

Marins Series

Military & strategic grades

Inertial Navigation Systems (INS)

Marins Series enables stealth autonomous navigation for submarines and surface vessels. It provides very accurate heading, roll, pitch, speed and position, included in GNSS-denied environments.

Marins Series is based on the iXblue FOG technology and offers five grades of performance. This technology is proven for superior reliability and performance.

iXblue high-performance navigation systems are chosen by world leading Navies.



FEATURES

- Genuine strapdown solid-state silent system
- High baud rate / low latency
- Fully configurable
- Web-based built-in interface
- IMO/IMO HSC certified
- MIL STD qualified: 810/461
- Free of ITAR component

FOG BENEFITS

- Silent True Solid-State Technology
- Maintenance Free
- Unrivalled reliability (Sensor core MTBF 500,000 hours)
- No lifetime limitation
- Very low power consumption
- Resistant to extreme shock and vibration

BENEFITS

- Autonomous navigation without GNSS
- Low cost of ownership
- Stealth: no radiated noise during operation
- Flexible and evolutive interface
- Easy to set up and to operate
- Full range of INS performances

FIBER-OPTIC GYROSCOPE TECHNOLOGY

Ultimate Performance and Reliability

Gyroscopes are the key sensor of the performance of an INS. The FOG is an extremely high performance rotation sensing device based on the Sagnac Effect.

A FOG 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.

FOG is the new leading technology for the Naval industry.

TECHNICAL SPECIFICATIONS

Performance

	M3	M5	M7	M8	M9	M11
Position accuracy ⁽¹⁾ No aiding	1 nm / 12h	1 nm / 24h	1 nm / 72h	1 nm / 96h	1 nm / 120h	1 nm / 360h
Velocity (RMS)	0.6 knot	0.6 knot	0.4 knot	0.4 knot	0.4 knot	0.4 knot
Heading accuracy (RMS) ⁽²⁾	0.01 deg seclat	0.01 deg seclat	0.01 deg seclat	0.01 deg seclat	0.01 deg seclat	0.01 deg seclat
Roll/ pitch accuracy (RMS) ⁽²⁾	0.01 deg	0.01 deg	0.01 deg	0.01 deg	0.01 deg	0.01 deg
Settling time	5 min for data availability / 15 min for full attitude					

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 ⁽⁵⁾ / 461 G ⁽⁵⁾ / 167 / 901E ⁽⁴⁾
Ingress protection	IP66

Physical characteristics

	M3/M5	M7/M8/M9	M11
Weight	28 kg	40 kg	62kg
Dimensions (Lx W x H) in mm	433 x 324 x 329	500 x 400 x 344	590 x 500 x 403

Support

Calibration	auto-calibration at start-up
MTBF (operational)	150,000 hours
MTTR (swap out)	25 min
Support	24/7

Interfaces

Serial	RS422 or RS232
Ethernet	100 MBit - UDP / TCP server / TCP client / web server (GUI)
Time synchronization	ZDA, PPS Trigger, NTP ⁽⁵⁾
Pulse	PPS Trigger
Input/ output	Configurable 7 input/ 5 output+ Pulse 4 input / 2 output - Configuration port
Sensors supported	GNSS, Depth sensors, Speed sensors
Input/ output format	Industry standards: NMEA0183, ASCII, BINARY, configurable output messages
Baud rate	600 baud to 460 kbaud
Data output rate	0.1 Hz to 200 Hz
Power supply	24 VDC
Power consumption	< 25 W