SDI500/SDI505

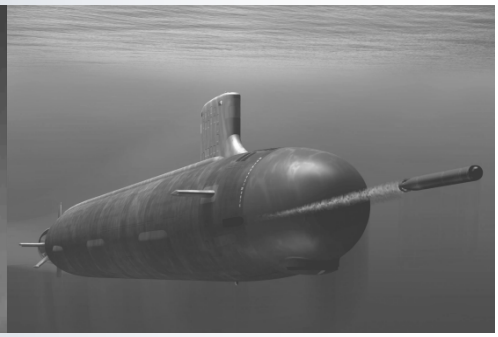
MEMS Quartz Tactical Inertial Measurement Unit

Ideal for High-Precision Applications:

- Precision Guided Munitions
- Tactical Missiles
- Unmanned Aerial Vehicles (UAVs)
- GPS-Aided Navigation Systems
- Torpedoes
- Gimbal & Platform Stabilization
- Targeting & Pointing Systems
- Aircraft Precision Attitude & Heading Systems

Key Performance Features:

- **1°/hr Gyro Bias Over Temperature**
- **0.02°/√hr Angle Random Walk - 5X Better Than Competition**
- **< 1.0 seconds Valid Data Start Up**
- **19 in.^{3} Compact Size**
- **Superior Quality & Reliability**
  - **20 Year Lifetime without Calibration**
  - **Greater Than 100,000 hr MTBF**
- **Data Time of Validity (TOV) Input & Output Synchronization, SDI505 only**



The SDI500 is the highest performance MEMS-based Inertial Measurement Unit (IMU) and is the only MEMS-based IMU to demonstrate true tactical grade performance with 1°/hr gyro bias and 1 mg accelerometer bias stability and very low 0.02°/√hr angle random walk. The breakthrough performance of the SDI500 IMU is based on a SDI's proven quartz MEMS inertial sensor technology. SDI's quartz technology enables high volume production of precisely machined sensor structures combined with the inherent large signal output and thermal stability of quartz materials.

The SDI500 is a compact IMU constructed with SDI's next generation quartz gyros, quartz accelerometers, and high speed signal processing that achieves tactical grade performance. The SDI500 IMU is rated for rugged military environments. The solid state quartz sensors and sealed IMU construction provide reliable 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 compatibility make the SDI500 IMU easy to use in a wide range of higher order integrated system applications.

The new SDI505 supports four data message synchronization methods with either input synchronization pulse capability or an output time of validity capability. The user can choose whether the synchronization pulse is internally generated and output as a Time of Validity (TOV) of the output data or whether the SDI505 software will identify the synchronization pulse input and synchronize the output data to the input pulse.

www.systron.com

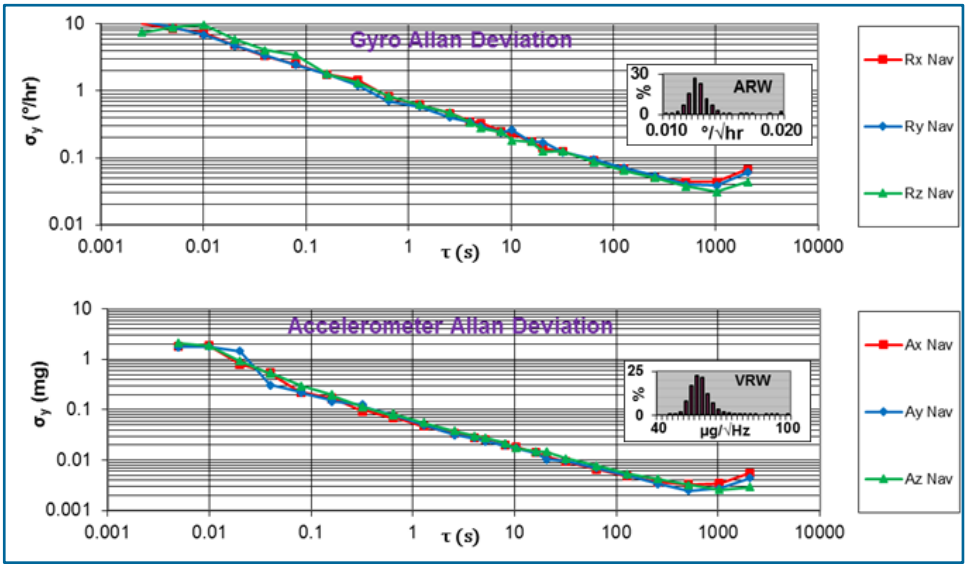
SDI500/SDI505

MEMS Quartz Tactical Inertial Measurement Unit

Specifications are based on 100 Hz Inertial Data (ΔV/Δθ)

	Units	Measure	SDI50x-AE00	SDI50x-BE00	SDI50x-CE00
System Performance					
Start Up Time for Valid Data	secs	max		1.0	
Bandwidth, Phase (-90° Phase Shift) *	Hz	min		100	
Gyro Channels					
Bias (over temperature)	deg/hr	1σ	1.0	3.0	10.0
Bias In-Run Stability	deg/hr	1σ	1.0	1.5	2.0
Scale Factor Error	ppm	1σ	200	200	200
Angle Random Walk	deg/√hr	max	0.02	0.02	0.02
Angular Rate – Dynamic Range	deg/sec	min	±1000	±1000	±1000
Accelerometer Channels					
Bias (over temperature)	milli-g	1σ	1.0	1.5	2.0
Bias In-Run Stability	µg	1σ	100	200	200
Scale Factor Error	ppm	1σ	200	200	200
Velocity Random Walk	µg/√Hz	1σ	100	100	120
Acceleration - Calibrated Range	g	min	±50	±50	±50
System Physical & Environmental					
Input Voltage	Vdc			10 to 42	
Power	watts			<5.0	
I/O				RS232/422, SDLC	
Data Synchronization Pulse**	Hz			(Input: 600, 1200, 2400) (Output: 100, 200, 400, 600, 1200, 2400)	
Dimensions (height x diameter)	in			2.9 x 2.9	
Volume	cu in			19	
Weight	lbs			1.3	
Temperature	°C			-55 to +85	
Vibration (Operating)	g, rms			19	
Shock	g, ms			150, 11	
Operating Life	yrs			20	
Reliability @ 35°C (MTBF)	hrs			100,000 ground benign: 15,000 air inhabited cargo	
Dormancy	yrs			20	

Note: * @ 600 Hz Flight Control Data Rate, ** SDI505-xE00 only



For more information, contact:

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