

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

Key Performance Features:

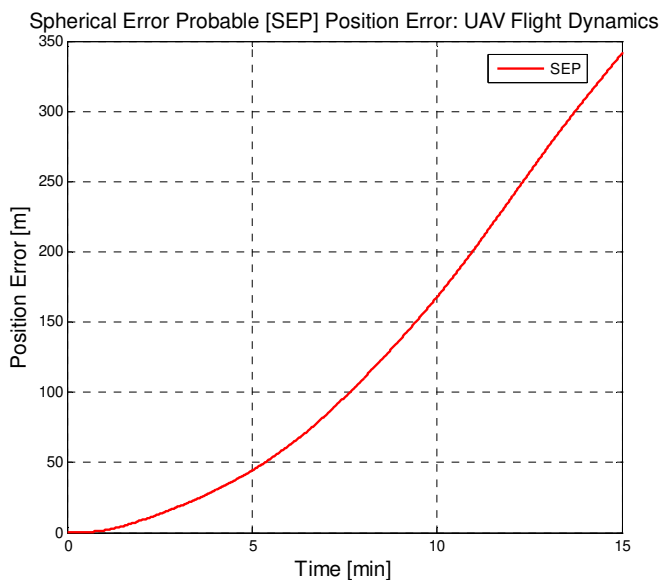
- **Position 3.9 m SEP**
- **Attitude**
 - Roll/Pitch (1σ) – 1.0 mrad
 - Heading in Dynamics (1σ) – 1.5 mrad
- **48 Channel GPS Tracking for Improved Coverage**
 - Less than 35 second TTFF from cold
- **Adaptable Modular 25 in.³ Compact Size for Packaging Flexibility**
- **Weights <1.6 lbs.**
- **Customer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



The SDN500 GPS/INS navigation system is a platform extension of Systron Donner Inertial's (SDI) 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.

	Units	Measure	SDN500-AC00	SDN500-BC00	SDN500-CC00
System Performance					
Position (SEP)	m	max		3.9	
Velocity (horizontal/vertical)	m/s	1 σ		0.1/0.1	
Pitch/Roll	mrاد	1 σ		1.0	
Heading (in motion)	mrاد	1 σ		1.5 + d ¹	
Timemark Output 1pps	μ s	nom		± 1	
Gyro Channels					
Bias In-Run Stability from Turn-on	deg/hr	1 σ	1.0	1.5	2.0
Angle Random Walk	deg/ $\sqrt{\text{hr}}$	1 σ	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	μ g	1 σ	100	200	200
Random Walk Noise	μ g/ $\sqrt{\text{Hz}}$	1 σ	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)	$^{\circ}\text{C}$			-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 $^{\circ}\text{C}$	hrs			50,000 MTBF, ground: 6,000 MTBF, air cargo	



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 1 σ .

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