

# **PHINS** 6000 INERTIAL NAVIGATION SYSTEM

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

#### **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



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

## **PHINS** 6000

## TECHNICAL SPECIFICATIONS

### **PERFORMANCE**

Position accuracy (1)

With USBL/LBL Three times better than USBL/LBL accuracy

With DVL 0.1% of travelled distance

 $0.8 \, \text{m} / 3.2 \, \text{m}$ No aiding for 1 min/2 min

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

5cm or 5% (Whichever is greater) Heave accuracy

### **OPERATING RANGE / ENVIRONMENT**

Operating / Storage Temperature Rotation rate dynamic range Acceleration dynamic range Heading / Roll / Pitch MTBF (computed/observed)

No warm-up effects

Shock and Vibration proof

-20 to 55 °C / -40 to 80 °C

Up to 750 deg/s ± 15 q

0 to  $+360 \deg / \pm 180 \deg / \pm 90 \deg$ 

40,000/80,000 hours

### 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 [4]

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

[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

Specifications subject to change without notice