

# ***NORTHROP GRUMMAN***

## **LTN-101 FLAGSHIP™ GNADIRU**

*With the incorporation of AIME™ technology, FLAGSHIP™ offers 0.3 navigation accuracy worldwide, 24 hours a day.*



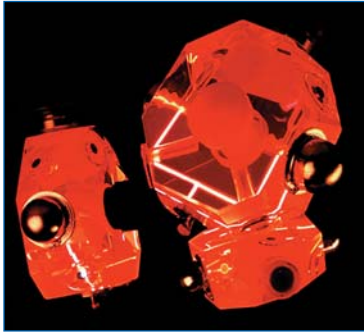
The LTN-101 FLAGSHIP™ is an integrated global navigation, air data, inertial reference unit (GNADIRU) that has re-defined industry standards for laser inertial navigation systems:

- **Hardware**
- **Software**
- **Performance**
- **Reliability**

Introduced in 1992, FLAGSHIP has established an exceptional reliability record of over 16,000 operating hours MTBF on such leading commercial aircraft as the Airbus wide and narrow body families, Canadair Regional Jet and CL604, and the Saab 2000. Now, with the incorporation of Autonomous Integrity Monitored Extrapolation (AIME™) technology, FLAGSHIP offers 0.3 navigation accuracy worldwide, 24 hours a day.

### **FLAGSHIP lowers ownership costs through:**

- Increased functionality and flexibility
  - Integrated GPS and air data
  - ARINC 704/738-compatible without modification
  - Interchangeable with 10-MCU ARINC 704 and 738 by use of adapter tray only
  - Offers AIME technology
  - Provides LNAV advisory, VNAV, and growth to precision approaches
- New generation reliability
  - MTBF of over 16,000 operating hours
  - Minimal false removals
- Enhanced maintainability
  - Advanced built-in test to Level II
  - In-flight fault diagnostics
  - System and module BIT history storage



## LTN-101 FLAGSHIP™ GNADIRU

### Technology

FLAGSHIP's™ performance and reliability are based on a series of design innovations:

**Four Mode Laser Gyro (FLAG).** The patented FLAG combines two 18 cm Zero-lock™ Laser Gyroscopes in a single cavity. Undithered and 40 percent smaller than conventional ring laser gyros, FLAG means long gyro life, high accuracy and reliability, and reduced costs.

### Software/Hardware Implemented

**Partitioning (SHIP).** SHIP organizes major system functions such as GPS, inertial reference, and air data in modules, ranks them by criticality, and isolates them from all other modules in both execution and memory access. This approach eliminates corruption of one function by another and contains functional loss due to a fault.

**Fault Containment.** Fault containment ensures minimal functional loss in the event of a fault by prohibiting its propagation throughout the system.

**AIME™ Technology.** A major step in helping the air transport industry realize the promise of GPS, AIME technology allows commercial aircraft to achieve sole means of navigation with GPS accuracy. AIME is a patented software algorithm that integrates GPS and IRS to compensate for the inherent integrity problems of GPS. With AIME, FLAGSHIP can provide commercial aircraft with 0.3 nmi navigation accuracy worldwide, 24 hours a day.

### Technical Specifications

PHYSICAL	ADIRU	ADM	MSU
<b>Weight (lb)</b>	28.5	1.65	2.2
(kgm)	12.6	0.75	1.0
<b>Size (in.)</b>			
• Width	4 MCU	3.8 (9.7 cm)	5.75 (14.6 cm)
• Height	4 MCU	2.1 (5.3 cm)	3.0 (7.6 cm)
• Length	4 MCU	5.7 (14.5)	3.5 (8.9 cm)
<b>Power (W)</b>	61	25	2.7

### System Performance

<b>Accuracy*</b>	20 meters, 95% with GPS	2.0 nmi/hr, 95%, pure inertial
<b>Availability*</b>	100% (≥21 satellites)	
<b>Integrity Limit*</b>	≤0.2 nmi	
<b>Coverage*</b>	Worldwide, 24 hours	
<b>Reliability</b>	>16,000 operating hours MTBF	

\*with AIME™

For more information, please contact:

Northrop Grumman Corporation  
 Navigation Systems  
 21240 Burbank Boulevard  
 Woodland Hills, CA 91367 USA  
 1-866-NGNAVSYS (646-2879)  
[www.nsd.es.northropgrumman.com](http://www.nsd.es.northropgrumman.com)