SYSTRON DONNER INERTIAL

MEMS Integrated GPS/INS Tactical System

C-MIGITS® III

Applications

The C-MIGITS® 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® 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**

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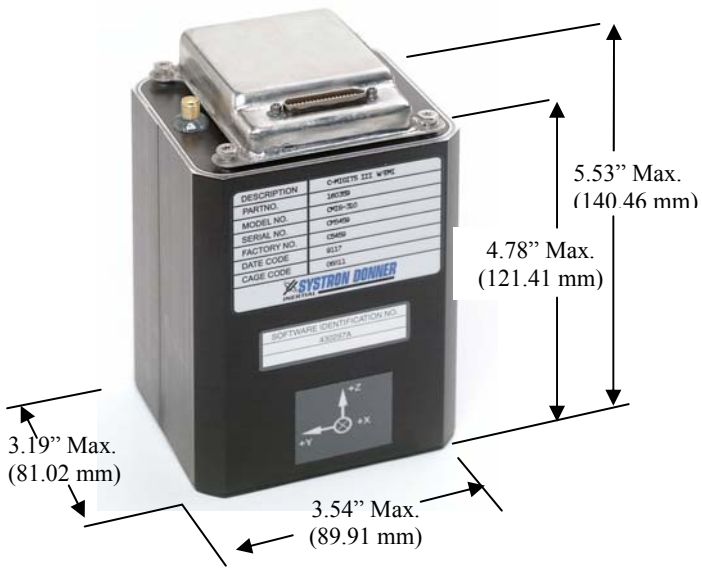

Physical Characteristics		
Part Number	CMIG-310	
Size (Volume)	54.0 in^3	
Weight	2.4 lbs. (1.1 kg)	
Power	+ 28 Vdc at 12 watts	
I/O	RS-232, AMRAAM IMU output, Host Vehicle I/O	
Reliability@ 35°C	52,248 hr MTBF, ground; 9,900 hr MTBF, missile	
System Performance		
	Specification	
Position (SEP)	3.9 m	
Velocity (1σ, horiz/vert)	0.1/0.1 m/s	
Pitch/Roll (1σ)	1.0 mrad	
Heading (1σ, in motion)	1.5 mrad + d [(1)]	
Timemark Output 1pps	±1 µs	
	Gyro	**Accelerometer**
Bias - In run stability from turn -on (1σ)	1-3 °/hr	200 µg
Random Walk Noise (1σ)	0.035 °/√hr	60 µg /√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 ±1000 °/s; Acceleration 5g (INS/GPS), 15g (INS Only); Velocity 500m/s (INS/GPS), 12,000m/s (INS Only)	

NOTES: [(1)] 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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