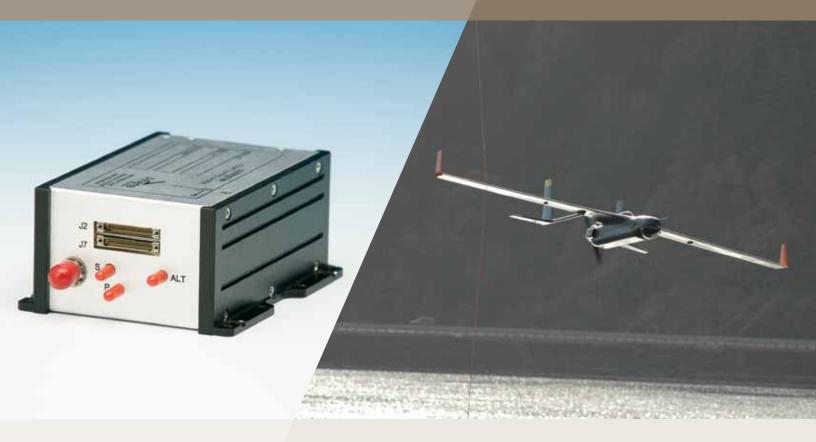
Athena 111m



Integrated sensors, flight controls and navigation system.

The Athena 111m offers customers a lower unit cost to accommodate smaller unmanned systems. Rockwell Collins engineers have designed the Athena 111m with a fully-integrated, miniaturized flight control system that combines integrated INS/GPS and a complete air data suite with robust, multivariable control algorithms.

Designed specifically for high-performance, unmanned systems, the Athena 111m leverages our patented Feedback LTi'zation design technology to provide robust flight control algorithms applicable to a wide range of vehicles; including, fixed-wing, ducted-fan and rotorcraft systems.

KEY BENEFITS

- GPS/INS navigation solution integrated with state-of-the art Multi-Input/ Multi-Output flight control laws
- Control modes that include airspeed, altitude, climb rate, angle of attack, sideslip, 3-D auto navigation, and auto takeoff/landing
- ➤ Uses highly reliable solid-state sensors, including accelerometers, rate gyros, magnetometer, air data pressure, AoA and sideslip sensors along with a differential ready, WAAS-enabled GPS receiver for a full INS/GPS navigation solution



SPECIFICATIONS

INS/GPS performance

Update rate 100 Hz

Start-up time 10 sec (initial attitude);

1 min (full alignment) -1,000 ft to 50,000 ft

Altitude range -1,000 ft to 50,000 f Attitude accuracy 0.3° (1 sigma) Altitude accuracy 45 ft at S.L., <200 ft

at 40,000 ft altitude

Lat/long position accuracy GPS C/A Code; differential ready,

WAAS-enabled

GPS antenna power 5 V

Airspeed accuracy <2 knots @ 40 knots,

<1 knot @ 60 knots

Max airspeed 120 knots standard, up to

650 knots optional

Angle of attack range +/- 8° at max airspeed
Angle of sideslip range +/- 8° at max airspeed

IMU performance

Maximum angular rates +/- 200°/s Maximum g range +/-8 g

Attitude heading accuracy (1 sigma) with GPS

Pitch/roll accuracy 0.1° mean, 0.1°

standard deviation

Heading accuracy 0.5° *

Extended GPS outage

Pitch/roll accuracy 0.5°*
Heading accuracy 1°*
*Using adequate external magnetic field measurement.

Overview

Size 9.9 x 6.6 x 4.06 cm

(3.9 x 2.6 x 1.6 in)

Weight 249 grams (0.55 lb)

Enclosure Aluminum

Power 4.5 W (nominal) @ 18-36 VDC

Environmental

Operating temperature -40 to 70°C
Non-operating temperature -54 to 85°C
Operating vibration/shock MIL-STD-810

Humidity 95%, non-condensing

Input/output

PWM input (10) Channels PWM output (10) Channels

Discrete inputs (4)
Discrete outputs (5)

Analog input

Serial connections RS-422
Bus I/O CAN bus (2)
SPI bus



- > GPS receiver
- > Solid-state gyros and accelerometers
- > CPU card (Kalman filters, high-speed sampling, control laws)
- > Air pressure transducers
- > AoA and sideslip
- > Triaxial magnetometer

Building trust every day.

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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