

AHR75

Attitude Heading Reference System



Pictured: Marenco SKYe SH09

The AHR75 AHRS (Attitude Heading Reference System) is designed for cost-constrained installations requiring the highest levels of safety and performance. Archangel Systems uses a three-part design philosophy to meet these goals: technology, pedigree, and ease of use.

First, the AHR75 uses technology such as MEMS sensors, Archangel's AHR150A-2-A magnetic sensing unit, and sophisticated blending algorithms to deliver "FOG-grade" performance at greatly reduced size, weight, and power. Second, the unit has a comprehensive list of certifications including FAA approval for Part 23, 25, 27, and 29 installations, DO-178C Level A (Mission Critical) software, and complete DO160E protections. And third, the AHR75 is easy to use. With multiple high- and low-speed ARINC 429 ports, the AHR75 directly integrates into modern architectures.

Ideally suited for forward and retrofit programs, the AHR75 has multiple wins with aircraft OEMs and upgraders.



FEATURES

Qualified for Mission Critical applications including IFR, SAR, and primary flight systems

Certified for Part 23, 25, 27, and 29 aircraft

Designed with low data latency for fly-by-wire aircraft

Directional Gyro mode meets TSO C201 H2H9 requirements

Angle rate limit options:
±128°/second
±240°/second
±440°/second

User-programmable lever arms and orientation

Mil Spec 38999 filtered connectors

CERTIFICATIONS

DO-178C Level A software (all functions)

FAA TSO C201

DO-160E Environmental certifications including EMI, EMC, and HIRF

EXPORTING

Exportable worldwide

No end-user statement required



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The AHR75 leverages the performance and certification heritage of Archangel's flagship AHR150A ADAHRS. For example, the AHR150A-2-A MSU, also certified to DO-178C Level A, serves as the AHR75 heading sensor. TSO approval for the AHR75 is per the FAA's new C201 requirement for AHRS. To increase flexibility in the architecture and cable routing, air data can be received by the AHR75 on its low-speed ARINC 429 port and echoed on the ARINC low-speed transmit ports. Finally, installation-specific unit orientation and lever arms are user programmable in your shop or in the field.



AHR75 Dimensions/Weight

Size	2.625" x 5.25" x 5" (H x W x D)
Weight	2.2 lbs



AHR150A-2-A MSU Dimensions/Weight

Size	0.75" x 3.0" (H x diameter)
Weight	0.5 lbs

Environment/Power

Temperature	-40°C to +70°C operating -55°C to +125°C non-operating
Altitude	-1,000 to 52,000 ft pressure
Power	16–36 VDC, 0.5 A @ 28 V nominal

Inputs/Outputs

ARINC 429	4 high-speed transmit, 1 receive, ARINC 705-5 words 2 low-speed transmit, 1 receive, ARINC 706-4 words
Discrete Outputs	AHRS fault DG Mode Annunciator
Discrete Inputs	DG mode and CW/CCW compass adjust
User-programmable Inputs	AHR75 Orientations, Lever Arms
RS-485	Bi-directional MSU interface

Ranges (Normal Operations)

Rates	$\pm 128^\circ/s$, $\pm 240^\circ/s$, and $\pm 440^\circ/s$
Accelerations	$\pm 10 g$

Data Accuracy (Dynamic—Normal Flight)

Pitch, Roll	$\pm 1.0^\circ$, 3σ
Heading	$\pm 2.0^\circ$, 3σ
Body Rates	0.2% of input rate 0.1% non-linearity

Certifications/MTBF

FAA	TSO C201 for AHRS
Environmental	DO-160E [D2]XABB[UK1]
Categories	EWFD FSZZXAZZ[Y(QKL)] L[B4K44]XAAX
Software Categories	DO-178C Level A

Notes



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