

The ACEINNA IMU380ZA is a miniature fully-calibrated inertial measurement system designed for demanding embedded applications that require a complete dynamic measurement solution in a robust low-profile package. The IMU380ZA provides a standard SPI bus for cost-effective board-to-board communications.



Precision Farming Antenna Stabilization

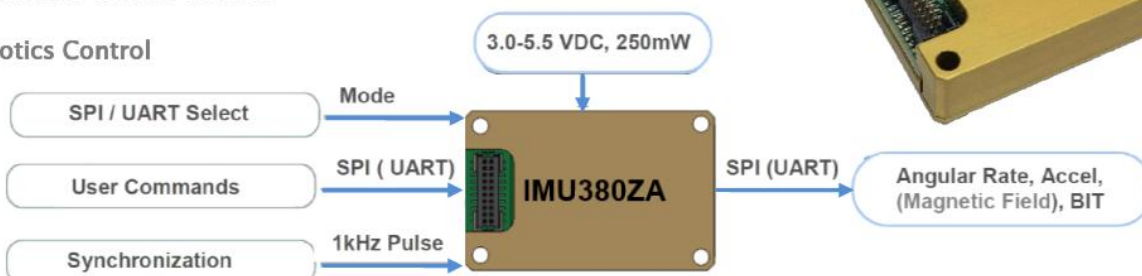
The ACEINNA IMU380ZA integrates highly-reliable MEMS 6DOF inertial sensors (optional 3-axis magnetic sensors) in a miniature factory-calibrated module to provide consistent performance through the extreme operating environments in a wide variety of dynamic control and navigation applications.

Features

- Complete 6DOF Inertial System
- Optional 3-Axis Magnetometer
- Standard and High Range Options
- SPI (or UART) Interface
- Update Rate, 1Hz to 200Hz
- 1KHz Clock Sync Input
- Miniature Package, 24 x 37 x 9.5 mm
- Lightweight < 17 g
- Low Power Consumption < 250 mW
- Wide Temp Range, -40C to +85C
- High Reliability, MTBF > 50k hours

Applications

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



Performance IMU380ZA (-200,-209,-400,-409)

Angular Rate	
Range: Roll, Pitch, Yaw (°/sec)	± 200 (± 400 High Range Model)
Bias Instability (°/hr) ^{1,2}	< 10
Bias Stability Over Temp (°/sec) ²	< 0.5
Resolution (°/sec)	< 0.02
Scale Factor Accuracy (%)	< 0.1
Non-Linearity (%FS)	< 0.1
Angle Random Walk (°/√hr) ²	< 0.75
Bandwidth (Hz)	5-50 (user-configurable)
Acceleration	
Range: X, Y, Z (g)	± 4 (± 8 High Range Model)
Bias Instability (mg) ^{1,2}	< 0.02
Bias Stability Over Temp (mg) ²	< 5
Resolution (mg)	< 0.5
Scale Factor Accuracy (%)	< 0.1
Non-Linearity (%FS)	< 0.1
Velocity Random Walk (m/s/√hr) ²	< 0.05
Bandwidth (Hz)	5-50 (user-configurable)
Magnetic Field	
Range: X, Y, Z (Gauss)	± 4
Resolution (mGauss)	< 5
Noise Density (mGauss /√Hz) ²	< 0.25
Bandwidth (Hz)	5

Specifications

Environment	
Operating Temperature (°C)	-40 to +85
Non-Operating Temperature (°C)	-55 to +105
Enclosure	Aluminum (Gold Anodized)
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

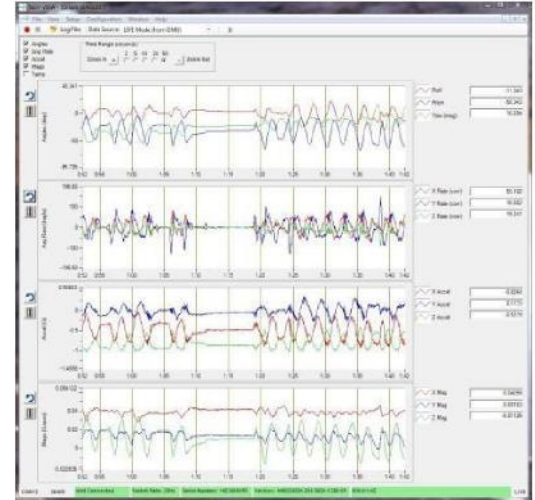
Ordering Information

Model	Description
IMU380ZA-200	6DOF OEM Standard Range IMU
IMU380ZA-400	6DOF OEM High Range IMU
IMU380ZA-209	9DOF OEM Standard Range IMU
IMU380ZA-409	9DOF OEM High Range IMU
EVAL-KIT DMU380ZA-200	9DOF Standard Range DMU380ZA Evaluation Kit
EVAL-KIT DMU380ZA-400	9DOF High Range DMU380ZA Evaluation Kit

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¹ Allan Variance Curve, constant temperature. ² 1-sigma error.

NAV-VIEW Configuration and Display Software



NAV-VIEW provides an easy to use graphical interface to display, record, playback, and analyze all of the IMU380ZA Inertial Measurement System parameters.

NAV-VIEW can also be used to set a wide range of user-configurable fields in the IMU380ZA to optimize the system performance for highly dynamic applications.

Other Components

The DMU380ZA evaluation kits include an AHRS380ZA, evaluation board, and USB cable allowing direct connection to a PC for use with NAV-VIEW display and configuration software.