SYSTRON DONNER INERTIAL

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emcore®

SDN500

MEMS Integrated GPS/INS Tactical System

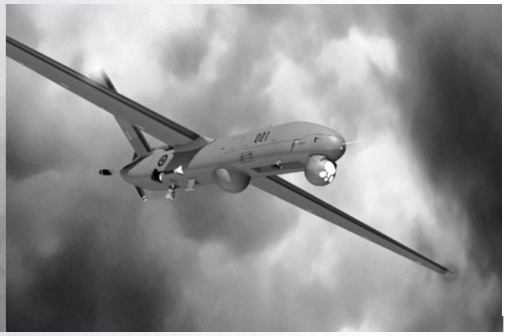
Ideal for High-Precision Navigation & Guidance Applications:

- Position Sensor for Geo-Surveying
- Targeting & Positioning
- Precision Antenna Pointing
- UAVs & Other Unmanned Vehicles
- Targets & Drones
- Ground Vehicle Tracking
- Range Instrumentation

NON ITAR

Key Performance Features:

- **Position 3.9 m SEP**
- **Attitude**
  - **Roll/Pitch (1σ) – 1.0 mrad**
  - **Heading in Dynamics (1σ) – 1.5 mrad**
- **48 Channel GPS Tracking for Improved Coverage**
  - **Less than 35 second TTFF from cold**
- **Adaptable Modular 25 in.^{3} Compact Size for Packaging Flexibility**
- **Weighs <1.6 lbs.**
- **Customer Programmable Output Data Rates**



The SDN500 GPS/INS navigation system is a platform extension of EMCORE's proven tactical grade SDI500 IMU. The SDN500 GPS/INS combines latest generation quartz MEMS gyros and accelerometers, delivers industry leading bias in-run stability performance, provides enhanced 100Hz position data and faster GPS acquisition and start up time courtesy of a 48-channel Coarse/Acquisition (C/A) Code GPS receiver, creating a tightly coupled powerful Guidance and Navigation Control System. The modular compact 25 in^3 size provides for maximum packaging flexibility in dense systems.

The solid state quartz sensors and sealed construction provide reliable 50,000+ hr. MTBF, and a 20 year operating and storage life. Continuous Built-in Test (BIT), configurable communications protocols, electromagnetic interference (EMI) protection, and flexible input power requirements make the SDN500 easy to use in a wide range of higher order integrated system applications.

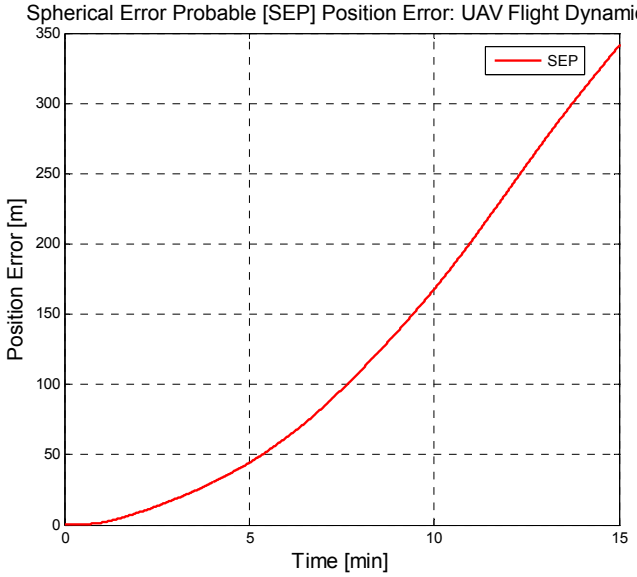
www.emcore.com/nav

SDN500

MEMS Integrated GPS/INS Tactical System

	Units	Measure	SDN500-AF00	SDN500-BF00	SDN500-CF00
System Performance					
Position (SEP)	m	max	3.9		
Velocity (horizontal/vertical)	m/s	1σ	0.1/0.1		
Pitch/Roll	mrad	1σ	1.0		
Heading (in motion)	mrad	1σ	1.5 + d[1]		
Timemark Output 1pps	µs	nom	±1		
Gyro Channels					
Bias In-Run Stability from Turn-on	deg/hr	1σ	1.0	1.5	2.0
Angle Random Walk	deg/√hr	1σ	0.02	0.02	0.03
Angular Rate – Dynamic Range	deg/sec	min	±1000	±1000	±1000
Accelerometer Channels					
Bias In-Run Stability from Turn-on	µg	1σ	100	200	200
Random Walk Noise	µg/√Hz	1σ	100	100	120
Acceleration – Dynamic Range	g	min	±50	±50	±50
System Physical & Environmental					
Input Voltage	Vdc		+12 to +42		
Power	watts		<7.5		
I/O			RS232/422, SDLC IMU Output		
Volume	cu in		25		
Weight	lbs		<1.6		
Temperature Range (Operating)	°C		-40 to +71		
Vibration (Operating)	g_{RMS}		12		
Shock (Operating)	g, msec		40, 30		
Altitude (INS/GPS)	ft		60,000		
Velocity (INS/GPS)	m/s		500		
Acceleration (INS/GPS)	g		4		
Reliability @ 35°C	hrs		50,000 MTBF, ground: 6,000 MTBF, air cargo		

Spherical Error Probable [SEP] Position Error: UAV Flight Dynamics



[1] d represents a growth rate that depends on the time once all horizontal accelerations have stopped, drift will be 1 to 10 deg/hr 1σ.

For more information, contact:

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Transforming Navigation

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