Kearfott Corporation
A Subsidiary of Astronautics Corporation of America
Guidance & Navigation Division

KN-4080-G FAMILY

LAND/SEA NAVIGATION SYSTEM

The Land/Sea Navigation System, whose hardware is fully qualified for the robust environments of land and sea operation, is the latest addition to Kearfott's family of Monolithic Ring Laser Gyro (MRLG) based inertial quality navigation, pointing, stabilization, and survey devices. The modular architecture provides maximum flexibility, offering selectable performance and future upgradeability. A sophisticated Kalman filter allows for aiding from various onboard devices such as GPS, Odometer (land operation), Sonar/Doppler (sea operation), and vehicle speed sensors in various combinations (including zero velocity updates) for land and sea applications. System communication channels can be configured to provide redundant paths for input of control information and output of inertial data including command/response of navigation data and broadcast of vehicle dynamics data (attitude, attitude rates, and accelerations) for vehicle stabilization control. Typical applications include patrol boats and amphibious vehicles.

THE INERTIAL NAVIGATION UNIT (INU) K600A379 INCLUDES:

- **Inertial Measurement Unit (IMU)** – A 3-axis Monolithic Ring Laser Gyro (MRLG) and three single-axis accelerometers with all self contained support electronics
- **GPS Receiver** – The INU contains an embedded P(Y) L1/L2 GPS receiver. The K600A379 INU has been granted the NAVSTAR Global Positioning System Joint Program Office Security Approval.
- All Navigation computations
- Multiple I/O (RS-422, RS-232) ports
- Interfaces with Odometer, Sonar/Doppler, and/or Vehicle Speed Sensors
- The INU also provides the following:
  - Multiple Output Formats (MGRS, UTM, Geodetic)
  - Moving align capable with GPS aiding
  - Continuous “Align on the Move” Provides Improved Heading Accuracy
  - Vehicle Dynamic Control
  - Weapon Stabilization

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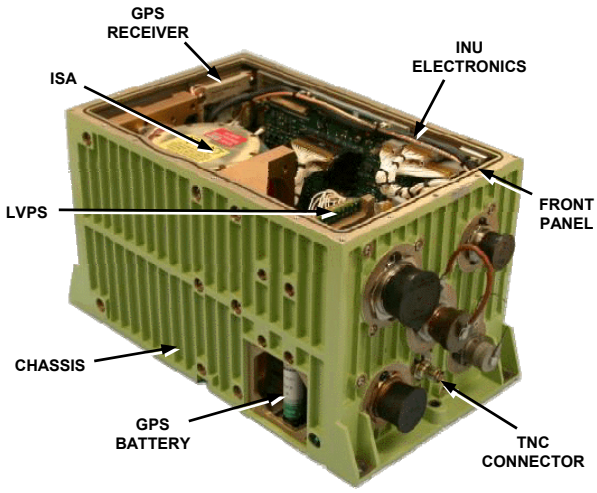
ALIGNMENT / NAVIGATION OPERATIONAL MODES	KN-4081	KN-4082	KN-4083
Land Alignment(15 min Stationary) Odometer Aiding			
Position (Horizontal)	<1.0% distance traveled	<0.35% distance traveled	<0.25% distance traveled
Altitude	<0.125% distance traveled	<0.1% distance traveled	<0.067% distance traveled
Heading (15 min)	10 mils rms	1.7 mils rms	0.67 mils rms
Roll / Pitch	0.5 mils rms	0.5 mils rms	0.5 mils rms
Land Alignment (Moving) GPS Aiding			
Position (Horizontal)	10 meters CEP	10 meters CEP	10 meters CEP
Altitude	10 meters PE	10 meters PE	10 meters PE
Heading (15 min)	5 mils rms	1.5 mils rms	1 mils rms
Roll / Pitch	0.5 mils rms	0.5 mils rms	0.5 mils rms
At Sea Alignment (Moving) Vehicle Speed Aiding			
Position (Horizontal)	0.5 nmi/h CEPR	0.2 nmi/h CEPR	0.1 nmi/h CEPR
Altitude	NA	NA	NA
Heading (15 min)	5.0 mils	1.5 mils	1.0 mils
Roll / Pitch	0.5 mils rms	0.5 mils rms	0.5 mils rms

INU PHYSICAL CHARACTERISTICS	
Dimensions	7 x 7 x 11 inches
Weight: (KN-4081)	16 lbs.
Weight: (KN-4082, KN-4083)	<20 lbs
Power, running	30 Watts (from 28 V dc)
Maintenance	2 level BIT No special equipment required
Calibration Interval	None
GPS Receiver	Precision Positioning Service (PPS)
Operating Frequency	L1/L2
Channels	12



OPERATING RANGES	
Acceleration	30 *g*'s all axes
Attitude (all axes)	Unlimited
Roll, Pitch and Azimuth Rate	>300°/second
Roll, Pitch and Azimuth Accelerations	>10,000°/second^2
Outputs, Digital	RS-422, RS-232
Cooling	Free convection
Environmental Requirements	Per MIL-D-70789 (AR)
Altitude	-1,000 to +11,336 meters
Temperature	-40°C to +55°C

For further information on this product or any of our other products or applications
Please contact Kearfott Marketing: Telephone (973) 785-6555 or Fax (973) 785-5905
Visit our website: www.kearfott.com