OEM-IMU-HG4930

Small, Affordable MEMS IMU Combines With SPAN Technology by Hexagon | NovAtel to Provide 3D Position, Velocity and Attitude

SPAN: World-Leading GNSS+INS Technology

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

Sophisticated, Tactical Grade MEMS Performance

The OEM-IMU-HG4930 is a high performing Micro Electromechanical Systems (MEMs) IMU. Economical, robust and small, the low power OEM-IMU-HG4930 provides tactical grade performance for unmanned vehicles and commercial and/or military guidance applications. When integrated with SPAN technology by NovAtel, this IMU is ideal for airborne, marine and ground applications that require accurate 3D position, velocity and attitude data in a compact package.

OEM-IMU-HG4930 Advantages

The OEM-IMU-HG4930 is comprised entirely of commercial components, simplifying export processes for this IMU.

Improved Accuracy

NovAtel receivers provide your choice of accuracy and performance, from decimeter to RTK-level positioning. For the most demanding applications, Inertial Explorer® post-processing software from our Waypoint® Products Group offers the highest level of accuracy.

Benefits

- High performance IMU
- Optimal for aerial, hydrographic survey and industrial applications
- Easy integration with NovAtel's SPAN capable GNSS+INS receivers
- Commercially exportable
- Low 5 VDC power input

Features

- MEMS gyros and accelerometers
- Small size, rugged and light weight
- IMU data rate: 100Hz
- Direct serial interface to OEM7 receivers
- SPAN GNSS+INS capability with configurable application profiles
- Non-ITAR IMU

SPAN System Performance[1]

Horizontal Position Accuracy (RMS)

Single Point L1	1.5 m
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	100Hz
INS Solution	Up to 200 Hz

Time Accuracy[4] 20 ns RMS

Max Velocity[5] 515 m/s

IMU Performance[6]

Gyroscope Performance

Technology	MEMS
Input rate	±200°/sec

Accelerometer Performance

Technology	MEMS
Range	±20 g

Physical and Electrical[6]

Dimensions 64.8 mm dia max × 35.7 mm h max

Weight 200 g

Power

Power consumption	<3 W (typical)
Input voltage	+5 VDC

Environmental[6]

Temperature

Operating	-40°C to +71°C
Storage	-40°C to +80°C
Random Vibe	MIL-STD-810G(Ch1), Method 514.7 (2.0g)

Performance During GNSS Outages[7]

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[8]	0.02	0.03	0.015	0.010	0.010	0.010	0.030
	PPP	0.06	0.15					
	SP	1.00	0.60					
	Post-Processed[9]	0.01	0.02	0.015	0.010	0.005	0.005	0.010
10 s	RTK[8]	0.12	0.08	0.035	0.020	0.018	0.018	0.040
	PPP	0.16	0.20					
	SP	1.10	0.65					
	Post-Processed[9]	0.01	0.02	0.020	0.010	0.005	0.005	0.010
60 s	RTK[8]	3.82	0.73	0.165	0.030	0.030	0.030	0.055
	PPP	3.86	0.85					
	SP	4.80	1.30					
	Post-Processed[9]	0.15	0.05	0.020	0.010	0.007	0.007	0.012

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 sources. 2. GPS-only. 3. Requires subscription to TerraStar data service. Subscriptions available from NovAtel. 4. Time accuracy does not include biases due to RF or antenna delay. 5. Export licensing restricts operation to a maximum of 515 meters/second. 6. Supplied by IMU manufacturer. 7. Outage statistics were calculated by taking the RMS of the maximum errors over a minimum of 30 complete GNSS outages. Each outage was followed by 120 seconds of full GNSS availability before the next outage was applied. High accuracy GPS updates (fixed ambiguities) were available immediately before and after each outage. The survey data used to generate these statistics is ground vehicle data collected with frequent changes in azimuth (i.e., as normally observed in ground vehicle environments). 8. 1 ppm should be added to all values to account for additional error due to baseline length. 9. Post-processing results using Inertial Explorer. The survey data used to generate these statistics had frequent changes in azimuth.

Contact Hexagon | NovAtel

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