Powerful 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.

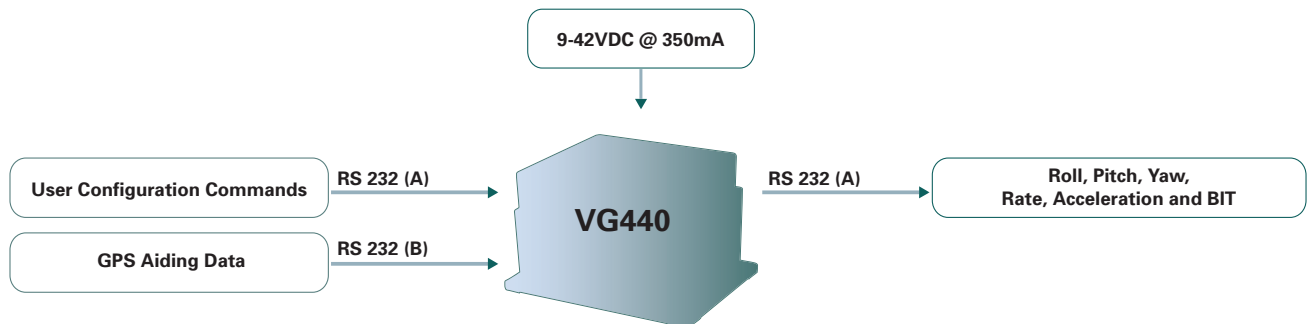*Platform Stabilization*   *Unmanned Vehicle Control*

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

9-42VDC @ 350mA

User Configuration Commands → RS 232 (A) → **VG440** → RS 232 (A) → **Roll, Pitch, Yaw, Rate, Acceleration and BIT**

GPS Aiding Data → RS 232 (B) →

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Performance — VG440

Heading	
Range (°)	± 180
Accuracy[1, 2, 3] (°)	< 1.0
Resolution (°)	< 0.1

Attitude	
Range: Roll, Pitch (°)	± 180, ± 90
Accuracy[1, 2, 3] (°)	< 0.2
Resolution (°)	< 0.02

Angular Rate	
Range: Roll, Pitch, Yaw (°/sec)	± 200 (± 400 option available)
Bias Stability In-Run [2, 4] (°/hr)	< 10
Bias Stability Over Temp [2] (°/sec)	< 0.02
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 [2, 4] (mg)	< 1
Bias Stability Over Temp [2] (mg)	< 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	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
VG440CA-200	Attitude & Heading Reference System (Standard)
VG440CA-400	Attitude & Heading Reference System (High Range)

Analog Output Option
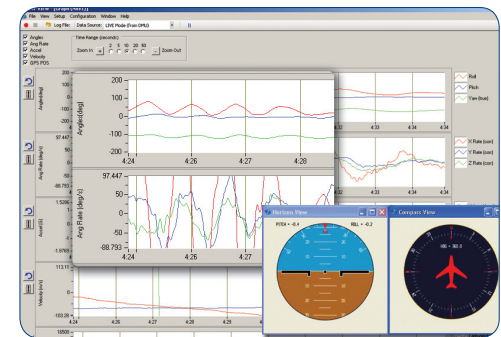
MEMSIC offers the NAV-DAC440 analog interface adapter for customers wishing to use the VG440 in analog data acquisition systems. The NAV-DAC440 converts the VG440 serial digital data to 9-channel BNC analog outputs.

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 VG440 measurement parameters.

Other Components

Each VG440 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