



## SEABORNE NAVIGATION SYSTEM (SEANAV)



VEHICLE REFERENCE UNIT (VRU)

The Seaborne Navigation System (SEANAV) hardware is fully qualified for at-sea operation and is the latest addition to Kearfott's family of Monolithic Ring Laser Gyro (MRLG) based inertial quality pointing, stabilization, survey, and navigation devices for maritime applications. The SEANAV modular architecture provides maximum flexibility, offering selectable performance and future upgradability. A sophisticated Kalman filter allows for aiding from various onboard devices such as GPS, Sonar/Doppler, Speed Log Aid and Screwspeed. Typical applications include surface and subsurface vessels, remotely operated vehicles, and autonomously operated research/survey vehicles.

**GPS Receivers** - The SEANAV system is designed to accommodate either an embedded (-G) or an external GPS receiver. Integrated systems presently available include:

- GPS Embedded Module - C/A Code or P(Y) Code
- Precision Lightweight GPS Receiver (PLGR) with differential capability - C/A, P(Y) Code or Defense
- Advanced GPS Receiver (DAGR) P(Y) Code
- Selective Stand Alone GPS Receiver - C/A , P(Y) Code or differential

### **SEANAV features include:**

- Multiple I/O (RS-422, RS-232)
- Multiple Output Formats (Geodetic)
- At sea align capable with GPS aiding
- Interfaces with P(Y) or C/A code GPS for alignment & aided navigation
- Interfaces with Sonar/Doppler and/or Speed Log for aided navigation
- Custom displays can be provided to accommodate unique customer requirements

<b>SEANAV PERFORMANCE*</b>			
<b>SURFACE SHIP</b>	<b>KN-5051</b>	<b>KN-5052</b>	<b>KN-5053</b>
Position Accuracy			
• GPS/Log**	10 m, CEP	10 m, CEP	10 m, CEP
• Log (Only)	10 nm/8hrs, TRMS	2 nm/8hrs, TRMS	1 nm/8hrs, TRMS
Heading Accuracy			
• GPS/Log**	5.0 mils, rms	<1.5 mils, rms	<1.0 mils, rms
• Log (Only)	6.0* secant (LAT) mils, rms	1.0* secant (LAT) mils, rms	0.6* secant (LAT) mils, rms
Velocity Accuracy			
• GPS/Log**	0.05 m/sec, rms	0.05 m/sec, rms	0.05 m/sec, rms
• Log (Only)	0.5 m/sec, rms	0.35 m/sec, rms	0.3 m/sec, rms
Roll/Pitch Accuracy	0.5 mils, rms	0.5 mils, rms	0.5 mils, rms
<b>UNDERWATER VEHICLE***</b>	<b>KN-5051</b>	<b>KN-5052</b>	<b>KN-5053</b>
Position Accuracy	0.5% Distance Traveled, CEP	0.2% Distance Traveled , CEP	0.1% Distance Traveled , CEP
Heading Accuracy	5.0 mils, rms	1.5 mils, rms	1.0 mils, rms
Roll/Pitch Accuracy	0.5 mils, rms	0.5 mils, rms	0.5 mils, rms

<b>OPERATING RANGES*</b>	
Acceleration	>30 g's all axes
Attitude (all axes)	unlimited
Roll, Pitch and Azimuth Rate	>300°/s
Roll, Pitch and Azimuth Accelerations	>10,000°/s <sup>2</sup>
Outputs, Digital	RS-422, RS-232, MIL-STD-1553
Cooling	Free convection
Environmental Requirements	Per MIL-E-5400
Temperature	-40°C to +55°C

<b>PHYSICAL CHARACTERISTICS</b>	
Dimensions	7 x 7 x 11 inches
Weight (KN-5051)	16 pounds
Weight (KN-5052 & KN-5053)	20 pounds
Power, Running	30 Watts (from 28 V dc)
Maintenance	2 level BIT No special equipment required
Calibration Interval	None

Notes:

\*Typical values are provided for illustration purposes and are tailorable for specific applications.

\*\*Assumes GPS aiding. (Selective Availability off)

\*\*\*Underwater vehicle performance assumes GPS aiding while aligning at surface and Sonar/Doppler aiding while under water.

***For further product information or additional applications, please contact  
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Visit our Website @ [www.kearfott.com](http://www.kearfott.com)***