MEMSIC *Powerful Sensing Solutions for a Better Life*

AHRS440

MEMS-BASED AHRS SYSTEM

The MEMSIC AHRS440 is a compact standalone attitude and heading reference system that provides roll, pitch and yaw measurement data in both static and dynamic environments.
The AHRS440 can accept external GPS aiding inputs for optimized performance, and is available in standard and high range sensor configurations.

Platform Stabilization

UAV Flight Control

The AHRS440 combines highly reliable MEMS sensors (gyros and accelerometers) with low noise magnetometers to provide accurate attitude and heading in a small and rugged environmentally-sealed enclosure. The AHRS440 provides consistent performance in challenging operating environments and is user-configurable for a wide variety of applications.

Features

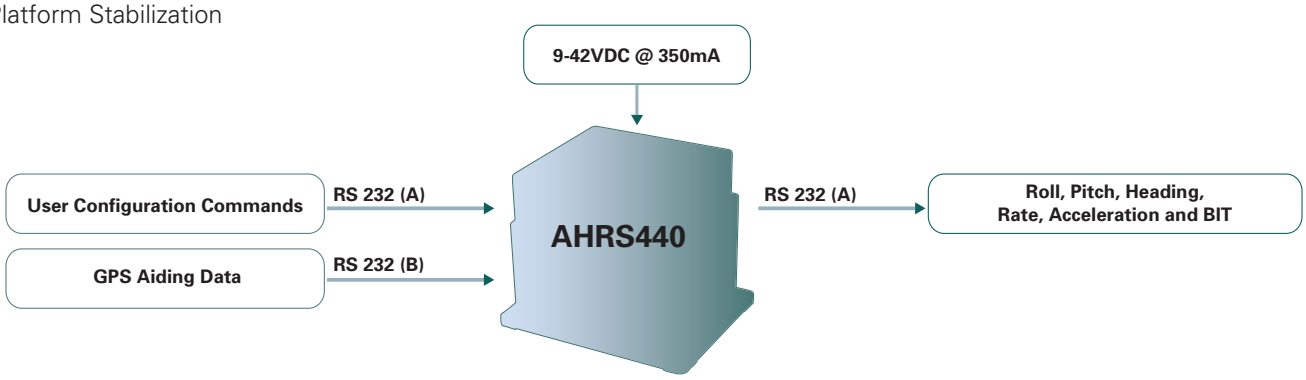
- Roll, Pitch, Heading and 9DOF Inertial Outputs
- Accuracy < 0.2 deg
- Output Data Rate > 100 Hz
- High-Range Sensor Options (400 deg/sec and 10g)
- GPS Aiding Input
- Low Power < 3W
- High Reliability, MTBF > 25,000 hours
- Analog Output Option
- Rugged Sealed Enclosure

Certifications

- DO-160D Environments

Applications

- Unmanned Vehicle Control
- Land Vehicle Guidance
- Avionics Systems
- Platform Stabilization



Phone: 408.964.9700 Fax: 408.854.7702 E-mail: infoca@memsic.com www.memsic.com

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Performance

Performance	AHRS440
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 3
(cm)	7.62 x 9.53 x 7.62
Weight (lbs)	< 1.3
(kg)	< 0.58
Connector	DB15, D-sub 15-pin Male

Ordering Information

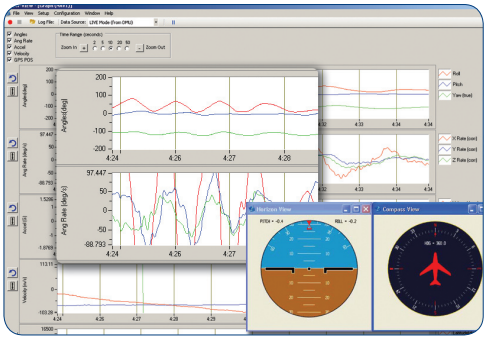
Model	Description
AHRS440CA-200	Attitude & Heading Reference System (Standard)
AHRS440CA-400	Attitude & Heading Reference System (High Range)

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] With valid GPS-Aiding input data [2] 1-sigma value. [3] During steady level flight. [4] Constant temperature, Allan Variance Curve.

Analog Output Option

MEMSIC offers the NAV-DAC440 analog interface adapter for customers wishing to use the AHRS440 in analog data acquisition systems. The NAV-DAC440 converts the AHRS440 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 AHRS440 measurement parameters.

Other Components

Each AHRS440 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