**IMU-IGM-S1**

Small, lightweight MEMS IMU enclosure for pairing with SPAN technology from Hexagon | NovAtel

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**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.

**SPAN enabled MEMS enclosure**

The IMU-IGM-S1 is designed to pair with a SPAN enabled GNSS receiver. Incorporating Sensonor’s STIM300 MEMS IMU, the IMU-IGM-S1 delivers the smallest and lightest tactical grade enclosure in our IMU product portfolio.

The IMU-IGM-S1 delivers a rugged product designed for your GNSS+INS solution.

**Improved accuracy**

Receivers from NovAtel provide your choice of accuracy and performance, from decimetre to RTK-level positioning. For more demanding applications, Waypoint Inertial Explorer software can be used to post-process real-time data to provide the highest level of accuracy.

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**Benefits**

- Easy integration with NovAtel’s SPAN capable GNSS+INS receivers
- Commercially exportable
- Rugged design ideal for challenging environments

**Features**

- Low noise commercial grade gyros and accelerometers
- Dedicated wheel sensor input
- IMU data rate: 125 Hz
- Direct UART interface to OEM7 receivers
- 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: 60 cm
- TerraStar-C PRO: 2.5 cm
- TerraStar-X: 2 cm
- RTK: 1 cm +1 ppm

**Data Rates**
- IMU Raw Data Rate: 125 Hz
- INS Solution: Up to 200 Hz

**Time Accuracy**
- 20 ns RMS

**Max Velocity**
- 515 m/s

**Physical and Electrical**

**Dimensions**
- 152 × 137 × 51 mm

**Weight**
- 500 g

**Power**
- Input voltage: 10-30 VDC
- Power consumption: <4.6 W

**Connectors**
- Main port and AUX port DB-HD15

**Communication Ports**
- 1 RS-232/RS-422 IMU data port
- 1 Wheel sensor port

**Status LEDs**
- Power
- GNSS status
- INS status

**IMU Performance**

**Gyroscope Performance**
- Bias instability: 0.5 deg/h
- Input range: 400 deg/sec
- Angular random walk: 0.15 deg/√hr

**Accelerometer Performance**
- Bias instability: 0.05 mg
- Range: 10 g
- Velocity random walk: 0.06 m/s/√hr

**Environmental**

**Temperature**
- Operating: -40°C to +65°C
- Storage: -50°C to +80°C

**Humidity**
- MIL-STD-810G 95% Non-condensing

**Vibration (operating)**
- Random: MIL-STD-810G (7.7 g)
- Sinusoidal: IEC 60068-2-6 (5 g)

**Shock**
- MIL-STD-810G (25 g)

**Immersion**
- IEC 60529 IPX7

**Compliance**
- FCC, ISED, CE

**Included Accessories**
- Combined power and data cable

**Optional Accessories**
- I/O and wheel sensor accessory cable
- 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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<td>Horizontal</td>
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<td>0.01</td>
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(1) Typical values. Performance specifications subject to GNSS system characteristics, Signal-in-Space (SIS) operational degradation, ionospheric and tropospheric conditions, antenna 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) Time accuracy does not include biases due to RT or antenna delay. (6) Export licensing restricts operation to a maximum of 515 metres/second. (7) Supplied by IMU manufacturer. (8) Typical, 25°C, (IMU only). (9) 1 ppm should be added to all values to account for additional error due to baseline length. (10) Post-processing results using Inertial Explorer software.

Contact Hexagon | NovAtel

sales.novap@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.

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