# Hydrins

Navigation-grade INS for hydrographic survey

Hydrins is a high-performance Inertial Navigation System (INS) based on iXblue Fiber-Optic Gyroscope (FOG) technology, electronics, and embedded processing. Compact and lightweight, it delivers highly accurate real-time position, heading, attitude and speed data, for direct georeferencing.

FEATURES & BENEFITS

- High-accuracy 3D positioning with heading, roll and pitch.
- Compact, lightweight, and reliable
- Benefiting from FOG (Fiber-Optic Gyroscope) unique strap-down technology
- Compatible with all GNSS receivers
- Simplified Integration with a single GNSS antenna setup
- Automatic GNSS drop-out / multipath management
- Realtime heave and delayed Smart Heave™
- Permanent quality data thanks to iXblue APPS post-processing software

- Ethernet, web server (GUI)
- Fast Alignment (no aiding sensor)
- IMU option for high accuracy platform stabilization
- Low latency for real time control loops
- Static and dynamic alignment modes, with and without GNSS
- 4Gb embedded data logger
- Versatile I/O options for an easy integration
- Maintenance-free
- ITAR-free
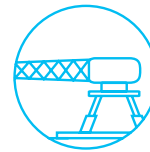- 24/7 Worldwide Technical assistance

APPLICATIONS
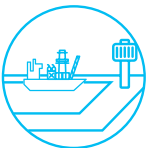
Port and harbour maintenance

Seafloor characterization

Bathymetric survey

Platform stabilization

Offshore construction engineering

iXblue

TECHNICAL SPECIFICATIONS

Performance

Heading[1] (°)	0.01					
Roll & Pitch[2] (°)	0.01					
Heave / Smart Heave[3]	5 cm or 5% / 2 cm or 2%					
Bias stability (°/h)	0.0065					
ARW (°/√h)	0.003					
Correction type with GNSS[4]	**SPS Natural**	**SBAS**	**DGNSS**	**PPP[5]**	**RTK[6]**	**PPK[7]**
Horizontal accuracy (X,Y) (m)	1.20	0.60	0.30	0.06	0.006 +0.5 ppm	0.006 +0.5 ppm
Vertical accuracy (Z) (m)	1.90	0.80	0.50	0.09	0.01 +1 ppm	0.01 +1 ppm
GNSS outage[4] of 60 seconds					**RTK[6]**	**PPK[7]**
Horizontal accuracy (X,Y) (m)					0.30	0.20
Vertical accuracy (X,Y) (m)					0.30	0.20

Operating Range / Environment

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
MTBF	150,000 hours (System observed) 500,000 hours (FOG + Accelerometers)
Heading / roll / pitch	0 to +360 deg / ±180 deg / ±90 deg
Special conditions	No warm-up effects, shock and vibration proof
Shocks	27g / 15ms damper shocks

Physical characteristics

Dimensions (L x W x H)	180 x 180 x 162 mm
Weight in air	5.4 kg
Material	Aluminum

Interfaces

Serial	RS422 or RS232
Ethernet	100 Mbit - UDP / TCP server / TCP client / web server (GUI) / NTP synchro
Pulses	PPS input for < 100µs time synchronization
Inputs / outputs	Configurable 7i / 5o - Pulses 4i / 2o - Configuration port
Baud rates	Up to 460 kbaud
Data output rate	0.1 Hz to 200 Hz real measurements
Power supply / consumption	24 VDC (20-32 V) / 20 W typ. @24V/23°C (unloaded)

(1) Secant latitude = 1/cosine(latitude)
(2) Typical RMS performance.
(3) Whichever is greater for wave 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.
(4) Actual results depending on the quality of the GNSS system used, satellite configuration, atmospheric conditions and other environmental effects.
(5) Precise Point Positioning (requires service subscription).
(6) Real-Time Kinematic, up to 40km from base station.
(7) Post Processing Kinematic using Advanced Post-Processing Software (smart coupling of INS and GNSS in forward / backward).
All specifications subject to change without notice

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