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TECHNOLOGY GROUP

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MEMSIC *Powerful Sensing Solutions for a Better Life*

NAV440

GPS-AIDED MEMS INERTIAL SYSTEM

The MEMSIC NAV440 is a fully-integrated GPS-aided attitude & heading reference system and GPS navigation solution. The NAV440 provides full inertial data (angles, rates, accels) and GPS position, along with inertially derived velocity that provides significant improvement in stability and latency compared with stand-alone GPS velocity measurements.





UAV Flight Control



Land Vehicle Guidance

The NAV440 combines highly reliable MEMS sensors, magnetometers, and a WAAS/EGNOS-enabled GPS receiver all in a small and rugged environmentally sealed enclosure. The NAV440 provides consistent performance in challenging operating environments, and is user-configurable for a wide variety of applications.

Applications

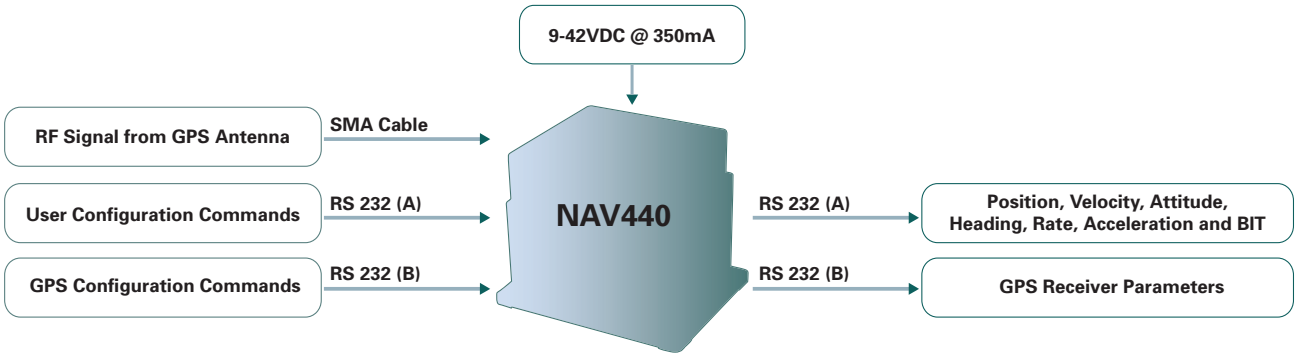
- Unmanned Vehicle Control
- Land Vehicle Guidance
- Avionics Systems
- Platform Stabilization

Features

- Complete GPS-Aided AHRS Solution
- Accuracy < 0.2 deg
- Output Data Rate > 100Hz
- High-Range Sensor Options (400 deg/sec and 10g)
- WAAS and EGNOS Enabled GPS
- Low Power < 4W
- High Reliability, MTBF > 25,000 hours
- Analog Output Option
- Rugged Sealed Enclosure

Certifications

- DO-160D Environments



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NAV440

GPS-AIDED MEMS INERTIAL SYSTEM

Performance — NAV440

Position/Velocity	
Position Accuracy[1] (m CEP)	< 2.5
X,Y Velocity Accuracy (m/s rms)	0.4
Z Velocity Accuracy (m/s rms)	0.5
1PPS Accuracy (ns)	± 50

Heading	
Range (°)	± 180
Accuracy[2, 3] (°)	< 1.0
Resolution (°)	< 0.02

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

Angular Rate	
Range: Roll, Pitch, Yaw (°/sec)	± 200 (± 400 option available)
Bias Stability In-Run[4] (°/hr)	< 10
Bias Stability Over Temp[2] (°/sec)	< 0.02
Resolution (°/sec)	< 0.02
Bandwidth (Hz)	25

Acceleration	
Input Range: X/Y/Z (g)	± 4 (± 10 option available)
Bias Stability In-Run[4] (mg)	< 1
Bias Stability Over Temp[2] (mg)	< 4
Resolution (mg)	< 0.5
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 - 42
Power Consumption (W)	< 4
Digital Interface	RS-232

Physical		
Size	(in)	3.0 x 3.75 x 3.0
	(cm)	7.62 x 9.53 x 7.62
Weight	(lbs)	1.3
	(kg)	0.58
Interface Connector		DB15, D-sub 15-pin Male
GPS Antenna Connector		SMA Jack

Ordering Information

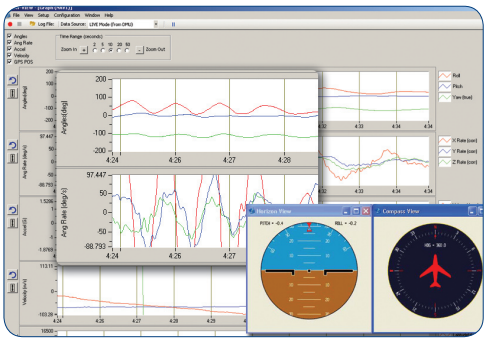
Model	Description
NAV440CA-200-1	GPS-Aided AHRS with Standard GPS Antenna
NAV440CA-200-2	GPS-Aided AHRS with High Gain GPS Antenna
NAV440CA-400-1	GPS-Aided AHRS (High Range) with Standard GPS Antenna
NAV440CA-400-2	GPS-Aided AHRS (High Range) with High Gain GPS Antenna

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] Internal GPS accuracy can be further improved with Radio Technical Commission for Maritime (RTCM) or Satellite Based Augmentation System (SBAS) messages such as the Wide Area Augmentation System (WAAS). [2] 1-sigma error. [3] 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 NAV440 in analog data acquisition systems. The NAV-DAC440 converts the NAV440 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 NAV440 measurement parameters.

Other Components

Each NAV440 is shipped with a GPS antenna, configuration interface cable, MEMSIC's 440-Series 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

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