

# SDN500

## MEMS Integrated GPS/INS Tactical System

### Ideal for High-Precision Navigation & Guidance Applications:

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

### Key Performance Features:

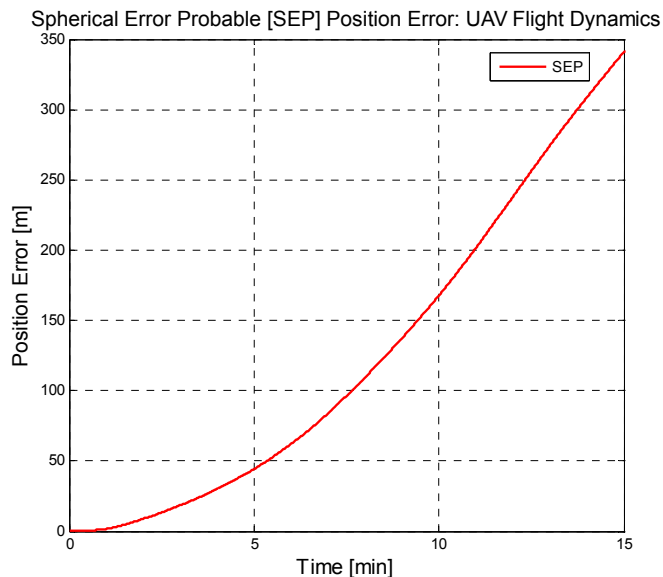
- **Attitude**
  - Roll/Pitch ( $1\sigma$ ) – 1.0 mrad
  - Heading in Dynamics ( $1\sigma$ ) – 1.5 mrad
- **25 in.<sup>3</sup> Compact Size**
- **Weighs <1.6 lbs.**
- **Customer Programmable Output Data Rates**
- **Modular Design Enables Relocation of Navigation Module Within Tight Spaces**



The SDN500 is a platform extension of Systron Donner Inertial's proven tactical grade SDI500 IMU. The compact SDN500 combines latest generation quartz gyros, quartz accelerometers, high speed signal processing and a single board Coarse/Acquisition (C/A) Code GPS receiver into a tightly coupled powerful Guidance and Navigation Control System.

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-AB00	SDN500-BB00	SDN500-CB00
<b>System Performance</b>					
Position (SEP)	m	max		3.9	
Velocity (horizontal/vertical)	m/s	1 $\sigma$		0.1/0.1	
Pitch/Roll	mrad	1 $\sigma$		1.0	
Heading (in motion)	mrad	1 $\sigma$		1.5 + d <sup>1</sup>	
Timemark Output 1pps	$\mu$ s	nom		$\pm$ 1	
<b>Gyro Channels</b>					
Bias In-Run Stability from Turn-on	deg/hr	1 $\sigma$	1.0	1.5	2.0
Angle Random Walk	deg/ $\sqrt$ hr	1 $\sigma$	0.02	0.02	0.03
Angular Rate – Dynamic Range	deg/sec	min	$\pm$ 1000	$\pm$ 1000	$\pm$ 1000
<b>Accelerometer Channels</b>					
Bias In-Run Stability from Turn-on	$\mu$ g	1 $\sigma$	100	200	200
Random Walk Noise	$\mu$ g/ $\sqrt$ Hz	1 $\sigma$	100	100	120
Acceleration – Dynamic Range	g	min	$\pm$ 50	$\pm$ 50	$\pm$ 50
<b>System Physical &amp; Environmental</b>					
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)	$^{\circ}$ C			-40 to +71	
Vibration (Operating)	g <sub>RMS</sub>			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 $^{\circ}$ C	hrs			50,000 MTBF, ground: 6,000 MTBF, air cargo	



<sup>1</sup> 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 $\sigma$ .

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