



Power Sensing Solutions for a Better Life

The IMU480ZA family is a high performance, high accuracy, Inertial Measurement Unit that combines a 3 axis accelerometer, 3 axis gyroscope, and magnetometer along with a temperature sensor to provide tactical grade performance over a wide range of extreme operating conditions. IMU480ZA provides an easy to use SPI/UART interface enabling for a fast integration into complex system designs. IMU480ZA has been fully calibrated, tested and qualified to operate in industrial environment, thus simplifying the design cycles for end equipment.

# IMU480ZA

INERTIAL MEASUREMENT SYSTEM

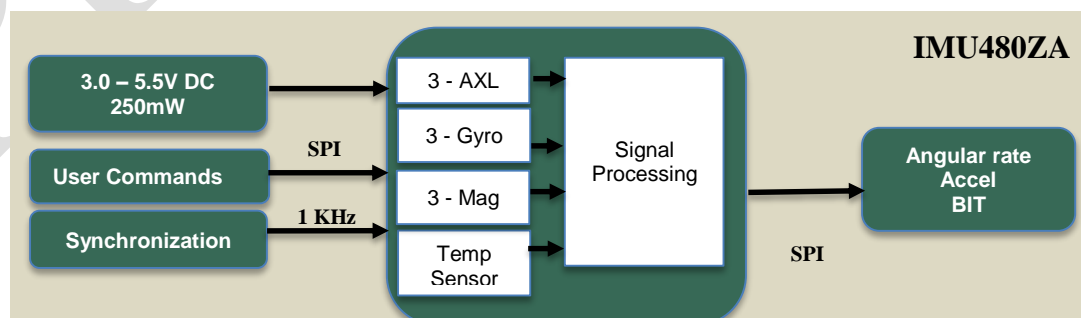


## Features

- 9DOF IMU
- Hi range gyo, accel and magnetometer
- 5°/hr, <0.01 mg Bias Instability
- <0.05°/sec, <1 mg bias stability over temp
- <0.1 SF accuracy
- <0.75 ARW, 0.05 VRW
- 3 to 5V operation, <250mW Power Consumption
- 5 to 50hz User configurable Bandwidth
- User configurable SPI/UART Interface
- -40 to +85°C
- ITAR – Free Product
- Available in 24mm x 37mm x 9.5mm, <17g, Anodized Aluminum Package with shrouded connector for easy installation

## Applications

- Construction Equipment
- Unmanned Vehicle Guidance
- Robotic Control Systems
- Mobile Mapping
- Precision Marking Equipment





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INERTIAL MEASUREMENT SYSTEM

## Performance

### IMU480ZA-409

Gyroscope	
Range: Roll, Pitch, Yaw (°/sec)	± 400
Bias Instability (°/hr) <sup>2,3</sup>	<5
Bias Stability Over Temp (°/sec) <sup>1,4</sup>	<0.15
Resolution (°/sec)	<0.02
Scale Factor Accuracy (%)	<0.1
Non-Linearity (%FS)	<0.1
Angle Random Walk (°/√hr) <sup>2,3</sup>	<0.65
User Configurable Bandwidth (Hz)	5 - 50
Accelerometer	
Range: X, Y Z (g)	± 8
Bias Instability (mg) <sup>2,3</sup>	<0.01
Bias Stability Over Temp (mg) <sup>1,4</sup>	<3
Resolution (mg)	<0.5
Scale Factor Accuracy (%)	<0.1
Non-Linearity (%FS)	<0.1
Velocity Random Walk (m/s/√hr) <sup>2,3</sup>	<0.05
User Configurable Bandwidth (Hz)	5-50
Magnetic Field	
Range: (X,Y,Z) (Gauss)	± 4
Resolution (mGauss)	<5.0
Noise Density (mGauss/√Hz)	<1
Bandwidth (Hz)	5-50(user-configurable)

## 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	Upto 100Hz (SPI)
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

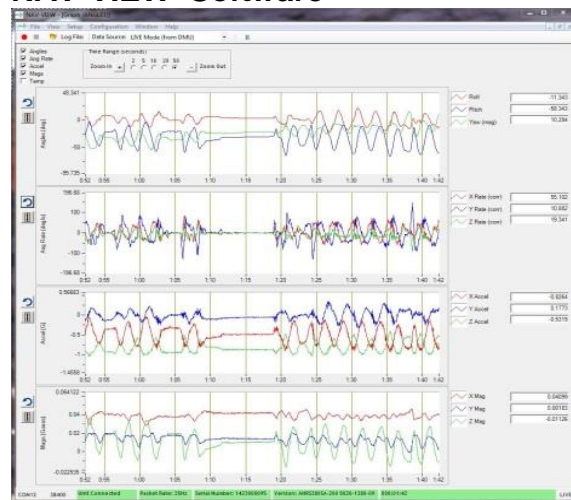
## Ordering Information

Model	Description
IMU480ZA-409	9DOF OEM IMU, Hi Range

This product has been developed exclusively for commercial applications. It has not been tested for, and makes no representation or warranty as to conformance with, any military specifications or its suitability for any military application or end-use. Additionally, any use of this product for nuclear, chemical or biological weapons, or weapons research, or for any use in missiles, rockets, and/or UAV's of 300km or greater range, or any other activity prohibited by the Export Administration Regulations, is expressly prohibited without the written consent and without obtaining appropriate US export license(s) when required by US law. Diversion contrary to U.S. law is prohibited. Specifications are subject to change without notice.

<sup>1</sup> T<sub>a</sub> = -40 to +85°C, VCC=5.0V <sup>2</sup> Max RMS Error of X, Y, Z <sup>3</sup> Allan variance curve, constant temperature <sup>4</sup> Max Error.

## NAV-VIEW Software



NAV-VIEW provides an easy to use graphical interface to display, record, playback, and analyze all of the IMU480ZA Inertial Measurement System parameters.

NAV-VIEW can also be used to set a wide range of user-configurable fields in the IMU480ZA to optimize the system performance for highly dynamic applications.

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