PHINS 6000 is a subsea inertial navigation system providing position, true heading, attitude, speed and heave. Its 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.

**APPLICATIONS**
- ROV and AUV navigation
- Towfish navigation
- Metrology
- Precise positioning
- Out of straightness survey

**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
- Ultimate sub-metric performance using sparse array transponders and on-the-fly calibration

**Courtesy of**
- Ifremer
- Oceaneering
- Subsea 7
PHINS 6000
TECHNICAL SPECIFICATIONS

PERFORMANCE

Position accuracy (1)
With USBL/LBL
With DVL
No aiding for 1 min/2 min
Three times better than USBL/LBL accuracy
0.1% of travelled distance
0.8 m/ 3.2 m

Heading accuracy (2)(3)
With GPS
With DVL/USBL/LBL
Roll and Pitch accuracy (2)
Heave accuracy
0.01 deg secant latitude
0.02 deg secant latitude
0.01 deg
5cm 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

PHYSICAL CHARACTERISTICS

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

INTERFACES

RS 232/ RS 422
6 inputs / 6 outputs / 1 configuration port
Pulse port (4)
2 inputs
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
0.1 Hz to 100 Hz
Data output rate
24 V DC
Power supply
12 W

Specifications subject to change without notice

IXSEA: • EMEA : +33 1 30 08 98 88 • AMERICAS : +1 281 681 9301 • APAC : +65 6747 4912 • www.ixsea.com

(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 synchronization of PHINS6000