

F-109型光纤陀螺仪

F-109 fiber optic gyroscope



产品概述

F-109型光纤陀螺仪是一款高性价比的高精度惯性角速度传感器，基于萨格纳克原理，由ASE光源、光纤分束器、光电探测器、集成光学相位调制器、保偏光纤环、控制电路组成。

产品特点

工程化程度高、性价比高
纯固态设计、环境适应性强
超长寿命，MTBF超过20000h
单 (+5V)供电、简化系统设计
全数字RS-422电气接口

产品应用

无人机飞控、光电吊舱、测绘、轨道惯导铁路检测、平台稳定装置、动中通、惯性测量单元

Product overview

F-109 fiber optic gyroscope is a cost-effective high-precision inertial angular velocity sensor based on the Sagnac principle, which is consisted of ASE light source, fiber splitter, photodetector, integrated optical phase modulator, polarization maintaining fiber loop, and control circuit.

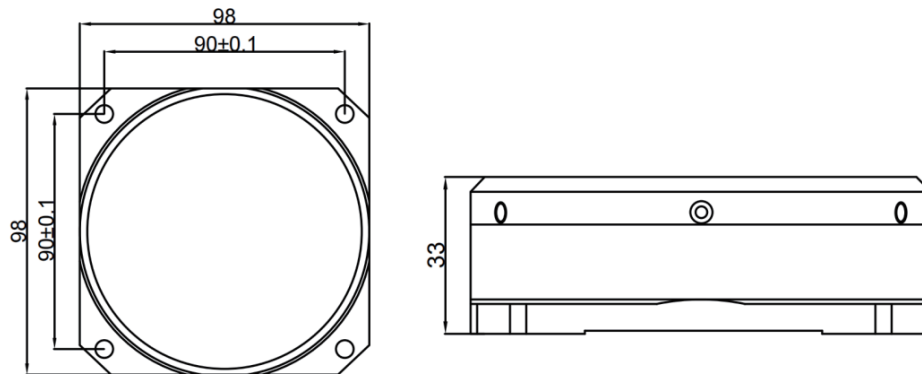
Product features

High degree of engineering and high cost performance
Pure solid-state design with strong environmental adaptability
Ultra-long life, more than 20000h of MTBF
Single (+5V) power supply of a simplified system design
All-digital RS-422 electrical interface

Product application

UAV flight control, photoelectric pod, surveying and mapping, orbital inertial railway detection
Platform stabilizer, moving communication, inertial measurement unit

结构尺寸 Structural dimensions



技术指标 Technical indicators

规格 Specifications

型号 Type	F-109
启动时间 Start-up time	≤3s
测量范围 Measuring range	±300°/s
零偏稳定性 Bias stability	≤0.01°/h, 10s
零偏稳定性(全温) Bias stability (full temperature)	≤0.01°/h, 100s
零偏重复性 Bias repeatability	≤0.003°/h
角度随机游走系数 Angle random walk coefficient	≤0.0005°/h ^{1/2}
标度因数稳定性 Scale factor stability	≤30ppm
标度因数重复性 Scale factor repeatability	≤5ppm
标度因数不对称性 Scale factor asymmetry	≤2ppm
标度因数非线性度 Scale factor nonlinearity	≤2ppm
标度因数稳定性(全温) Scale factor stability (full temperature)	≤200ppm
磁场敏感性 Magnetic field sensitivity	≤0.05°/h/Gs
带宽 Bandwidth	≥200Hz
MTBF	≥20000h

电气/机械 Electrical/Mechanical

外形尺寸 Size	Φ98*33mm
重量 Weight	< 520g
输入电压 Input voltage	+4.75~+5.25V
功耗 Power waste	2.5W (典型) 5W (最大)
工作温度 Working temperature	-40~+60°C
存储温度 Storage temperature	-55~+85°C
随机振动 Random vibration	6.06g, 20~2000Hz
对外连接器 External connector	J30V2-9TJW-P2
对外电气接口 External electrical interface	RS-422/485