



# IMU383ZA

HIGH PERFORMANCE, FAULT TOLERANT  
INERTIAL MEASUREMENT SYSTEM

The IMU383ZA is a pin-compatible replacement for the popular IMU380ZA and IMU381ZA Inertial Measurement Units. The IMU383ZA offers improved performance, in addition to a unique fault-tolerant sensor architecture for improved reliability. Other key features include advanced synchronization, and a bootloader for field upgradeability.



*Precision Farming*



*Platform Stabilization*

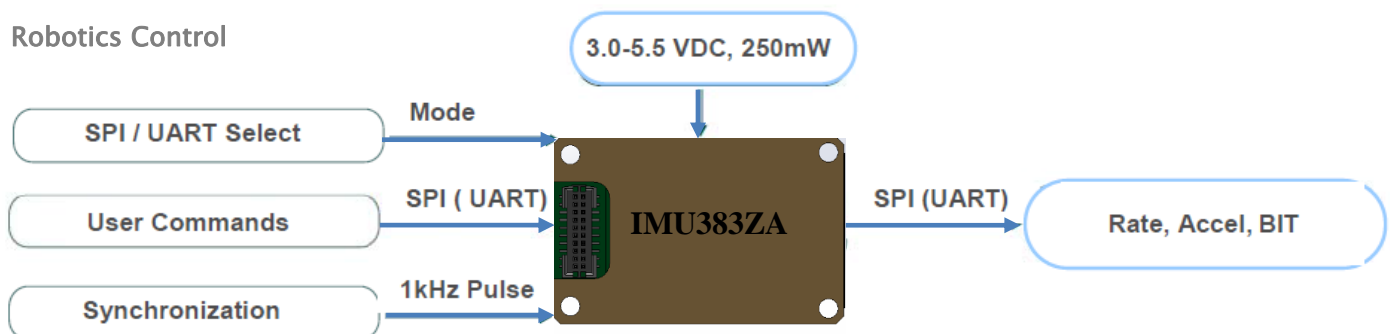
The ACEINNA IMU383ZA integrates highly-reliable MEMS 6DOF inertial sensors in a miniature factory-calibrated module to provide consistent performance through the extreme operating environments in a wide variety of dynamic control and navigation applications.

## Features

- Complete 6DOF Inertial System
- Fault-tolerant, 3x redundant sensors
- Bootloader for field upgrades
- SPI (or UART) Interface
- Update Rate, 1Hz to 200Hz
- 1 KHz Clock Sync Input
- Miniature Package, 24 x 37 x 9.5 mm
- Drop-in upgrade for IMU380/381ZA
- Low Power Consumption < 250 mW
- Wide Temp Range, -40C to +85C
- High Reliability, MTBF > 50k hours

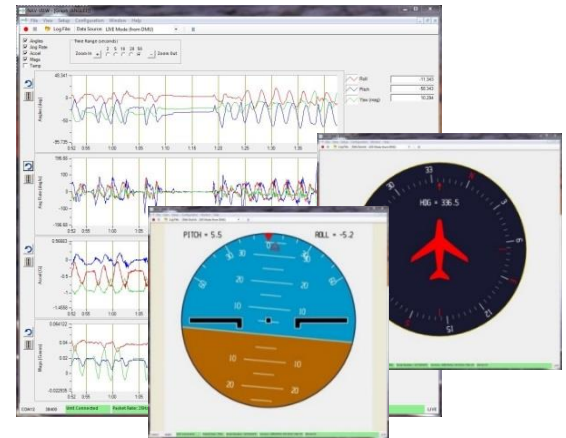
## Applications

- Unmanned Vehicle Control
- Precision Agriculture
- Platform Stabilization
- Robotics Control



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NAV-VIEW provides an easy to use graphical interface to display, record, playback, and analyze all of the IMU383ZA system parameters.

NAV-VIEW can also be used to set a wide range of user-configurable fields in the IMU383ZA to optimize the system performance for highly dynamic applications.

NAV-VIEW software is available for download from ACEINNA's website at: [www.aceinna.com/support](http://www.aceinna.com/support)

## EVAL KIT

The IMU383ZA evaluation kits include an IMU383ZA, evaluation / interface board and USB cable allowing direct connection to a PC for use with NAV-VIEW display and configuration software.



## Support

For more detailed information please refer to the IMU383ZA Series User's Manual available online at:

[www.aceinna.com/support](http://www.aceinna.com/support)

## Performance IMU383ZA-400

Angular Rate	
Range: Roll, Pitch (°/sec)	± 400
Bias Instability (°/hr) <sup>1,2</sup>	1.3
Bias Stability Over Temp (°/sec)	< 0.5
Resolution (°/sec)	< 0.02
Scale Factor Accuracy (%FS)	< 0.1
Non-Linearity (%FS)	< 0.1
Angle Random Walk (°/√hr) <sup>1,2</sup>	0.08
Bandwidth (Hz)	5-50 (user-configurable)
Acceleration	
Range: X, Y, Z (g)	± 8
Bias Instability (mg) <sup>1,2</sup>	0.015
Bias Stability Over -40C~ 85C (mg)	< 5
Resolution (mg)	< 0.5
Scale Factor Accuracy (%FS)	< 0.1
Non-Linearity (%FS)	< 0.1
Velocity Random Walk (m/s/√hr) <sup>1,2</sup>	0.02
Bandwidth (Hz)	5-50 (user-configurable)

## Other Specifications

Environment	
Operating Temperature (°C)	-40 to +85
Non-Operating Temperature (°C)	-55 to +105
Enclosure	Die-Cast Aluminum
Electrical	
Input Voltage (VDC)	3.0 to 5.5
Power Consumption (mW)	< 250
Digital Interface	SPI or UART (user-configurable)
Output Data Rate	1Hz to 200Hz (user-configurable)
Input Clock Sync	1kHz Sync Pulse
Physical	
Size (mm)	24.15 x 37.7 x 9.5
Weight (gm)	< 17
Interface Connector	20-Pin (10 x 2) 1.0 mm pitch header

## Ordering Information

Model	Description
IMU383ZA-400	Inertial Measurement Unit (6 DOF, 400dps Range)
IMU383ZA-400 EVK	Evaluation Kit for IMU383

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<sup>1</sup> Allan Variance Curve, constant temperature. <sup>2</sup> mean + 1-sigma of production population.

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