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)

APPLICATIONS

Highly demanding civil or defense surface vessels or autonomous underwater vehicles

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

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iXblue

TECHNICAL SPECIFICATIONS

Performance

Position accuracy	
With GPS	Three times better than GPS
With USBL / LBL (subsea applications)	Three times better than USBL / LBL
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 / USBL / LBL	0.01 deg secant latitude RMS [1]
With DVL	0.02 deg secant latitude RMS [1]
Roll and pitch dynamic accuracy (no aiding)	0.01 deg RMS
Heave accuracy (Smart Heave) [2]	2.5 cm or 2.5% RMS

Operating range/environement

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)	100 000 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 [3] 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 for period up to 25s.
(3) Use GPS PPS pulse for accurate time synchronization of Phins

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