

## Geo-iNAV<sup>®</sup> Tactical GPS/INS Navigation System

**The Smallest & Lightest  
High-Performance GPS/INS Available**

**EPSON**  
EXCEED YOUR VISION

**Geo-iNAV<sup>®</sup> Tactical** is a fully-integrated GPS-aided inertial navigation system that utilizes a high-stability Quartz MEMS IMU to provide a high-performance navigation solution. Geo-iNAV<sup>®</sup> Tactical is offered in several configurations designed to meet a wide range of requirements, and is available for both commercial and military applications:

**Geo-iNAV<sup>®</sup> Tactical Commercial:** Designed for civilian navigation applications (no ITAR restrictions)

**Geo-iNAV<sup>®</sup> Tactical SAASM:** Designed for applications that have a military SAASM GPS requirement

### Geo-iNAV<sup>®</sup> Tactical Features

- Centimeter-level position accuracy (dual-frequency RTK configuration)
- GPS Processing with Precise Instantaneous Network positioning based on Geodetics' Epoch-by-Epoch<sup>®</sup> technology
- Tight-coupling with Geodetics' Extended Kalman Filter
- Full post-processing support with Geo-PostProcessing tools
- Support for low, medium and high-dynamic platforms
- In-motion dynamic alignment
- Mil-spec ruggedization
- Optional TDMA wireless data-link

### Geo-iNAV<sup>®</sup> Tactical Applications

- UAV & UGV navigation and control
- Military & defense security
- Robotic & ROV control
- Oil & gas exploration
- Mobile mapping systems & photogrammetry
- Transportation safety & maintenance
- Construction & structural management



The Geo-iNAV<sup>®</sup> Tactical INS is a joint venture between Geodetics, Inc. and Epson Electronics America. For all sales and technical-support related questions, please contact Geodetics, Inc. directly via:

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# Geo-iNAV<sup>®</sup> Tactical Product Configuration Options



## Geo-iNAV<sup>®</sup> Tactical GPS Options

GPS Options	Processing Options	Typical Position, Velocity, Acceleration, Attitude Accuracy (RMS) <sup>1</sup>		
		Horizontal , Vertical Pos.	Velocity , Acceleration	Roll, Pitch / Heading
Commercial	L1 Standalone	1.5 m , 2.5 m	0.1 m/s , 0.15 m/s <sup>2</sup>	0.2° / 0.5°
	L1/L2 RTK	5 cm , 10 cm	0.02 m/s , 0.1 m/s <sup>2</sup>	0.1° / 0.3°
SAASM	L1/L2 Standalone	1.0 m , 2.0 m	0.1 m/s , 0.15 m/s <sup>2</sup>	0.2° / 0.5°
	L1/L2 RTK	5 cm , 10 cm	0.02 m/s , 0.1 m/s <sup>2</sup>	0.1° / 0.3°

## Geo-iNAV<sup>®</sup> Tactical IMU Technical Specifications

Parameter	Epson M-G362	Epson M-G352
Gyroscope Dynamic Range	±150°/sec.	±440°/sec.
Gyroscope Bias In-Run Stability (1σ)	3°/hr.	6°/hr.
Gyroscope Angle Random Walk (1σ)	0.1°/√hr.	0.2°/√hr.
Accelerometer Dynamic Range	±3g	±6g
Accelerometer Bias In-Run Stability (1σ)	<0.1mg	<0.1mg
Accelerometer Velocity Random Walk (1σ)	0.04(m/sec)/√hr.	0.04(m/sec)/√hr.

## Maximum Drift of the Navigation Solution (Position, Velocity, Attitude) after GPS Outages

Outage	Position (Horizontal , Vertical)	Velocity (Horizontal , Vertical)	Attitude (Roll, Pitch / Heading )
30 seconds	2.0 m , 1.5 m	0.2 m/s , 0.1 m/s	0.02° / 0.05 °
60 seconds	8.0 m , 5.5 m	0.4 m/s , 0.5 m/s	0.05° / 0.1°

## Geo-iNAV<sup>®</sup> Tactical Technical Specifications

Parameter	Commercial Configurations	SAASM Configurations
Size / Weight / Power	33.8 in <sup>3</sup> (4.73x3.95x1.81) / 20 oz. / 10 – 30 VDC @ 2 Amps min.	
Environmental	MIL-810E, MIL-461 Compliant	
Temperature Range	Specified: -20°C to +60°C	Operating: -40°C to +70°C
Interfaces	External power connector, TNC GPS antenna connector, 1 Ethernet data port, 3 RS-232 serial ports, 1PPS output, 4 status LEDs.	External power connector, TNC GPS antenna connector, 1 Ethernet data port, 3 RS-232 serial ports, 1PPS output, 4 status LEDs, SAASM Keyload Connector, SAASM Zeroize button.
Real-Time Data Output	Navigation solutions at 125 Hz. available via Ethernet, RS-232 or optional wireless data-link.	
Data Recording/Logging	Navigation solutions, raw GPS & IMU data (for post-processing with Geo-PostProcessing tools).	
Wireless Communications	Optional TDMA data-link (various frequencies available), Point-to-Point mode available.	
GPS Frequency Tracking	L1 & L1/L2	L1 & L2 (P/Y Code)
Key Loading	N/A	DS101
Safety & Diagnostics	Internal safety and monitoring systems. Internal BIT with operator notification.	

<sup>1</sup>Accuracy is dependent on GPS satellite system performance, ionospheric conditions, satellite visibility, data-link and other factors.

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