

FEATURES

DO-178C/DO-254 Design Assurance Level (DAL) B certification intent

ED-12C certification intent

Triaxial, digital gyroscope, $\pm 450^\circ/\text{sec}$ dynamic range

$\pm 0.018^\circ$ axis-to-axis misalignment error

$6^\circ/\text{Hr}$ in-run bias stability

$0.3^\circ/\sqrt{\text{Hr}}$ angular random walk

$0.045^\circ/\text{sec}$ nonlinearity

Triaxial, digital accelerometer, $\pm 5 g$ dynamic range

Triaxial, delta angle and delta velocity outputs

Factory calibrated sensitivity, bias, and axial alignment

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

Serial peripheral interface (SPI) compatible

Programmable operation and control

Automatic and manual bias correction controls

4 FIR filter banks, 120 configurable taps

Digital I/O: data ready alarm indicator, external clock

Alarms for condition monitoring

Power-down/sleep mode for power management

Optional external sample clock input: up to 2.4 kHz

Continuous self test of inertial sensors

On demand self test of inertial sensors

Continuous CRC-based memory testing

Single-supply operation: 3.0 V to 3.6 V

2000 g mechanical shock survivability

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

APPLICATIONS

Attitude and heading reference systems

Platform stabilization and control

Unmanned vehicle navigation

Robotics and instrumentation

GENERAL DESCRIPTION

The ADIS16487 is a complete inertial system that includes a triaxis gyroscope and a triaxis accelerometer. Each inertial sensor in the ADIS16487 combines industry leading iMEMS® technology with signal conditioning that optimizes dynamic performance. The factory calibration characterizes each sensor for sensitivity, bias, alignment, and linear acceleration (gyroscope bias). As a result, each sensor has its own dynamic compensation formulas that provide accurate sensor measurements.

The ADIS16487 provides a simple, 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 SPI and register structure provide a simple interface for data collection and configuration control.

For interests requiring evidence of avionics or safety critical applicability, this device supports certification to DO-178C/DO-254 DAL B within systems, which have completed either U.S. Federal Aviation Administration (FAA) or European Aviation Safety Agency (EASA) audits, and can under specific commercial arrangements be supported by preassessment and audit acceptance artifacts.

The ADIS16487 uses the same footprint and connector system as the ADIS16375, ADIS16480, ADIS16485, and ADIS16488A, which greatly simplifies the upgrade process. The ADIS16487 is packaged in a module that is approximately 47 mm × 44 mm × 14 mm and includes a standard connector interface.

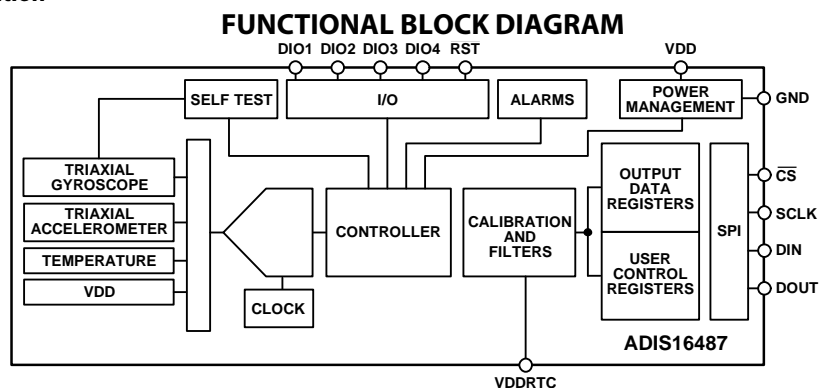


Figure 1.

For more information about the ADIS16487, contact the Analog Devices, Inc., [Customer Interaction Center](#) to connect with a technical support specialist.

Rev. SpB

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