LN-260

Advanced Embedded INS/GPS (EGI)

Northrop Grumman's LN-260 navigator is a proven operational form and fit replacement Inertial Navigation System/Global Positioning System INS/GPS (EGI) that can be seamlessly integrated with various domestic and international Standard Navigation Unit (SNU-84) platforms.

DESCRIPTION

The LN-260 is a high-performance INS/GPS that utilizes Northrop Grumman's pioneering fiber-optic gyroscope (FOG)-based inertial navigation sensor assembly with a 24-channel Selective Availability Anti-Spoofing Module (SAASM) or Standard Positioning Service (SPS) GPS. It currently features all of the innovative SAASM GPS capabilities, including enhanced complementary navigation message.

The LN-260 stands alone — providing the highest performance and reliability, in addition to being the lightest and lowest power-consuming INS/GPS available on the SNU-84 market. Its sensor components deliver superior performance in an attractive size, weight, and power, package at an affordable cost (SWaP-C).

The non-dithered, low-noise FOG technology eliminates self-induced acceleration and velocity noise. This results in exceptional navigation and Synthetic Aperture Radar stabilization capability as well as the most accurate target location.

ADVANTAGES

Northrop Grumman's LN-260 has distinct advantages over similar devices on the market. Our fiber-optic gyro (FOG) is developed from the latest, proven fiber-optic technology and weighs less than 26 lbs. (11.79 kg). The LN-260 is also equipped with three independent navigation solutions: blended INS/GPS, INS only and GPS only. Our INS/GPS solution provides more accurate velocity measurements, robust anti-jamming capabilities and has been highly reliable on each of its military platforms.

GROWTH

Future LN-260 upgrades to M-code capabilities, pending final development and qualification, will enable higher power signals and more robust cryptography. SAASM-based users will have the ability to upgrade to the new M-code variant.

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The LN-260 is equipped with an ASIC-based GPS card and has the potential to be upgraded with a software-defined receiver (SDR) GPS, once through Functional Security Evaluation Team (FSET). The SDR is currently in development and will be available soon.

The versatility of the LN-260 enables it to easily integrate with several differential GPS applications such as: StarFire™, OmniSTAR™ and ZNAV™. It also offers future technology insertion opportunities, such as the ability to host a Modular Open Standards Architecture (MOSA), All Source Positioning and Navigation (ASPN), and features an algorithm which enables Assured Positioning Navigation and Timing (A-PNT) third-party applications, defeating current threats in real time. An A-PNT upgrade would provide capability for resilient time solution, Blended Navigation Assurance (BNA) and Alt Nav.

PERFORMANCE

	INS-Only	INS/GPS Aided (Spec)	INS/GPS Aided (Measured)
Position	0.8 nm/hr CEP	15.2 m (49.9 ft) SEP w/PPS	<4m SEP (13.1 ft)
Velocity per Axis X, Y	0.8 m/sec (2.5 ft/sec) per axis	0.015 m/sec (0.05 ft/sec) per axis for continuous state 5 tracking (0-2 g's)	0.015 m/sec (0.05 ft/sec)
Attitude	0.05° per axis	0.05°	0.01°
Heading	0.1°	0.05°	0.02°
Align Time	4-minute (GC), 30-sec (SHDG), 10-minute IFA (PPS GPS)	10-minute IFA (PPS GPS)	10-minute IFA (PPS GPS)

Characteristics

Power	<47W, MIL-STD-704A, 28 Vdc Primary, 28 Vdc Secondary, <47 W, 26 Vac Synchro Ref
Size*	Length: 14.85 in. (37.72 cm) Width: 7.53 in. (19.13 cm) Height: 7.15 in. (18.16 cm)
Weight	<26 lbs. (<11.79 kg)
Temperature	-40°C (-40°F) to +71°C (159.8°F)
Cooling	Cooled by forced air
Shock	15g, 11 msec
Vibration	6.8g rms (performance), ±2G sine sweep
Gunfire, Acoustic	MIL-STD-810 aircraft
EMI	MIL-STD-461D, MIL-STD-462D
System BIT Capability	Start-Up BIT, Periodic BIT and Operator Initiated BIT
Control Modes (On-Line, Manual, Backup)	Supports traditional alignment modes including ground, stored heading and moving based alignment. Supports aided and unaided navigation modes. Periodic self-test operates without user intervention.
System MTTR	0.3 hrs.
MTBF	> 10,485 hours in an Airborne Uninhabited Fighter (AUF) environment
Maintainability	Rack-mounted chassis, full BIT, no intermediate maintenance required, no special tooling or test equipment required

* Does not include handles and connectors

Features

WGS-84 Earth Model	Yes
I/O Growth Capability	Yes, the system supports additional serial buses and discrete I/O
Embedded GPS P(Y) Code or SPS (C/A) Code	Yes, 24-Channel Dual Frequency with DGPS capable
Selective Availability and Anti-Spoofing Protection	Yes, uses a SAASM module in the EGR
Precise Time and GPS Time Mark Outputs	Yes
RAIM and Predictive RAIM Outputs	Yes
KYK Load and Zeroize	Yes (DS-101 & DS-102 Format)
Precise Time and Time Interface	Yes, supports TTFF2 requirements per CI-GRAM-500
Fast Direct Y Code Performance	Yes

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