

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. The LN200 is also available as a stand alone OEM product so integrators can easily pair it with a SPAN enabled receiver. The LN200 is ITAR controlled and requires export approval 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 on the LN200 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 NovAtel's SPAN capable GNSS+INS receivers
- Rugged design ideal for challenging environments
- High sensor dynamic range

Features

- Closed loop fiber 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

SPAN System Performance¹

Horizontal Position Accuracy (RMS)

Single point L1/L2	1.2 m
SBAS ²	60 cm
DGPS	40 cm
TerraStar-L ^{3,4}	40 cm
TerraStar-C PRO ^{3,4}	2.5 cm
TerraStar-X ^{3,4}	2 cm
RTK	1 cm +1 ppm

Data Rate

IMU Raw Data Rate	200 Hz
INS Solution	Up to 200 Hz

Time Accuracy⁵ 20 ns RMS

Max Velocity⁶ 515 m/s

IMU Performance⁷

Gyroscope Performance

Gyro input range	±1000 deg/sec
Gyro rate bias	1.0 deg/hr
Gyro scale factor error	100 ppm
Angular random walk	0.07 deg/√hr

Accelerometer Performance

Accelerometer input range ⁸	±40 g
Accelerometer linearity	150 ppm
Accelerometer scale factor error	300 ppm
Accelerometer bias	0.3 mg

Physical and Electrical

Dimensions 150 x 134 x 134 mm

Weight 3.2 kg

Power

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

Connectors

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

Environmental

Temperature

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

Humidity

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

Random Vibe

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

Environment

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

Compliance

FCC, ISED, CE

Included Accessories

- Power cable
- Communication cable
- Wheel sensor cable

Optional Accessories

- Mounting plate
- Inertial Explorer post-processing software

Performance During GNSS Outages^{1,9}

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 ¹⁰	0.02	0.03					
	PPP	0.06	0.15	0.010	0.010	0.008	0.008	0.015
	SP	1.00	0.60					
	Post-Processed ¹¹	0.01	0.02	0.010	0.010	0.003	0.003	0.006
10 s	RTK ¹⁰	0.12	0.10					
	PPP	0.16	0.22	0.020	0.015	0.011	0.011	0.020
	SP	1.10	0.67					
	Post-Processed ¹¹	0.01	0.02	0.020	0.010	0.003	0.003	0.006
60 s	RTK ¹⁰	1.77	0.63					
	PPP	1.81	0.75	0.070	0.025	0.014	0.014	0.030
	SP	2.75	1.20					
	Post-Processed ¹¹	0.09	0.06	0.020	0.010	0.004	0.004	0.006

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. GNSS receiver sustains tracking up to 4 g. 9. Steady state and outage performance remains the same for the C model. 10. 1ppm should be added to all values to account for additional error due to baseline length. 11. Post-processing results using Inertial Explorer software.

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