

## GNSS/INS 紧密组合系统 ZCZ1000

**ZCZ1000** 小型化 MEMS 紧密组合导航系统采用紧耦合技术将高精度、低功耗、16 通道、单频 GNSS 接收机输出的原始载波相位及伪距和高精度 MEMS 惯性测量单元紧密结合，具有体积小、重量轻、性能优、价格相对低廉等特点。

**ZCZ1000** 紧密组合导航系统可提供水平姿态、航向等定姿信息，经度、纬度、高度等定位信息，以及三维加速度、角速度等惯性测量信息；并可通过扩展里程计、高度气压计等辅助传感器进一步提高系统精度和适用性，可广泛应用于无人机、交通工具导航、航空和平台稳定控制等领域。

### 应用范围

- 无人飞行器
- 航空
- 平台稳定
- 长途运输
- 船舶姿态的动态测量
- 采矿和自动耕作
- 火车和集装箱跟踪

### 特点

- GNSS/INS 紧密结合；
- 性价比高，体积小，重量轻；
- 全密封可靠设计，保证恶劣环境下可正常工作；
- 高采样率，高带宽；
- 差分 GNSS 兼容（可选）；
- 扩展里程计或高度气压计等传感器（可选）。

**ZCZ1000** miniaturized MEMS based tightly integrated navigation system applies tight integration technology to combine the original carrier phase and pseudorange from a 16-channel high-accuracy low-power L1 GNSS receiver with high accuracy MEMS Inertial Measurement Unit (IMU). The system is featured as small size, light weight, and high cost performance.

**ZCZ1000** tightly integrated navigation system provides attitude information (such as horizontal attitude and heading), positioning information (such as longitude, latitude and altitude) and inertial measurement information (such as 3D acceleration and angular rate). Its measurement accuracy and applicability can be further extended by assistant sensors such as odometer or barometric altimeter etc. It can be widely applied in fields of UAV, transportation navigation, aviation and platform stabilization, etc.

### Application

- UAV
- Aviation
- Platform Stabilization
- Long-haul Transportation
- Marine Dynamics
- Mining and Auto-farming
- Train & Container Tracking

### Features

- Tightly integrated GNSS/INS;
- High cost performance, small size and light weight;
- Reliable rugged-design to safeguard stable performance under harsh environment;
- High sample rate with wide bandwidth;
- Compatible with differential GNSS (optional);
- Extendable with odometer or barometric altimeter, etc. (optional).

性能指标/Specification

系统精度 <sup>1</sup> System Accuracy <sup>1</sup>	航向/Heading		≤0.3 deg, 1 σ
	水平姿态 (横滚和俯仰) Horizontal Attitude (roll & pitch)		≤0.2 deg, 1 σ
	位置 Position	水平/Horizontal	2.5 m, CEP
		高程/Altitude	5 m, CEP
速度/Velocity		≤0.1 m/s, 1 σ	
器件主要特性 Device Main Parameter	陀螺 Gyroscope	量程/Range	±400 deg/s
		零偏稳定性 Bias Stability	≤10 deg/h
		零偏重复性 Bias Repeatability	≤10 deg/h
	加速度计 Accelerometer	量程/Range	±10 g (可定制/customizable)
		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)
	GNSS		B1, L1
GNSS 定位时间 GNSS Time	冷启/Cold Start	≤60 s	
	典型重捕/Typical Reacquisition	≤1 s	
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	30 g, 11 ms, 1/2 Sine	
物理特性 Physical	尺寸/Size (L*W*H)	81.8 x 68 x 70 mm	
	重量/Weight	≤500 g	

1. GNSS 有效, GNSS 信号中断时间≤30 s.  
GNSS valid, GNSS interruption time ≤30 s.