

SSAEPL

Subsea Sales and Engineering Pte Ltd

EXPERT IN SONAR SOLUTIONS

Perceive the vast ocean. Explore the far frontiers.

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Company Profile

SUBSEA SALES AND ENGINEERING PTE LTD

Subsea Sales and Engineering Pte Ltd (SSAEPL) is a specialist supplier and integrator of high-performance underwater sonar and subsea systems.

Our portfolio spans imaging sonars rated from 300 m to 6,000 m, industrial detection products, unmanned platforms, positioning systems and a complete software ecosystem — supported by an engineering team with deep expertise in underwater acoustics and system integration.

We deliver mission-critical underwater data for maritime security, search and rescue, aquaculture, offshore engineering and subaquatic archaeology.



60+

Patents & software
copyrights

6,000 m

Maximum depth rating

CE / RoHS

Certified product lines

Contents

PRODUCT & SOLUTION OVERVIEW

01 Imaging Sonar

C750D · C750DH · C750DH3 · C750DH6
C750D Pro · C900SE · C400H · C1200D

02 Industrial Products

Underwater life detector · Sonar HMD
Handheld sonar · Side-scan · AUV / ROV · USBL

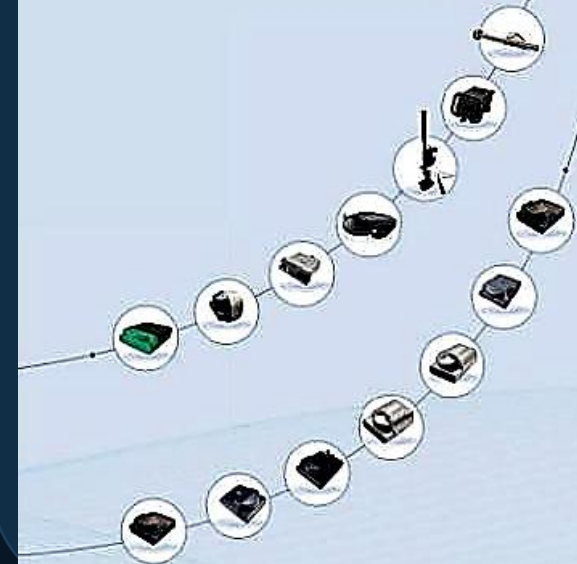
03 Software Ecosystem

SSAEPL Navigator · SDK · sonar gateway
AI detection and cloud platform

04 Application Solutions

Aquaculture · search and rescue · water utilities
defence · marine engineering

PRODUCT SERIES



Imaging Sonar

01 · DEPTH-RATED FAMILY

Deep-sea equipment capable of diving to 500 m, 1,000 m, 3,000 m and 6,000 m — covering detection needs from coastal waters to the hadal zone. High reliability and advanced intelligence provide a one-stop solution for multi-scenario marine research and engineering.

C750D

500 m depth rating

Compact size, excellent mounting flexibility. High-definition acoustic imaging penetrates turbid water, integrating easily onto ROVs, AUVs and diver systems.



C750DH

1,000 m depth rating

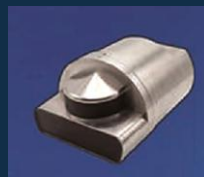
Lightweight titanium alloy housing with exceptional pressure resistance. Dual-frequency acoustics deliver sharp images in dark depths for deep-sea ROVs and AUVs.



C750DH3

3,000 m depth rating

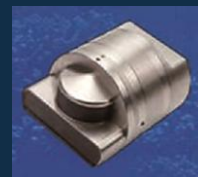
Pressure- and corrosion-resistant materials with precision engineering. Improved imaging resolution and range in dark, high-pressure, complex deep-water environments.



C750DH6

6,000 m depth rating

The pinnacle of the series. Pressure-resistant structure, efficient acoustics and reliable electronics deliver stable imagery at abyssal depth.



C750D

IMAGING SONAR · COMPACT DUAL-FREQUENCY

The C750D imaging sonar delivers real-time underwater imaging in complex river, lake and sea conditions. It can be deployed on ROVs, AUVs and diver systems to meet needs for underwater detection, collision avoidance and construction work.

Advanced technology

Compact structure

Dual-frequency adjustable

Optimised near & far range

PRODUCT PARAMETERS

Parameter	C750D	C750DH
Operating frequency	750 kHz / 1.2 MHz	750 kHz / 1.2 MHz
Range (max)	120 m / 40 m	120 m / 40 m
Horizontal aperture	130° / 80°	130° / 80°
Vertical aperture	20° / 12°	20° / 12°
Typical power	25 W	25 W
Depth rating	500 m	1000 m



PRODUCT ADVANTAGES

- Compact and easy to use: single-handed grip, with display and control software for live imaging and parameter adjustment.
- Fully self-controlled: full independent IP with an SDK supporting secondary development.
- Strong compatibility: integrates onto varied platforms; 1000 m titanium version available.

APPLICATION AREAS

Aquaculture · Nuclear power cooling water · Water rescue · Marine engineering

C750D Pro

IMAGING SONAR · NEXT-GENERATION ARCHITECTURE

The C750D Pro features a completely new hardware architecture with key breakthroughs in core performance. The optimised data processing chain handles massive detection data more efficiently, reducing image noise and enhancing detail recognition.

Major upgrade

Next-gen field of view

Exceptional detail

Micro-detail detection

PRODUCT PARAMETERS

Parameter	C750D Pro
Operating frequency	750 kHz / 1.2 MHz
Range (max)	120 m / 40 m
Horizontal aperture	136° / 136°
Vertical aperture	20° / 20°
Typical power	25 W
Depth rating	500 m



PRODUCT ADVANTAGES

- Ultra-clear imaging: new hardware and advanced signal processing distinguish target shapes such as fish schools.
- Ultra-wide horizontal beamwidth increases coverage per scan for efficient large-area search.
- Reduces blind cruising time and markedly increases target detection probability.

APPLICATION AREAS

Offshore operations · Underwater survey · Marine ranching

C900SE

IMAGING SONAR · COMPACT AND ENERGY EFFICIENT

The C900SE imaging sonar is a powerful tool for efficient underwater exploration. Its compact size, low power consumption and strong environmental adaptability allow flexible integration onto varied operational platforms for clear detection in complex waters.

Compact size

Energy efficient

Simple operation

Clear visibility

PRODUCT PARAMETERS

Parameter	C900SE
Operating frequency	900 kHz
Range (max)	80 m
Horizontal aperture	60°
Vertical aperture	20°
Typical power	14 W
Depth rating	300 m



PRODUCT ADVANTAGES

- Comprehensive service: customised solutions, complete maintenance and upgrade services, reliable technical support.
- Fully self-controlled: supports product integration and secondary development.
- Excellent mounting flexibility: diver-mounted, or deployed on ROVs and AUVs.

APPLICATION AREAS

Research & education · Underwater survey · Diving operations · Water rescue

C400H

IMAGING SONAR · LONG-RANGE DETECTION

The C400H imaging sonar is engineered for long-range underwater detection. With a maximum detection range of up to 200 metres against typical targets, it delivers reliable detection and precise target locking even in extensive or low-visibility waters.

Wide-area detection

Rapid identification

Strong compatibility

Military-grade quality

PRODUCT PARAMETERS

Parameter	C400H
Operating frequency	400 kHz
Range (max)	200 m
Horizontal aperture	135°
Vertical aperture	10° / 20°
Typical power	25 W
Depth rating	1000 m



PRODUCT ADVANTAGES

- Long-distance detection: 200 m maximum range, 135° horizontal beamwidth, 125 mm range resolution at 100 m.
- Independent R&D with full IP; supports customisation and secondary development.
- Strong compatibility allows integration onto various platforms across industries.

APPLICATION AREAS

Underwater security · Surface obstacle avoidance · Underwater obstacle avoidance · Scientific research & survey

C1200D

IMAGING SONAR · DUAL-FREQUENCY HIGH DEFINITION

The C1200D operates at 1.2 MHz and 1.8 MHz, both delivering high-definition imaging. The 1.8 MHz band provides ultra-high resolution for close-range inspection down to millimetre-level detail, while 1.2 MHz offers a wide 136° beamwidth for large-area coverage.

Sharp imaging

Highly adaptable

Meticulous craftsmanship

High-end build

PRODUCT PARAMETERS

Parameter	C1200D
Operating frequency	1.2 MHz / 1.8 MHz
Range (max)	40 m / 25 m
Horizontal aperture	136° / 66°
Vertical aperture	20° / 12°
Typical power	25 W
Depth rating	500 m



PRODUCT ADVANTAGES

- Dual-frequency HD: full coverage from large-area scanning to close-range inspection in a single device.
- High-end engineering from core design through to system integration.
- Compact size for easy installation; compatible with international underwater platforms.

APPLICATION AREAS

Urban pipeline inspection · Underwater inspection · Marine engineering · Education & research · Emergency response

Industrial Products

02 · APPLICATION-SPECIFIC SYSTEMS

SSAEPL applies sonar technology across underwater scenarios with a range of industry-specific products: sonar view systems for urban pipeline inspection, underwater life detectors for emergency response, handheld and dipping sonars for diver and anti-diver applications, multibeam echosounders and side-scan sonars for topographic mapping and target search, and unmanned platforms equipped with sonar payloads.

Underwater life detector

Sonar HMD diving glasses

Handheld sonar

S400 / S600 side-scan sonar

Shark2T AUV · Tuna2C ROV

USBL positioning system

Expendable probe data system



▲ Underwater Life Detector



▲ S400/S600 Side-Scan Sonar



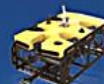
▲ Sonar HMD



▲ Handheld Sonar



▲ Shark2T



▲ Tuna2C



▲ USBL Positioning System



▲ Expendable Probe Data Acquisition System

Underwater Life Detector

IMAGING SONAR · PORTABLE ACOUSTIC SEARCH

A portable acoustic detection device for rapid search and identification of underwater targets. It supports single-person handheld operation and boat-mounted moving observation, with tilt adjustment for complex underwater environments.

Intelligent detection

Rugged & portable

Single-person deployment

Fast response

PRODUCT PARAMETERS

Parameter	Underwater Life Detector
Operating frequency	750 kHz / 1.2 MHz
Range (max)	120 m / 40 m
Pan-tilt angle	-45° ~ 0°
Battery life	4 h
Detection pole	0.9 – 1.85 m telescopic
Usage mode	Handheld + boat-mounted



PRODUCT ADVANTAGES

- Rapid response: high-precision imaging locks onto targets with real-time alarm triggering.
- Single-person deployment in three minutes; switches between handheld and boat-mounted modes.
- Integrated deck unit: 4 h+ battery, Wi-Fi, RJ45 Ethernet and GNSS positioning.

APPLICATION AREAS

Underwater security · Maritime police · Emergency management

Sonar HMD & Handheld Sonar

DIVER-WORN ACOUSTIC VISION



Sonar HMD

The HMD diving sonar glasses integrate modern display technology with diving gear. Mounted on masks or helmets, they project sonar images directly into the diver's field of view for real-time awareness. Used in military diving, engineering inspection, marine research and shipwreck archaeology.

Acoustic visualisation · Immersive perception · Compact design · Multi-device compatible

Parameter	Specification
Dimensions	$\leq 130 \times 75 \times 65$ mm
Max operating depth	100 m
Display resolution	1920 × 1080
Operating temperature	-5 ~ +35 °C



Handheld Sonar

A portable underwater detection device for divers working in low visibility or complex environments. It integrates sonar and vision modules with real-time display, providing clear underwater vision in turbid water and enabling obstacle-avoidance warning and target search.

Portable & lightweight · Flexible operation · Long-range obstacle avoidance · Full data logging

Parameter	Specification
Dimensions	$\leq 400 \times 335 \times 220$ mm
Max operating depth	60 m
Obstacle warning range	≥ 120 m (C750D) / ≥ 80 m (C900SE)
Operating temp / rating	-10 ~ +50 °C · IP68

S400 / S600 Side-Scan Sonar

TOWED SEABED IMAGING

The S400/S600 side-scan sonar provides ultra-high-definition imaging of underwater targets and complex structures. It offers high work efficiency and a wide detection range with selectable frequency bands, plus scanning and recording for real-time data logging. Ergonomic design allows single-person deployment and retrieval.

Ultra-clear images

High detection efficiency

Dual-frequency simultaneous scan

Rugged & reliable



Parameter	S400	S600
Operating frequency	400 kHz / 900 kHz	600 kHz / 1600 kHz
Range (max)	150 m @400 kHz / 75 m @900 kHz	120 m @600 kHz / 35 m @1600 kHz
Horizontal aperture	0.46° / 0.28°	0.33° / 0.20°
Vertical aperture	50°	50°
Operating depth	200 m	200 m
Pulse type	CHIRP	CHIRP

Corrosion & noise resistant stainless steel housing · Tow speed up to 8 knots · CHIRP full-spectrum imagery · Channel survey, search and rescue, underwater target search

Shark2T AUV

AUTONOMOUS UNDERWATER VEHICLE

The Shark2T is a medium autonomous underwater vehicle: highly modular, highly intelligent and highly customisable. It combines a compact structure, strong carrying capacity, excellent hydrodynamic performance and high energy efficiency. A dedicated launch and recovery system makes deployment safe and reliable, while a DVL + INS (fibre-optic or laser) + GNSS scheme delivers autonomous navigation at precision levels tailored to the mission.

- Efficient integration design
- High manoeuvrability
- Independent power system
- Segment deployment
- Open control interface



Specification	Shark2T
Dimensions	L 1700 mm × $\varnothing$ 275 mm
Weight	65 kg
Depth rating	0 – 300 m
Speed	Maximum 5 kn
Range / endurance	≥ 40 km · 8 h @ 3 kn

Tuna2C ROV

HEAVY OBSERVATION-CLASS ROV

The Tuna2C is a heavy observation-class ROV with a 4 + 4 thruster layout, giving flexible movement, strong power and excellent attitude retention under high speed and heavy load. An optoelectronic composite umbilical provides high data throughput and supports a wide range of optional payload interfaces. Fibre-optic INS + DVL + USBL integrated navigation enables dynamic positioning and path tracking, with electric or automatic winches supporting cable lengths up to 1200 m.

20 kW underwater power module

Supports a wide range of equipment

4 + 4 thruster layout

Forward 160 kgf · lateral 120 kgf · diving 100 kgf

Intelligent control system

Dynamic positioning and path tracking

Camera & lighting

1080P colour/B&W camera · 8000 lm illuminators × 4

Specification	Tuna2C
Maximum depth	300 m
Dimensions (L × W × H)	1380 × 750 × 650 mm
Weight / payload	195 kg · 20 kg payload
Supply voltage	Three-phase 380 VAC
Max submerged power	20 kW
Max forward speed	3.5 knots



USBL Positioning System

PS SERIES ULTRA-SHORT BASELINE

The USBL system comprises an acoustic transceiver array and deck unit for 3D positioning of multiple underwater targets by measuring acoustic beacon range and bearing. Available in low, medium and high frequency bands with broadband coded signals, it offers strong noise immunity, high accuracy and no quadrant ambiguity — ideal for offshore oil exploration, marine salvage and precise tracking of ROVs, AUVs, towed bodies, buoys and divers.



Model	Frequency	Max range	Max depth	Source level	Positioning accuracy
H119	8 – 16 kHz	8000 m	50 m	≥ 190 dB	> 1 m + 0.8% slant range
H117	20 – 30 kHz	1500 m	50 m	≥ 185 dB	≤ 1 m + 1% slant range
H113	35 – 55 kHz	700 m	50 m	≥ 180 dB	≤ 1 m + 1% slant range

- High-performance real-time multi-target positioning
- Integrated high-precision INS design
- Flexible low / medium / high frequency coverage

APPLICATION AREAS · Underwater platforms · Marine engineering · Deep-sea scientific research

Expendable Probe Data Acquisition

XBT / XCTD UNDERWAY PROFILING

The expendable probe data acquisition system uses XBT/XCTD underway deployment, integrating probe identification, signal reception and processing, and real-time data display and storage. Data is transmitted in real time over wire cable without an acoustic link, offering strong interference immunity. Temperature and salinity profiles are obtained rapidly, suiting large-area surveys and mission support.

Real-time transmission · Rapid profiling · Easy operation · Stable & reliable



Specification	XBT	XCTD
Temperature range (°C)	-2 ~ 36	-2 ~ 36
Temperature accuracy (°C)	0.15	0.02
Depth range (m)	300 / 760 / 1000 / 1800	760 / 1000
Depth accuracy	±2% FS or 5 m	±0.5% FS
Conductivity range (mS/cm)	—	0 – 70
Conductivity accuracy (mS/cm)	—	±0.03
Max vessel speed (kn)	12	12

APPLICATION AREAS · Ocean survey · Disaster monitoring · Military support · Engineering support

Software Ecosystem

03 · SSAEPL NAVIGATOR

SSAEPL Navigator is a software system compatible with every imaging sonar model in the range. During underwater survey operations it controls the sonar and handles data reception, storage and real-time display, giving operators clear and intuitive underwater imagery for comprehensive situational awareness.

Real-time sonar imaging display and parameter control

Extensive system parameter configuration

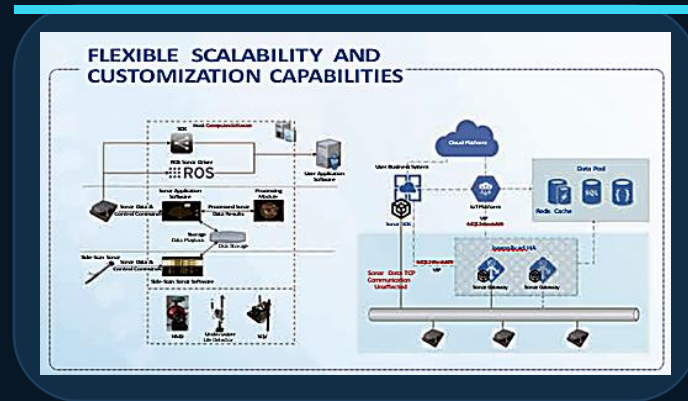
Multi-parameter auxiliary information display

Target ranging and positioning

Key image and data capture

Multi-data replay

Flexible scalability and customisation



Cross-Platform & AI Capability

SOFTWARE ECOSYSTEM

SSAEPL Navigator runs across Windows, Linux and ROS 1/2, is compatible with multiple operating systems and architectures, and holds Kylin OS and UOS certification. It currently supports Chinese, English and Japanese, meeting the needs of operators with different language preferences.

AI-powered expansion

Target detection algorithm optimisation with annotation, training and inference

Image stitching

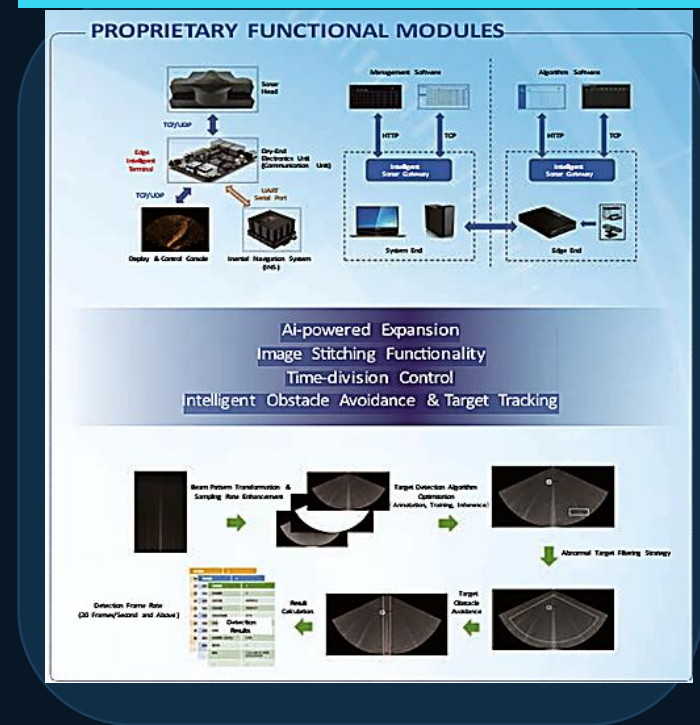
Continuous wide-area imagery from sequential sonar frames

Intelligent obstacle avoidance

Target tracking with abnormal-target filtering strategy

High frame rate

Detection at 20 frames per second and above



Application Solutions

04 · WHERE OUR SYSTEMS WORK



OFFSHORE WIND POWER
Foundation Inspection



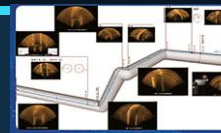
MARINE ENGINEERING
Cable Burial Inspection & Imaging Sonar



EMERGENCY RESPONSE
Underwater Target Search



AQUACULTURE
Biomass Monitoring



WATER UTILITIES
Urban Pipeline Network
& Sewage Well Inspection



DEFENSE
Unmanned Exploration Systems,
Underwater Security, etc.

SSAEPL focuses on deep and distant sea requirements, extending high-frequency sonar into deep-sea aquaculture and biomass monitoring at nuclear power intakes, and solving 6,000-metre detection for deep-sea mining sensors. Our scenarios span national security, livelihood assurance, scientific exploration and industrial efficiency.

Offshore wind power

Foundation inspection

Marine engineering

Cable burial inspection & imaging

Emergency response

Underwater target search

Aquaculture

Biomass monitoring

Water utilities

Pipeline network & sewage well inspection

Defence

Unmanned exploration & underwater security

Biomass Monitoring Solution

REAL-TIME MONITORING + INTELLIGENT IDENTIFICATION

Imaging Sonar / C750D Series

Underwater sound waves with superior penetration · strategic deployment for extensive coverage · 512 beams for ultra-high resolution.

AI Image Recognition

High identification accuracy · diverse functional options · highly customisable to species and site.

Ecological monitoring

Flexible deployment, accurate species identification, behavioural research support

Marine ranching

Customised net installation, feeding monitoring, reduced labour cost

Nuclear power cooling water

Nuisance species identification, biomass statistics, multi-zone early warning

Aquaculture vessels

Vessel-integrated school monitoring, net damage and intrusion detection

Indoor aquaculture

Fish counting, precision feeding support, behaviour-based disease warning

Surface Deployment Scenario:

Unmanned Surface Vessel (USV) + C750D Imaging Sonar

The USV hull is equipped with high-speed thrusters and carries the C750D imaging sonar. Combined with proprietary autonomous attitude control and image recognition technologies, it is applied for underwater target search, emergency underwater topographic mapping, water emergency rescue, and structural inspection of bridges and dams in the water conservancy industry.



Underwater Deployment Scenario:

Underwater Robot (ROV) + C750D Imaging Sonar

The Underwater Robot is high-performance equipment specifically designed for underwater operations. It features high mobility, operational precision, and strong environmental adaptability. With a modular design, it carries HD camera, the C750D imaging sonar, manipulator arms, and environmental monitoring equipment. It is capable of performing diverse tasks including underwater inspection, surveying, salvage, maintenance, and scientific research. Equipped with a stable attitude control system and efficient propulsion, it maintains stable operation in complex sea conditions and high-pressure deep-sea environments.



Underwater Deployment Scenario:

AUV with C750D Imaging Sonar + Side-Scan Sonar

This refers to an intelligent platform capable of performing underwater missions without human intervention. It integrates advanced navigation, control, and communication technologies, enabling autonomous route planning and stable navigation in complex underwater environments. Characterized by autonomous intelligent navigation, high-precision positioning, long endurance, and modular design, it carries the C750D sonar, side-scan sonar, camera, and environmental sensors. It enables multi-domain applications such as marine mapping, resource exploration, environmental monitoring, underwater inspection, and military reconnaissance.



Underwater Search, Rescue & Target Location

SIDE-SCAN + LIFE DETECTOR + HMD / HANDHELD SONAR

A mission demanding extreme timeliness and precision. Addressing complex aquatic environments and diverse search requirements, this solution establishes an efficient and reliable process built on a phased approach: broad area search first, precision verification follows.



01

Large-area underwater search

High-frequency side-scan sonar performs grid-pattern scanning of the designated zone, quickly identifying anomalies and narrowing the search scope. Extensive coverage enables rapid preliminary screening.

02

Target precision location

A RIB equipped with an underwater life detector spot-verifies suspicious contacts. Acoustic imaging and characteristic analysis yield precise coordinates and depth, distinguishing debris from real targets.

03

Diver verification

Divers enter the water with a sonar HMD or handheld sonar for close-range confirmation. Real-time imaging supports observation in turbid, low-visibility water for marking, recovery and evidence collection.

Water Utilities Solution

PIPELINE, WELL AND WATERBODY INSPECTION

Underwater inspection in the water utilities sector faces turbid water, suspended solids and variable flow, limiting mapping accuracy and defect identification. Traditional methods suffer low data efficiency, missed detections and higher risk to inspection crews.

Urban pipeline network inspection

Imaging sonar C750D delivers high-definition imagery in complex conditions, locating defects across urban pipe networks. A high-performance ROV carries the sonar and additional sensors, inspecting pipelines and channels while in service.

Sewage well inspection

Sonar View seamlessly integrates surface optical and underwater acoustic acquisition, detecting well structure and sedimentation. One-click well connection overview diagrams show pipe length, diameter, burial depth and siltation thickness.

River & waterbody mapping

An integrated multibeam and side-scan system deployed from foldable unmanned surface vessels generates topographic data and side-scan imagery in a single survey — at least four times more efficient than traditional methods.

More Industry Solutions

SECURITY · MARINE ENGINEERING · EDUCATION

Underwater security

Imaging sonar C400H: 200 m maximum range, 135° horizontal beamwidth, 125 mm range resolution at 100 m, deep-water titanium housing, and up to 120 m detection of typical targets. Intruder detection sonar deployed on vessels or platforms tracks divers at ranges of 500 m or more in favourable shallow-water conditions.

Marine engineering

C750D Offshore Engineering Edition: built on the standard C750D with more durable, higher-grade waterproof connectors and enhanced shock resistance at connection points, meeting the demands of large ROVs and subsea construction equipment while retaining the series' high-definition resolution for pipeline burial and cable laying.

Education & research

An integrated teaching and practice system combining materials, sonar equipment and real application data helps institutions link theory, experiment and application. High-resolution imaging and flexible secondary development support image recognition and algorithm research teams.



Deployment Scenarios

SURFACE AND UNDERWATER PLATFORMS

01 Unmanned surface vessel + C750D

The USV hull carries high-speed thrusters and the C750D imaging sonar. Combined with autonomous attitude control and image recognition, it supports underwater target search, emergency topographic mapping, water rescue and structural inspection of bridges and dams.

02 Underwater robot (ROV) + C750D

High-performance equipment for underwater operations with high mobility, operational precision and strong environmental adaptability. Its modular design carries HD cameras, the C750D, manipulator arms and monitoring equipment for inspection, survey, salvage and maintenance.

03 AUV + C750D and side-scan sonar

An intelligent platform performing missions without human intervention. Advanced navigation, control and communication enable autonomous route planning, supporting marine mapping, resource exploration, environmental monitoring and underwater inspection.



DEDICATED TO INTELLIGENT UNDERWATER DETECTION

Pushing the boundaries of human exploration of the ocean

Company

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Ltd**

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