

LCI-100

INERTIAL MEASUREMENT UNIT



Northrop Grumman LITEF has 60 years of experience in Inertial Systems Technology and was the first company in the world to introduce Fiber Optic Gyroscopes (FOG) in commercial aviation systems in the 1990s.

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

TECHNICAL DATA LCI-100

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| RATE SENSOR PARAMETERS | | |
|--|---|----------------------------------|
| Measurement Range | ± 610 °/s | |
| Bias - Repeatability (1 σ) (Turn-on to Turn-on) - Instability (Allan Variance, const. Temperature) - Stability over Temperature Range (1 σ) | ≤ 0.1 °/h ≤ 0.05 °/h ≥ 0.15 °/h | |
| Scale Factor - Repeatability (1 σ) (Turn-on to Turn-on) - Error over Temperature Range (1 σ) - Non-linearity (1 σ) | ≤ 100 ppm ≤ 200 ppm ≤ 100 ppm | |
| Angle Random Walk (max) (Allan Variance) | ≤ 0.012 °/√h | |
| ACCELEROMETER PARAMETERS | | |
| Measurement Range | ± 20 g | ± 40 g |
| Bias - Repeatability (1 σ) (Turn-on to Turn-on) - Instability (Allan Variance, const. Temperature) - Stability over Temperature Range (1 σ) | ≤ 200 μg ≤ 100 μg ≤ 300 μg | ≤ 250 μg ≤ 200 μg ≤ 500 μg |
| Scale Factor - Repeatability (1 σ) (Turn-on to Turn-on) - Error over Temperature Range (1 σ) - Non-linearity (1 σ) | ≤ 100 μg ≤ 300 μg ≤ 100 μg | ≤ 100 μg ≤ 500 μg ≤ 100 μg |
| Velocity Random Walk (max) (Allan Variance) | ≤ 100 μg /√h | ≤ 100 μg /√h |
| SYSTEM PARAMETERS | | |
| Mass | ≤ 2.5 kg / ≤ 5.5 lb | |
| Dimensions (excluding mounting flanges and connector) | ≤ 100 x 130 x 160 mm ³ ≤ 3.9 x 5.1 x 6.3 inch ³ | |
| 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 - specified Performance | - 40 °C ... + 71 °C - 20 °C ... + 71 °C | |
| Random Vibration (DO-160F Cat. SC) - operating - specified Performance | 4.1 grms, 10 Hz ... 2000 Hz 2.0 grms, 10 Hz ... 2000 Hz | |
| Shock | 6.0 g; 20 ms halfsine (operational) | |

FOR MORE INFORMATION,
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