



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.

## Applications

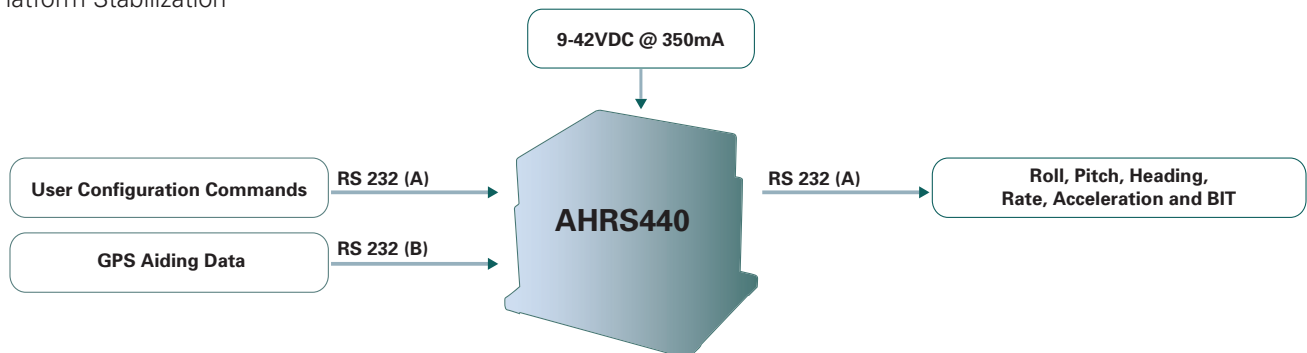
- Unmanned Vehicle Control
- Land Vehicle Guidance
- Avionics Systems
- Platform Stabilization

## 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



## Performance

## AHRS440

Heading	
Range (°)	± 180
Accuracy <sup>1, 2, 3</sup> (°)	< 1.0
Resolution (°)	< 0.1

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 option available)
Bias Stability In-Run <sup>2, 4</sup> (°/hr)	< 10
Bias Stability Over Temp <sup>2</sup> (°/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 <sup>2, 4</sup> (mg)	< 1
Bias Stability Over Temp <sup>2</sup> (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

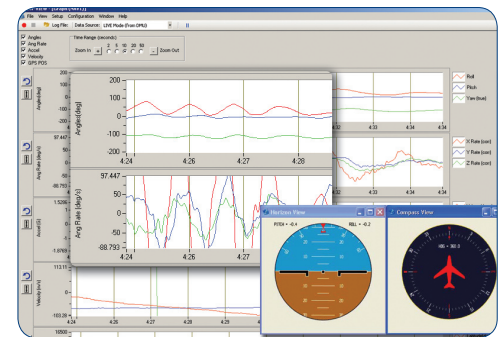
Model	Description
AHRS440CA-200	Attitude & Heading Reference System (Standard)
AHRS440CA-400	Attitude & Heading Reference System (High Range)

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## 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](http://www.memsic.com/Support)

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На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

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