

# SPAN<sup>®</sup> OEM-IMU-ADIS-16488



## COMMERCIAL MEMS IMU INTEGRATED WITH SPAN TECH- NOLOGY TO DELIVER 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.

### LOW NOISE COMMERCIAL MEMS

The ADIS16488 is a Micro Electromechanical System (MEMS) IMU from Analog Devices. It features low noise gyros and accelerometers in a small, light weight, environmentally sealed enclosure. The ADIS16488 enables precision measurements for applications that require low cost, high performance and rugged durability in a very small form factor. When integrated with NovAtel's SPAN technology, this IMU is ideal for airborne and ground applications that require accurate 3D position, velocity and attitude (roll, pitch and yaw) data.

### COMBINING SPAN AND MEMS TECHNOLOGY

A proprietary NovAtel MEMS Interface Card (MIC) couples the ADIS16488 with SPAN receiver cards, 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.

### REQUIRE HIGHER 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® Products Group offers the highest level of accuracy.

### BENEFITS

- + Economical
- + Non-ITAR IMU
- + Ideal for size constrained applications
- + Easy to integrate with SPAN GNSS receivers

### FEATURES

- + Low noise commercial grade gyros and accelerometers
- + Small size and light weight
- + 10-30 VDC power input<sup>1</sup>
- + 200 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.

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## 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 3.6 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)

## OEM-IMU-ADIS-16488



## PERFORMANCE<sup>4</sup>

**Gyroscope Performance**  
Input range ±450 deg/sec  
In-run bias stability 6 deg/hr  
Angular random walk 0.30 deg/√hr

**Accelerometer Performance**  
Range ±18 g  
In-run bias stability 0.1 mg  
Velocity random walk 0.029 m/s/√hr

## PHYSICAL AND ELECTRICAL

**IMU dimensions**  
47 × 44 × 14 mm

**IMU weight**  
48 g

For the most recent details of this product: [www.novatel.com/products/span-gnss-inertial-systems/span-imus/span-mems-imus/oem-adis-16488/](http://www.novatel.com/products/span-gnss-inertial-systems/span-imus/span-mems-imus/oem-adis-16488/)

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## PERFORMANCE DURING GNSS OUTAGES<sup>5, 6</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>7</sup>	0.02	0.03	0.020	0.010	0.035	0.035	0.150
	SP	1.00	0.60	0.020	0.010	0.035	0.035	0.150
	PP <sup>8</sup>	0.01	0.02	0.020	0.010	0.012	0.012	0.074
10 s	RTK <sup>7</sup>	0.46	0.13	0.100	0.021	0.072	0.072	0.210
	SP	1.41	0.70	0.100	0.021	0.072	0.072	0.210
	PP <sup>8</sup>	0.02	0.02	0.020	0.010	0.012	0.012	0.074

**Version 8** Specifications subject to change without notice.

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1. Stacked configuration shown with OEM615 receiver. OEM615 sold separately.  
2. With OEM615 supplied 10 V.  
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. Outage performance information is applicable for firmware version OEM060240RN0000 and up.  
7. 1 ppm should be added to all values to account for additional error due to baselining length.  
8. Post-processing accuracy using Inertial Explorer processing software.

