

# Vehicle Inertial Navigation System

The inertial navigation system is applied in vehicle dynamic performance testing. It outputs parameters such as position, speed, acceleration, and direction using bias settings.



## ADDITIONAL IMAGES

Indicator Items	NAV500	NAV1000	NAV2000	NAV3000
<b>FUNCTION</b>				
Product Positioning	Vehicle-grade	Vehicle-grade	RTK-grade	RTK-grade
RTK mode	RTK	RTK	RTK	RTK
Number of antennas	2	2	2/1	2
Number of channels	30MHz	30MHz	30MHz	30MHz
Heading angle	±0.2°	±0.2°	±0.1°	±0.1°
Static positioning (RTK)	0.01m	0.01m	0.01m	0.01m
High-speed positioning (RTK)	0.01m	0.01m	0.01m	0.01m
Low-speed static (RTK)	0.01m	0.01m	0.01m	0.01m
High-speed static (RTK)	0.01m	0.01m	0.01m	0.01m
Distance between points	0.01m	0.01m	0.01m	0.01m
Longitudinal relative distance	<1cm (1000m/s)	<1cm (1000m/s)	<1cm (1000m/s)	<1cm (1000m/s)
Lateral relative distance	<1cm (1000m/s)	<1cm (1000m/s)	<1cm (1000m/s)	<1cm (1000m/s)
Longitudinal relative velocity	<0.01m/s	<0.01m/s	<0.01m/s	<0.01m/s
Lateral relative velocity	<0.01m/s	<0.01m/s	<0.01m/s	<0.01m/s
Angular rate of turn	0.1°	0.1°	0.1°	0.1°
<b>ENVIRONMENT</b>				
OSD	Yes	-	Yes	Yes
Operation	Yes	Yes	Yes	Yes
SE-202	Yes	-	Yes	Yes
Operation	1.1V/1.5V/1.8V	-	1.1V/1.5V/1.8V	1.1V/1.5V/1.8V
Weight	1kg	-	1.5kg	2.5kg
Power consumption	4W	-	5W	8W
Version	V1.0	V1.0	V1.0	V1.0
Version	V1.0	V1.0	V1.0	V1.0
Version	V1.0	V1.0	V1.0	V1.0
Version	V1.0	V1.0	V1.0	V1.0

## Overview

### Professional Vehicle Inertial Navigation System

This high-performance inertial navigation system is engineered for dynamic vehicle performance testing and autonomous navigation applications. By integrating dual-antenna RTK GNSS receivers with temperature-calibrated accelerometers, gyroscopes, and magnetometers, it provides precise position, velocity, and orientation data. The system utilizes advanced Kalman filtering algorithms to ensure reliable navigation performance, even in challenging environments.

## Performance Metrics

### Key Navigation Accuracy

**0.01 m**

Static RTK Position

**0.02 m**

High-Speed RTK Position

**0.1 deg**

Heading Angle

## Technical Specifications

### Navigation System Comparison

Feature	NAV500	NAV3000
Technology	Vehicle-Grade	FOG Integrated
Power Dissipation	<8W	18W
Weight	1kg	2.5kg

### Integrated Sensors

- Dual-antenna RTK GNSS Receiver
- Temperature-calibrated Accelerometer
- Gyroscope
- Magnetometer
- Pressure Sensor

## Connectivity

Available Interfaces	CAN, Ethernet, RS-232
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