

**LN-251  
Embedded INS/GPS System**

*The LN-251 provides improved performance for mission equipment and flight controls*

**Description**

The LN-251 is a completely integrated navigation system with an embedded 12-channel, all-in-view, Selective Availability/Anti-Spoofing Module (SAASM), P(Y) code GPS. The fully integrated, tightly coupled GPS inertial design provides superior positioning performance relative to other embedded Inertial Navigation System/Global Positioning System (INS/GPS) systems. Modular open system architecture provides for easy adaptation to other applications and evolving requirements.

**Options**

The LN-251 is available with an integrated high anti-jam GPS subsystem.

**Applications**

The LN-251 is an integrated, tightly coupled, embedded INS/GPS system that provides improved performance for mission equipment and flight control systems.

**Advantages**

- Proven lightweight, low-cost fiber optic gyro (FOG) technology
- Lowest weight and volume in performance class
- Three independent navigation solutions:
  - Blended INS/GPS
  - INS-only
  - GPS-only
- Independent and programmable I/O for flight controls and avionics
- Extremely high reliability
- Available in performance ranges of 0.8 nmi/hr, 1.0 nmi/hr, and 2.0 nmi/hr.

## LN-251 Embedded INS/GPS System

### Position and Pointing for 0.8 nmi/hr option

	GPS Aided	Inertial
Position	<16m SEP	0.8 CEP
Velocity	<0.03 m/sec rms	<0.8 m/sec rms
Heading	<0.02° rms	<0.1° rms
Pitch and Roll	<0.02° rms	<0.05° rms
Operating Modes		Gyrocompass, stored heading, manual at sea; GPS aided, automatic EIA <sub>1</sub> , IFA <sub>2</sub>
Acquisition Time	<2 min TTFF <sub>3</sub>	

### Interfaces and Data

Position	Latitude, longitude, altitude
Heading	True, magnetic (no external reference required)
Velocity	3-axis
Acceleration	3-axis
Attitude	Roll, pitch, yaw; unlimited mounting
Angular Rates & Accelerations	3-axis linear and angular output
Mil-Std-1553B, RS-422, RS-485	Standard (multiple digital formats)
HAVE QUICK, PTTI <sub>4</sub>	Standard
Independent Inertial and GPS Data Interfaces	Standard; GPS Mil-Std-1553B data per SS-US-200, GRAM
Key Loading	Standard GPS loaders

### LN-251 Characteristics and Operating Ranges

Power	Mil-Std-704E and 1275 25W (typical), 30W (max)
Size	327 cu in. (5,358.6 cu cm)
Weight	12.7 lb with GPS (5.8 kg)
Temperature	-54° C, +71° C
Cooling	Passive (Mil-E-5400, Class 1A)
Vibration	8.9g rms
Velocity	12,000 m/sec
Angular Rate	1,000°/sec
Linear Acceleration, Jerk	100g, 13g/sec
Angular Acceleration	1,500°/sec <sup>2</sup>
MTBF	>20,000 hours
Mounting	Bolt-down or rack-mount
Maintainability	Full BIT <sub>5</sub> ; no intermediate maintenance required; no special tooling or test equipment required

### Notes

- Enhanced Interrupt Align
- In-Flight Alignment
- Time To First Fix
- Precise Time and Time Interval
- Built In Test

For more information, please contact:

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