



## ISA-100C Inertial Sensor Assembly



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

With the ISA-100C Northrop Grumman LITEF provides an Inertial Sensor Assembly which is not subject to German export restrictions (status quo).

The ISA-100C 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-100C

## Inertial Sensor Assembly

### TECHNICAL DATA

Rate Sensor Parameters	
• Measurement Range	± 495 °/s
• Bias	
- Repeatability (1σ) (Turn-on to Turn-on)	≤ 0.1 °/h
- Instability (Allan Variance)	≤ 0.05 °/h
- Residuals over Temperature Range (RMS)	≤ 0.15 °/h
- Stability (1σ) (1 month) <sup>1)</sup>	≥ 0.5 °/h
• Scale Factor	
- Repeatability (1σ) (Turn-on to Turn-on)	≤ 100 ppm
- Error over Temperature Range (RMS)	≤ 300 ppm
- Non-linearity (1σ)	≤ 100 ppm
• Angle Random Walk (max) (Allan Variance) <sup>1)</sup>	> 0.0035 °/√h ≤ 0.012 °/√h
Accelerometer Parameters	
• Measurement Range	± 10g
• Bias	
- Repeatability (1σ) <sup>1)</sup>	≥ 1250 μg
- Instability (Allan Variance)	≤ 100 μg
- Residuals over Temperature Range (RMS)	≤ 300 μg
- Stability (1σ) (1 year) <sup>1)</sup>	≥ 130 μg
• Scale Factor	
- Repeatability (1σ)	≤ 100 ppm
- Error over Temperature Range (RMS)	≤ 300 ppm
- Non-linearity (1σ)	≤ 100 ppm
- Stability (1σ) (1 year) <sup>1)</sup>	≥ 130 ppm
• Velocity Random Walk (max) (Allan Variance)	≤ 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 <sup>3</sup>
• 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 (operational)

<sup>1)</sup> adapted to export regulations

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