SPAN® OEM-HG1900

TACTICAL GRADE MEMS IMU COMBINES WITH SPAN TECHNOLOGY PROVIDING 3D POSITION, VELOCITY AND ATTITUDE

ABOUT 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 Systems (INS). The absolute accuracy of GNSS positioning and the stability of Inertial Measurement Unit (IMU) measurements combine to provide an exceptional 3D navigation and attitude solution that is stable and continuously available, even through periods when satellite signals are blocked.

SOPHISTICATED, TACTICAL GRADE PERFORMANCE

The HG1900 IMU offers a hybrid package of Honeywell's Micro Electromechanical Systems (MEMs) Gyros and RBA accelerometers. Economical, robust and small, the low power HG1900 provides high end tactical grade performance for commercial and military guidance and navigation applications. When integrated with NovAtel's SPAN technology, this IMU is ideal for airborne and ground applications that require accurate 3D position, velocity and attitude data. The HG1900 is a commercial product that can be licensed under the U.S. Department of Commerce for customers outside the United States.

COMBINING SPAN AND MEMS TECHNOLOGY

A proprietary NovAtel Universal IMU Controller (UIC) couples the HG1900 with SPAN receivers, offering a unique, powerful GNSS+INS system for weight and size constrained applications.

REQUIRE HIGHER ACCURACY?

Take advantage of NovAtel CORRECT® to receive your choice of accuracy and performance, from decimetre 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

+ Excellent performance
+ High reliability
+ Ideal for size constrained applications
+ Easy to integrate with SPAN GNSS receivers

FEATURES

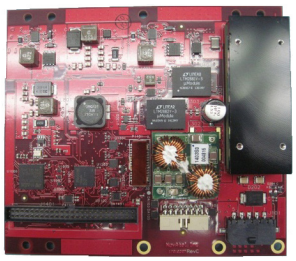
+ MEMS Gyros
+ Small size and light weight
+ 10-34 VDC power input[1]
+ 100 Hz data rate
+ SPAN INS functionality

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

1. Voltage range for the UIC not the IMU.

OEM-HG1900

UIC SPECS:



PHYSICAL AND ELECTRICAL

Dimensions
113 × 100 × 17.5 mm

Weight 125 g

Power

Input voltage 10 VDC – 34 VDC
Power consumption 4 W

COMMUNICATION PORTS

1 RS-422 COM port for the NovAtel GNSS receiver
1 RS-422 port for the IMU
1 Wheel sensor input

CONNECTORS

5-pin power connector
16-pin receiver communication connector
50-pin IMU connector

ENVIRONMENTAL

Temperature

Operating -40°C to +75°C
Storage -55°C to +90°C

Vibration

Random MIL-STD 810G (Cat 24, 7.7 g RMS)
Sine IEC 60068-2-6
Bump IEC 68-2-29 (25 g)
Shock MIL-STD-810G (40 g)

IMU-HG1900-CA50

PERFORMANCE[1]

Gyroscope Performance

Input range ±1000 deg/sec
Rate bias 5 deg/hr
In-run bias stability 1 deg/hr
Scale factor linearity 150 ppm
Angular random walk 0.09 deg/√hr

Accelerometer Performance

Range ±30 g
Linearity 500 ppm
Scale factor linearity 500 ppm
Scale factor repeatability 300 ppm
Bias repeatability 1 mg
Bias in-run stability 0.7 mg

PHYSICAL AND ELECTRICAL

IMU dimensions
92.7 mm dia max × 79.1 mm h

IMU weight <460 g

Power consumption <3 W

PERFORMANCE DURING GNSS OUTAGES[2]

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[3]	0.02	0.03	0.010	0.010	0.010	0.010	0.030
	SP	1.00	0.60	0.010	0.010	0.010	0.010	0.030
	PP[4]	0.01	0.02	0.010	0.010	0.005	0.005	0.011
10 s	RTK[3]	0.15	0.07	0.020	0.011	0.013	0.013	0.036
	SP	1.10	0.64	0.020	0.011	0.013	0.013	0.036
	PP[4]	0.01	0.02	0.010	0.010	0.005	0.005	0.011
60 s	RTK[3]	1.95	0.29	0.082	0.016	0.018	0.018	0.050
	SP	2.90	0.86	0.082	0.016	0.018	0.018	0.050
	PP[4]	0.10	0.02	0.012	0.010	0.005	0.005	0.014

1. Supplied by IMU manufacturer.
2. 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).
3. 1 ppm should be added to all values to account for additional error due to baseline length.
4. Post-processing results using Inertial Explorer software.

For the most recent details of this product: www.novatel.com/products/span-gnss-inertial-systems/span-imus/span-mems-imus/OEM-HG1900/

novatel.com

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Version 9 Specifications subject to change without notice.

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