SPAN™

UIMU-LN200

Tactical Grade, Low Noise IMU Combines with NovAtel's GNSS Technology to Provide 3D Position, Velocity and Attitude Solution

Benefits

Low noise, low bias sensor excellent for airborne survey applications

Easy integration with NovAtel's SPAN capable GNSS/INS receivers

Features

Closed-loop fiber optic gyro technology

200 Hz data rate

12-28 VDC power input

SPAN INS functionality

SPAN: World-Leading GNSS + INS Technology

SPAN (Synchronous Position, Attitude and Navigation) 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.

UIMU-LN200 Overview

The UIMU-LN200 contains the Northrop Grumman LN200 IMU. The LN200 is a tactical grade IMU containing closed-loop fiber optic gyros and solid-state silicon accelerometers. The UIMU-LN200 handles the power requirements of the IMU from a 12-28 V power input and provides the IMU data to a SPAN enabled GNSS/INS receiver such as the FlexPak6™ or SPAN-SE using a custom NovAtel interface. The GNSS/INS receiver uses IMU measurements to compute a blended GNSS/INS position, velocity and attitude solution at up to 200 Hz. The LN200 is ITAR controlled and requires export approval for customers outside the United States.

Advantages of UIMU-LN200

Low noise and stable accelerometer and gyro sensor biases make the UIMU-LN200 an ideal choice for airborne mapping applications. IMU mounting is made easy by its small footprint. The UIMU-LN200 is available as a complete assembly, including the IMU and environmentally sealed enclosure. Also, customers who already have the LN200 IMU can purchase the enclosure separately and easily integrate the IMU.

Improve SPAN LN200 Accuracy

Take advantage of our Advance® RTK as well as support for satellite based augmentation systems such as L-Band or SBAS to improve real-time performance and accuracy. For more demanding applications, Inertial Explorer® post-processing software from our Waypoint® Product Group can be used to post-process SPAN LN200 data and offers the highest level of accuracy with the system.

If you require more information about our SPAN IMUs, visit novatel.com/products/span-gnss-inertial-systems/inertial-measurement-units-imus

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SPAN™ UIMU-LN200

SPAN System Performance[1]

Horizontal Position Accuracy (RMS)

Single Point L1	1.5 m
Single Point L1/L2	1.2 m
SBAS	0.6 m
DGPS	0.4 m
L-Band	
VBS	0.6 m
XP	0.15 m
HP	0.1 m
RT-2™	1 cm+1 ppm

Acceleration Accuracy[2]
0.03 m/s² RMS

Max Velocity[3] **515 m/s**

Data Rate

IMU Measurements	200 Hz
INS Position	200 Hz
INS Velocity	200 Hz
INS Attitude	200 Hz

IMU Performance

UIMU-LN200

Gyro Input Range	±1000 deg/sec
Gyro Rate Bias	1.0 deg/hr
Gyro Rate Scale Factor	100 ppm
Angular Random Walk	0.07 deg/√hr
Accelerometer Range[4]	±40 g
Accelerometer Linearity	150 ppm
Accelerometer Scale Factor	300 ppm
Accelerometer Bias	0.3 mg

UIMU-LN200-L

Gyro Input Range	±1000 deg/sec
Gyro Rate Bias	1.0 deg/hr
Gyro Rate Scale Factor	100 ppm
Angular Random Walk	0.07 deg/√hr
Accelerometer Range[4]	±40 g
Accelerometer Linearity	500 ppm
Accelerometer Scale Factor	1000 ppm
Accelerometer Bias	1.5mg

IMU Physical and Electrical

Dimensions 168 x 195 x 146 mm

Weight 4.5 kg

Power

Power Consumption	16 W (typical)
Input Voltage	+12 to +28 V

Connectors

Power	MIL-C-38999-III, 3 pin
Communication	MIL-C-38999-III, 13 pin

Environmental

Temperature

Operating	-30°C to +60°C
Storage	-45°C to +80°C

Humidity 95% non-condensing

MTBF 20,000 hrs

Waterproof IEC 60259 IPX7

Dust IEC 60259 IP6X

Optional Accessories

- Inertial Explorer post-processing software

Performance During GNSS Outages[1, 5]

Outage Duration	Positioning Mode	Position Accuracy (m) RMS		Velocity Accuracy (m/s) RMS		Attitude Accuracy (degrees)[2] RMS		
		Horizontal	Vertical	Horizontal	Vertical	Roll	Pitch	Heading
0s	RTK	0.020	0.050	0.020	0.010	0.010	0.010	0.020
	HP	0.100	0.080	0.020	0.010	0.010	0.010	0.020
	SP	1.200	0.600	0.020	0.010	0.011	0.011	0.022
	PP[6]	0.010	0.015	0.020	0.010	0.005	0.005	0.008
10 s	RTK	0.120	0.070	0.025	0.011	0.011	0.011	0.022
	HP	0.390	0.320	0.030	0.012	0.012	0.012	0.030
	SP	1.340	0.670	0.030	0.012	0.012	0.012	0.029
	PP[6]	0.020	0.020	0.010	0.010	0.005	0.005	0.008
60 s	RTK	2.790	0.630	0.102	0.023	0.013	0.013	0.031
	HP	3.120	0.760	0.105	0.019	0.013	0.013	0.040
	SP	3.510	0.960	0.105	0.019	0.015	0.015	0.039
	PP[6]	0.110	0.030	0.020	0.015	0.008	0.008	0.010

Version 8 - Specifications subject to change without notice.

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For the most recent details of this product:
novatel.com/assets/Documents/Papers/LN200.pdf

[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] When SPAN is in RTK mode.
[3] Export licensing restricts operation to a maximum of 515 metres per second.
[4] GNSS receiver sustains tracking up to 4 g.
[5] Steady state and outage performance remains the same for the -L model.
[6] Post-processing results using Inertial Explorer software.