

ISA-100C

INERTIAL SENSOR ASSEMBLY



LITEF is a world leading company with 60 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

TECHNICAL DATA ISA-100 C

INERTIAL SENSOR ASSEMBLY

RATE SENSOR PARAMETERS	
Measurement Range	± 495 °/s
Bias	
- Repeatability (1 σ) (Turn-on to Turn-on)	≤ 0.1 °/h
- Instability (Allan Variance, const. Temperature)	≤ 0.05 °/h
- Stability over Temperature Range (1 σ)	≤ 0.15 °/h
- Stability (1 σ) (1 month) ¹⁾	≥ 0.5 °/h
Scale Factor	
- Repeatability (1 σ) (Turn-on to Turn-on)	≤ 100 ppm
- Error over Temperature Range (1 σ)	≤ 300 ppm
- Non-linearity (1 σ)	≤ 100 ppm
Angle Random Walk (max) (Allan Variance)	> 0.0035 °/√h ≤ 0.012 °/√h
ACCELEROMETER PARAMETERS	
Measurement Range	± 10 g
Bias	
- Repeatability (1 σ) ¹⁾	≥ 1250 μg
- Instability (Allan Variance, const. Temperature)	≤ 100 μg
- Stability over Temperature Range (1 σ)	≤ 300 μg
- Stability (1 σ) (1 year) ¹⁾	≥ 130 μg
Scale Factor	
- Repeatability (1 σ) (Turn-on to Turn-on)	≤ 100 ppm
- Error over Temperature Range (1 σ)	≤ 300 ppm
- Non-linearity (1 σ)	≤ 100 ppm
- Stability (1 σ) (1 year) ¹⁾	≥ 130 ppm
Velocity Random Walk (max) (Allan Variance)	≤ 100 μg /√h
SYSTEM PARAMETERS	
Mass	≤ 2 kg / ≤ 4.4 lb
Dimensions	≤ 100 x 130 x 125 mm ³
(excluding mounting flanges and connector)	≤ 3.9 x 5.1 x 4.9 inch ³
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)

¹⁾ adapted to export regulations

FOR MORE INFORMATION,
PLEASE CONTACT:

