

# OEM-IMU-HG4930

Small, affordable MEMS IMU combines with SPAN GNSS+INS technology from Hexagon | NovAtel to provide 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) gyro and accelerometer measurements combine to provide an exceptional 3D navigation solution that is stable and continuously available, even through periods when satellite signals are blocked.

## Sophisticated, tactical grade MEMS performance

The OEM-IMU-HG4930 is a high performing Micro Electromechanical Systems (MEMS) IMU. Economical, robust and small, the low power OEM-IMU-HG4930 provides tactical grade performance for unmanned vehicles and commercial and/or military guidance applications. When integrated with SPAN GNSS+INS technology, this IMU is ideal for airborne, marine and ground applications that require accurate 3D position, velocity and attitude data in a compact package.

## OEM-IMU-HG4930 advantages

The OEM-IMU-HG4930 is comprised entirely of commercial components, simplifying export processes for this IMU.

## Improved 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
- Easy integration with SPAN capable GNSS+INS receivers from NovAtel
- Commercially exportable
- Low 5 VDC power input

## Features

- MEMS gyros and accelerometers
- Small size, rugged and light weight
- IMU data rate: 100 Hz or 400 Hz
- Direct UART interface to OEM7 receivers
- SPAN GNSS+INS capability with configurable application profiles

### IMU performance<sup>1</sup>

#### Gyroscope performance

Technology	MEMS
Dynamic range <sup>2</sup>	400 °/sec
Bias instability	0.45 °/hr
Angular random walk	0.06 °/√hr

#### Accelerometer performance

Technology	MEMS
Dynamic range	20 g
Bias instability	0.075 mg
Velocity random walk	0.06 m/s/√hr

### Physical and electrical

**Dimensions** 64.8 dia × 35.7 h mm (max)

**Weight** 200 g

**Power**  
 Input voltage +5 VDC  
 Power consumption <3 W (typical)

**Communication interface** Serial port (TTL)

**Connection to receiver** Receiver serial port

**Data rate**  
 IMU raw data rate 100 Hz or 400 Hz  
 INS solution Up to 200 Hz

### Environmental

#### Temperature

Operating	-40°C to +71°C
Storage	-40°C to +80°C

#### Random Vibe

MIL-STD-810G(Ch1), Method 514.7 (2.0g)

### Performance during GNSS outages<sup>3, 4, 5</sup>

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 <sup>6</sup>	0.02	0.03				
	TerraStar-C PRO PPP	0.025	0.05	0.015	0.010	0.010	0.030
	Single point	1.00	0.60				
10 s	RTK <sup>6</sup>	0.12	0.08				
	TerraStar-C PRO PPP	0.12	0.10	0.035	0.020	0.018	0.040
	Single point	1.10	0.65				
60 s	RTK <sup>6</sup>	3.80	0.73				
	TerraStar-C PRO PPP	3.80	0.75	0.165	0.030	0.030	0.055
	Single point	4.80	1.30				
	RTK with Land profile and DMI	2.50	0.55	0.115	0.030	0.030	0.055
0 s	Post-Processed using Inertial Explorer	0.01	0.02	0.015	0.010	0.003	0.010
10 s		0.01	0.02	0.015	0.010	0.003	0.010
60 s		0.11	0.05	0.017	0.010	0.004	0.014

1. Supplied by IMU manufacturer.

2. Full performance to 325 °/s.

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

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

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

6. 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

This document and the information contained herein are provided AS IS and without any representation or warranty of any kind. All warranties, express or implied, are hereby disclaimed, including but not limited to any warranties of merchantability, non-infringement, and fitness for a particular purpose. Nothing herein constitutes a binding obligation. The information contained herein is subject to change without notice. Inertial Explorer, NovAtel, OEM7, SPAN, TerraStar and Waypoint are trademarks of Hexagon AB and/or its subsidiaries and affiliates, and/or their licensors. All other trademarks are properties of their respective owners.

© Copyright 2018 – 2023 Hexagon AB and/or its subsidiaries and affiliates. All rights reserved. A list of entities within the Hexagon Autonomy & Positioning division is available at <https://hexagon.com/company/divisions/autonomy-and-positioning>.