

IMU-LN200

Tactical grade, low noise IMU combines with SPAN GNSS+INS technology from Hexagon | NovAtel to provide 3D position, velocity and attitude solution

World-leading GNSS+INS technology

SPAN GNSS+INS technology brings together two different but complementary technologies: Global Navigation Satellite Systems (GNSS) positioning and inertial navigation. The absolute accuracy of GNSS positioning and the stability of Inertial Measurement Unit (IMU) gyro and accelerometer measurements are deeply coupled to provide an exceptional 3D navigation solution that is stable and continuously available, even through periods when satellite signals are blocked.

IMU-LN200 overview

The IMU-LN200 is a tactical grade IMU containing closed-loop fiber optic gyros and solid-state silicon accelerometers. Low noise and stable accelerometer and gyro sensor biases make the IMU-LN200 an ideal choice for airborne mapping applications. IMU mounting is made easy by its small footprint.

The IMU-LN200 is available as a complete assembly, including the IMU and environmentally sealed enclosure so integrators can easily pair it with a SPAN enabled receiver. The LN200 is also available as a stand alone OEM product. The LN200 is commercial product that can be licensed under the jurisdiction of the U.S. Department of Commerce for customers outside the United States.

Improve LN200 accuracy

Receivers from NovAtel provide your choice of accuracy and performance, from decimetre to RTK-level positioning. For more demanding applications, Waypoint Inertial Explorer post-processing software can be used to post-process real-time data and offers the highest level of accuracy with the system.



Benefits

- Premium performance IMU
- Optimal for aerial, hydrographic survey and industrial applications
- Easy integration with SPAN capable GNSS+INS receivers from NovAtel
- Rugged design ideal for challenging environments
- High sensor dynamic range

Features

- Closed loop fibre optic gyros
- Stationary INS alignment capable
- IMU data rate: 200 Hz
- Enclosure comes with optional wheel sensor input
- SPAN GNSS+INS capability with configurable application profiles

IMU performance¹

Gyroscope performance

Technology	FOG
Dynamic range	1420 °/s
Bias repeatability	1.0 °/hr
Angular random walk	0.07 °/√hr

Accelerometer performance

Technology	MEMS
Dynamic range	40 g
Bias repeatability	0.3 mg

Physical and electrical

Dimensions 150 x 134 x 134 mm

Weight 3.2 kg

Power

Input voltage	+10 to +34 VDC
Power consumption	17 W (typical)

Connectors

Power	SAL M12, 5 pin, male
Data	SAL M12, 4 pin, female
Wheel sensor	SAL M12, 8 pin, male

Communication interface RS-422 UART

Connection to receiver Receiver serial port

Data rate

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

Environmental

Temperature

Operating	-40°C to +55°C
Storage	-40°C to +80°C

Humidity MIL-STD-810G(Ch1), Method 507.6

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

Environment MIL-STD-810G(Ch1), Method 512.6 (IEC 60529 IP67)

Compliance

FCC, ISCED, CE

Included accessories

- Power cable
- Communication cable
- Wheel sensor cable

Optional accessories

- Mounting plate

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	Heading
0 s	RTK ⁵	0.02	0.03	0.010	0.010	0.008	0.015
	TerraStar-C PRO PPP	0.025	0.05				
	Single point	1.00	0.60				
10 s	RTK ⁵	0.12	0.10	0.020	0.015	0.011	0.020
	TerraStar-C PRO PPP	0.12	0.12				
	Single point	1.10	0.67				
60 s	RTK ⁵	1.75	0.63	0.070	0.025	0.014	0.030
	TerraStar-C PRO PPP	1.75	0.65				
	Single point	2.75	1.20				
	RTK with Land profile and DMI	1.75	0.63				
0 s	Post-Processed using Inertial Explorer	0.01	0.02	0.010	0.010	0.003	0.006
10 s		0.01	0.02	0.020	0.010	0.003	0.006
60 s		0.09	0.06	0.020	0.010	0.004	0.006

1. Supplied by IMU manufacturer.

2. Performance may be impacted in conditions with unmitigated vibration or significant temperature variations.

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

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 2016 – 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>.

D21488 Version 4 | 04 May 2023 | Printed in Canada