

Micro-Electromechanical Systems (MEMS)-Based Technology
Increased Reliability Over Analog Directional and Vertical Gyros

AHS-525

Attitude Heading Reference System (AHRS)

Stable and Accurate Analog and Digital Pitch, Roll and Heading Measurements
A Multitude of Analog and Digital Outputs for Interface to Existing Avionics
Compact Size Lends Flexibility to Installation
Ease of Alignment Procedures



A Cost-Effective Solution for Next Generation Flight Decks

Universal Avionics' AHS-525 Attitude Heading Reference System (AHRS) presents the superb reliability of Micro-Electromechanical Systems (MEMS) technology needed to support NextGen flight decks. MEMS-based technology combines the computational ability of microelectronics with the acuity and control of micro-sensors and micro-accelerometers.

The AHS-525 contains multiple rate gyros to measure angular aircraft motion in the pitch, roll and yaw axes and several accelerometers to measure aircraft linear motion along the longitudinal, lateral and vertical axes of the aircraft. This allows a single AHS-525 to replace multiple Line Replaceable Units (LRU) found in a typical aircraft installation that would be performing the same functions. Therefore, there is a reduction in the LRU footprint, weight, wiring and power requirements.

A fixed mounting plate incorporating two precision alignment pins allows the unit to be easily removed for service and replaced without repeated and time-consuming system realignment and calibration. In addition, a straightforward calibration process reduces service time.

Incorporated into the AHS-525 is one "solid-state" main MEMS-based component, using digital electronic subcomponents. In comparison to older mechanical "spinning" gyroscopes, the MEMS-based AHS-525 produces a significant advantage in overall reliability.

The AHS-525 features digital, analog, discrete and synchro inputs and outputs (I/O) to support a wide variety of interfaces on Part 23 and Part 25 Fixed Wing aircraft, and Part 27 and Part 29 Rotorcraft.

Simplifying retrofit installations, equating to significant installation and operating cost savings, the AHS-525 is a clear choice for operators seeking a cost-effective and reliable AHRS solution.

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Specifications

Hardware

Size: 5.31 in. H x 5.25 in. W (with Mounting Plate)
 5.00 in. H x 5.25 in. W (without Mounting Plate)
 Depth: 8.65 in.
 Weight: 7.5 lbs. (with Mounting Plate)
 6.5 lbs. (without Mounting Plate)
 Mounting: Fixed

Components

- Attitude Heading Reference Unit (AHRU)*
- Magnetic Sensing Unit (MSU) for magnetic heading data
- Attitude Heading Configuration Module (AHCM) to store configuration data and alignment offset values
- AHRU Aircraft Mounting Plate that is permanently affixed to the aircraft
- Universal Avionics Electronic Flight Instrument System (EFIS) or Discrete Inputs for Operator Control

*As with any AHRS installation, dual AHRU installation is required for Part 23 Class 3 and 4 and Part 25 Fixed Wing aircraft. It is also required for Part 27 and Part 29 Rotorcraft AHRS installation.

Inputs/Outputs

- 3 ARINC 429 input ports
- 4 ARINC 429 output ports
- 1 RS-232 input/output port (bi-directional)
- 1 RS-485 input/output port (bi-directional) (MSU)
- 1 Input Manchester bus port
- 6 3-Wire Synchro output ports
- 4 2-Wire Synchro output ports (configurable)
- 6 Gnd/Open discrete input ports
- 1 Open/+28 VDC discrete input port
- 6 Open/+28 VDC discrete output ports
- 3 26 VAC 400 Hz Synchro Reference input ports
- 3 Analog DC differential output ports (configurable)
- 2 ±10 VDC Analog DC output ports (configurable)
- 2 2-Wire Analog DC input ports

Power

Primary Input: 28 VDC standard

FAA TSO/ETSO

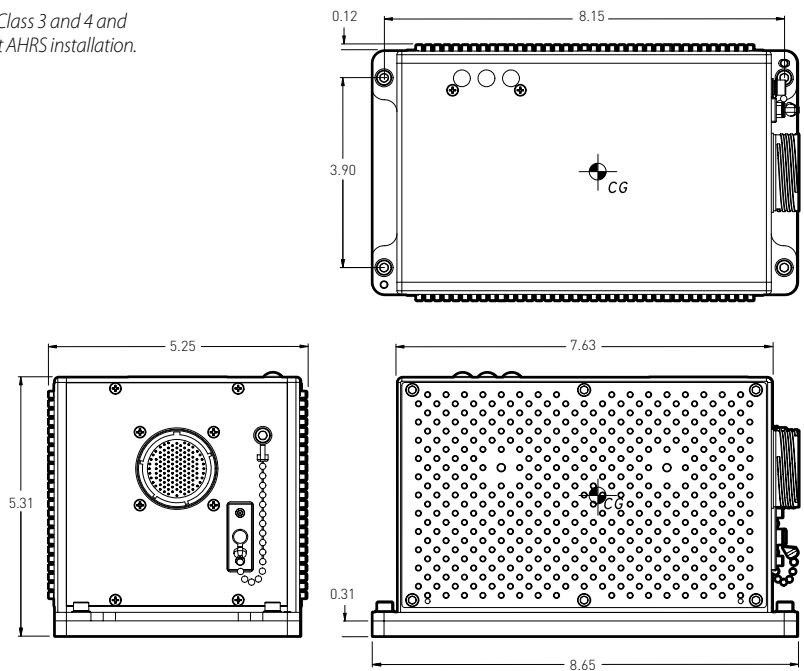
- TSO-C3e: Turn and Slip Indicator Performance
- TSO-C4c: Bank and Pitch Instruments
- TSO-C6e: Direction Instrument, Magnetic (Gyroscopically Stabilized)

In accordance with the US/EU Bilateral Agreement on Cooperation In The Regulation of Civil Aviation Safety, Technical Implementation Procedure, IP Rev. 5, dated 15-Sep-2015 and signed by the EU Bilateral Oversight Board on 02-Mar-2016, Section 2.5.1 TSO/ETSO Articles Accepted under Reciprocal Acceptance (AHS-525), are qualified to be installed in EASA member states aircraft based on FAA TSO Authorization (TSOA).

Supported Interfaces

The AHS-525 interfaces with several aircraft systems, including, but not limited to, the following:

- Electronic Flight Instrument System (EFIS)
- Flight Data Recorder (FDR)
- Weather Radar
- Autopilot/Flight Director
- Enhanced Ground Proximity Warning System (EGPWS)
- Flight Management System (FMS)
- Air Data Computer (ADC)
- Terrain Awareness and Warning System (TAWS)
- Traffic and Collision Avoidance System (TCAS)
- Radio Magnetic Indicator (RMI)
- Attitude Direction Indicator (ADI)
- Horizontal Situation Indicator (HSI)



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MEMS Inertial Sensor provided by Archangel Systems, Inc.
 Features and capabilities are representative of systems at time of printing.
 Please contact your Universal Avionics sales representative
 for the latest system enhancements.
 Specifications contained herein are subject to change without notice.

