INS632-2A

Hybrid-FOG Integrated Navigation System

INS632-2A is a high-precision vehicle FOG&MEMS INS, which integrates a high-precision vehicle-mounted high-precision FOG, a 6-axis MEMS inertial measurement measurement, and uses a high-precision GNSS positioning module with RTK function and a vehicle odometer to achieve integrated navigation. After precise factory calibration, it can realize temperature compensation in the whole temperature range, and can stably output centimeter-level high-precision positioning, speed measurement, and attitude information in real time in various harsh environments, and can maintain a certain period of time after the satellite signal is lost. It can be widely used in scenarios such as passenger cars, commercial vehicles and operational unmanned vehicles with autonomous driving or intelligent driving functions.

ADVANTAGES

- Functional safety design in compliance with vehicle regulations
- High-performance small-volume self-developed Z-axis FOG
- Ensure high navigation accuracy for a long time after the satellite loses lock
- Vehicle Motion Constrained Navigation Algorithm
- Multiple sensor data fusion can be connected
- Software online upgrade, parameter automatic calibration function

APPLICATION FIELDS

- Autopilot
- Unmanned vessel
- Mobile mapping
- Airborne guidance and control system
- Trunk logistics, unmanned mining truck

INS632-2A TECHNICAL PARAMETers

GNSS technical parameters					
RTK Positioning Accuracy	Flat Surface	RMS	≤1cm + 1ppm(1σ)		
	At height		≤1.5cm + 1ppm(1σ)		
GNSS Supported	BDS: B1/B2; GPS: GPL1/L2; GLONASS: 1/L2; GALILEO: E1/E5b				
IMU technical parameters					
IMU	Parameter		X	Y	Z
	Gyros	Type	MEMS	MEMS	FOG
		Range	±450°/s	±450°/s	±400°/s
		Bias Instability(1σ)	≤10°/h	≤10°/h	0.3°/h
		Angle Random Walk	≤0.25°/√h	≤0.25°/√h	≤0.01°/√h
		Scale Factor Non-linearity	≤100ppm	≤100ppm	≤30ppm
	Accelerometer	Type	MEMS	MEMS	MEMS
		Range	±10g	±10g	±10g
		Bias Instability(1σ)	≤200ug	≤200ug	≤200ug
		Velocity Random Walk	≤25mm/s/√h	≤25mm/s/√h	≤25mm/s/√h
		Scale Factor Non-linearity	≤200ppm	≤200ppm	≤200ppm
Navigation Technical Parameters					
Navigation		Satellite lock accuracy (RMS)			
HPos(RMS)	0.2%	Fusion wheel speed navigation accuracy (10km or 20min)	0.2%		
Elevation Position (RMS)	0.6%(Elevation error/horizontal distance)		0.6%(Elevation error/horizontal distance)		
Horizontal Velocity (RMS)	0.1m/s		0.1m/s		
Velocity at height (RMS)	0.1m/s		0.1m/s		
Attitude accuracy (STD)	0.05°		0.1°		
Azimuth accuracy (STD)	0.1°		0.1°		
physical parameters					
size	116x100x62 (mm)				
weight	≤500g				