GEODETICS INCORPORATED

Precision in Motion.

Geodetics is an Advanced Sensing and Navigation Company Based in the USA

Civilian GPS

Support for wide range of IMU's

- MEMS (internal)
- Tactical (external)
- Navigation (external)

Internal data logging

SAASM GPS

Path to M-CODE

Geo-iNAV® High Performance Inertial Navigation System

GEO-iNAV® IS A FULLY-INTEGRATED GPS-AIDED INERTIAL NAVIGATION SYSTEM SUPPORTING A WIDE RANGE OF IMU GRADES AND PROVIDING A HIGH-PERFORMANCE, TRUSTED POSITIONING AND NAVIGATION CAPABILITY

Geo-iNAV® is offered in several configurations designed to meet a wide range of requirements, and is available for both commercial and military applications:

- Geo-iNAV® Commercial: Designed for civilian navigation applications (no ITAR restrictions)
- Geo-iNAV® SAASM: Designed for applications that have a military SAASM GPS requirement

Key Features

- Centimeter-level position accuracy (dual-frequency RTK configuration)
- GPS Processing with Precise Instantaneous Network positioning based on Geodetics' Epoch-by-Epoch® technology
- In-motion dynamic alignment
- Support for low, medium and high-dynamic platforms
- Post-processing support with RTD-Post
- Mil-Spec ruggedization

Applications

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

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Geo-iNAV® High Performance Inertial Navigation System

Geo-iNAV® Accuracy[1]

GPS Options	Processing Options	Typical Position, Velocity, Acceleration, Attitude Accuracy (RMS)[1]		
		Position (Horizontal/Vertical)	Velocity, Acceleration	Roll, Pitch / Heading (Tactical MEMS, Advanced IMU)
Commercial	Standalone Mode	1.5 m / 2.5 m	0.1 m/s, 0.15 m/s^2	±0.2° / ±0.5° , ±0.05° / ±0.1°
	L1/L2 RTK Mode	0.05 m / 0.1 m	0.02 m/s, 0.1 m/s^2	±0.1° / ±0.3° , ±0.01° / ±0.05°
SAASM	Standalone Mode	1.0 m / 2.0 m	0.1 m/s, 0.15 m/s^2	±0.2° / ±0.5° , ±0.05° / ±0.1°
	L1/L2 RTK Mode	0.05 m / 0.1 m	0.02 m/s, 0.1 m/s^2	±0.1° / ±0.3° , ±0.01° / ±0.05°

[1]Accuracy is dependent on GPS satellite system performance, ionospheric conditions, GPS blockage, environmental conditions, data link and other factors.

IMU Specifications

Parameter	MEMS*	Fiber Optic Gyro	Ring Laser Gyro (ITAR)
Gyroscope Dynamic Range	±100°/sec or ±200°/sec	±490°/sec.	±1074°/sec.
Gyroscope Bias In-Run Stability (1σ)	2.2°/hr.	2°/hr.	1°/hr.
Gyroscope Angle Random Walk (1σ)	0.09°/√hr.	0.012°/√hr.	0.125°/√hr.
Accelerometer Dynamic Range	±3g	±10g	±37g
Accelerometer Bias In-Run Stability (1σ)	0.1mg	7.5mg	1mg
Accelerometer Velocity Random Walk (1σ)	0.04(m/sec)/√hr.	0.07(m/sec)/√hr.	0.001(m/sec)/√hr.

*: For more MEMS, FOG, or RLG IMU options please contact us

Technical Specifications

Parameter	Commercial Configurations	SAASM Configurations
Interfaces	▪ External power connector ▪ TNC GPS antenna connector ▪ 1 Ethernet data port ▪ 3 RS-232 serial ports, 1PPS output ▪ 4 status LED	▪ External power connector ▪ TNC GPS antenna connector ▪ 1 Ethernet data port and 3 RS-232 serial ports ▪ 1PPS output ▪ 4 status LEDs ▪ SAASM Keyload Connector ▪ SAASM Zeroize button.
GPS Frequency Tracking	L1/L2	L1 & L2 (P/Y Code)
Key Loading	N/A	DS-101
Size / Weight / Power	33.8 in^3 (4.73x3.95x1.81) / 20 oz. / 10 – 30 VDC @ 2 Amps min. (not including external IMU's)	
Temperature Range	Specified: -20°C to +65°C Operating: -40°C to +70°C	
Real-Time Data Output	Navigation solutions at 125 Hz (MEMS), 100 Hz. (FOG, RLG). available via Ethernet, RS-232	
Data Recording/Logging	Navigation solutions, raw GPS & IMU data (for post-processing with RTD-Post)	




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