Phins 6000

PHINS 6000 is a subsea inertial navigation system providing position, true heading, attitude, speed and heave. It's high-accuracy inertial measurement unit is coupled with an embedded digital signal processor that runs an advanced Kalman filter. PHINS DVL Ready is a pre-assembled and pre-calibrated with a Doppler Velocity Log version making the system easy to install and ready to use for more precise navigation.

Specifications

Product	Phins 6000
Country of origin	France
Manufacturer	Exail Technologies SA

Features

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

Benefits

- Accurate and georeferenced position + attitude at high frequency
- No spinning element hence maintenance free
- Immediate availability and performance for all vehicles
- Ultimate sub-metric performance using sparse array transponders and on-the-fly calibration

Position accuracy

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

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)	0 to +360 deg / ±180 deg / ±90 deg
No warm-up effects, insensitive to thermal shocks	
Shock and vibration proof	

Heading accuracy

With GPS	0.01 deg secant latitude
With DVL/USBL/LBL	0.02 deg secant latitude
Roll and Pitch accuracy	0.01 deg
Heave accuracy	5cm or 5% (Whichever is greater)

Physical characteristics

Depth rating (m)	Material	Weight in air/water kg	Housing dimensions (Ø x H mm)	Connector	Mounting
6000	Titanium	24/14.1	255 x 227	1 x 21 pin 4 x 13 pin BURTON	6 Ø 6.6 holes
6000 «DVL Ready»	Titanium	55/48.5(WHN300K6,WHN600K6) 52.9/47 (WHN1200K6)	255 x 595	1 x 21 pin 4 x 13 pin BURTON	6 Ø 11 holes

Interfaces

RS 232/ RS 422	6 inputs / 6 outputs / 1 configuration port
Pulse port	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 100 Hz
Power supply	24 V DC
Power consumption	12 W

Notes

- (1) CEP: 50% Circular Error Probability. DVL aiding position accuracy depends on DVL performance
- (2) RMS values
- (3) Secant latitude = 1 / cosine(latitude)
- (4) Input GPS PPS pulse for accurate time synchronization of PHINS6000