



PHINS

HIGH-PERFORMANCE INERTIAL NAVIGATION SYSTEM

PHINS, Photonic Inertial Navigation System outputs position, heading, attitude, depth, speed, and heave. Its high accuracy inertial measurement unit is based on **iXBlue**'s FOG technology coupled with an embedded digital signal processor that runs an advanced Kalman filter.

FEATURES

- All-in-one high-accuracy 3D positioning with heading, roll and pitch
- Fiber Optic Gyroscope (FOG), unique strap-down technology
- Multiple interfaces (DVL, EM log, GPS and depth sensor)
- Compact, lean and reliable
- Ethernet, web-based Man-Machine Interface (MMI)

BENEFITS

- Complete navigation unit
- No spinning element hence maintenance free
- Versatile
- Appropriate for all underwater vehicles

APPLICATIONS

- Surface navigation for frigates, MCMV and fast patrol boats
- AUV • ROV • HOV • SDV



Courtesy of Boskalis



Courtesy of Subsea 7



Courtesy of Net Marine



PHINS

TECHNICAL SPECIFICATIONS



IMO Certified
N° 19110
N° 19183

PERFORMANCE

Position accuracy ⁽¹⁾	
With GPS	Three times better than GPS accuracy
With USBL/LBL (subsea applications)	Three times better than USBL/LBL accuracy
With DVL	0.1% of travelled distance
No aiding for 2 minutes	3 m
No aiding for 5 minutes	20 m
Pure inertial mode	0.6 nm/hr
Heading accuracy ⁽²⁾⁽³⁾	
With GPS	0.01 deg secant latitude
With USBL/LBL/ DVL (Subsea Applications)	0.02 deg secant latitude
Roll and pitch dynamic accuracy ⁽²⁾	0.01 deg
Heave accuracy	5 cm or 5% (whichever is greater)

OPERATING RANGE / ENVIRONMENT

Operating / Storage temperature	-20 to 55 °C / -40 to 80 °C
Rotation rate dynamic range	Up to 750 deg/s
Acceleration dynamic range	± 15 g
Heading / Roll / Pitch	0 to +360 deg / ±180 deg / ±90 deg
MTBF (computed/observed)	40,000 hours / 80,000 hours
No warm-up effects	
Shock and vibration proof	

PHYSICAL CHARACTERISTICS

Dimensions (L x W x H)	180 x 180 x 162 mm
Weight in air	4.5 kg
Water proof	IP66
Material	Aluminium

INTERFACES

Serial RS232/RS422 port	5 inputs / 5 outputs / 1 configuration port
Ethernet port ⁽⁴⁾	UDP / TCP Client / TCP server
Pulse port ⁽⁵⁾	4 inputs and 2 outputs
Sensors supported	GPS, USBL, RAMSES, LBL, DVL, DEPTH, CTD/SVP
Input/Output formats	Industry standards: NMEA0183, ASCII, BINARY
Baud rates	600 bauds to 115.2 kbaud
Data output rate	0.1 Hz to 200 Hz
Power supply	24 VDC
Power consumption	< 20 W

(1) CEP: 50 % Circular Error Probability. DVL aiding position accuracy is dependent on DVL performances.

(2) RMS values

(3) Secant latitude = 1 / cosine latitude

(4) All input /output serial ports are available and can be duplicated on Ethernet ports

(5) Use GPS PPS pulse for accurate time synchronization of PHINS

Specifications subject to change without notice