



HUGIN[®] AUTONOMOUS UNDERWATER VEHICLE (AUV)

HISAS INTERFEROMETRIC SYNTHETIC APERTURE SONAR

EM 2040 HIGH PERFORMANCE MULTIBEAM ECHO SOUNDER | IHO COMPLIANT

NOTICE: Particulars are believed to be correct and subject to revision without prior notice. Interested parties must inspect vessel to check on suitability of the Company's equipment. Company has exercised due diligence to ensure that the data contained herein is reasonably accurate. However, the Company does not warrant the accuracy or completeness of the data. In no event shall the Company be liable for any damages whatsoever arising out of the use or inability to use the data contained herein. All optional equipment for Charterers' usage shall be agreed by the Company. Updated as at 7 February 2023.



HUGIN® AUTONOMOUS UNDERWATER VEHICLES (AUV)

HUGIN® is the most successful commercial AUV available. It is the most capable AUV combining IHO quality positioning with the highest resolution sensors on the market. HUGIN® collects data from many different sensors concurrently, providing a complete data product from a single mission.

The HUGIN® system is designed for a variety of survey mission including:

- Seabed Mapping
- Pipeline Inspection
- Mine Reconnaissance

HUGIN® can operate autonomously or under supervision, meaning operators can monitor its progress and receive real-time samples of the sensor data for quality control purposes.

The complete HUGIN® system can be supplied in DnV certified shipping containers. Everything required for day-to-day operations is installed in the containers making HUGIN® a portable survey tool.

SENSORS

HUGIN® is delivered with a range of sensor options:

- Sidescan Sonar or Synthetic Aperture Sonar
- Multibeam Echo Sounder
- Sub-bottom Profiler
- Still Image Camera
- Turbidity Sensor
- Environmental & Geochemical Sensors



FEATURES

- World Class Navigation
- HISAS Interferometric Synthetic Aperture Sonar
- EM 2040 High Performance Multibeam Echo Sounder
- IHO Compliant
- Swappable Lithium Polymer Batteries
- Launch & Recovery System with 15 years of field experience
- Intergrated Pipeline Inspection with Automated Pipe Detection and Tracking
- Advanced Autonomy with In-Mission Data Processing
- Terrain Navigation & Underwater Transponder Positioning Capabilities
- Real-Time Payload Data Transmission to Operator
- Seamlessly Integrated Post-Mission Analysis Package
- Modular Design Enabling Simple Upgrades

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HUGIN[®]

TECHNICAL SPECIFICATIONS

WEIGHT & DIMENSIONS

Length	5.2 - 6.4 m
Outer Diameter	0.75 m
Weight	1000 - 1550 kg
Weight in Water	Neutrally Buoyant
IP Code	IP9064 / 5920

DEPTH RATING	3000 m 4500 m
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VEHICLES SPEED	2 - 6 knots
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ENDURANCE	24 - 74 hours with all sensors operating
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ENERGY

- Pressure Tolerant Lithium Polymer Battery
- 1 or 2 Exchangeable 24 kWh Power Packs
- Charge Time 5 - 8 hours
- Battery Blocks Transportable by air, sea, or land

NAVIGATION

- Kongsberg NavP aided Inertial Navigation System (AINS) with Honeywell HG9900 Inertial Measurement Unit (IMU)
- IHO Compliant
- Acoustic Positioning Using cNODE & HiPAP (option)
- Novatel GPS
- Forward Looking Sonar with Advanced Terrain Following & Collision Avoidance
- Broadband 300 kHz Doppler Velocity Log
- Paroscientific Digiquartz Depth Sensor
- Terrain Referenced Navigation (option)
- Underwater Transponder Positioning (UTP)

COMMUNICATIONS

- cNODE Acoustic Command & Data Link
- Wi-Fi
- Iridium
- UHF Radio Link

AVAILABLE PAYLOAD SENSORS

HISAS Interferometric Synthetic Aperture Sonar

EM 2040 Multibeam Echo Sounder	200 - 400 kHz
Beam Width	0.7° x 0.7°
Swath Coverage Sector	up to 140° (+/- 70o single RX) 160° (+/- 80o dual RX)

EdgeTech dual/triple Frequency Sidescan Sonar

EdgeTech single/dual frequency Sub-bottom Profiler	1 - 6 kHz, 2 - 16 kHz, 4 - 24 kHz
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SAIV Conductivity, Temperature, Depth (CTD) Sensor

Still Image Camera

Environmental & Geochemical Sensors

Turbidity Sensor

Further Options & Custom Integration Available

SOFTWARE

- HUGIN Operator System (HOS)
- Autonomous Pipe Tracking Using Sidescan Sonar & Multibeam Echo Sounder (option)
- NavLab Navigation Post-Processing (option)
- Reflection Post-Mission Analysis (option)

TOPSIDE EQUIPMENT

- Operator & Payload Computer
- Post-Mission Analysis Computer
- Vehicle Battery Charger
- Maintenance Trolley
- GPS / Heading Sensor (option)
- HiPAP Acoustic Positioning & Communication (option)

LAUNCH & RECOVERY SYSTEM

- Open Deck Based Stinger System
- Containerized Stinger System

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