TYPE 50 LASER STRAPDOWN INERTIAL NAVIGATION SYSTEM

PRODUCT DESCRIPTION

The Model 50 Inertial Navigation System is a state-of-the-art navigation solution. It combines the Type 50 Ring Laser Gyroscope and Quartz Flexible Accelerometer. This system can be integrated with GNSS, altimeters, and airspeed meters to provide accurate navigation information such as speed, position, and attitude for air and ground carriers. It is suitable for various applications including tanks, armored vehicles, aircraft, drones, ships, and more. The system achieves high accuracy with a positioning accuracy of less than 5 meters when integrated with GNSS. It has an alignment time of under 10 minutes and operates continuously for over 10 hours. The system features multiple interfaces and can withstand challenging environmental conditions. Compact and lightweight, it is a reliable and versatile solution for navigation needs.

PRODUCT FEATURES

- Cost-effective ring laser gyro and quartz accelerometer
- Optional static or moving base self-alignment
- Error parameters calibration and compensation in full temperature range
- Optional diverse input interfaces for GNSS/Odometer/DVL
- Configurable navigation modes
- Excellent environmental suitability
- Military standards

APPLICATION AREAS

- Sea vehicle navigation
- Under-water vehicle navigation and positioning
- Positioning and north-finding for land vehicle
- Stabilization and control for moving carrier
- Attitude measurement for demanding applications

MAIN FUNCTIONS

- It has the function of outputting information such as carrier position, heading, attitude angle, angular rate and speed in real time;
- It has working modes such as pure inertial navigation and INS/GNSS (including Beidou) integrated navigation;
- Possess the function of receiving satellite navigation information provided by external time system frequency standard equipment;
- It has the function of ground self-alignment and supports the function of air alignment;
- It has functions such as power-on self-test, periodic self-test, status report, installation error compensation, and non-volatile storage.

PERFORMANCE INDICATORS

System accuracy System Accuracy	Pure Inertial Navigation/Pure Inertial Navigation	0.8 nmile/1h, CEP
	Integrated Navigation/Navigation with GNSS	≤5m , 1σ _
	Heading angle /Heading	0.05°, RMS
	Horizontal attitude (roll and pitch) Horizontal Attitude (roll & pitch)	0.01°, RMS
	Pure Inertial Velocity	1 .5 m/s , RMS

	GNSS Integrated navigation Velocity		0. 1 m/s , RMS
Indicators of inertial devices Gyro and Accelerometer Parameters	laser gyroscope _ Gyroscope	Range/Range	± 6 00 deg/s
		Bias Stability	≤0.01 deg/h, 1σ
		Zero bias repeatability Bias Repeatability	≤0.01 deg/h, 1σ
		Scale Factor non-linearity	10 ppm
	Accelerometer Accelerometer	Range/Range	± 15g _
		Bias Stability	≤10μg , 1σ
		Zero bias repeatability Bias Repeatability	≤10μg , 1σ
		Scale Factor non-linearity	15 ppm
align time Alignment Time	Cold Start		≤ 8 min
	Re-Start		≤ 5min _
	Air/In-Flight Start		≤10min
Working hours Operation Time	Continuous working time/Operation Time		more than 10h
Interface Features interface	Supply voltage/Voltage		18~36VDC
	Power Consumption		≤ 40W @ 24VDC
	Electrical interface/Electrical		RS232 × 2 RS422 × 3 CAN × 2 Ethernet × 1 1pps × 1
	Data Update Rate (configurable)		200Hz@115.2kbps _ _ _
Use environment Environmental	Operating Temperature		-40°C~+65°C
	Storage temperature/Storage Temperature		-55°C~+85°C
	Use Altitude/Altitude		20000m
	Humidity		≤95% (+25°C)
	Vibration/Vibration		5g @ 20~2000Hz
	Shock/Shock		40 g, 11 ms, 1/2 Sine
Physical properties Physical	Dimensions/ Size (L*W*H)		240 x202x 169 mm _
	Weight/ Weight		9 kg

Note: The structure can be customized according to the user's requirements.

GYROSCPE MOUNTING DIMENSIONS

● The whole system is composed of two parts: the inertial navigation main instrument and the inertial navigation main instrument bracket.

● Among them, the external dimensions of the main instrument are as follows: