



AHRS For:



AHRS-IMU

POLAR-500 AHRS

POLAR-500 is an excellent Air Data Attitude Heading Reference System (AD-AHRS) for aerial systems.

Key Features:

ARINC 429
Output



Excellent for
Aerial Systems & SOTM



Dual GNSS Compass
(DGC)



Compact and Easy to
Integrate



GNSS-denied
Navigation



Low Power
Consumption



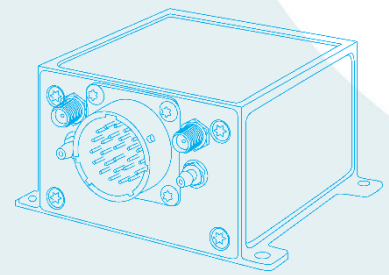
Functions:

Sensor Telemetry for
Gimbal Stabilization, etc.

ARINC 429
(Open-Loop
Steering Word)

RS-232
(Position &
Stabilization data)

POLAR-500 Integration Example
using Cobham HGA-6000 or AVIATOR UAV 200 Antennas



Technical Specs:

REDUNDANCY AND SAFETY

Online Sensor Diagnosis	Yes
Sensor Failure Tolerance	All single. Several multiple

INTERFACES

Telemetry Port (P0)	RS-232. Configuration / Telemetry
Telemetry Port (P1)	RS-232. Configuration / Telemetry
Antenna Steering Output	ARINC 429. High Speed (100 kbps)

ELECTRICAL

Input Voltage	+9 to +36 VDC
Power Consumption	< 2 W (@ 12 VDC)

GNSS

Receiver Type	184 Channel, L1C/A, L2C, L1OF, L2OF, E1B/C, E5b, B1I, B2I, L1S
Constellations	GPS, GLONASS, BeiDou, Galileo, QZSS
Time to First Fix (Cold / Hot)	< 26s / < 2s
Altitude / Velocity Limit	80,000 m / 500 m/s
Navigation Update Rate	5 Hz
GNSS PPS	30 ns RMS, 60 ns 99%
Dual GNSS Compass	Yes
Heading Accuracy	< 0.4° Static (DGC Available) / Dynamic
Horizontal Position Accuracy	< 1.5 m (CEP, 50%, 24 h static, -130 dbm, >6 SVs)

AIR DATA SYSTEM (ADS)

Airspeed Range	15-220 kt 43-450 kt (Under request)
Airspeed Accuracy	±3 % Reading
Airspeed Precision	±1 kt
Altimeter Range	-2,000 to +36,000 ft AMSL
Altimeter Precision	±3 % Reading
Altimeter Resolution	±1 kt

INTERFACING

Sampling Rate (Altitude+IMU)	Up to 500 Hz
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ACCELEROMETERS

Range	± 8 g, all axes ± 15 g (Under request)
3dB Bandwidth	200 Hz
Noise	<0.43 mg/√Hz

GYROSCOPES

Range	±300 °/s, all axes
3dB Bandwidth	77 Hz
Noise	0.015 °/s /√Hz

MAGNETOMETER

Internal Magnetometer	3 Axes (External Magnetometer available: MG01)
Altitude Compensation	Yes
Full Scale Range	± 1,000 μT
Sensitivity	0.1 μT
Max. Applied Magnetic Field	100,000 μT
Calibration	3D / 2D

AHRS / INS DYNAMIC ACCURACY

Pitch & Roll Error	< 0.5°
Heading Error	< 1°
Estimated Position Accuracy	< 1.5 m CEP, GNSS
Dead Reckoning Drift	< 30 m/min (continuous, not first minute only)

MECHANICAL / ENVIRONMENTAL

Size (H x W x L)	45 x 68 x 75 mm
Weight	170 g
Temperature Range	-40 to +85°C
Shock Survival	500 g 8 ms, ½ sine
Mating Connector	Amphenol MS3112E-16-26P
Static / Pitot Port Diameter	3.0 mm
GNSS Antenna Connector (x2)	50 Ohm SMA Female
Humidity	Up to 90% RH, Non-Condensing

UAV Navigation
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