



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

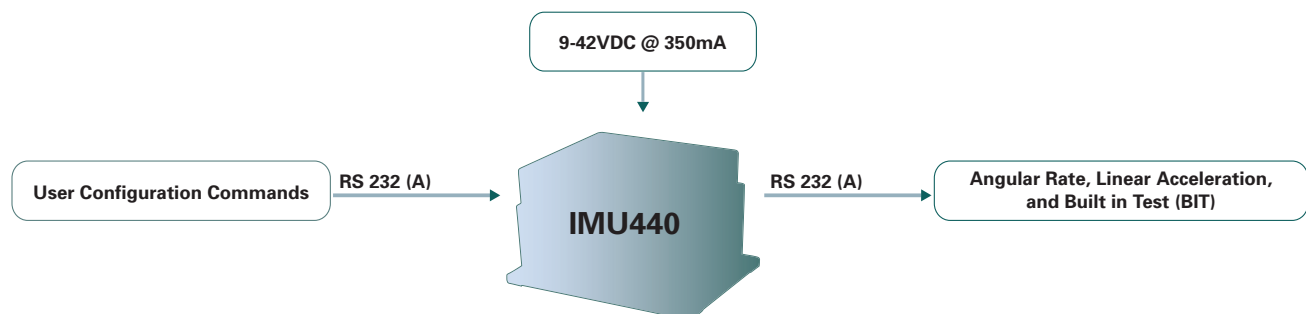
- Navigation and Control
- Vehicle Testing
- General Instrumentation

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



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 |

Ordering Information

| Model | Description |
|--------------|--|
| IMU440CA-200 | Attitude & Heading Reference System (Standard) |
| IMU440CA-400 | Attitude & Heading Reference System (High Range) |

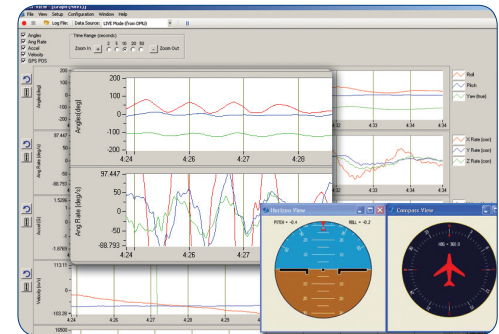
This product has been developed exclusively for commercial applications. It has not been tested for, and makes no representation or warranty as to conformance with, any military specifications or its suitability for any military application or end-use. Additionally, any use of this product for nuclear, 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.

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.

Support

For more detailed technical information please refer to the 440-Series User's Manual available online at:

www.memsic.com/Support