OEM-HG1900

Tactical grade MEMS IMU combines with SPAN GNSS+INS technology from Hexagon | NovAtel providing 3D position, velocity and attitude

**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 Systems (INS). The absolute accuracy of GNSS positioning and the stability of Inertial Measurement Unit (IMU) measurements combine to provide an exceptional 3D navigation and attitude solution that is stable and continuously available, even through periods when satellite signals are blocked.

**Sophisticated, tactical grade performance**

The HG1900 IMU offers a hybrid package of Honeywell’s Micro Electromechanical Systems (MEMs) Gyros and RBA accelerometers. Economical, robust and small, the low power HG1900 provides high end tactical grade performance for commercial and military guidance and navigation applications. When integrated with SPAN GNSS+INS technology, this IMU is ideal for airborne and ground applications that require accurate 3D position, velocity and attitude data. The HG1900 is a commercial product that can be licensed under the jurisdiction of the U.S. Department of Commerce for customers outside the United States.

**Combining SPAN and MEMS technology**

A proprietary NovAtel Universal IMU Controller (UIC) couples the HG1900 with SPAN enabled receivers, offering a unique, powerful GNSS+INS system for weight and size constrained applications.

**Require higher accuracy?**

Receivers from NovAtel provide your choice of accuracy and performance, from decimetre to RTK-level positioning. For the most demanding applications, Waypoint Inertial Explorer post-processing software offers the highest level of accuracy.

**Benefits**

- High performance IMU
- Optimal for aerial, hydrographic survey and Industrial applications
- High sensor dynamic range

**Features**

- MEMS gyros and RBA accelerometers
- Stationary INS alignment capable
- IMU Data rate: 100Hz
- SPAN GNSS+INS capability with configurable application profiles
**UIC Specifications:**

**Dimensions**
- 113 × 100 × 17.5 mm

**Weight**
- 125 g

**Power**
- Input voltage: 10 VDC – 34 VDC
- Power consumption: 4 W

**Communication Ports**
- 1 RS-422 COM port for the NovAtel GNSS receiver
- 1 RS-422 port for the IMU
- 1 Wheel sensor input

**Connectors**
- 5-pin power connector
- 16-pin receiver communication connector
- 50-pin IMU connector

**Environmental**
- **Temperature**
  - Operating: -40°C to +75°C
  - Storage: -55°C to +90°C
- **Vibration**
  - Random: MIL-STD 810G (Cat 24, 7.7 g RMS)
  - Sine: IEC 60068-2-6
  - Bump: IEC 68-2-29 (25 g)
  - Shock: MIL-STD-810G (40 g)

---

**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>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Horizontal</td>
<td>Vertical</td>
<td>Horizontal</td>
</tr>
<tr>
<td>0 s</td>
<td>RTK</td>
<td>0.02</td>
<td>0.03</td>
<td>0.010</td>
</tr>
<tr>
<td></td>
<td>PPP</td>
<td>0.06</td>
<td>0.15</td>
<td>0.010</td>
</tr>
<tr>
<td></td>
<td>SP</td>
<td>1.00</td>
<td>0.60</td>
<td></td>
</tr>
<tr>
<td>Post-Processed</td>
<td>0.01</td>
<td>0.02</td>
<td></td>
<td>0.010</td>
</tr>
<tr>
<td>10 s</td>
<td>RTK</td>
<td>0.12</td>
<td>0.08</td>
<td>0.020</td>
</tr>
<tr>
<td></td>
<td>PPP</td>
<td>0.16</td>
<td>0.20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SP</td>
<td>1.10</td>
<td>0.65</td>
<td></td>
</tr>
<tr>
<td>Post-Processed</td>
<td>0.01</td>
<td>0.02</td>
<td></td>
<td>0.010</td>
</tr>
<tr>
<td>60 s</td>
<td>RTK</td>
<td>1.92</td>
<td>0.33</td>
<td>0.080</td>
</tr>
<tr>
<td></td>
<td>PPP</td>
<td>1.96</td>
<td>0.45</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SP</td>
<td>2.90</td>
<td>0.90</td>
<td></td>
</tr>
<tr>
<td>Post-Processed</td>
<td>0.10</td>
<td>0.13</td>
<td></td>
<td>0.012</td>
</tr>
</tbody>
</table>

1) Typical values. Performance specifications subject to GNSS system characteristics, Signal-in-Space (SIS) operational degradation, ionospheric and tropospheric conditions, satellite geometry, baseline length, multipath effects and the presence of intentional or unintentional interference. 2) GPS only. 3) Requires subscription to TerraStar data service. Subscriptions available from NovAtel. 4) TerraStar service available depends on the SPAN enabled receiver used. See the receiver product sheet for details. 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) Outage statistics were calculated by taking the RMS of the maximum errors over a minimum of 30 complete GNSS outages. Each outage was followed by 120 seconds of full GNSS availability before the next outage was applied. High-accuracy GPS updates (fixed ambiguities) were available immediately before and after each outage. The survey data used to generate these statistics is ground vehicle data collected with frequent changes in azimuth (i.e., as normally observed in ground vehicle environments). 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.