Hydrins

Navigation-grade INS for hydrographic survey

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

FEATURES & BENEFITS

- IMO certified navigation gyro
- 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 Exail Delph INS post-processing software
- Ethernet, web server (GUI)
- Low latency for real time control loops
- 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

2023-02 | V001

contact@exail.com | www.exail.com
EMEA +33 1 30 08 88 88 | Americas +1 888 600 7573 | APAC +65 6747 4912

TECHNICAL SPECIFICATIONS

Performance

Heading[1] (°)	0.01					
Roll & Pitch[2] (°)	0.01					
Heave/Smart Heave[3]	5 cm or 5% / 2 cm or 2%					
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	0.05
Vertical accuracy (X,Y) (m)					0.30	0.05

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	5.5 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 Delph INS post-processing software (smart coupling of INS and GNSS in forward/backward).
All specifications subject to change without notice

contact@exail.com | www.exail.com
EMEA +33 1 30 08 88 88 | Americas +1 888 600 7573 | APAC +65 6747 4912