

## C-MIGITS<sup>®</sup> III

### Applications

The C-MIGITS<sup>®</sup> III has a wide variety of applications.

- Position Sensor for Geo-Surveying
- UAVs and Other Unmanned Vehicles
- Ground Vehicle Tracking
- Range Instrumentation
- Targeting and Positioning
- Precision Antenna Pointing
- Attitude Reference



### Description

The C-MIGITS<sup>®</sup> III offers a unique combination of the Systron Donner Inertial solid-state Digital Quartz Inertial Measurement Unit (DQI) and the Jupiter™ LP commercial Global Positioning System (GPS) receiver. DQI's micromachined quartz rate sensors and vibrating quartz accelerometers, plus the Jupiter's single board 12-channel Coarse/Acquisition (C/A) Code GPS engine, offer an extremely small, lightweight, low-cost solution. Tightly coupled in C-MIGITS III, these two innovative technologies provide a powerful, synergistic Guidance, Navigation & Control system.



### Key Performance Features

- Low-Cost Integrated INS/GPS Solution for Many Applications
- Small, Lightweight Design; Fits in 5-Inch Diameter Enclosures
- Optimized 28-State Kalman Filtered Navigation Solution
- Durable Design for High-Vibration Environments
- Programmable Output Allows for Data Combinations Specific to a User's Needs
- RS-232 Digital Interface



Physical Characteristics		
Part Number	CMIG-310	
Size (Volume)	54.0 in <sup>3</sup>	
Weight	2.4 lbs. (1.1 kg)	
Power	+ 28 Vdc at 12 watts	
I/O	RS-232, AMRAAM IMU output, Host Vehicle I/O	
Reliability@ 35°C	52,248 hr MTBF, ground; 9,900 hr MTBF, missile	
System Performance		
	Specification	
Position (SEP)	3.9 m	
Velocity (1 $\sigma$ , horiz/vert)	0.1/0.1 m/s	
Pitch/Roll (1 $\sigma$ )	1.0 mrad	
Heading (1 $\sigma$ , in motion)	1.5 mrad + d <sup>(1)</sup>	
Timemark Output 1pps	$\pm 1 \mu$ s	
	Gyro	Accelerometer
Bias - In run stability from turn -on (1 $\sigma$ )	1-3 °/hr	200 $\mu$ g
Random Walk Noise (1 $\sigma$ )	0.035 °/ $\sqrt$ hr	60 $\mu$ g/ $\sqrt$ Hz
Environmental		
Temperature Range	-40 to +71°C (operating)	
Vibration	6-12 g rms (performance-endurance)	
Shock	20g, 11 ms	
Dynamic Operating Range	Angular Rate Range $\pm 1000$ °/s; Acceleration 5g (INS/GPS), 15g (INS Only); Velocity 500m/s (INS/GPS), 12,000m/s (INS Only)	

NOTES: <sup>(1)</sup> d represents a growth rate that depends on the time once all horizontal accelerations have stopped, drift will be 2 to 3 deg/hr 1 sigma.

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