

OEM-HG1930

Small, affordable MEMS IMU combines with SPAN GNSS+INS technology from Hexagon | NovAtel to deliver 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.

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 SPAN GNSS+INS technology, this IMU is ideal for airborne and ground applications that require accurate 3D position, velocity and attitude data. The HG1930 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 HG1930 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.

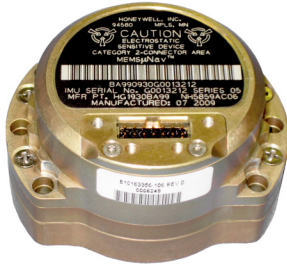
Benefits

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

Features

- MEMS gyros and accelerometers
- Small size, rugged and lightweight
- IMU data rate: 100 Hz
- SPAN GNSS+INS capability with configurable application profiles

IMU-HG1930-CA50



IMU performance¹

Gyroscope performance

Technology	MEMS
Dynamic range	1000 °/s
Bias instability	0.25 °/hr
Angular random walk	0.06 °/√hr

Accelerometer performance

Technology	MEMS
Dynamic range	30 g
Bias instability	0.02 mg
Velocity random walk	0.03 m/s/√hr

Physical and electrical

IMU dimensions

64.8 dia × 35.7 h mm (max)

IMU weight 200 g

Power consumption <3 W

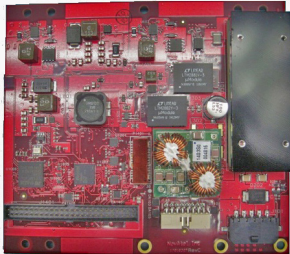
MTBF >20,000 hours

Connection to receiver
UIC required

Data rates

IMU raw data rate	100 Hz
INS solution	Up to 200 Hz

UIC specifications



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)

Physical and electrical

Dimensions 113 × 100 × 17.5 mm

Weight 125 g

Power

Input voltage	+10 to +34 VDC
Power consumption	4 W

Performance during GNSS outages^{2,3,4}

Outage duration	Positioning mode	Position accuracy (m) RMS		Velocity accuracy (m/s) RMS		Attitude accuracy (degrees) RMS	
		Horizontal	Vertical	Horizontal	Vertical	Roll/Pitch	Heading
0 s	RTK ⁵	0.02	0.03				
	TerraStar-C PRO PPP	0.025	0.05	0.015	0.010	0.015	0.030
	Single point	1.00	0.60				
10 s	RTK ⁵	0.17	0.13				
	TerraStar-C PRO PPP	0.17	0.15	0.035	0.020	0.023	0.040
	Single point	1.15	0.70				
60 s	RTK ⁵	4.50	0.83				
	TerraStar-C PRO PPP	4.50	0.85	0.165	0.040	0.035	0.060
	Single point	5.50	1.40				
	RTK with Land profile and DMI	3.00	0.55	0.140	0.040	0.035	0.060
0 s	Post-Processed using Inertial Explorer	0.01	0.02	0.010	0.010	0.006	0.015
10 s		0.02	0.02	0.010	0.010	0.007	0.015
60 s		0.19	0.04	0.017	0.010	0.010	0.023

1. Supplied by IMU manufacturer.

2. Performance may be impacted in conditions with unmitigated vibration or significant temperature variations. May vary from part to part.

3. Performance with one antenna, no DMI, and default SPAN profile unless otherwise specified.

4. Typical. Based on mixed urban road vehicle dynamics and benign GNSS conditions.

5. 1 ppm should be added to all values to account for additional error due to baseline length.

Contact Hexagon | NovAtel

sales.nov.ap@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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