



ISA-100 Inertial Sensor Assembly



Northrop Grumman LITEF is a world leading company with over 45 years of experience in Inertial Systems Technology.

With the ISA-100 Northrop Grumman LITEF provides a flexible 3 gyro/3 accelerometer axis Inertial Sensor Assembly for a wide range of applications.

The ISA-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

- Easy set up for operation
- Data output fully compensated for temperature and misalignment
- HDLC digital interface, asynchronous UART
- Extensive Built-In-Test features

- Low weight
- Small size
- Low power consumption
- Low life cycle costs

Typical Applications

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

ISA-100

Inertial Sensor Assembly

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 kg / ≤ 4.4 lb	
• Dimensions (excluding mounting flanges and connector)	≤ 100 x 130 x 125 mm, ≤ 3.9 x 5.1 x 4.9 inch	
• Volume	≤ 1.6 liters / ≤ 98 inch ³	
• Supply Voltage	+ 3.3 V, ±5.25 V, ±15 V	
• Power Consumption	max 16 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	
• 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)	

For more information,
please contact:
Northrop Grumman LITEF GmbH
Industrial Solutions
Loerracher Str. 18
79115 Freiburg, Germany
Phone: +49 761 4901-463
Fax: +49 761 4901-480
industrial@ng-litef.de
www.northropgrumman.litef.com

ppm GmbH
Grube 39a
82377 Penzberg
Germany

Tel: +49 (0) 88 56 8 03 09 80
Fax: +49 (0) 88 56 8 03 09 88

info@ppmgmbh.com
www.ppmgmbh.com



©Northrop Grumman LITEF GmbH, Freiburg, Germany
All rights reserved.
Data subject to change without notice.
March 2013