

MNAV-INS

High-precision Inertial Navigation System

Built-in high-performance MEMS Inertial Measurement Unit (IMU) and a full-system, full-frequency, high-precision positioning and orientation module, outputting information such as the carrier's attitude, heading, position, and speed. When GNSS is not available, it can continuously output inertially calculated position, velocity, and attitude information, keeping navigation accuracy.



Parameters

Features

- Built-in high-performance MEMS gyroscope and accelerometer.
- Inertial navigation capability when GNSS is invalid.
- Accuracy guaranteed within the -40~70°C range.
- Features sway and dynamic base alignment functions.
- Outputs raw data of IMU and satellite navigation board.

Heading Accuracy

Dual GNSS	0.1°, 2m baseline (RMS)
Single GNSS	0.1°
Magnetic Combined Accuracy	2° (GNSS Invalid)

Satellite Board

Cold Start	35 s
Warm Start	5 s
Receiver Type	GPS+GLO+BDS
Mechanical	≤ 4 g
Velocity	≤ 500 m/s
Altitude	≤ 80000 m

General

Voltage	5~36 VDC
Power	≤ 3W
Dimensions	80*53*23 mm
Weight	≤ 150g

Positioning Accuracy

GNSS Effective (Single)	Horizontal: 1.2m / Elevation: 2.5m
GNSS Effective (RTK)	Horizontal: 0.8 cm+1 ppm Elevation: 1.5 cm+1 ppm
GNSS Invalid	<20m (Failure 60s)

Attitude Accuracy

GNSS Effective	0.1°
Inertial / Odometer Combined	0.1°
V-G Mode	< 2°

Gyroscope

Measurement Range	± 450°/s
Zero Bias Stability	2 °/h

Accelerometer

Measurement Range	± 16g
Zero Bias Stability	30μg

Environment

IP Protection Rating	IP65
Operating Temperature	-40 ~ 70°C
Vibration	20~2000 Hz, 6.06 g
Shock	30 g, 11 ms
MTBF	30000 h

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