

Athena 511



Integrated INS/GPS/ADAHRS/flight controls.

Today's UAV and military applications require highly sophisticated, compact and affordable INS/GPS/ADAHRS/flight controls integrated solutions. We have designed the Athena 511 to meet these requirements.

With our electrical and mechanical design and manufacturing process, our Athena 511 meets MIL-SPEC environmental requirements, including temperature, shock, vibration, EMI, power, and humidity to accommodate the harsh flying environments.

Athena 511 leverages Rockwell Collins' solid foundation of performance and hundreds of thousands of hours of operational and in-theater experience, providing our customers with solutions to enable their UAV systems the shortest time to market at the lowest life cycle cost.

KEY BENEFITS

- › Tactical grade IMU (1, 2 or 3°/hr)
- › Differential ready, WAAS-enabled GPS receiver
- › Built-in air data systems pressure transducers including static, airspeed and flow angle measurements
- › Full INS and attitude solution
- › Accurate roll, pitch, heading in dynamic maneuvers and sustained turns
- › Kalman filter INS providing high accuracy navigation and control state vector

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SPECIFICATIONS

INS/GPS performance

Update rate	100 Hz only
Start-up time	10 sec (initial attitude); 1 min (full alignment)
Heading range	+/- 180°
Altitude range pitch	+/- 90°
Altitude range roll	+/- 180°
Altitude range	-1,000 ft to 50,000 ft
Baroinertial altitude accuracy	45 ft at S.L., <300 ft at 50,000 ft altitude
WGS84 referenced altitude accuracy	GPS C/A code; differential ready, WAAS-enabled
GPS Range	Worldwide
Lat/long position/ velocity accuracy	GPS receiver accuracy
GPS antenna power	5 V
Airspeed accuracy	<2 knots @ 40 knots, <1 knot @ 60 knots
Max airspeed	165 knots standard, up to 650 knots available
Angle of attack range	+/- 8° at max airspeed
Angle of sideslip range	+/- 8° at max airspeed

IMU performance (HG1700)

Rate gyro bias	1 or 3 deg/hr
Maximum angular rates	+/- 200 deg/sec

Attitude heading accuracy (in deg) (1 sigma)

Performance Gyro in-run bias stability	Pitch, roll w/GPS	Pitch, roll GPS denied	Heading with GPS	Heading GPS denied	Maximum g range (all axes)
1°/hr	0.057	0.3	0.1*	1**	+/-37 g's
3°/hr	0.1	0.3	0.1*	1**	+/-37 g's

* In maneuvering flight

** In steady state, using adequate external magnetic field measurement

Overview

Size (in)	6.1 x 6.1 x 6.1 or smaller
Weight (lbs)	<6
Enclosure	Aluminum
Power	17 W (nominal) @ 18-36 VDC

Environmental

Operating temperature	-40 to 70° C
Temperature shock	MIL-STD-810
Operating temperature at altitude	MIL-STD-810
Operating vibration	MIL-STD-810
Humidity	MIL-STD-810
Sand and dust, salt, fog, fungus	MIL-STD-810 (sealed enclosure)
Acceleration/mechanical shock	MIL-STD-810
EMI/EMC	MIL-STD-461E; CE102, CS 101, RE 102-3, RS 103



Signal input/output

Outside air temperature	Input
Program and maintenance serial port	(1) PPP service port (RS-232)
Serial ports	(1) INS Port (RS-422) (1) DGPS (RS-422) (2) Spare (RS-422)

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Rockwell Collins delivers smart communication and aviation electronic solutions to customers worldwide. Backed by a global network of service and support, we stand committed to putting technology and practical innovation to work for you whenever and wherever you need us. In this way, working together, we build trust. Every day.

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