

# AHR500

## Air Data Attitude Heading Reference System



The AHR500 ADAHRS (Air Data Attitude Heading Reference System) from Archangel Systems is designed for the extremes of supersonic flight while setting a new precedent for price, performance, and safety.

Software was developed per DO-178B Level A (Mission Critical) on redundant processors to ensure data validity. Functionality across environments is assured through extensive DO-160E and MIL-STD tests. And, with multiple high- and low-speed ARINC 429 ports, the AHR500 is compatible with modern avionics architectures.

Export of the AHR500 is controlled by the US Department of Commerce per ECCN 7A994 – no ITAR restrictions. This makes the AHR500 ideal for both domestic and FMS programs.

AHR500 ISU



AHR150A-2 MSU



### FEATURES

Vetted in F-5 fighter test flights against RLG inertial systems

Angle rate limit of  $\pm 420$  °/s (roll and pitch) and  $\pm 220$  °/s (yaw)

Acceleration limit of  $\pm 10$  g

Air data calibrated for 55,000 feet altitude and 800 knots indicated air speed (1.8 Mach)

Directional Gyro is TSO C5f compliant

Mil Spec 38999 filtered connectors

### QUALIFICATIONS

Developed per DO-178B Level A software procedures

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

MIL-STD-810F Fluids, Vibration, Shock, Gunfire, Temperature (short duration at 83°C)

MIL-STD-704A Voltage Spikes

### EXPORTING

Export globally per US Department of Commerce classification ECCN 7A994



Archangel  
SYSTEMS INC

www.archangel.com  
334.826.8008 x 22  
lets.talk@archangel.com

# AHR500

## Air Data Attitude Heading Reference System

With military budgets shrinking, new cost-saving strategies that preserve aircraft and crew safety are more critical than ever. With its combined MEMS sensors and proprietary blending algorithms, the AHR500 supersonic ADAHRS meets these needs and provides “FOG-grade” attitude performance. Comparing the technical specifications below against legacy military avionics, you will find that small budgets for size, weight, and power are achieved while preserving performance in demanding mil-grade environments.



### AHR500 ISU Dimensions/Weight

Size	4.375" x 4.375" x 6.25" (H x W x D)
Weight	3.1 lbs



### AHR150A-2 MSU Dimensions/Weight

Size	0.8125" x 2.625" x 3.625" (H x W x D)
Weight	0.6 lbs

### Environment/Power

Temperature	-40°C to +70°C operating
	-55°C to +125°C non-operating 83°C operation survivability
Altitude	-1,500 to 55,000 ft pressure altitude
Dual Power	16–36 VDC, 0.7 A @ 28 V nominal

### Inputs/Outputs

ARINC 429	Transmit: 4 Hi-speed, 4 Lo-speed
	Receive: 1 Hi-speed, 1 Lo-speed
ICAO Altitude	13-bit Gilham code
Discrete Outputs	Master fault
Sensor Inputs	OAT / TAT - resistive
	Angle of Attack - resistive
Discrete Inputs	Unit ID, Orientation, CW/CCW
	slewing, Heading mode select, and SSEC/PSEC table select

### Ranges (Normal Operations)

Rates	±420°/second in pitch and roll ±220°/second in yaw
Accelerations	±10 g
Airspeed	2.0 Mach

### Data Accuracy (Dynamic—Normal Flight)

Pitch, Roll	±1.0°, 3 σ
Heading	±2.0°, 3 σ
Body Rates	0.2% of input rate
	0.1% non-linearity

### Certifications

Commercial	DO-160E [D2]XABB[UK1]
Environmental	EWFD FSZZXAZZ[Y(QKL)]L
Categories	[B4K44]XAAX
MIL-STD Categories	MIL-STD-704A Voltage Spikes MIL-STD-810F Fluids and Gunfire
SW Development	DO-178B DAL A
MTBF (35°C)	Aic 10,000 flight hrs
	Auc 6500 flight hrs
	Auf 4500 flight hrs

