SPAN®

OEM-HG1930

Small, Affordable MEMS IMU Pairs with SPAN Technology to Deliver 3D Position, Velocity and Attitude

Benefits

Ideal for unmanned vehicles

Easy integration with SPAN receivers

Ideal for size-constrained applications

Features

MEMS gyros and accelerometers

Small size and light weight

10-30 VDC power input[1]

100 Hz data rate

Long MTBF

SPAN INS functionality

Small IMU for Demanding Applications

The HG1930 is a small, low cost Micro Electromechanical Systems (MEMS) Inertial Measurement Unit (IMU) manufactured by Honeywell. It provides tactical grade performance for unmanned vehicles and other commercial and/or military guidance 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.

About SPAN: World-Leading GNSS + INS Technology

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 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.

Combining SPAN and MEMS Technology

A proprietary MEMS Interface Card (MIC) couples the HG1930 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 can interface directly with NovAtel's small form factor OEM615 SPAN receiver.

The HG1930 is also available as a stand alone product so integrators can easily pair it with an existing SPAN receiver such as the SPAN-SE™ or SPAN-MPPC™.

Require Higher Accuracy?

NovAtel's AdVance® RTK and satellite augmentation systems such as SBAS can be used to improve real-time performance and accuracy. For the most demanding applications, Inertial Explorer® post-processing software from our Waypoint® Products Group offers the highest level of accuracy.

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

[1] Voltage range for the MIC not the IMU.

novatel.com

sales@novatel.com

1-800-NOVATEL (U.S. and Canada)

or 403-295-4900

China 0086-21-54452990-8011

Europe 44-1993-848-736

SE Asia and Australia 61-400-883-601

SPAN®

OEM-HG1930

MIC SPECS:[1]

Physical and Electrical

Dimensions	75.1 x 45.7 x 19.5 mm
Weight	31 g
Power	
Input Voltage	10 VDC – 30 VDC
Consumption	5.3 W[2]

Connectors

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

Environmental

Temperature	
Operating	-40°C to +75°C
Storage	-50°C to +90°C
Vibration	
Random Vibe :	MIL-STD 810G (Cat 24, 7.7 g RMS)
Sine Vibe:	IEC 60068-2-6
Bump	IEC 68-2-29 (25 g)
Shock	MIL-STD-810G (40 g)

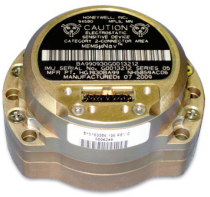
Communication Ports

1 LV-TTL COM port to interface to NovAtel GNSS receiver
1 IMU port with RS-422 interface
1 pass through USB port[3]

IMU Performance

IMU-HG1930-CA50

Gyro Input Range	±1000 deg/sec	Accelerometer Range	±30 g	IMU Size	64.8 mm dia max x 35.7 mm h max
Gyro Rate Bias	20 deg/hr	Accelerometer Scale Factor	300 ppm	IMU Weight	200 g
In-run Gyro Bias Stability	2 deg/hr	Accelerometer Bias Repeatability	5 mg	Power Consumption	<3 W
Gyro Rate Scale Factor	300 ppm	Accelerometer Bias In-run Stability	3 mg	MTBF	>20,000 hours
Angular Random Walk	0.125 deg/√hr				



Performance During GNSS Outages[4]

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[5]	0.020	0.050	0.020	0.010	0.060	0.060	0.100
	HP	0.100	0.080	0.020	0.010	0.060	0.060	0.100
	SP	1.200	0.600	0.020	0.010	0.060	0.060	0.100
	PP	0.020	0.030	0.020		0.045	0.045	0.090
10 s	RTK[5]	1.310	0.190	0.228	0.034	0.080	0.080	0.141
	HP	2.080	0.420	0.230	0.034	0.080	0.080	0.172
	SP	2.710	2.450	0.235	0.034	0.080	0.080	0.180
	PP	0.070	0.040	0.030		0.053	0.053	0.106
60 s	RTK[5]	24.150	1.780	0.862	0.069	0.136	0.136	0.216
	HP	24.500	2.120	0.900	0.070	0.136	0.136	0.216
	SP	25.000	4.270	0.920	0.071	0.136	0.136	0.220
	PP	1.170	0.050	0.030		0.048	0.048	0.097

Version 2 - Specifications subject to change without notice.

OEM-HG1930 D16797 July 2012

For the most recent details of this product:
novatel.com/assets/Documents/Papers/OEM-HG1930.pdf

[1] Stacked configuration shown with OEM615 receiver. OEM615 sold serperately.
[2] 12VDC, OEM615 stack configuration
[3] OEM615 USB port in stack configuration
[4] 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).
[5] 1 ppm should be added to all values to account for additional error due to baseline length.