IMU-ISA-100C

High performance tactical grade IMU combines with SPAN technology from Hexagon | NovAtel to deliver 3D position, velocity and attitude solution

**World-leading GNSS+INS technology**
SPAN GNSS+INS technology brings together two different but complementary technologies: Global Navigation Satellite System (GNSS) positioning and inertial navigation. The absolute accuracy of GNSS positioning and the stability of Inertial Measurement Unit (IMU) gyro and accelerometer measurements are deeply coupled to provide an exceptional 3D navigation solution that is stable and continuously available, even through periods when satellite signals are blocked.

**Overview**
The IMU-ISA-100C features Northrop-Grumman Litef GMBH’s proven inertial measurement technology offering exceptional performance when paired with a NovAtel SPAN enabled receiver. A near navigation grade sensor, the IMU-ISA-100C contains fiber optic gyros and fully temperature compensated Micro Electromechanical Systems (MEMS) accelerometers. The IMU-ISA-100C operates from 10-34 VDC and interfaces with a receiver from NovAtel through a highly reliable IMU interface. IMU measurements are used by the SPAN enabled receiver to compute a blended GNSS+INS position, velocity and attitude solution at rates up to 200 Hz.

**Advantages Of IMU-ISA-100C**
The IMU-ISA-100C offers extremely high performance and precise accuracy at an affordable price point. It is commercially exportable and offers an ideal solution for applications such as platform stabilization, general purpose navigation, photogrammetry, remote sensing and ground mobile mapping.

**Improve IMU-ISA-100C accuracy**
Receivers from NovAtel provide your choice of accuracy and performance, from decimetre to RTK-level positioning. For more demanding applications, Waypoint Inertial Explorer post-processing software can be used to post-process real-time data on the IMU-ISA-100C for the highest level of system accuracy.

**Benefits**
- Premium performance IMU
- Optimal for aerial, hydrographic survey and industrial applications
- Easy integration with NovAtel’s SPAN capable GNSS+INS receivers
- Commercially exportable
- Rugged design ideal for challenging environments
- Ideal for a control reference system

**Features**
- Low noise fiber optic gyros and MEMS accelerometers
- Stationary INS alignment capable
- IMU data rate: 200 Hz
- Enclosure comes with optional wheel sensor input
- SPAN GNSS+INS capability with configurable application profiles
### SPAN System Performance

**Horizontal Position Accuracy (RMS)**
- Single point L1/L2: 1.2 m
- SBAS: 60 cm
- DGPS: 40 cm
- TerraStar-L: 40 cm
- TerraStar-C PRO: 2.5 cm
- TerraStar-X: 2 cm
- RTK: 1 cm +1 ppm

### IMU Performance

#### Gyroscope Performance
- Input range: ±495 deg/sec
- In-run bias stability: ≤0.05 deg/hr
- Scale factor repeatability: ≤100 ppm
- Scale factor non-linearity: ≤100 ppm
- Angular random walk: 0.012 deg/√hr

#### Accelerometer Performance
- Range: ±10 g
- In-run bias stability: ≤100 μg
- 1 year scale factor repeatability: ≥1250 ppm
- Scale factor non-linearity: ≤100 ppm
- Velocity random walk: ≤100 μg/√Hz

### Environmental

#### Temperature
- Operating: -40ºC to +55ºC
- Storage: -40ºC to +85ºC

#### Humidity
- MIL-STD-810G, Method 507.5

#### Random Vibe
- MIL-STD-810G, Method 514.6 (2.0 g)

#### MTBF
- >46,100 hrs

#### Environment
- IEC 60529 IP67

### Compliance

- FCC, ISED, CE

### Included Accessories

- Power cable
- Communication cable
- Wheel sensor cable

### Optional Accessories

- Inertial Explorer post-processing software

### Performance During GNSS Outages

<table>
<thead>
<tr>
<th>Outage Duration</th>
<th>Positioning Mode</th>
<th>Position Accuracy (M) RMS</th>
<th>Velocity Accuracy (M/S) RMS</th>
<th>Attitude Accuracy (Degrees) RMS</th>
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1. Typical values. Performance specifications subject to GNSS system characteristics, Signal-in-Space (SIS) operational degradations, ionospheric and tropospheric conditions, satellite geometry, baseline length, multipath effects and the presence of intentional or unintentional interference.
2. GPS-only.
3. Requires a subscription to TerraStar data service. Subscriptions available from NovAtel.
4. TerraStar service availability depends on the SPAN enabled receiver used. See the receiver product sheet for details.
5. 400 Hz data is an optional configuration. Contact NovAtel for details.
6. Time accuracy does not include biases due to RF or antenna delay.
7. Export licensing restricts operation to a maximum of 515 metres/second.
8. Operated by IMU manufacturer.
9. GNSS receiver sustains tracking up to a g.
10. Post-processing results using Inertial Explorer software.

### Contact

sales.nov@hexagon.com | 1-800-NOVATEL (U.S. and Canada) or 403-295-4900 | China: 0086-21-68882300 | Europe: 44-1993-848-736 | SE Asia and Australia: 61-400-883-601.
For the most recent details of this product: novatel.com

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