AUV sonar solutions

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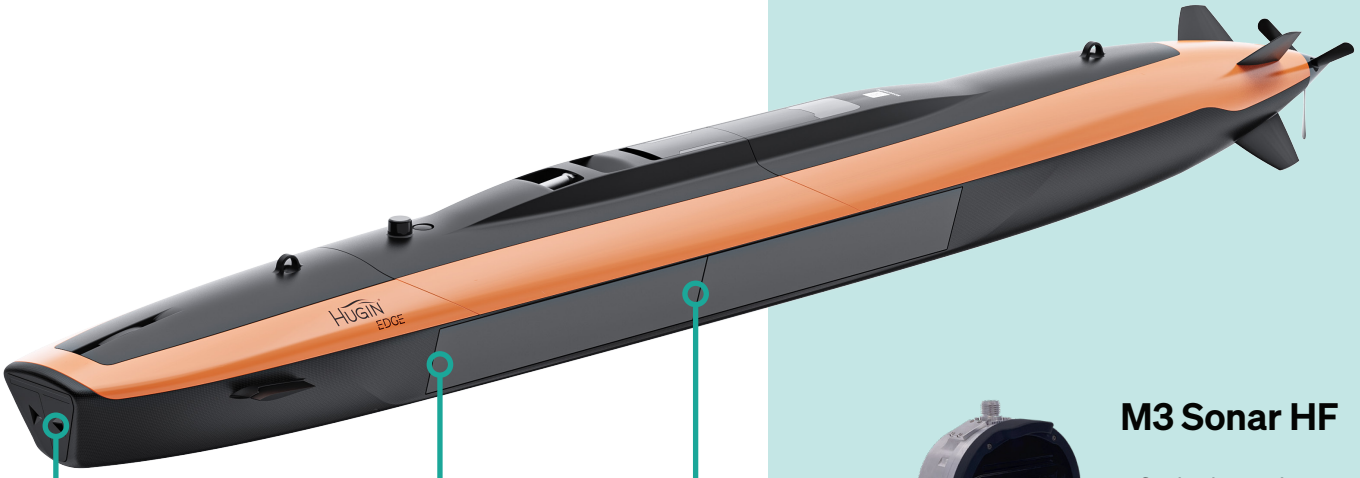
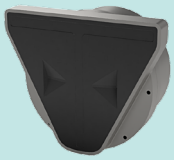


M3 Sonar HF

- Seabed mapping
- High-res bathymetry
- Watercolumn mapping

1107 Altimeter

- Height above seabed
- Maintain consistent altitude
- Collision avoidance



FL25

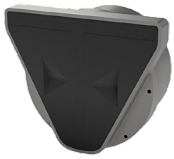
- Navigation assistance
- Altitude trajectory planning
- Maintain consistent altitude over dynamic terrain

The evolution of Autonomous Underwater Vehicle (AUV) technology has enabled data collection in environments too dangerous, remote, or economically challenging for traditional methods.

As AUV missions become increasingly sophisticated—from deep-sea surveys to offshore development—the demand for integrated, high-performance sonar systems has never been greater. Modern AUV operations require not just individual sensor excellence, but seamless integration of complementary technologies that work together to ensure mission success.

The integration of Kongsberg Discovery's 1107 Altimeter, M3 Sonar HF, and FL25 Forward Looking Sonar creates a comprehensive AUV sonar solution that addresses the full spectrum of autonomous underwater operations.

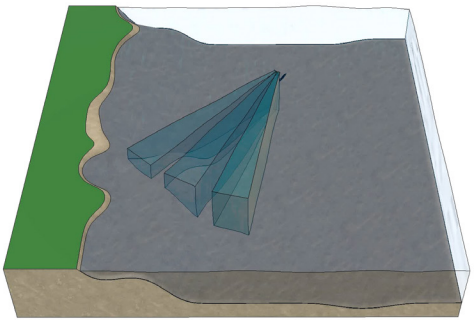
FL25 forward-looking sonar for advanced altitude planning and navigation capabilities

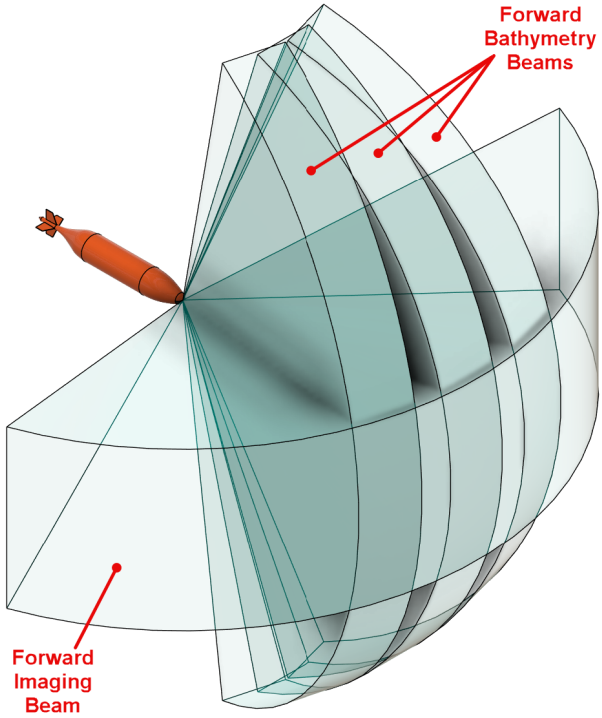


The FL25 Forward Looking Sonar transforms AUV operations from reactive to proactive navigation through its innovative “four sonars in one” configuration. It delivers comprehensive multi-directional situational awareness in an exceptionally-compact titanium form factor suitable for medium and large AUVs. The multibeam array uses advanced transducer technology with three forward-looking transducers for terrain assessment and a fourth providing 140° wide sector coverage, all designed to preserve AUV speed and maneuverability while eliminating navigation blind spots.

Operating at 250 kHz frequency, the FL25 delivers reliable ahead-looking detections extending beyond 200 meters with superior performance across diverse bottom types including sand, mud, and rock formations. The system’s yaw-tolerant forward-looking capability maintains accurate predictive navigation in the actual direction of travel, ensuring reliable obstacle detection regardless of heading variations caused by cross-currents or AUV “crabbing.”

Enhanced bottom detection capabilities provide AUVs with extended reaction time for smooth altitude trajectory planning, significantly enhancing mission safety and efficiency in challenging underwater environments. The multi-transducer configuration enables optimal route selection when encountering steep terrain or obstacles, providing multiple viewing angles for comprehensive environmental assessment.





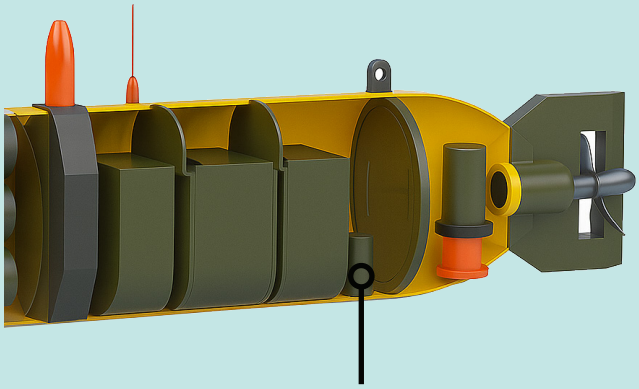
Primary applications include navigation assistance in complex terrain, collision avoidance for both bottom and surface obstacles, and under-ice operations with surface hazard detection capabilities. Extensive field validation has confirmed reliable detection of underwater pipelines, rocky formations, and surface vessels with wake patterns. API outputs provide direct interface capabilities with major AUV autonomous platforms such as the HUGIN for seamless operational integration.

The FL25 represents a significant advancement in autonomous underwater navigation, combining proven detection performance with compact design and low power consumption to enable edge computing in autonomous operations across applications where proactive obstacle avoidance and terrain assessment are mission-critical.

1107 Altimeter for precision height measurement and bottom detection

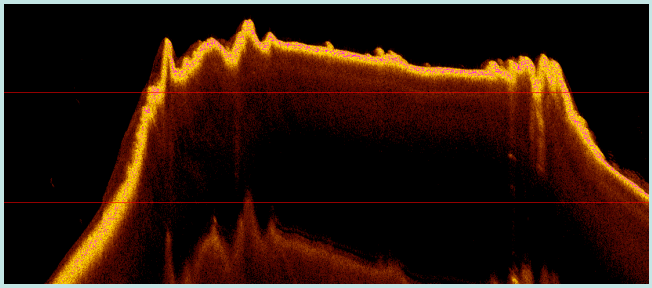
Kongsberg Discovery's 1107 series underwater altimeter serves as the navigation backbone for AUV operations, delivering exceptional precision in a lightweight, compact package. Rated for extreme pressure and corrosive underwater environments, the 1107 is a high-performance altimeter with a long range and reliable bottom detection.

The 1107 altimeter operates across selectable frequencies of 120 kHz, 200 kHz, and 675 kHz, with depth-rated variants capable of operations to 3,000 m, 4,000 m, 6,000 m, or 11,000 m depending on model selection.



1107 Altimeter

Configurable analog and digital outputs with integrated NMEA compatibility ensure seamless integration and plug-and-play compatibility with major AUV platforms. In addition, the 1107 altimeter's low power consumption extends mission duration and battery life.

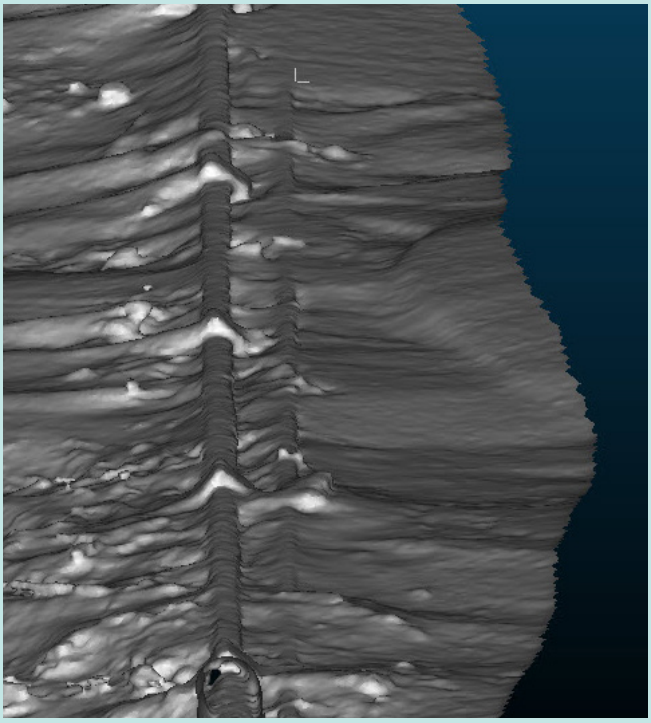


Real-time feedback provides instantaneous altitude data that allows for dynamic mission adjustment and collision avoidance, while the extended 300 m range capability offers early warning for terrain changes and obstacle detection.

M3 Sonar HF for bathymetric seafloor and watercolumn mapping

The M3 Sonar HF delivers precise bathymetric mapping in a compact Sonar Head. By combining advanced bathymetry capabilities into a single lightweight unit, it saves valuable AUV payload space while minimizing effects on buoyancy and stability. Its modular mounting system supports flexible integration across a range of AUV configurations and sensor setups.

Operating at 700 kHz to 1400 kHz, the system provides high-frequency flexibility for optimizing resolution and range under varying mission conditions. The sonar supports extended depth ratings of 4,000 m and 6,000 m, enabling use in demanding deep-water environments.



With a 140° field of view, the M3 Sonar HF maximizes survey coverage per mission hour. Precision beamforming at 0.8° × 1.6° (950 kHz) or 0.65° x 1.1° (1200 kHz) enables high resolution bathymetry, ensuring detailed seafloor mapping and reliable depth profiling.

The high-frequency transducer enhances target detection within bathymetric data, resolving small seafloor features and structures important for subsea critical infrastructure inspection and scientific surveys. Flexible operating modes allow for high-resolution wide-swath surveys and for ultra high-resolution targeted small-area identification surveys.

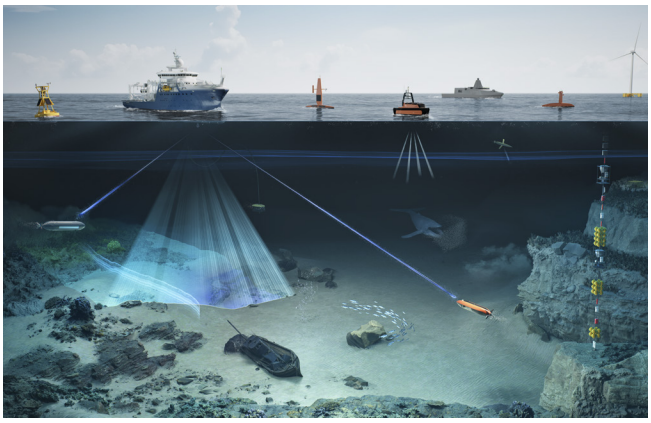
Kongsberg Discovery

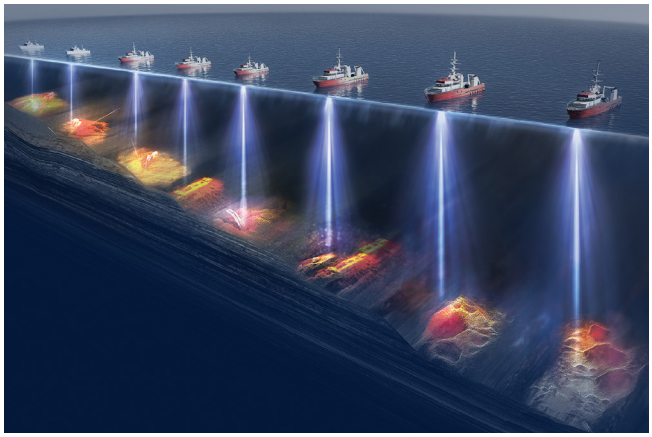
Protecting people and planet

From the deepest sea to outer space

Kongsberg Discovery serves the ocean space from the deepest sea to outer space. We develop technology to ensure sustainable management of marine resources, monitor climate change and critical infrastructure, and safeguard national security.

Our technology aims to sustainably manage marine resources, monitor climate change, secure infrastructure, protect national security, and address crucial global challenges. It is vital for offshore operations, fisheries, marine research, maritime activities, ocean energy production, infrastructure monitoring, and naval operations.





Committed to protecting our planet

We recognize the global sustainability challenges and are committed to developing solutions and products that resolve operational issues while addressing environmental impacts on the ocean ecosystem.

The business has over 1,100 employees located in Horten, Trondheim, and Oslo in Norway, as well as operations in Alicante in Spain, Aberdeen in the UK, Lynnwood (Seattle), Houston, and New Orleans in the USA, Vancouver and Halifax in Canada, Kuala Lumpur in Malaysia, and Singapore. Kongsberg Discovery is part of KONGSBERG, a leading technology group based in Norway.

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