The MK39 MOD 4A provides both high accuracy geographic position information, with or without GPS, and precise attitude and heading data needed for fire control stabilization and weapons initialization. The MK39 MOD 4A occupies 50% less deck space than our previous models, utilizes enhanced Digital Ring Laser Gyro technology, and is certified for submarine applications due to its extremely low noise signature.

The MK39 MOD 4A, like all of our previous gyrocompass and navigation systems, is designed and built with the experience and integrity that is only found in a company with over 100 years of dedication to the marine ship and submarine market. The MK39 MOD 4A stands ready to take your navy well into the next millennium, today.

Benefits of Use

- Low acquisition and through-life cycle cost
- High reliability, low maintenance
- No practical limitations on rate of attitude changes—can be used on virtually any hull type
- Hands off operation, does not require operator intervention
- Provides data at stated accuracies through severe shock events
- Easy to maintain with access to all internal assemblies and LRUs
- Monitor using the provided Windows-based application via ethernet
- DC operation eliminates additional converters and UPS
- Automatic fault isolation and system protection for critical failure modes eases troubleshooting and protects unit
- Not affected by rapid changes in external magnetic fields, assuring high accuracy regardless of location
- Replacement of MK39 components can be done at sea with no further alignment required
- Smaller footprint
- Reduced weight
Significant Features

- 1nm in 8 hours TRMS navigator
- RLG sensor with proven MTBF in excess of 200,000 hours
- No moving parts
- Full built-in test capability
- Self-aligning at startup
- Automatic transition from align to operate mode
- Full accuracy operation within 15 minutes at dockside or 30 minutes at sea
- Extremely high dynamic stability
- Digital and ethernet interfaces
- Small size and weight

- 24 - 28 volt DC operation
- Vessel speeds of 90 knots
- MTTR of 30 minutes or less
- Completely enclosed assembly - no fans or heaters required
- Very high immunity to magnetic fields
- At sea replaceable IMU

Expansion Paths

- Slaved operation with other systems including fast align for inertial positioning system
- Distributed navigation processing, multiple inertial solutions
- Separate inertial sensor assembly, may be upgraded to provide improved inertial performance

Applications

- Critical system stabilization
  - Weapons
  - Radar and Fire Control
  - Automated aircraft landing system
- Ship’s Inertial Navigation System
- Rapid alignment system for Inertial Navigation
- Heading and Attitude Information for high speed Surface Effect and Hovercraft applications

Specifications

**Dynamic Stability**

- Roll, Pitch: 0.001 deg/sec
- Heading: 0.003 deg/sec

**Settling Times**

- 15 minutes dockside (full accuracy)
- 30 minutes at sea (full accuracy)

**Environmental Conditions:**

**Temperature**

- Operating: 0º to 55º C (32º to 131º F)
- Storage: -40º to 70º C (-40º to 158º F)

- Humidity: 95% Relative

**Shock**

- Operates through 20g, 11 msec

**Vibration**

MIL-STD-167-1 for type 1 equipment

**EMI/RFI**

MIL-STD-461-F

**Magnetic Immunity**

5 Gauss Operation
30 Gauss Storage

**System Outputs:**

**Digital**

- Roll, Pitch, Heading, attitude rates (roll, pitch, heading), system status via RS232/422 serial data interface, as high as 200Hz output

**Ethernet**

- Two (2) copper 10/100 Base TX Ethernet ports

**Performance:**

**Accuracy**

- Heading: 3 Arcmin Sec(Lat) RMS
- 7 Arcmin Sec(Lat) Peak
- Roll, Pitch: 1 Arcmin RMS
- 3 Arcmin Peak
- Velocity: 0.4 kts RMS
- Position: GPS accuracy, or 1nm in 8 hours TRMS

**Dynamic Motion**

- Full Accuracy: Up to 40º/sec in all axes
- Reduced Accuracy: Up to 100º/sec in all axes
- Speed: -10 to 90 Knots

**For more information, please contact:**

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