

LCI-100

Inertial Measurement Unit



Northrop Grumman LITEF is a world leading company with over 45 years of experience in inertial systems technology.

The LCI-100 consists of three Fiber Optic Gyros (FOG), one B-290 accelerometer triad and a processor module. This sensor assembly has been matured in navigation systems.

Features:

- Data output fully compensated for temperature and misalignment
- HDLC digital interface, asynchronous UART
- Extensive Built-In-Test features
- Low life cycle costs

Typical Applications:

- Platform and antenna stabilization
- Navigation systems
- Photogrammetry
- Geodesy
- Aerial survey

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TECHNICAL DATA

Rate Sensor Parameters		
• Measurement Range	± 610 °/s	
• Bias		
- Repeatability (1σ) (Turn-on to Turn-on)	≤ 0.1 °/h	
- Instability (Allan Variance, const. Temperature)	≤ 0.05 °/h	
- Stability over Temperature Range (1σ)	≥ 0.15 °/h	
• Scale Factor		
- Repeatability (1σ) (Turn-on to Turn-on)	≤ 100 ppm	
- Error over Temperature Range (1σ)	≤ 200 ppm	
- Non-linearity (1σ)	≤ 100 ppm	
• Angle Random Walk (max) (Allan Variance)	≤ 0.012 °/√h	
Accelerometer Parameters		
• Measurement Range	± 20 g	± 40 g
• Bias		
- Repeatability (1σ) (Turn-on to Turn-on)	≤ 200 µg	≤ 250 µg
- Instability (Allan Variance, const. Temperature)	≤ 100 µg	≤ 200 µg
- Stability over Temperature Range (1σ)	≤ 300 µg	≤ 500 µg
• Scale Factor		
- Repeatability (Turn-on to Turn-on) (1σ)	≤ 100 ppm	≤ 100 ppm
- Error over Temperature Range (1σ)	≤ 300 ppm	≤ 500 ppm
- Non-linearity (1σ)	≤ 100 ppm	≤ 100 ppm
• Velocity Random Walk (max) (Allan Variance)	≤ 100 µg/√Hz	≤ 100 µg/√Hz
System Parameters		
• Mass	≤ 2.5 kg / ≤ 5.5 lb	
• Dimensions (excluding mounting flanges and connector)	≤ 100 x 130 x 160 mm, ≤ 3.9 x 5.1 x 6.3 inch	
• Volume	≤ 2.6 liters / ≤ 159 inch ³	
• Supply Voltage	18.0 VDC ≤ 28 VDC nominal ≤ 32.0 VDC	
• Power Consumption	max 18 Watt, ≤ 10 W typical	
• Interface	serial interface with RS-422 levels, either synchronous with HDLC protocol + SYNC-Pulse or asynchronous (UART) + SYNC-Pulse	
• Data Update Rate	50 Hz ... 1024 Hz	
• Built-In-Test	Power Up BIT, Continuous BIT	
• System Bandwidth (3 dB)	≥ 400 Hz	
• Input Axis Misalignment (max)	≤ 0.5 mrad	
• Temperature Range		
- operating:	-40 °C ... +71 °C	
- specified Performance:	-20 °C ... +71 °C	
• Random Vibration (DO-160F Cat. SC)		
- operating:	4.1 grms, 10 Hz ... 2000 Hz	
- specified Performance:	2.0 grms, 10 Hz ... 2000 Hz	
• Shock	6.0 g; 20 ms halfsine (operational)	

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