

# SPAN<sup>®</sup> 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.

### COMBINING SPAN AND MEMS TECHNOLOGY

A proprietary NovAtel MEMS Interface Card (MIC) couples the HG1900 with SPAN receivers, offering a unique, powerful GNSS+INS system for weight and size constrained applications. Designed as a board stack configuration for ease of integration, the MIC interfaces directly with NovAtel's small form factor OEM615™ SPAN receiver.

The HG1900 is also available as a stand alone product so integrators can easily pair it with an existing OEM6<sup>®</sup> SPAN receiver.

### 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<sup>®</sup> post-processing software from our Waypoint<sup>®</sup> Products Group offers the highest level of accuracy.

### BENEFITS

- + Excellent performance for price
- + Ideal for size constrained applications
- + Easy to integrate with SPAN GNSS receivers

### FEATURES

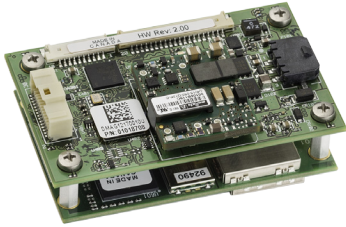
- + MEMS Gyros
- + Small size and light weight
- + 10-30 VDC power input<sup>1</sup>
- + 100 Hz data rate
- + Long MTBF
- + SPAN INS functionality

If you require more information about our SPAN products, visit [www.novatel.com/span](http://www.novatel.com/span)

1. Voltage range for the MIC not the IMU.

# OEM-HG1900

## MIC SPECS:<sup>1</sup>



## PHYSICAL AND ELECTRICAL

**Dimensions**  
75.1 × 45.7 × 19.5 mm

**Weight**  
31 g

**Power**  
Input voltage 10 VDC – 30 VDC  
Power consumption 5.6 W<sup>2</sup>

## COMMUNICATION PORTS

1 LV-TTL COM port to interface to NovAtel GNSS receiver  
1 IMU port with RS-422 interface  
1 pass through USB port<sup>3</sup>

## CONNECTORS

20-pin OEM615 mating connector  
3-pin locking power connector  
30-pin locking communication connector  
20-pin locking IMU connector  
10-pin locking IMU connector

## ENVIRONMENTAL

**Temperature**  
Operating -40°C to +75°C  
Storage -50°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<sup>4</sup>

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

**Accelerometer Performance**  
Range ±30 g  
Linearity 500 ppm  
Scale factor 200 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

**MTBF** >20,000 hours

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

## novatel.com

sales@novatel.com  
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

## PERFORMANCE DURING GNSS OUTAGES<sup>5</sup>

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 <sup>6</sup>	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 <sup>7</sup>	0.01	0.02	0.010	0.010	0.005	0.005	0.011
10 s	RTK <sup>6</sup>	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 <sup>7</sup>	0.01	0.02	0.010	0.010	0.005	0.005	0.011
60 s	RTK <sup>6</sup>	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 <sup>7</sup>	0.10	0.02	0.012	0.010	0.005	0.005	0.014

**Version 7** Specifications subject to change without notice.

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1. Stacked configuration shown with OEM615 receiver. OEM615 sold separately.  
2. 12 VDC, OEM615 stack configuration  
3. OEM615 USB port in stack configuration  
4. Supplied by IMU manufacturer.  
5. 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).  
6. 1 ppm should be added to all values to account for additional error due to baseline length.  
7. Post-processing results using Inertial Explorer software.

