



AHRS For:



AHRS-IMU

POLAR-300 AHRS

The POLAR-300 is a high-end, MEMS-based Air Data and Attitude and Heading Reference System (ADAHRS) and Inertial Navigation System (INS).

Key Features:

Precision Attitude & Position Estimation



Compact and Easy to Integrate



Exceptional Dead-Reckoning Performance



Meticulous Calibration Procedures



Quaternion-based



Lightning-fast Data Rates



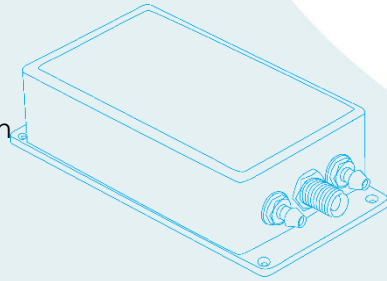
Functions:

- Redundant IMU.
- Performance comparable to FOG-based units.
- OEM Option.

Technical Specs:

REDUNDANCY AND SAFETY	
Online Sensor Diagnosis	Yes
Sensor Failure Tolerance	All single. Several multiple
MTBF	Over 60,462 h
INTERFACES	
Telemetry Port (P0)	RS-232. Configuration / Telemetry
Telemetry Port (P1)	RS-232 / 422 / 485. Configuration / Telemetry (Up to 3 Mbps)
CAN (Under request)	CAN A/B. Up to 1 Mbps
ELECTRICAL	
Input Voltage	+9 to +36 VDC
Power Consumption	1 W (@ 12 VDC)
GNSS	
Receiver Type	72 Channel, L1C/A, L1OF, B1I, E1B/C
Constellations	GPS, GLONASS, BeiDou, Galileo, QZSS, SBAS
Time to First Fix (Cold / Hot)	< 26s / < 2s
Altitude / Velocity Limit	50,000 m / 500 m/s
Navigation Update Rate	5 Hz
GNSS PPS	30 ns RMS, 60 ns 99%
Horizontal Position Accuracy	2.5 m (CEP, 50%, 24 h static, -130 dbm, >6 SVs)
Heading Accuracy	< 0.4° Dynamic (50% @ 30 m/s)
Dual GNSS Compass / External GNSS	External Payload Available (DGC01)
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 Accuracy	±3% Reading
Altimeter Precision	± 1 ft
INTERACING	
Sampling Rate (IMU+Attitude)	Up to 500 Hz

- Exceptional navigation and attitude performance in high dynamics and GNSS-denied conditions.
- Quaternion-based solution



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 Accuracy	Position 2.5 m CEP, GNSS & SBAS available
Dead Reckoning Drift	< 30 m/min (continuous, not first minute only)
MECHANICAL / ENVIRONMENTAL	
Size (H x W x L)	Boxed: 22 x 40 x 82 mm OEM: 14 x 36 x 51 mm
Weight	Boxed: 76 g OEM: 17 g
Temperature Range	-40 to +85°C
Shock Survival	500 g 8 ms, ½ sine
Mating Connector (Boxed)	Micro-D Type, Male, 15 Pin
Static / Pitot Port Diameter	3.0 mm
GNSS Antenna Connector	50 Ohm SMA Female
Humidity	Up to 90% RH, Non-Condensing

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