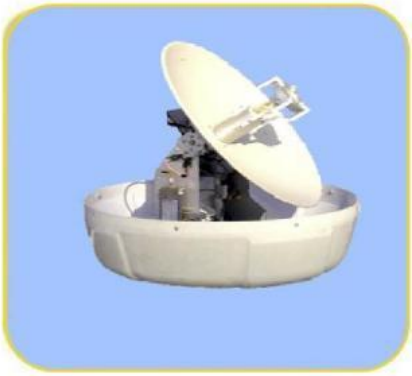
IMU380ZA

INERTIAL MEASUREMENT SYSTEM

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

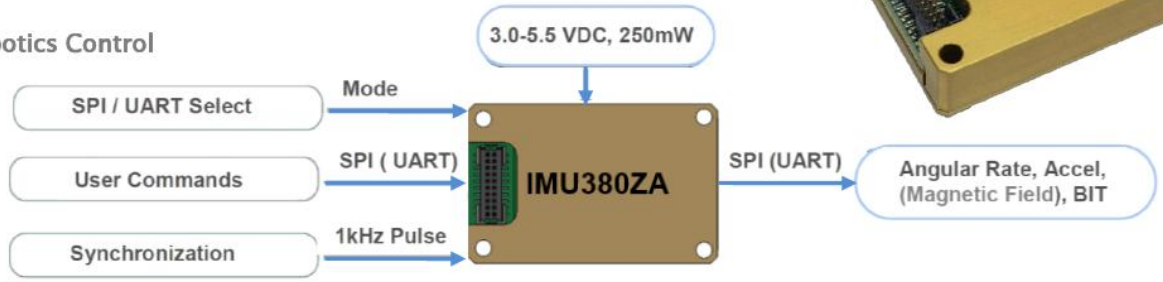
The ACEINNA IMU380ZA integrates highly-reliable MEMS 6DOF inertial sensors (optional 3-axis magnetic sensors) in a miniature factory-calibrated module to provide consistent performance through the extreme operating environments in a wide variety of dynamic control and navigation applications.

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



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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

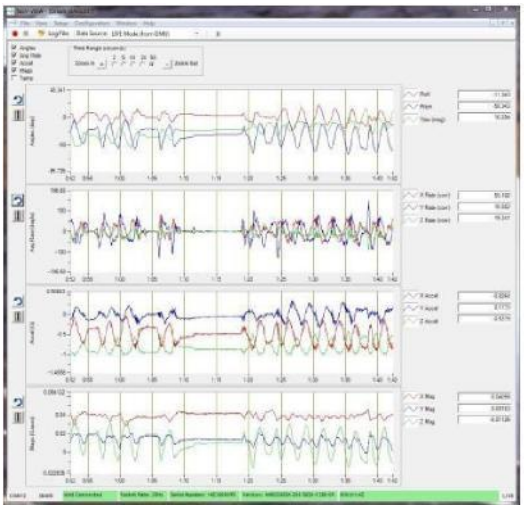
Environment	
Operating Temperature (°C)	-40 to +85
Non-Operating Temperature (°C)	-55 to +105
Enclosure	Aluminum (Gold Anodized)
Electrical	
Input Voltage (VDC)	3.0 to 5.5
Power Consumption (mW)	< 250
Digital Interface	SPI or UART (user-configurable)
Output Data Rate	1Hz to 200Hz (user-configurable)
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

[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.

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

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.

Support

For more detailed information please refer to the DMU380ZA Series User's Manual available online at: www.aceinna.com/support