



Powerful Sensing Solutions for a Better Life

IMU440

MEMS INERTIAL MEASUREMENT UNIT

The MEMSIC IMU440 is a high-reliability low power strapdown inertial system providing accurate measurement of angular rate and linear acceleration in dynamic environments, with output data also available in delta theta and delta velocity format. The IMU440 is offered in standard and high range sensor configurations to allow the best match for the user's application.



Navigation and Control



Vehicle Testing

The IMU440 combines highly-reliable MEMS gyros and accelerometers with high-speed DSP electronics to provide a fully calibrated dynamic measurement system in a small and rugged environmentally-sealed enclosure. The IMU440 provides consistent performance in challenging operating environments and is user-configurable for a wide variety of applications

Applications

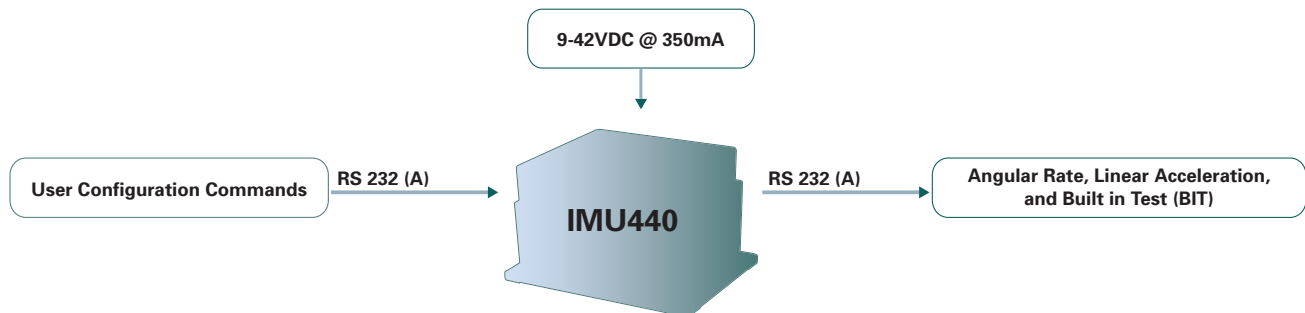
- Navigation and Control
- Vehicle Testing
- General Instrumentation

Features

- 3-Axis Angular Rate and 3-Axis Linear Acceleration Outputs
- Delta Theta and Delta Velocity Outputs
- Bias In-Run Stability < 10 deg/hr
- Output Data Rate > 100 Hz
- High-Range Sensor Options (400 deg/sec and 10g)
- Low Power < 3W
- High Reliability, MTBF > 25,000 hours
- Analog Output Option
- Rugged Sealed Enclosure

Certifications

- DO-160D Environments



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Performance

IMU440

Angular Rate	
Range: Roll, Pitch, Yaw (°/sec)	± 200 (± 400 option available)
Bias Stability In-Run ^{1,2} (°/hr)	< 10
Bias Stability Over Temp ¹ (°/sec)	< 0.2
Scale Factor Accuracy (%)	< 1
Non-Linearity (% FS)	< 0.5
Resolution (°/sec)	< 0.02
Angle Random Walk (°/√hr)	< 4.5
Bandwidth (Hz)	25

Acceleration	
Input Range: X/Y/Z (g)	± 4 (± 10 option available)
Bias Stability In-Run ^{1,2} (mg)	< 1
Bias Stability Over Temp ¹ (mg)	< 4
Scale Factor Accuracy (%)	< 1
Non-Linearity (% FS)	< 1
Resolution (mg)	< 0.5
Velocity Random Walk (m/s/√hr)	< 1.0
Bandwidth (Hz)	25

Specifications

Environment	
Operating Temperature (°C)	-40 to +71
Non-Operating Temperature (°C)	-55 to +85
Enclosure	IP66 Compliant

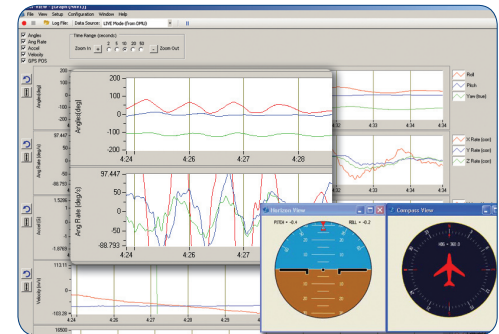
Electrical	
Input Voltage (VDC)	9 to 42
Power Consumption (W)	< 3
Digital Interface	RS-232

Physical	
Size (in)	3 x 3.75 x 2.50
(cm)	7.62 x 9.53 x 6.43
Weight (lbs)	< 1.2
(kg)	< 0.55
Connector	DB15, D-sub 15-pin Male

Analog Output Option

MEMSIC offers the NAV-DAC440 analog interface adapter for customers wishing to use the IMU440 in analog data acquisition systems. The NAV-DAC440 converts the IMU440 serial digital data to 9-channel BNC analog outputs.

NAV-VIEW 2.0 Configuration & Display Software



NAV-VIEW 2.0 provides an easy to use graphical interface to display, record and analyze all of the IMU440 measurement parameters.

Other Components

Each IMU440 is shipped with an interface cable, MEMSIC's User's Manual and NAV-VIEW 2.0 configuration and display software.

Ordering Information

Model	Description
IMU440CA-200	Attitude & Heading Reference System (Standard)
IMU440CA-400	Attitude & Heading Reference System (High 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. Notes: ¹ 1-sigma value. ² Constant temperature, Allan Variance Curve.