



AVIONIC INS/GPS

Kearfott's KN-4072A INS/GPS system is a low-cost navigation solution for a wide variety of aircraft, helicopters and Unmanned Air Vehicles (UAV). These include; Global Hawk, Hermes 450, Hawk trainer and Aermacchi M-311 trainer.

The KN-4072A, featuring Kearfott's Monolithic Ring Laser Gyro (MRLG), is designed to operate in conjunction with an embedded 12-channel Differential ready C/A code GPS for enhanced navigation performance and faster satellite acquisition.

The KN-4072A's main features are:

- Navigation outputs:
 - Position (Hybrid INS/GPS and Free inertial)
 - Altitude (Hybrid INS/GPS and Baro-inertial)
 - Velocity
 - True Heading, Magnetic Heading, Roll and Pitch
- Flight control outputs:
 - Angular rates ($\Delta\theta$)
 - Linear Accelerations (Δv)
- Communication interfaces:
 - MIL-STD-1553B (Muxbus): 1 dual-redundant channel
 - RS-422: 2 channels
 - RS-232: 1 channel



SYSTEM SPECIFICATIONS

SIZE (L * W * H)	9.1 x 5.4 x 6.0" (231 x 137 x 152mm)
WEIGHT	10.2 lbs (4.6 Kg)
POWER	28 VDC (35 W) per MIL-STD-704A
COOLING	Free Convection
ENVIRONMENTAL REQUIREMENTS	
• EMI/RFI (EMC)	MIL-STD-461E
• Shock and Vibration	MIL-STD-810E, inc. Gunfire vibrations
• Temperature	-45°C to +71°C
EMBEDDED GPS RECEIVER	12 Channels C/A Code, L1 frequency, Differential ready (needs external corrections), Receiver Autonomous Integrity Monitoring (RAIM)
MAINTENANCE	Self test (BIT), No recalibration required

PERFORMANCE SUMMARY

GPS/INS PERFORMANCE

	Continuous GPS Aiding		With GPS outage (Up to 10 Minutes)
	C/A code*	DGPS	
Navigation Position (m), CEP	10	<2	250
True Heading Accuracy (mrad), 1 σ	<2	<2	5
Pitch/Roll Accuracy (mrad), 1 σ	0.5	0.5	1
Velocity (m/s), 1 σ	0.1	0.05	3

* Selective Availability (S/A) disabled ("OFF")

OPERATING RANGES

Altitude	From -1,500 to +59,000 ft *Higher limit is optional
Velocity	Up to 515 m/sec (1,000 Knots) *Higher limit is optional
Acceleration (all axes)	30 g (IMU)
Attitude (Roll, Pitch and Yaw)	Unlimited
Roll, Pitch and Yaw rates	400°/s
Roll, Pitch and Yaw accelerations	10,000°/s ²

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In addition to INS/GPS, Astronautics and Kearfott's line of air products includes:

- *Inertial Measurement Units (IMU) for flight control and sensor stabilization*
- *Mission Computers and Display Processors*
- *Electronic Flight Instrument Systems (EFIS) / Engine Instrument & Caution Advisory System (EICAS)*
- *Multifunction Color Displays (MFCD)*
- *Electronic Flight Bags (EFB)*
- *Network Server Systems*
- *Air Data Computers (ADC)*
- *Actuators and Angular position sensors*

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