

MK31 INS

Inertial Navigation System

High Performance Ring Laser Gyro System

The MK31 is a ring laser gyro inertial navigation system (INS) that provides accurate heading, attitude and positional data for a wide range of naval vessels including frigates, corvettes, patrol vessels and submarines. It is ideal for customers seeking a cost-effective and reliable solution for navigation and control of onboard radar, weapon, and satellite systems.



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The MK31 is easy to install, configure and operate. With extremely fast alignment alongside and at sea, the system provides highly accurate, pitch, roll, heading and positional data even in the most extreme sea states. The complete system uses solid-state technology, no maintenance is required to keep the MK31 fully operational.

PRODUCT FEATURES AND BENEFITS

- Innovative design incorporating state-of-the-art highly reliable Honeywell GG1320 ring laser gyro elements
- Highly accurate heading, heave, roll and pitch in all dynamics
- Inertial position output
- Small, lightweight and versatile
- Dynamic turn rates of up to 200°per/second
- No attitude limitations to motion, can be rotated full 360° in any orientation
- Maintenance free, due to the solid-state sensing elements
- Configurable RTU allows for numerous I/O's to meet all customer requirements
- Fast and simple unit installation
- High mean time before failure (MTBF)
- Low mean time to repair (MTTR)
- User-friendly operation
- Efficient CDU menu structure, allows simple configuration and diagnostics
- RS232/RS422 output, multiple channels
- No temperature related system degradation
- Programmable 200Hz HDLC 307.2K Baud output channels
- Supplied with adjustable deck plate to remove requirement to realign
- IMO approved for high speed craft, type approved to the Marine Equipment Directive
- Qualified to MIL-STD for vibration, shock and EMC



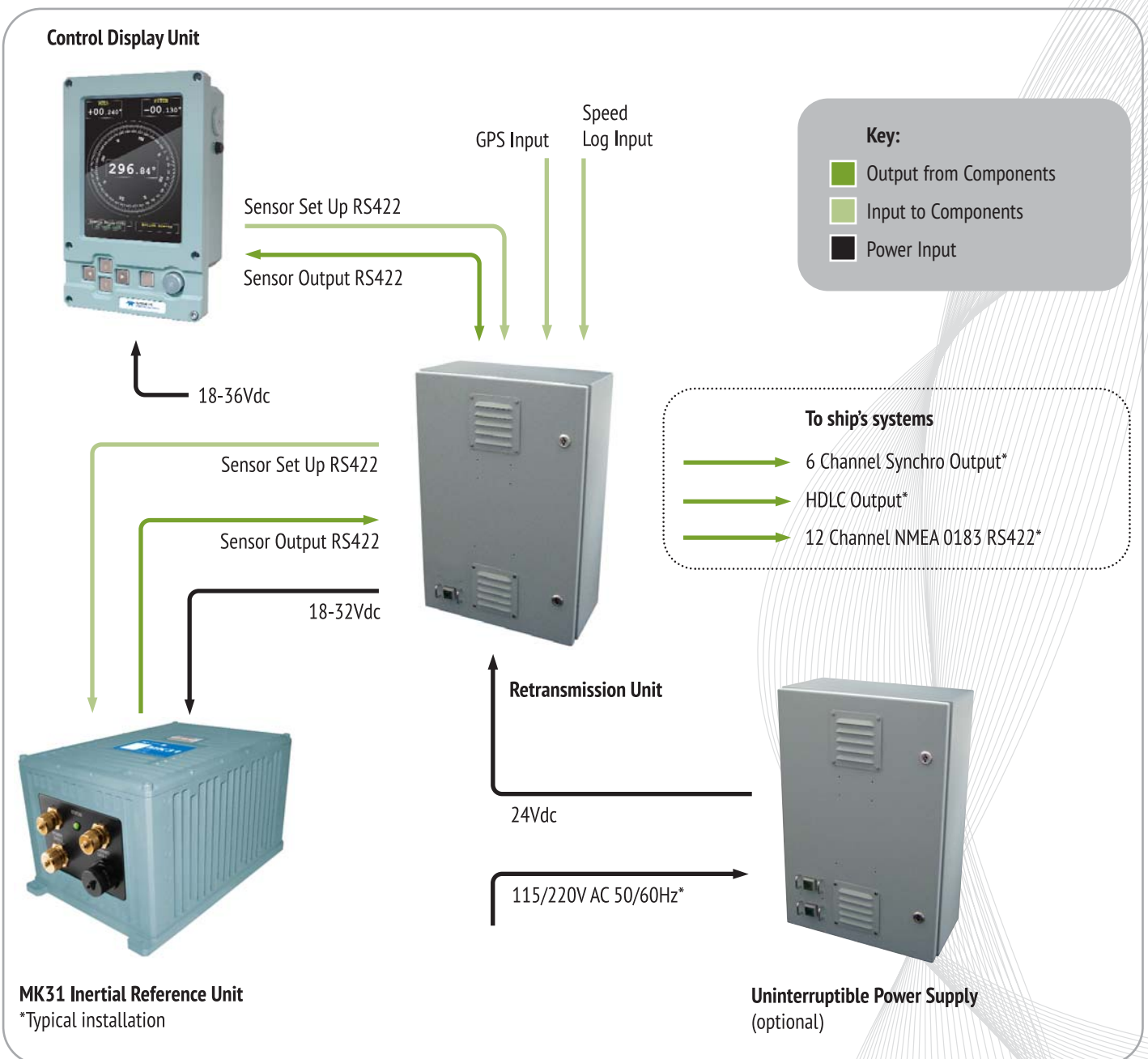
MK31 IMU incorporating Honeywell GG1320 ring laser gyros.

Scope of Supply

Control Display Unit (CDU) – bulkhead mounted CDU running a real-time display of sensor outputs and status information. Software includes built-in test equipment facility, system set-up, configuration and analysis through a simplified menu structure.

Retransmission Unit (RTU) – custom-configurable for each application to satisfy the platform requirements. A rugged bulkhead mounted enclosure, the RTU is powered via 24Vdc and typically has 6 synchros, HDLC 200 Hz outputs and 12 RS422 output channels.

Uninterruptible Power Supply (UPS) – optional.



*Optional Outputs

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TECHNICAL SPECIFICATIONS

INERTIAL REFERENCE UNIT

Heading	Accuracy	3 arc min RMS secant latitude (to special order) 6 arc min RMS secant latitude
	Follow up rate	200°/s
	Alignment time	<30 minutes
	Data latency	<3ms
Position	Accuracy	1nm / 8 hours
Roll and Pitch	Dynamic accuracy	Better than 0.6 arc min RMS
	Range	-90° <pitch <+90°, -180° <roll <180°
	Data latency	<3 ms
Aiding	GPS	IEC 61162 (NMEA 0183)
	Speed log	IEC 61162 (NMEA 0183)
Data Outputs	Line standard	RS422
	Output rate	Up to 200Hz
	Baud rate	1200 to 115,200
Sensors	Gyroscopes	Honeywell GG1320 RLG (MTBF >300,000 hrs)
	Accelerometers	Honeywell Q-Flex (MTBF >300,000 hrs)
	Sensors	IRU (MTBF >40,000 hrs)
Environmental	Ambient operating temperature	-20°C to +55°C
	Shock	MIL-STD-810G
	Vibration	MIL-STD-167-1A, IEC 60945
	EMC	MIL-STD-461F, IEC 60945
	Protection	IP65
Physical	Dimensions	160mm (H) x 165mm (W) x 290mm (D)
	Weight	15kg
Electrical	Power	18 to 36Vdc / 20W
Approvals	MED Type Approved	IMO A.424 (XI), IMO A.821 (19), ISO 8728, ISO 16328

RETRANSMISSION UNIT

Data Outputs	Digital	12 x RS422 IEC 61162 (NMEA 0183) and industry standard formats
	Synchro (option)	90V / 400Hz coarse & fine synchro (6 outputs)
	Resolver (option)	6.3V / 400Hz resolver (6 outputs)
	MTBF	>40,000 hrs
Data Inputs	GPS	IEC 61162 (NMEA 0183)
	Speed log	IEC 61162 (NMEA 0183) or 90V/400Hz Synchro (option)
Physical	Dimensions	400mm (H) x 400mm (W) x 200mm (D) (digital) 600mm (H) x 400mm (W) x 200mm (D) (analogue)
	Weight	20kg
	Power	18 to 36Vdc

CONTROL & DISPLAY UNIT

Data I/O	Line standard	RS422
	Display	Technology Colour LCD TFT
	Physical	Dimensions 295mm (H) x 190mm (W) x 110mm (D)
	Weight	5kg
Electrical	Power	18 to 36Vdc
	MTBF	>65,000 hrs

UNINTERRUPTIBLE POWER SUPPLY

Power	Input	85 to 264V, 47 to 63Hz
	Output	24Vdc / 250W
	Support time	>30 minutes depending on load
	Physical	Dimensions 400mm (H) x 400mm (W) x 200mm (D)
	Weight	32kg
	MTBF	>90,000 hrs

SYSTEM

Reliability	MTBF	>14,000 hours MIL-HDBK-217F
	MTTR	<0.5 hours
Warranty	12 months international warranty including parts and labour.	

**COMPANY WITH
MANAGEMENT SYSTEMS
CERTIFIED BY DNV**
= ISO 9001 =
= ISO 14001 =

Specifications subject to change without notice.
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