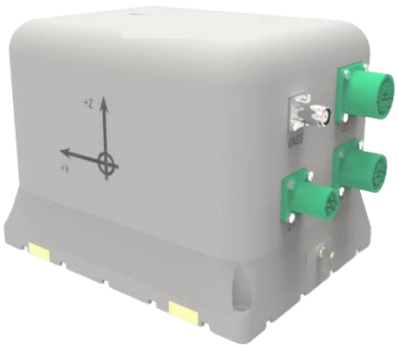
CALTROP INSTRUMENTS
A BRIDGE TO PERCEIVE THE WORLD



Product Description:

This product has built-in high-precision three-axis integrated fiber-optic gyro, high-precision quartz flexure accelerometer and mobile mapping-grade multi-mode and multi-frequency GNSS receiver supporting autonomous BeiDou function. Through the advanced intelligent combination navigation algorithm and Kalman filter, optimized design for GNSS obstruction and multi-path interference, it can realize high-precision heading, attitude, speed and position measurement of moving carriers.

The inertial guidance system also has a variety of sensor interfaces such as GNSS/odometer/DVL/barometric altimeter, which can well meet the needs of long-time, high-precision and high-reliability navigation applications in complex environments such as urban canyons, and can be used for the navigation and control of all kinds of unmanned systems.

Features:

- Fast and accurate determination of initial heading and attitude
- Support real-time heading and attitude output
- Built-in GPS, BeiDou dual-mode receiver
- Dynamic fast alignment
- INS/GNSS combination design
- Support IE post-processing
- Anti-electromagnetic interference and vibration
- Enhanced Kalman filtering algorithm
- Built-in vibration damping system for good vibration and shock resistance

Applications:

- Car Navigation
- Airborne Navigation
- Shipboard Navigation
- Stabilization Control

Specification:

Combined inertial/satellite navigation accuracy	
Attitude Accuracy	0.05°secφ (RMS, φ is local latitude) (static self-navigating, single antenna/manual binding of initial coordinates)
	0.1° （RMS） （Static Dual Antenna, 2m Baseline）
	0.02° （RMS） （Single/dual antenna, carrier motorized rear）
Position Accuracy	Point position：horizontal≤1.5m，elevation≤3m（RMS, satellite signal good）；
	RTK：horizontal≤1cm+1ppm，elevation≤2cm+1ppm（RMS，Carrier phase-differential link good）
Velocity Accuracy	0.01m/s（RMS, Carrier speed less than 500m/s）
Registration Time	≤5min（Static self-searching north）≤1min（Dual antenna assisted directional）
Heave	≤5cm（heave＜1m）or 5%（heave>1m）
Inertia/ODO/DVL Accuracy	0.5%×Miles traveled (depending on the accuracy of the external odometer)

Specification：

Pure inertial navigation accuracy	
Attitude Accuracy	Azimuth Holding Accuracy：0.01°/h（RMS）
	Horizontal Attitude Holding Accuracy：≤0.005°/h（RMS）。
Position Accuracy	Position Accuracy：≤1nmile/h（50%CEP）
Velocity Accuracy	Horizontal velocity accuracy：≤1m/s（1σ）。

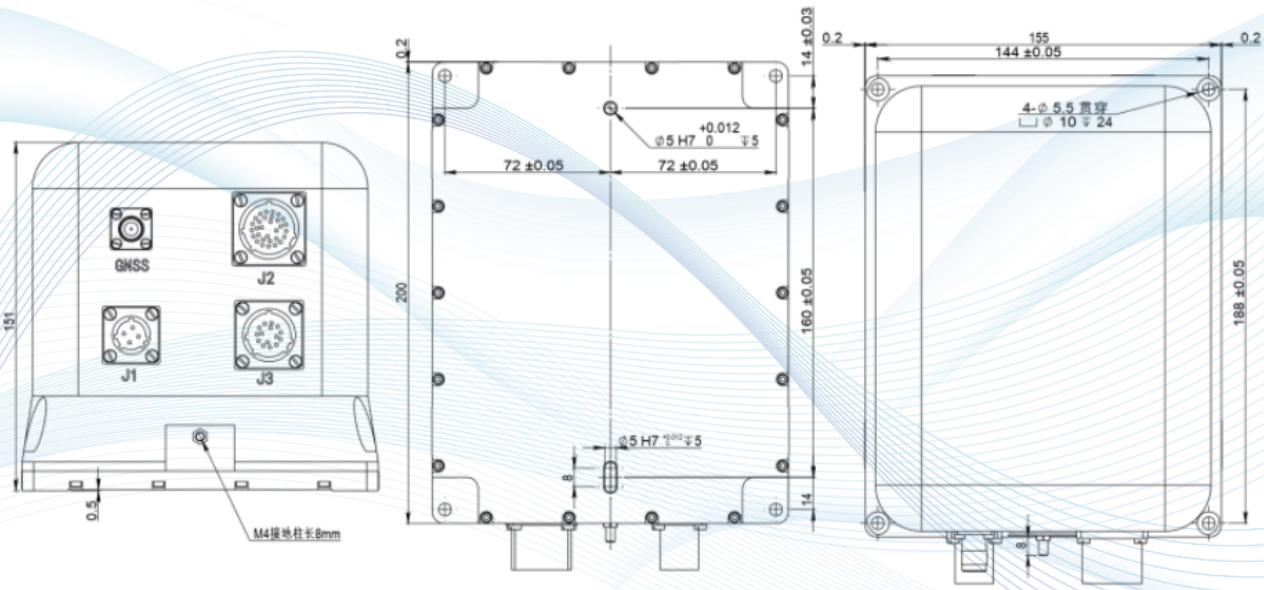
Main Device Characteristic					
Gyroscopes	Range	±500°/s	Accelerometers	Range	≥|±30| g
	Zero bias stability (ambient)	≤0.01°/h（10s smooth）		Scale factor	1.0~1.3mA/g
	Zero bias repeatability	≤0.003°/h		Second-order nonlinear coefficients	≤|±10|μg/g2
	Random walk factor	≤0.0005°/h$^{1/2}$		Bias Monthly Repeatability (1σ)	≤20 μg
	Scale factor nonlinearity	≤10ppm		Scale factor monthly repeatability (1σ)	≤20 ppm
	Scale factor repeatability (ambient)	≤10ppm		Second-order nonlinear coefficient monthly repeatability (1σ)	≤10 μg/g 2
				Bias temperature coefficient	≤|±40|μg/℃
				Degree Factor Temperature Coefficient	≤|±50| ppm/℃

Physical Characteristic	
Supply voltage	24V DC rate（12～36V DC）
Electric consumption	＜20W
Operating temperature	-40℃~+70℃
Storage temperature	-55℃~+85℃
Protection level	IP65
Physical dimension	≤201mm×156mm×151mm
Impact	15g，11ms Half-sine shock
Shock	6.06g，20～2000Hz，broadband randomization
Weight	≤6Kg

Interface Characteristic	
Interface method	RS232/RS422/CAN/Ethernet port
Transmission speed	115200bps（configure）
Data update rate	400Hz

User mode
Vehicle-mounted (default), aircraft-mounted, ship-mounted

Dimensions：



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The customer's technical department is responsible for assessing the suitability of the product for the intended application and the completeness of the product information given in this document in relation to such application.
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中国大陆
西安鑫源宇通电子科技有限公司
陕西省西安市高新区锦业路70号航天恒星园区1号厂房一层南
Tel： 400-780-9688
sales@senstechxyz.com

中国香港
深大实业有限公司
香港新界沙田安平街6号新贸易中心B座13楼06室
Tel:+86 17792099916
info@caltropinstruments.com

新加坡
深大实业有限公司
香港新界沙田安平街6号新贸易中心B座13楼06室
Tel:+86 17792099919
info@senstechxyz.com