

LCI-100

FOG Inertial Measurement Unit



- High reliability level
- Independent of magnetic fields
- Data interface configurable
- Withstands most challenging environmental conditions in this class
- Low life cycle cost

PRODUCT DESCRIPTION

The LCI-100 is a navigation-grade inertial measurement unit (IMU) based on three fiber optic gyroscopes and micro-electromechanical accelerometer sensors each.

It provides angular increments (delta-angles) and velocity increments (delta-velocities) upon an external or internal synchronisation signal with respect to its x-, y-, and z-axis.

TYPICAL APPLICATIONS

- Real-time Navigation
- Platform and Antenna Stabilization
- Navigation Systems
- Photogrammetry
- Geodesy
- Aerial Survey

TECHNICAL DATA LCI-100

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RATE SENSOR PARAMETERS	Typ. ¹⁾	max.
Measurement Range		± 610 °/s
Bias Instability ²⁾		0.05 °/h
Bias Stability over temperature range	0.025 °/h	0.15 °/h
Bias Repeatability turn-on-turn-on (RMS) const. Temp.	0.015 °/h	0.1 °/h
Angular Random Walk	0.005 °/√h	0.012 °/√h
SKF Non-Linearity (1σ)		100 ppm
Scale Factor Error over temperature range (RMS)	25 ppm	200 ppm
Axis Misalignment (RMS)	0.1 mrad	0.5 mrad
ACCELEROMETER SENSOR PARAMETERS		
Measurement Range		± 20 g
Bias Instability ²⁾		100 µg
Bias Stability over temperature range	200 µg	300 µg
Velocity Random Walk	30 µg /√Hz	100 µg /√Hz
SKF Non-Linearity (1σ)		100 ppm
Scale Factor Error over temperature range (RMS)	100 ppm	300 ppm
Axis Misalignment (RMS)	0.3 mrad	0.5 mrad
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 VDC ... 32 VDC
Power Consumption	10 Watt	18 Watt
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 (BIT)		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, operational		6.0 g; 20 ms halfsine (operational)

1) Typical Mean Values are subject to statistical fluctuations.

2) Implying Allan Variance under constant room temperature conditions and cluster time 24 h.

FOR MORE INFORMATION,
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