SPAN® OEM-HG1930

SMALL, AFFORDABLE MEMS IMU PAIRS WITH SPAN TECHNOLOGY TO DELIVER 3D POSITION, VELOCITY AND ATTITUDE

ABOUT 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 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.

SMALL IMU FOR DEMANDING APPLICATIONS
The HG1930 is a small, low cost Micro Electromechanical Systems (MEMS) IMU manufactured by Honeywell. It provides tactical grade performance for unmanned vehicles and other commercial and/or military guidance applications. When integrated with NovAtel's SPAN technology, this IMU is ideal for airborne and ground applications that require accurate 3D position, velocity and attitude data.

COMBINING SPAN AND MEMS TECHNOLOGY
A proprietary MEMS Interface Card (MIC) couples the HG1930 with SPAN receivers, offering a unique, powerful GNSS+INS system for weight and size constrained applications. Designed as a board stack configuration for ease of integration, the MIC can interface directly with NovAtel's small form factor OEM615™ SPAN receiver.

If you require more information about our SPAN products, visit [www.novatel.com/span](http://www.novatel.com/span)

REQUIRE HIGHER ACCURACY?
Take advantage of NovAtel CORRECT™ to receive your choice of accuracy and performance, from decimetre to RTK-level positioning. For the most demanding applications, Inertial Explorer® post-processing software from our Waypoint® Products Group offers the highest level of accuracy.

FEATURES
- MEMS gyros and accelerometers
- Small size and light weight
- 10–30 VDC power input^1
- 100 Hz data rate
- Long MTBF
- SPAN INS functionality

BENEFITS
- Ideal for unmanned vehicles
- Easy integration with SPAN receivers
- Ideal for size-constrained applications

^1. Voltage range for the MIC not the IMU.
OEM-HG1930

**MIC SPECS:**

**PHYSICAL AND ELECTRICAL**

- **Dimensions**
  75.1 × 45.7 × 19.5 mm
- **Weight**
  31 g
- **Power**
  - Input voltage: 10 VDC – 30 VDC
  - Power consumption: 5.3 W

**COMMUNICATION PORTS**

- 1 LV-TTL COM port to interface to NovAtel GNSS receiver
- 1 IMU port with RS-422 interface
- 1 pass through USB port

**CONNECTORS**

- 20-pin OEM615 mating connector
- 3-pin locking power connector
- 30-pin locking communication connector
- 20-pin locking IMU connector
- 10-pin locking IMU connector

**ENVIRONMENTAL**

- **Temperature**
  - Operating: -40°C to +75°C
  - Storage: -50°C to +90°C
- **Vibration**
  - Random: MIL-STD B10G (Cat 24, 7.7 g RMS)
  - Sine: IEC 60068-2-6
  - Bump: IEC 68-2-29 (25 g)
  - Shock: MIL-STD-810G (40 g)

**IMU-HG1930-CA50**

**PERFORMANCE**

- **Gyroscope Performance**
  - Input range: ±1000 deg/sec
  - Rate bias: 20 deg/hr
  - In-run bias stability: 2 deg/hr
  - Rate scale factor: 300 ppm
  - Angular random walk: 0.125 deg/√hr
- **Accelerometer Performance**
  - Range: ±30 g
  - Scale factor: 300 ppm
  - Bias repeatability: 5 mg
  - Bias in-run stability: 3 mg

**PHYSICAL AND ELECTRICAL**

- IMU dimensions: 64.8 mm dia max × 35.7 mm h max
- IMU weight: 200 g
- Power consumption: <3 W
- MTBF: >20,000 hours

For the most recent details of this product: www.novatel.com/products/span-gnss-inertial-systems/span-imus/span-mems-imus/OEM-HG1930/

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**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 RTK⁶</td>
<td>0.02</td>
<td>0.05</td>
<td>0.010</td>
<td>0.010</td>
</tr>
<tr>
<td>0 s SP</td>
<td>1.20</td>
<td>0.60</td>
<td>0.020</td>
<td>0.010</td>
</tr>
<tr>
<td>0 s PP²</td>
<td>0.01</td>
<td>0.02</td>
<td>0.020</td>
<td>0.020</td>
</tr>
<tr>
<td>10 s RTK⁶</td>
<td>0.23</td>
<td>0.18</td>
<td>0.040</td>
<td>0.024</td>
</tr>
<tr>
<td>10 s SP</td>
<td>1.31</td>
<td>0.73</td>
<td>0.050</td>
<td>0.024</td>
</tr>
<tr>
<td>10 s PP²</td>
<td>0.01</td>
<td>0.02</td>
<td>0.020</td>
<td>0.020</td>
</tr>
<tr>
<td>60 s RTK⁶</td>
<td>6.16</td>
<td>2.07</td>
<td>0.250</td>
<td>0.080</td>
</tr>
<tr>
<td>60 s SP</td>
<td>7.24</td>
<td>2.62</td>
<td>0.260</td>
<td>0.090</td>
</tr>
<tr>
<td>60 s PP²</td>
<td>0.19</td>
<td>0.04</td>
<td>0.03</td>
<td>0.020</td>
</tr>
</tbody>
</table>

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1. Stacked configuration shown with OEM615 receiver. OEM615 sold separately.
2. 12VDC, OEM615 stack configuration.
3. OEM615 USB port in stack configuration.
4. Supplied by IMU manufacturer.
5. 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).
6. 1 ppm should be added to all values to account for additional error due to baseline length.
7. Post-processing results using Inertial Explorer software.