



M3 MARSEC

SHALLOW-WATER MARITIME SECURITY SONAR SYSTEM

Applications

- Berth Clearance
- Hull Inspection
- Structure Inspection
- Unexploded Ordinance(UEXO)/IED Detection
- Body and Evidence Detection/Recovery
- Diver Direction and Supervision

High Performance at Low Cost

The M3 MARSEC Shallow-water Maritime Security Sonar System is a powerful, affordable, entry-level turn-key security/surveillance system. M3 MARSEC features an incredibly small multibeam sonar head and convenient top-side surface unit with no need for an additional processing unit, just a commercial laptop. Special rack mounts are not required. M3 MARSEC delivers excellent quality data at very low cost of ownership. It is designed for rapid installation, operation and removal using vessels of opportunity.

Fast, Easy Plug-and-Play Set-Up and Take-Down

The M3 MARSEC is a complete plug-and-play system that is supplied in rugged, re-usable equipment cases. The M3 MARSEC includes all required sensors for deployment. It can be set up by two people in under one hour using the Quick Start Guide. Experienced users can set up and deploy the system in 15 minutes.

Proven M3 Series MultiMode Multibeam Sonar

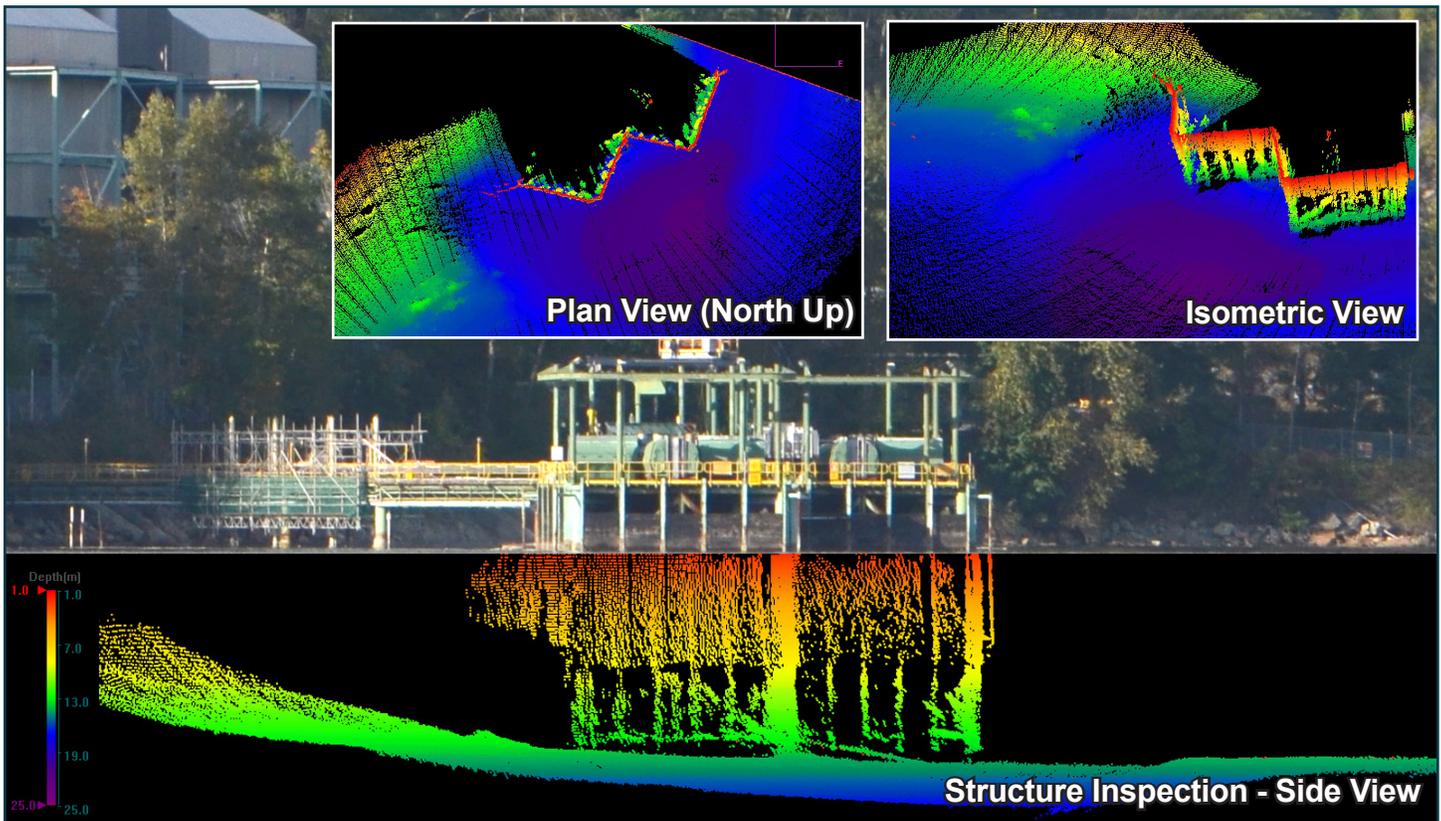
The core of the M3 MARSEC is Kongsberg Mesotech's proven M3 MultiMode Multibeam Sonar. The M3 Sonar is the only instrument in its price point that produces high-quality imaging records and 3-D profiling point cloud data using the same sonar head.

Bathymetric multibeam sonar needs a wide opening angle across track, and narrow beam along track angle. Forward-looking imaging sonar needs a wide beam across track and wide beam along track. This is why it's impossible for conventional bathymetric sonar to function well as forward-looking imaging sonar.

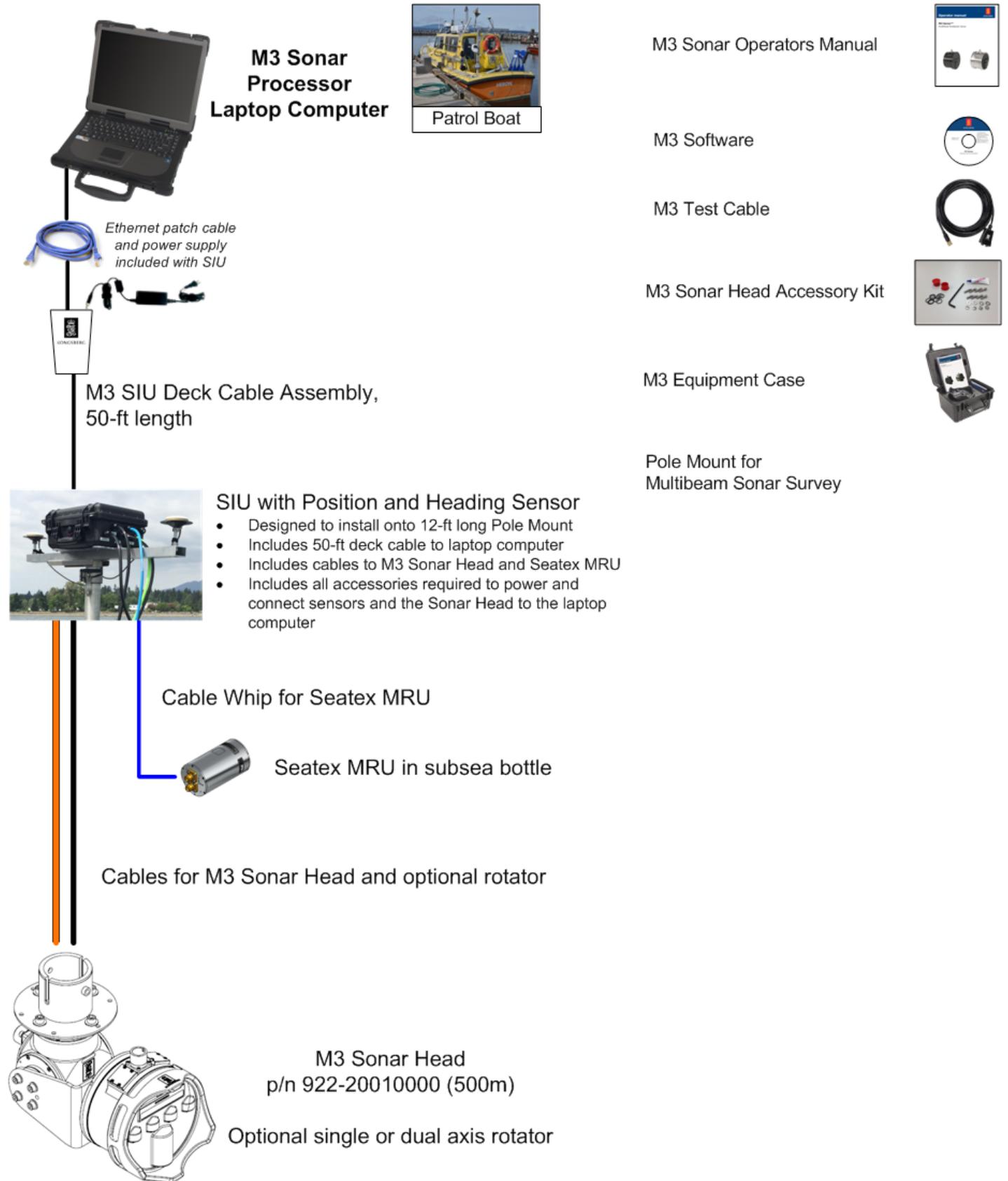
The M3's innovative design solves this technical challenge by using 2 sets of complementary transducers in the same head. The M3 generates both imaging and profiling data in the same head. Point it down for bathymetric measurement; point it forward with a slight downward tilt for seafloor imaging; point it forward for obstacle avoidance, point it sideways for structural inspection or vessel hull inspection.

Global Support – Kongsberg Reliability and Quality

Globally supported by Kongsberg's network of Service Centers, the M3 MARSEC Shallow-Water Maritime Security Sonar System the best choice for a rugged, reliable, easy-to-operate, affordable instrument for shallow-water security and surveillance needs.



SYSTEM CONFIGURATION



DESIGN

Rugged Pole-Mount Design Protects Cabling

Wet-end cabling passes through the pole mount, protecting the cables in operation. Cabling is protected from insulation chafing due to vibration at all critical points of contact. The straight cable connectors allow use of the minimum possible pole diameter thus minimizing pole weight, hydrodynamic drag and turbulent flow, and simplifying handling during assembly and take-down.

Convenient Integrated SIU Cable Management

The Surface Interface Unit (SIU) is designed for fast, convenient operator set-up. All cabling is pre-installed in the SIU with waterproof cable glands. The SIU is delivered in an equipment case sized for the SIU and all coiled cabling. This provides for secure shipping, organized cable management and rapid set-up and take-down during and after surveys.

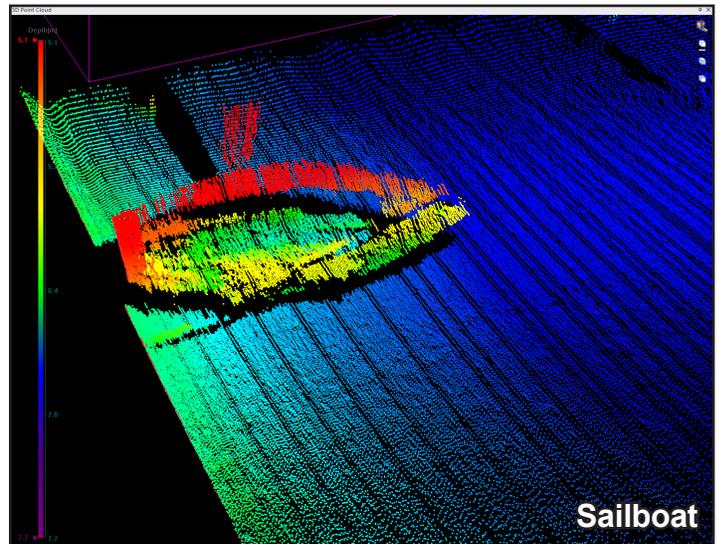


Surface interface unit (SIU)

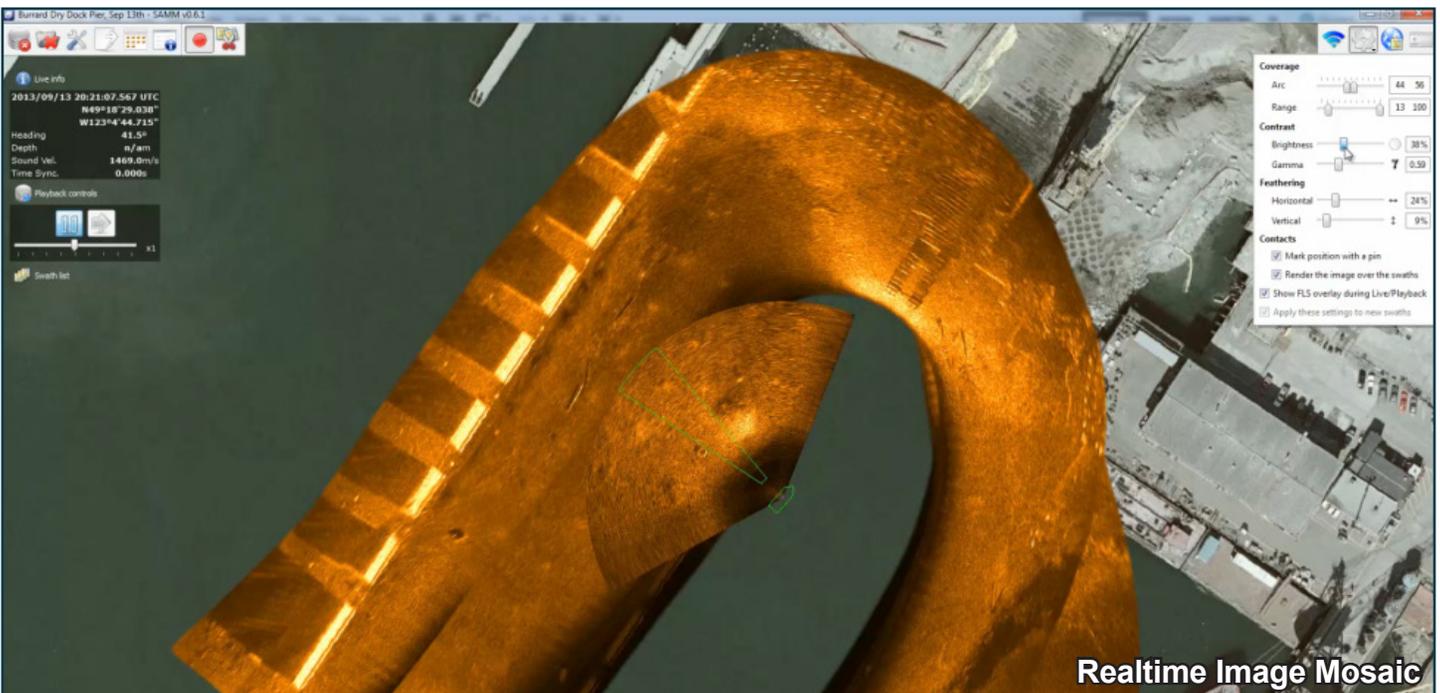
BERTH CLEARANCE

The M3 is deployed either forward-looking or side-looking in imaging mode. Profiling mode can also be used. Targets are marked in the baseline so that time is saved by eliminating benign targets and focusing on new targets. The M3 Sonar enables faster and safer clearance operations compared to traditional MCM methods. Berth clearance is conducted to provide a base-line and prior to visits by high-value assets.

Operations are faster and safer than manual diver searches, reducing risk and saving time and labor. The initial search can be completed prior to dive team mobilization with targets and potential hazards located before the first diver enters the water. Dive time and associated risk can be substantially reduced. Sweeps for Berth Clearance can be undertaken at a range of speeds up to 2.0 knots, depending on the mission requirements and conditions. Following preliminary identification and localization, these electronically marked targets are reacquired later for classification and neutralization by EOD divers or other means. All data is normally displayed in real time.



Sailboat



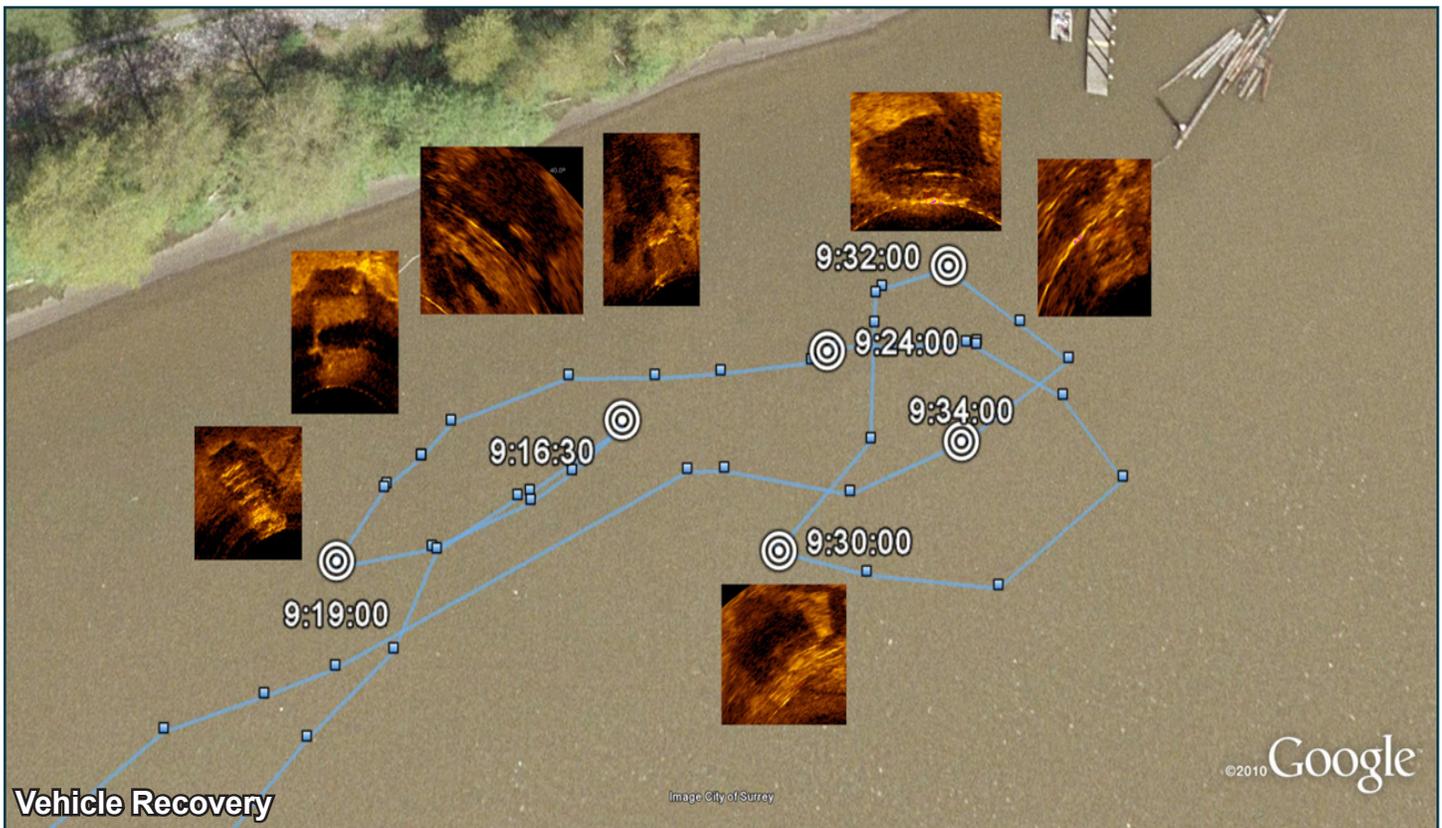
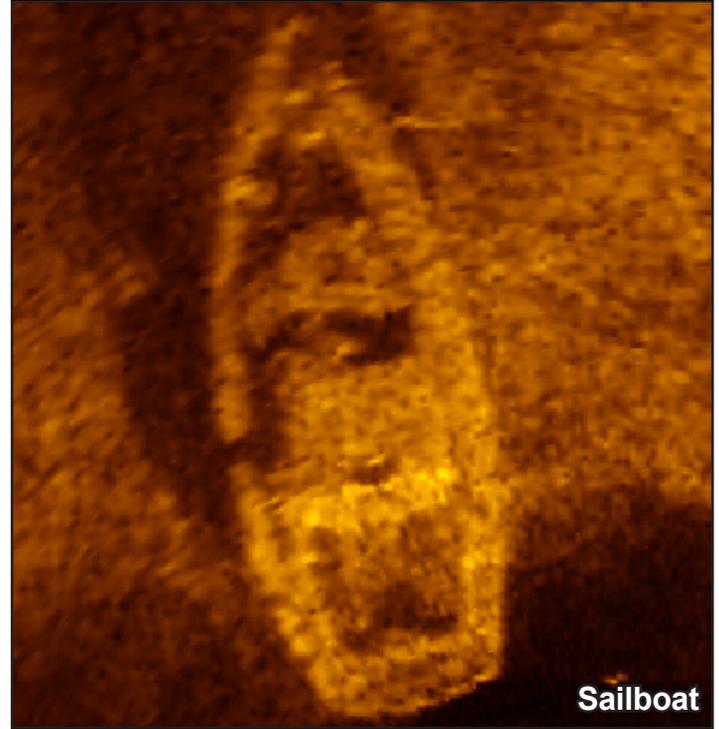
Realtime Image Mosaic

BODY & EVIDENCE DETECTION/RECOVERY

Criminals and terrorists are attracted to the underwater realm because the aquatic environment is the weakest link in the air, land and sea police system which protects vital harbors, ports and ships. The M3 MARSEC enhances the underwater security by detecting bottom anomalies and gives law enforcement personnel the ability to scan and survey harbors and ports.

The M3 MARSEC is ideal for underwater detection and identification of bodies in low or zero visibility conditions.

Video clips of the records are available in the M3 MARSEC gallery at km.kongsberg.com/M3Galleries.



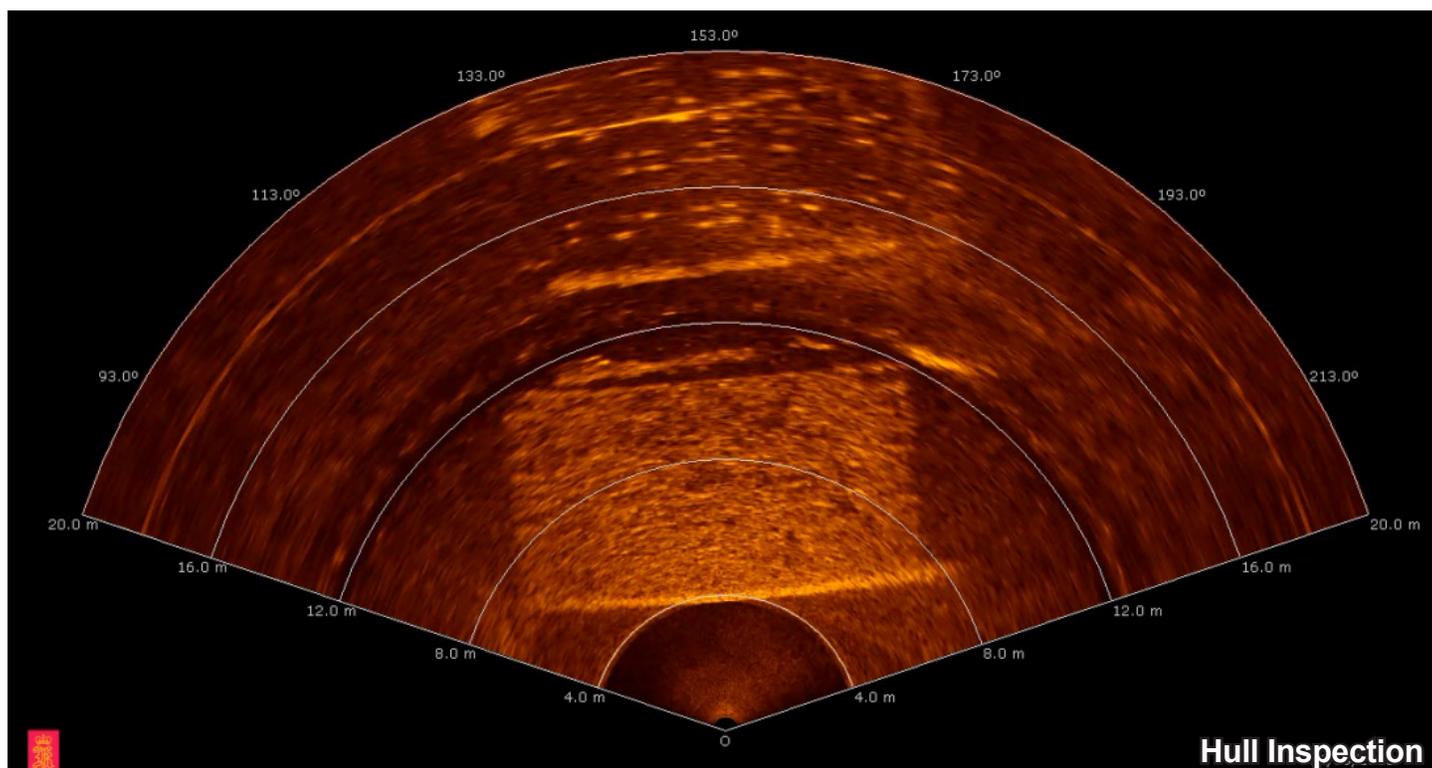
HULL INSPECTION

Ship hulls are inspected to determine if explosives or contraband (usually narcotics) are attached. Parasitic containers for smuggling narcotics may be secured to bow thrusters, bilge keels or rudder structures. Magnetic mines may be attached anywhere to a steel hull below the waterline. Inspections are typically conducted using clearance divers or ROVs equipped with underwater cameras and sonar.

The M3 MARSEC is an ideal solution for vessel hull inspection. It is capable of rendering complete vessel hull imagery that can detect foreign objects with sub-meter precision using the eIQ (enhanced image quality) mode. The M3 MARSEC is lightweight and easy to mount to a surface boat of opportunity.

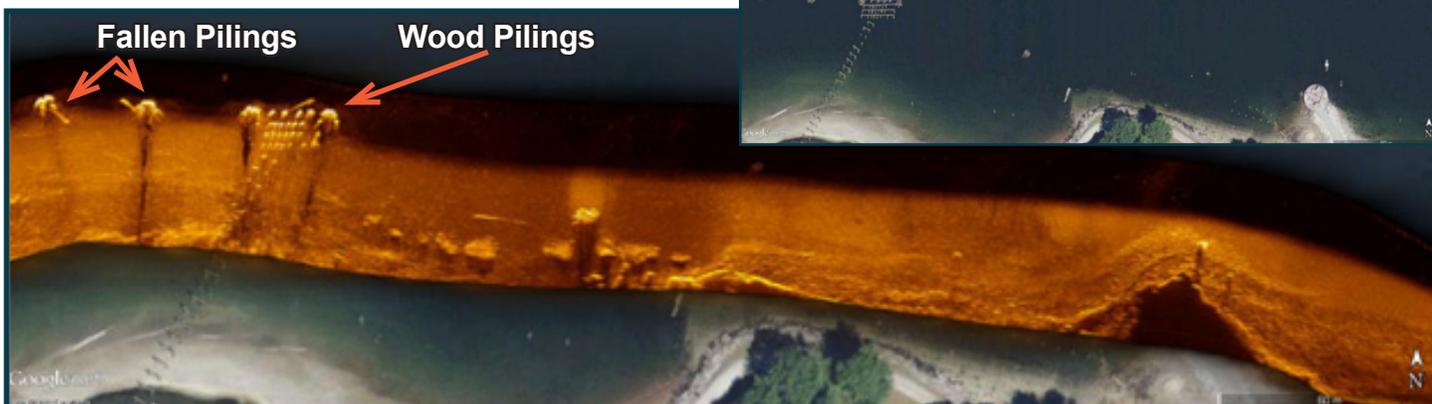


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STRUCTURE INSPECTION

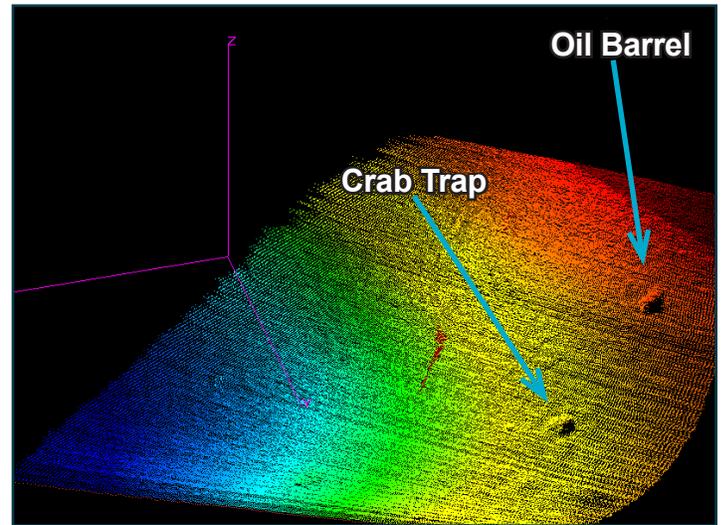
The M3 MARSEC can be used to produce scans of piers, bridges and pilings, and can be used to inspect and clear shipping channels. The M3 Sonar is deployed in side-looking imaging mode.



UNEXPLODED ORDINANCE (UEXO)/IED DETECTION

Underwater Security addresses the protection of land facilities and valuable assets that are vulnerable to attack from the waterside. The M3 MARSEC provides port security personnel the ability to detect marine anomalies such as underwater explosive ordinance/improvised explosive devices or other suspicious objects to increase security in harbour or port surroundings.

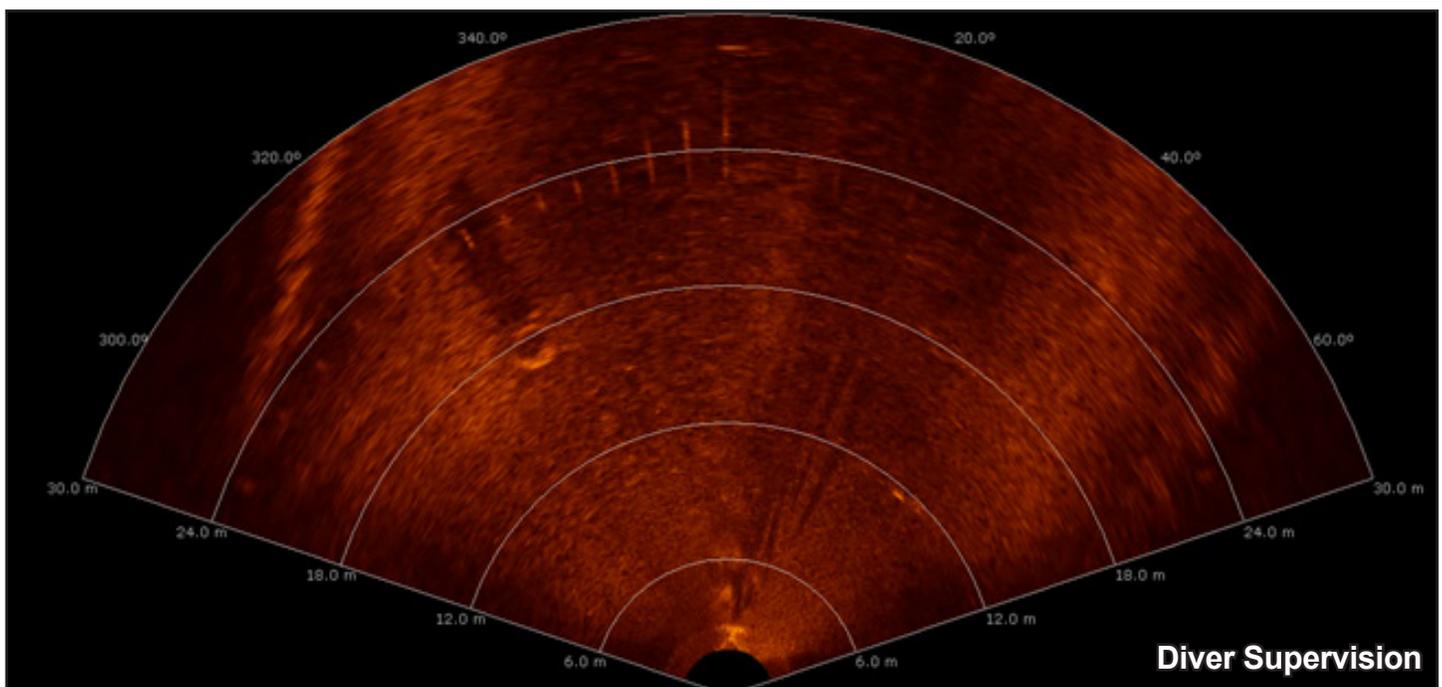
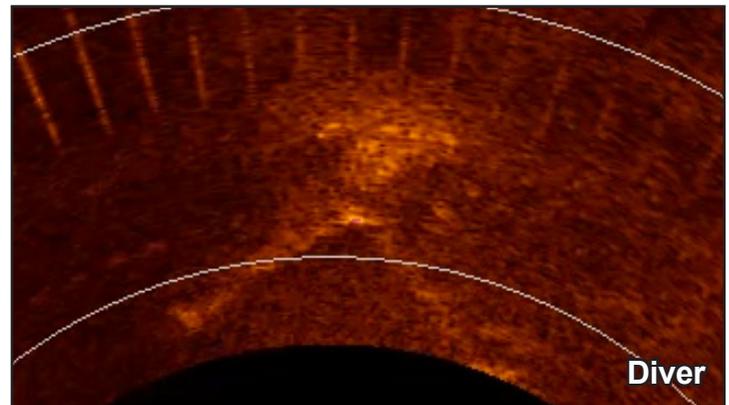
The M3 Multimode Multibeam Sonar is not restricted by optical conditions, and can be used to sweep or "clear" visually obscured areas to ensure they are clear of foreign objects such as mines, underwater improvised explosive devices (UIEDs), or contraband.



DIVER DIRECTION & SUPERVISION

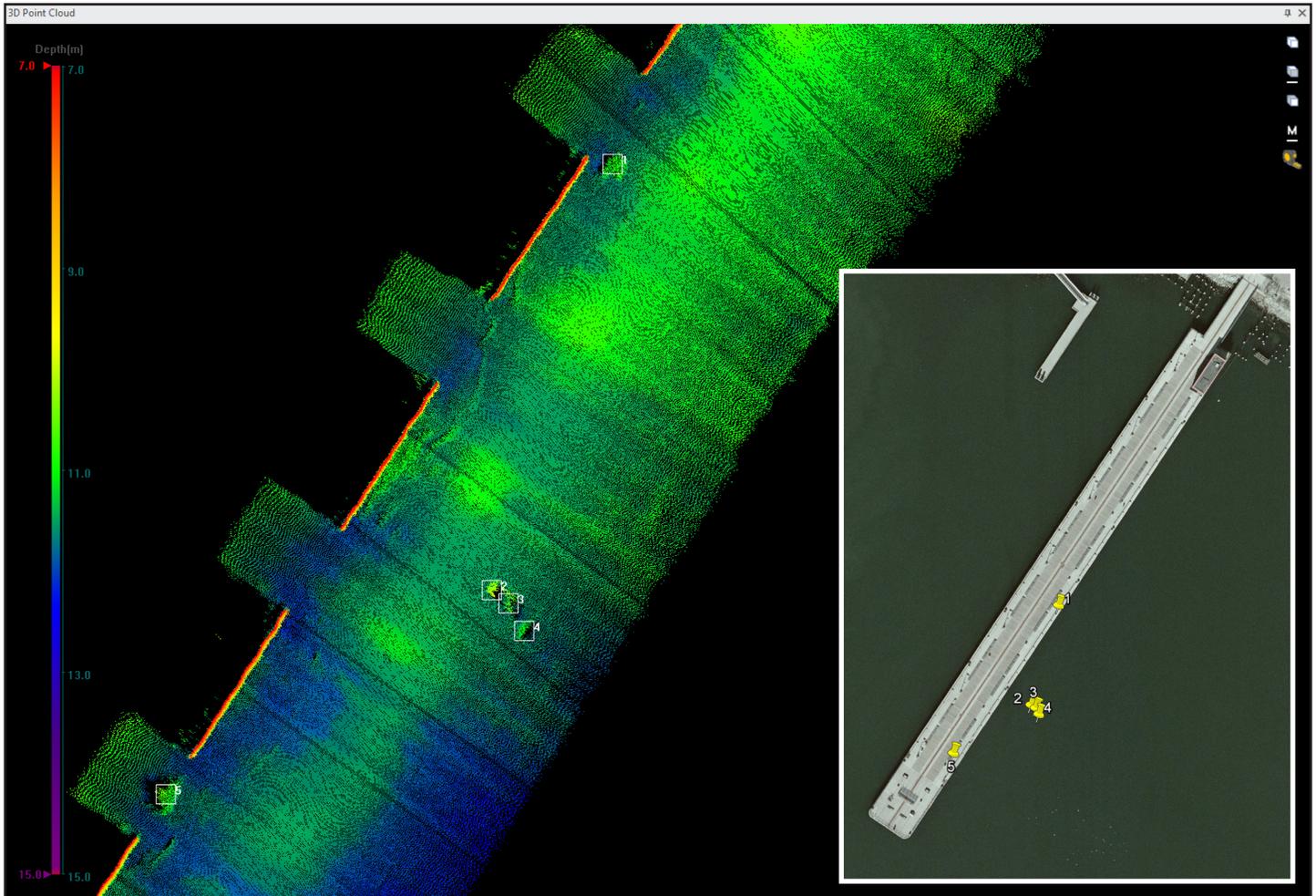
The M3 MARSEC is the logical choice to direct divers in real time. The M3 Multimode Multibeam Sonar can image divers in low or zero visibility. The M3 MARSEC can detect targets and track the search pattern of the diver so that dive supervisors can safely direct the diver to targets of interest.

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GEO-REFERENCED TARGET MARKERS

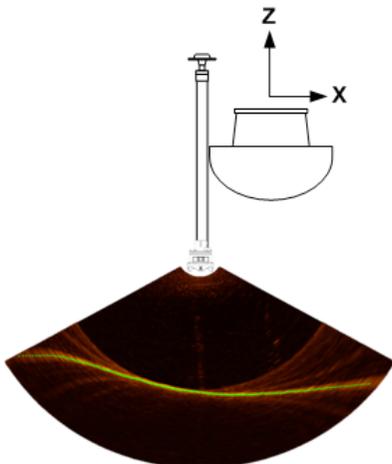
The M3 Sonar Software has a target marking feature that allows security teams to geo-reference objects of interest. The image below shows a dock with five geo-referenced targets of interest.



INSTALLATION OPTIONS

Down Profile

Point the M3 Sonar down for bathymetric measurement:



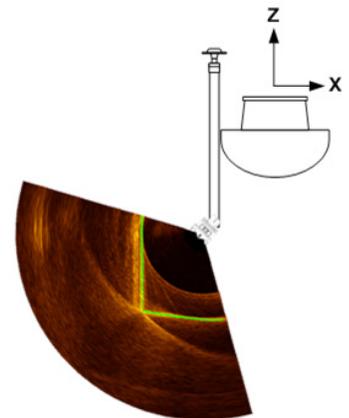
Forward Image

Point the M3 Sonar forward for obstacle avoidance:

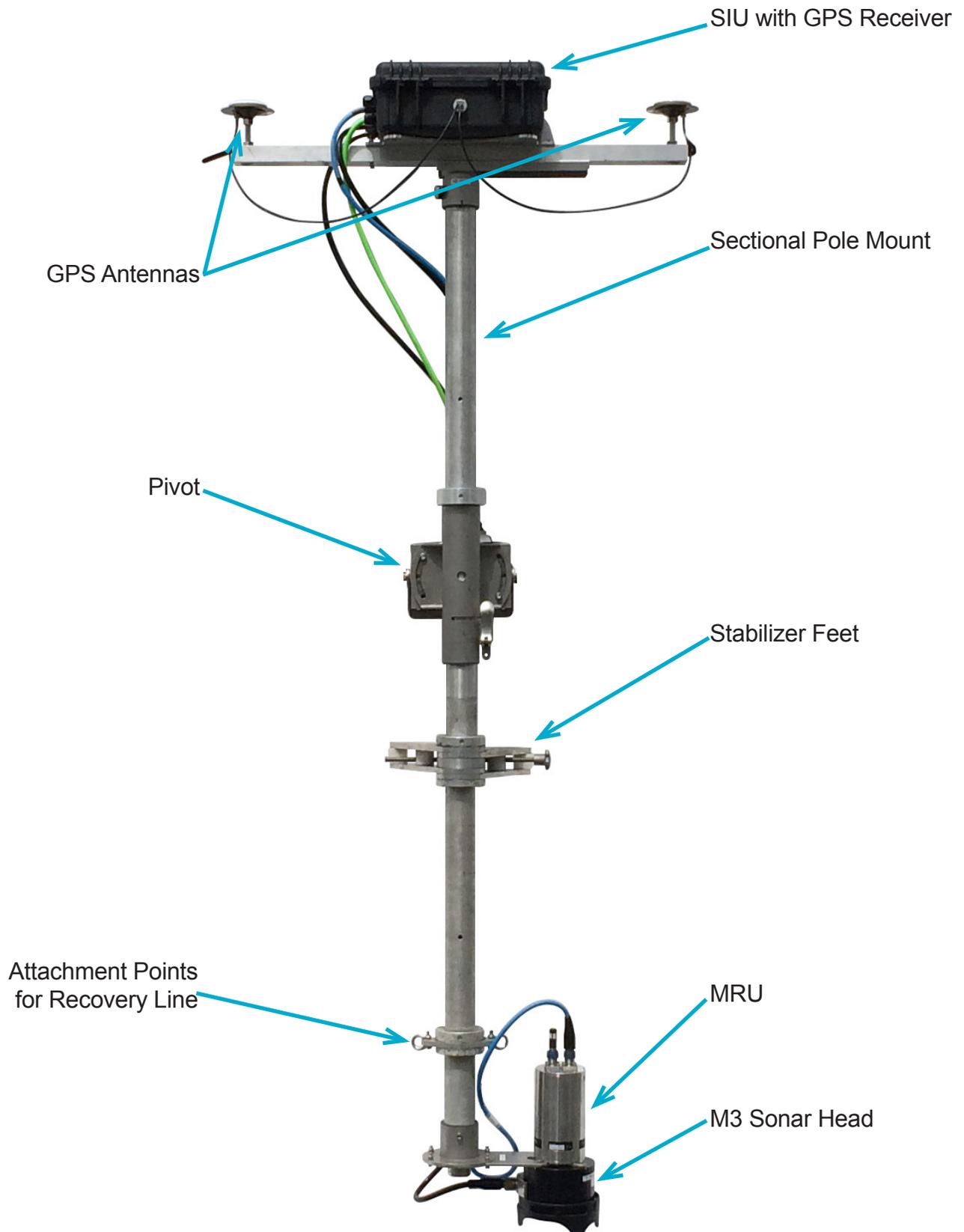


Side Profile

Point the M3 Sonar sideways for structural or hull inspection



M3 MARSEC SYSTEM



Specifications subject to change without any further notice.

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