SPAN® IMU-LN200C

TACTICAL GRADE, LOW NOISE IMU COMBINES WITH NOVATEL'S GNSS TECHNOLOGY TO PROVIDE 3D POSITION, VELOCITY AND ATTITUDE SOLUTION

SPAN: WORLD-LEADING GNSS+INS TECHNOLOGY

Synchronous Position, Attitude and Navigation (SPAN) 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 tightly coupled to provide an exceptional 3D navigation solution that is stable and continuously available, even through periods when satellite signals are blocked.

IMU-LN200C OVERVIEW

The IMU-LN200C 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-LN200C an ideal choice for airborne mapping applications. IMU mounting is made easy by its small footprint.

The IMU-LN200C is available as a complete assembly, including the IMU and environmentally sealed enclosure. The LN200C is also available as a stand alone OEM product so integrators can easily pair it with a SPAN enabled receiver. The LN-200C is a commercial product that can be licensed under the U.S. Department of Commerce for customers outside the United States.

IMPROVE SPAN LN200C ACCURACY

Take advantage of NovAtel CORRECT™ to receive your choice of accuracy and performance, from decimetre to RTK-level positioning. For more demanding applications, Inertial Explorer® post-processing software from our Waypoint® Product Group can be used to post-process SPAN LN200C data and offers the highest level of accuracy with the system.

BENEFITS

+ Low noise, low bias sensor excellent for airborne survey applications
+ Easy integration with NovAtel's SPAN capable GNSS+INS receivers
+ Streamlined enclosure and simple cabling

FEATURES

+ Closed-loop fiber optic gyro technology
+ 200 Hz data rate
+ 10-34 VDC power input
+ SPAN GNSS+INS functionality

If you require more information about our SPAN products, visit www.novatel.com/span

IMU-LN200C

SPAN SYSTEM PERFORMANCE[1]

Horizontal Position Accuracy (RMS)

Single point L1/L2	1.2 m
NovAtel CORRECT	
» SBAS[2]	60 cm
» DGPS	40 cm
» PPP[3, 4]	
TerraStar-L	40 cm
TerraStar-C	4 cm
RTK	1 cm + 1 ppm

Data Rate

IMU measurements	200 Hz
INS position	200 Hz
INS velocity	200 Hz
INS attitude	200 Hz

Time Accuracy[5] 20 ns RMS

Max Velocity[6] 515 m/s

IMU PERFORMANCE[7]

Gyro input range	±490 deg/sec
Gyro rate bias	1.0 deg/hr
Gyro scale factor error	100 ppm
Angular random walk	0.07 deg/√hr
Accelerometer input range[8]	±15 g
Accelerometer linearity	150 ppm
Accelerometer scale factor error	300 ppm
Accelerometer bias	0.3 mg

PHYSICAL AND ELECTRICAL

Dimensions

L x W x H 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)

INCLUDED ACCESSORIES

- Power cable
- Communication cable
- Wheel sensor cable

OPTIONAL ACCESSORIES

- Mounting plate
- Inertial Explorer post-processing software

For the most recent details of this product: www.novatel.com/products/span-gnss-inertial-systems/span-imus/imu-ln200-tactical-grade-fiber-optic-gyros-fog-inertial-measurement-unit-imu/

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Version 1 Specifications subject to change without notice.

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Statements related to the export of products are based solely on NovAtel's experience in Canada, are not binding in any way and exportability may be different with respect to the export regulations in effect in another country. The responsibility for re-export of product from a Customer's facility is solely the responsibility of the Customer.

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	0.010	0.010	0.010	0.010	0.020
	SP	1.00	0.60	0.010	0.010	0.010	0.010	0.020
	PP[11]	0.01	0.02	0.010	0.010	0.005	0.005	0.007
10 s	RTK[10]	0.13	0.10	0.020	0.015	0.012	0.012	0.025
	SP	1.15	0.67	0.020	0.015	0.012	0.012	0.025
	PP[11]	0.01	0.02	0.020	0.010	0.005	0.005	0.007
60 s	RTK[10]	2.75	0.85	0.100	0.025	0.017	0.017	0.040
	SP	3.50	1.40	0.100	0.025	0.017	0.017	0.040
	PP[11]	0.09	0.03	0.040	0.010	0.005	0.005	0.007

1. Typical values. Performance specifications subject to GPS system characteristics, US DOD operational degradation, ionospheric and tropospheric conditions, satellite geometry, baseline length, multipath effects and the presence of intentional or unintentional interference sources.
2. GPS-only.
3. Requires subscription to TerraStar data service. Subscriptions available from NovAtel.
4. TerraStar service available depends on the SPAN 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. 1 ppm should be added to all values to account for additional error due to baseline length.
11. Post-processing results using Inertial Explorer software.