MEMSIC

Power Sensing Solutions for a Better Life

IMU480ZA

INERTIAL MEASUREMENT SYSTEM

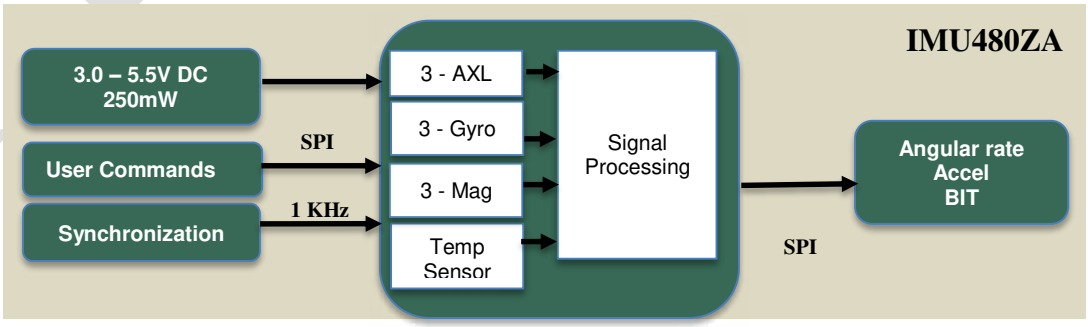
The IMU480ZA family is a high performance, high accuracy, Inertial Measurement Unit that combines a 3 axis accelerometer, 3 axis gyroscope, and magnetometer along with a temperature sensor to provide tactical grade performance over a wide range of extreme operating conditions. IMU480ZA provides an easy 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.

Features

- 9DOF IMU
- Hi range gyo, accel and magnetometer
- 5°/hr, <0.01mg Bias Instability
- <0.05°/sec, <1mg 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



Preliminary

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Performance

	IMU480ZA-409
Gyroscope	
Range: Roll, Pitch, Yaw (º/sec)	± 400
Bias Instability (º/hr) [2,3]	<5
Bias Stability Over Temp (º/sec)[1,4]	<0.15
Resolution (º/sec)	<0.02
Scale Factor Accuracy (%)	<0.1
Non-Linearity (%FS)	<0.1
Angle Random Walk (º/√hr) [2,3]	<0.65
User Configurable Bandwidth (Hz)	5 - 50
Accelerometer	
Range: X, Y Z (g)	± 8
Bias Instability (mg) [2,3]	<0.01
Bias Stability Over Temp (mg) [1,4]	<3
Resolution (mg)	<0.5
Scale Factor Accuracy (%)	<0.1
Non-Linearity (%FS)	<0.1
Velocity Random Walk (m/s/√hr) [2,3]	<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)

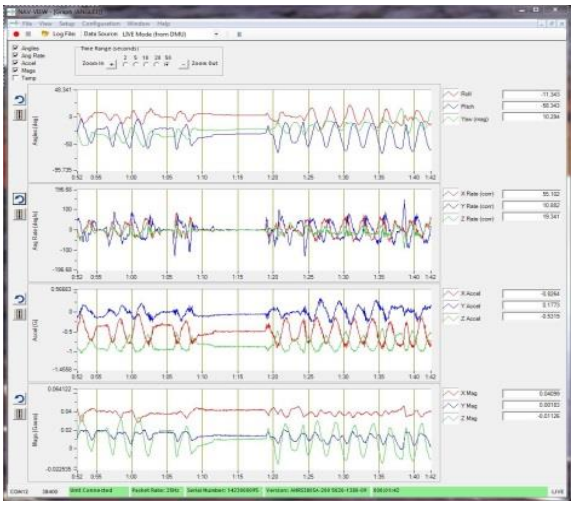
Specifications

Environment	
Operating Temperature (ºC)	-40 to +85
Non-Operating Temperature (ºC)	-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

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

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[1] T_a = -40 to +85ºC, VCC=5.0V [2] Max RMS Error of X, Y, Z [3] Allan variance curve, constant temperature [4] Max Error.

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