SPAN® IMU-IGM-A1™

SMALL, LIGHTWEIGHT MEMS IMU ENCLOSURE FOR PAIRING WITH NOVATEL’S SPAN TECHNOLOGY

SPAN: WORLD LEADING GNSS+INS TECHNOLOGY

Synchronous Position, Attitude and Navigation (SPAN) 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 tightly 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

NovAtel developed the IMU-IGM-A1 for pairing with a SPAN enabled GNSS receiver. Incorporating a MEMS inertial sensor, the IMU-IGM-A1 delivers the smallest and lightest IMU enclosure in our SPAN product portfolio. The IMU-IGM-A1 can be configured from the factory as an integrated GNSS+Inertial Navigation System (INS) or as a standalone IMU sensor for pairing with an existing NovAtel SPAN receiver.

When configured as a standalone IMU, the IMU-IGM-A1 delivers a rugged product to build your SPAN application on.

IMPROVED ACCURACY

Take advantage of NovAtel CORRECT™ to receive your choice of accuracy and performance, from decimetre to RTK-level positioning. For more demanding applications, Inertial Explorer® software from our Waypoint® Products Group can be used to post-process SPAN data to provide the highest level of accuracy.

If you require more information about our SPAN products, visit www.novatel.com/span

BENEFITS

+ Small, lightweight and rugged
+ Optimized for SPAN on OEM6® enclosures

FEATURES

+ Regulated 10-30 VDC input
+ 200 Hz navigation solution and raw measurement output
+ Dedicated wheel sensor input
**SPAN SYSTEM PERFORMANCE**

**Horizontal Position Accuracy (RMS)**
- Single point L1/L2: 1.2 m
- NovAtel CORRECT™ SBAS: 60 cm
- DGPS: 40 cm
- PPP: 4 cm
- RTK: 1 cm + 1 ppm

**Data Rates**
- IMU measurement: 200 Hz
- INS solution: Up to 200 Hz

**Time Accuracy**
- 20 ns RMS

**Max Velocity**
- 515 m/s

**IMU PERFORMANCE**

**Gyroscope Performance**
- Input range: ±450 deg/sec
- Rate bias stability: 6 deg/h
- Angular random walk: 0.30 deg/√hr

**Accelerometer Performance**
- Range: ±18 g
- Bias stability: 0.1 mg
- Velocity random walk: 0.029 m/s/√hr

**PHYSICAL AND ELECTRICAL**

**Dimensions**
- 152 × 137 × 51 mm

**Weight**
- 475 g

**Power**
- Input voltage: 10-30 VDC
- Power consumption:
  - Typical: 2.5 W
  - 12 V, 25°C: 2.5 W
  - System with FlexPak6 requires 5 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

**ENVIRONMENTAL**

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

**Humidity**
- 95% Non-condensing

**Vibration (operating)**
- Random: MIL-STD-810G (7.7 g)
- Sinusoidal: IEC 60068-2-6 (5 g)
- Bump: IEC 60068-2-27 (25 g)
- Shock: MIL-STD-810G (40 g)

**Immersion**
- IEC 60529 IPX7

**Compliance**
- FCC, CE marking, Industry Canada

**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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<tbody>
<tr>
<td></td>
<td></td>
<td>Horizontal</td>
<td>Vertical</td>
<td>Horizontal</td>
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<tr>
<td>0 s</td>
<td>RTK</td>
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<td>0.03</td>
<td>0.020</td>
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<td></td>
<td>PPP</td>
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<tr>
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<td>PPP</td>
<td>0.02</td>
<td>0.02</td>
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1. Performance obtained when using an OEM6 Family receiver (contact NovAtel Sales for purchase information). For detailed receiver specifications, see NovAtel’s OEM615 product sheet and Receiver brochure.
2. GPS-only.
3. Requires subscription to Terrastar data service. Subscriptions available from NovAtel.
4. An OEM628, OEM638, FlexPak6 or ProPak6 receiver is required.
5. Time accuracy does not include biases due to RF or antenna delay.
6. Export licensing restricts operation to a maximum of 515 metres/second.
7. Supplied by IMU manufacturer.
8. Typical, 12 V, 25°C. IMU only. System with FlexPak6 requires 5 W.
9. Outage performance information is applicable for firmware version OEMD0240RN0000 and up.
10. 1 ppm should be added to all values to account for additional error due to baseline length.
11. Post-processing results using Inertial Explorer software.