



MARINS SERIES

VERY HIGH PERFORMANCE INERTIAL NAVIGATION SYSTEM

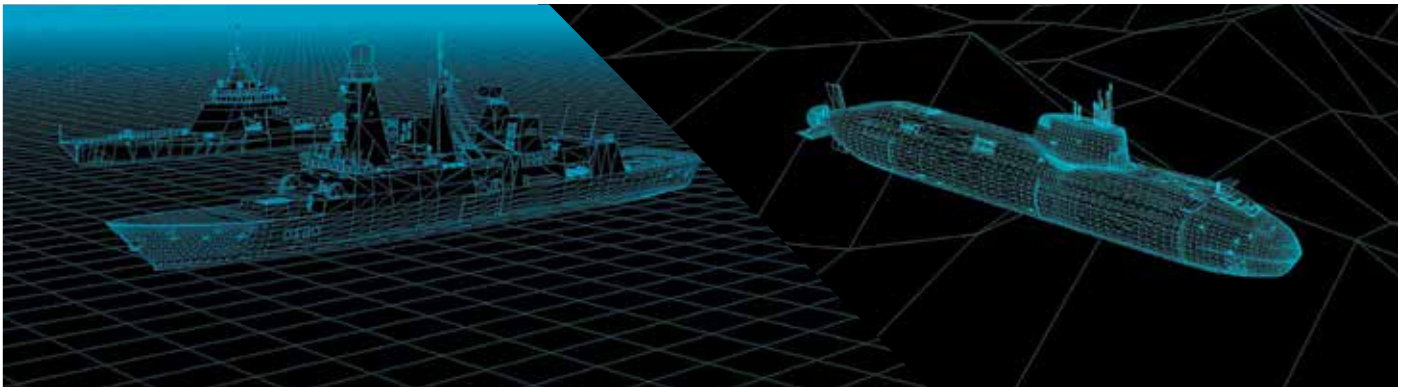


MARINS M-SERIES

VERY HIGH-PERFORMANCE INERTIAL NAVIGATION SYSTEM

MARINS M-Series is a family of state-of-the-art naval inertial navigation systems, designed to meet the demands of the navy for the highest performance INS. **MARINS M-Series** enables stealth autonomous navigation for submarines, providing very accurate heading, roll, pitch, speed and position. These products also uniquely address the need for advanced naval surface vessels, operating under severe GNSS-denied environment.

MARINS M-Series includes three performance grades and is based on the **iXBlue** FOG technology, proven for superior reliability and performance. **iXBlue** navigation systems are chosen by world leading navies.



FEATURES

- High-accuracy sensors
- Fiber-Optic Gyroscope (FOG)
- Unique strap-down technology
- High baud rate and low latency
- Web-based built-in interface
- Milspec approved standard / IMO
- Free of ITAR component versions available

BENEFITS

- Autonomous navigation without GNSS
- Lowest cost of ownership and highest availability
- Stealth: no radiated noise during operation
- Superior missile alignment and easy interface with any CMS
- Easy to set up and to operate
- A range of INS performance grades for all vessels and applications with common training, interfaces and support

APPLICATIONS • Submarines • Aircraft carriers • Frigates • Corvettes • OPV • Navy special vessels

MARINS M-SERIES

TECHNICAL SPECIFICATIONS

PERFORMANCE



	MARINS M3	MARINS M5	MARINS M7
Position accuracy ⁽¹⁾ Log aided	1 Nm / 12h	1 Nm / 24h	1 Nm / 72h
Velocity (RMS) no aiding	0.6 knot	0.6 knot	0.4 knot
Heading accuracy (RMS) ⁽²⁾ Log aided	0.01 deg seclat	0.01 deg seclat	0.01 deg seclat
Roll / pitch accuracy (RMS) no aiding	0.01 deg	0.01 deg	0.01 deg
Settling time (sea or harbor)	5 min for data availability / 15 min for full attitude		

INTEGRATED LOGISTIC SERVICES

Calibration	auto-calibration at start-up
MTBF (operational)	100,000 hours
MTRR (swap-out)	25 min
Support	24/7

(1) CEP: 50 % Circular Error Probability

(2) Secant latitude = 1 / cosine latitude

MARINS M-SERIES

TECHNICAL SPECIFICATIONS

ENVIRONMENTAL CHARACTERISTICS

Operating / storage temperature	0°C to 55 °C / -40 °C to 80 °C
Heading / roll / pitch	0 to +360 deg / ±180 deg / ±90 deg
Environment qualification	MIL STD 810 E / 461 D
Ingress protection	IP66



IMO Certified

PHYSICAL CHARACTERISTICS

	Marins only	Marins with interface plate ^[3]
Weight	27 Kg	66 Kg
Dimensions (L x W x H)	433 x 324 x 329 mm	580 x 530 x 431 mm

ELECTRICAL INTERFACES

Serial	RS422 or RS232
Ethernet	100 MBit - UDP/ TCP server / TCP client / web server (GUI)
Analog	Synchro available with NETANS ICCB cabinet ^[3]
Pulse	PPS, Trigger
Input / output	Configurable 7 input / 5 output + Pulse 4 input / 2 output - Configuration port
Sensors supported	GNSS, E-Loran, DEPTH, CTD/ SVP, Speed sensors, Acoustics sensors
Input / output format	Industry standards: NMEA0183, ASCII, BINARY
Baud rate	600 baud to 460 kbaud
Data output rate	0.1 Hz to 200 Hz
Power supply	24 VDC
Power consumption	< 20 W

^[3] Optional

Specifications subject to change without notice



FIBER-OPTIC GYROSCOPE TECHNOLOGY

ULTIMATE PERFORMANCE AND RELIABLE

At the heart of iXBlue inertial navigation systems **is the fiber-optic gyroscope (FOG)**: an extremely high performance rotation sensing device based on the Sagnac effect, a relativistic effect discovered at the beginning of the 20th century.

A fiber-optic gyroscope uses optical waves propagating in a fiber-optic coil to accurately measure a rotation rate. This apparently simple design takes full advantage of the reciprocity principle in the propagation of light which enables a perfect device to be created from imperfect components.

Since a fiber-gyro is a completely passive device with no mechanical dithering, no sealed cavity and no high voltage discharge, it offers **unrivaled lifetime and reliability** as well as **very low power consumption**.

iXBlue FOG reliability and performance is proven in the **space application**, an environment where maintenance is simply impossible.

iXBlue fiber-gyros are the result of more than 30 years of research and development, and they address the most demanding applications and performance **from 0.1 deg/h to 0.001 deg/h**.

Thanks to iXBlue full **in-house mastery of all FOG key components** (optical fiber, coil winding, modulator and source) along with advanced modeling of potential environmental sensitivity, iXBlue fiber-gyros are **insensitive to temperature changes and magnetic perturbations** and also **resistant to extreme shocks and vibration**.

iXBlue **MARINS M7** sets a new standard in very high performance strategic grade navigation (1 Nm/72 h).

iXBlue has delivered **more than 10,000 high performance gyros**.

iXBlue FOG solutions have been selected by more than **30 navies**, for full range of vessels from attack craft to aircraft carrier, to nuclear submarines.



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