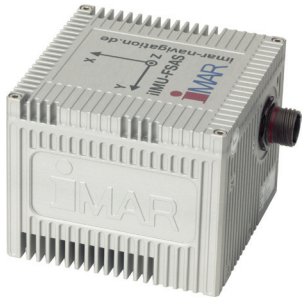
SPAN® IMU-FSAS™

TACTICAL GRADE, LOW NOISE IMU COMBINES WITH NOVATEL'S GNSS TECHNOLOGY TO CREATE A 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 System (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-FSAS OVERVIEW

The IMU-FSAS is a tactical grade IMU from iMAR GmbH. The custom NovAtel interface of the IMU integrates easily into a NovAtel SPAN enabled GNSS+INS receiver such as the FlexPak6™ or ProPak6™. IMU measurements are sent from the IMU-FSAS to the GNSS+INS receiver where a blended GNSS+INS position, velocity and attitude solution is generated at up to 200 Hz. An optional interface for magnetic or optical encoder style wheel sensors is available for ground applications.

ADVANTAGES OF IMU-FSAS

The low noise and stable biases of the accelerometer and gyro sensors mean this IMU is well suited for ground or airborne survey applications or general positioning and navigation in locations where standard GNSS receivers are not sufficient. For commercial applications, the IMU-FSAS does not require formal export authorization from Germany or Canada.

IMPROVE IMU-FSAS 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 IMU-FSAS data and offers the highest level of accuracy with the system.

BENEFITS

+ 35,000 hour MTBF
+ No export approval required for most countries and applications
+ Easy integration with a NovAtel SPAN capable GNSS+INS receiver

FEATURES

+ Closed loop fiber optic gyros and servo accelerometers
+ 200 Hz data rate
+ Wheel encoder input capability
+ SPAN INS functionality

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

IMU-FSAS™

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]	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]

IMU-FSAS-EI-SN

Gyroscope Performance

Input range	±450 deg/sec
Rate bias	<0.75 deg/hr
Rate scale factor	300 ppm
Angular random walk	0.1 deg/√hr

Accelerometer Performance

Range[8]	±5 g
Scale factor	300 ppm
Bias	1.0 mg

PHYSICAL AND ELECTRICAL

Dimensions

128 x 128 x 104 mm

Weight 2.1 kg

Power

Power consumption	16 W (max)
Input voltage	+11 to +34 V

Input/Output Connectors

MIL-C-38999-III, 22 pin

ENVIRONMENTAL

Temperature

Operating	-40°C to +71°C
Storage	-40°C to +85°C

Humidity 95% non-condensing

MTBF 35,000 hrs

OPTIONAL ACCESSORIES

- Inertial Explorer post-processing software

For the most recent details of this product:
www.novatel.com/products/span-gnss-inertial-systems/span-imus/imu-fsas/

novatel.com

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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

Version 11 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]

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[9]	0.02	0.05	0.020	0.010	0.008	0.008	0.023
	SP	1.20	0.60	0.020	0.010	0.009	0.013	0.024
	PP[10]	0.01	0.02	0.020	0.010	0.004	0.004	0.013
10 s	RTK[9]	0.13	0.06	0.026	0.010	0.010	0.010	0.025
	SP	1.34	0.67	0.035	0.011	0.014	0.014	0.026
	PP[10]	0.01	0.02	0.020	0.010	0.004	0.004	0.013
60 s	RTK[9]	3.50	0.32	0.135	0.015	0.015	0.015	0.040
	SP	4.44	0.87	0.151	0.015	0.018	0.018	0.040
	PP[10]	0.15	0.04	0.023	0.010	0.005	0.005	0.014

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. An OEM628, OEM638, FlexPak6 or ProPak6 receiver is required.
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. 1 ppm should be added to all values to account for additional error due to baseline length.
10. Post-processing results using Inertial Explorer software.