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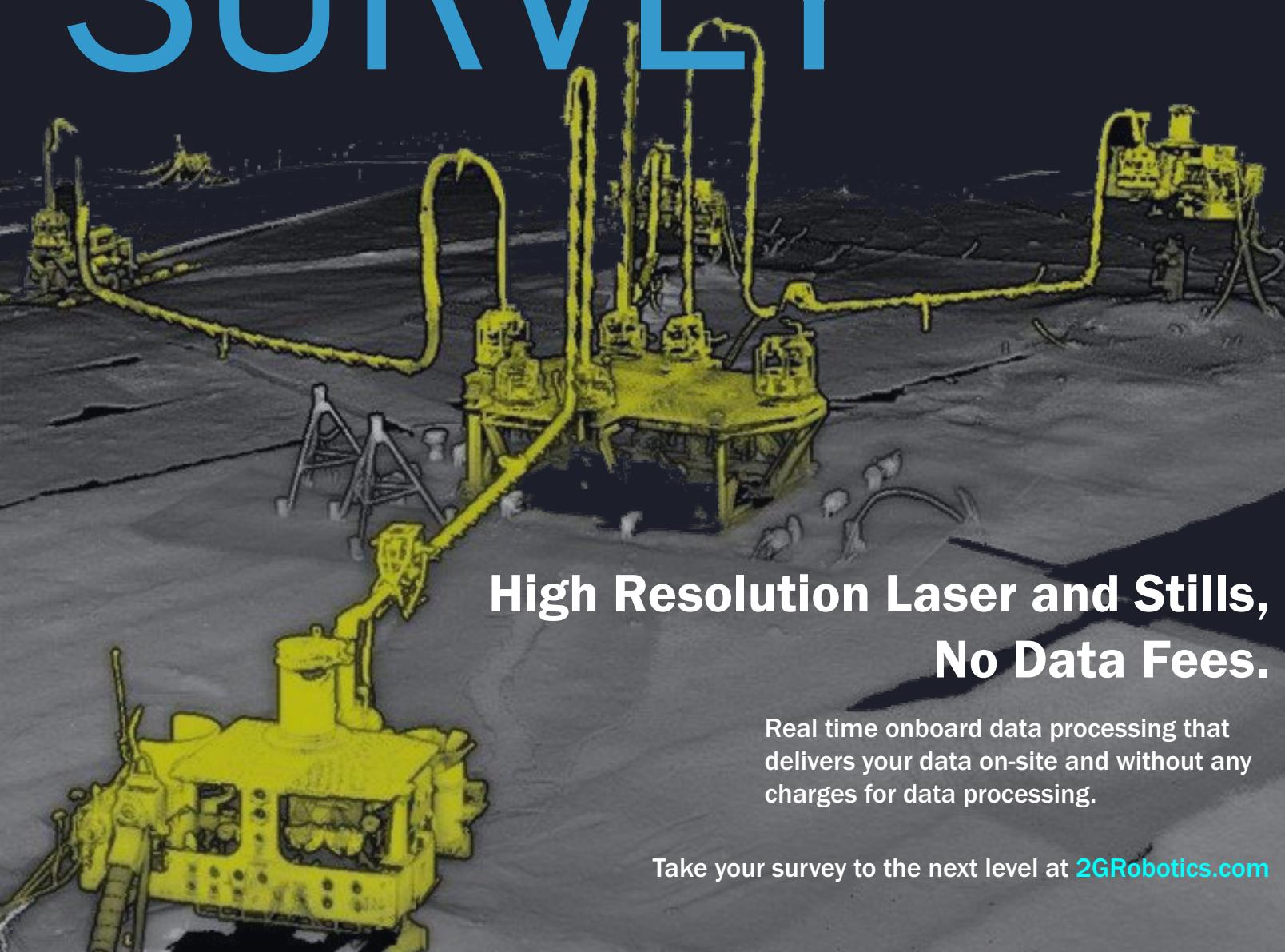
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S2C M (left) and the new S2C T “tiny” modem - 20% smaller and lighter

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A black and white aerial photograph showing a large-scale construction or survey project. In the center, there is a complex yellow surveying rig with multiple arms and sensors. A long cable runs from this rig across the site. In the background, there are several other pieces of heavy machinery, including what looks like a bulldozer and some smaller vehicles. The terrain appears to be a mix of dirt and some paved areas.

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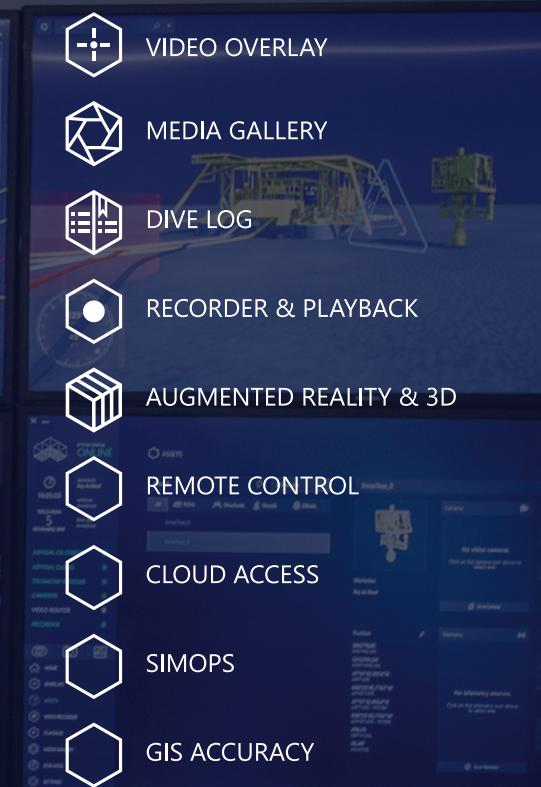
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# THE EVOLUTION OF THE ROV INDUSTRY

## How ROV Technology Continues to Transform Ocean Technology

It is impossible to delineate the history of ocean technology without recognizing the evolution of Remotely Operated Vehicles, or ROVs. Whether in the name of commercial activities, scientific discovery, or military applications, they have played an instrumental role in our development and research of ocean resources.

The need to access and explore the ocean promoted the development of diving technology and manned systems that took a wide variety of shapes and sizes. While science often drives the initial research, the government, and more specifically the Department of Defense, often provides the funding. The U.S. Navy funded a wide variety of development programs that supported the emerging commercial diving industry, including saturation diving and comprehensive dive tables as well as the very first min-subs that could be used in the commercial world.

### The Dawn of the ROVs

One of the first remote controlled underwater systems, the *Manipulator Operated Robot* known as MOBOT, was developed by Shell and the Hughes Aircraft Company. Controlled via a 200-foot cable, its program developed some of the first applications of underwater electronics, and in particular sonar, that could be used to locate and operate wellheads.

» As the reliability of the RCV-225 improved, it became the tool of choice to support platform installations in the Gulf of Mexico. McDermott and Brown & Root were building and installing platforms at a record pace in the mid-to-late 70's and setting new water depth records month after month. As water depths increased, diving became more expensive, and the ROV found its niche. Photo credit and caption: Kevin Peterson.

While Shell may have been one of the first movers, it was the U.S. Navy and other government agencies that accelerated the development of subsea robotics. During the arms race and the evolution of Antisubmarine Warfare, R&D efforts were quickly intensified to develop deeper and more capable machines. The Navy's CURV (Cable Controlled Underwater Recovery Vehicle) system is a good example of the early development of technology that would later be adopted by the commercial industry. CURVE I made international news in 1966, having been launched from Alvin; the ROV defied its depth rating to successfully recover an H-bomb off Palomares, Spain. CURV III, a later generation, also created a media circus in 1973; the ROV was deployed off the coast of Ireland to rescue two pilots from the sunken *Pisces* submersible. The CURV program as well as other classified programs proved pivotal in paving the way for ROV development.

### Offshore Oil & Gas Triggers Market Development

The U.S. Navy and various Department of Defense programs are credited to the early advancement of ROV technology, but the Oil & Gas industry took it to the next level. Hydro Products built on technology from a classified program and created the RCV-125, a flying "eyeball" that was offered to the growing Offshore Oil & Gas industry in the mid-1970's. The first two RCV-125's were sold to customers in the North Sea and immediately lost at sea. The third RCV-125 (serial #3) was delivered to Martech International in Morgan City, LA, a diving company on the Gulf Coast. Crewed by Bob Hill, Charles Royce and Kevin Peterson, this ROV system

was the first commercially successful vehicle to be offered to the U.S. Oil & Gas industry. Martech later acquired the first RCV-225 system, incorporating the first successful Tether Management System (TMS) and Launch and Recovery System (LARS). Taylor Diving jumped into the ROV business as well. Led by Drew Michel, Taylor quickly built a fleet of RCV-225 systems, offering them externally to the industry as well as supporting internal diving and construction operations in the Gulf of Mexico, Italy, New Zealand and the North Sea. In the very early days, Martech and Taylor dominated the ROV business with their fleets of RCV-225 systems.

As Oil & Gas exploration rapidly moved into deeper waters in the late 1970's, other diving companies followed Martech and Taylor into the ROV business. Diving companies such as Sante Fe and Taylor's new North Sea subsidiary, 2W in the North Sea entered the business. The RCV-225 quickly became the standard, but the need for a "work vehicle" was obvious. Hydro Products responded to this need by developing the RCV-150 that offered more power and capability, including a basic manipulator. Martech and Taylor ordered the RCV-150 systems, but the vehicle was only marginally successful—overly complicated and under-powered. Taylor was able to successfully deploy the RCV-150, but only after Drew and his team redeveloped the vehicles to create the Trident ROV. Companies like ISE Ltd. (International Submarine Engineering Ltd.), Ametek and Perry Oceanographic were quick to recognize the need for more capable Work Class ROVs for offshore oil operations.

ISE introduced the TREK work vehicle, with the prototype going to Martech, Ametek offered the Scorpio a highly successful hydraulic system based on the US Navy Deep Drone program. Drew Michel ordered two of the early Scorpions for deployment to the South China Sea. Perry offered the Recon, an electric work vehicle with the first "Top Hat TMS". Other diving companies jumped into the business as these new vehicles became available and it was clear that increasing water depths in the Oil & Gas industry demanded this technology. Ocean Systems acquired the Hydra, a later version of the ISE TREK vehicle, and the Ametek Scorpio began to gain ground in the North Sea.

JERED, the first dedicated ROV company was formed by Jerry Jones, Ed Trilicia and Kevin Peterson in 1980. JERED worked with Perry to develop the RECON-J and the RECON-SJ, a fairly simple light work vehicle with a TMS. While the industry had been dominated by diving companies that had diversified into the ROV business, JERED was the first independent ROV company that was able to offer its services to other diving companies that didn't have their own ROV systems yet or needed additional capacity. JERED grew quickly based on this model, and one of its best customers was Oceaneering International. Oceaneering was late into the ROV game, but eventually rectified that by acquiring JERED, which became JERED-Oceaneering, headed up by Kevin Peterson in 1982. Oceaneering later acquired Ocean Systems, adding their Hydra's to the fleet, and setting them on the path to developing the largest ROV fleet in the world.

The U.S. Navy and the Department of Defense funded early development, but the Oil & Gas industry funded the Commercial Diving Industry to commercialize this technology and make it what it is today—a cornerstone to the ocean industry's ability to access and perform work in thousands of meters of water.



» Drew Michel (left) takes delivery of three RCV systems (serial numbers 6, 8 and 9) from Chuck Strickland, then president of Hydro Products. Photo credit: Drew Michel.



» As small as it was, there are many examples of what the RCV-225 was able to accomplish with a knife, stick or some other crude device taped to the front of the vehicle. Photo credit: Kevin Peterson.



» The Hydro Products DS-300 Launch and Recovery System (LARS) deploying the RCV-225 TMS was in many ways the first of its kind, allowing a single person to launch and recover the ROV. This basic LARS configuration is still the standard with the much larger, deeper and more powerful systems of today. Photo credit: Kevin Peterson.



» IKM Subsea's Merlin UCV R-ROV, complete with subsea garage and Tether Management System (TMS), was launched in early 2018, offshore Norway. Photo credit: IKM Subsea.

Demand for Work Class assets, despite peaks and troughs, has shaped a resilient industry. A recent market report, published by Westwood Global Energy Group, forecasts that demand for ROV services from 2019 – 2023 will total nearly \$7 billion, but it also suggests that the dynamics of the market are shifting.

### The Decade of Automation?

The last decade brought vessel operators and EPIC contractors into the lead of ROV ownership and deployment, as the ROV became a key asset to the construction and support vessel, and not just a service being offered by a diving contractor. The ROV is now a commodity, and no longer the science project that it once was. The ROV industry has much to consider as we settle into a new decade of offshore exploration, but the broad challenges of serving the offshore energy sector, including renewables, in 2020 and beyond will be how to limit operational costs, HSSE exposure, and CO<sub>2</sub> emissions, all while driving efficiency and transitioning to an increasingly digitized world. In short, how to do things smarter.

We stand somewhat on the precipice of autonomy when it comes to offshore activities. Advances in AI and the IoT will inevitably enable headway, but nobody can say for sure just how things will play out. The application of unmanned systems is evolving rapidly and milestones in AUV and USV development are well-documented, so this leaves many to ponder the possibility of fully autonomous ROVs, deployed by unmanned vessels, becoming the operator's first choice over the years to come.

Plainly, machine learning is a tantalizing prospect; it ultimately facilitates the examination of multitiered operations and the detection of patterns. In other words, a machine has the capacity to learn things within the confines of its set tasks. With the right permissions, machines can thereon react to a set of variables with the most appropriate action. However, within the broader context of AI—that is, the liberation of machines to interpret vast swathes of ever-expanding data and encourage their automated response in the name of commercial opportunity—there are clearly regulatory concerns and security considerations for subsea developers to address. But there is, certainly, a growing consensus that this will be the decade of ocean technology convergence, powered by autonomous systems.

### Resident ROV and AUV System

A most significant recent development has been the introduction of Resident ROV and AUV systems. This concept was first publicly introduced by Drew Michel while serving on a National Research Council Committee on Undersea Vehicles and National Needs. The committee's findings were published by the national Academy Press in 1996, but the technology was not sufficiently developed to pursue the concept.

Recent carbon reduction initiatives announced by virtually all major Oil & Gas companies will drive this technology even faster. If you remove a large ROV Support Vessel from the equation, you've significantly reduced your carbon footprint. To quote noted ROV technology author Bob Wernli from a 1983 MTS ROV Committee conference theme, this appears to be "a technology whose time has come."

IKM Subsea has been at the forefront of such initiatives and, in early 2018, launched its *Merlin UCV R-ROV*, complete with subsea garage and Tether Management System (TMS), beneath Equinor's Snorre B facility, offshore Norway. It's been there ever since, available day and night, to carry out missions of up to three months in duration before requiring any maintenance servicing.

Installing resident ROV and AUV systems that can essentially "plug into" preexisting offshore infrastructure, in this case Equinor's platform, is clearly more efficient than operating additional support vessels to provide power,

communications and control to subsea assets. Oceaneering's *Liberty E-ROV*, as the name suggests, offers even further flexibility by featuring a cage-mounted battery pack and tether management system, as well as a surface buoy for a communications link to shore using 4G networks.

For operators, extending subsea residency also means mitigating seasonal or weather restrictions, lowering associated vessel CO<sub>2</sub> emissions, and enabling continuous asset integrity inspection, something of increasing importance in the era of decommissioning. But it also hints to a new realm of what is achievable by aligning field proven technologies.

Saab Seaeye's *Sabertooth* is perhaps one of the clearest iterations of this. Essentially an AUV/ROV hybrid, it is capable of working in deep water either as an autonomous vehicle, or via a tether. Its 360° hovering mobility offers unmatched versatility when it comes to inspection services, subsea intervention, and offshore survey work. The double hull version of the *Sabertooth* is capable of operating at depths of 3000 meters and can be based at a remote docking station, where tooling packages can be stored, batteries recharged, and data transferred to shore. Maintenance is only required every six months.

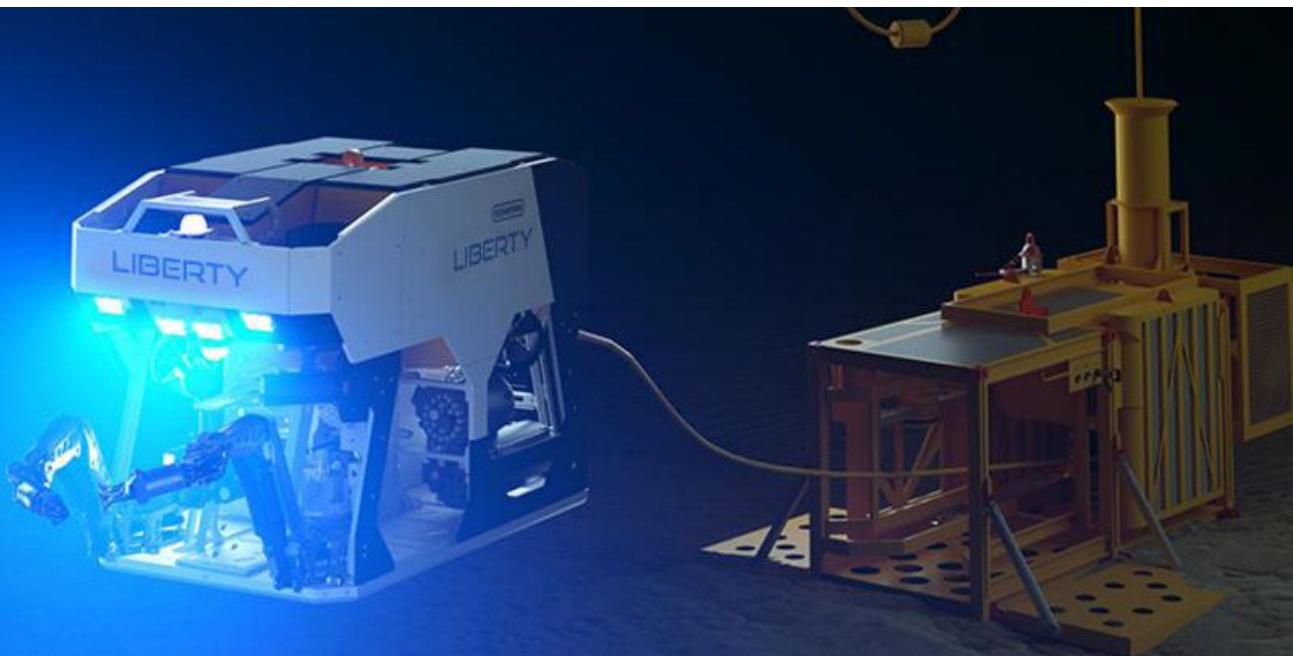
Saipem-Sonsub's take is its *Hydrone Program*, a fleet of subsea vehicles (including the *Hydrone-R*, which can operate uninterruptedly as a ROV or AUV at depths of 3,000 meters for up to 12 months) that is supported by subsea docking stations (*ByBase*) and a specialized power and communication buoy (called *HyBuoy*). Testing continues in the Adriatic Sea in an area that the company refers to as the *Hydrone Program's "playground."*

### Future Challenges

But obstacles remain and navigating them securely will call for growing collaboration across offshore industries. Battery technology will require ongoing investment to keep up with the expectations set by advocates of autonomous vehicles, as will communication networks and the services supporting them. The promise of 5G integration will continue to make remote, shore-based operations increasingly attractive, but with increased autonomy comes inherent risk and the idealistic notion of a fully automated offshore subsea environment—topside and below—poses some difficult questions for data protection and border security. Where once having the right tools to harvest data was the priority, today our principal concern is how we process, use, and store this information.

These dilemmas are further amplified by the prospect of building out a subsea infrastructure for more expansive and utilitarian use, say a network of docking stations that accommodate a range of subsea ROVs and AUVs from different vendors. Such resources would not only need to be vehicle compatible but also require substantial (renewable) energy sources themselves. Addressing these issues, those that will help write the next chapter in the story of ROVs, will take considerable time, resources, and cooperation.

The technology to make this happen, however, is within our grasp. In less than 70 years, from when *MOBOT* was first deployed in the shallow water of the Gulf of Mexico, subsea engineers—ROV pioneers—have managed to harness marine robotics to define what is possible; the challenge now is to find the commercial value to make it sustainable, long-term. This will require more than investment; it will require corporation and collaboration between manufacturers, operators and energy companies; and that may be the most significant challenge going forward.



» Oceaneering's *Liberty E-ROV* is a self-contained, battery-powered, work-class vehicle that allows you to perform routine tasks with fewer deployments. It can carry out inspection, maintenance, and repair (IMR), commissioning, and underwater intervention activities.

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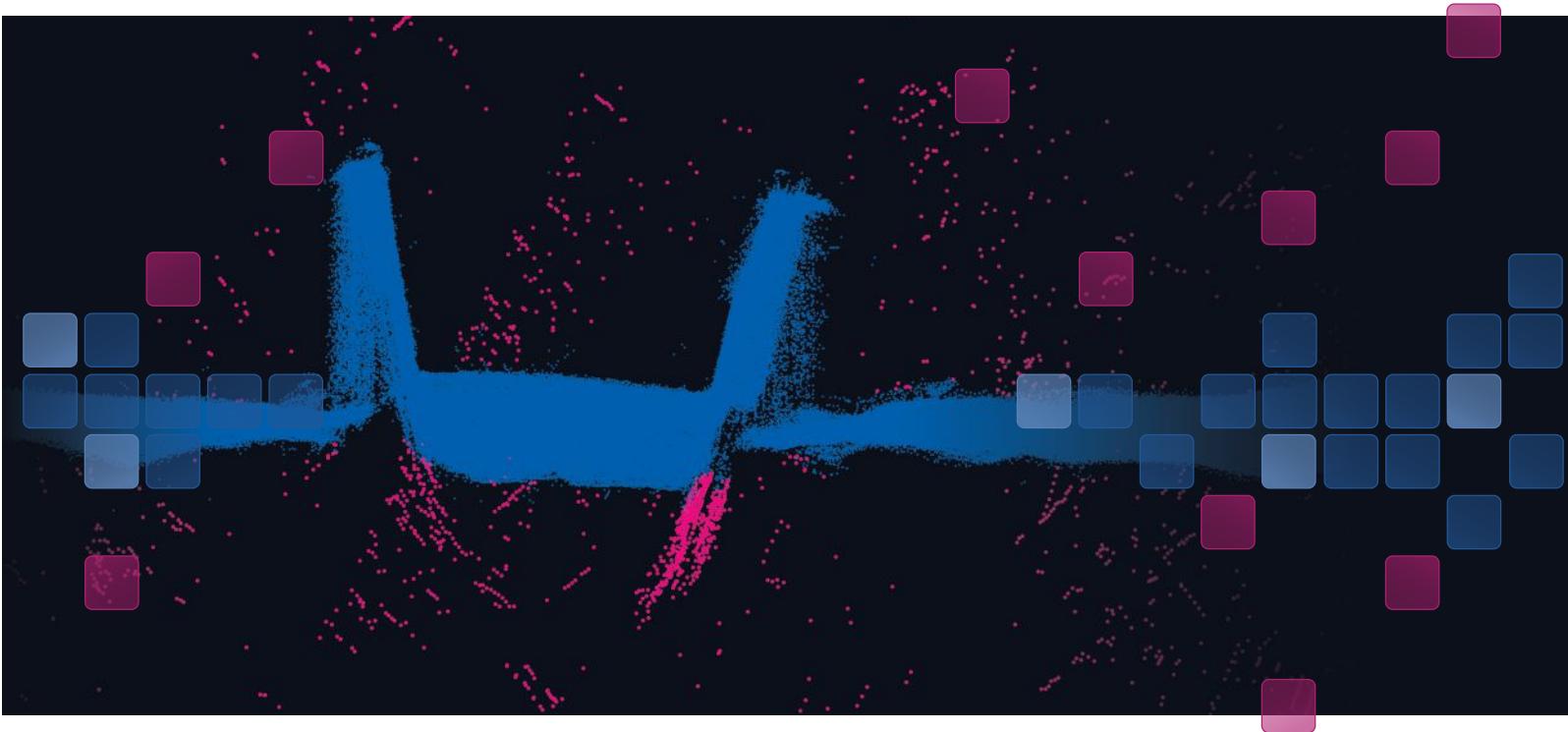
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## Reach Bravo – An Advanced Manipulator for Inspection Vehicles

Blueprint Lab started in late 2016 with the goal of making the world's most capable underwater electric robotic arms. Their first achievement in meeting this goal was the release of the Reach Alpha range of manipulators in 2017.

The most popular in this range, the Alpha 5, is a highly-dexterous five-function manipulator that enables a range of complex inspection and intervention tasks on small ROVs. Since its release, the Reach Alpha user base has grown to include militaries, oil and gas service providers, first responders, and academic researchers.

Primary applications of Blueprint Lab manipulators include Close Visual and Non-Destructive Inspections (using UT, CP, and ACFM probes), special recovery, and complex autonomous intervention trials.

Feedback from operators and hundreds of hours in the field, has enabled the Blueprint Lab R&D team to work towards developing the next class of manipulator in their product range.

Enter the Reach Bravo – a bigger, smarter, more dexterous manipulator designed specifically for inspection class ROVs.

With the first Bravo manipulators shipping in July this year, customers can select anything from a single-function grabber or tilt unit up to the Bravo 7, the flagship seven-function manipulator in the Bravo range.

The Bravo 7 has a reach of 1m at full extension and with over 100Nm of torque in each joint, it can lift 10-20kg depending on position. Furthermore, the small outer diameter (<90mm), allows the manipulator to be compactly stowed onto inspection class vehicles. This presents an opportunity not lost on vehicle manufacturers such as Seatronics, who recently adopted the Reach Bravo as the manipulator choice for the Valor ROV System.

With RS485 and Ethernet connections, a 20-36V input, and a nominal 150W power draw, the electrical interface is highly compatible with many existing ROV systems. Blueprint Lab has continued their patented 'minimalist' approach to robotics, using designs that ensure no additional power or control units are required. Additionally, this allows for a low number of pressure seals which increases the Bravo's reliability.

The system has advanced options for control. Of note, Blueprint Lab's master arm technology developed originally for the Alpha range has been expanded and upgraded for the Bravo manipulator. The master arm controller offers intuitive one-to-one or scaled control, as well as one-touch buttons for stow and deploy.

Extensive customisation options are available for users within the manipulator's advanced Reach Control software application. Further, an advanced 3D visualisation of the arm provides better situational awareness in cases where other camera or sensor payloads may be obscured.

For high-end customers looking at complex autonomy applications, the onboard GPU, ROS package, and open communication protocol give researchers a head-start on integrating the Reach Bravo into their projects.

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» The Bravo 7 - Tough, Smart, Dexterous



» Master Arm Topsides Controller



» Valor with dual Bravo manipulators

# OBSERVATION ROV

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### DELTA MICRO

The Delta Micro is a miniature remote visual inspection system, for operation in confined spaces as small as 10"/254mm. Capable of navigating through tight spaces, over objects and around obstacles due to its shape changing capabilities, the system is light weight, portable and easy to use. The entire system can be carried and operated by a single user. (Customizable)



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### PHANTOM® L6

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#### DTX2

The DTX2 ROV is the culmination of our customers' desires to have the same capability, portability, and ease of use as our flagship product, the DTG2 – but in a package rated for deeper waters and offshore use. Depth rated to 305 m (1000 ft), the DTX2 boasts 26kg (58lbs) of thrust to perform in tough ocean environments. (Customizable)



OBS | VC&L | A&T | VSK

### EPRONS GROUP

WWW.EPRONS.EU | Sales | info@eprons.eu



#### RB 300

Working depth till 200 meters.  
Tether length 220 meters (up to 600 m).  
Color camera 700 TVL. 5 Thrusters:  
2 Horizontal; 2 Vertical; 1 Lateral.  
Additional equipment possibility: 2  
jaw manipulator with open/close  
and rotation; Navigation sonar; USBL  
Positioning system; Rear camera.  
NEW! Two channel video output at the  
same time.



OBS | VC&L | A&T | VSK

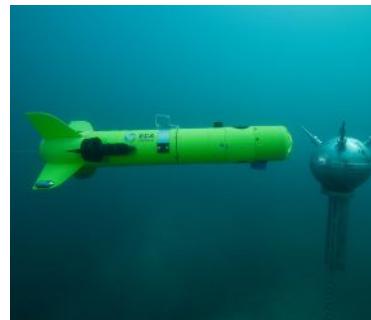
### ECA GROUP

WWW.ECAGROUP.COM | Anthony Penn | sales.robatics@ecagroup.com



#### K-STER

The K-STER vehicle is a lightweight expendable mine disposal vehicle dedicated to underwater mine warfare missions. This MIDS solution allows to remotely neutralize a sea mine while keeping crews out of the minefield. The user-friendly command and control software offers auto piloting functions and allows to conduct the operation in a safe way from deployment to the final firing. It is fitted with a shape charge in a tiltable head to aim at the target to dispose of.



#### SEASCAN MK2

The SEASCAN MK2 is a light weight self-propelled ROV dedicated to inspection missions. Its unique architecture ensures second to none performances in terms of hovering capability and stability in turbulent water. Easy to deploy from any kind of platform, the user friendly command and control software offers auto piloting functions to improve mission efficiency.



#### RB 600

Working depth till 300 meters. Tether length 300 meters (up to 1200 m). Front: Color Full HD and B/W cameras. Rear: additional color/BW camera 700 TVL. 7 Thrusters: 4 Horizontal; 2 Vertical; 1 Lateral.



#### RB MIRAGE

Working depth till 400 meters. Tether length 400 meters (up to 1200 m). Front: Color Full HD and B/W cameras. Rear: additional color/BW camera 700 TVL. 12 Thrusters: 6 Horizontal; 4 Vertical; 2 Lateral.



## JW FISHERS MFG. INC

WWW.JWFISHERS.COM | Brian Fisher | info@jwfishers.com



### SEALION-2 ROV

For over 53 years, JW Fishers has specialized in the design and manufacture of underwater search equipment. Their product line includes underwater metal detectors, cable trackers, pipe trackers, video systems, lights, magnetometers, sonars, ROVs, and pingers. Fishers ROVs are in use by commercial diving companies, universities, police & military worldwide.



## FORUM SUBSEA TECHNOLOGIES

WWW.F-E-T.COM

Sales | rov.sales@f-e-t.com



### XLe SPIRIT

The XLe Spirit is the first of a new generation of observation class ROVs from Forum Energy Technologies. The vehicle embraces the latest advances in ROV technology that the industry has come to demand and expect from modern ROV design.  
(Customizable)



OBS | VC&L | A&T | VSK

## JW FISHERS MFG. INC

WWW.JWFISHERS.COM

Brian Fisher | info@jwfishers.com



### SEAOTTER-2 ROV

For over 53 years, JW Fishers has specialized in the design and manufacture of underwater search equipment. Their product line includes underwater metal detectors, cable trackers, pipe trackers, video systems, lights, magnetometers, sonars, ROVs, and pingers. Fishers ROVs are in use by commercial diving companies, universities, police & military worldwide.



## L3HARRIS

WWW.L3HARRIS.COM

Giuseppe Ranieli | Calzoni.Sales@l3Harris.com



### AGEOTEC ROV SIRIO

Leveraging more than two decades experience in coastal and offshore surveying and construction characterising the AGEOTEC product line, the ROV Sirio presents itself as the first model of L3Harris' wide range of remotely operated vehicles. Sirio features a modular chassis manufactured in high impact resistant polypropylene, totally maintenance-free and non-corroding.  
(Customizable)



VC&L | A&T

## TASKS

### OBS

OBSERVATION

### SUR

SURVEY

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INSPECTION

### CON

CONSTRUCTION

### INT

INTERVENTION

### B&T

BURIAL &

TRENCHING

## TOOLS

### VC&L

VIDEO CAMERA & LIGHTING

### NDT

NON-DESTRUCTIVE TESTING

### A&T

ACOUSTIC & TRACKING

### CD

CLEANING DEVICES

### VSK

VEHICLE STATION KEEPING

### WT

WORK TOOLS

## OBSERVATION ROV

### MARINE DISTRIBUTION & CONSULTING

WWW.PALANQUEE.FR/BLUEROV2BYMDC  
Andreas Pinsker | ap@marine-distribution-consulting.com



#### BLUEROV2

MDC Bluerov2 operational set: Vehicle BlueROV2 with 4 1500lumens LEDs, 150m tether, Topside elements: Rugged Laptop with Gamecontroller, Surface connection box for tether and Laptop, Battery charger and Pelicase Transport box, Weight Bluerov2 package Bluerov2 11,5 kg , 150m Fathom Teather 7 kg , Li-po Battery 0,9 kg. (Customizable)



OBS | VC&L | A&T | VSK

### MARISCOPE MEERESTECHNIK

WWW.MARISCOPE.DE  
Niklas Becker | n.becker@mariscope.de



#### PEEWEE 100

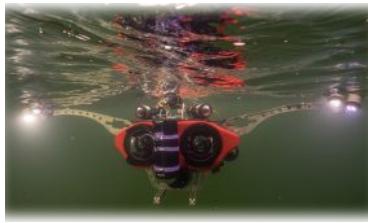
The world's first hybrid of its type, combination between a ROV and a towed vehicle. Robust stainless steel TIG hand welded frame but easy to carry by hand, incorporates a Full HD camera and with a pair of high output LED spotlights, both installed on a tilting system. Lifetime warranty. (Customizable)



OBS | VC&L | A&T

### MARINE IMAGING TECHNOLOGIES

WWW.MARINEIMAGINGTECH.COM  
David Ullman | david@marineimagingtech.com



#### PIXEL

The original Cinema class ROV, Pixel boasts live stream imaging and control of forward facing 4k and HD video and 45mp stills along with 4k video downward facing. Conceived by a cinematographer, Pixel's original purpose was to be the ideal system for subsea documentaries. She has since expanded into research and exploration, adding photogrammetry to her list of skills. (Customizable)



OBS | VC&L | VSK

### MARISCOPE MEERESTECHNIK

WWW.MARISCOPE.DE  
Niklas Becker | n.becker@mariscope.de



#### MS2

Evolved, depth rated to 500 meters. 35 kg and 4 thrusters. Hydro dynamic shape in a stainless steel frame (AISI 316L) manually TIG-welded, equipped with high end components (Full HD Cam with laser pointers and others) and customizable accessories, offers maximum operating stability, high maneuverability and easy maintenance. Lifetime warranty. (Customizable)



OBS | VC&L | A&T

### OUTLAND TECHNOLOGY

WWW.OUTLANDTECH.COM | Jeffrey Mayfield | jeff@outlandtech.com



#### ROV 1000

Brushless DC, Magnetically Coupled Thrusters. Easy deployment and operation. All digital control of camera, lights, thrusters and grabber.



**POWERDOCKS LLC**

WWW.POWER-DOCKS.COM | Anthony Baro | abaro@power-docks.com

**BLUE ISLES(TM) BIOMEHD-IA**

Water Quality Remote Monitoring (Customizable)



OBS | A&amp;T

**SEAMOR MARINE LTD.**

WWW.SEAMOR.COM | Robin Li | sales@seamor.com

**STEELHEAD ROV**

The STEELHEAD inspection-class ROV is a portable, lightweight and stable underwater system that is easily operated through intuitive flight controls. A small profile allows this vehicle to inspect confined spaces and be easily stowed. The compact STEELHEAD is easily deployed and recovered from small vessels and docks—no need for hoists or cranes. (Customizable)



OBS | VC&amp;L | A&amp;T | VSK

**TASKS****OBS**

OBSERVATION

**SUR**

SURVEY

**INS**

INSPECTION

**CON**

CONSTRUCTION

**INT**

INTERVENTION

**B&T**

BURIAL &amp;

TRENCHING

**TOOLS****VC&L**VIDEO CAMERA  
& LIGHTING**NDT**NON-  
DESTRUCTIVE  
TESTING**A&T**ACOUSTIC  
& TRACKING**CD**CLEANING  
DEVICES**VSK**VEHICLE STATION  
KEEPING**WT**

WORK TOOLS

**OUTLAND TECHNOLOGY**

**Follow Us!**

**ROV-500**

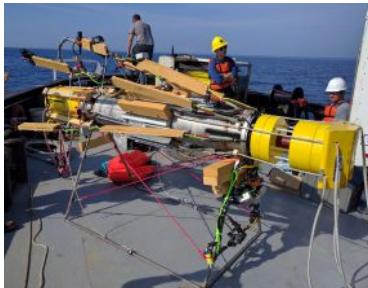
- High Power/Weight
- Light Weight Design
- NO batteries required
- 300M Depth Rated
- Dual Lateral Thrusters
- High Power LED Lights
- LOW Maintenance
- EASY Operation

[www.outlandtech.com](http://www.outlandtech.com)

## OBSERVATION ROV

### SEAVIEW SYSTEMS, INC.

WWW.SEAVIEWSYSTEMS.COM  
Matthew Cook | mcook@seaviewsystems.com



#### TITAN

Titan is a water-propelled, battery-powered ROV capable of providing full video and profiling sonar coverage of a tunnel perimeter for lengths up to 32,000ft (10km) or more. Cameras are mounted on eight umbrella-like booms distributed around tunnel perimeter.



### SUBSEA TECH

WWW.SUBSEA-TECH.COM | Gregory Maurin | gregory.maurin@subsea-tech.com



#### GUARDIAN MINI-ROV

The Guardian Mini-ROV is a 150m depth rated ultra-portable underwater inspection robot equipped with 4 horizontal and 1 vertical thrusters. Fitted with 2 high resolution colour video cameras, one on pan&tilt, and LED lighting, it has been especially designed for long range missions (> 400m). Thanks to an ancillary plug, various accessories such as sonars, gauges and manipulator can easily be mounted on the Guardian. (Customizable)



OBS | VC&L | A&T



#### OBSERVER MINI-ROV

Observer is fitted with 2 high resolution colour video cameras, one on pan&tilt, and LED lighting. Embedded batteries allow 4h autonomy and operation in the most remote areas down to 150m depth. Thanks to an ancillary plug, various accessories such as sonars, gauges and manipulator can easily be mounted on the Observer.



OBS | VC&L | A&T

### SUBSEA TECH

WWW.SUBSEA-TECH.COM | Gregory Maurin | gregory.maurin@subsea-tech.com



#### ROBIS MINI-ROV

Robis is designed for ballast tank inspection without prior emptying. Vectored thrusters and small dimensions make ROBIS extremely maneuverable for inspection of highly confined areas. Two high resolution video cameras (front on Pan&Tilt), multiple sensors (US gauge, CP probe, laser tool) and an innovative acoustic positioning system allow detailed mapping of measurements and defects inside the ballast tank.



OBS | VC&L | A&T

#### SENTINEL MINI-ROV

Sentinel is the perfect compromise for those looking for an affordable underwater inspection solution offering only the essential features. Embedded batteries allow 4h autonomy and operation in the most remote areas down to 150m depth. The complete system with a 50m umbilical is packaged in a single transport bag (20 kg). (Customizable)



OBS | VC&L | A&T

## UNDERWATER ROBOTICS, LLC.

WWW.GNOMROV.COM | info@gnom-rov.com



### GNOM BABY

The ROV GNOM Baby is a micro sized vehicle that has all the main features inherited from larger underwater systems. The vehicle combines low cost with the full set of GNOM capabilities.



### GNOM STANDARD

The GNOM Standard is a basic model of compact ROVs GNOM. It has small size, thin umbilical cable and very high manoeuvring capability which allows operating in hard-to-reach places including inside sunken wrecks.



### SUPERGNOM

The most advanced model Super Gnom can be equipped with the manipulator (grabber), scan sector sonar (Micron Tritech or analogue) and USBL positioning system. More powerful thrusters & additional illumination are installed on this ROV. It can be modified for operation at depths up to 200m.



## TASKS

OBS  
OBSERVATION

SUR  
SURVEY

INS  
INSPECTION

CON  
CONSTRUCTION

INT  
INTERVENTION

B&T  
BURIAL &  
TRENCHING

## TOOLS

VC&L  
VIDEO CAMERA & LIGHTING

NDT  
NON-  
DESTRUCTIVE  
TESTING

A&T  
ACOUSTIC &  
TRACKING

CD  
CLEANING  
DEVICES

VSK  
VEHICLE STATION  
KEEPING

WT  
WORK TOOLS

## Ocean Engineering

A promotional graphic for SubCtech showing various ocean engineering products. It includes sections for OceanPack™, pCO2 Underway, Li-Ion Batteries, and Subsea equipment. Each section features images of the hardware and descriptive text. The SubCtech logo is at the bottom right.

**OceanPack™**

**pCO<sub>2</sub> Underway**  
Modular, easy to use and reliable monitoring systems

**Li-Ion Batteries**  
Highly reliable, efficient and safe underwater power solutions

**Subsea**

SubCtech GmbH  
www.subCtech.com  
info@subCtech.com

UN  
329  
Certified

ISO 9001

subCtech  
Subsea Technologies

**KLEIN μMA-X  
(MicroMA-X)**

**INDUSTRY'S FIRST  
NADIR IMAGING SONAR  
FOR COMMERCIAL AND  
MILITARY UNMANNED  
VEHICLE MARKETS**

**THE DIFFERENCE IS IN THE IMAGE**

**Complete Nadir Coverage**

The Klein μMA-X is a highly scalable, modular system which integrates easily to most AUV/ROV vehicles. The system utilizes Klein's next generation μEngine which is a powerful, compact, low-power architecture which uses Klein BLUE technology to provide superior imaging performance. When paired with a Side Scan System, the μMA-X functions as a gap-filler providing a 40% increase in survey efficiency.

[www.KleinMarineSystems.com](http://www.KleinMarineSystems.com)  
[Sales@KleinMarineSystems.com](mailto:Sales@KleinMarineSystems.com)

# SeaState

THE ON&T PODCAST

SEASON 1 / EPISODE 2

## A Chat with Marty Klein: The Father of Side Scan Sonar

If you have ever used side scan sonar to perhaps look for a site location for a pipeline, or to survey an area for a construction project you have Marty Klein to thank for making your survey possible. Known as the father of side scan sonar, he has been a key player in the development of this technology. A technology that has allowed scientists, engineers, and governments from around the world, explore the oceans depths with precision and ease. In our July episode of SeaState we were able to chat with Marty about his auspicious beginnings as a graduate student at MIT working with the famed scientist, Dr. Harold E. "Doc" Edgerton to his time working in Scotland looking for a fabled creature in the loch. Doc Edgerton first worked with Woods Hole Oceanographic Institution in underwater photography in the 1930s. His experiments with sonar in 1953 involved taking the first deep ocean pictures in the Mediterranean. These experiments were in collaboration with the famous underwater explorer Jacque Yves Cousteau. To focus the camera accurately, they needed to know the exact distance between camera and sea bottom. This was done with precision-timed sonar sources called "pingers". Edgerton observed from the camera sonar signal that sound echoes could record layers of sediment just below the bottom. This led to the development of his "mud penetrator", a high-resolution acoustic sub-bottom profiler.

In 1961, Marty approached Edgerton looking for an interesting topic for his senior thesis in electrical engineering. Edgerton suggested that Marty improve the signal processing of his mud penetrator. Marty improved the signal, had his thesis topic, and continued to work with Edgerton.

The story of sonar development is connected to navigation at sea, the increased use of submarines in World War I, and iceberg detection. Submarine warfare during the second World War saw growth in acoustics research which led to new uses of sonar for locating ocean bottom targets such as mines and mapping the oceans floor. In 1967, Marty assisted pioneer underwater archaeologist George F. Bass in the discovery of a 2,000-year-old Roman shipwreck off southwest Turkey—the first ancient shipwreck found using remote sensing. Later in 1967, Edgerton helped find the HMS Mary Rose, a wreck from the 16th century that is now a major archaeological exhibit in Portsmouth, England. These discoveries were the first significant finds of historical vessels made with side scan sonar.

Don't miss this engaging conversation with the father of side scan sonar in the July episode of SeaState!

[WWW.OCEANNEWS.COM/SEASTATE](http://WWW.OCEANNEWS.COM/SEASTATE)



### VIDEORAY PRO 4 ULTRA BASE ROV

The Pro 4 Ultra BASE offers a lighter, more portable solution for operators who only need basic functionality. 40% lighter than the Standard, the Ultra requires only 48 V DC and features a 15.6" PC screen with wired USB Logitech controller (wireless controller optional). The Ultra BASE can accept most basic VideoRay accessories.



**VIDEORAY LLC**  
WWW.VIDEORAY.COM | marketing@videoray.com

**VIDEORAY PRO 4 STANDARD BASE ROV**

The VideoRay Pro 4 Standard BASE ROV system can quickly and effectively perform a variety of basic underwater tasks. A portable and cost-effective solution, the Pro 4 can be deployed in minutes and operated by one person if necessary. The Standard BASE configuration is ready to accept the majority of VideoRay accessories and can be upgraded to accept sonars.

### TASKS

**OBS**  
OBSERVATION

**SUR**  
SURVEY

**INS**  
INSPECTION

**CON**  
CONSTRUCTION

**INT**  
INTERVENTION

**B&T**  
BURIAL &  
TRENCHING

### TOOLS

**VC&L**  
VIDEO CAMERA  
& LIGHTING

**NDT**  
NON-  
DESTRUCTIVE  
TESTING

**A&T**  
ACOUSTIC  
& TRACKING

**CD**  
CLEANING  
DEVICES

**VSK**  
VEHICLE STATION  
KEEPING

**WT**  
WORK TOOLS

### A Vehicle Used to Search all Environments...

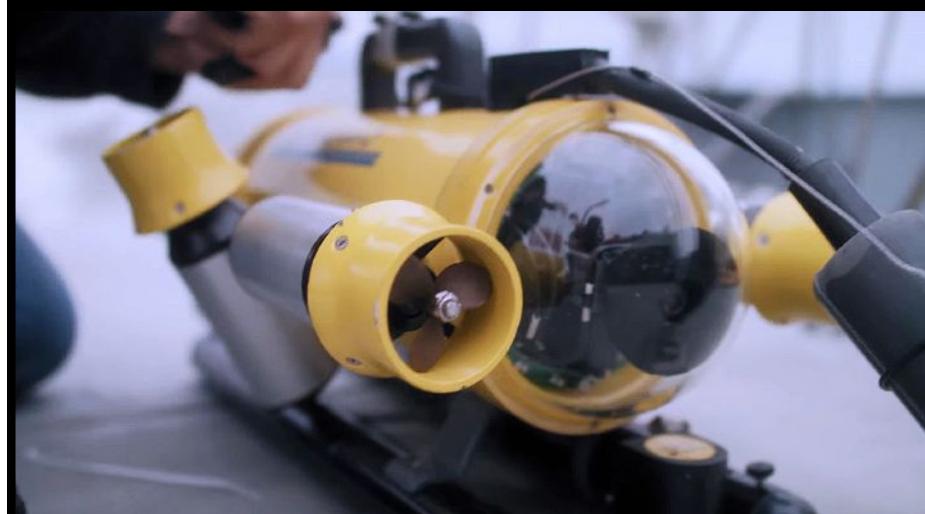
safe and quickly with a JW Fishers commercial grade ROV

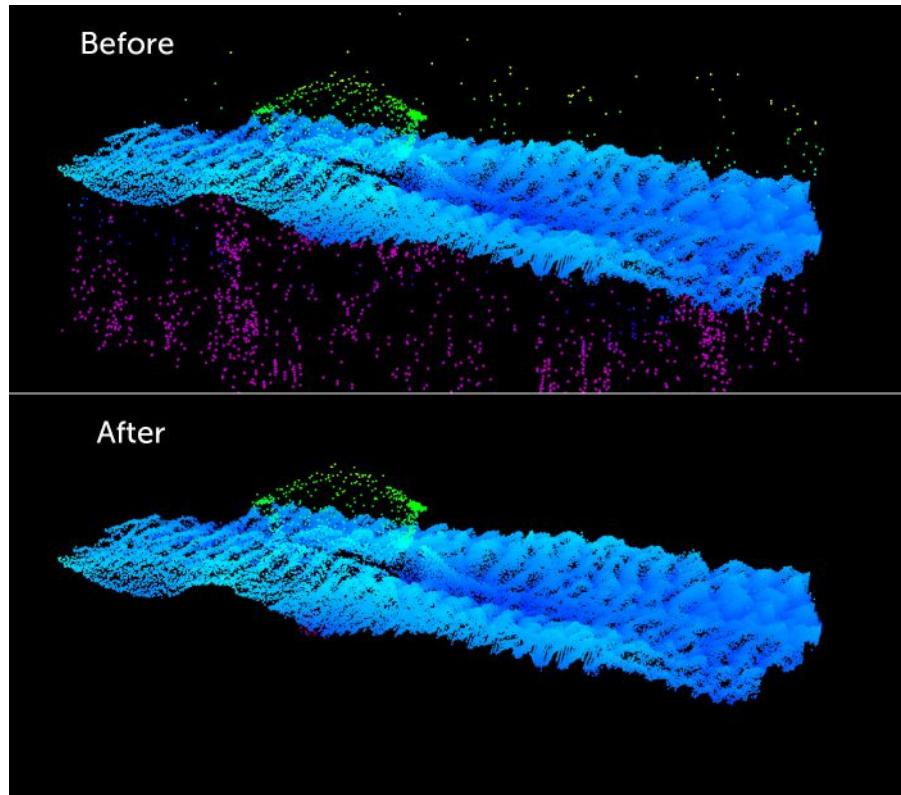


- Highly Portable
- Commercial grade
- High power LED lighting
- 1,000' depth capability
- (4) high output motors
- Pan & tilt front **AND** rear cameras come standard
- Starting at \$20,995



**JW Fishers Mfg., Inc.**  
**(800)822-4744**  
**(508)822-7330**  
Email: [info@jwfishers.com](mailto:info@jwfishers.com)  
[www.jwfishers.com](http://www.jwfishers.com)





## Empowering the Survey Community with the New CARIS Mira AI Platform

Teledyne CARIS has been a key innovator in the marine GIS community for more than 40 years. Founded and built on an enduring passion for its community, Teledyne CARIS exemplifies its dedication through ground-breaking products and outstanding customer service.

With customers and end-users in view, the CARIS toolset provides optimization and realizes true operational advantages. In addition to its renowned Ping-to-Chart™ portfolio featuring a comprehensive suite of products for processing of raw survey data through to the production and distribution of the chart, Teledyne CARIS has ventured into efficiency-realizing artificial intelligence with its new CARIS Mira AI platform. The focus is on empowering the survey community with the latest cutting-edge technologies.

Research on Artificial Intelligence (AI) has seen exponential growth due to breakthroughs in a subdomain called Deep Learning. Deep Learning algorithms allow us to teach a computer to achieve tasks that only humans were previously

able to do. Taking advantage of access to large repositories of digital data, powerful computing infrastructure including Graphical Processing Units (GPUs) and domain expertise, CARIS is training Deep Learning algorithms to tackle key challenges in hydrographic data processing. CARIS Mira AI brings these advancements directly to workflows while retaining a seamless user experience across our product line.

The CARIS Mira AI initial offering is the Sonar Noise Classifier, which applies its AI algorithm to identify and clean up to 90% of sonar noise speeding up delivery time on data processing. Backed by Amazon Web Services (AWS), offering a robust, scalable cloud platform means no additional desktop hardware is required to move users into the future of processing.

With these evolving technologies, our AWS-certified team is focused on the safety and security of customer data while it is in our care: all data directed to the CARIS Mira AI platform is anonymized, randomized and encrypted before

transmission. For additional security, no data remains stored on the cloud following the AI classification process.

AI technologies and cloud services are the new force multipliers. Let CARIS future-proof your processing pipeline.

With a comprehensive level of support through training sessions, consulting, online technical support, email and multilingual telephone support, Teledyne CARIS continues to pursue customer excellence in every facet of the business.

Find out why Teledyne CARIS software is selected by national mapping and charting agencies, survey companies, port and waterway authorities, resource management companies and academic institutions worldwide by visiting [www.teledynecaris.com](http://www.teledynecaris.com)

[WWW.TELEDYNECARIS.COM](http://WWW.TELEDYNECARIS.COM)

# OBSERVATION ROV WITH PAYLOAD OPTION

UNMANNED  
VEHICLES  
BUYERS' GUIDE



ENVIRONMENTAL



DEFENSE



OFFSHORE OIL & GAS



SCIENCE



SEABED MINING



OCEAN RENEWABLES

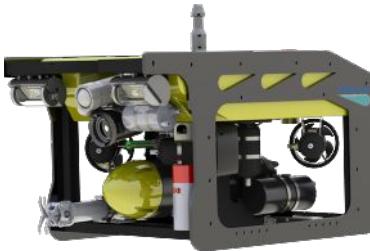


SPEC SHEET

## OBSERVATION ROV WITH PAYLOAD OPTION

### ARGUS REMOTE SYSTEMS AS

WWW.ARGUS-RS.NO | Jan Bryn | jan@argus-rs.no

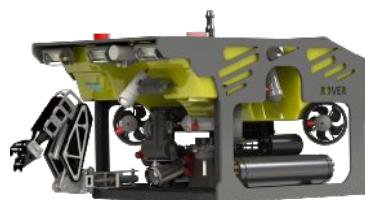


#### ARGUS MINI

Observation class ROV that can be fitted with an open/close manipulator. (Customizable)



VC&L | NDT | A&T



#### ARGUS ROVER

Observation class ROV that can do light work. Can be fitted with 1 or two manipulators for light work. (Customizable)



VC&L | NDT | A&T

### COPENHAGEN SUBSEA A/S

WWW.COPENHAGENSUBSEA.COM

Allan Nygård Bertelsen  
sales@copenhagensubsea.com



#### GORILLA ROV

The Gorilla from Copenhagen Subsea is particularly robust and reliable in challenging subsea environments in the offshore industry. It is equipped with an intelligent state-of-the-art Dynamic Positioning (DP) system and is based on Copenhagen Subsea's successful rim-driven thruster technology and standard electronic components from OMRON, making it easy to maintain. (Customizable)



OBS | SUR | INS | VC&L | NDT | A&T | VSK

### DEEP OCEAN ENGINEERING

WWW.DEEPOCEAN.COM | Mika Takeda | sales@deepeccean.com



#### PHANTOM® FIREFLY

Sized to penetrate through and below the top guide and core plate. Normally used for steam dryer visual exam during BWR scheduled outages. All materials are suitable for use in nuclear support. Torque balanced thrusters provide a high degree of control and maneuverability in the confined environments. (Customizable)



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#### PHANTOM® P-150

Designed for nuclear industry with stable materials / FME concerns as a priority. Two Horizontal and Two "Vertrans" thrusters, with additional Thrusters/ configurations available, No electronics in the sub unit ensures reliability in areas of high radiation, Access through 20" dia. manholes and into PWR Recirc Piping. (Customizable)



OBS | INS | VC&L | NDT | A&T | VSK



#### PHANTOM® S-SERIES

The Phantom® S-Series is a portable high performance ROV that combines superior power, telemetry, and payload with ease of use, ruggedness and reliability. This provides a powerful overall performance envelope and versatility compared to other vehicles of its class. The S-Series can be configured with either 6 or 8 thrusters that enable aggressive lift capabilities and significant control in harsh conditions while reaching depths up to 1,000 meters. (Customizable)



OBS | INS | VC&L | NDT | A&T | VSK

## DEEP OCEAN ENGINEERING

WWW.DEEPOCEAN.COM

Mika Takeda | sales@deepecan.com



### PHANTOM® L6

The advanced technology of the Phantom® L6 ROV platform introduces a high-performance, inspection-class ROV that offers powerful maneuverability and lift, incorporates an open architecture to integrate a wide variety of sensors, and is hand-built on a rugged, resilient, non-corroding polypropylene chassis that can accommodate heavier payloads. (Customizable)



OBS | INS | VC&L | NDT | A&T | VSK

## DOER MARINE

WWW.DOERMARINE.COM

Elizabeth R Taylor | liz@doermarine.com



### H2000

H2000 is a robust yet compact science class observation ROV. It has payload capacity for geological and biological sampling. One or two five function manipulators can be supported along with the normal array of lights, sonar, cameras, lasers and pan/tilt. These systems are typically designed for 2000m depth but options for 1000m and 3000m are available. (Customizable)



OBS | SUR | INS | VC&L | NDT | A&T | VSK

## DWTEK CO., LTD

WWW.DWTEKMARINE.COM

info@dwtek.com.tw



### INVESTIGATOR 90 (I-90)

Suitable for Port & Harbor Security, Search & Rescue Operations, Real-time Submerged Monitoring, Pipe & Cable Tracking, Scientific Task & Surveys, Dam & Tunnel Inspections, Offshore oil & Gas, and Renewable Energy Search.



## TASKS

### OBS

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BURIAL & TRENCHING

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### VC&L

VIDEO CAMERA & LIGHTING

### NDT

NON-DESTRUCTIVE TESTING

### A&T

ACOUSTIC & TRACKING

### CD

CLEANING DEVICES

### VSK

VEHICLE STATION KEEPING

### WT

WORK TOOLS



## Intelligent Solutions for Deep Sea Applications



### High Performance SS109 Pan & Tilt

- High Torque 14ft lbs/19Nm (each axis)
- Depth Rate: 6000 m
- Positional Accuracy: 0.1°
- Reversible synchronous motors
- Scan Range: 360° both axis / 180° tilt axis with yoke

### DARK SABER

P/N: SS182mkII



- 11,000 Lumens LED Light
- Adjustable Line Laser 5-100mW
- High Intensity Strobe
- Depth Rate: 4000 Meters
- Multiple lights can be controlled by a single serial port

**Headquarters - San Diego, CA USA**  
Phone: 619-275-5533  
Email: [info@sidus-solutions.com](mailto:info@sidus-solutions.com)  
[www.sidus-solutions.com](http://www.sidus-solutions.com)



## OBSERVATION ROV WITH PAYLOAD OPTION

### ECA GROUP

WWW.ECAGROUP.COM | Anthony Penn | sales.robots@ecagroup.com



#### H300V

Observation Class ROV with 4 horizontal vectored thrusters for inspection missions in very harsh environments, up to 300 m depth. Modular design and easy configuration thanks to a wide range of cameras, sonars, manipulator arms, tools, and any type of sensors.



#### H800

Observation Class ROV and light duty work system for subsea observation, inspection and surveillance in strong currents, up to 1000 m depth. Modular design and easy configuration thanks to a wide range of cameras, sonars, manipulator arms, tools, and any type of sensors.



### FORSSEA ROBOTICS

WWW.FORSSEA-ROBOTICS.FR  
Gautier Dreyfus | gdreyfus@forssea-robotics.fr



#### ARGOS

ARGOS ROV embraces the latest advances in ROV technology that the industry has come to demand and expect from modern ROV design. ARGOS is compact in design and is primarily suited to inspection and light intervention tasks. The vehicle is powerful enough to perform maintenance and repair duties with use of the optional electric five function manipulator arm and tooling skid interfaces. (Customizable)



OBS | SUR | INS | VC&L | NDT | A&T | VSK

### FORSSEA ROBOTICS

WWW.FORSSEA-ROBOTICS.FR  
Gautier Dreyfus | gdreyfus@forssea-robotics.fr



#### ATOLL

ATOLL (patented system) is an observation class-ROV deployable from a light vessel. The system can perform a fully autonomous approach and docking based on embedded control algorithms. Once the link is obtained to the seabed target, ATOLL can either transfer power & data, or mechanically engage the target for recovery back to surface and valve manipulation. (Customizable)



OBS | SUR | INS | VC&L | NDT | A&T | VSK

### L3HARRIS

WWW.L3HARRIS.COM | Giuseppe Ranieli | Calzoni.Sales@L3Harris.com



#### AGEOTEC ROV ANTARES

L3Harris' AGEOTEC ROV Antares features as many as two HD cameras. It is equipped with as many as four 4K lumen LED lights and supports up to 14 Kg payload. The vehicle can reach 400 msw depth and it's operated using a portable control unit, contained in a trolley suitcase. (Customizable)



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#### AGEOTEC ROV LYRA

The ROV Lyra features an exceptional payload capacity and an amazing weight-to-power ratio for an observer class remotely operated vehicle. Reaching up to 300 msw depth, Lyra features a modular chassis manufactured in non-corroding high impact resistant polypropylene. (Customizable)



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## L3HARRIS

WWW.L3HARRIS.COM | Giuseppe Ranieli | Calzoni.Sales@L3Harris.com



### AGEOTEC ROV PEGASO

Representing the ideal light-work class solution, the Pegaso reaches 2000 msw depth and is capable of 150kg payload. Its dedicated skid - suitable for any kind of survey equipment - can be accessorized with a 7 function manipulator. Pegaso it's perfect for inspecting, monitoring, surveying, target detecting and construction supporting. (Customizable)



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### AGEOTEC ROV PERSEO

Perseo represents the perfect multitasking solution. With as many as 25 kg payload and as many as three real-time cameras, the vehicle is equipped with an inertial measurement unit providing high accuracy heading position. It can reach a 600msw depth and can be customized using a wide range of accessories. (Customizable)



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### AGEOTEC ROV PERSEO GTV

The Perseo GTV it's a multi-purpose class ROV capable of amazing performances. Reaching a 1500 msw depth, the Vehicle supports up to 40 kg payload and is equipped with multiple HD real-time cameras. Perseo GTV can be customized using many accessories, including sonar and multi-beam echosounder. (Customizable)



OBS | SUR | INS | VC&L | NDT | A&T

## TASKS

**OBS**

OBSERVATION

**SUR**

SURVEY

**INS**

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**CON**

CONSTRUCTION

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INTERVENTION

**B&T**

BURIAL &

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## TOOLS

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**NDT**

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**A&T**

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**CD**

CLEANING DEVICES

**VSK**

VEHICLE STATION KEEPING

**WT**

WORK TOOLS

## MARISCOPE MEERESTECHNIK

WWW.MARISCOPE.DE | Niklas Becker | n.becker@mariscope.de



### CHAMELEON

The Chameleon is a pure scientific ROV specially developed taking into account the applications and needs of the scientific community. Completely modular in structure and equipment, the Chameleon is configured with the client according to the tasks and scientific research missions that need to be carried out. Lifetime warranty. (Customizable)



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### DIAVOLO III

The next evolution of the FO III adding a lateral thruster to improve the side-wards movement, with the same 24/7 work capabilities. Its open frame construction allows an easy adaptation of accessories and allows an easy maintenance. Diavolo III can be adapted following the customer's requirements. Lifetime warranty. (Customizable)



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### FO III

Manufactured in stainless steel, manually TIG-welded, equipped with powerful thrusters, designed to 24/7 use, easy to maintain, robust and stable. Full HD/4K cameras and high output LED-lights. With its open frame, can be equipped with additional accessories like electric manipulators, lasers, sonars and tracking devices. Wireless steering console. Lifetime warranty. (Customizable)



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## OBSERVATION ROV WITH PAYLOAD OPTION

### NOTILO PLUS

WWW.SEASAM.NOTILOPLUS.COM | Solène Guéré | contact@notiloplus.com



### SEASAM

SEASAM is a very stable and compact ROV and AUV with real-time AI capabilities. It is a one-person operated ROV weighting less than 10kgs. Multiple options are available for each industry. Hardware accessories: external 10000Lm lights, integration with multibeam sonar, underwater GPS.. Software add-ons for semi-autonomous inspection, image recognition, post-inspection, easy video analysis. (Customizable)



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### OUTLAND TECHNOLOGY

WWW.OUTLANDTECH.COM | Jeffrey Mayfield | jeff@outlandtech.com



### ROV 2000

Brushless DC, Magnetically Coupled Thrusters. Easy deployment and operation. All digital control of camera, lights, thrusters and grabber.



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### SAAB SEA EYE LTD

WWW.SaabSeaeye.com | James Douglas | solutions@sabseaye.com



### SEA EYE FALCON

The Falcon is the most successful underwater electric robotic system of its class and is proven in numerous intricate and demanding missions across many commercial, security and scientific sectors. The Falcon is lightweight, sized just one metre long and is rated to a depth of 300m or 1000m. (Customizable)



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### SEA EYE LYNX

The Lynx is a leading observation and inspection vehicle for missions in water depths of up to 1,500m. It is fitted with two vertical and four horizontal thrusters making it a very stable platform with exceptional manoeuvrability. A wide range of tools and sensors are available as well as interchangeable tooling skids. (Customizable)



OBS | INS | SUR | VC&L | A&T | NDT

### POSEIDON ROBOTICS, LLC

WWW.POSEIDONROV.COM  
Peter Schubert | Peter@poseidonrov.com



### LANAI

Designed by ROV operators for complicated operations. The Lanai offers more uptime and more payload. Ready to use in a capable and affordable package. (Customizable)



OBS | SUR | VC&L



### SEA EYE TIGER

Widely regarded as the leading observation and inspection vehicle within the oil and gas industry, the Tiger is also increasingly chosen by defence and marine science seeking increased capability in deep water. The Tiger is a very stable platform, with excellent manoeuvrability and performance in strong currents. (Customizable)



OBS | INS | SUR | VC&L | A&T | NDT

## RJE OCEANBOTICS

WWW.OCEANBOTICS.COM

Sales | sales@oceanbotics.com



### OCEANBOTICS SRV-8 ROV

The SRV-8 is designed for superior performance, equipped with RJE's exclusive 8 thruster DVCTM (Dynamic Vector Control) for the most advanced maneuverability on the market today. Operating the vehicle is easy with a simple set up, one-person portable system and the ability to deploy in 3 minutes or less. (Customizable)



OBS | SUR | INS | VC&L | NDT | A&T | VSK

## SEAMOR MARINE LTD.

WWW.SEAMOR.COM

Simon Douthwaite | sdouthwaite@seamor.com



### SEAMOR CHINOOK ROV

The Chinook is an industrial grade inspection ROV with a wide range of capabilities. The Chinook offers a stable platform yet remains compact and can be rapidly deployed with ease by two people. (Customizable)



OBS | SUR | INS | VC&L | NDT | A&T | VSK

## SEATRONICS

WWW.SEATRONICS-GROUP.COM

Jamie Neilson | jamie.neilson@seatronics-group.com



### VALOR

The VALOR is one of the lightest yet most powerful Observation ROVs available. 300m depth rated, however the unique design allows the vehicle to be extended up to 1000m. The VALOR versatility is limitless given the significant payload, unrivalled power capability and available bandwidth allowing the ROV to manage complex tooling and sensor packages. (Customizable)



OBS | SUR | INS | VC&L | NDT | A&T | VSK

## TASKS

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SURVEY

**INS**

INSPECTION

**CON**

CONSTRUCTION

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## TOOLS

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**NDT**

NON-DESTRUCTIVE TESTING

**A&T**

ACOUSTIC & TRACKING

**CD**

CLEANING DEVICES

**VSK**

VEHICLE STATION KEEPING

**WT**

WORK TOOLS

## SEAVIEW SYSTEMS

WWW.SEAVIEWSYSTEMS.COM

Geoff Cook | info@seaviewsystems.com



### SVS-BR2-4K

SeaView's SVS-BR2-4K powers the Blue Robotics BlueROV2 with enhanced capability including UHD 4K 3X optical zoom uncompressed video, GB Ethernet, auxiliary battery, in a 400m-rated enclosure and tether lengths up to 5km. Fiber capability enables high bandwidth and additional ports for sonar, geo-location or other equipment. Additional upgrades and accessories are available. (Customizable)



OBS | SUR | INS | VC&L | NDT | A&T | VSK

## SHARK MARINE TECHNOLOGIES INC

WWW.SHARKMARINE.COM

sales@sharkmarine.com



### SEA-WOLF 5

The SeaWolf-5 is a ROV unlike any other. A true light/medium work class ROV, the SeaWolf-5 packs a lot of power and modularity into a small frame. Customers can choose from a 4 or 6 thruster model or upgrade at any time. The SeaWolf-5 operates autonomously or semi-autonomously using Shark Marine's "DiveLog".



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## OBSERVATION ROV WITH PAYLOAD OPTION

### STRATEGIC ROBOTIC SYSTEMS

WWW.SRSFUSION.COM

Jesse Rodocker | jesse@srsfusion.com



#### FUSION

The Next Generation UUV - FUSION is an expeditionary hybrid AUV/ROV with a bespoke suite of high-end sensors delivering a highly capable and intelligent system. A self-contained (no generator required) system augmented by clever automation and supervisory control through an unparalleled, intuitive user interface establishes a new benchmark in UUVs. (Customizable)



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### SUBMERSIBLE SYSTEMS INC.

WWW.SSIROVS.COM | Wolfgang Burnside | wolfgang@ssirots.com



#### TRV-005

The Ultimate ROV for serious Offshore Platform Inspections and Pipeline Survey Work, no other ROV comes close to the rugged, reliable and incredibly maneuverable TRV-005.



#### TRV-M

A versatile vehicle often undertaking Workclass tasks in areas that prohibit access to larger Vehicles. The moderate payload also allows the secure attachment of additional Equipment/Sensors to the T6061 Aluminum frame. The TRV-M high mass / Thrust ensures easy transitions from the Surface to the Seabed to either its standard depth rating of 1000m or to the optional 3000m depth rating.



**MARINE IMAGING TECHNOLOGIES**  
one moment, one image, one chance

**HYDRUS**  
8K underwater virtual reality

**PIXEL**  
The original cinema class ROV

Info@marineimagingtech.com      617.394.1188  
marineimagingtech.com

## SUBSEA TECH

WWW.SUBSEA-TECH.COM

Grégory Maurin | gregory.maurin@subsea-tech.com



### TORTUGA

Tortuga has 4 horizontal thrusters (4x20kgf) fitted with a unique azimuthal control system allowing operations in currents up to 4 knots, regardless of the direction. With an unrivalled 1,8 thrust to weight ratio and a fully integrated acoustic imaging solution, Tortuga is the ultimate vehicle for underwater inspections in harsh operational conditions. (Customizable)



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## TELEDYNE SEABOTIX

WWW.TELEDYNEMARINE.COM

Jamie Carrig | SeaBotix\_Inquiries@teledyne.com



### LBV300-5

The LBV300-5 takes stability and versatility to a new level with dual vertical thrusters. Increased vertical control and stability make the LBV300-5 a great tool in demanding conditions. Add the revolutionary Crawler Skid and you have the ultimate maritime security system. (Customizable)



OBS | INS | VC&L | A&T | NDT

## TASKS

### OBS

OBSERVATION

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## TOOLS

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VIDEO CAMERA  
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TESTING

### A&T

ACOUSTIC  
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### CD

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DEVICES

### VSK

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KEEPING

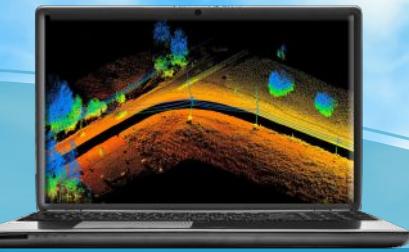
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## HYPACK® LiDAR Payload

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A portable LiDAR solution for topographic, aerial and marine surveying. This is an end-to-end solution suited for use on drones, land vehicles or marine vessels. Land or water, this new solution can be used in any surveying environment.



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✉️ sales@hypack.com

## OBSERVATION ROV WITH PAYLOAD OPTION

### TELEDYNE SEABOTIX

WWW.TELEDYNEMARINE.COM | Jamie Carrig | SeaBotix\_Inquiries@teledyne.com



#### VLBV300

The SeaBotix vLBV® represents an evolution in small, capable, vectored MiniROV systems. Four powerful 100 mm (4 in) horizontal thrusters, arranged in a vectored format, offer nearly equal horizontal thrust in all 360-degrees of flight. (Customizable)



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#### VLBV950

The SeaBotix vLBV® represents an evolution in small, capable, vectored MiniROV systems. Four powerful 100 mm (4 in) horizontal thrusters, arranged in a vectored format, offer nearly equal horizontal thrust in all 360-degrees of flight. Standard features include a high-resolution color camera, powerful LED lighting, depth, heading and temperature sensors, auto-depth, auto-heading and thruster trim, low-drag neutrally buoyant tether, and fully ICC with daylight-readable monitor. (Customizable)



OBS | INS | VC&L | A&T | NDT | VSK

### TETIS INTEGRATED SYSTEMS

WWW.TETIS-KS.RU/EN | Dmitry Voytov, Dmitry Garbuzov | rov@tetis-pro.ru



#### ROV MARLIN-350

Marlin-350 unmanned remotely operated vehicle (ROV) is a light vehicle designed to monitor the protected area, search and detect intruders in the area under control and carry out other tasks related to prevention of unnoticeable penetration into the protected facility.



## VIDEORAY

WWW.VIDEORAY.COM | James Mitchell | sales@videoray.com



### MISSION SPECIALIST PRO 5

The VideoRay Mission Specialist Pro 5 configuration is designed for speed and efficiency, weighing in at 10kg (22lb). The three-thruster system has forward speed of over 4.4 knots, and utilizes a system of interchangeable, modular components residing on a single, intelligent network. The Pro 5 is designed to handle missions with size, space, weight, and deployment speed constraints, such as infrastructure inspections beyond the reach of divers, search & recovery, exploring the ocean floor up to 305m, and various others. The Pro 5 builds on the strengths of the Pro 4, with more thrust, longer tether lengths, higher resolution video, and the advantages of the MSS modular systems.



OBS | SUR | INS | VC&L | A&T



### MISSION SPECIALIST DEFENDER

The Mission Specialist Defender configuration is designed for more precise control of the vehicle position and orientation, heavier payloads, and demanding intervention, such as rendering unexploded ordinance safe or cleaning nets for offshore fish farms. With seven thrusters, the Defender is able to move in any direction, and maintain active pitch to face the vehicle in an upward or downward orientation. The addition of third party control and navigation software from Greensea Systems or Seabyte makes the Defender a popular configuration for dangerous or heavy-duty missions. (Customizable)



OBS | SUR | INS | VC&L | NDT | A&T | VSK

## TASKS

**OBS**  
OBSERVATION

**SUR**  
SURVEY

**INS**  
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**CON**  
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## TOOLS

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# Rugged, Compact Embedded Solutions For Water, Air, Land and Surveillance Unmanned Vehicles

## Applications

- » Autonomous water vehicles for port security
- » Scientific data collection
- » High-speed image capture
- » Industrial ROV for maintenance and inspection



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DIGITAL EDGE SUBSEA



Digital Edge Subsea supplies the Oil & Gas industry with our digital video recording inspection system, the EdgeDVR. The company was formed in 2009 and began trading in 2010.

The Managing Director John Benson and the Inspection Manager Tracey Lawson have a combined offshore experience of 40 years in the Subsea Inspection industry. This has ensured that the Digital Edge Subsea product range has been developed with the end user as one of the main focuses. We pride ourselves on how user friendly our product range is, whilst satisfying the requirements of our global clients. We now have over 500 systems offshore and have a large rental pool of over 70 units.

During the present downturn, the rental market has been very strong, through our rental partners around the world. During 2019 the company has been developing the next generation of digital recording equipment, which are due for release Q3 2019. The new Version 5 software and hardware, will keep the original mandate, of being easy, simple to use and most of all, reliable. The software will now have 3 levels, EdgeLite, Edge and EdgePro.

On the software side, EdgeLite is the most basic of our recording systems. This will be an entry level unit, suitable for surveys and inspections, where there is no requirement for eventing. This product will record 4 channel video with overlay, but with no eventing capabilities. Our clients range in size, and this product has been developed to provide our smaller



clients with the same great recording capability at a fraction of the cost.

Version 5 of the EdgeDVR will provide the same capability as the current Version 4 but with the added advantage of being able to record 4 channels of HD simultaneously. As with Version 4, eventing, the creation of Workpacks and offline editing are all features that are included.

The EdgePro is an addition that has been developed with our wish to expand our Inspection department. The EdgePro will have all the capabilities of the EdgeDVR, but with the addition of an extended database that allows tasks to be assigned to components under inspection. This will allow Clients to either create Workpacks themselves from approved workscopes, or these can be created by Digital Edge, as Tracey Lawson is an experienced CSWIP 3.4u Underwater Inspection Controller. As previously mentioned our Clients vary in size and we envisage this feature to be used by our smaller clients who may have no inspection department and/or limited access to known inspection databases.

The deliverables to the Client will include an automatically generated report to capture all of the inspection results.

With regards to the hardware we will also have 3 main types, Standard Definition, High Definition and our first 4K system. The addition of a 4K(UHD) model is a reflection of the latest technology that is now being used on some of the latest ROV and diving systems worldwide.

The standard 4U rackmounted model is also complimented by a new portable laptop version, both models are available for purchase and rental.

Later in 2019 we will also be launching EdgeLive, this is a subscription based live remote monitoring service. Users will have remote access to live video, eventing, photos and anomaly clips. For low bandwidth installations and vessels, EdgeLive can transmit the video as low as a single frame per second if required. We envisage this to be used during intervention works and for onshore assessment on critical anomalies that require an engineers assessment.

In addition to our software, we also have a range of inspection tooling suitable for Inspections class ROVs. The RTK001 Rovtools kit comprises of an ROV clamp, Adjustable pole, CP Probe mount, Marine Growth Measurement Tool, Marine Growth Removal Tool, Softline Cutter and simple cleaning brush.

For more info please contact John Benson – [john@digitaledgesubsea.com](mailto:john@digitaledgesubsea.com).

# DIGITAL VIDEO RECORDING & INSPECTION SYSTEMS

DEVELOPED FOR USE BY PERSONNEL WITH ALL LEVELS OF EXPERIENCE WHEN COMPLETING VISUAL INSPECTIONS ON SUBSEA STRUCTURES WHICH REQUIRE REAL TIME EVENT LOGGING

- Diving
- Workclass & Inspection ROV
- Platform & Pipeline Inspections
- Construction & Decommissioning

Standard Definition, High Definition or 4K digital video recording.  
Various formats 720p, 1080p & 2160p.

Automatic Blackbox video recording.

Digital overlay c/w variable transparent logos and fields.

Full HD video stills and video clips.

Real Time Event Logging.

Automatic generation of Dive Video, Photo and Anomaly logs.

Built in Inspection Editor to view all collected data and review overall inspection progress.

Remote workpack generation and import tool.

Four Serial communication inputs for logging and overlay display (i.e. GPS, Telemetry, CP).

Four channel internal video switcher.

Integrated digital video overlay.

Configurable survey hot keys.

Export JPEG video snapshots.



## 3 LEVELS OF DVR SPECIFICATION



EDGE DVR  
LITE



EDGE DVR



EDGE DVR  
PRO



Digital Edge Subsea is a world leader in offshore digital video recording (DVR) and inspection systems.

Digital Edge Subsea develops and manufactures DVR products for use throughout the offshore oil and gas industry including diving, remote operated vehicle (ROV) and topside operations.

Our EdgeDVR is currently used worldwide by most of the major ROV and diving contractors.

The EdgeDVR is an essential part of any ROV system and can be integrated into both work-class and eyeball ROV systems, it's simple to use and full of very useful features. There are currently over 500 units in the field with a truly established proven history of reliability.

## DIGITAL EDGE SUBSEA

[www.digitaledgesubsea.com](http://www.digitaledgesubsea.com)



## SEAMOR Marine: World Class ROVs for Underwater Inspection

SEAMOR Marine was established in 2006 in Nanaimo, British Columbia, Canada. With over fourteen years of experience developing and manufacturing world class underwater Remotely Operated Vehicles (ROVs), SEAMOR Marine is a key player in the production of underwater inspection equipment. Founded by Inja Ma and Robin Li, a husband and wife team, SEAMOR represents the entrepreneurial spirit of intrepid immigrants, dedicated to creating a successful venture in their new country.

SEAMOR sells worldwide and has ROVs operating on every continent and in every major body of water around the globe. The company's ROVs have been used in a variety of fields including offshore aquaculture, underwater archaeology, Antarctic geology, and pipeline and dam inspection. SEAMOR has collaborated on research projects with NASA, the Defence Research and Development Canada, and the Department of Fisheries and Oceans.

SEAMOR ROVs have been designed with an engineering philosophy of modularity. This allows customers to select from a

wide range of accessories and upgrades that can be added on to any of SEAMOR's three flagship vehicles: the Steelhead (a compact vehicle able to dive to 300m); the Chinook (a powerful mid-weight vehicle with HD capability, able to dive to 600m); and the Mako (a large, open-bay ROV with heavy payload). SEAMOR also offers a wide range of in-house designed and built accessories such as auxiliary cameras, lights, and grippers. A 7-function hydraulic arm has also been developed in-house for complex manipulation/sample retrieval.

### Recently in the News for SEAMOR:

A 3km capacity turn-key system was developed and built and delivered for an inspection of 7.1km of hydroelectric water conveying tunnels in Panama. The engineers on site had never flown an ROV before and yet achieved the target 3km distance at the very first attempt, testament to the ease of use and quality of SEAMOR systems.

CanPac Marine took delivery of a Mako class ROV and had the unit in the water for 100 full days out of the first 150 days

of ownership, without encountering any issues. Reliability is absolutely key in this industry and SEAMOR is leading from the front.

The RCMP this month received their Chinook class ROV at the National Underwater Recovery Training Centre. Police Divers from every Province throughout Canada will now be trained using a SEAMOR ROV. It is hard to imagine a better endorsement.



[WWW.SEAMOR.COM](http://WWW.SEAMOR.COM)

# WORK CLASS VEHICLES

UNMANNED  
VEHICLES  
BUYERS' GUIDE



ENVIRONMENTAL



DEFENSE



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SCIENCE



SEABED MINING



OCEAN RENEWABLES



SPEC SHEET

## WORK CLASS VEHICLES

### ARGUS REMOTE SYSTEMS AS

WWW.ARGUS-RS.NO | Jan Bryn | jan@argus-rs.no



#### ARGUS MARINER MKII

Medium class ROV that can be fitted with auxilliary HPU for tooling. Can be fitted with 1 or two manipulators for light work. (Customizable)



SUR | INS | CON | INT | VC&L | A&T | NDT | VSK



#### ARGUS WORKER

Heavy Work class ROV for deepwater. Can be fitted with 2 x 7 function manipulators and has a seperate HPU for Manipulator and tooling. (Customizable)



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#### ARGUS MARINER XL

Medium Work class ROV that can be fitted with 2 x 7 function manipulators and has a seperate HPU for manipulator and tooling. (Customizable)



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### DOER MARINE

WWW.DOERMARINE.COM | Liz Taylor | Liz@doermarine.com



#### H3000

Compact work class ROVs ranging from 10-100 hp and depths from 2000m to 6500m. TMS typically used with deeper system. DOER also offers five function manipulators, hydraulic pan/tilt, valve packs, thrusters and a wide variety of sampling, cleaning and custom tools. These systems have a great degree of flexibility in design and can be customized to suit client needs.



SUR | INS | INT | VC&L | A&T | CD | NDT | VSK



#### H6500

Compact work class ROVs ranging from 10-100 hp and depths from 2000m to 6500m. TMS typically used with deeper system. DOER also offers five function manipulators, hydraulic pan/tilt, valve packs, thrusters and a wide variety of sampling, cleaning and custom tools. These systems have a great degree of flexibility in design and can be customized to suit client needs.



SUR | INS | INT | VC&L | A&T | CD | NDT | VSK

### ECA GROUP

WWW.ECAGROUP.COM

Anthony Penn | sales.robots@ecagroup.com



#### H1000

Electric Work Class ROV for subsea observation, inspection and light works up to 1000 m depth. Equipped with high performance viewing system, sonars, and two manipulator arms (electric or hydraulic).



SUR | INS | INT | VC&L | A&T | CD | NDT | VSK

## ECA GROUP

[WWW.ECAGROUP.COM](http://WWW.ECAGROUP.COM)

Anthony Penn | sales.robots@ecagroup.com



### H2000

Work Class ROV dedicated to missions up to 2000 m depth: offshore survey and underwater works, search and rescue, object recovery, wrecks inspection. Equipped with high performance viewing system, sonars, and 2 manipulator arms.



SUR | INS | INT | VC&L | A&T | CD | NDT | VSK

## FORUM SUBSEA TECHNOLOGIES

[WWW.F-E-T.COM](http://WWW.F-E-T.COM) | Sales | rov.sales@f-e-t.com



### PERRY XLX EVO - 200 HP

The Forum Energy Technologies Perry XLX Evo ROV represents the latest evolution in the highly successful Perry XL series. The XLX Evo features significantly enhanced performance across the full range of demanding intervention and survey tasks without compromise to the outstanding reliability for which the XL series of vehicles is renowned throughout the world.



### PERRY XLX-C

The Perry® XLX-C is a compact heavy-duty work-class hydraulic ROV, complementing the Perry® XL 150-250 series of larger heavy-duty work-class ROVs.



## FORUM SUBSEA TECHNOLOGIES

[WWW.F-E-T.COM](http://WWW.F-E-T.COM) | Sales | rov.sales@f-e-t.com



### SUB-ATLANTIC COMANCHE

Customers include DOF Subsea, Bibby Offshore, Oceanteam 2000, Bluestream, Oceaneering, IKM, Neptune.



### SUB-ATLANTIC MOHICAN

Customers include MMT, DOF Subsea, Seatrepid, IKM, Innova, ASI, Innova/Abyss Mostrello.



### SUB-ATLANTIC MOJAVE

Customers include Oceaneering, Cummings, Broadsea ROV, FPSS, Marine Innotech, Blue Water.



## TASKS

OBS  
OBSERVATION

SUR  
SURVEY

INS  
INSPECTION

CON  
CONSTRUCTION

INT  
INTERVENTION

B&T  
BURIAL &  
TRENCHING

## TOOLS

VC&L  
VIDEO CAMERA  
& LIGHTING

NDT  
NON-  
DESTRUCTIVE  
TESTING

A&T  
ACOUSTIC  
& TRACKING

CD  
CLEANING  
DEVICES

VSK  
VEHICLE STATION  
KEEPING

WT  
WORK TOOLS

## WORKING CLASS VEHICLES

### FORUM SUBSEA TECHNOLOGIES

WWW.F-E-T.COM

Sales | rov.sales@f-e-t.com



#### SUB-ATLANTIC SUPER MOHAWK

Customers include PDVSA, Seatrax, NOAA/NMSF



### INTERNATIONAL SUBMARINE ENGINEERING LTD. (ISE)

WWW.ISE.BC.CA

Sales | info@ise.bc.ca



#### ISE HYSUB

The ISE HYSUB Remotely Operated Vehicle (ROV) is a fully customizable work class ROV which is optimized for your operational profile. Select your payloads, depth, power, and frame size to receive your customized HYSUB in as little as 6 months! Every HYSUB is designed to last for decades in harsh conditions and is easy to modify and upgrade when new technology becomes available. The HYSUB is available from 25-250 hp in depth ratings to 6000m. (Customizable)



CON | INT | B&T | OBS | SUR | INS | VC&L | A&T  
CD | WT | NDT

### KYSTDESIGN AS

WWW.KYSTDESIGN.NO | Åge Holsbrekken | post@kystdesign.no



#### CONSTRUCTOR

This is a general purpose hydraulic work class ROV. The system is characterized by a compact and integrated mechanical architecture, powerful and accessible hydraulic functions and a user friendly real time control system. The CONSTRUCTOR can be delivered with depth rating down to 6000m. It is uniquely designed for carrying and operating large tools and modules. (Customizable)



SUR | INS | INT | CON | VC&L | A&T | CD  
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#### SUPPORTER

SUPPORTER is a general purpose hydraulic work class ROV. The system is characterized by a compact and integrated mechanical architecture, powerful and accessible hydraulic functions and a user friendly real time control system. The system can be delivered with depth rating down to 6000m. (Customizable)



SUR | INS | INT | CON | VC&L | A&T | CD  
WT | NDT | VSK

### MARINER UNDERWATER ELECTRONICS

WWW.MARINER.GR

Marinos Pittas | marghe@otenet.gr



#### IPPODAMUS

Our ROVs can be customized and be equipped with a great variety of accessories and tools, according to buyer's needs. (Customizable)



## MARISCOPE MEERESTECHNIK

WWW.MARISCOPE.DE | Niklas Becker | n.becker@mariscope.de



### COMMANDER MK II

The smallest of these vehicles equipped with 5 thrusters of 300/600 Watt of power each. Depth rated to 500m it can be equipped with a variety of oceanographic sensors, cameras, lights, manipulators and others in order to customize the vehicle according to the individual task and use. Lifetime warranty. (Customizable)



SUR | INS | INT | VC&L | A&T | CD | NDT



### COMMANDER MK III OFF-SHORE

A completely symmetrical ROV with six vectorized thrusters, UTM & CP probes mounted in the front, and a MNH cavitation unit on the backside. Front and back Full HD camera and lighting with all of accessories on tilting frames controlled from surface, allowing to work in every direction. Lifetime warranty. (Customizable)



SUR | INS | INT | VC&L | A&T | CD | NDT



### COMMANDER MK III/SF

With six thrusters of 300/600 Watt each, disposed in a vectorized manner. 1000 meters operational depth. Its newly developed hydrodynamic design and completely enhanced construction increases the ROVs efficiency. Can carry out all kind of tasks, with special emphasis on searches, rescues, scientific studies and inspections.. Lifetime warranty. (Customizable)



SUR | INS | INT | VC&L | A&T | CD | NDT

## TASKS

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Water Load Test Bags to 50 tons.  
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## WORKING CLASS VEHICLES

### MARISCOPE MEERESTECHNIK

WWW.MARISCOPE.DE

Niklas Becker | n.becker@mariscope.de



#### COMMANDER MK III RESCUE

A functional and reliable rescue support vehicle with 1000 meters working depth. Six 800 W vectorized thrusters. Front and rear Full HD cameras and forward-looking sonar. USBL tracking system. 2 multifunction manipulators. Customized deployment and storage system with full systems integration with vessel. (Customizable)



SUR | INS | VC&L | A&T | CD | NDT

### OCEANEERING INTERNATIONAL, INC.

WWW.OCEANEERING.COM/ROV-SERVICES/ROV-SYSTEMS | Sales | rov-services@oceaneering.com



#### ENOVUS ROV

The compact work class eNovus ROV is the newest addition to our fleet and is powered by an environmentally conscious, 150-kVA electric (235-hp hydraulic equivalent) propulsion system. This vehicle maintains work class manipulator capabilities via a dedicated hydraulic circuit. (Customizable)



#### MAGNUM® PLUS ROV

The powerful Magnum Plus ROV delivers enhanced flight control in a smaller package. Reliable and easily maintained, it provides a 170-hp, high-thrust, tophat- or cage-deployed system designed for subsea intervention and deepwater tooling. (Customizable)



### OCEANEERING INTERNATIONAL, INC.

WWW.OCEANEERING.COM/ROV-SERVICES/ROV-SYSTEMS | Sales | rov-services@oceaneering.com



#### MILLENNIUM® PLUS ROV

This powerful ROV features a dual-manipulator, 220-hp work class system with an enhanced thruster configuration that increases lift capacity by more than 50% compared with the standard Millennium ROV system. (Customizable)



#### NEXXUS ROV

Our high-power, heavy work class ROV system meets the API Standard 53 requirements for BOP intervention. With heavily increased tooling capabilities, the NEXXUS ROV is designed to meet next-generation intervention requirements. (Customizable)



## ROVOTICS

WWW.ROVOTICS.AE | Tamer El Essawy | sales@rovotics.ae



### SHARK G2R ROV

The Shark G2R ROV features a high-power-to size ratio, with over 80kg of bollard pull while fielding a 35kg payload. With a strong aluminium and polypropylene construction, it is rated for operation at up to 500m, with an optional upgrade extending this to 1000m. The ROV is powered by six high-reliability SPE-75 thrusters. (Customizable)



OBS | SUR | INS | VC&L | A&T | NDT | VSK

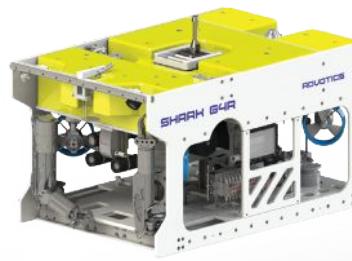


### SHARK G3R ROV

The Shark G3R ROV features a high-power-to size ratio, with 130kg of bollard pull while fielding a 100kg payload. With a strong aluminium and polypropylene construction, it is rated for operation at up to 500m, with a series of optional upgrades extending this to 1000m, 2000m or 3000m. The ROV is powered by six high-reliability SPE-250 thrusters. (Customizable)



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### SHARK G4R ROV

The Shark G4R is Rovotics' largest and most versatile ROV, providing 244kg of bollard pull while fielding a 280kg payload. This light-work-class ROV is rated for operation at up to 500m, with a series of optional upgrades extending this to 1000m, 2000m or 3000m. The Shark G4R can be equipped with a 7-function and a 5-function manipulator. (Customizable)



OBS | SUR | INS | VC&L | A&T | NDT | WT | VSK

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### NDT

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### A&T

ACOUSTIC & TRACKING

### CD

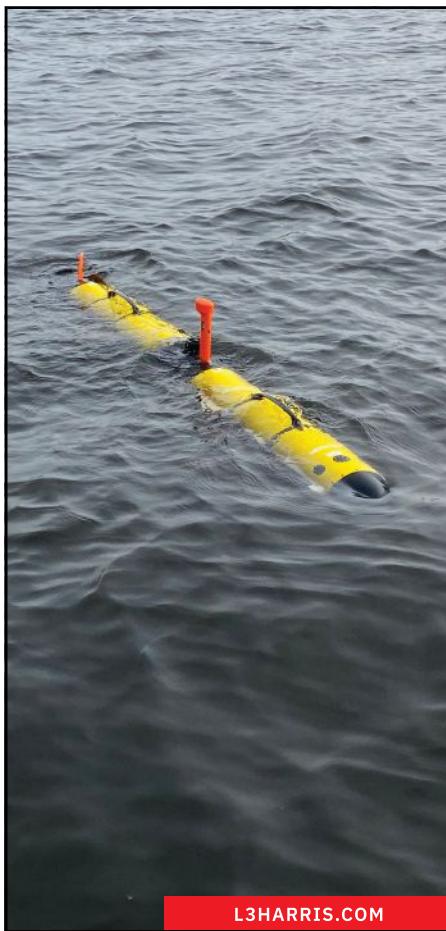
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### WT

WORK TOOLS



## THE NEXT EVOLUTION IN SMALL DIAMETER UUVs

### Introducing the Iver4 580

Built with proven Iver4 next-generation technology, the Iver4 580 features a full suite of sensors in a portable size and small mission footprint. This Unmanned Underwater Vehicle (UUV) also features sealed, hot-swappable battery sections that can be changed in the field without special tools for minimal mission downtime.

To learn more, contact the

Iver Sales Team:

IVER.sales@L3Harris.com

+1 (508) 678-0550

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## WORKING CLASS VEHICLES

### SAAB SEA EYE LTD

WWW.SAABSEA EYE.COM | James Douglas | solutions@saabseaeye.com



#### SEA EYE COUGAR-XT

The Cougar XT is a flexible, small, yet extremely powerful work vehicle depth rated to 2000m. Six thrusters provide precise handling and control in strong currents. Designed to accommodate heavy duty tooling via a system of quick-change tool skids, the Cougar XT is ideal for inspection, survey work, IRM & light construction projects. (Customizable)



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#### SEA EYE COUGAR-XT COMPACT

The Cougar XT Compact, is the shallow water version of the Cougar XT. An extremely powerful vehicle, it is ideal for inspection applications where strong tidal currents are experienced. The smaller chassis significantly reduces drag which, in combination with a high-performance thruster arrangement and a small diameter tether, offers unrivalled performance for its size. (Customizable)



SUR | INS | VC&L | A&T | CD | NDT



#### SEA EYE COUGAR-XTI

The Cougar XTi is 3000m rated and features Saab Seaeye's iCON™ intelligence control system. The proven capabilities of the Cougar XT combined with the use of iCON™ and a high frequency, high voltage, power supply system make the Cougar XTi a formidable 3000m observation vehicle with significant work capabilities. (Customizable)



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#### SEA EYE JAGUAR

The Jaguar is a powerful electric work class vehicle featuring Saab Seaeye's iCON™ intelligent control system. The Jaguar is capable of operating at depths of 3000m. With this depth range and its extensive tooling capability, the Jaguar is capable of working in a wide range of subsea work applications. (Customizable)



SUR | INS | CON | INT | WT | NDT | VSK



#### SEA EYE LEOPARD

The Leopard is an exceptionally powerful compact electric work class vehicle with a minimal 20ft x 8ft LARS footprint. It is fitted with up to 11 thrusters to provide a forward thrust of over 500kgf, has a 200kg payload and is controlled by Saab Seaeye's iCON™ intelligent control system. (Customizable)



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#### SEA EYE PANTHER-XT PLUS

The high current shallow water survey and light work vehicle, the Panther XT Plus is a 1000m depth rated vehicle fitted with ten 500 Volt DC thrusters, providing it with exceptional handling and speeds of up to four knots. It is ideal for tasks that include drill support, pipeline survey, IRM and salvage. (Customizable)



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CD | NDT | VSK

## SMD

WWW.SMD.CO.UK | Graeme Jaques | graeme.jaques@smd.co.uk



### ATOM WROV

Atom is an ultra-compact work class ROV comparable in size to a large electric ROV. The vehicle is suitable for renewable applications, drill support, survey and light construction duties and can be mobilised on vessels and rigs with limited deck space. Atom's high power to size ratio makes it an effective performer in high currents. (Customizable)



SUR | INS | VC&L | A&T



### QUANTUM WROV

Quantum has class leading payload, thrust and tooling power figures. It is designed primarily for heavy construction and salvage work but can also be used as an effective survey platform. Space within Quantum's frame for mounting tools and instruments is exceptional. This flexibility means better in-water performance and current holding capabilities when measured against rivals that need to use a skid. (Customizable)



SUR | INS | CON | INT | VC&L | A&T | WT



### QUASAR

The Quasar is the medium size vehicle in SMD's Q Series work class ROV range. Utilising the latest multi-platform Curvetech™ components, the vehicle offers class-leading in-current performance, tooling and instrument space and access for maintenance. Quasar is an excellent all round performer capable of survey, construction and drill support operations. (Customizable)



### TASKS

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# Two New ROS Innovations

## One Brighter **SEASTAR™**



- LED array produces 10K+ Lumens
- All components field serviceable using standard hand tools
- 120VAC or 24VDC full range, flicker free dimming
- Depth rated to 6000 meters

## One Smarter **accu-positioner™**

- Highly reliable design
- Controlled with COTS controllers, devices and ROS GUI
- High accuracy feedback / servo mode: +/- .1 degree
- Zero backlash
- Lightweight and compact
- Depth rated to 6000 meters



*For More Information and Technical Specifications  
Contact: sales@rosys.com or Visit: www.rosys.com*



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Email: sales@rosys.com  
[www.rosys.com](http://www.rosys.com)

# WORKING CLASS VEHICLES

## SPERRE AS

WWW.SPERRE-AS.COM | Wench Haugerud | wh@sperre-as.com



### ROV SF10K

ROV designed for tough conditions. Reliable and well proven design. Quick and easy mobilization. Very good stability. Plenty of power. Interface for std. tools. Quality at an affordable price. Require a min. of maintenance. Made in Norway. Can build after customer specification.



### ROV SF15h

ROV designed for tough conditions. Reliable and well proven design. Quick and easy mobilization. Very good stability. Plenty of power. Interface for std. tools. Quality at an affordable price. Require a min. of maintenance. Made in Norway. Can build after customer specification.



### ROV SF4500

ROV designed for tough conditions. Reliable and well proven design. Quick and easy mobilization. Very good stability. Plenty of power. Interface for std. tools. Quality at an affordable price. Require a min. of maintenance. Made in Norway. Can build after customer spec.



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WT  
WORK TOOLS

## SUBMERSIBLE SYSTEMS INC.

WWW.SSIROVS.COM

Wolfgang Burnside | wolfgang@ssirovs.com



### TRV-HD

The TRV-HD Extreme is a serious, compact Workclass vehicle with a very small footprint. When offshore real estate is at a premium the TRV-HD is the only logical choice. Most Manipulator options are available.



## TECHNIPFMC SCHILLING ROBOTICS

WWW.TECHNIPFMC.COM | Hamish Stewart | hamish.stewart@technipfmc.com



### SCHILLING ROBOTICS HD ROV

The 150hp HD ROV is an advanced modular design with a 60-minute maintenance philosophy, tooling integration and high-integrity hydraulic system. Standard features include flight automation systems including StationKeep, Auto Track and Auto Displacement, in addition HD Ethernet Video, Auto follow manipulator camera, rapid repair systems and onboard diagnostics are features to aid productivity of the vehicle, pilot and overall operation. (Customizable)



### SCHILLING ROBOTICS UHD-III ROV

The 250hp UHD-III ROV features a software controlled auxiliary pump capable of delivering dual fluids/types at various pressures/outputs. Modular design enables the UHD-III to carry 100 US Gals inboard negating the requirement for fluid intervention skids to support construction and drill support activities. Standard features include flight automation, HD Ethernet Video, rapid repair systems and onboard diagnostic to aid productivity of the vehicle, pilot and overall operation. (Customizable)



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VSK

# BLUEPRINT LAB

## ELECTRIC MANIPULATORS FOR NEXT GENERATION ROVs

Designed for leading portable  
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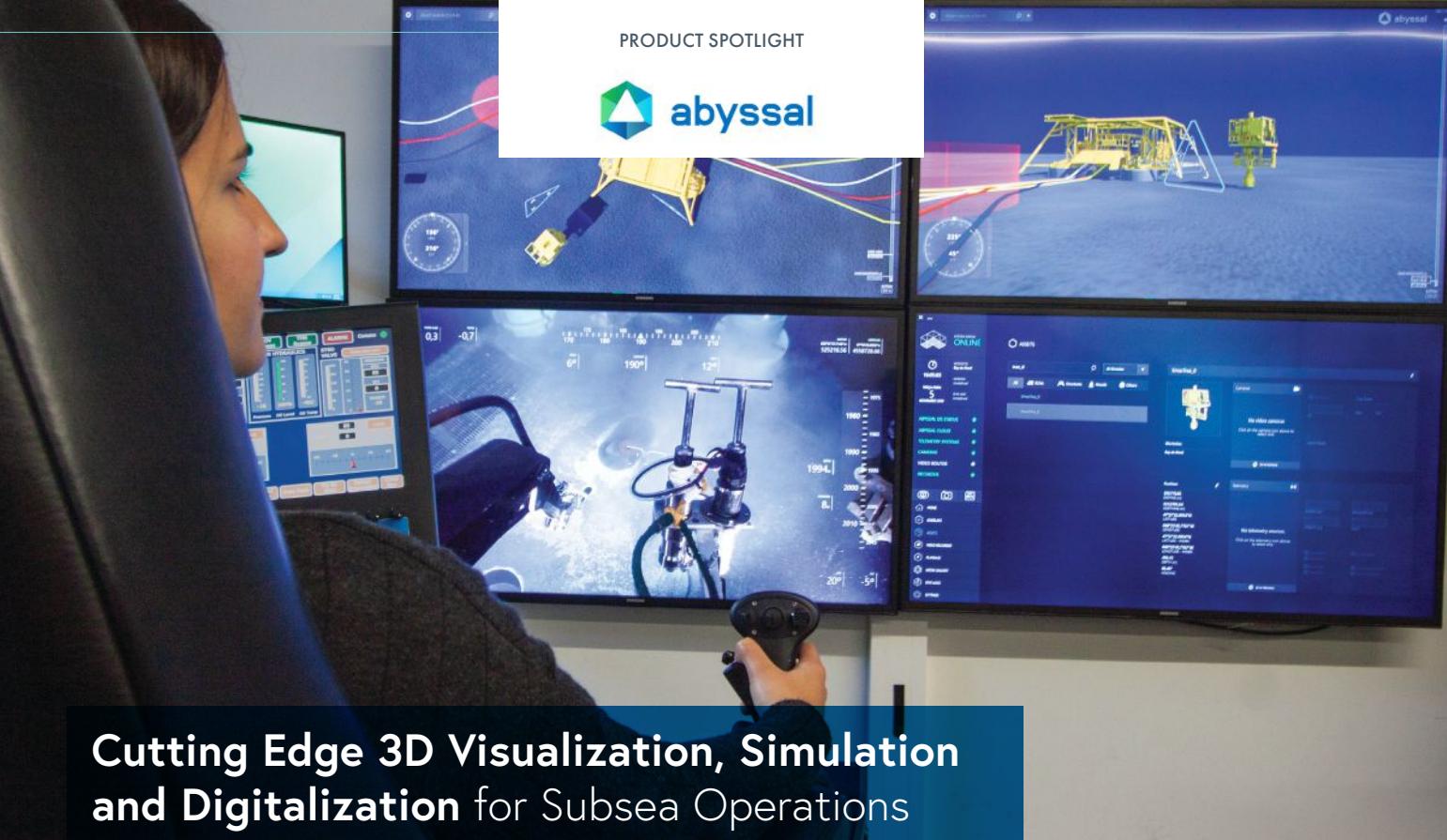
◀ Dexterous and tough

Mission configurable ▶

Intuitive topside technology ▶



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## Cutting Edge 3D Visualization, Simulation and Digitalization for Subsea Operations

### Advanced, Efficient, and Safe

With Abyssal Offshore's advanced overlay system, pilots have been safely and efficiently executing a variety of subsea interventions and inspection missions since 2014. The advanced overlay, with its survey-grade Geographic Information System (GIS), improves pilot navigational efficiency up to 40% while at the same time reducing operational downtime due to low visibility to zero. The digital video recording capabilities let users record multiple HD camera feeds, with all

recorded content able to be synchronously played back using the in-built video player. All the telemetry, metadata, user screenshots, video (with or without overlay), dive logs, user input, 3D geotag annotations, and markings are safely recorded to create fully contextualized digital reports that can be customized to suit the specific needs of your project.

### Do More

Abyssal Offshore is compatible with the majority of vehicles, positioning systems, data

acquisition devices, and software. When combined with Abyssal's state-of-the-art 3D technology and patented augmented reality (AR), your projects benefit from enhanced situational awareness, improved visibility, and simultaneous operation (SIMOP) management capabilities. The 3D visualization aids pilots in the most extreme environments imaginable by providing spatial awareness of the entire operation while AR lets you superimpose relevant and accurate information in real time. Advanced SIMOP functionalities allow you to reduce risk as well as improve operational efficiency with the ability to track and contextualize multiple vehicles and assets working in the same location.

### The Full View, Anytime and Anywhere

When combined with Abyssal Cloud, a secure web application, Abyssal Offshore works as the device layer (IoT component) that is connected directly to the ROV control

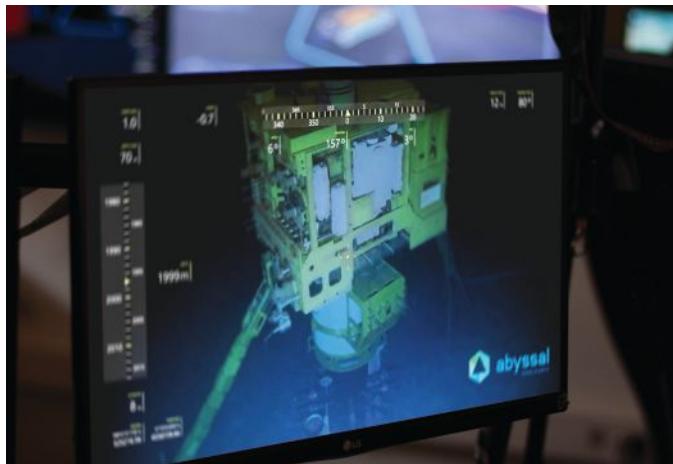
room, providing the ability for users to have a live 3D overview of the operation's environment. Merging Offshore's real-time operational data with the Cloud's data layers lets you create customizable common operating pictures.

### Perfect Tool for Reducing Risk

By incorporating a survey-grade GIS with the ability to acquire and process data in real time from multiple sources, Abyssal Offshore is the best digital toolkit to help crews perform operations safely and efficiently. By combining it with Abyssal Cloud you have the complete platform to plan fields and support multi-site, UID, as well as ASV offshore operations with an extensive traffic and data management system.

Abyssal, defining the cornerstone technology for remote operations in the industry.

[WWW.ABYSSELEU](http://WWW.ABYSSELEU)



# TOWED & BOTTOM CRAWLING VEHICLES

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VEHICLES  
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SCIENCE



SEABED MINING



OCEAN RENEWABLES



SPEC SHEET

## TOWED & BOTTOM CRAWLING VEHICLES

### ALL OCEANS

WWW.ALLOCEANS.CO.UK | Brian Abel | brian@alloceans.co.uk



#### AC-CELL 100

Developed as a standalone Remote Visual Inspection (RVI) tool, this small, wet or dry environment crawler is fully compatible with the industry proven AC-ROV 100 Underwater Inspection system, and uses the same topside hardware.



VC&L



#### MAC-ROV

A second generation 6000m Fly-Out ideally suited to subsea mining and cinematography applications. Can be surface deployment on its own, with its TMS, or as part of a Shuttle system to deliver work class ROV capability at a fraction of the cost. A Blue Economy development game changer. (Customizable)



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### BELLAMARE, LLC

WWW.BELLAMARE-US.COM

Charles Cousin | charlescousin@bellamareus.com



#### STINGRAY

Bellamare designs and manufactures underwater towed sleds to your requirements. We have proven designs to choose from and we specialize in custom orders. We provide quick turn-around and field set-up and training. (Customizable)



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### CHELSEA TECHNOLOGIES GROUP LTD

WWW.CHELSEA.CO.UK | Ellen Keegan | ekeegan@chelsea.co.uk



#### NUSHUTTLE TOWED

#### OCEANOGRAPHIC PLATFORM

NuShuttle is a proven, low cost and robust towed undulating vehicle in use on ships of opportunity and research vessels. It can be fitted with a wide variety of sensors to provide data on CTD, chlorophyll, hydrocarbon & Gelbstoff fluorescence, turbidity, optical transmittance, bioluminescence, nutrient, redox & dissolved oxygen. (Customizable)



CON | INT | A&T

#### SEASOAR II

SeaSoar is a versatile towed undulating vehicle used to deploy a wide range of oceanographic monitoring equipment. Developed by CTG from an original design by the National Oceanography Centre, Southampton, UK it has a proven record of reliability over many thousands of miles of operation. (Customizable)



## DEEP TREKKER INC.

WWW.DEPTREKKER.COM | Sales | sales@deeptrekker.com



### DT320 MINI PIPE CRAWLER

Meet the battery powered mini pipe crawler inspection system. This mini CCTV sewer inspection camera is capable of inspecting 6-inch lined pipes (152 mm) and even undersized 6-inch diameters. It is constructed with the same design as the larger DT340; rugged stainless steel aluminum body, durable sapphire glass lens cover and clear HD pan/tilt camera. (Customizable)



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### DT340 PIPE CRAWLER

The world's only truly portable, battery-operated pipe crawler system. Equipped with a lightweight handheld control console, a strong but thin tether, a pivoting tether connection, wheel and track options and plug-and-play integrations – all designed to make your pipe inspections easier. (Customizable)



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### DT640 UTILITY CRAWLER

The DT640 Utility Crawler is the most versatile inspection vehicle of its kind. The sleek, three-wheel submersible comes with a magnetic option, creating the ideal vehicle for an array of underwater work. Compact for transportation and extremely portable. (Customizable)



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### WT

WORK TOOLS

## ECA GROUP

WWW.ECAGROUP.COM | Anthony Penn | sales@ecagroup.com



### CEP75

Multidirectional remotely operated electric crawler for operations inside pipes or pools. Watertight up to 20 m, it can transport a 75 kg payload. Its modular design allows embarking up to 3 TV cameras, and a mini electric manipulator arm.



### ROVING BAT

Hybrid ROV and crawler, Roving Bat can swim as a ROV and, thanks to 4 vertical thrusters, it tilts, rolls and sticks well onto vertical surfaces, such as ship hulls. Then it crawls along to perform inspection, cleaning operations and NDT measurements. Roving Bat is the optimal solution for UWILD applications.



### PIPE CRUISER

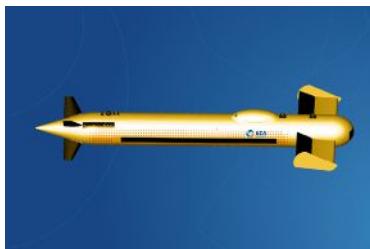
Designed for inspection in any type of pipes (diameter 150 to 2000 mm, up to 500 m length), this multidirectional modular system avoids obstacles, turns in curves, swivels and moves back to deliver real-time exceptional quality videos and measurements. Watertight up to 10 m.



## TOWED & BOTTOM CRAWLING VEHICLES

### ECA GROUP

WWW.ECAGROUP.COM | Anthony Penn | sales.roboitcs@ecagroup.com



#### T18-M

T18-M is a self-powered towed interferometric synthetic aperture sonar (SAS) for Real Time Detection, Classification and Mapping (SCM) of seabed and moored mines. It is equipped with a thinner umbilical cable and a lighter equipment for easier deployment from a USV or another platform. The T18-M is specifically designed to meet all recommendations related to mine warfare operations (particularly the detection or classification phases).



#### TOWSCA

With a 30 year-long experience in towed sonars (DUBM 41 & 42, MJ 2000, ...), ECA Group proposes a range of towed sonars (Side Scan Sonars & Synthetic Aperture Sonars) designed to be automatically deployed and retrieved by USVs. Towsca is one of them.



### EDGETECH

WWW.EDGEtech.COM | Sales | info@edgeTech.com



#### EDGEtech 2300

EDGEtech 2300 COMBINED SIDE SCAN SONAR & SUB-BOTTOM PROFILER- This deep-water system integrates the highly successful line of side scan sonars, sub-bottom profilers and (optional) MPES bathymetry into one fully integrated 2,000 meter rated system.



CON | INT | B&T | A&T | WT



#### EDGEtech 2400

EdgeTech's 2400 Series is a fully integrated combined side scan sonar (with optional wide swath MPES bathymetry) & sub-bottom profiling system designed for deep water operation in depths up to 6,000m. The 2400 can be completely configured by the user to best suit the applications at hand. The system comes with a dual simultaneous frequency side scan sonar with a choice of 75 kHz, 120 kHz or 410 kHz frequencies; any of which can be paired together. The 2400 also comes with the choice of a wideband sub-bottom profiler. Frequency options for the sub-bottom profiler are 1-10 kHz, 2-16 kHz or 4-24 kHz.



CON | INT | B&T | A&T | WT

## EDGETECH

WWW.EDGEYTECH.COM | Sales | info@edgetech.com

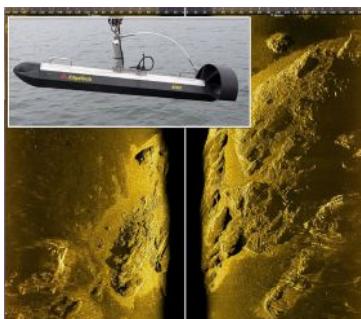


### EDGEYTECH 4125

EdgeTech's 4125 Side Scan Sonar System was designed with both the Search & Recovery (SAR) and shallow water survey communities in mind. The 4125 utilizes EdgeTech's Full Spectrum® CHIRP technology, which provides higher resolution imagery at longer ranges. This translates into more accurate results and faster surveys, thus cutting down on costs.



CON | INT | B&T | A&T



### EDGEYTECH 4205

The new EdgeTech 4205 Side Scan Sonar is available in either a tri-frequency configuration or motion tolerant and multi-pulse configuration. The tri-frequency version allows surveyors the option to operate any two frequencies simultaneously from the tri-frequency system. The 4205 motion tolerant configuration with multi-pulse provides surveyors the ability to operate either at faster survey speeds or in more adverse weather conditions while still obtaining high quality underwater imagery.



CON | INT | B&T | A&T | WT



### EDGEYTECH 6205

The 6205, a Multi Phase Echo Sounder (MPES) produces real-time, high resolution, three dimensional (3D) maps of the seafloor while providing co-registered simultaneous dual frequency side scan imagery. Utilizing EdgeTech's Full Spectrum® technology, the 6205 exceeds IHO SP-44, NOAA and USACE specifications for feature detection and bathymetric point data uncertainty.



CON | INT | B&T | A&T | WT

## TASKS

OBS  
OBSERVATION

SUR  
SURVEY

INS  
INSPECTION

CON  
CONSTRUCTION

INT  
INTERVENTION

B&T  
BURIAL &  
TRENCHING

## TOOLS

VC&L  
VIDEO CAMERA  
& LIGHTING

NDT  
NON-  
DESTRUCTIVE  
TESTING

A&T  
ACOUSTIC  
& TRACKING

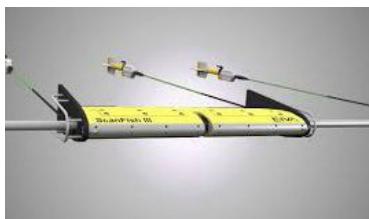
CD  
CLEANING  
DEVICES

VSK  
VEHICLE STATION  
KEEPING

WT  
WORK TOOLS

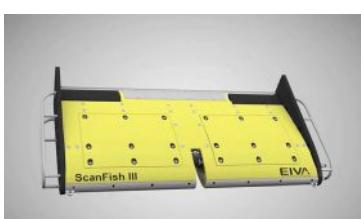
## EIVA A/S

WWW.EIVA.COM | Sales | inquiry@eiva.com



### SCANFISH KATRIA

The ScanFish Katria is an intelligent wide-sweep Remotely Operated Towed Vehicle (ROTV) solution for time-efficient magnetometer surveys. As it comes with high-sensitivity magnetometers for maximum target detection efficiency, it is an effective tool for detection of sub-bottom magnetic anomalies. (Customizable)



### SCANFISH KONIA

The ScanFish Konia is a unique ROTV solution with an integrated, high-quality SVP sensor, enabling continuous data acquisition that will streamline your MBE survey operations both in terms of costs and data quality. (Customizable)



### SCANFISH ROCIO

The ScanFish Rocio is a multi-purpose ROTV solution covering a wide variety of oceanographic survey disciplines. Its high payload allows you to fit several different pieces of equipment. This versatile platform will meet your specific needs and streamline your survey operations by combining all survey tasks in one flexible solution. (Customizable)



### SCANFISH TROPHEUS

The ScanFish Tropheus is an ROTV especially designed for UXO detection that eliminates data uncertainty with high-quality seabed imaging. It functions as depressor of any side-scan sonar and is the optimum solution in terms of quality, efficiency and safety. (Customizable)



## TOWED & BOTTOM CRAWLING VEHICLES

### FORUM SUBSEA TECHNOLOGIES

WWW.F-E-T.COM | Sales | rov.sales@f-e-t.com



#### PERRY XT300



#### PERRY XT600



#### XT1200/1500

The Perry XT range of trencher vehicles are designed to meet the demanding trenching requirements of both strong soils and deep flow-line burial protection over long stretches. Capable of operating in free-fly, skid-based trenching and survey modes, these vehicles represent extremely capable, high-performance product burial solutions. (Customizable)



B&T | VC&L | A&T | WT

### INUKTUN SERVICES LTD.

WWW.INUKTUN.COM | Sales | sales@inuktun.com



#### MAGGHD™

The MaggHD™ miniature magnetic crawler offers a unique solution for High Definition (full 1080p HD) remote visual inspection (RVI) across a broad range of applications. Its durable construction and ease of use make it perfect for examining steel structures like wind turbines, storage tanks and ship hulls – even in the splash zone! (Customizable)



CON | B&T | VC&L | CD



#### MAGGUT™

The MaggUT™ magnetic crawler is an economical system with integrated UT scanning capability. It is easily deployed and controlled by a single operator and specifically designed to incorporate standard industrial ultrasonic probes and flaw detectors from Olympus. The MaggUT™ easily integrates with your existing NDT equipment. (Customizable)



CON | B&T | VC&L | A&T | WT

### INTERNATIONAL SUBMARINE ENGINEERING LTD. (ISE)

WWW.ISE.BC.CA

Sales | info@ise.bc.ca



#### ISE AURORA SONAR TOWFISH

The Aurora Towfish is actively stabilized using 4 independently actuating aft planes and actuated main wing capable of generating up to 50kN of downforce. It collects high resolution data at up to 12 knots, with faired or unfaired cables, down to depths of 200m while navigating in either depth or terrain follow mode. The Aurora Towfish can carry full size AUV payloads including SSS, SAS, MBES, etc., shown here with Klein 5900 and R2Sonic 2024. (Customizable)



OBS | SUR | INS | VC&L | A&T



#### MAGGUT™ MARINE

MaggUT™ Marine (MUM) magnetic crawler is operable above or below the water line. MUM provides detailed visual inspections and thickness measurements on ship hulls, pressure vessels, large diameter pipes or almost any steel infrastructure. Portable and powerful, the MUM incorporates a Crystal Cam® camera and an ultrasonic testing (UT) transducer from Cygnus Instruments.



CON | B&T | VC&L | A&T | CD

## INUKTUN SERVICES LTD.

WWW.INUKTUN.COM | Sales | sales@inuktun.com



B&T | VC&L | CD

### MICROMAG™ MARK II

The MicroMag™ Mark II employs four Microtracs™ and is fitted with a brush system designed to handle harder remote cleaning and anti-fouling of ships than our standard miniature magnetic crawlers offer. Whatever your application – from waterjet tools and manipulator arms, to laser profiling sensors and CP probes – most equipment can be easily integrated onto the vehicle. (Customizable)



CON | B&T | VC&L | A&T | WT

### NANOMAG™

The NanoMag™ is a miniature crawler system with built-in rare earth magnets, allowing it to travel vertically, horizontally and even upside down on ferrous metal surfaces. With both a front facing pan and tilt camera and a rear facing fixed camera, the vehicle itself is still small enough to enter extremely confined spaces like pipes, pressure vessels and HVAC ductwork. (Customizable)



CON | B&T | VC&L | A&T | CD | WT

### MICROTRAC

"Microtrac™ crawlers are designed for remote applications in confined spaces where performance and reliability are critical. Manufactured from brass, aluminum or stainless steel, these miniature modules operate effectively in dry areas or subsea environments. Based on Inuktun's Multi-Mission Modular technology, Microtracs™ are included in our standard and customized Versatrax™ crawler systems." (Customizable)



CON | B&T | VC&L

### VERSATRAX 150™

The Versatrax 150™ pipe crawler system is a robust workhorse designed for the inspection of long pipelines, tunnels, culverts and other confined areas with a limited number of access points. The Versatrax 150™ is readily adaptable for different Spectrum™ cameras, sensors and tooling to perform comprehensive inspections across a range of industries. (Customizable)



CON | VC&L | A&T | CD | WT

### MINITRAC™

Minitracs™ are small and rugged, providing the user with access to confined spaces and harsh environments. They can be operated individually or as multiple units. Each unit is individually powered and can be easily fitted to a variety of equipment platforms to suit a wide range of applications.



CON | B&T | VC&L

### VERSATRAX 150™ MARK II

The Versatrax 150™ Mark II pipe inspection vehicle can operate in pipes as small as 150mm/6in. It is suited to a variety of inspection applications including sewers, storm drains, hydroelectric penstocks and fish bypass lines, petrochemical and power plant intake pipelines, and difficult to access pipes in the oil and gas industry. (Customizable)

## TASKS

### OBS OBSERVATION

### SUR SURVEY

### INS INSPECTION

### CON CONSTRUCTION

### INT INTERVENTION

### B&T BURIAL & TRENCHING

### TOOLS

### VC&L VIDEO CAMERA & LIGHTING

### NDT NON- DESTRUCTIVE TESTING

### A&T ACOUSTIC & TRACKING

### CD CLEANING DEVICES

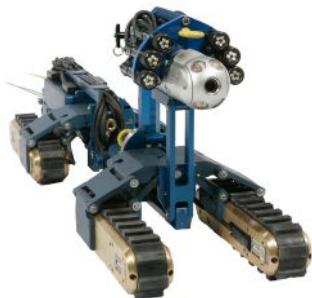
### VSK VEHICLE STATION KEEPING

### WT WORK TOOLS

## TOWED & BOTTOM CRAWLING VEHICLES

### INUKTUN SERVICES LTD.

WWW.INUKTUN.COM | Sales | sales@inuktun.com



#### VERSATRAX 300™

The Versatrax 300™ is the solution to long range pipe inspection challenges. Able to inspect more than 2km/1.3mi of pipe in a single run, the Versatrax 300™ includes three onboard video cameras, multiple sensor options and is operable in pipe as small as 300mm/12in internal diameter. (Customizable)



B&T | CON | VC&L | WT



#### VERSATRAX 450™

The Versatrax 450™ is designed specifically for hazardous environments and is perfectly suited for a wide range of applications where remote handling and inspection are required. The portable system can be deployed in a matter of minutes, allowing you to inspect, capture, and safely remove dangerous materials from any site faster than by conventional means. (Customizable)



CON | B&T | VC&L | A&T | CD | WT



#### VT150 VERTICAL CRAWLER™

The VT150 Vertical Crawler™ is a unique inspection vehicle based on the successful VT100 Vertical Crawler™. It employs three Minitracs™ and an expandable tripod chassis, allowing it to perform difficult inspections over a range of pipe sizes in virtually any orientation. Basic functions for control allow operators to quickly learn and navigate this flexible system. (Customizable)



CON | B&T | VC&L | A&T | WT

### JW FISHERS MFG.

WWW.JWFISHERS.COM

Brian Fisher | info@jwfishers.com



#### SBP-1 SUB BOTTOM PROFILER

Fishers SBP-1 is an economical sub bottomprofiler that shows the strata layers beneath the ocean floor as well as objects buried in the bottom.



### KRAKEN SONAR SYSTEMS INC

WWW.KRAKENROBOTICS.COM

Shauna Cotie | scotie@krakenrobotics.com



#### KATFISH™

KATFISH™ is an intelligent towed SAS system. This product acquires over 3 billion pixels per 3km<sup>2</sup> per hour of area coverage rate. That's 30 times more detail than conventional side scan sonar. Advanced algorithms perform thousands of adjustments per second to ensure every pixel displays data with incredible clarity. (Customizable)



CON | A&T



#### FOCUS 2

Based on the original and successful FOCUS, the FOCUS 2 system operates in depths of up to 400m at speeds of up to 10kn with fully pre-programmable horizontal and vertical movement. The high speed, capacity and stability of FOCUS 2 enable operators to increase productivity while decreasing total project costs. (Customizable)



CON | INT | VC&L | A&T | B&T

## MACARTNEY

WWW.MACARTNEY.COM

Lars Jørgensen | l.j@macartney.com



### FOCUS 3

FOCUS 3 represents the third generation FOCUS vehicles in the family of ROTV systems by MacArtney. The FOCUS 3 vehicle is constructed using carbon fibre technology for the wing sections, whereas the instrumentation pods are made from anodised aluminium, allowing for operations at depths of up to 1000m. (Customizable)



CON | INT | VC&L | A&T | B&T



### TRIAXUS

TRIAXUS is developed for highly efficient oceanographic data acquisition. TRIAXUS is able to operate at 1-350m operational envelope, speeds of up to 10kn and at vertical velocities of up to 1m/s. TRIAXUS features a strong, light-weight hydrodynamic carbon fibre hull boasting a powerful control system and a high payload capacity. (Customizable)



CON | INT | VC&L | A&T

## MARISCOPE MEERESTECHNIK

WWW.MARISCOPE.DE

Niklas Becker | n.becker@mariscope.de



### MINI OBSERVER/OBSERVER III

Able to be equipped with a vast variety of sensors and instruments. 500 mts depth rated (or more on request), Full HD cameras, extreme output LED lights, complete stainless steel frame (TIG hand welded and crystal blasted), variable payload. We specialized in one-off its kind development. Lifetime warranty. (Customizable)



INT | VC&L | A&T

## QINETIQ NORTH AMERICA

WWW.QINETIQ-NA.COM

Ken Heller | Ken.heller@qinetiq-na.com



### C-TALON

Underwater derivative of the US Military fielded TALON platform. This platform is geared towards research and exploration users who are looking for an Underwater Crawler to operate in the Surf Zone, River-ine Environments or Limited-Access Harbor Areas. The platform is designed specifically for customization and tuned to customer specific needs.



From Ocean Sonics, trusted world leaders  
in underwater acoustics

### The icListen Kayak

A new architecture for real-time acoustic  
data collection

- Designed for integration
- Extra low power 0.2W
- 23mm Diameter
- Uncomplicated User interface
- Serial, Ethernet, or USB connections
- For AUVs, ROVs and Gliders

Contact Us Today  
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## TASKS

OBS

SURVEY

INS

INVESTIGATION

CON

CONSTRUCTION

INT

INTERVENTION

B&T

BURIAL & TRENCHING

## TOOLS

VC&L

VIDEO CAMERA & LIGHTING

NDT

NON-DESTRUCTIVE TESTING

A&T

ACOUSTIC & TRACKING

CD

CLEANING DEVICES

VSK

VEHICLE STATION KEEPING

WT

WORK TOOLS

## TOWED & BOTTOM CRAWLING VEHICLES

### QINETIQ NORTH AMERICA

WWW.QINETIQ-NA.COM | Ken Heller | Ken.heller@qinetiq-na.com



#### SABRETOOTH (SMALL HULL CRAWLER)

Small ferro-magnetic hull crawler with semi-autonomous capabilities including obstacle avoidance and vehicle positioning. Crawling speeds from 0.3-3.0 m/min. Capable of hull inspection, surveillance or non-destructive testing.



### SEAROBOTICS CORPORATION

WWW.SEAROBOTICS.COM | Don Darling | ddarling@searobotics.com



#### TANKBUG

Underwater tank cleaning system that removes divers from dangerous situations by inspecting, cleaning, and removing heavy or dense sediment from water tanks. This detailed inspection also identifies any hidden corrosion or structural compromise, helping operators to safeguard against individual risk and costly maintenance or repairs.



INS | VC&L | CD

### SEAROBOTICS CORPORATION

WWW.SEAROBOTICS.COM  
Don Darling | ddarling@searobotics.com



#### HULLBUG

Semi-autonomous hull grooming system that deploys a series of integrated sensors and magnetic drive wheels to navigate a ship's hull and disrupt the early presence of biofouling. Light brushes gently detach accumulated biofouling while a submersible suction pump removes and captures it altogether, resulting in fuel efficiency gains and cleaner waters.



INS | VC&L | CD

### SEAVIEW SYSTEMS, INC

WWW.SEAVIEWSYSTEMS.COM  
Info | info@seaviewsystems.com



#### SURFROVER

A battery-powered crawler for specialized applications such as route surveys, UXO surveys, deployment of a cable/pipeline tracker as well as applications in otherwise impossible surf such as active bathymetric surveys. SurfROVer can be fitted with HD video, sonar and acoustic measurement systems. (Customizable)



OBS | SUR | INS | CON | INT | VC&L  
A&T | NDT | CD | WT

### SMD

WWW.SMD.CO.UK | Graeme Jaques | graeme.jaques@smd.co.uk



#### BACKFILL PLOUGH (BP)

Sets the standard globally for pipeline stabilization and protection through backfill. Comes with a number of features to simplify and de-risk operations such as remotely variable mouldboard depth control and trench following front skids and steering. Also available with air tank buoyancy for minimum ground pressure.



#### MULTIPASS PIPELINE V PLOUGH

Introduces further advances on the next generation AMP pipe plough by offering remotely variable multipass capability. Allows the operator to remotely adjust the depth during trenching. This, along with the advances introduced earlier on the AMP, Hi-Tow points and the active share track, make the MP the most advanced pipe trenching technology in the world. As per the AMP, 500Te trenching capability is available from only 350Te vessel pull.



**CBT1100**

Provides a soft to hard ground burial solution in one neat package. Fully amphibious 800kW vehicle. Equipped with a powerful chain cutter, dredge pump and jet legs. A well proven chain cutter deployment system allows post lay burial of cable up to 300mm and 4.0m MBR. (Customizable)

**CBT2100**

Draws on SMD's experience of track driven vehicles, trenching and cable handling subsea to provide a soft to hard ground burial solution. A fully amphibious vehicle equipped with interchangeable tooling cassettes including powerful chain cutter, dredge pump and jet legs. (Customizable)

**HD - 200**

A high-performance trenching solution for large diameter flexible umbilicals. Using patented technology the plough is designed to minimise pull force requirements and provide effective trenching capability up to 3.0m depth. The diverless loading system allows post lay burial in deep-water. Coupled with a tow winch, umbilical and LARS SMD are able to supply a turnkey flexible solution.

**HD - 300**

Provides a high-performance trenching solution for large diameter flexible umbilicals. Using patented technology, the plough is designed to minimize pull force requirements and provide effective trenching capability up to 3.0m depth. The diverless loading system allows post lay burial in deepwater. Coupled with a tow winch, umbilical and LARS system, SMD are able to supply a turnkey flexible burial solution.

**CBT3200**

Provides a soft or hard ground burial solution in one neat package. Also available as a burial tractor configured for pipeline burial. Equipped with a selection of powerful chain cutter trenching tools, dredge pumps and jet legs. Well proven chain cutter deployment systems allow pre or post-lay burial of cables up to 300mm diameter and 5.0m MBR, and pipelines up to 1.5m diameter. (Customizable)

**TASKS**

**OBS**  
OBSERVATION

**SUR**  
SURVEY

**INS**  
INSPECTION

**CON**  
CONSTRUCTION

**INT**  
INTERVENTION

**B&T**  
BURIAL &  
TRENCHING

**TOOLS**

**VC&L**  
VIDEO CAMERA  
& LIGHTING

**NDT**  
NON-  
DESTRUCTIVE  
TESTING

**A&T**  
ACOUSTIC  
& TRACKING

**CD**  
CLEANING  
DEVICES

**VSK**  
VEHICLE STATION  
KEEPING

**WT**  
WORK TOOLS

**MD3 - 160**

A high-performance trenching solution for large diameter flexible umbilicals. Using patented technology the plough is designed to minimise pull force requirements and provide effective trenching capability up to 3.0m depth. Coupled with a tow winch, umbilical and LARS system, SMD are able to supply a turnkey flexible solution.



## TOWED & BOTTOM CRAWLING VEHICLES

### SMD

WWW.SMD.CO.UK | Graeme Jaques | graeme.jaques@smd.co.uk



#### QTRENCHER 400

Uses high voltage supply to provide effective cable maintenance and other specialised tasks. Purpose designed to provide maximum jetting and thrust performance. Has reputation for reliability and ease of maintenance & has become an essential part of any cable installation vehicle suite. Turnkey cable maintenance solution including LARS and umbilical. (Customizable)



#### QTRENCHER 600

Uses high voltage supply to provide effective cable maintenance with other specialised tasks. Purpose designed for maximum jetting and thrust performance. Optimised with a single 4.1kV hydraulic power unit to achieve 600hp in a compact package. Turnkey solution including SMD designed high sea state LARS and umbilical. (Customizable)



#### QTRENCHER 1000

Provides high power trenching capability for the burial of cables, umbilical and small diameter pipes up to 3m deep. Uses variable high flow or high-pressure jetting to optimize the trenching to suit the conditions. Can also deploy a rear eductor to enhance burial of large diameter product. With its high thrust, the ROV can perform rapid post lay survey. Can also be fitted with a suite of tools for maintenance operations. (Customizable)



#### QTRENCHER 1400

High powered free-swimming jet trencher. Optional track drive for enhanced burial capability. Optional tracked skids for bespoke tool deployment. More than 1.0 megawatt of total power. Delivers 0.75 megawatts of variable high pressure jetting power for trenching and up to 200kW of low pressure water jetting for trench backwash, eduction or trench collapse. (Customizable)



#### QTRENCHER 1600

The Q-Trencher 1600 is a high powered free-swimming jet trencher, with optional track drive for enhanced burial capability and optional tracked skids for bespoke tool deployment. With 1.2MW of total power, the trencher delivers 800kW of variable high pressure jetting power for trenching and up to 300kW of LP water jetting for trench backwash, eduction or trench collapse. (Customizable)



#### QTRENCHER 2800

The 60Te QTrencher (QT) 2800 remotely operated vehicle (ROV) is the world's most powerful free-swimming jet trencher. With more than 2 megawatts of total power, the trencher delivers 1.5 megawatts of jetting power. The complete system spread sets a new standard in severe weather deployment and operation. (Customizable)



## TELEDYNE BENTHOS

WWW.TELEDYNEMARINE.COM | Dan Shropshire | benthos@teledyne.com



### TTV-190 DEEP TOW

The TTV-190 is a rugged, 6000m rated platform for deep water search, survey, and other data collection operations. The Deep Tow vehicle is configurable to accommodate customer specified sensors including side scan sonars, multi-beam sonars, and sub bottom profilers. Sensor systems can also be recommended by Teledyne Benthos. (Customizable)



CON | B&T | A&T

### TTV-290 MID TOW

The TTV-290 Mid Tow vehicle is designed for hydrodynamic stability for side scan surveys and other applications down to 2000m. The stainless steel mid plate is a rigid platform for a combination of multi-beam and side scan sonars, sub-bottom profilers, producing co-located data sets. (Customizable)



CON | B&T | A&T

## TELEDYNE SEABOTIX

WWW.TELEDYNEMARINE.COM/SEABOTIX | Jamie Carrig | jamie.carrig@teledyne.com



### VLBC - VECTORED LITTLE BENTHIC CRAWLER

Unmatched in versatility, the SeaBotix VLBC is a revolutionary approach to ship hull and infrastructure inspection for a wide range of military and commercial applications. With no magnets or thrusters (churning the water, impeding visibility), SeaBotix Crawlers employ the patented Vortex Generator to attach to any relatively flat, hard surface with up to 22+ kgf (48 lbf) of attraction force. With no relative motion between the inspection surface and the sensors, output data is the highest quality possible and operator fatigue is greatly reduced. (Customizable)



CON | B&T | A&T

### LBC - LITTLE BENTHIC CRAWLER

Unmatched in versatility, the SeaBotix LBC is a revolutionary approach to ship hull and infrastructure inspection for a wide range of military and commercial applications. With no magnets or thrusters (churning the water, impeding visibility), SeaBotix Crawlers employ the patented Vortex Generator to attach to any relatively flat, hard surface with up to 22+ kgf (48 lbf) of attraction force. With no relative motion between the inspection surface and the sensors, output data is the highest quality possible and operator fatigue is greatly reduced. (Customizable)

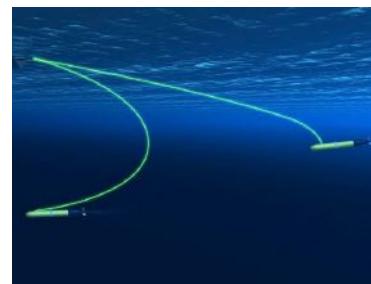


CON | B&T | A&T

## VEHICLE CONTROL TECHNOLOGIES, INC.

WWW.VCTINC.COM

Douglas E. Humphreys | edhumphreys@vctinc.com



### POWERED TOW BODY (PTB)

Powered Tow Body (PTB) differs from MTB in that it has propulsion system like a UUV and it uses power and pitch to achieve depth. Autopilot depth control eliminates need for constant winch operator control. VCT modular tail design allows the vehicle to scale in diameter to accommodate payload requirements.



## TASKS

### OBS

OBSERVATION

### SUR

SURVEY

### INS

INSPECTION

### CON

CONSTRUCTION

### INT

INTERVENTION

### B&T

BURIAL & TRENCHING

## TOOLS

### VC&L

VIDEO CAMERA & LIGHTING

### NDT

NON-DESTRUCTIVE TESTING

### A&T

ACOUSTIC & TRACKING

### CD

CLEANING DEVICES

### VSK

VEHICLE STATION KEEPING

### WT

WORK TOOLS



## Volz Servos – German manufacturer of actuators since 1983



» The wide and diverse product portfolio of Volz Servos is used in various industries and applications.

Over the last 37 years, Volz Servos has managed to establish itself as the world's leading manufacturer of compact, highly efficient and most reliable electro mechanical actuators. Volz's wide and diverse product portfolio is prevalent in various industries and for a broad range of applications, from medical and laboratory devices, robotic applications to all kinds of unmanned and autonomous systems like drones (UAVs), submersibles (UUVs) as well as surface vehicles (USVs).

Volz specializes in adapting its products to meet specific requirements, while also developing completely custom solutions. This led Volz to expand its product portfolio to include a range of actuators designed for various kinds of UUVs and other underwater vehicles. Nearly all Volz actuators can be ordered with special submersible

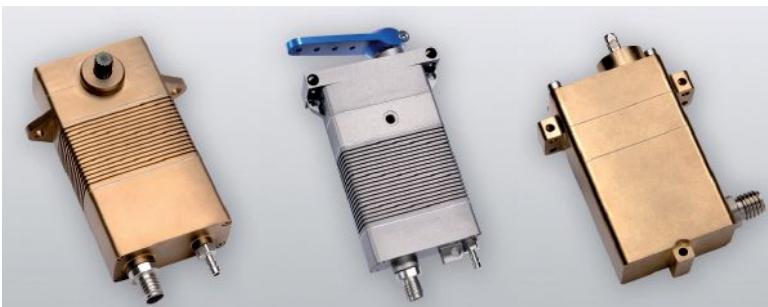
configuration. These submersible versions are oil-filled and can withstand the extreme pressures of underwater environments by using pressure compensation via the hose adapter in the housing. The DA 26-SUB, for example, has been successfully tested and operated to a depth of 20,000 ft / 6,000 m. In order to enhance UUV efficiency on long endurance missions, the DA 26-R, with its self-locking gear train, holds its position without any current draw. The IP 67-rated housing is CNC-machined from saltwater-resistant aluminum, and with its special coating can withstand a minimum of 1,000 hours of saltwater exposure without corrosion. Furthermore, Volz also offers marine-bronze versions, as well as different connector options.

Besides the flexibility and customization that Volz actuators afford, they are also "Made in

Germany" under the most stringent of quality controls (ISO 9001:2015) and are individual tested before being delivered to customers. It is this commitment to quality, precision and the continuous drive for innovation, that makes Volz a valued partner in the defense, commercial, and research sectors, worldwide.

The trend towards unmanned and autonomous systems is irresistible and will make a lasting impression in a lot of industry sectors. By constantly investing in R&D and production capacities, Volz is preparing for the future and is underlining its position as the market-leader and reliable partner for the industry.

For more information, visit  
[WWW.VOLZ-SERVOS.COM](http://WWW.VOLZ-SERVOS.COM)



» Customized actuators for special purposes (from left to right): DA 26-R with self-locking gear train, DA 26-SUB and water-proof DA 22-SUB.

# AUVs

UNMANNED  
VEHICLES  
BUYERS' GUIDE



ENVIRONMENTAL



DEFENSE



OFFSHORE OIL & GAS



SCIENCE



SEABED MINING



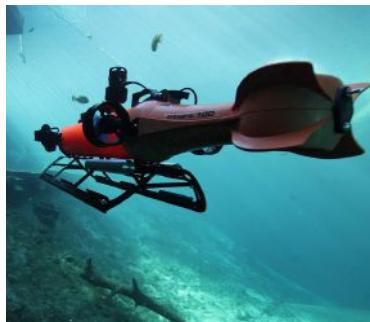
OCEAN RENEWABLES



SPEC SHEET

**AQUABOTIX**[WWW.AQUABOTIX.COM](http://WWW.AQUABOTIX.COM)

Dawn Doraz | dawn@aquabotix.com

**INTEGRA**

The AquaBotix Integra™ Hybrid AUV/ROV revolutionizes underwater vehicle missions. Integra searches wide areas using AUV mode and conducts detailed inspections using ROV mode. Switching to ROV mode is simple; attach the tether to remotely control the vehicle's five degrees freedom of motion. When running the vehicle in autonomous operation, all mission planning is completed in an intuitive web-based application.

**ATLAS ELEKTRONIK UK**[WWW.UK.ATLAS-ELEKTRONIK.COM](http://WWW.UK.ATLAS-ELEKTRONIK.COM)

Tommy Kaltoven | tommy.kaltoven@atlas-elektronik.com

**SEACAT**

SeaCat is a hybrid AUV/Rov System with a FOC Link of 1000m. It can be supplemented by a multitude of sensors, located in a flooded bow section. The SwapHead - is exchangeable in the field within minutes and allows a wide range of high demanding missions that otherwise would require different types of vehicles.

**BAE SYSTEMS**[WWW.BAESYSTEMS.COM/RIPTIDE](http://WWW.BAESYSTEMS.COM/RIPTIDE)

Paco Santana | riptide@baesystems.com

**MICRO-UUV**

BAE Systems' Riptide family of autonomous undersea vehicles provide a sustainable and scalable platform to advance technology development and undersea operations. Our mission agnostic and modular system design enables easy modification, while multiple energy source options allow for maximum flexibility for endurance, safety, shipping, and mission optimization.



OBS | SUR | VC&amp;L | A&amp;T | NDT

**BOSTON ENGINEERING**[WWW.BOSTON-ENGINEERING.COM](http://WWW.BOSTON-ENGINEERING.COM)

Alex Wallace | info@boston-engineering.com

**BIOSWIMMER UUV**

The BIOSwimmer UUV applies the dynamics of biological fish to advance underwater search, inspection, and to operate in constricted areas inaccessible by other vehicles. The BIOSwimmer addresses maritime capability gaps in littoral waters by increasing data collection in confined areas and using multi-payload support to perform a breadth of missions. (Customizable)



SUR | A&amp;T

**CELLULA ROBOTICS LTD.**[WWW.CELLULA.COM/ALL-AUV-PRODUCTS](http://WWW.CELLULA.COM/ALL-AUV-PRODUCTS) | Adrian Woodroffe | info@cellula.com**IMOTUS**

Imotus is a hovering autonomous underwater vehicle (HAUV) with six degrees of freedom for inspection & data acquisition missions in confined and open water environments. Imotus uses scanning sonars and proprietary SLAM algorithms to provide navigational control and spatially referenced survey data. (Customizable)



OBS | SUR | INS | VC&amp;L | A&amp;T | NDT | VSK CD

**SOLUS-LR AUV**

The Solus-LR Autonomous Underwater Vehicle (AUV) is a long range, hydrogen fuel-cell powered autonomous underwater vehicle, capable of port to port missions and 2000km ranges. Its suction anchor and payload capacity enables applications including surface and subsurface surveillance (acoustic or magnetic), traditional geophysical surveys, and search and survey. (Customizable)

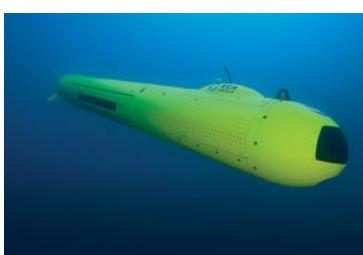


OBS | SUR | A&amp;T

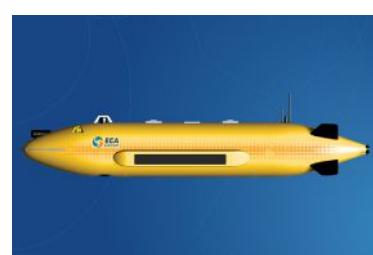


**A9 (A9-M / A9-E)**

A man portable AUV for environmental monitoring and survey as well as surveillance for Defense and Security applications. This AUV is easy to deploy and operate from shore or any other platform. Dedicated data management software for civil and military missions are available.

**A18 (A18D / A18-E)**

Deep water modular and flexible mid-size autonomous underwater vehicle (AUV) for high resolution 3D survey. Thanks to its accurate navigation system and its SAS sonar, this AUV brings you the highest quality data. A dedicated Launch & Recovery System is available as well as a dedicated software suite for data management. ECA Group provides AUV Services based on A18D.

**A27 (A27-E / A27-M)**

Long endurance modular and flexible platform for high resolution 3D survey. A27-M with reduced acoustic signature for Mine Countermeasures (MCM) missions, A27-E for civil applications.

**TASKS****OBS**  
OBSERVATION**SUR**  
SURVEY**INS**  
INSPECTION**CON**  
CONSTRUCTION**INT**  
INTERVENTION**B&T**  
BURIAL &  
TRENCHING**TOOLS****VC&L**  
VIDEO CAMERA  
& LIGHTING**NDT**  
NON-  
DESTRUCTIVE  
TESTING**A&T**  
ACOUSTIC  
& TRACKING**CD**  
CLEANING  
DEVICES**VSK**  
VEHICLE STATION  
KEEPING**WT**  
WORK TOOLS

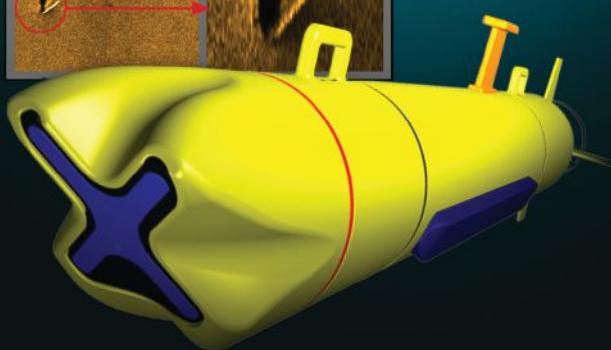
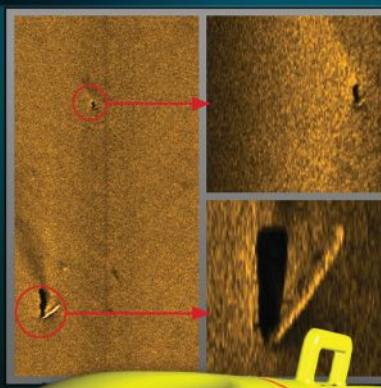
## KLEIN μMA-X (MicroMA-X)

INDUSTRY'S FIRST NADIR IMAGING SONAR  
FOR COMMERCIAL AND MILITARY UNMANNED VEHICLE MARKETS



### Complete Nadir Coverage

The Klein μMA-X is a highly scalable, modular system which integrates easily to most AUV/ROV vehicles. The system utilizes Klein's next generation μEngine which is a powerful, compact, low-power architecture which uses Klein BLUE technology to provide superior imaging performance. When paired with a Side Scan System, the μMA-X functions as a gap-filler providing a 40% increase in survey efficiency.

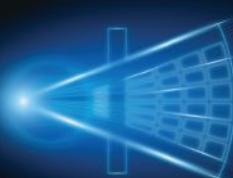


**THE DIFFERENCE IS IN THE IMAGE**

### KLEIN MARINE SYSTEMS

For more information, download the μMA-X (MicroMA-X) brochure from [www.KleinMarineSystems.com](http://www.KleinMarineSystems.com) or call us at (603) 893-6131 to find out how Klein is Making the Oceans Transparent!

**KLEIN BLUE™**  
TECHNOLOGY



**EDGELAB SRL**

WWW.EDGE LAB.EU | Lavinio Gualdesi | edgelab@edgelab.eu

**U-MAPPER**

Smart, low-cost, heavy-duty, cooperative swarm navigation, modular approach for easy integration of AUV size payloads, customized, high quality maps from better image reconstruction methods and improved location accuracy of AUVs, fast and low cost horizontal surveys of large areas with multimodal sensing, monitor changes via back-to-the-site missions, hybrid usage ROV/AUV.

**U-TRACKER**

Designed with modularity common criteria to make simple and immediate testing of new sets of sensors. Connections between various models realized with a simple, interchangeable mechanical interface system. Payload is customizable as with Webcam, CTD, Side Scan Sonar, other AUV-class sensors. High maneuverability with 2 azimuthal + 2 lateral ducted propellers.

**GENERAL DYNAMICS MISSION SYSTEMS**

WWW.GDMISSIONSYSTEMS.COM | Jonathan Lesser | Jonathan.Lesser@gd-ms.com

**BLUEFIN-HAUV**

Bluefin Robotics' Hovering Autonomous Underwater Vehicle (HAUV) is a two-man-portable hovering AUV designed for the inspection of submerged structures and ship hulls. Equipped with high-resolution imaging sonar and integrated sensors and thrusters to maintain stability and distance, HAUV can survey ship hulls and other structures with minimal prior knowledge. (Customizable)



OBS | SUR | A&amp;T

**BLUEFIN™-9**

The General Dynamics Mission Systems Bluefin™-9 autonomous unmanned underwater vehicle provides unmatched high-resolution data, leading navigation, data processing and mission turnaround time in a two-man portable UUV. Featuring a full carbon fiber body, a carefully selected and smartly integrated suite of sensors, latest generation communications and navigational components, and new onboard processing capabilities.



SUR | VC&amp;L

**GENERAL DYNAMICS MISSION SYSTEMS**

WWW.GDMISSIONSYSTEMS.COM

Jonathan Lesser | Jonathan.Lesser@gd-ms.com

**BLUEFIN-12 UNMANNED UNDERWATER VEHICLE (UUV)**

Advanced, Mission-Ready and Modular The Bluefin™-12 is a lightweight medium-class UUV designed to deliver mission critical data and complete high-consequence and changing missions. Built with robust core capabilities, increased modularity, embedded intelligence, data processing, and extended operational range, the Bluefin-12 is ready for today's mission and prepared for tomorrow's threats. (Customizable)



OBS | SUR | VC&amp;L

**BLUEFIN™-21**

The Bluefin-21 is a highly modular autonomous underwater vehicle able to carry multiple sensors and payloads at once. It boasts a high energy capacity that enables extended operations even at the greatest depths. The Bluefin-21 has immense capability but is also flexible enough to operate from various ships of opportunity worldwide. (Customizable)



SUR | VC&amp;L

## GRAAL TECH S.R.L

WWW.GRAALTECH.IT

Andrea Caffaz | andrea.caffaz@graaltech.it



### FOLAGA

Folaga is characterized by a very high maneuverability even at low speed, including hovering capabilities, that may be exploited in several inspection and patrolling tasks. The main feature of the eFolaga is the possibility of mounting in the easiest possible way different kinds of mission payloads.



## HUNTINGTON INGALLS INDUSTRIES

WWW.HYDROID.COM | Tom Reynolds | sales@hydroid.com



### REMUS 100

The REMUS 100 is one of the most prolific small class AUVs with over 400 sold worldwide. This two-man portable, low logistics AUV is outfitted with various sensors and payloads to collect data and imagery in the ocean. (Customizable)



OBS | SUR | VC&L | A&T



### REMUS 300

The new REMUS 300 is a small class, modular AUV that provides maximum payload flexibility while remaining two-man portable. This 300 meter depth rated, open architecture AUV offers field-swappable energy options allowing up to 29 hour mission duration. (Customizable)



OBS | SUR | VC&L | A&T

## TASKS

### OBS

OBSERVATION

### SUR

SURVEY

### INS

INSPECTION

### CON

CONSTRUCTION

### INT

INTERVENTION

### B&T

BURIAL & TRENCHING

## TOOLS

### VC&L

VIDEO CAMERA & LIGHTING

### NDT

NON-DESTRUCTIVE TESTING

### A&T

ACOUSTIC & TRACKING

### CD

CLEANING DEVICES

### VSK

VEHICLE STATION KEEPING

### WT

WORK TOOLS

## HUNTINGTON INGALLS INDUSTRIES

WWW.HYDROID.COM | Tom Reynolds | sales@hydroid.com



### REMUS 600

The REMUS 600 is a medium class, modular AUV that can carry advanced sensors and payloads. This 600 meter depth rated AUV supports the growing need for operations requiring endurance, increased payload capacity and greater operating depth. (Customizable)



OBS | SUR | VC&L | A&T

## HYDROMEA

WWW.HYDROMEA.COM

Alexander Bahr | alexander.bahr@hydromea.com



### REMUS 6000

The New Generation REMUS 6000 AUV boasts the same proven software and electronic subsystems found in our highly successful REMUS 100 AUV, with a depth rating, endurance and payload that allows for autonomous operations in up to 6000 meters of water. (Customizable)



OBS | SUR | VC&L | A&T

### VERTEX

The Hydromea VERTEX AUV System is a fleet of small, portable and highly integrated autonomous underwater vehicles for water quality measurements, specifically designed to operate in groups of 10 or more vehicles. (Customizable)



**INDEPENDENT ROBOTICS**

[WWW.INDEPENDENTROBOTICS.COM](http://WWW.INDEPENDENTROBOTICS.COM)  
info@independentrobotics.com

**TASKS****OBS**

OBSERVATION

**SUR**

SURVEY

**INS**

INSPECTION

**CON**

CONSTRUCTION

**INT**

INTERVENTION

**B&T**BURIAL &  
TRENCHING**TOOLS**VC&L  
VIDEO CAMERA  
& LIGHTING**NDT**NON-  
DESTRUCTIVE  
TESTING**A&T**ACOUSTIC  
& TRACKING**CD**CLEANING  
DEVICES**VSK**VEHICLE STATION  
KEEPING**WT**

WORK TOOLS

**AQUA 2**

The Aqua2 is an amphibious hexapod robot capable of propelling itself on land or through the water. The use of six independently controlled thrusting surfaces makes the unit very maneuverable and produces minimal disturbance to the surrounding environment. The Aqua2 is programmable and configurable, can be deployed for tethered or untethered use, and is an ideal platform for submersible robotics projects, environmental monitoring, and propulsion research. (Customizable)

**INTERNATIONAL SUBMARINE  
ENGINEERING LTD. (ISE)**

[WWW.ISE.BC.CA](http://WWW.ISE.BC.CA) | info@ise.bc.ca

**ISE EXPLORER AUV**

The ISE EXPLORER Autonomous Underwater Vehicle (AUV) collects IHO compliant data at a rate of 750 to 1100 km per week of ship time with all sensors operating and is the most modular and maneuverable AUV in the world today. The modular design of the EXPLORER enables it to carry multiple payloads in its spacious, swappable, and customisable payload section. The Explorer is available in 3000m, 6000m and other custom depth ratings. (Customizable)



SUR | VC&L | A&T | OBS | INS

**KONGSBERG MARITIME**

[WWW.KM.KONGSBERG.COM](http://WWW.KM.KONGSBERG.COM) | Richard Mills | richard.mills@kongsberg.com

**HUGIN**

HUGIN is the most commercially successful AUV in the world, having completed over 600,000 line kilometres of paid survey. Proven by operations in harsh environments. Proven by operations in harsh open ocean conditions from Africa to South America. HUGIN is the most robust AUV platform providing IHO standard data quality. (Customizable)

**MUNIN 600**

MUNIN retains all of the processing capability from HUGIN, packaged in a low-logistics vehicle. Easy to ship, mobilize and operate, MUNIN is capable of more than any other mid-size AUV. (Customizable)

**IQUA ROBOTICS SL**

[WWW.IQUAROBOTICS.COM](http://WWW.IQUAROBOTICS.COM)  
Joseta Roca | joseta.roca@iquarobotics.com

**GIRONA 500 AUV**

The Girona 500 is a reconfigurable autonomous underwater vehicle (AUV) designed for a maximum operating depth of up to 500 m. The vehicle is composed of an aluminium frame which supports three torpedo-shaped hulls of 0.3 m in diameter and 1.5 m in length as well as other elements like the thrusters. This design offers a good hydrodynamic performance and a large space for housing the equipments while maintaining a compact size which allows to operate the vehicle from small boats. (Customizable)



SUR | VC&L | A&T | OBS

**SPARUS II AUV**

SPARUS II AUV is a lightweight hovering vehicle with mission-specific payload area and efficient hydrodynamics for long autonomy in shallow water (200 meters). It combines torpedo-shape performance with hovering capability. It is easy to deploy and to operate. The payload area can be customized by the end user and it uses an open software architecture, based on ROS, for mission programming. Its flexibility, easy operation and openness makes the SPARUS II AUV a multipurpose platform that can adapt to industrial, scientific and academic applications. (Customizable)



SUR | VC&L | A&T

# Submersible Actuators

- submersible actuator
- oil filled
- tested to 19,600 ft



SERVOS | German manufacturer of actuators since 1983

**KRAKEN ROBOTIC SYSTEMS INC.**

[WWW.KRAKENROBOTICS.COM](http://WWW.KRAKENROBOTICS.COM)  
Shauna Cotie | scotie@krakenrobotics.com

**THUNDERFISH®**

The Kraken ThunderFish® is a highly advanced, 6000 meter rated, Hovering Autonomous Underwater Vehicle (H-AUV). ThunderFish® Alpha is Kraken's Mid-Sized Autonomous Underwater Vehicle and the first platform in the Thunderfish series of vehicles. Versatile payload options and a modular battery system allows to ThunderFish® Alpha to be adaptable to many different AUV missions of varying depths, duration, and applications. (Customizable)



SUR | A&T

**L3HARRIS**

[WWW.OCEAN-SERVER.COM](http://WWW.OCEAN-SERVER.COM) | [WWW.L3HARRIS.COM](http://WWW.L3HARRIS.COM) | Jim Kirk | IVER.sales@L3Harris.com

**IVER4 580**

The Iver4 580 offers users a 200-meter depth survey system featuring hot-swappable battery sections that can be changed in the field without any special tools. The Iver4 580 offers users a 200-meter depth survey system featuring hot-swappable battery sections that can be changed in the field without any special tools. (Customizable)



SUR | VC&L | A&T | NDT

**L3HARRIS**

[WWW.OCEAN-SERVER.COM](http://WWW.OCEAN-SERVER.COM) | [WWW.L3HARRIS.COM](http://WWW.L3HARRIS.COM) | Jim Kirk | IVER.sales@L3Harris.com

**IVER3**

Iver3 is the first commercially developed family of low-cost AUVs. Iver3 is single man-portable and is ideal for coastal applications such as sensor development, general survey work, sub-surface security, research and environmental monitoring. Iver3 benefits from 15 years of experience in building reliable systems with well over 300 AUVs shipped. (Customizable)



SUR | VC&L | A&T | NDT

**IVER3 EP**

Iver3 EP open system AUVs incorporate all standard Iver3 features along with options for added forward payload sections and an intuitive API for remote helm applications. Iver3 EP is an open system where the users can install their hardware and make software extensions to the vehicle without a custom design. (Customizable)



SUR | VC&L | A&T | NDT

**OCEAN AERO**

[WWW.OCEANAERO.COM/VEHICLES](http://WWW.OCEANAERO.COM/VEHICLES)  
Neil Trenaman | ntrenaman@oceanaco.us

**SURFACE AND SUBSURFACE OCEAN DRONES--SCOUT, DISCOVERY, NAVIGATOR**

Ocean Aero is the creator, manufacturer, and seller of the world's first autonomous, surface and subsurface ocean drones. Wind and solar powered, they are a perfect platform for extended ocean observation and data collection, such as intelligence and surveillance, marine mammal tracking, and Met-Ocean data gathering. (Customizable)



OBS | A&T | NDT

## OCEANEERING INTERNATIONAL, INC

WWW.OCEANEERING.COM

Sales | survey@oceaneering.com



### OCEAN SURVEYOR

Standard Equipment: C-Nav L-Band DGPS  
| Intertial Navigation | Simrad HiPAP USBL  
| RDI Navigator Doppler Velocity Log |  
Kalman Filter | DigiQuartz Depth Unit |  
SBE 49 FastCAT CTD Sensor | Multibeam  
Echo-sounder: Kongsberg Simrad EM  
2040 | EdgeTech / Side Scan Sonar: 120  
/410 kHz Chirp AUV / UUV DF Seafloor  
Mapper / White High Resolution Digital  
Camera | 2G Robotics / ULS-500 Pro  
Laser Line Scanner | Magnetometer |  
Battery: Lithium Ion. (Customizable)



OBS | SUR | A&T | NDT

## QINETIQ NORTH AMERICA

WWW.QINETIQ-NA.COM

Knut Streitlien | knut.streitlien@qinetiq-na.com



### SEA SCOUT

Sea Scout™ is a general purpose UUV that can be deployed with a standard A-size sonobuoy launch container. It can have up to two optional payload sensors.



## OCEANSCAN-MST LDA

WWW.OCEANSCAN-MST.COM

info@oceanscan-mst.com



### LAUV

Lightweight AUV targeted at innovative  
The LAUV is a rugged, cost-effective,  
Lightweight Autonomous Underwater  
Vehicle, designed to be simple to deploy,  
operate, and recover by one person. The  
open source software, makes easy the  
integration of new payload and algorithms.  
The LAUV is used worldwide by Navies  
and R&D institutions. (Customizable)



OBS | SUR | VC&L | A&T

## RTSYS

WWW.RTSYS.EU

Corentin Troussard | enquiries@rtsys.fr



### COMET 300

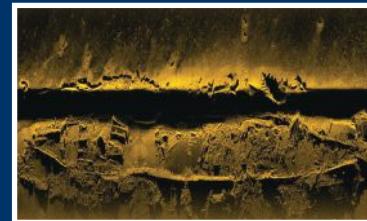
COMET 300 is a cost-effective  
operational AUV with real-time  
positioning and acoustic communication  
system, designed to meet the current  
needs of marine research and industry.  
It can be used in swarm mode to  
communicate with others drones  
to position themselves and realize  
joint missions. Furthermore, RTsys has  
developed a module that allows drones  
to dock into a station. (Customizable)



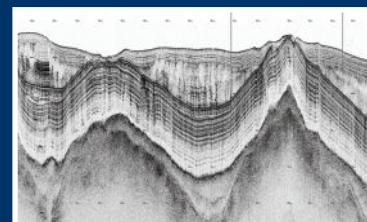
## Clearly Superior Imaging

# SONAR SYSTEMS

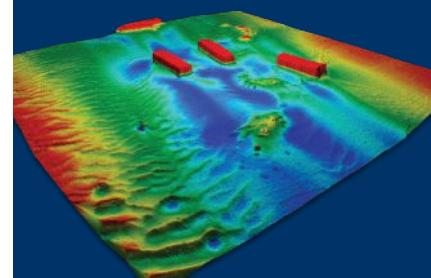
### SIDE SCAN SONARS



### SUB-BOTTOM PROFILERS



### BATHYMETRY SYSTEMS



**EdgeTech.com**

info@edgetech.com  
USA 1.508.291.0057

### TASKS

OBS  
OBSERVATION

SUR  
SURVEY

INS  
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CON  
CONSTRUCTION

INT  
INTERVENTION

B&T  
BURIAL &  
TRENCHING

### TOOLS

VC&L  
VIDEO CAMERA  
& LIGHTING

NDT  
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DESTRUCTIVE  
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A&T  
ACOUSTIC  
& TRACKING

CD  
CLEANING  
DEVICES

VSK  
VEHICLE STATION  
KEEPING

WT  
WORK TOOLS

**RTSYS**

[WWW.RTSYS.EU](http://WWW.RTSYS.EU)  
Luc Simon | info@rtsys.eu

**NEMOSENS**

NemoSens is a micro-AUV with an open Linux architecture which can embark various payloads such as CTD probe, echosounder or side-scan sonar. Light and portable, it is less than one meter long and can last up to 8 hours at 4 knots during mission time. It can also navigate in swarm and reposition itself thanks to acoustic communications. (Customizable)



OBS | SUR | A&T | NDT

**SAAB SEAEDGE LTD**

[WWW.SaabSeaeye.com](http://WWW.SaabSeaeye.com)  
James Douglas | solutions@sabseaeye.com

**SEAEDGE SABERTOOTH**

The Sabertooth is a hybrid AUV / ROV capable of working in deep water either as an autonomous vehicle or via a tether. Its power, tether-free operation and 360° hovering manoeuvrability make the Sabertooth an ideal option for autonomous inspection or maintenance and repair tasks as well as offshore survey work. (Customizable)



OBS | SUR | VC&L | A&T | NDT

**STRATEGIC ROBOTIC SYSTEMS**

[WWW.SRSFUSION.COM](http://WWW.SRSFUSION.COM)  
Jesse Rodocker | jesse@srsfusion.com

**FUSION-HYBRID**

**FUSION** The FUSION is a multipurpose UUV with both AUV and ROV functionality. Complete with a full suite of sensors including side scan, forward looking multi-beam, HD video, DVL and USBL. The highly intuitive control system coupled with the compact footprint and ability to conduct tethered or untethered missions make the FUSION a versatile system. (Customizable)



OBS | SUR | VC&L | A&T | NDT

**TELEDYNE GAVIA**

[WWW.TELEDYNEMARINE.COM](http://WWW.TELEDYNEMARINE.COM) | Arnar Steingrimsson | gavia\_sales@teledyne.com

**GAVIA AUV**

THE GAVIA AUTONOMOUS UNDERWATER VEHICLE (AUV) is a self-contained, low logistics, modular survey platform capable of delivering high quality data while operating from vessels of opportunity or from the shore. (Customizable)



SUR | VC&L | A&T | NDT

**SEAPROTOR AUV**

The SEAPROTOR™ is a survey grade deep water autonomous underwater vehicle (AUV) designed to operate at abyssal depths. A wide range of sensors allow the SeaRaptor™ to complete several types of missions including: broad area search with side-scan sonar, hydrographic survey with multibeam and sub bottom profiler, and high resolution inspection survey with camera and acoustic sonar. (Customizable)



SUR | A&T | NDT

**THE BOEING COMPANY**

[WWW.BOEING.COM](http://WWW.BOEING.COM)

**ECHO RANGER AUTONOMOUS UNMANNED UNDERWATER VEHICLE**

New sensor and system payloads are rapidly being introduced to UUVs. The Boeing Solution to testing these proposed systems requires a vehicle with ample payload capacity and energy. The Echo Ranger is uniquely suited to this task with proven autonomy, generous external payload volume, and available energy capacity.



## VEHICLE CONTROL TECHNOLOGIES, INC.

WWW.VCTINC.COM

Douglas E. Humphreys | dhumphreys@vctinc.com



### HYBRID PTB-UUV

Users that benefit from a single system that can be used as a high-performance tow body and an untethered UUV based on the same vehicle. Search and survey; mine countermeasures (MCM); open architecture R&D platform.



### HARBORSCAN UUV

VCT modular tail design means this vehicle scales in diameter to accommodate your payload requirements.



## YSI INTEGRATED

WWW.YSI.COM

ysi.systems@xyleminc.com



### iXO ECOMAPPER AUV

The Iver3-580 options include Side Scan, Bathy, Environmental Sensors, User 2nd CPU, Camera, Iridium, Modem and Handheld Remote.



OBS | SUR | A&T | NDT

## TASKS

### OBS

OBSE

### SUR

SURVEY

### INS

INSP

### CON

CONSTR

### INT

INTERV

### B&T

BURIAL &

TRENCHING

## TOOLS

### VC&L

VIDEO CAMERA & LIGHTING

### NDT

NON-DESTRUCTIVE TESTING

### A&T

ACOUSTIC & TRACKING

### CD

CLEANING DEVICES

### VSK

VEHICLE STATION KEEPING

### WT

WORK TOOLS

**Oceanology International**  
01 - 03 December 2020, London  
Stand C700



## Pressure Compensated and Energy Efficient

### maxon thruster

Max. depth limit of up to 6,000 meters  
High energy efficient of minimum 80 percent  
Long service life of up to 1,000 operation hours  
Compact Design  
[aquaticsolutions.maxongroup.com](http://aquaticsolutions.maxongroup.com)

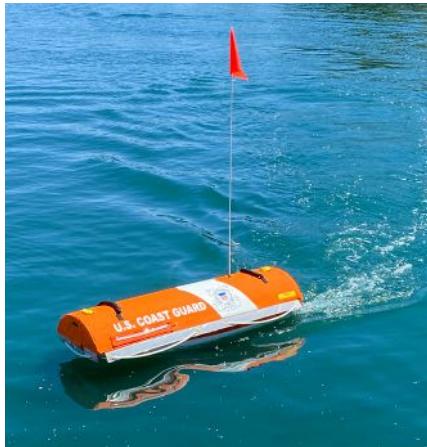
Precision Drive Systems

**maxon**



» Hydronalix Man Overboard Rescue System

## Hydronalix: Man Overboard EMILY (MOBE) Rescue System



» Hydronalix MOBE System on Shipboard Operations

Green Valley, Arizona  
Tel. (520) 203-8351  
[WWW.HYDRONALIX.COM](http://WWW.HYDRONALIX.COM)

Earlier this year Hydronalix unveiled the Man Overboard EMILY (MOBE), its latest advancement in robotic rescue systems. MOBE is an all-weather fast response rescue technology for ships and boats. MOBE is basically a miniature high-performance robotic jet-ski that can be thrown off a ship to provide assistance to a Sailor or passenger who has fallen overboard. Deployable in seconds, an operator can control MOBE at more than 30 knots to the person in the water.

Building on top of the already impressive EMILY robotic rescue kit, MOBE has increased power, speed and duration thanks to a 2.4 KW motor along with an easy one-step charging 444 WH battery. Additionally, MOBE includes easy grip handles for victims to grab onto and secure themselves; a reflective flag mounted on top ensures easy visibility in various sea-states; and it is constructed with a Kevlar reinforced composite hull and aerospace materials for extreme ocean durability. Bright LED navigation and headlights provide clear visibility at night. 3M SOLAS reflective tape (U.S. Coast Guard approved) on all sides enhance rescue operations in all-weather conditions. A 2,000-foot rescue reel is also included.

With a full throttle run time of 18 minutes (normal operations extend the life to 40 minutes of run time), MOBE can be launched from boats and ships at over 60 ft drops, while using the 3-watt amplifier on the controller MOBE can be guided to a rescue over 2 kilometers away.

Hydronalix maintains a staff of highly experienced engineers, technicians, and scientists. The company performs advanced research and development programs for the Office of Naval Research (ONR), Naval Air Systems Command (NAVAIR), Naval Surface Warfare Center (NSWC), Defense Advanced Research Projects Agency (DARPA), Department of Homeland Security (DHS), Domestic Preparedness Support Initiative (DPSI), National Oceanic Atmospheric Administration (NOAA), Naval Information Warfare Center (NIWC), and the National Science Foundation (NSF). Hydronalix also has worked since 2010 with the Los Angeles County Fire Department Lifeguard Division, along with over 50 small and large domestic police and fire departments including the New York City Fire Department, Austin Fire Department, Houston Police Department, Denver Fire Department, and Norfolk Fire Department.

Since 2009, the company supports clients in 37 foreign countries and has operated or supported missions in more than 18 countries. Hydronalix has shipped over 500 EMILY advanced robotic rescue systems globally.

The MOBE advanced robotic rescue system was developed in part under SBIR funding from the U.S. Navy and from the U.S. National Science Foundation. The MOBE systems are now available for commercial purchase along with training packages and custom markings and colors.

# USVs

UNMANNED  
VEHICLES  
BUYERS' GUIDE



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VC&amp;L

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**9 METER OSCAR**

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Sales | info@autonautusv.com

**AUTONAUT 3.5M**

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**AUTONOMOUS MARINE SYSTEMS**

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Scott Nguyen | info@automarinesys.com

**THE DATAMARAN**

Autonomous Marine Systems delivers a global platform for ocean observation using intelligent sensor networks powered by the Datamaran. Our unmanned surface vehicles autonomously collect data from above and below the surface of almost any body of water and transmit this information directly to our clients.

**ATLAS ELEKTRONIK UK LTD**

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Barry Webster | barry.webster@uk.atlas-elektronik.com

**ARCIMS**

ARCIMS provides a toolbox of capabilities for multi-influence minesweeping, mine hunting and other operations. It enables manned or fully autonomous mission module operation including launch and recovery of off-board systems. Using "in-theatre" proven technology, ARCIMS enables the operator to counter a wide range of threats in a flexible and affordable package.



## CLEARPATH ROBOTICS, INC

WWW.CLEARPATHROBOTICS.COM

Robin Lefler | info@clearpathrobotics.com



### HERON USV

Can integrate different side-scan, multibeam, dual-frequency, sub-bottom profiling sonars and other water quality sensors.



## DEEP OCEAN ENGINEERING, INC.

WWW.DEEPOCEAN.COM | Sales | sales@deepeccean.com



### PHANTOM® H-3000

The Phantom® H-3000 USV is a powerful, 3.0m, remotely controlled, battery-powered, catamaran-style unmanned surface vehicle designed and manufactured by Deep Ocean Engineering to conduct measurements of currents, bathymetry, discharge and surveys in a variety of environments. (Customizable)



OBS | SUR | VC&L | NDT | A&T



### PHANTOM® I-1650 USV

The Phantom® I-1650 USV is a powerful, 1.65m, remotely controlled, battery-powered unmanned surface vessel designed and manufactured by Deep Ocean Engineering to conduct measurements of currents, bathymetry and discharge with ADCPs. (Customizable)



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## DEEP OCEAN ENGINEERING, INC.

WWW.DEEPOCEAN.COM

Sales | sales@deepeccean.com



### PHANTOM® H-1750

The Phantom® H-1750 USV is a powerful, 1.75m, remotely controlled, battery-powered, catamaran-style unmanned surface vehicle designed and manufactured by Deep Ocean Engineering to conduct measurements of currents, bathymetry, discharge and surveys in a variety of environments. The advanced technology of the Phantom® H-1750 USV can be equipped with GPS, depth sounder, sonar and a variety of sensors. (Customizable)



OBS | SUR | VC&L | NDT | A&T

## DOTOCEAN

WWW.DOTOCLEAN.EU

Sales | sales@dotoclean.eu



### CALYPSO

The Unmanned Survey Platform (USP) Calypso is an inflatable, full autonomous surface vehicle that can carry a wide range of sensors for hydrographic and environmental surveys.



OBS | SUR

## DSTL

WWW.GOV.UK

Ian Campbell | ISCAMPBELL@mail.dstl.gov.uk



### MAST-13

MAST-13 is a USV system within the Maritime Autonomy Surface Testbed (MAST) project. Based on a 13m long platform, it serves as a test platform supporting the development, test & evaluation of new algorithms, sensors, payloads and novel concepts operation for the Royal Navy. Dstl welcomes collaboration with other organisations. (Customizable)



OBS | SUR | VC&L | A&T

**ECA GROUP**

WWW. ECAGROUP.COM | Anthony Penn | sales. robotics@ecagroup.com

**INSPECTOR 90**

The USV Inspector 90 is a multipurpose drone platform based on hydrojet propulsion, able to be operated in autonomous mode, remote control or onboard steering. Its performances and its accuracy make it efficient in protection missions, recurrent operations, mine warfare activities and Rapid Environment Assessment. Its open design permits to deploy a large range of payloads.

**INSPECTOR 120**

The USV INSPECTOR 120 is a high reliable multipurpose naval platform. Based on a sea proven hull shape it is designed for very demanding operations in various sea state conditions. The performances of its electronics and its navigation accuracy make it compliant with manned, remote controlled and fully autonomous coastal and open sea maritime missions such as infrastructure protection, mine warfare or rapid environmental assessment.

**INSPECTOR 125**

The INSPECTOR 125 is a "carrier USV" capable of transporting and deploying payloads formerly reserved for larger manned vessels. It is capable of launching and recovering the A18 AUV, the T18 towed sonar and the SEASCAN identification and K-STER neutralization robots as well as towing a minesweeping system. The INSPECTOR 125 is also equipped with a mine and obstacle avoidance sonar (MOAS) with a mine detection and classification performance never before achieved.

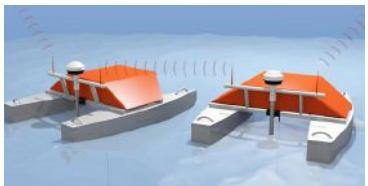
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**SONOBOT USV**

SONOBOT USV offers a usable platform for planning and executing a hydrographic survey, delivering accurate geo-referenced bathymetric measurements and high-quality imagery with minimum transport, launch and recovery efforts.



## FUGRO

WWW.FUGRO.COM

Hugh Parker | h.parker@fugro.com



### FUGRO AUTONOMOUS SURVEYOR 900 (FAS900)

The Autonomous Surveyor 900 class are next generation autonomous survey vessels jointly developed by Fugro and L3 Technologies Unmanned Maritime Systems. These fit-for-purpose Unmanned Surface Vessels (USVs) are designed for medium-to-large-scale hydrographic survey applications. (Customizable)



SUR

## H2O ROBOTICS

WWW.H2O-ROBOTICS.COM

Sales | marin@h2o-robotics.com



### H2OMNI-X

H2Omni-X is autonomous unmanned surface platform specialized for seafloor and surface surveying, mapping and inspection. Due to its modular and clever design it can easily be operated by a single person. This means logistics and deployment are simpler than with any other similar vehicle! By using different sensors on board or configuration options, the platform can be modified for a new mission in under an hour!



SUR | INS

## HR WALLINGFORD

WWW.EQUIPIT.HRWALLINGFORD.COM

Peter Watchorn | P.Watchorn@hrwallingford.com



### ARCBOAT

The ARCboat is a remote controlled boat used to collect river and estuarine data including flow, depth and suspended sediment concentrations. It was developed in partnership with end users to meet their exact needs. The boat can carry a variety of Acoustic Doppler Current Profilers (ADCP) and other instruments.. (Customizable)



OBS | SUR | A&T

## TASKS

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WORK TOOLS

## HR WALLINGFORD

WWW.EQUIPIT.HRWALLINGFORD.COM

Peter Watchorn | P.Watchorn@hrwallingford.com



### ARCBOAT LITE

The ARCboat Lite is optimised to carry out bathymetric and river current surveys in lower flow environments. With a robust, lightweight hull, it has been designed for use by a single person. It can reach more of a survey site than previously possible, thanks to high manoeuvrability and shallow draft. (Customizable)



OBS | SUR | VC&L | A&T

## OCEANBOTICS™ SRV-8



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**NIX**

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**AMY**

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SUR | INS

**AMB**

Optional X-Band Radar. Advanced Small Surface Robotic Systems. Fuel injected direct drive 2 KW engine with 100 W generator starter. Optional high power gimbal stabilized Electro-Optical and Infrared Cameras with auto-tracking software. Optional side scan and downward imaging sonar.



SUR | INS

## INTERNATIONAL SUBMARINE ENGINEERING LTD (ISE)

WWW.ISE.BC.CA | info@ise.bc.ca



### DORADO AND DOLPHIN USV

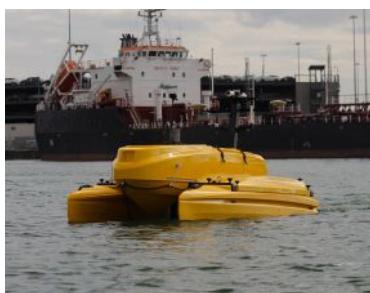
The Dorado USV, and its smaller predecessor Dolphin, are actively stabilized semi-submersible USVs for MCM, route survey, and AUV supervision operations. This platform is highly stable even in extreme sea states and is capable of operating in both piloted and fully autonomous modes with long standoff. The Dorado is equipped with a keel winch and tow cable up to 400m, and a dock for a towfish such as the ISE Aurora. Dorado can survey and tow at up to 12 knots due to its powerful diesel engine. (Customizable)



OBS | SUR | VC&L | A&T

## L3HARRIS

WWW.L3HARRIS.COM | James.Cowles@L3Harris.com



### C-CAT 3

The C-Cat 3 is a robust and easy to use ASV ideally suited to shallow water operations in inshore and coastal environments. The vehicle has a manually deployable keel and is capable of housing multiple standard sensors such as a USBL and MBES. (Customizable)



OBS | SUR | VC&L | A&T

## IXBLUE

WWW.IXBLUE.COM

Guillaume Eudeline | guillaume.eudeline@ixblue.com



### DRIX

DriX has been operating with major Energy and Survey companies (operators and contractors) for over a year. DriX can conduct operations with a reduced crew. Fitted with an iXblue autopilot, a Collision Avoidance System and HSE compliant, it can operate on windfarms or within rigs 500 yards exclusion zones. Its endurance ranges from 24 hours at 14 knots (top speed), to 10 days at 4 knots. Its highly hydrodynamic shape allows DriX to conduct surveys up to sea state 5. Its Launch&Recovery System (DDS), fully automatic, allows for swift and safe deployments. (Customizable)



OBS | SUR | A&T

## L3HARRIS

WWW.L3HARRIS.COM

James Cowles | James.Cowles@L3Harris.com



### U-RANGER

U-RANGER is manned/unmanned modular platform intended for many different tasks and roles to host and support a wide range of weapon/sensor payloads to perform multiple operational tasks.



OBS | SUR

## TASKS

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**A&T**

ACOUSTIC & TRACKING

**CD**

CLEANING DEVICES

**VSK**

VEHICLE STATION KEEPING

**WT**

WORK TOOLS



### C-WORKER 4

The C-Worker 4 is a robust and capable ASV ideally suited to inshore and coastal survey. C-Worker 4 is a stable platform with a large payload capacity. Its 48 hour endurance and efficient fuel consumption of less than 2.5 litres of diesel an hour make it an ideal replacement for traditional survey vessels. (Customizable)



OBS | SUR | VC&L | A&T



### C-WORKER 5

The C-Worker 5 is the ideal solution to increasing survey coverage in limited timeframes. A proven offshore survey "force-multiplier", the vehicle can operate for up to 7 days at survey speeds up to 7 knots. (Customizable)



OBS | SUR | VC&L | A&T

**L3HARRIS**

[WWW.L3HARRIS.COM](http://WWW.L3HARRIS.COM) | James Cowles | James.Cowles@L3Harris.com

**C-WORKER 7**

The C-Worker 7 is a robust, offshore work-class ASV. Ideally suited for inspection and positioning applications, C-Worker 7 can negate the need for ships on station or seabed anchoring. Its 2.5m x 1m moon pool allows for easy integration of standard or custom payloads via an interchangeable frame. (Customizable)



OBS | SUR | VC&L | A&T

**C-TARGET 6**

C-Targets are a range of lightweight, easily deployed, highly manoeuvrable marine targets used for naval gunnery training, weapons testing and ship command and control assessments. C-Target 6 is a high-speed vehicle capable of acting as a direct fire target or as a tow boat for inflatable targets. (Customizable)



VC&L | A&T

**C-TARGET 9**

C-Targets are a range of lightweight, easily deployed, highly manoeuvrable marine targets used for naval gunnery training, weapons testing and ship command and control assessments. C-Target 9 is a high-speed vehicle capable of acting as a direct fire target or as a tow boat for inflatable targets. (Customizable)



VC&L | A&T

**L3HARRIS**

[WWW.L3HARRIS.COM](http://WWW.L3HARRIS.COM)

James Cowles | James.Cowles@L3Harris.com

**C-TARGET 13**

C-Targets are a range of lightweight, easily deployed, highly manoeuvrable marine targets used for naval gunnery training, weapons testing and ship command and control assessments. C-Target 13 is a high-speed vehicle capable of acting as a direct fire target or as a tow boat for inflatable targets. (Customizable)



VC&L | A&T

**LIQUID ROBOTICS, INC.**

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Sarah Zweng | sarah.zweng@liquid-robotics.com

**WAVE GLIDER**

Liquid Robotics designs and manufactures Wave Gliders, the first wave, and solar-powered unmanned ocean robots. With our partners, we address many of the planet's greatest challenges, by transforming how to assess, monitor, and protect the ocean. Visit [www.liquid-robotics.com](http://www.liquid-robotics.com) to learn more. Liquid Robotics is a subsidiary of Boeing. (Customizable)



OBS | SUR | A&T | VC&L | NDT

## MARINE ADVANCED REASEARCH

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### 16' WAM-V USV

Introducing the newest edition to the WAM-V product line.



### BOSS WAM-V

Rugged, reliable, cost saving, commercial hydrography and geophysical surveys.



## MARINETECH

EN.MARINETECH.FR

Magali Mouries | contact@marinetech.fr



### DOLPHIN

Thanks to its small size, the RSV Dolphin is one of the only USV capable of deployment in areas with limited access such as dams or rivers. (Customizable)



OBS | SUR | INS | CON | INT | B&T  
VC&L | VSK | A&T

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& LIGHTING

### NDT

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& TRACKING

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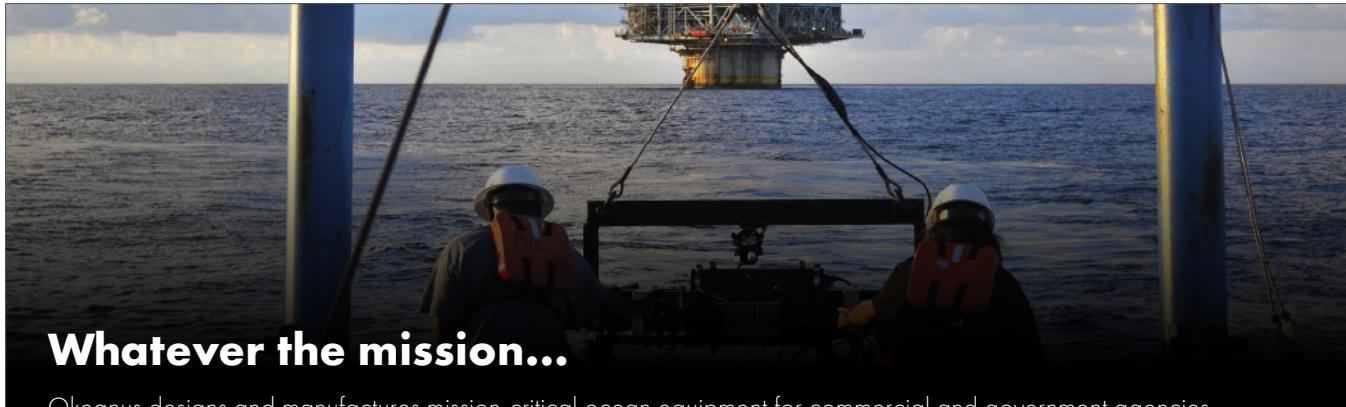
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Okeanus designs and manufactures mission-critical ocean equipment for commercial and government agencies throughout the world. We harness breakthrough Science and Technology to equip clients with the tools and trusted support they need for the rigors of ocean exploration.

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## MARINETECH

EN.MARINETECH.FR | Magali Mouries | contact@marinetech.fr

**ORCA**

The RSV Orca is a reliable and user friendly USV dedicated to marine survey. It can be equipped with SSS, MBES, SBES, SBP, ADCP, Thermal camera, Lidar, etc. Data recorded by sensors on board are transmitted in real time to the operator to a control base and positioning is provided by high precision GPS, gyrocompass and motion sensor. (Customizable)



OBS | SUR | INS | CON | INT | B&T | VC&L | VSK A&T

**SEA OBSERVER**

The RSV Sea Observer is the first USV capable of deploying inspection and work class ROV for offshore operations, such as subsea monitoring, inspection, etc. It can be equipped with MBES, SSS, SBES, etc. for marine survey. A compact version of the RSV Sea Observer is also made available. (Customizable)



OBS | SUR | INS | CON | INT | B&T | VC&L | VSK A&T | CD | NDT | WT

**RSV - REMOTE SURVEY VEHICLE**

The RSV is a reliable solution able to carry out remote missions, with up to 48h endurance. It can be equipped with multiple sensors and ROV for: SURVEY-detection, geophysical survey, subsea works monitoring, SURVEILLANCE/SECURITY- inspection, data acquisition in hostile environment. Main specifications: Long range control, real time data transfer up to 20km, obstacle avoidance. Models: from 2,50m to 5,20m length. (Customizable)



OBS | SUR

**MARITIME ROBOTICS**

WWW.MARITIMEROBOTICS.COM

**MARINER**

The Mariner USV is a multipurpose unmanned vehicle with hull and superstructure made of polyethylene. The vehicle will fit into a standard 20 feet container for easy cargo shipping. The Mariner is equipped with a large payload room of more than one cubic meter and can be equipped with a variety of surface and sub-surface sensors/payload types.



SUR | INS | VC&L

**MARITIME TACTICAL SYSTEMS, INC.**

WWW.MARTACSYSTEMS.COM

Stephen Ferretti | ferretti@martacs.com

**MANTAS USV**

Unique class of next generation unmanned vessels. The MANTAS unmanned surface and hybrid vessels are accompanied with a robust Command and Control (C2) system known as TASKER. The MANTAS USV enables the coverage of open ocean and littoral waterways with extended on-station persistence capability. (Customizable)



OBS | SUR | VC&L | A&T

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**NAVOCEAN INC.**[WWW.NAVOCEAN.COM](http://WWW.NAVOCEAN.COM)

Stuart Lochner | sales@navocean.com

**NAV2 SAIL AND SOLAR ASV FOR DATA COLLECTION**

Made for ocean data collection, the Nav2 Self-Navigating Sailboat provides average speeds of 2 knots, continuous communications, and is built for open ocean, coastal and freshwater surveys. At only 2 meters and 85 pounds, the Nav2 is easy to launch and land from shorelines, docks or boats. (Customizable)



OBS | SUR | A&amp;T

**TASKS****OBS**  
OBSERVATION**SUR**  
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CONSTRUCTION**INT**  
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WORK TOOLS**OCEAN AERO**[WWW.OCEANAERO.COM](http://WWW.OCEANAERO.COM)

Neil Trenaman | ntrenaman@oceanaero.us

**SCOUT, DISCOVER, AND  
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SUBSURFACE OCEAN DRONES**

Ocean Aero is the creator, manufacturer, and seller of the world's first autonomous, surface and subsurface ocean drones. Wind and solar powered, they are a perfect platform for extended ocean observation and data collection, such as intelligence and surveillance, marine mammal tracking, and Met-Ocean data gathering. (Customizable)



OBS | A&amp;T | NDT

**OCEANALPHA**[WWW.OCEANALPHA.COM](http://WWW.OCEANALPHA.COM)

Chris Yan | chris.yan@oceanalpha.com

**ESM30 WATER SAMPLING &  
MONITORING USV**

ESM30 is an autonomous water sampling & monitoring unmanned surface vessel that can collect 4 bottles of 1.8L water samples from different spots. The sampling and monitoring data can be transmitted to the base station in real-time and generate water quality parameter charts automatically. The USV can integrate third-party probes, such as YSI, hydrolab and eureka.



OBS | SUR | A&amp;T | NDT

**OCEANALPHA**[WWW.OCEANALPHA.COM](http://WWW.OCEANALPHA.COM) | Chris Yan | chris.yan@oceanalpha.com**M40 CATAMARAN  
OCEANOGRAPHIC SURVEY USV**

TM40 is a medium size autonomous survey unmanned platform designed for hydrographic surveys in coastal areas and oceans. With a modular catamaran design and flexible payload for instruments, the M40 can carry out high performance surveys with ADCP, MBES, side scan sonar, SBP and water sonde.



OBS | SUR | VC&amp;L | NDT | A&amp;T

**M80B**

The M80B is a big size autonomous survey platform which designed for oceanographic survey, M80B was developed to provide high performance survey, it can carry a variety of equipment to perform more tasks in many fields, such as bathymetry, surveying waterways, maritime search and rescue etc., The boat has fast speed, nice stability, excellent seakeeping, and good maneuverability. It is also customized to perfect carry teledyne T50P and T20P multi-beam echo sounder. (Customizable)



OBS | SUR | VC&amp;L | NDT | A&amp;T

**ME40**

The ME40 is a hydrographic survey vessel constructed with a trimaran hull design for stable sailing and a shallow draft that allows it to survey reefs and areas close to shore with its single-beam sonar. The in-built inertial navigation system allows it to provide accurate real-time survey data. This product avoids potential man safety hazard and greatly improve the flexibility and efficiency of bathymetry survey. It is widely used in reservoir, lake and tailing pond. (Customizable)



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# Unmanned Vehicle Sensor Solutions

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**Imagenex Sensors**  
for Unmanned Applications



- Delta T Multibeam Sonar (Swath)
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**OCEANALPHA**

WWW.OCEANALPHA.COM | Chris Yan | chris.yan@oceandalpha.com

**ME120 DETACHABLE HYDROGRAPHIC USV**

ME120 utilizes a detachable catamaran design, making it easy for van transportation and for two people to assemble and disassemble. The 2.5m USV is dedicated for MBES, SBES and other relatively smaller-size instruments. The Kongsberg M3 MBES is a highly recommended payload which has gone through series of testing and proved to be a highly mature and reliable solution. The payload cabin is replaceable so user can freely change and install different instruments according to mission requirements.



OBS | SUR | VC&amp;L | A&amp;T

**SL20 AUTONOMOUS HYDROGRAPHIC SURVEY USV**

SL20 is a compact and portable unmanned surface vessel (USV) for hydrographic and bathymetric surveys. Its moon pool supports flexible deployment of different instruments, including ADCP and echo-sounders. Made from carbon fibre, the 1m SL20 weighs 17 kg, and can be easily operated and transported by one person. Its powerful battery and low power consumption ensures 6 hours of endurance while sailing in 3 knots.



SUR | VC&amp;L | A&amp;T

**SL40 AUTONOMOUS HYDROGRAPHIC SURVEY USV**

SL40 is a waterjet-propelled unmanned surface vessel (USV) dedicated for hydrographic and bathymetric surveys. The 1.6m USV weighs 35kg and can carry 15kg of survey instruments including ADCP, water sonde, SBES, MBES or side scan sonar. The USV comes with obstacle avoidance system and RTK, and can be controlled by either a base station or a remote control. In March 2020, the Port of Hamburg introduced an SL40 USV to its Hydrographic Department for routine bathymetric survey. (Customizable)



OBS | SUR | VC&amp;L | NDT | A&amp;T

**OCIUS**

WWW.OCIUS.COM.AU | contact@ocius.com.au

**BLUEBOTTLE USV**

Bluebottle USVs have greater power, payload and performance compared to known competitors and are able to navigate freely and indefinitely across the world's oceans. Already Ocius is working with two major private-sector partners to develop USVs capable of undertaking specific high value applications in hydrography and defence.



OBS | SUR

**OFFSHORE SENSING AS**

WWW.SAILBUOY.NO

David Peddie | info@sailbuoy.no

**THE SAILBUOY**

The Sailbuoy is a field proven, long endurance ocean USV. Wind and solar powered Sailbuoys perform a variety of missions, from fish and algae detection to wind and wave observations. At 2 metres long it is easily handled by two people and the satellite communication provides real-time ocean data. (Customizable)



OBS | A&amp;T

## POWERVISION

WWW.POWERVISION.ME



### POWERDOLPHIN

Equipped with a unique dual-joint rotating camera whose shooting angle is as wide as 132°, PowerDolphin can rotate to meet the above-water and underwater shooting demands, with the field of view ranging from -150° to +70° (the horizontal position is 0°, and when the camera rotates towards the underwater areas, the angle becomes negative), offering you a brand-new 220° shooting angle and visual experience.



## ROBOTICS INDUSTRY (R&DRONE)

WWW.ROBOTICS-INDUSTRY.COM



### DRONEO

This unmanned surface vehicle (USV) is designed to realize inspection missions and take environmental samples. Droneo is able to carry several types of bathymetric, physico-chemical and hydro-sedimentary monitoring sensors. With 10 hours of autonomy, Droneo can operate over a very wide area. This data acquisition tool is easy to operate and very accessible. It allows the making of more frequent measurements and to improve the quality and accuracy of analyses.



SUR | OBS

## SAILDRONE

WWW.SAILDRONE.COM



### SAILDRONE

Saildrone combines wind-powered propulsion technology and solar-powered meteorological and oceanographic sensors to perform autonomous long-range data collection missions in the harshest ocean environments. Saildrone missions are executed as a fully managed service from start to finish: We handle the transport of the saildrone to the area of operations, launch and retrieve the USV, and deliver high-resolution data in real-time and raw data post-mission.



SUR | OBS

## TASKS

OBS  
OBSERVATION

SUR  
SURVEY

INS  
INSPECTION

CON  
CONSTRUCTION

INT  
INTERVENTION

B&T  
BURIAL &  
TRENCHING

## TOOLS

VC&L  
VIDEO CAMERA  
& LIGHTING

NDT  
NON-  
DESTRUCTIVE  
TESTING

A&T  
ACOUSTIC  
& TRACKING

CD  
CLEANING  
DEVICES

VSK  
VEHICLE STATION  
KEEPING

WT  
WORK TOOLS

# HIGH-PERFORMANCE, RECOVERABLE COST-EFFECTIVE ASW TRAINING TARGET



## MASTT MULTI-PURPOSE AUTONOMOUS SUB-SURFACE TRAINING TARGET

- True-to-life training experience detecting and tracking submarines
- Uniquely compatible with medium and low-frequency sonars
- Proven operational and class-leading components



Learn more at [www.geospectrum.ca/mastt](http://www.geospectrum.ca/mastt)



**GeoSpectrum Technologies Inc**  
Customizing Detection

GEO SPECTRUM TECHNOLOGIES INC | TEL: 902.406.4111 | SALES@GEOSPECTRUM.CA

**SEAFLOOR SYSTEMS, INC**

WWW.SEAFLORSYSTEMS.COM | info@seafloorsystems.com

**ECHOBOAT**

The EchoBoat-ASV™ is a portable, autonomously controlled survey platform developed for hydrographic survey applications. The multi-payload vehicle features portability, improved thrust, and large payload capacity. It is manufactured from high quality marine materials and components and easily disassembles for transport and shipping.



SUR | OBS

**HYDRONE**

The HyDrone-ASV is a one-man portable, autonomous and remotely controlled catamaran platform developed for hydrographic survey applications. Working in conjunction with the HydroLite-TM portable echosounder kit, the HyDrone accomplishes the same results as more expensive RC survey systems. The lightweight, wide profile, and watertight construction provide stability, ruggedness and portability. It is manufactured from high quality marine materials and components and easily disassembles for transport and shipping.



SUR | OBS

**SEAROBOTICS CORPORATION**

WWW.SEAROBOTICS.COM | Don Darling | ddarling@searobotics.com

**SR-ENDURANCE 7.0**

Manned/unmanned capacity and suited to any offshore operation. The interface works seamlessly with HYPACK and QINSy, allowing for real-time survey planning, execution, visualization and post processing of datasets. Comes with a custom-fit launch and recovery system to assist with the deployment of additional ride-on assets, such as towed sonars, magnetometers, or ROVs. (Customizable)



OBS | SUR | INS | NDT | A&amp;T

**HYCAT**

Integrated series of customizable plug-and-play sensors, making it one of the most versatile tools for water quality survey on the market. The HYCAT is SUV-portable and easy to launch, with no ramp or dock access required. Ideal for water quality studies, bathymetry, water velocity, remote data acquisition, and depth measurement. (Customizable)



OBS | SUR | INS | NDT | A&amp;T

## SEAROBOTICS CORPORATION

WWW.SEAROBOTICS.COM | Don Darling | ddarling@searobotics.com



### SR-SURVEYOR M1.8

The integrated MBES allows surveyors to cover large swath width hydrographic survey data more efficiently and capture a 360-degree view of all data points. Central to the design is a Velodyne Puck LiDAR for terrestrial mapping, a distinct advantage when inspecting coastal infrastructure, such as near-shore pipelines or surveying bridges, offshore rigs. (Customizable)



OBS | SUR | INS | NDT | A&T



### SR-UTILITY 3.0

Carries a suite of customizable sensors, including bathy/side scan sonar, sub bottom profilers, and water quality sonde. The large payload deck supports interchangeable multibeam sonar systems and an integrated cast winch, whilst SeaRobotics' ASV driver for HYPACK and QINSy guarantees a streamlined interface, making the vehicle intuitive, safe and efficient to operate. (Customizable)

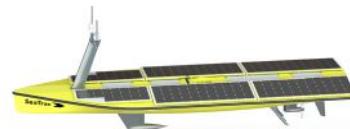


OBS | SUR | INS | NDT | A&T

## SEATRAC SYSTEMS, INC.

WWW.SEATRAC.COM

Ping Tuck Chai | pchai@seatrac.com



### SEATRAC SP-48

The SP-48 USV is a multi-purpose long endurance solar powered platform for real-time ocean observation, data collection, intelligence, surveillance and reconnaissance missions. With its large power and payload capacity, the SP-48 can be customized with a variety of sensors and can be operated from near shore to open ocean. (Customizable)



SUR | OBS | VC&L | A&T

## TASKS

**OBS**  
OBSERVATION

**SUR**  
SURVEY

**INS**  
INSPECTION

**CON**  
CONSTRUCTION

**INT**  
INTERVENTION

**B&T**  
BURIAL &  
TRENCHING

## TOOLS

**VC&L**  
VIDEO CAMERA  
& LIGHTING

**NDT**  
NON-  
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**A&T**  
ACOUSTIC  
& TRACKING

**CD**  
CLEANING  
DEVICES

**VSK**  
VEHICLE STATION  
KEEPING

**WT**  
WORK TOOLS

## SOFAR OCEAN TECHNOLOGIES

WWW.SOFAROCEAN.COM

sales@sofarcean.com



### STRIDER

Sofar Strider represents a new generation of autonomous surface vehicles making data collection simple and more accessible than ever before. By combining compact designs with the latest Internet technologies, Strider is an affordable way to run missions to collect water quality parameters, perform bathymetric surveys, or monitor underwater acoustics.



SUR | OBS

## SUBSEA TECH

WWW.SUBSEA-TECH.COM | Grégory Maurin | gregory.maurin@subsea-tech.com



### CATAROB

Catarob has been especially designed to carry out tele-operated or autonomous inspection, survey and modelling missions in shallow inland waters and harbour areas. Lightweight and compact (50kg, L180 cm), Catarob is easily transported and deployed by a single operator. Open architecture and high speed PC to PC communication allow integrating multiple sensors. (Customizable)



SUR | OBS | VC&L | A&T

### CAT-SURVEYOR

CAT-Surveyor is a teleoperated or autonomous USV allowing acquisition of hydrographic data or surveillance for inland waters, harbour and coastal areas. High payload capacity (80kg) allows embedding multiple sensors for scientific, defense and civil missions. CAT-Surveyor was the first USV able to launch a mini-ROV. (Customizable)



SUR | OBS | VC&L | A&T

## TELEDYNE OCEANSCIENCE

WWW.TELEDYNEMARINE.COM | Shannon Searing | Oceanscience.Sales@Teledyne.com

**Q-BOAT 1250**

Teledyne Oceanscience Q-Boats® are the number one choice for reliable remotely-controlled data collection in streams, rivers, lakes and coastal waters. The new Q-Boat 1250 has been designed specifically for shallow water flow and discharge measurements. This one-man portable remote vehicle is easy to set up, easy to operate, and accepts most industry standard ADCPs. (Customizable)



SUR | A&amp;T

**Z-BOAT 1800RP**

The Teledyne Oceanscience Z-Boat® 1800RP with new ruggedized design and interchangeable sensor well, offers an entirely new option for high-resolution shallow-water hydrographic surveying. Get multibeam bathymetry data where conventional methods are not feasible or safe. All data is accessible in real time, giving the operator total control over the survey process. (Customizable)



SUR | NDT | A&amp;T

**Z-BOAT 1250**

The Z-Boat 1250 is easy to operate. The integrated echosounder and lightweight, resilient ABS hulls make the Z-Boat 1250 convenient for a single operator. At under 50 pounds fully outfitted with instrumentation, the unit is easily single person portable. (Customizable)



SUR | NDT | A&amp;T

## UNMANNED SURVEY SOLUTIONS

WWW.UNMANNEDSURVEYSOLUTIONS.COM | James Williams | James@unmannedsurveysolutions.com

**ACCESSION USV**

The Unmanned Survey Solutions (USS) Accession Class Unmanned Surface Vessel (USV) is designed by surveyors, for surveyors. The modular design allows for base boat length of 3.50m to extend to 4.25m or 5.00m by adding additional hull sections. Payload agnostic and fully customer configurable the Accession USV offers unrivalled versatility for coastal and offshore deployments. (Customizable)



OBS | SUR | VC&amp;L | A&amp;T

**INCEPTION MKI USV**

The Unmanned Survey Solutions (USS) Inception Class MK 1 Unmanned Survey Vessel (USV) has been developed to meet the demanding requirements of the shallow water sector. This hydrographic survey vessel is composed of tough aluminium hulls, weed cutting propellers and equipment to provide bathymetric surveys in areas using single beam sonars where access for a traditional survey vessel is restricted. (Customizable)



OBS | SUR | VC&amp;L | A&amp;T

**INCEPTION MKII USV**

The Unmanned Survey Solutions (USS) Inception Class MK II Unmanned Surface Vessel (USV) is designed by surveyors, for surveyors. This modular, versatile and robust USV is composed of tough aluminium hulls, weed cutting propellers and a modular payload pod for housing various sonar and environmental sensors. The design concept of the Inception MK II is modular from the internal electronics to the main vessel components. (Customizable)



OBS | SUR | VC&amp;L | A&amp;T

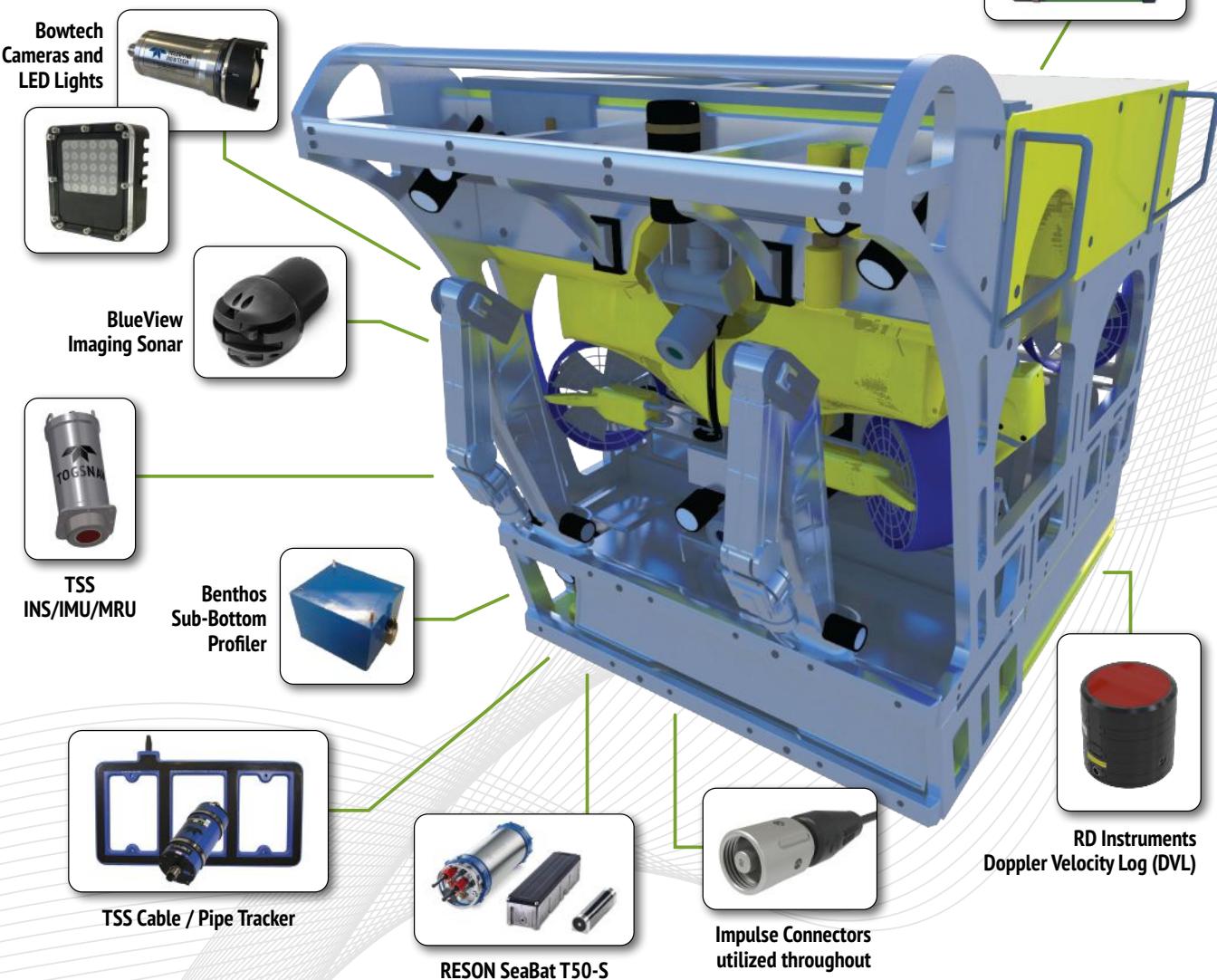
**TASKS****OBS**  
OBSERVATION**SUR**  
SURVEY**INS**  
INSPECTION**CON**  
CONSTRUCTION**INT**  
INTERVENTION**B&T**  
BURIAL &  
TRENCHING**TOOLS****VC&L**  
VIDEO CAMERA  
& LIGHTING**NDT**  
NON-  
DESTRUCTIVE  
TESTING**A&T**  
ACOUSTIC  
& TRACKING**CD**  
CLEANING  
DEVICES**VSK**  
VEHICLE STATION  
KEEPING**WT**  
WORK TOOLS

# Outfitting an ROV?

## One-Stop Shopping at Your Service!

From cameras to connectors, INS to imaging—and everything in between—only Teledyne Marine's **OneTeam** can deliver a full suite of field-proven sensors, software, imaging, and interconnect solutions ideally suited for inspection to workclass ROVs.

Whether your ROV requires a single sensor or a fully integrated solution, you'll find everything you need at [www.teledynemarine.com/blog/ROV\\_Integration/](http://www.teledynemarine.com/blog/ROV_Integration/)



**TELEDYNE MARINE**  
Everywhereyoulook™  
[www.teledynemarine.com](http://www.teledynemarine.com)

**YSI INTEGRATED SYSTEMS & SERVICES**[WWW.YSI.COM/HYCAT](http://WWW.YSI.COM/HYCAT)YSI Systems | [ysi.systems@xyleminc.com](mailto:ysi.systems@xyleminc.com)**HYCAT - AUTONOMOUS SURFACE VEHICLE**

The HYCAT Autonomous Surface Vehicle (ASV) is the newest element in the Xylem brand Autonomous and Remote Vehicle Monitoring Solutions. This unique ASV combines products from multiple brands to provide a total solution for your site. Sensors have plug-and-play capabilities, allowing the HYCAT to be customized to your specific site needs. (Customizable)



SUR | OBS | NDT | A&amp;T

**TASKS****OBS**

OBSERVATION

**SUR**

SURVEY

**INS**

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**B&T**BURIAL &  
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DESTRUCTIVE  
TESTING**A&T**ACOUSTIC  
& TRACKING**CD**CLEANING  
DEVICES**VSK**VEHICLE STATION  
KEEPING**WT**

WORK TOOLS

**XOCEAN**[WWW.XOCEAN.COM](http://WWW.XOCEAN.COM)Sales | [sales@xocean.com](mailto:sales@xocean.com)**XO-450 UNMANNED SURFACE VESSEL**

XOCEAN's USVs offer full unmanned Over The Horizon operations using satellite communications. Each USV sends real time images and situational awareness data to XOCEAN's Operations Centre where a team of qualified USV Pilots keep watch and control the vessels 24/7. XOCEAN's USV Pilots are responsible for collision avoidance.



SUR | OBS



## Own Your Survey with 2G Robotics' Versatile Sensor Payloads

2G Robotics is at the forefront of subsea laser scanning, continuously driving innovation in subsea optical survey solutions. Pioneering subsea dynamic laser scanning aboard the HUGIN in 2012, and continuing with the first long range AUV imaging payload in 2018, 2G Robotics continues to expand the capabilities of subsea vehicle platforms. In February 2020, after more than a decade of development, 2G Robotics was acquired by Sonardyne Group, joining sister companies Sonardyne International, EIVA, Chelsea Technologies and Wavefront Technologies.

"Our technology fits well within the Group's core competencies, providing complimentary

technology, development resources, and a breadth of industry knowledge that has allowed us to fast-track R&D projects and deliver new innovative solutions to our customers," says Adam Riese, Engineering Manager for 2G Robotics. The acquisition allows 2G Robotics and its sister companies to leverage technical synergies to provide a highly integrated complete set of sensor solutions, which includes high resolution optical sensors, subsea navigation equipment, and data processing and workflow software. Shortly after the acquisition, 2G Robotics released a new line of sensor payloads for small, modular AUVs and has started delivering these to customers.



» 3D Point Cloud of Shipwreck

The RECON payloads from 2G Robotics are the industry's first high resolution optical survey solutions designed specifically for small, low cost, versatile platforms. Designed for use with leading AUVs, the RECON LS (Laser and Stills) and RECON CS (Stills Camera) incorporate technology from the ULS-500 Micro dynamic laser scanner and the Micro OBSERVER stills cameras. The systems allow existing owners of vehicles to upgrade their payloads using the 'drop-in' integration architecture of payloads. Versatility and optimization have always been a key component of 2G Robotics' product offering, ensuring that all systems provide the best possible results for the application while allowing systems to effectively integrate into a wide range of subsea vehicle platforms. 2G Robotics' vehicle payloads are highly customizable, including vehicle-optimized LED configurations to ensure even light distribution. An onboard hard drive allows for simple data integration and real-time vehicle data acceptance using the customer facing software interface (API) to achieve fully autonomous operation. "Our actively

cooled, high sensitivity stills cameras, coupled with our ultra-bright LEDs, produce long range crisp imaging with no motion blur," says Product Development Manager Chris Gilson. "We achieve this with extremely short (1 millisecond) camera exposures so the vehicle can travel at maximum survey speeds, while working seamlessly with our laser scanner."

The team at 2G Robotics has always viewed themselves as partners to their survey customers, with the motto that our customers should own their survey. Our product development has always been targeted at real-time onboard data processing, allowing the user to acquire their data in the field with no delay and no extra charges for data processing. With solutions for several subsea applications, like pipeline and asset inspection, archaeology and salvage, and naval mine countermeasures, it has never been easier to expand the capability of your fleet with a 2G Robotics optical payload.

Learn more at  
[WWW.2GROBOTICS.COM](http://WWW.2GROBOTICS.COM)

**SeaCatalog.com** is a centralized marketplace where ocean and marine professionals from around the world receive quotes and buy new and pre-owned equipment for their oceanographic projects. The extensive product line provides thousands of supplies, parts and equipment, including over 10,000 ROV and Subsea spare parts in addition to thousands of marine products. SeaCatalog is the largest single source marketplace for the industry, and their extensive product line continues to grow, giving marine professionals access to supplies, parts and equipment for offshore and scientific projects.



#### FILTER ELEMENTS

SeaCatalog.com has an inventory of over 180 filter elements and housings. The offers included high and low pressure, hydraulic, pilot filters, strainer kits, filter housings, and more. To view all projects, please visit: <https://seacatalog.com/products/rov-subsea-parts/filter-elements-and-housings>



#### WINCH SPARE PARTS

With more than 10,000 available spares, we have what you need. From ROV Systems to Survey Equipment and Deck Equipment, SeaCatalog can get you the parts you are looking for. Inventory for winch parts include hydraulic power unites, slip rings, and umbilical spooling. [https://seacatalog.com/catalog/?product\\_cat=winches&source\\_id=241&source\\_tax=product\\_cat&query\\_type\\_parts=or](https://seacatalog.com/catalog/?product_cat=winches&source_id=241&source_tax=product_cat&query_type_parts=or)



#### CONNECTORS

SeaCatalog.com has a connector inventory of over 180 products including Inline, Dummy, and Bulkhead connectors. To view the complete collection, visit: [https://seacatalog.com/?s=Connectors&post\\_type=product](https://seacatalog.com/?s=Connectors&post_type=product)



#### PBOF CABLES & CONNECTORS

Pressure Balanced Oil Filled (PBOF) cabling solutions provide highly reliable cable systems for subsea applications. SeaCatalog.com offer over 200 PBOF connectors/cable assemblies. For more information, please visit: [https://seacatalog.com/page/1/?s=PBOF+Connectors+&post\\_type=product](https://seacatalog.com/page/1/?s=PBOF+Connectors+&post_type=product)



#### AUTONOMOUS SURVEY VEHICLES

Fully-integrated, rapid deployment ASVs for professional surveyors that require high-quality data, and efficiency in remote and restricted areas. SeaCatalog.com manages the complete range of spares Parts for SeaRobotics ASV's. For more information: <https://www.searobotics.com/products/autonomous-surface-vehicles>



#### SPROCKETS, SHEAVES AND ROLLERS

SeaCatalog.com offers Sprocket, sheaves and rollers primarily for various industry TMS models. Drive sheave and rollers on the TMS with molded rubber insert / grooves can be remolded (recoated) without the replacement of the core body. Find out more: <https://seacatalog.com/products/rov-subsea-parts/sprockets>



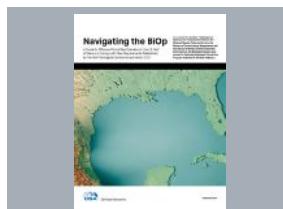
#### SPROCKETS, SHEAVES AND ROLLERS COMPENSATORS

SeaCatalog.com offers a variety of hydraulic compensators engineered by Okeanus Science & Technology. Okeanus provides the latest oceanographic and marine scientific research equipment to the international community. View the full line of compensators here: [https://seacatalog.com/?s=Compensators+&post\\_type=product](https://seacatalog.com/?s=Compensators+&post_type=product)



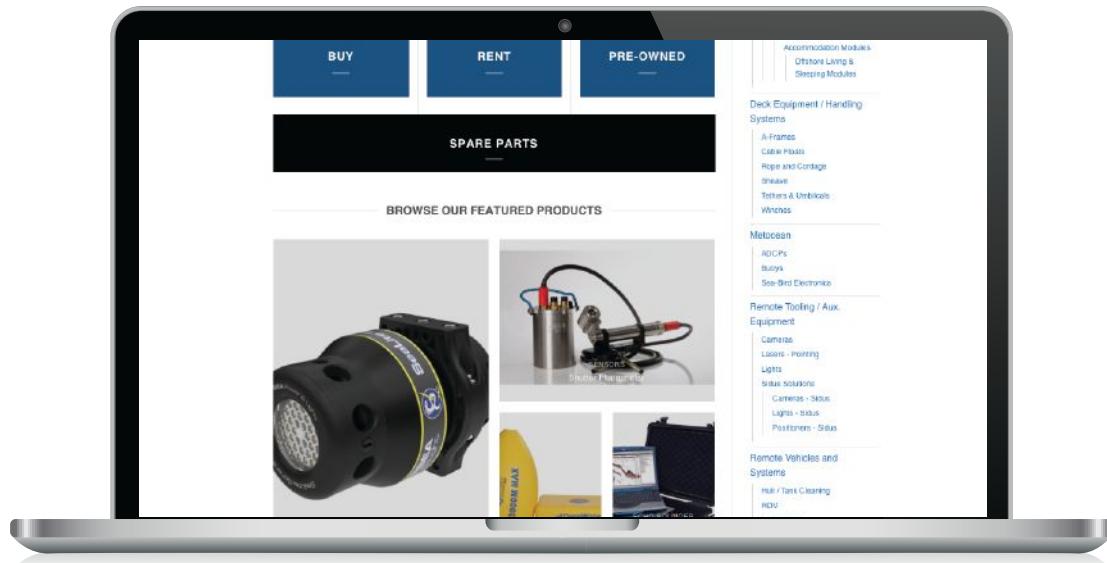
#### MOLDED CABLE'S

Extensive line of standard molded cable assemblies for operations. Special cable assemblies engineering as requested. For more information please visit: [https://seacatalog.com/?s=molded&post\\_type=product](https://seacatalog.com/?s=molded&post_type=product)



#### INDUSTRY GUIDES & REPORTS

SeaCatalog.com offers industry guides and reports. These highly specific Market Intelligence Reports rely on the leading insights and trained analyses if seasoned Subject Matter Experts. <https://seacatalog.com/products/guides-reports/>



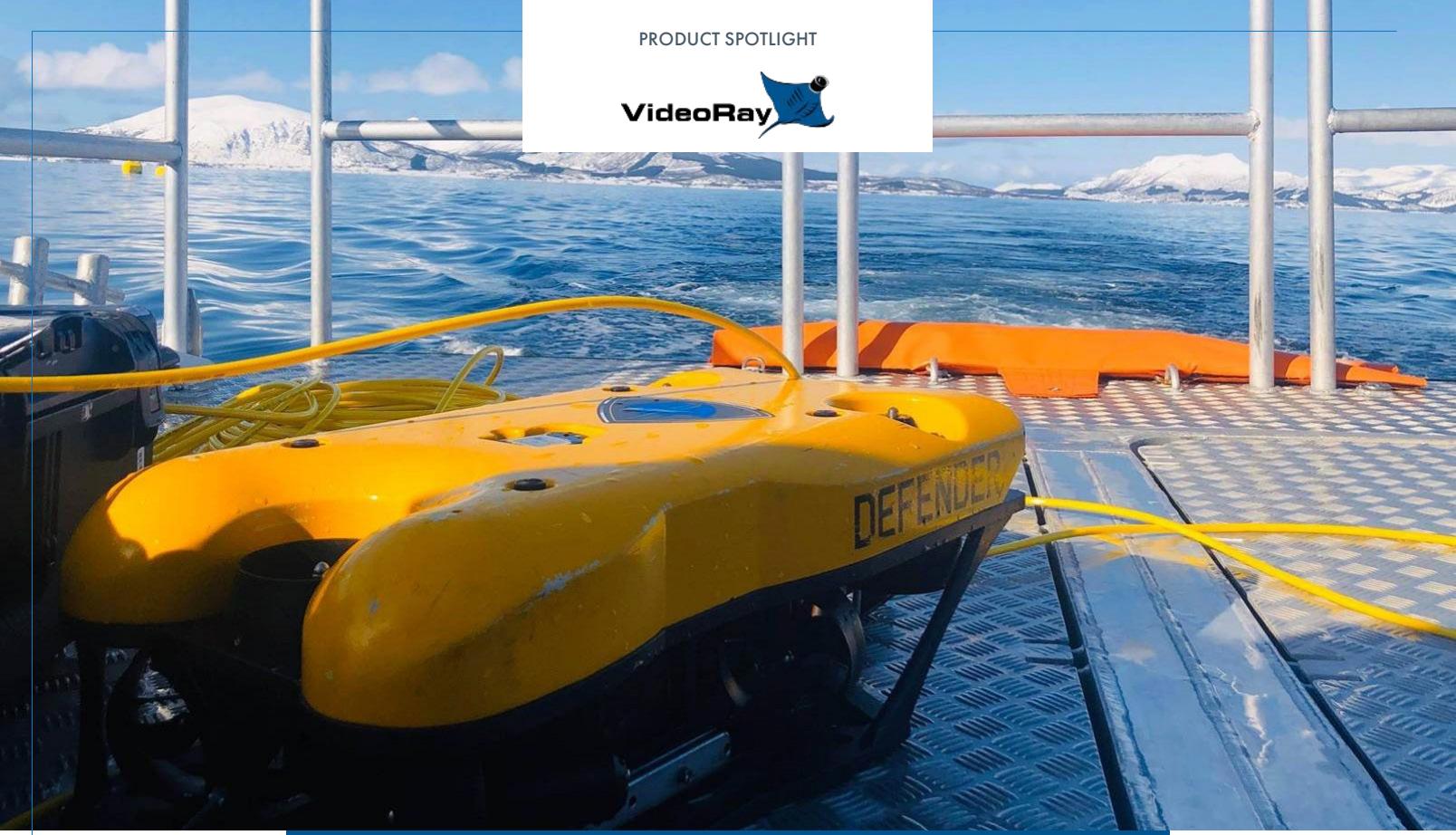
## The largest single source marketplace for marine professionals

SeaCatalog.com is a centralized marketplace that supports ocean professionals from around the world by sourcing components and parts from multiple vendors through long time relationships with our global partners.

Receive quotes on new and pre-owned equipment from our extensive product line which includes thousands of parts and equipment, including over 10,000 ROV and Subsea spare parts alone.



[seacatalog.com](http://seacatalog.com)



## VideoRay: Mission Specialist ROVs

Founded in 1999, VideoRay is the most popular inspection-class Remotely Operated Vehicle (ROV) company for the world's oil and gas industries. VideoRay underwater robots help prevent terrorism, find and retrieve objects, inspect infrastructure both inland and offshore, and keep divers safe from hazardous conditions.

As VideoRay innovates with new designs and capabilities, our ROVs perform in increasingly challenging environments. Owners have learned to trust them to perform in their most demanding missions. The hallmarks of VideoRay systems are ruggedness, reliability, portability, ease of use, and integration with a wide range of sensors and tools available for inspection-class vehicles.

VideoRay specializes in just one niche – portable, reliable underwater systems. VideoRay's first-class customer service has propelled it to dominance in inspection-class ROVs. Users

from the U.S. Navy to aquaculture farmers in remote areas of the world know that they can depend on VideoRay's durability and reliability – and when something goes wrong, an expert voice on the phone with advice and a solution. While there are less expensive, less powerful systems available, this continues to set VideoRay apart from our competitors.

VideoRay's "Mission Specialist" technology is based on modular components providing unrivaled flexibility. The largest and most powerful Mission Specialist configuration, the Defender, is optimized for precise control, heavier payloads, lifting, and specialized operations. The most portable, the Pro 5, has similar advantages but is smaller. Mission Specialist technology is unique in its ability to accommodate new sensors and accessories from a broad range of manufacturers, as it supports a wide range of power and communications options.

Standard VideoRay Mission Specialist ROV modules include cameras with various resolutions, bright and efficient LED lighting, and powerful thrusters capable of up to one horsepower. There is an extensive assortment of instruments to choose from, such as positioning and navigation systems, multibeam sonars, water quality sensors, metal thickness sensors, imaging options, and tooling manipulators. Purpose-built frames can be customized around the payload requirements of the operator's chosen sensor and tooling package.

For more information about VideoRay, go to [www.videoray.com](http://www.videoray.com) or call 1 + 610 458 3000.



» VideoRay's Mission Specialist Pro 5 ROV: Optimized for precision control, speed, and specialized operations.

# GLIDERS

UNMANNED  
VEHICLES  
BUYERS' GUIDE



ENVIRONMENTAL



DEFENSE



OFFSHORE OIL & GAS



SCIENCE



SEABED MINING



OCEAN RENEWABLES



SPEC SHEET

**ALSEAMAR**

[WWW.ALSEAMAR-ALCEN.COM](http://WWW.ALSEAMAR-ALCEN.COM) | Romain Tricarico | [tricarico@alseamar-alcen.com](mailto:tricarico@alseamar-alcen.com)

**SEAEXPLORER**

The SeaExplorer is the ultimate low-logistics and user-friendly glider designed for Oceanographic, Defence and Oil&Gas applications. Its rechargeable battery and its fully interchangeable payloads greatly simplify its maintenance, allowing huge savings in terms of time and money, making it the glider with the lowest cost of ownership on the market. (Customizable)



OBS | SUR | A&T | NDT

**EXOCETUS AUTONOMOUS SYSTEMS**

[WWW.EXOCETUSSYSTEMS.COM](http://WWW.EXOCETUSSYSTEMS.COM) | Joe Turner | [turner@exocetussystems.com](mailto:turner@exocetussystems.com)

**MOD2 GLIDER**

The MOD2 Glider™ is the next step forward in long duration subsea monitoring. Designed for the user, the glider can be easily configured, features a large sensor bay, and runs open software that can support both off-the-shelf and custom sensors. The powerful engine autonomously transitions through fresh and salt water. (Customizable)



OBS | SUR | VC&L | A&T

**HUNTINGTON INGALLS INDUSTRIES**

[WWW.HYDROID.COM](http://WWW.HYDROID.COM) | Tom Reynolds | [sales@hydroid.com](mailto:sales@hydroid.com)

**SEAGLIDER C2**

The Seaglider C2 is a 200 meter depth rated glider that uses changes in buoyancy to move through the water column in a sawtooth pattern while collecting data. This glider can easily transition from fresh to sea water without the need for reballasting, and has endurance up to three months. (Customizable)



OBS | SUR | A&T

**SEAGLIDER M1**

The Seaglider M1 is a 1000 meter depth rated glider that uses changes in buoyancy to move through the water column in a sawtooth pattern while collecting data. This mature technology has revolutionized the way ocean data is collected, allowing extremely long duration monitoring up to 10+ months. (Customizable)



OBS | SUR | A&T

**TELEDYNE WEBB RESEARCH**

[WWW.TELEDYNEMARINE.COM](http://WWW.TELEDYNEMARINE.COM)

Chris DeColibus | [webbresearch@teledyne.com](mailto:webbresearch@teledyne.com)

**SLOCUM G3 GLIDER**

The Slocum glider is buoyancy driven to enable long range and duration remote water column observation for academic, military, and commercial applications. The Slocum Glider can be deployed and recovered from any size vessel with minimal time on station. Once the Slocum glider is deployed, it can easily be controlled from anywhere in the world through the use of web based piloting tools. This allows fleets of gliders to be operated remotely with minimal personnel and infrastructure. Slocum gliders are modular, allowing for rapid sensor reconfiguration to respond to emergency conditions or situations. Over 40 sensors and other options are available to address a wide variety of ocean conditions and sampling requirements. (Customizable)



OBS | A&T | NDT

**TASKS****OBS**

OBSERVATION

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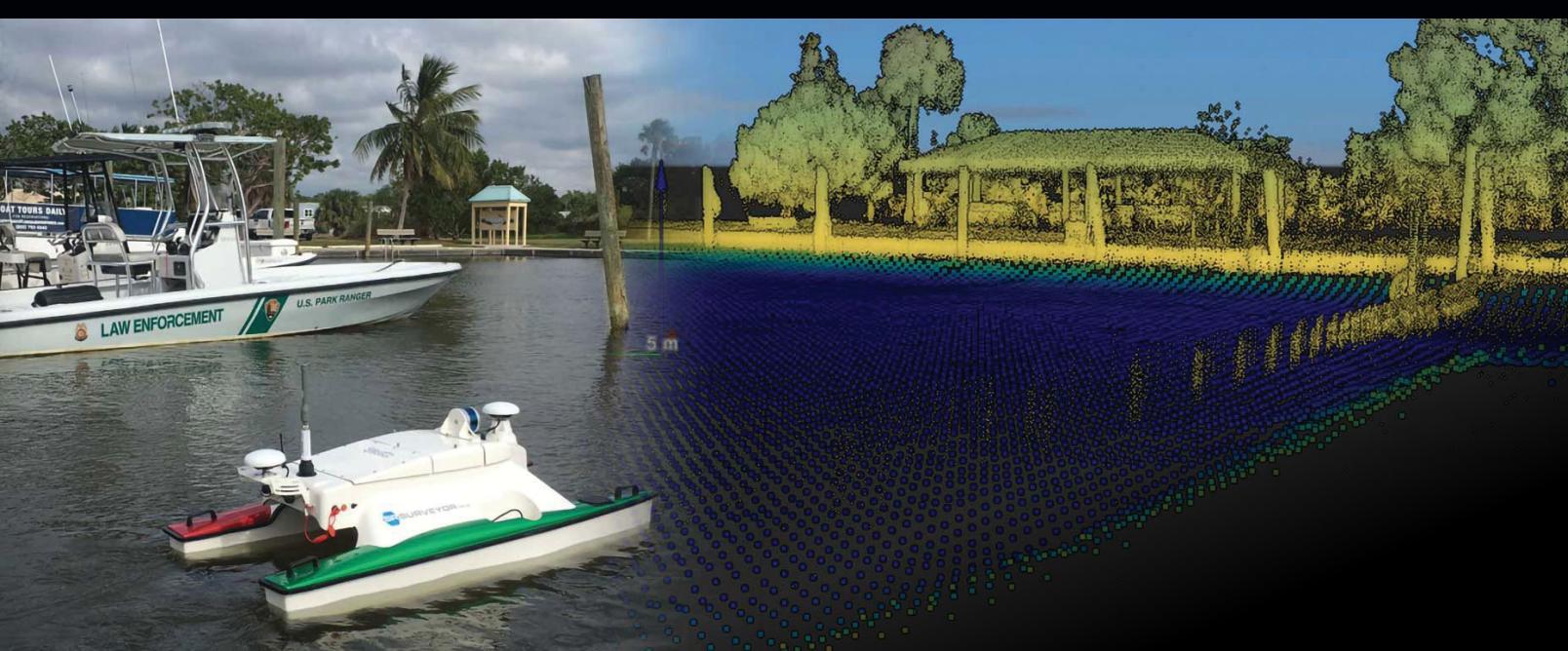
CLEANING  
DEVICES

**VSK**

VEHICLE STATION  
KEEPING

**WT**

WORK TOOLS



# Intelligent Marine Robotics

Solutions that put you in control



Autonomous Surface Vehicles



ROVs for Hull & Tank Cleaning



Engineering & Design



Manufacturing & Fabrication



**We engineer and manufacture unmanned systems for an increasingly data-centric world.**

Our portfolio of marine robotics and specialized services provide commercial, government, and defense markets around the globe with solutions to optimize the efficiency and sustainability of inter-coastal and offshore activities.



# One Stop Shopping for Your Vehicle Needs

The Teledyne Marine brands have a long history of supplying critical sensors and systems to outfit and empower platforms of all shapes and sizes. Collectively, Teledyne Marine's offerings allow customers and manufacturers the convenience, cost-savings, and interoperability of securing a full suite of leading-edge technology, all from a single entity.

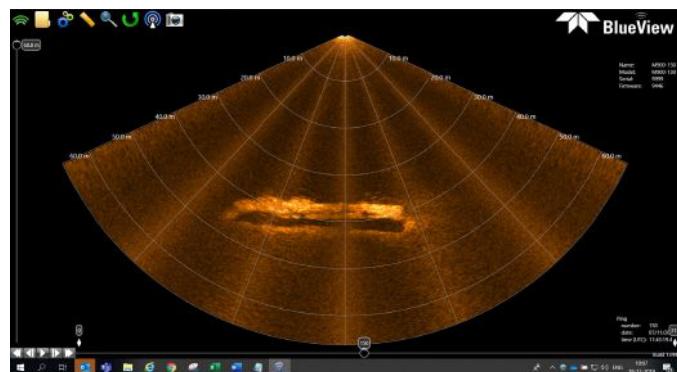
Teledyne Marine's vehicle payload options include:

## NAVIGATION AND POSITIONING:

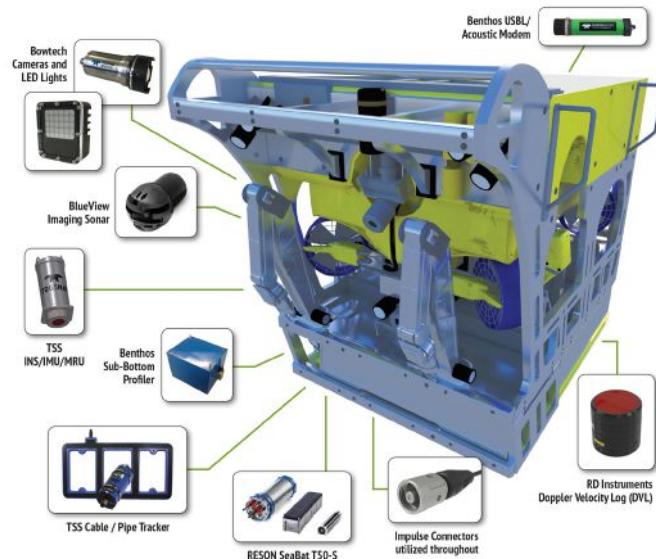
- **RD Instruments Doppler Velocity Logs (DVLs)** are the de facto standard for precision Doppler navigation and station keeping onboard any underwater vehicle. Our latest product offerings include the Pathfinder and Tasman DVLs.
- **TSS Inertial Navigation Systems (INS)** are also widely used stand-alone (TOGSINS), or in concert with a DVL (TOGSNAV) to provide enhanced subsea navigation and station keeping functionality.
- **Benthos TrackIt USBL System** provides vehicle tracking, as well as acoustic comms for coastal vehicles. With the pending release of the new ultra-compact transponder, increasingly smaller vehicles will enjoy the benefits of this technology.

## MULTIBEAM AND IMAGING SONARS:

- **BlueView Imaging Sonars** are optimized for small size and low power providing stunning high resolution images to enhance ROV operational productivity. The latest product offering is the M-series Mk2, delivering increased image quality and improved range performance.



- **RESON Multibeam Sonars** are the industry standard for high resolution seabed mapping and pipeline inspection.
- **Teledyne PDS** is a powerful acquisition, navigation and processing software that ties it all together.



## CAMERAS AND LIGHTS:

- **Bowtech** high performance underwater camera and lighting systems deliver proven reliability for the most demanding subsea applications.

## ACOUSTIC COMMUNICATIONS:

- Thousands of **Benthos ATM-900 series acoustic modems** are in operation on vehicles of all shapes and sizes, providing proven, reliable wireless acoustic communications for vehicle command and control.

## SUB-BOTTOM PROFILER:

- **Benthos Chirp Sub-Bottom Profiler** can be packaged for use onboard vehicles, providing both high resolution and solid seabed penetration.

## PIPE AND CABLE DETECTION SYSTEMS:

- **TSS** is the industry's leading supplier of **pipe and cable detection systems**. Their HydroPACT line of pipe and cable detection systems offer a solution for every application. Their latest offering, the highly compact HydroPACT 660E is ideally suited for smaller ROVs.

## INTERCONNECT SOLUTIONS

With 5 brands (Impulse, Impulse PDM, Cable Solutions, ODI, DGO) dedicated to the design and manufacture of cables and connectors, Teledyne Marine brings it all together with a full range of standard to highly customized interconnect solutions.

For information on any of these key enabling technologies, visit: [www.teledynemarine.com/blog/ROV\\_Integration](http://www.teledynemarine.com/blog/ROV_Integration)

# MANUFACTURER LISTING / A-Z

UNMANNED  
VEHICLES  
BUYERS' GUIDE

**5G International Inc.**

**USV**

2491 Keen Rd.  
Fort Pierce, FL 34946 USA  
 [Sales](#)  
 +1 (561) 632-8333  
[robert.asia11@gmail.com](mailto:robert.asia11@gmail.com)

**AllOceans Engineering Ltd**

**Observation ROV, Towed & Bottom Crawling Vehicle**

Tyrebagger Works, Clinterty Kinellar, Aberdeen AB21 0TT UK  
 [Brian Abel](#)  
 +44 (0) 1224 791001  
[brian@alloceans.co.uk](mailto:brian@alloceans.co.uk)  
[www.alloceans.co.uk](http://www.alloceans.co.uk)  
[www.ac-cess.com](http://www.ac-cess.com)

**Alseamar**

**Glider**

60 avenue Olivier Perroy  
Rousset (13790) France  
 [Romain TRICARICO](#)  
 +33 (0) 442 616 480  
[rtricarico@alseamar-alcen.com](mailto:rtricarico@alseamar-alcen.com)  
[www.alseamar-alcen.com](http://www.alseamar-alcen.com)

**Aquabotix**

**Observation ROV, AUV**

21 Father DeValles Blvd,  
Unit 8/Suite 106  
Fall River, MA 027723 USA  
 [Sales](#)  
 +1 (508-676-1000  
[sales@aquabotix.com](mailto:sales@aquabotix.com)  
[www.aquabotix.com](http://www.aquabotix.com)

**Argus Remote Systems**

**Observation ROV with Payload Option, Work Class ROV**

Laksevaag Norway  
 [Jan Bryan](#)  
 +47 (0) 91377109  
[jan@argus-rs.no](mailto:jan@argus-rs.no)  
[www.argus-rs.no](http://www.argus-rs.no)

**Atlas Elektronik UK Ltd**

**AUV**

Dorset Innovation Park  
Winfrith, Newburgh,  
Dorchester DT2 8ZB UK  
 +44 (0) 1305 212400  
[enquiries@uk.atlas-elektronik.com](mailto:enquiries@uk.atlas-elektronik.com)  
[www.uk.atlas-elektronik.com](http://www.uk.atlas-elektronik.com)

**Boston Engineering Corp.**

**AUV**

300 Bear Hill Rd.  
Waltham, MA 02451 USA  
 +1 (781) 466-8010  
[info@boston-engineering.com](mailto:info@boston-engineering.com)  
[www.boston-engineering.com](http://www.boston-engineering.com)

**Cellula Robotics**

**AUV**

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 [Adrian Woodroffe](#)  
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[www.cellula.com](http://www.cellula.com)

**Chelsea Technologies Group**

**Towed & Bottom Crawling Vehicle**

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West Molesey UK  
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[www.chelsea.co.uk](http://www.chelsea.co.uk)

**Clearpath Robotics, Inc**

**USV**

1425 Strasburg Rd. Suite 2A  
Kitchener, ON N2R 1H2 Canada  
 1 (800) 301-3863  
[info@clearpathrobotics.com](mailto:info@clearpathrobotics.com)  
[www.clearpathrobotics.com](http://www.clearpathrobotics.com)

**Copenhagen Subsea A/S**

**Observation ROV with Payload Option**

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Hellerup Denmark  
 [Allan Nygård Bertelsen](#)  
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[sales@copenhagensubsea.com](mailto:sales@copenhagensubsea.com)  
[www.copenhagensubsea.com](http://www.copenhagensubsea.com)

**Crystal Cam Imaging Inc.**

**Observation ROV**

2569 Kenworth Road, Suite 1A  
Nanaimo Canada  
 [Ibrahim Amerih](#)  
 +1 (250)244-1838  
[info@crystal-cam.com](mailto:info@crystal-cam.com)  
[www.crystal-cam.com](http://www.crystal-cam.com)

**Deep Ocean Engineering, Inc.****Observation ROV, USV**2403 Qume Dr.  
San Jose, CA USA

+1 (408) 436-1102

sales@deeppocean.com  
www.deeppocean.com**Deep Trekker Inc.****Observation ROV, Towed & Bottom Crawling Vehicles**830 Trillium Drive Kitchener,  
ON N2R 1K4 Canada

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sregan@deeptrekker.com  
www.deeptrekker.com**DOER Marine Operations****Work Class ROV**PO Box 6249  
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www.doermarine.com**DotOcean****USV, Towed & Bottom Crawling Vehicles**Gistelse Steenweg 294 box 205  
8200 Sint-Andries (Brugge) Belgium

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www.dotocean.eu**dstl****USV**Portsmouth West Portsmouth Hill Rd  
Fareham, Hampshire PO17 6AD UK

+01980 957672

iscampbell@mail.dstl.gov.uk  
www.gov.uk**DWTEK Co., LTD****Observation, ROV with Payload Option**Taichung City 401 Taiwan,  
East District No.22, Dong Ying Rd  
Taichung City 401 Taiwan  
+886 435024890  
info@dwtek.com.tw  
www.dwtekmarine.com**ECA Group****AUV, Work Class ROV, Towed & Bottom Crawling Vehicles**262 Rue des frères Lumière  
83130 La Garde, France

+33 4 94 08 90 00

sales.robots@ecagroup.com  
www.ecagroup.com**Edgelab Srl****AUV**c/o CSCA, Via degli Altiforni, 3  
57037 Portoferraio (LI) Italy

+39-0187 1822943

edgelab@edgelab.eu  
www.edgelab.eu**EdgeTech****Towed & Bottom Crawling Vehicle**4 Little Brook Rd  
West Wareham, MA 02576 USA

+1 (508) 291-0057

info@edgetech.com  
www.edgetech.com**EIVA a/s****Towed & Bottom Crawling**Vehicles Niels Bohrs Vej 17  
8660 Skanderborg Denmark

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eiva@eiva.com  
www.eiva.com**Emma Technologies GmbH****USV**Felmer Strasse 4b  
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ask-emma@emma-technologies.com  
www.emma-technologies.com**EPRONS ROV Ltd.****Observation ROV**11 Audupes Street  
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info@eprons.eu  
www.eprons.eu**EvoLogics GmbH****USV**Ackerstrasse 76  
13355 Berlin Germany

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sales@evologics.de  
www.evologics.de**Exocetus Autonomous Systems****Glider**7 Laser Lane  
Wallingford, CT 06492 USA

+1 (860) 512-7260 Ext. 3

jturner@exocetussystems.com  
www.exocetussystems.com**Fast Engineering Ltd****Observation ROV**5 Windmill Court  
Antrim BT41 2TX N Ireland

+44 (0) 28 9442 8686

sales@fastank.com  
www.fastank.com**Forum Subsea Technologies****Work Class ROV, Towed & Bottom Crawling Vehicles**Ings Lane Kirkbymoorside, York,  
YO62 6EZ, UK

+44 (0) 1751 431751

rov.sales@f-e-t.com  
www.f-e-t.com**Forssea Robotics****Observation ROV with Payload Option**

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www.forssea-robotics.fr**Fugro****USV**7 Valetta Road  
Kidman Park,  
South Australia, 5025

+61 8 8161 4100

h.parker@fugro.com  
www.fugro.com

### General Dynamics Mission Systems - Bluefin Robotics Products

#### AUV

553 South Street Quincy,  
MA 01201 USA  
 Adam Mara  
 +1 (617) 715 7014  
 Adam.Mara@gd-ms.com  
[www.gdmissonsheets.com/sea](http://www.gdmissonsheets.com/sea)

### Graal Tech s.r.l

#### AUV

Via Jacopo Ruffini 9R  
16128 Genova Italy  
 +39 010 8597680  
 info@graaltech.it  
[www.graaltech.it](http://www.graaltech.it)

### H2O-Robotics

#### USV

Unska 3  
10 000 Zagreb  
Croatia  
 Sales  
 +385 91 3105 480  
 marin@h2o-robotics.com  
[www.h2o-robotics.com](http://www.h2o-robotics.com)

### HR Wallingford

#### USV

Howbery Business Park  
Wallingford, Oxfordshire, OX10 8BA  
UK  
 Peter Watchorn  
 +44 (0)1491 822465  
 PWatchorn@hrwallingford.com  
[www.hrwallingford.com](http://www.hrwallingford.com)

### Huntington Ingalls Industries

#### AUV, Glider

1 Henry Drive  
Pocasset,  
MA, 02559 USA  
 Tom Reynolds  
 +1 508-563-6565  
 sales@hydroid.com  
[www.hydroid.com](http://www.hydroid.com)

### Hydromea

#### AUV

EPFL Innovation Park,  
Bâtiment C  
1015 Lausanne Switzerland  
 Alexander Bahr  
 +41 (21) 6936890  
 info@hydromea.com  
[www.hydromea.com](http://www.hydromea.com)

### Independent Robotics

#### AUV

Montreal, QC Canada  
 +1 (646) 789-4022  
 info@independenterobotics.com  
[www.dudek.org](http://www.dudek.org)

### International Submarine Engineering Ltd. (ISE)

#### Working Class ROV, Towed & Bottom Crawling Vehicle, AUV, USV

1734 Broadway Street  
V3C 2M8 Canada  
 Sales  
 604-942-5223  
 info@ise.bc.ca  
[www.ise.bc.ca](http://www.ise.bc.ca)

### Inuktun Services Ltd.

#### Towed & Bottom Crawling Vehicle

2569 Kenworth Road, Suite C  
Nanaimo Canada  
 Sales  
 250-729-8080  
 sales@inuktun.com  
[www.inuktun.com/en/](http://www.inuktun.com/en/)

### IQUA Robotics SL

#### AUV

Pic de Peguera 11  
Girona, Spain  
 Joseta Roca  
 0034972183311  
 joseta.roca@iquarobotics.com  
[www.iuarobotics.com](http://www.iuarobotics.com)

### iXblue

#### USV

34, rue de la Croix de Fer  
78100 Saint-Germain-en-Laye  
FRANCE  
 Guillaume Endeline  
 guillaume.endeline@ixblue.com  
[www.ixblue.com](http://www.ixblue.com)

### JW Fishers Mfg. Inc.

#### Observation ROV, Towed & Bottom Crawling Vehicles

1953 County St  
East Taunton,  
MA 02718 USA  
 Brian Fisher  
 (800) 822-4744  
 info@jwfishers.com  
[www.jwfishers.com](http://www.jwfishers.com)

### Kongsberg Maritime

#### Glider, AUV

Headquarters, Kirkegårdsvingen 45  
NO-3616 Kongsberg Norway  
 +47 32 28 50 00  
 km.sales@kongsberg.com  
[www.km.kongsberg.com](http://www.km.kongsberg.com)

### Kraken Robotic Systems Inc.

#### Towed & Bottom Crawling Vehicles, AUV

189 Glencoe Drive  
Mount Pearl Canada  
 709-757-5757  
 scotie@krakenrobotics.com  
[www.krakenrobotics.com](http://www.krakenrobotics.com)

### Kystdesign AS

#### Work Class ROV

Norway  
 Åge Holsbrekken  
 post@kystdesign.no  
[www.kystdesign.no](http://www.kystdesign.no)

### L3Harris (Portchester, UK)

#### USV

12 Murrills Estate Portchester,  
Hampshire PO16 9RD UK  
 James Cowles  
 +44(0)2392 382573  
 James.Cowles@L3Harris.com  
[www.L3Harris.com](http://www.L3Harris.com)

**L3Harris****AUV**

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MA, 02723 USA  
 James Kirk  
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james.kirk@l3t.com  
www.L3T.com/ASV

**Liquid Robotics****USV**

1329 Moffett Park Drive  
Sunnyvale USA  
 Sarah Zweng  
 +1 408 636 4200  
sarah.zweng@liquid-robotics.com  
www.liquid-robotics.com

**MacArtney****Towed & Bottom Crawling Vehicles**

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DK-6710 Esbjerg V  
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 Lars Jørgensen  
 +45 7613 2000  
lj@macartney.com  
www.macartney.com

**Marine Advanced Research USV**

1301 South 46th St., Building 300A  
Richmond, CA 94804 USA  
 +1 (510) 232-1685  
info@wam-v.com  
www.wam-v.com

**Marine Imaging Technologies Observation ROV with Payload Option**

P.O. Box 1997  
North Falmouth, MA 02556 USA  
 David Ullman  
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Info@marineimagingtech.com  
www.marineimagingtech.com/rov

**Mariner Underwater Electronics****Work Class ROV**

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marhge@otenet.gr  
www.mariner.gr

**MarineTech****USV**

ZI de Signes  
350 avenue de Copenhague  
83870 Signes, France  
 Magali Mouries  
 +33 (0) 9 54 82 10 52  
contact@marinetech.fr  
www.en.marinetech.fr/Marine-survey-USV

**Mariscope Meerestechnik Observation ROV**

Eichkoppel 21  
Gettorf / 24214 Germany  
 Niklas Becker  
 (+49) 4346 6000 490  
n.becker@mariscope.de  
www.mariscope.de

**Maritime Robotics****USV**

Brattørkaia 13 B  
7010 Trondheim Norway  
 +47 73 40 19 00  
info@maritimerobotics.com  
www.maritimerobotics.com

**Martec Systems****USV**

511 N. John Rodes Blvd. Ste. 103  
Melbourne, FL, 32934 USA  
 321-292-9443  
info@martacsystems.com  
www.martacsystems.com

**Navocean Inc.****USV**

SEATTLE USA  
 Stuart Lochner  
 +1 (206) 849-9005  
sales@navocean.com  
www.navocean.com

**Notilo Plus****Observation ROV with Payload Option**

Plt de la Valentine lot 4 - Mte  
Commandant de Robien  
13011 MARSEILLE  
France  
 Solène Guéré  
 +33 667531704  
seasam@notiloplus.com  
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**Ocean Aero, Inc.****USV, AUV**

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San Diego, CA 92121 USA  
 Neil Trenaman  
ntrenaman@oceanaero.us  
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**Oceanalpha****USV**

RM 702,7/F SPA Centre, NO.53-55  
Lockhart Road, Wan Chai Hong Kong  
China  
 Chris Yan  
chris.yan@oceanalpha.com  
www.oceanalpha.com

**Oceaneering International, Inc.****AUV, Work Class ROV**

11911 FM 529  
Houston, TX USA  
 Sales  
 +1 (713) 329-4500  
sales@oceaneering.com  
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**Oceanscan-MST LDA****AUV**

Av. Liberdade, Polo Mar UPTec  
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**OCIUS****USV**

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**Offshore Sensing AS****USV**

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5072 Bergen Norway  
 David Peddie  
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www.sailbuoy.no

### Outland Technology

#### Observation ROV, Observation ROV with Payload Option

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Slidell, LA 70458 USA  
 +1 (985) 847-1104  
sales@outlandtech.com  
www.outlandtech.com

### Poseidon Robotics, LLC

#### Observation ROV with Payload Option

5098 Foothills Blvd., Ste 3 #473  
Roseville, CA 95747 USA  
 Peter Schubert  
 +1 480 558 6499  
Peter@poseidonrov.com  
www.poseidonrov.com

### PowerDocks LLC

#### Observation ROV

151 Martine Street, Suite 107  
Fall River MA USA  
 Anthony Baro  
 +1 (401) 489-2273  
abaro@power-docks.com  
www.power-docks.com

### PowerVision

#### USV

260 Harbor Boulevard  
Belmont, CA USA  
www.powervision.me/en

### QinetiQ North America

#### AUV, Towed & Bottom Crawling Vehicles

350 Second Avenue, Building 1  
Waltham, MA 02451 USA  
 +1 (781) 684-4000  
contactus@qinetiq-na.com  
www.qinetiq-na.com

### RJE Oceanbotics

#### Observation ROV with Payload Option

15375 Barranca Parkway,  
Building I-112  
Irvine, CA 92618 USA  
 +1 (949) 727-9399  
sales@oceanrobotics.com  
www.oceanrobotics.com

### Robotics Industry (R&Drone)

#### USV

3 Rue Vert Castel  
33700 Mérignac, FRANCE  
 +33 (0)5 33 89 18 10  
www.robotics-industry.com

### Rovotics

#### Work Class ROV

United Arab Emirates  
 +971(0)65579539  
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www.rovotics.ae

### RTsys

#### AUV

25 rue Michel Marion  
Caudan FRANCE  
 Corentin Troussard  
 +33 297 898 580  
enquiries@rtsys.fr  
www.rtsys.eu/en/

### Saab Seaye Ltd

#### Observation ROV with Payload Option, AUV

20 Brunel Way, Segensworth East  
Fareham UK  
 James Douglas  
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solutions@sabseaye.com  
www.seaeye.com

### Saildrone

#### USV, Towed & Bottom Crawling Vehicles

1050 W Tower Ave Alameda,  
CA 94501 USA  
 +1 (772) 742-3700  
www.saildrone.com/contact  
www.saildrone.com

### Seafloor Systems, Inc

#### USV

4415 Commodity Way  
Shingle Springs, CA 95682 USA  
 +1 (530) 677-1019  
info@seafloorsystems.com  
www.saildrone.com

### SeaRobotics Corporation

#### USV, Towed & Bottom Crawling Vehicles

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info@searobotics.com  
www.searobotics.com

### SeaTrac Systems, Inc.

#### USV

100 Hoods Lane Marblehead,  
Massachusetts, 01945 USA  
 Ping Tuck Chai  
 +1 (617) 981-4620  
pchai@seatrac.com  
www.seatrac.com

### Seatrronics

#### Observation ROV with Payload Option

Denmore Road Bridge of Don,  
Aberdeen, AB23 8JW UK  
 Jamie Neilson  
 +44 (0)1224 85310  
jamie.neilson@seatrronics-group.com  
www.seatrronics-group.com

### SeaView Systems, Inc

#### Observation ROV with Payload Option, Towed & Bottom Crawling Vehicle

7275 Joy Road, Suite A  
Dexter USA  
 +1 (734) 426-8978  
info@seaviewsystems.com  
www.seaviewsystems.com

### Shark Marine Technologies Inc

#### Observation ROV with Payload Option

23 Nihan Drive St. Catharines,  
Ontario L2N 1L2 Canada  
 +1 (905) 687-6672  
sales@sharkmarine.com  
www.sharkmarine.com

### SMD

#### Work Class ROV, Towed & Bottom Crawling Vehicle Soil Machine Dynamics

Davy Bank, Wallsend UK  
 Graeme Jaques  
graeme.jaques@smd.co.uk  
www.smd.co.uk

**Sofar Ocean Technologies****USV**TPier 50, Shed B, Bulkhead Office  
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www.sperre-as.com**Strategic Robotic Systems****AUV, Observation ROV**18394 Redmond Way  
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 Gregory Mauring  
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 Sales  
+44 (0) 203 429 3950  
www.technipfmc.com**Teledyne Benthos****Towed & Bottom Crawling Vehicle**49 Edgerton Drive North Falmouth,  
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 Dan Shropshire  
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 Arnar Steingrimsson  
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gavia\_sales@teledyne.com  
www.teledynemarine.com/gavia**Teledyne Oceanscience****USV**14020 Stowe Drive  
Poway, CA 92064 USA  
 Shannon Searing  
+1 (858) 842-2600  
Oceanscience.sales@teledyne.com  
www.teledynemarine.com/oceanscience**Teledyne SeaBotix****Observation ROV with Payload Option**9970 Carroll Canyon Rd, Suite B  
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 Jamie Carrig  
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SeaBotix\_Inquiries@teledyne.com  
www.teledynemarine.com/seabotix**Teledyne Webb Research****Glider**49 Edgerton Drive  
North Falmouth MA 02556 USA  
 Chris DeCollibus  
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webbresearch@teledyne.com  
www.teledynemarine.com/webb-research**The Boeing Company****AUV**Boeing Corporate Offices  
100 North Riverside  
Chicago, IL 60606 USA  
+1 (312) 544-2000  
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117997 Moscow Russia  
+7 499 1292045  
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www.gnomrov.com**Unmanned Survey Solutions****USV**Unit 7 Hayle Marine Renewables  
Business Park, North QuayHayle,  
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» EvoLogics S2C T 48/78 modem

## S2C T-Series - The "Tiny" Modems From EvoLogics

S2C T "tiny" modems are the latest generation of light and compact modems from EvoLogics (Berlin, DE), introduced in 2019.

Like their counterparts from the highly customizable R-series and the compact M-series, T-series models implement the patented S2C data delivery technology without compromise to acoustic performance. The ultra-compact low-weight "tiny" modems are a great fit for small AUVs and ROVs, when seamless integration of hardware and software components is critical.

Perfect as transponders for positioning, S2C T devices are capable of simultaneous tracking and reliable bi-directional data transmissions with advanced networking. All T-devices are acoustically compatible with EvoLogics R- and M-series modems of the same frequency; the T-series form factor is available for EvoLogics high-frequency models that cater to various

short- and mid-range applications with 4 frequency range/directivity options.

Models T 48/78 and T 18/34 with horizontally omnidirectional beam patterns are optimal for communication and positioning in horizontal channels. 48/78 offers data transfers of up to 31.2 kbit/s over 1000 m, and 18/34 delivers data over 2000 m at up to 13.9 kbit/s. Model T 42/65 with a wide-angle (100 degrees) beam pattern is most suitable for vertical and slant data transfers with up to 31.2 kbit/s over 1000 m. T HS is a high-speed omnidirectional device for short-range applications in shallow waters with fast data rates of up to 62.5 kbit/s over 300 m.

All T-series modems are available as builds with integrated or cable-mounted transducers in two housing options: Delrin (plastic) for depths up to 200 m, and stainless steel, depth-rated for 2000 m. OEM builds without housing and custom

mold form-factors for precise integration with UUVs are available upon request.

The EvoLogics reliable S2C spread-spectrum communication technology stems from bionic concepts and over the years evolved into a whole ecosystem of products: several series of underwater acoustic modems, modular underwater positioning systems (USBL, LBL, SBL), as well as a framework for developers in both networking and hardware design.

The "tiny" T line is a most recent step toward smarter, lighter, and more effective solutions for modern subsea applications that demand fast and reliable communication.

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» S2C T 18/34 - custom mold for ROV integration



» S2C R, M and T 18/34 modems (left to right)



» S2C T 18/34 modem with cable-mounted transducer

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