output mode	RS 422

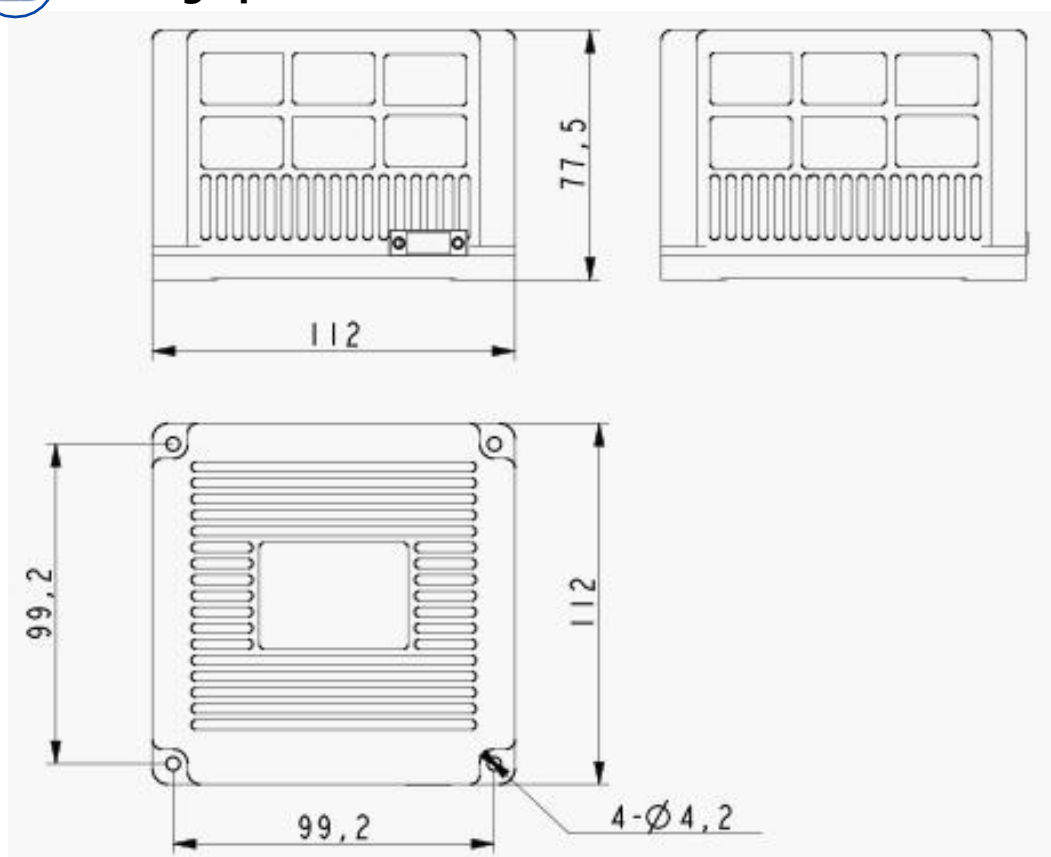


Mechanical Index

Connector	J30J-15ZKP
Protection Level	IP62
Shell material	aluminum alloy oxidation
Installation	M4*20
Vibration (Hz, g2/Hz)	20 ~ 2000,0.06
Shock (g, ms)	100g,1ms



Package product size

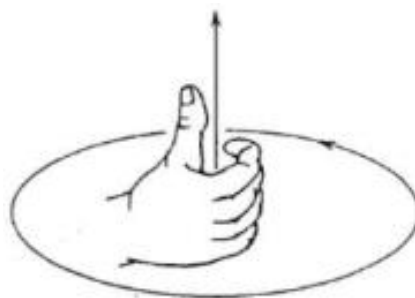
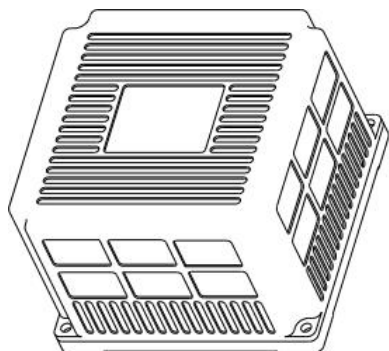


Note: Unfilled dimensional tolerances are performed in accordance with GB/T1804-2000 Class C.



Gyroscope polar

The polarity of X, Y, and Z gyros is defined by the right-hand helix rule, and the three axes are orthogonal. The thumb represents the direction of the sensitive axis, and the other fingers represent the direction of the angular velocity.



J30J-15ZKP Wire Connection definition

1-2	VIN+	Power +DC 18-36V
3	GND	GND
4	GND	
5	T+	T+
6	T-	T-
7-15	N/A	

Protocol



Frame Format

each frame contains 24 bits, The format is shown in below Table 1, 10 bits per byte, and the order is

The starting bit is 1 bit

8 bits for data bit(send low bit first before the high bit)

1 bit for stop bit



Communication Rule

The gyroscope uses broadcast communication

Frame format of output data

Byte	Definition	bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
1	Header	1	0	0	0	0	0	0	0
2	XGyroHigh4 bits	0	0	0	0	D31	D30	D29	D28
3	X Gyro Middle 7bits	0	D27	D26	D25	D24	D23	D22	D21
4	X Gyro Middle 7bits	0	D20	D19	D18	D17	D16	D15	D14
5	X Gyro Middle 7bits	0	D13	D12	D11	D10	D9	D8	D7
6	X Gyro low 7bits	0	D6	D5	D4	D3	D2	D1	D0
7	X Gyro Temperature High 7 bits	0	T13	T12	T11	T10	T9	T8	T7
8	X Gyro Temperature Low7 bits	0	T6	T5	T4	T3	T2	T1	T0
9-15	Y Gyro data	Same format as above							
16-22	Z Gyro data	Same format as above							
23	cycle code	0-0xFF cycle							
24	end of frame	1	0	1	0	1	0	1	0

AgileLight-300C Series

Wuxi Bewis Sensing Technology LLC

Add: Building 30, NO. 58, Xiuxi Road, Binhu District,
Wuxi City, Jiangsu Province, China

Tel: +86 18921292620

Mail: sales@bwsensing.com

Web: www.bwsensing.com