



Power Sensing Solutions for a Better Life

# VG440

MEMS-BASED VERTICAL GYRO

The MEMSIC VG440 is a high-reliability low power strapdown vertical gyroscope that provides roll, pitch and yaw measurement data in both static and dynamic environments. The VG440 can accept external GPS aiding inputs for optimized performance, and is available in standard and high range sensor configurations.



Platform Stabilization



Unmanned Vehicle Control

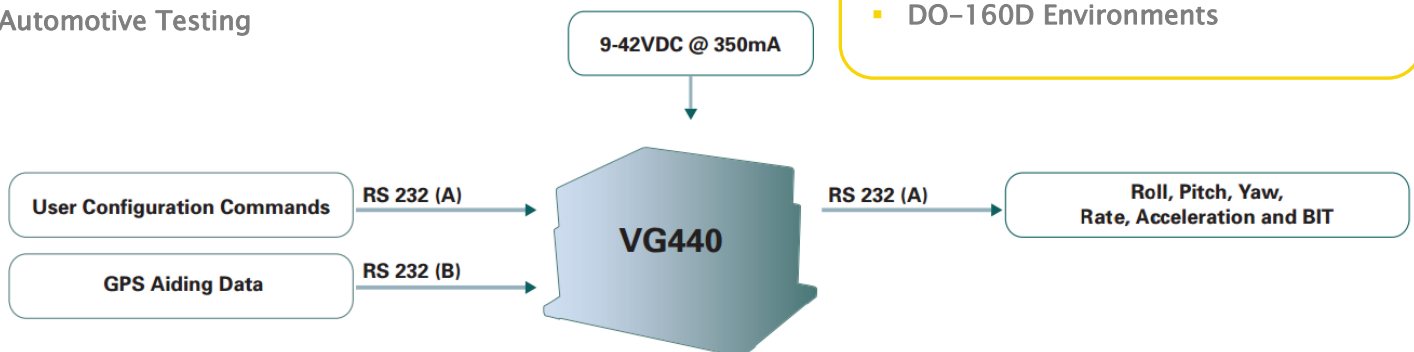
The VG440 combines highly-reliable MEMS gyros and accelerometers with high-speed DSP electronics to provide a fully stabilized vertical gyroscope in a small and rugged environmentally-sealed enclosure. The VG440 provides consistent performance in challenging operating environments and is user-configurable for a wide variety of applications

## Applications

- Platform Stabilization
- Unmanned Vehicle Control
- Automotive Testing

## Features

- Roll, Pitch, Yaw and 6DOF Inertial Outputs
- Accuracy < 0.2 deg
- Output Data Rate > 100 Hz
- High-Range Sensor Options (400 deg/sec and 10g)
- GPS Aiding Input
- Low Power < 3W
- High Reliability, MTBF > 25,000 hours
- Analog Output Option
- Rugged Sealed Enclosure
- DO-160D Environments



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## Performance

## VG440

Attitude	
Range: Roll, Pitch (°)	±180, ±90
Accuracy: (°) <sup>1,2,3</sup>	< 0.2
Resolution: (°)	< 0.02
Angular Rate	
Range: Roll, Pitch, Yaw (°/sec)	± 200 (± 400 High Range Model)
Bias Stability In-Run (°/hr) <sup>2,4</sup>	< 10
Bias Stability Over Temp: Roll, Pitch (°/sec) <sup>2</sup>	< 0.02
Bias Stability Over Temp: Yaw (°/sec) <sup>2</sup>	< 0.2
Resolution (°/sec)	< 0.02
Angle Random Walk (°/√hr) <sup>2</sup>	< 4.5
Bandwidth (Hz)	25
Acceleration	
Range: X, Y Z (g)	± 4 (± 10 High Range Model)
Bias Stability In-Run (mg) <sup>2,4</sup>	< 1
Bias Stability Over Temp (mg) <sup>2</sup>	< 4
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	RS232
Physical	
Size (in)	3 x 3.75 x 2.50
Size (cm)	7.62 x 9.53 x 6.43
Weight (lbs)	< 1.2
Weight (kg)	< 0.55
Interface Connector	DB15, D-sub 15-pin Male

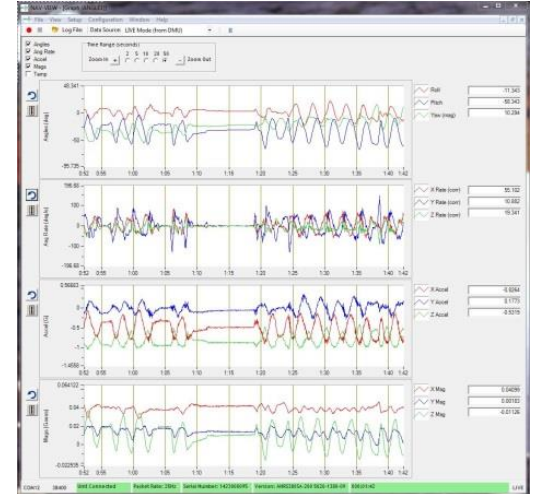
## Ordering Information

Model	Description
VG440CA-200	Vertical Gyro (standard range)
VG440CA-400	Vertical Gyro (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: <sup>1</sup> With valid GPS-Aiding input data. <sup>2</sup> 1-sigma value. <sup>3</sup> During steady level flight. <sup>4</sup> Constant temperature, Allan Variance Curve.

## NAV-VIEW

## Configuration and Display Software



NAV-VIEW provides an easy to use graphical interface to display, record, playback, and analyze all of the VG440 Inertial Measurement System parameters.

NAV-VIEW can also be used to set a wide range of user-configurable fields in the VG440 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)

## Other Components

Each VG440 is shipped with an interface cable, MEMSIC's User's Manual and NAV-VIEW configuration and display software.

## Support

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

[www.memsic.com/support](http://www.memsic.com/support)