



## PHINS

### FOG-BASED HIGH-PERFORMANCE INERTIAL NAVIGATION SYSTEM

**PHINS** is an inertial navigation system providing position, true heading, attitude, speed, depth and heave. Its high-accuracy inertial measurement unit is based on **ixBlue**'s fiber-optic gyroscope 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
- FOG, unique strap-down technology
- Multiple aiding available:  
(DVL, EM log, GPS, USBL, LBL and depth sensor)
- Compact, light and reliable
- Ethernet, web server (GUI)

#### BENEFITS

- High grade INS performance
- High reliability and maintenance free
- Ease of use and quick installation
- Perfectly silent
- Small power consumption
- Low latency
- Small power consumption

**APPLICATIONS** • Highly demanding civil or defense surface vessels or autonomous underwater vehicles



Courtesy of ECA



Courtesy of Subsea 7



Courtesy of Net Marine



# PHINS

## TECHNICAL SPECIFICATIONS



IMO Certified  
N° 19110  
N° 19183

### PERFORMANCE

#### Position accuracy

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 traveled distance (CEP 50)

No aiding for 2 min / 5 min

3 m / 20 m (CEP 50)

Pure inertial mode

0.6 nm / hour (CEP 50)

#### Heading accuracy

With GPS

0.01 deg secant latitude RMS <sup>(1)</sup>

With USBL / LBL / DVL (subsea applications)

0.02 deg secant latitude RMS <sup>(1)</sup>

Roll and pitch dynamic accuracy (no aiding)

0.01 deg RMS

Heave accuracy (Smart Heave) <sup>(2)</sup>

2.5 cm or 2.5% RMS

### OPERATING RANGE / ENVIRONMENT

Operating / storage temperature

-20°C to 55 °C / -40°C 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 (observed)

80 000 hours

### PHYSICAL CHARACTERISTICS

Dimensions (L x W x H)

180 x 180 x 162 mm

Weight in air

4.5 kg

Waterproof

IP66

### INTERFACES

Serial

RS422 or RS232

Ethernet

100 MBit - UDP / TCP server / TCP client / web server (GUI)

Pulse

PPS, Trigger

Inputs / outputs

Configurable 7i / 5o - Pulse<sup>(3)</sup> 4i / 2o - Configuration port

Baud rates

Up to 460 kbaud

Data output rate

0.1 Hz to 200 Hz

Power supply / consumption

24 VDC (20 - 32 V) / < 20 W

(1) Secant latitude = 1/cosine latitude

(2) Whichever is greater for periods up to 30 seconds. Smart heave is delayed by 100 s fixed value

Real-time heave accuracy is 5 cm or 5% whichever is greater

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