

THE VALUE OF PERFORMANCE.

NORTHROP GRUMMAN

LRS-2003 2-Axis Inertial Rate Sensor

The Northrop Grumman LRS-2003 is the smallest tactical-grade two-axis digital rate sensor available.

The LRS-2003 is only subject to Export Administration Regulation (EAR) for export control.

Applications

The high reliability and low noise LRS-2003 makes it ideal for:

- Platform and gimbal stabilization
- Remote weapons stations
- Missile seekers
- Electro-optical/infrared camera (EO/IR) stabilization
- Gun/turret stabilization

Advantages

Key advantages of the LRS-2003 include:

- Fully qualified for gun/turret stabilization for ground combat applications
- Small size (11.8 cubic inches)

- Light weight (<360 grams)
- Angle Random Walk of $<0.005^\circ/\sqrt{\text{hr}}$
- Random drift of 0.2° to $0.6^\circ/\text{hr}$, 1σ
- Ruggedized sealed housing
- Shock tolerance of 750 g's (2 μsec , 1/2 sine)
- 45 grms random vibration
- High Mean Time Between Failure (MTBF) ($> 80,000$ hours)
- Digital gyro servo control
- User configurable via I/O connector for tailored performance
- Available in chassis-free configuration (Digital Gyro Control Unit and G-2000 only) for volume-constrained applications.

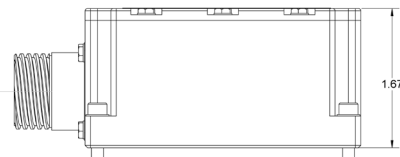
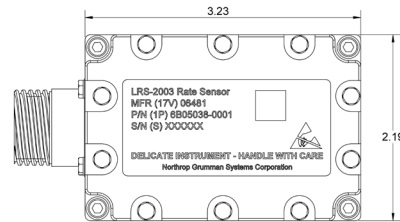
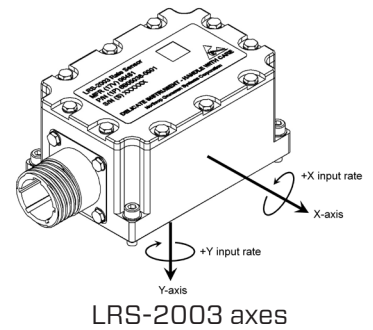
Related Products

The LRS-2003 two-axis digital rate sensor is part of the G-2000 product family, which includes several commercial-off-the-shelf offerings:

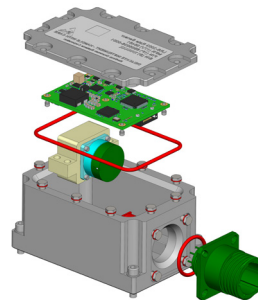
- G-2000 gyro, which is available with various connectors and cable lengths
- DGCU: Miniature Digital (RS-422, 21.6 KHz) Gyro Control Card
- LRS-2000 Rate Sensor Assembly (RSA): Abrams tank qualified, two-axis analog rate sensor assembly with one G-2000 gyro, an analog servo card and an electromagnetic interference protection card in a ruggedized sealed housing capable of $>2,770$ g's shock
- LRS-2001 RSA: Three-axis digital (RS-485/422) rate sensor assembly with two G-2000 gyros and electronics cards
- LR-2000 Inertial Measurement Unit (IMU): Miniature IMU with two G-2000 gyros, three silicon accelerometers and electronics cards. The gyro and accelerometer sensor block is separable from the electronics card stack.

Performance	
Operating Range	$\pm 200^\circ/\text{sec}$
Angle Random Walk	$0.005^\circ/\sqrt{\text{hr}}$
Random Drift (In-run Stability)	$<0.2^\circ$ to $0.6^\circ/\text{hr}$, 1σ
Scale Factor Stability	<200 ppm
Cross Axis Misalignment (Adjustable)	$<1\%$
Bandwidth (Adjustable)	120 Hz (-90°)
Characteristics	
Input Voltage	11-34 Vdc
Start Power	<20 watts (3-second duration)
Run Power	<4 watts (continuous)
Start Time	<3 sec
Dimensions	Length: 3.23 in. (8.2 cm) Width: 2.19 in. (5.6 cm) Height: 1.67 in. (4.2 cm)
Weight	<360 grams
Operating Temperature	-40°C (-40°F) to $+85^\circ\text{C}$ ($+185^\circ\text{F}$)
Non-operating temperature	-54°C (-65.2°F) to $+100^\circ\text{C}$ ($+212^\circ\text{F}$)
Shock	750 g's, 2 μsec , half sine
Threshold	$0.0003^\circ/\text{sec}$
Random Vibration	45 grms (10 to 2,000 Hz)
MTBF	$>80,000$ hours

Features	
Number of Orthogonal axes	2
Digital Outputs	RS-422 Synchronous
Loop Rate	21.6 kHz
Bit rate	2.75 megabits/sec
Latency	<200 μsec



LRS-2003 dimensions



LRS-2003 interior view

For more information, please contact:

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25660_052017



DS-549-JYC-0617
ePROCS: 17-1322
2017 WH Graphics

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