Phins Subsea

FOG-based high-performance
subsea inertial navigation system for deep water Phins Subsea is a subsea inertial navigation system providing position, true heading, attitude, speed, depth and heave. Its high-accuracy inertial measurement unit is coupled with an embedded digital signal processor that runs an advanced Kalman filter. Phins Subsea can be pre-assembled and pre-calibrated with a doppler velocity log sensor, making the system easy to install and ready to use for more precise navigation.

Key Features

All-in-one 3D positioning with heading, roll and pitch
Fiber-Optic Gyroscope (FOG), unique strap-down technology
Multiple aiding options (DVL, USBL, LBL, RAMSES, GPS, depth sensor
DVL Ready option available
RAMSES option available (tight coupled acoustic aiding)

Benefits

Accurate and georeferenced position + attitude at high frequency
No spinning element hence maintenance free
Flexible & scalable configuration for all deployment scenarios
Immediate availability and performance for all vehicles
Corrosion-free housing for water depth up to 6,000 m
Ultimate sub-metric performance using sparse array transponders and on-the-fly calibration

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Specifications-performance	
Position accuracy (1)	
With USBL/LBL	Three times better than USBL/LBL accuracy
With DVL	0.1% of travelled distance
No aiding for 1 min/2 min	0.8 m/ 3.2 m
Heading accuracy (2)(3)	
With GPS	0.01 deg secant latitude
With DVL/USBL/LBL	0.02 deg secant latitude
Roll and Pitch 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)	40,000/80,000 hours
No warm-up effects	
Shock and Vibration proof	

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Physical Characteristics

Depth rating (m)	6000
Materials	Titanium
Weight in air/water (kg)	23 / 13 / 48,5/28,5 (WHN300K6, WHN600K6) 43,7/27 (WHN1200K6)
Dimensions (ø x h mm)	255 x 288 / 298 x 543 (WHN300/600) 298 x 542 (WHN1200)
Connectro	3 x 12 pin / 1 x 19 pin / 1 x 26 pin / SEACON MINI-CON
Mounting	6 Ø 6.5 holes / 6 Ø 11 holes

Interface

RS 232/ RS 422	5 inputs/5inputs/1configuration port
Pulse port (4)	2 inputs
Sensors supported	GPS, USBL, RAMSES, LBL, DVL, DEPTH, CTD/SVP
Intput/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 V DC
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) Input GPS PPS pulse for accurate time synchronisation of PHINS6000
Specifications subject to change without notice

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