

航姿参考系统 ZCJ1000



ZCJ1000 航姿参考系统是一款小型化、高性价比的航姿参考系统。可以测量运动载体的姿态参数（横滚、俯仰和航向）、角速度和加速度信息。姿态和角速度偏差通过具有适当增益的 9 态卡尔曼滤波得到最优估计，适用于高动态环境。

ZCJ1000 采用高可靠性和稳定性的 MEMS 传感器，同时具备中低精度光纤陀螺相应产品的测量精度及 MEMS 系统优秀的环境特性，同时密封设计以及严格工艺保证产品在恶劣的环境下仍能精密地测量载体的姿态、航向等运动参数。

应用范围

- 航空
- 天线稳定平台
- 车辆的导航与控制
- 姿态和航向参考
- 船舶姿态的动态测量
- 采矿和自动耕作
- 集装箱跟踪

特点

- 优秀的陀螺性能，可替代中低精度 FOG 相应产品；
- 磁场计可分体设计，提高航向精度；
- 卓越的抗振动和抗冲击性能；
- 特有的捷联姿态算法和卡尔曼滤波；
- 全程温度标定；
- 全密封可靠设计；
- 高采样率，高带宽。

ZCJ1000 Attitude and Heading Reference System (AHRS) is a low-cost miniaturized inertial equipment, for measurement of attitude parameters (roll/pitch/heading), angular rate and acceleration of dynamic carrier. Its attitude and angular bias is optimized via a nine-state Kalman filter with adaptable gain to provide the best performance in high dynamic environment.

ZCJ1000 adopts high reliability & stability MEMS sensors. The system is featured with both the measurement accuracy of low & medium accuracy FOG and the excellent environmental performance of MEMS. Meanwhile, its rugged-design and strict production process safeguard the precise measurement of attitude, heading and other dynamic parameters of the carrier under harsh environment.

Applications

- Aviation
- Antenna Stabilization
- Vehicle Guidance and Control
- Attitude and Heading Reference
- Marine Dynamics
- Mining and Auto-farming
- Container Tracking

Features

- Excellent gyro performance, alternative to the systems based on low & medium accuracy FOG;
- Split design of magnetic field to improve the heading accuracy;
- Outstanding vibration & shock resistance;
- Proprietary strapdown attitude algorithms and Kalman filter;
- Full Temperature Calibration;
- Reliable rugged-design;
- High sampling rate and high bandwidth.

性能指标/Specification

激活时间/Activation Time		≤1 s
姿态和航向 Attitude & Heading	静态初始化时间 Static Initializing Time	30 s
	姿态精度 Attitude Accuracy	≤0.3 deg, 1 σ
	航向精度 Heading Accuracy	≤0.8 deg, 1 σ
陀螺仪 Gyroscope	零偏/Bias	≤36 deg/h
	零偏稳定性 Bias Stability	≤10 deg/h
	零偏重复性 Bias Repeatability	≤18 deg/h
	非线性 Non-Linearity (FS)	≤200 ppm
加速度计 Accelerometer	零偏/Bias	≤0.5 mg*量程/Range (g)
	零偏稳定性 Bias Stability	≤0.1 mg*量程/Range (g)
	零偏重复性 Bias Repeatability	≤0.2 mg*量程/Range (g)
测量范围 Range	航向角/Heading	±180 deg
	横滚角/Roll	±180 deg
	俯仰角/Pitch	±90 deg
	角速度/Angular Rate	±400 deg/s
	加速度/Acceleration	±10 g (可定制/customizable)
可靠性 (预期) /Reliability (predicted)		10 Kh MTBF
接口特性 Interface	电压/Voltage	9~36 VDC
	功耗 Power Consumption	≤4 W @ 24 VDC
	电气接口 Electrical	RS232/RS422
	数据更新率 (可设) Data Update Rate (configurable)	100 Hz @ 115,200 baud rate
使用环境 Environmental	工作温度 Operating Temperature	-45°C ~ +71°C
	存储温度 Storage Temperature	-55°C ~ +85°C
	振动/Vibration	6 g @ 20~2000 Hz
	冲击/Shock	100 g, 0.5 ms, 1/2 sine
Physical	尺寸/Size (L*W*H)	68.8 × 68 × 70 mm
	重量/Weight	≤500 g

