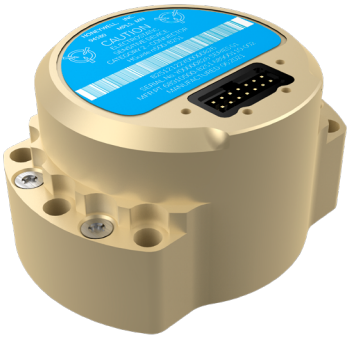
HGUIDE n500 INERTIAL NAVIGATOR

The HGuide n500 is the world's first Navigation Grade BYOG (Bring Your Own GNSS) all-attitude navigator to support continuous position and attitude navigation, even required even during regular prolonged GNSS outages.



Proven — Dependable — Accurate

The HGuide n500 is built on Honeywell's leading-edge HG4930 IMU plus the widely accredited Honeywell HGuide Sensor Fusion (HGSF) software.

Honeywell's integration expertise blends the data from the IMU and data from a customer-supplied GNSS receiver to provide accurate, robust navigation service with all the functionalities that you need in an ultra-low SWaP form factor.

The HGuide n500 output data includes timestamped position, velocity, angular rate, linear acceleration, roll, pitch, and heading information.

In dual-antenna mode, the n500 supports GNSS-based heading measurements and initialization.

KEY HONEYWELL ADVANTAGES

- Honeywell proven navigation algorithms for Air, Land, and Sea
- World-class inertial sensor development, calibration, and compensation
- Proven reliability, dependability, and ruggedness. MTBF =80,000rs
- Highest-performing Inertial/Navigator of its size, weight, and price
- Compatible with multiple GNSS receivers, including HGuide g080 from Honeywell
- Multiple communication ports
- Accurate attitude performance that provides better quality navigation trajectories
- The HGuide n500 inertial navigation system is not ITAR controlled.

  Its Export Control Classification Number (ECCN) is 7A994 and is generally available free of an export license

HGUIDE n500 TYPICAL KEY CHARACTERISTICS

Compatible Receivers	Honeywell HGuide gO80 u-Blox F9 Series Novatel OEM7 Septentrio AsteRx Series
Shock/Vibration	40 G for 11 msec (MIL-STD-810G) / Random 7.7 g's RMS, 20-2000 Hz
Supply Voltage/Power	+5 VDC +/- 5%, 3 Watts typical
Weight/Size	140 grams, 65 x 51 x 35.5 mm
Temperature	-40° C to +85° C
Communication Ports	3 x 5V CMOS (UART)
Discrete Signals	System & GPS Time Marks, User Event In (2), 1 PPS Event In Marker, Supports Lidar

Honeywell

HGUIDE n500 NAVIGATION PERFORMANCE [1, 2]

POSITION		VELOCITY		HEADING	PITCH/ROLL
Horizontal (m, 1σ)	Vertical (m, 1σ)	Horizontal (m, 1σ)	Vertical (m, 1σ)	(°, 1σ)	(°, 1σ)
< 0.01 RTK < 0.4 SBAS	0.025 RTK 0.40 SBAS	< 0.015	< 0.01	.03	< 0.015

[1] In dual antenna mode with 2m baseline; longer baselines improve performance

[2] Position and Heading performance may be dependant on GNSS receiver selected and environmental

HGUIDE n500 RTK DUAL ANTENNA PERFORMANCE — GNSS OUTAGES BY DURATION [3,4,5,6,7,8]

RMS Error	3 Seconds	10 Seconds	30 Seconds	60 Seconds
Horizontal (m)	0.08	0.10	1.0	3.5
Vertical (m)	0.05	0.10	0.30	0.70
Heading (°)	0.01	0.03	0.04	0.05
Horizontal Velocity (m/s)	0.02	0.04	0.06	0.45
Vertical Velocity (m/s)	<0.01	0.01	0.02	0.03

[3] Unit accepts DMI aiding via an HGNSI message

[4] HGUIDE MOTION DETECT and LAND VEHICLE CONSTRAINTS improve Land Vehicle performance during GNSS outages even without an Odometer (DMI)

[5] Typical Horizontal RMS Error of ~0.25% of distance traveled with Land Vehicle Constraints and Zero Velocity Detect enabled, but no DMI input

[6] Statistics are calculated by taking the RMS of the maximum error over multiple complete GNSS outages in a Land Vehicle application

[7] GNSS Receiver used was in RTK GNSS mode before and after outages

[8] SBAS error growth will be similar, but absolute accuracy will be reduced

GNSS OUTAGES BY DISTANCE PER AIDING SOURCE [9]

DMI	Horizontal RMS Error	<0.05% of distance traveled
DVL	Horizontal RMS Error	<0.2% of distance traveled

[9] Details of qualification tests and sensors used available on request

ONBOARD IMU SPECIFICATION

Spec	Gyro	Accel
Range	+/- 400 °/s	+/- 20g
Bias	7 °/hr 1σ	1700 µg 1σ
Bias Stability	0.25 °/hr 1σ	25 µg 1σ
Random Walk	0.04 °/ √hr	0.045 m/s/ √hr

ACCESSORIES AVAILABLE

- HGuide n500 IO Interface Card
- GNSS antennas and cables with Survey and UAV grade options
- HGuide Data Reader, SDK and ROS Drivers to support easy integration

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THE FUTURE IS WHAT WE MAKE IT

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