

# BAYONET 150, 250 & 350

AMPHIBIOUS CRAWLER VEHICLES



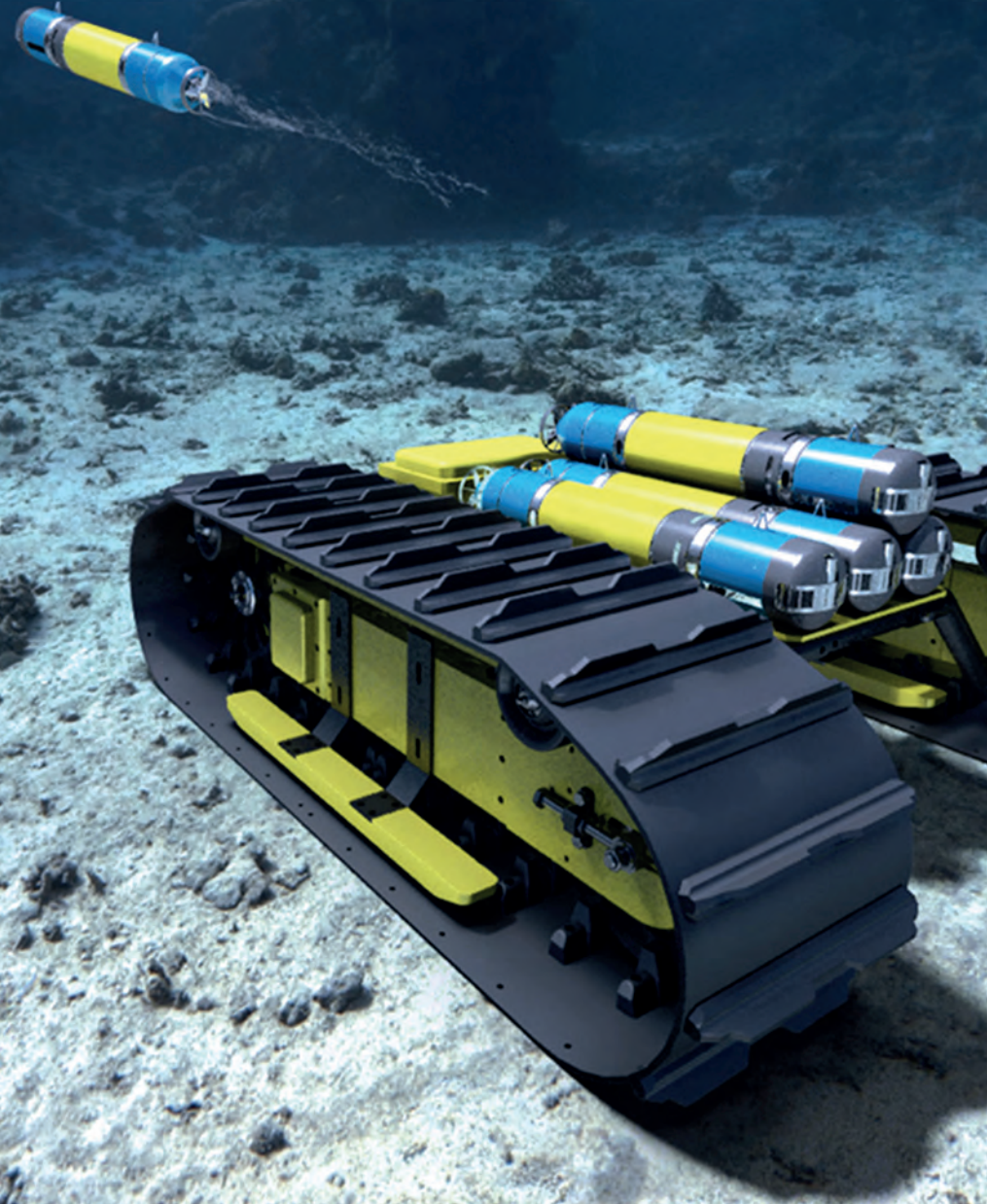
BAYONET  
OCEAN VEHICLES

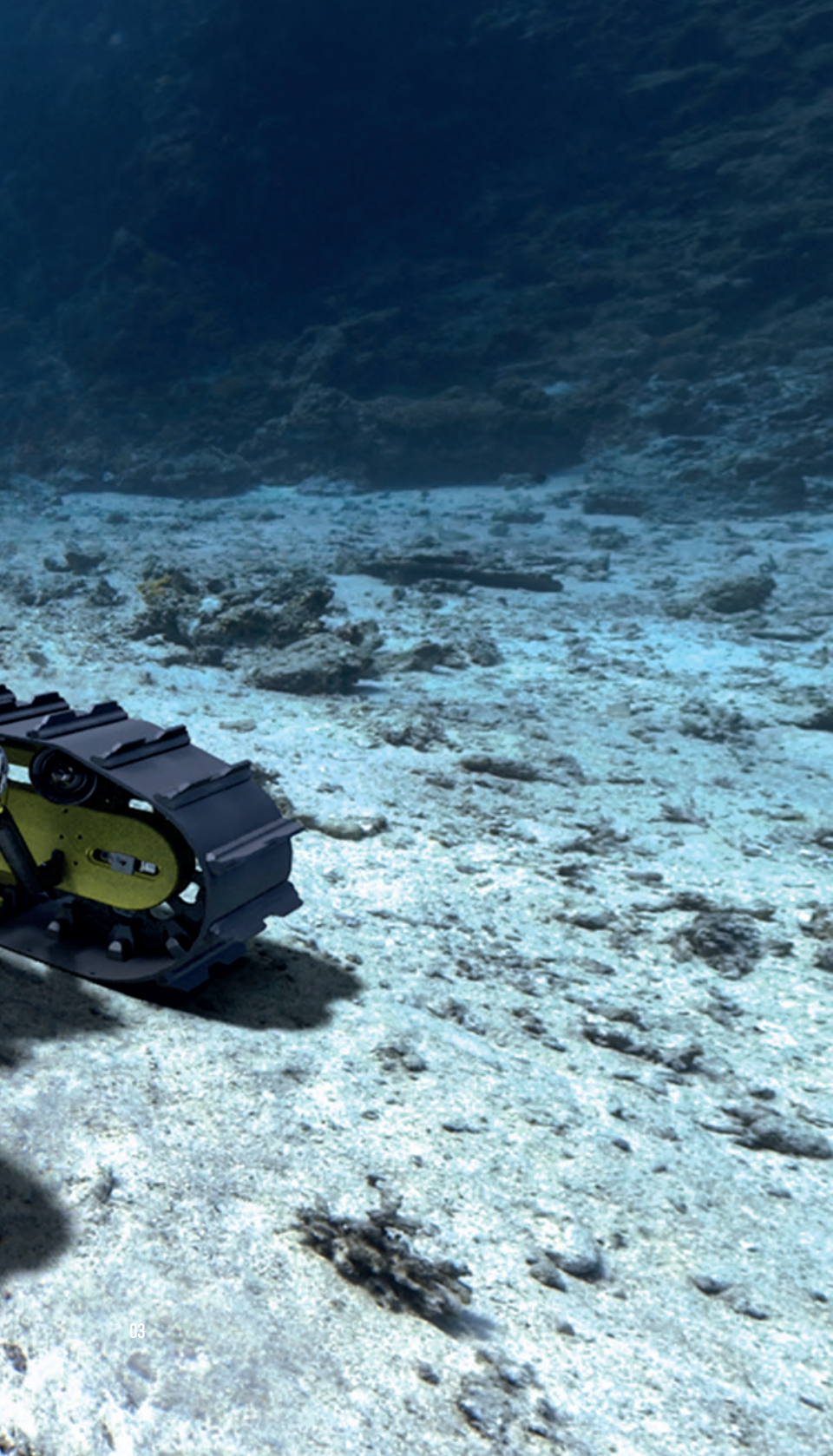


# ACROSS SEA AND LAND

Our amphibious crawlers operate on land and on the seafloor across the continental shelf collecting the data that you need.

Operate safely, free of weather and sea state constraints, and in all surface traffic environments.





# BAYONET 150, 250 & 350

## AMPHIBIOUS CRAWLER VEHICLES

The **BAYONET 150, 250 and 350** can be deployed ashore or at sea and operate in depths up to 100m. Vehicles can be fitted with a variety of environmental, oceanographic, hydrographic, benthic and industry specific sensors. Installations have included: sidescan, CTD, magnetometers, acoustic releases, vibracores, penetrometers, video and photographic imagery. Standalone guest sensors can easily be attached in the field or workshop integrated.

The vehicles' low profile and high stability allows them to penetrate the surf zone with up to 6 ft wave height and collect data independent of sea state and weather providing more days on task. Low domestic power draw provides static endurance of 100 days for continuous observations. Three single operator modes are available: autonomous, tethered or RF link buoy.

### CHOOSING YOUR MODEL

#### BAYONET 150

Two person portable vehicle for non heavy weather, small boat deployment and smaller payloads.

#### BAYONET 250

Toolfree in field assembly for two person portability and design allows heavier weather and larger payloads.

Standard systems come complete with a vehicle, tough book, XBOX controller, Xbee radio link, Greensea Diagnostics and Mission Planner software, GPS, AHRS and single axis FOG.

#### BAYONET 350

Our largest vehicle capable of handling the harshest conditions and largest payloads.

#### BAYONET SLED

25 x 69 inch non metallic sled towable by the **BAYONET 150, 250 and 350**. The **BAYONET SLED** provides additional space for independent payloads, AUV delivery systems or additional power sources. The low sled EM signature makes it suitable for magnetometer and other sensitive sensors.

Photo left:  
BAYONET 250

# DEPLOYABLE FROM SEA OR SHORE

High sea state and weather tolerance means fewer survey days lost, and operations can be conducted day or night reducing costly scheduling constraints.



## BAYONET 150 , 250 AND 350

The **BAYONET 150, 250 and 350** are amphibious systems capable of being deployed from sea or shore to collect bathymetric, seafloor, water column, video and environmental data with their integrated, or guest sensor packages.

Single or dual GNSS receivers provide precise positioning and heading when dry, which can be augmented by RTK. Positional data is blended with the INS to provide precise navigation when the vehicle is submerged; whether operating in autonomous or tethered modes.

Most water column errors are removed by operating on the seafloor. Depth determination is from a high precision inclinometer and a pressure sensor allowing you to survey on the ellipsoid or reduce soundings to a local datum.

Additional multibeam and sidescan payloads to meet feature detection requirements have small SV uncertainties due to operating in the same depth layer and an integrated SV sensor.

The inclinometer allows you to remove large wave motion from the dataset, and generate a continuous dataset across the wet dry divide.

The system has negligible altitude or speed over ground uncertainty through the use of a sink gauge, being on the seafloor and measuring distance over ground with track movement.

Photo left:  
BAYONET 150

## APPLICATIONS

The most suitable applications are:

- cable surveys
- beach surveys
- dredge monitoring
- coastal management,
- survey checks.

High sea state and weather tolerance means fewer survey days lost, and operations can be conducted day or night reducing costly scheduling constraints.

The **BAYONET 150** is one person portable, and the **BAYONET 250 and 350** are designed to be two person portable using in field tool free assembly. Operating all vehicles takes one person.

Low domestic power draw allows for long term station keeping of 100 days for tidal or current observations, the sink gauge will negate any scouring. Program your system to collect tidal data using the pressure sensor and then run the survey mission before you recover it.

Standard range is 10 miles submerged and 24 miles dry, and a 1.5 knot speed provides high sounding density.



**BEACH AND SURF ZONE SURVEY**

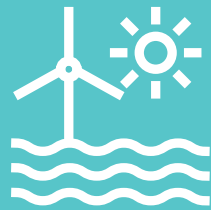


**SURVEY MISSION PLANNING**

# MERGE THE SEA AND LAND DOMAIN

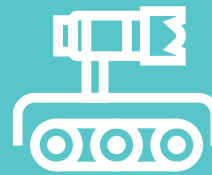
## AMPHIBIOUS OPERATIONS AND LITTORAL WARFARE

The BAYONET 150, 250 and 350 are amphibious systems deployable from sea or shore independent of weather, to collect information necessary for amphibious operations and littoral warfare.



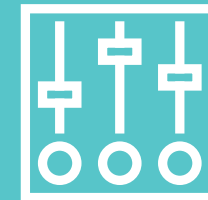
### EXPLOIT THE ENVIRONMENT

- Rapid Environmental Assessment
- Beach Lane Surveys
- Anchorage Surveys
- Sound Propagation
- Surf Observations



### PROTECT THE TASK FORCE

- Mine Detection and Clearance
- Minefield Surveys
- Swimmer Detection
- Hull Inspections
- Wharf Inspections
- Chokepoint Transit Clearance



### SUSTAIN OPERATIONS

- Intelligence Collection
- Prepositioned Supply Dumps from OTH
- SAR
- Static and Mobile Training Target
- Diver Toolbox
- Comms Relay

# ENVIRONMENTAL MONITORING

## SAMPLE, ANALYZE AND MONITOR

### AUTONOMOUS OR TETHERED OPERATION

The scalable and high capacity payloads provide cross-environment monitoring, survey and sampling (including trafficability) capabilities that are underpinned by a blended GNSS and INS navigation solution to allow the vehicle to be operated with confidence in either autonomous or tethered modes.

GNSS and a high precision inclinometer are used together to provide a seamless gradient dataset from back of beach across the littoral to remove ambiguity.

Low domestic power draw allows for long-term station keeping of 100 days for intelligence collection, environmental observations, or pre-positioning supplies.

Standard range is 10 miles submerged and 24 miles dry, with a 1.5 knot speed.

Sidescan, magnetometers and other imaging technologies are integrated on customer request, an optional sled, and guest ports also allow for independent sensors to be carried.

### INTEGRATED SENSOR PACKAGES AVAILABLE

The BAYONET 150, 250 and 350 are amphibious systems deployable from land or water craft that can be integrated with sensor packages to sample and analyze environmental media.

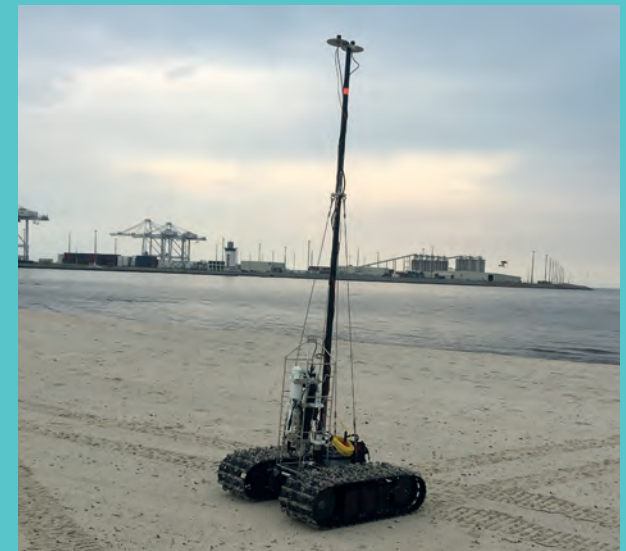
The low ground pressure and large area ground contact means the system can operate in a wide range of environments from the surf zone, dunes, rivers, tailing ponds, marshes and mudflats; independent of weather.

The low profile of the vehicle with automatic recovery features increases equipment safety from external interference.

Typical sensor integrations have included: ADCP, CTD, water level meters, penetrometers, vibracores, magnetometers, video, water sample collection systems, optical turbidity sensors, and dissolved oxygen probes.

Beyond integrated sensor options the open cargo bay design, coupled with an additional sled option, provides payload flexibility and the easy mounting of additional independent sensors.

The systems' two person portability, one person operation and payload accessibility allows rapid deployment in emergency situations on all surface types, cold environments and high energy areas.



# COMPREHENSIVE SERVICES

## EXTENSIVE RANGE OF PAYLOADS

### DATA COLLECTION SERVICES

**BAYONET Ocean Vehicles** provide data collection services that support surveys and environmental monitoring using the BAYONET 150, 250 and 350 and amphibious systems. Areas of application include:

- Cable surveys,
- beach surveys,
- dredge monitoring,
- coastal management,
- wharf surveys,
- hull inspections
- survey checks

Bathymetric, benthic, water column, magnetic, video and environmental data can be collected with integrated sensors, and client provided guest sensor packages can be added onboard or on a towed sled.

Dual GNSS receivers provide precise positioning, which can be augmented by RTK. GNSS positional data is blended with the INS to provide precise navigation when the vehicle is submerged.

Basic depth measurements are from a high precision inclinometer and a pressure sensor, while 2D and 3D multibeam and sidescan payloads meet feature detection requirements, or provide high resolution imagery.

The **BAYONET 150, 250 and 350** high sea state and weather tolerances, coupled with our ability to operate by day and night mean that costly scheduling constraints are limited, providing the client with timely and cost effective data.

**BAYONET** equipment is self-contained and can be transported by air, sea, road and rail allowing us to deploy rapidly to all parts of the country at short notice to meet high need requests.

Client sensors which require integration can be managed with sufficient lead-time, and independent client sensors can quickly be attached in-field. This includes connecting to client RTK and subsea position systems.







Contact us or visit our website to find out the latest additions to our available payloads which include:

Pressure sensors, sidescan sonar, CTD, video, ADCP, penetrometers, vibracores, optical turbidity sensors, magnetometers, acoustic transponders, and dissolved oxygen probes.

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OCEAN VEHICLES

# BAYONET 150

## TECHNICAL DATA

DIMENSIONS	33 x 20 x 10 inches
STANDARD OPEN DECK SPACE	24 x 6 inches
WEIGHT (WITH BATTERIES)	125 lbs
DURATION DRY / WET	22 / 10 miles
DECK CAPACITY	150 lbs (68kg)
GROUND PRESSURE – DRY / WET	0.15 / 0.08 psi
BATTERY	Li-Iron 54V, 48.1V nominal, 80Ahr with 2 packs on inside of track
RECHARGE	4 hrs per battery at max rate
POWER AVAILABLE	5V (500mA), 12V (3A), 24V (3A), 48V
I/O	RS232 (2), RS485(1), non-isolated analog input (2), non-isolated analog output (2), isolated digital input (2), isolated digital output (2), Ethernet (4)
CONNECTORS	SUBCON or Heyco
NAVIGATION	Greensea GS4 INS
POSITIONING	GNSS Receiver (Dual RX and RTK Options)
SUBMERGED POSITIONING	0.5%dt CEP50 (dvl aiding)
HEADING	<2.0deg typ (<0.25deg typ w/ transit alignment)
DEPTH	Depth: 0.1m RMS
COMMAND AND CONTROL SOFTWARE	OPENSEA, Greensea Workspace user interface, Greensea EOD and Pro Workspace (options)
INTERNAL SENSORS	Temp, Overvoltage, Wet/Dry, Battery Monitoring
SINK GAUGE	+/- 0.05 inches with 3.75 inch range (opt)
EXTERNAL COMMS	Ethernet tether, 2.4 GHz XBee RF
ADDITIONAL COMMS	RTK, MIMO RF link buoy (option)

# BAYONET 250

## TECHNICAL DATA

STANDARD DIMENSIONS	48 x 52 x 14 inches
HEAVY DUTY DIMENSIONS	60 x 60 x 16 inches
STANDARD OPEN DECK SPACE	33 x 14 inches
HEAVY DUTY DECK SPACE	42 x 16 inches
GROUND CLEARANCE	7.5 inches
WEIGHT (WITH BATTERIES)	250 lbs
DURATION DRY / WET	24 / 10 miles
DECK CAPACITY	250 lbs (113kg) - max component 75 lbs (34kg)
GROUND PRESSURE	
- 10' TRACK – DRY / WET	0.39 / 0.20 psi
- 15' TRACK – DRY / WET	0.26 / 0.13 psi
BATTERY	Li-Iron 54V, 48.1V nominal, 80Ahr with 2 packs on inside of track
RECHARGE	4 hrs per battery at max rate
POWER AVAILABLE	5V (500mA), 12V (3A), 24V (3A), 48V
I/O	RS232 (2), RS485(1), non-isolated analog input (2), non-isolated analog output (2), isolated digital input (2), isolated digital output (2), Ethernet (4)
CONNECTORS	SUBCON or Heyco
NAVIGATION	Greensea GS4 INS
POSITIONING	GNSS Receiver (Dual RX and RTK Options)
SUBMERGED POSITIONING	0.5%dt CEP50 (dvl aiding)
HEADING	<2.0deg typ (<0.25deg typ w/ transit alignment)
DEPTH	Depth: 0.1m RMS
COMMAND & CONTROL SOFTWARE	OPENSEA, Greensea Workspace user interface, Greensea EOD and Pro Workspace (options)
INTERNAL SENSORS	Temp, Overvoltage, Wet/Dry, Battery Monitoring
SINK GAUGE	+/- 0.05 inches with 3.75 inch range (opt)
EXTERNAL COMMS	Ethernet tether, 2.4 GHz XBee RF
ADDITIONAL COMMS	RTK, MIMO RF link buoy (option)

# BAYONET 350

## TECHNICAL DATA

STANDARD DIMENSIONS	5 x 6 x 1 ft (1.5 x 1.8 x 0.3m)
WEIGHT	600 lbs (272kg) Modular, fits in Subaru
DEPTH	109 yards (100m)
RANGE	38km+ @ 1.8km/hr 64km+ at slower speeds Cable laying ~15km
SPEED	1.8km/hr
DECK CAPACITY	350 lbs (159kg)
PLOW DEPTH	6-in to 2-ft (10.15 to 0.6m)
NAVIGATION POSITIONING SUBMERGED POSITIONING HEADING DEPTH	Greensea GS4 INS GNSS Receiver (Dual RX and RTK Options) 0.5%dt CEP50 (dvl aiding) <2.0deg typ (<0.25deg typ w/ transit alignment) Depth: 0.1m RMS
COMMAND AND CONTROL SOFTWARE	OPENSEA, Greensea Workspace user interface, Greensea EOD and Pro Workspace (options)
COMMS OPTIONS - BURIED FO CABLE - AUTONOMY - UUV - RF BUOY - MAST - ACCOUSTIC COMMS	High bandwidth: OS2 3mm, 225-lb tensile, 100Gb ethernet at 10km, Secure, Safe - Buried 5mm cable: 36 x 6x 24-in reel carries 15km Post mission data recovery; data pod 2 terrabyte Transfer 20 km+ 2 terra byte Electrical or fiber optic 19-ft, RF link 10mB 2,000m max likely far less
BURIED FIBER OPTIC COMMUNICATIONS CABLE - HIGH BANDWIDTH	OS2 3mm, 225-lb tensile, 100Gb ethernet at 10km, Secure, Safe - Buried (2- 24-in). 5mm cable: 36" diam x 6" core x 24" high reel carries 15km Invulnerable to battle damage





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