ATHENA 411

Superior accuracy during dynamic maneuvers

Multiple aerospace devices in a single unit for high reliability and improved performance

Developed for compatibility with both unmanned aerial vehicle (UAV) and military applications, the Collins Aerospace Athena 411 integrates solid-state gyros and accelerometers, magnetometer, a GPS receiver and air data pressure transducers into a single unit.

We have equipped the Athena 411 with a sealed enclosure to ensure a long, trouble-free lifespan and performance over full altitude and temperature ranges to protect from moisture contamination.

Our engineers have tested the Athena 411 under the stringent military specifications for shock and vibrations. The highly reliable, strap-down system provides attitude and heading measurements with static and dynamic accuracy superior to traditional spinning mass vertical and directional gyros.

KEY FEATURES & BENEFITS

- Accurate roll, pitch and heading in dynamic environments and sustained turns.
- WAAS-enabled, differential ready GPS.
- Kalman filter algorithms for full INS and attitude solution
- A tactical, low-cost, integrated INS/GPS/ADAHRS and flight controls system.
- Dual airspeed and altitude air data measurement.

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Specifications

INERTIAL NAVIGATION SYSTEM (INS)/GPS PERFORMANCE

Update rate	100 Hz (50 Hz optional)
Start-up time	10 seconds (initial attitude); 2 minutes (full alignment)
Heading range	+/- 180°
Attitude range pitch	+/- 90°
Attitude range roll	+/- 180°
Altitude range	-1,000 ft.. to 50,000 ft.
Altitude accuracy	45 ft. at S.L. 250 ft. at 40,000 ft. altitude
GPS range	worldwide
Latitude/longitude position accuracy	GPS C/A code; differential ready, Wide Area Augmentation System (WAAS)-enabled
GPS antenna power	3.3 V standard or 5 V optional with embedded GPS
Airspeed accuracy	<2 knots at 40 knots <1 knot at 60 knots
Maximum airspeed	200 knots standard, up to 650 knots optional
Angle of attack range	+/- 8° at maximum airspeed
Angle of sideslip range	+/- 8° at maximum airspeed

INERTIAL MEASUREMENT UNIT (IMU) PERFORMANCE

Maximum angular rates	+/- 200° per second
Maximum g range	+/-7 g

ATTITUDE HEADING ACCURACY (1 SIGMA) WITH GPS

Pitch/roll accuracy	0.1°
Heading accuracy	0.1° *

EXTENDED GPS OUTAGE

Pitch/roll accuracy	0.5° *
Heading accuracy	1° *

OVERVIEW

Size	4.5 in. x 4.3 in. x 4.9 in.
Weight	2.2 lb. (1.0 kg)
Enclosure	aluminum
Power	6 W (nominal) at 18-36 VDC 12 W peak

ENVIRONMENTAL

Operating temperature	-40 to 70° C
Operating vibration	MIL-STD-810
Humidity	95%, non-condensing sealed enclosure
Serial input/output	(2) RS-232 (2) RS-422 (1) RS-422 – differential GPS (1) RS-422 – service port

*Dependent on external magnetometer performance.

Specifications subject to change without notice.

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