

Precision, Miniature MEMS IMU

Manufacturers	Analog Devices, Inc
Package/Case	100-Ball Ball Grid Array SMD (15mm x 15mm x 5.72mm)
Product Type	Motion & Position Sensors
RoHS	
Lifecycle	



Images are for reference only

Please submit RFQ for ADIS16505-2BMLZ or [Email to us: sales@ovaga.com](mailto:sales@ovaga.com) We will contact you in 12 hours.

[RFQ](#)

General Description

The ADIS16505 is a precision, miniature microelectromechanical system (MEMS) inertial measurement unit (IMU) that includes a triaxial gyroscope and a triaxial accelerometer. Each inertial sensor in the ADIS16505 combines with signal conditioning that optimizes dynamic performance. The factory calibration characterizes each sensor for sensitivity, bias, alignment, linear acceleration (gyroscope bias), and point of percussion (accelerometer location). As a result, each sensor has dynamic compensation formulas that provide accurate sensor measurements over a broad set of conditions.

The ADIS16505 provides a simplified, cost effective method for integrating accurate, multi-axis inertial sensing into industrial systems, especially when compared with the complexity and investment associated with discrete designs. All necessary motion testing and calibration are part of the production process at the factory, greatly reducing system integration time. Tight orthogonal alignment simplifies inertial frame alignment in navigation systems. The serial peripheral interface (SPI) and register structure provide a simple interface for data collection and configuration control.

The ADIS16505 is available in a 100-ball, ball grid array (BGA) package that is approximately 15 mm × 15 mm × 5 mm.

Applications

Features

Triaxial, digital gyroscope

2.3°/hr in-run bias stability (ADIS16505-1)

0.13°/√hr angular random walk, x-axis and y-axis, 1 σ (ADIS16505-1)

Triaxial, digital accelerometer, ± 78.4 m/sec

2

26.5 μ m/sec

Application

Navigation, stabilization, and instrumentation

Unmanned and autonomous vehicles

Smart agriculture and construction machinery

Factory/industrial automation, robotics

Virtual/augmented reality

Internet of Moving Things

2

Triaxial, delta angle and delta velocity outputs

Factory calibrated sensitivity, bias, and axial alignment

Calibration temperature range: -40°C to $+85^{\circ}\text{C}$

2.3°/hr in-run bias stability (ADIS16505-1)

0.13°/hr angular random walk, x-axis and y-axis, 1 σ (ADIS16505-1)

26.5 $\mu\text{m}/\text{sec}$

2

Calibration temperature range: -40°C to $+85^{\circ}\text{C}$

SPI compatible data communications

Programmable operation and control

Automatic and manual bias correction controls

Data ready indicator for synchronous data acquisition

External sync modes: direct, scaled, and output

On demand self-test of inertial sensors

On demand self-test of flash memory

Single-supply operation (VDD): 3.0 V to 3.6 V

14,700 m/sec

2

Operating temperature range: -40°C to $+105^{\circ}\text{C}$

Automatic and manual bias correction controls

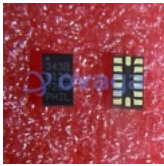
Data ready indicator for synchronous data acquisition

External sync modes: direct, scaled, and output

On demand self-test of inertial sensors

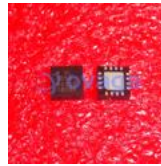
On demand self-test of flash memory

Related Products



[ADXL343BCCZ](#)

Analog Devices, Inc
LGA-14



[ADXL335BCPZ-RL7](#)

Analog Devices, Inc
LFCSP16



[ADXL103CE](#)

Analog Devices, Inc
CLCC-8



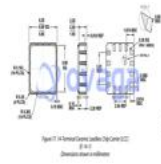
[ADIS16488BMLZ](#)

Analog Devices, Inc
MSM24



[ADXRS642BBGZ](#)

Analog Devices, Inc
CBGA-32



[ADXL357BEZ](#)

Analog Devices, Inc
LCC-14



[ADXL346ACCZ-RL7](#)

Analog Devices, Inc
LGA16



[ADXL345BCCZ-RL7](#)

Analog Devices, Inc
LGA-14