NORTHROP GRUMMAN

LN-100G
Embedded GPS Inertial Navigation System

The LN-100G is ideally suited for use as a SAR, E/O reference, sensor stabilization or underwater system due to the absence of acoustic noise.

Advantages

By combining the Zero-lock™ Laser Gyro (ZLG™) with the latest technology, electronics, and GPS, the LN-100G represents the highest quality INS/GPS in the world.

The LN-100G optimally combines INS and GPS features to provide a tightly integrated solution for enhanced position, velocity, attitude, and pointing performance, as well as improved GPS acquisition and anti-jam capabilities.

The LN-100G provides three simultaneous navigation solutions: hybrid GPS/INS, Free-Inertial, and GPS-Only. The processing heart of the LN-100G, and the entire LN-100 product line, is the 32-bit PowerPC™ 603e microprocessor with Ada software.

The LN-100G has options for several different GPS receivers including P(Y) code, C/A code, RF, and IF. There are also two spare card slots for the addition of analog I/O modules, ARINC interfaces, and other expansion modules.

- Embedded GPS inertial system
- 0.8 nmi/hr free inertial
- Inertial, GPS, and hybrid navigation solutions
- SPS, PPS, all-in-view, and GRAM/SAASM GPS receivers available
- Low power, lightweight
- High MTBF
- Two dual 1553B data bus terminals
- High integrity, endurance tested design
- Validated Ada-based software
- Nondithered RLG (No acoustic noise; no SAR jitter)
- Ease of missionization, >70 applications to date

Applications

The LN-100G combines the high reliability and performance of the LN-100, using nondithered laser gyros with the latest GPS receiver technology.

The LN-100 product line uses common hardware and software elements to attain economies of scale from high-rate production. The LN-100G, with an embedded GPS receiver, gained early acceptance by the U.S. Navy for the T-45A Cockpit 21 program, by the EGI tri-service program for the F/A-18 and EA-6B, and by the USAF for the F-22.

The LN-100/LN-100G has now been selected by more than 70 customers including the United States Air Force, Navy, Army, Marine Corps, and Coast Guard, in addition to over 25 international applications. These units are flying in various aircraft, UAVs, UUVs, launch vehicles, PODs, missiles, fighters, a variety of helicopters, and transport aircraft (i.e., C-130, P-3, C-295).

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Performance

Position	Inertial Only	GPS/Inertial
4-minute gyrocompass align	0.8/0.6 nmi/hr	10m CEP
4 plus 4-minute EIA* align	0.5 nmi/hr	10m CEP
After loss of GPS		120m/20 min
Velocity per axis	2.5 ft/sec (rms)	0.015 m/sec (rms)
Attitude (pitch, roll, azimuth)	0.05° (rms)	0.02° (rms)

Physical

INU

Dimensions	11.0" L, 7.0" W, 7.0" H (27.9 cm, 17.8 cm, 17.8 cm)
Weight	21.6 lb (9.8 kg)

Optional Mount

Dimensions	13.7" L, 7.2" W, 0.75" H (34.8 cm, 18.3 cm, 1.9 cm)
Weight	2.5 lb (1.1 kg)

Operating Ranges

- Acceleration: 16g all axes
- Attitude (All Axes): Unlimited
- Roll, Pitch, Azimuth Rate: >400°/sec
- Roll, Pitch, Azimuth Acceleration: >1500°/sec^2

Outputs

- Digital: 2-dual Mil-Std-1553B/ RS-422/ARINC 429
- Analog (Pitch, Roll, Heading), optional: 3-wire or 2-wire synchro
- Options: Range/Bearing

Power, Running

37.5W (28 Vdc)

Cooling

Free convection

Calibration Interval

No scheduled calibration required

Environmental Requirements

MIL-E-5400

Altitude	-2,100 to 70,000 ft, (-640.08 m to 21,336 m) Class 2 (2X optional)
Temperature	-54°C to 71°C
Vibration (random)	8.1g rms performance
Vibration (sine)	±5g sine, 5 to 2,000 Hz
Shock	21g, 40 msec
Environment	Per Mil-Std-810C
Acoustic Noise	140 dB

GPS Receiver

PPS or SPS

- Operating Frequencies: L1/L2
- Antispoof/ Enhanced: P(Y) code/receiver
- Anti-Jam: Aiding
- Channels: 12 or all-in-view

Navigation Processor

32-bit PowerPC™

Operational Service

20+ years/8,100 hours (AUF)

Life/MTBF 14,400 hours (AIC)

Software Ada language

Maintenance Two-level extensive BIT; no flight-line test equipment required

* Enhanced Interrupted Align – after initial align, aircraft taxi's to heading change >70° to continue align.

For more information, please contact:
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