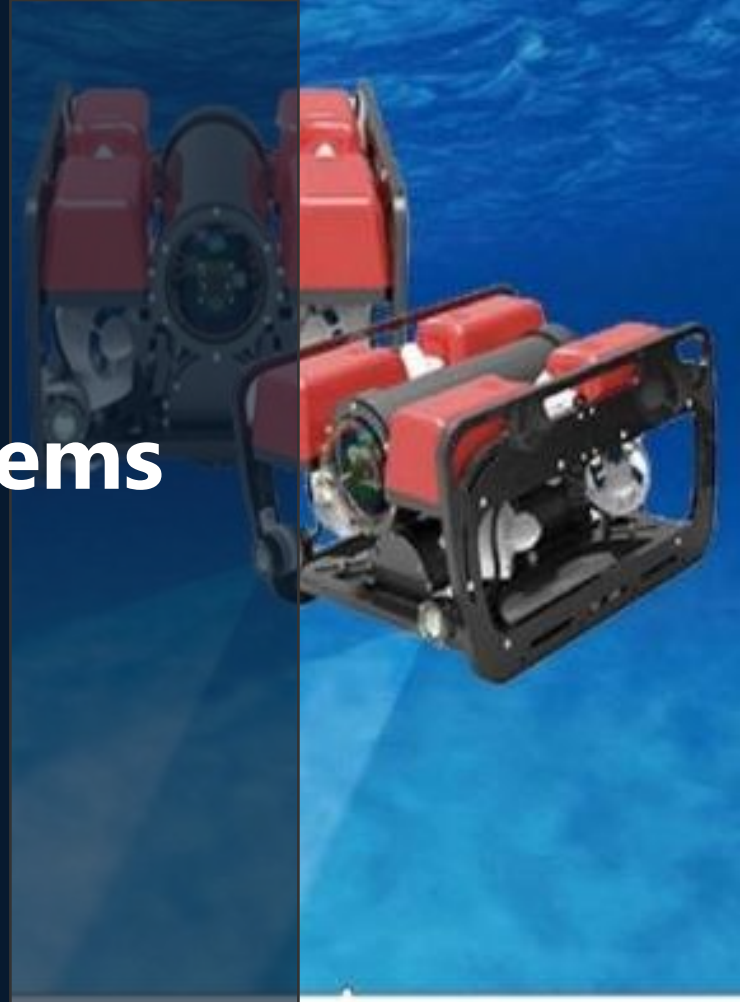
SUBSEA SALES AND ENGINEERING PTE. LTD.

Integrated Land, Air & Sea Technologies

Underwater Robotic Systems



Product Brochure & Technical Datasheets

01 Sentinus® Self-Operating Inspection ROV

02 Acrylic ROV — Modular Open-Frame System

About Subsea Sales and Engineering

COMPANY PROFILE

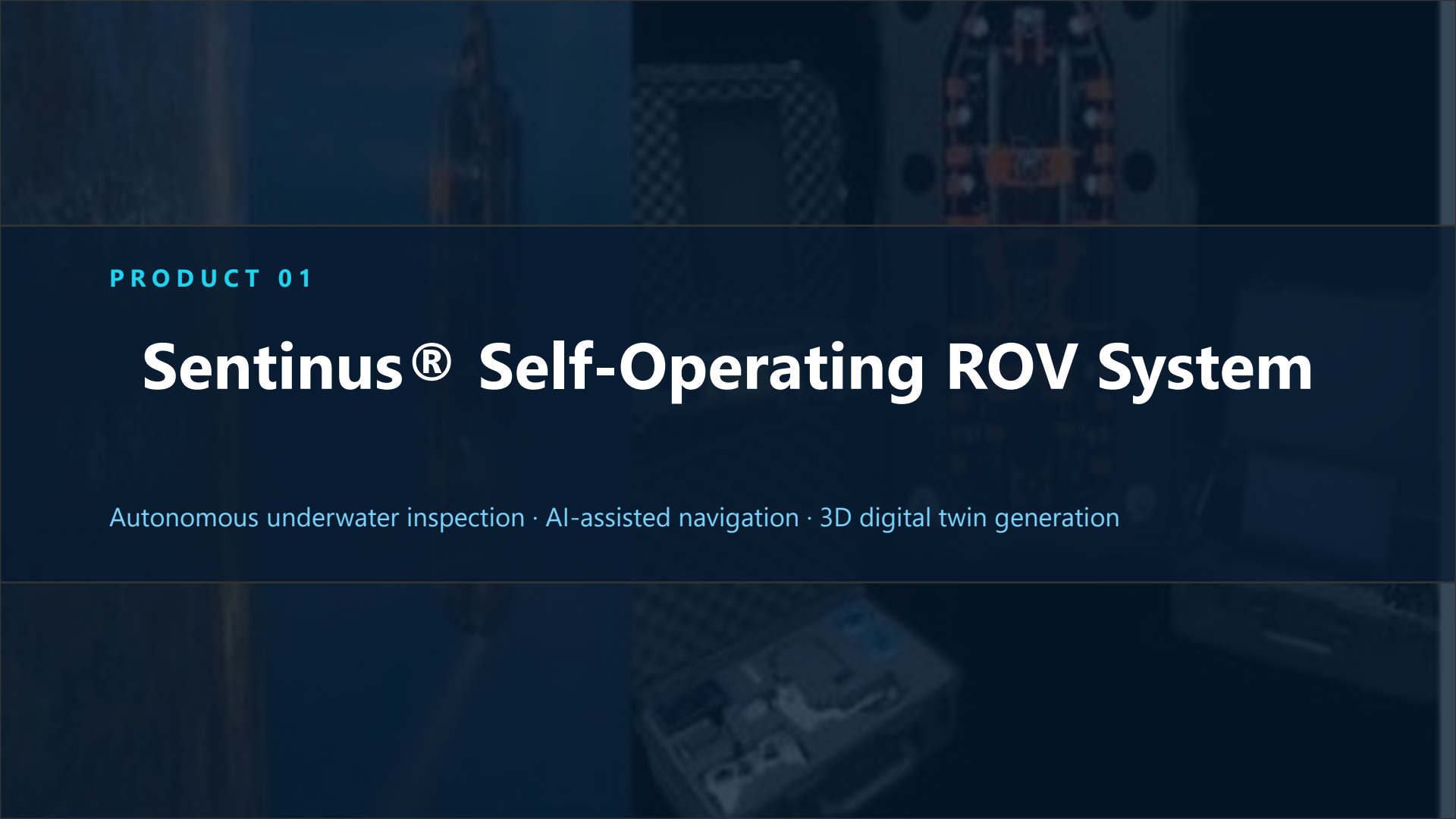
SSAEPL is a technology and engineering solutions provider delivering products and integrated systems across the marine, land, and air domains. Expertise spans advanced robotics, autonomous systems, AI-powered inspection, digital transformation, and lifecycle engineering support.

INDUSTRIES SERVED

Offshore Oil & Gas · Offshore Wind · Marine Construction · Ports & Harbours · Defence & Homeland Security · Mining · Utilities · Water & Wastewater · Aquaculture · Research & Academia

WHY SSAEPL

- Integrated land, air & sea technology solutions
- Partnerships with leading global technology providers
- Experienced engineering and technical support team
- Complete turnkey project delivery
- Advanced AI and robotics capabilities
- After-sales service, spares and training
- Regional support across Southeast Asia



PRODUCT 01

Sentinus® Self-Operating ROV System

Autonomous underwater inspection · AI-assisted navigation · 3D digital twin generation

Intelligent Underwater Inspection Robot

SENTINUS® · BROCHURE

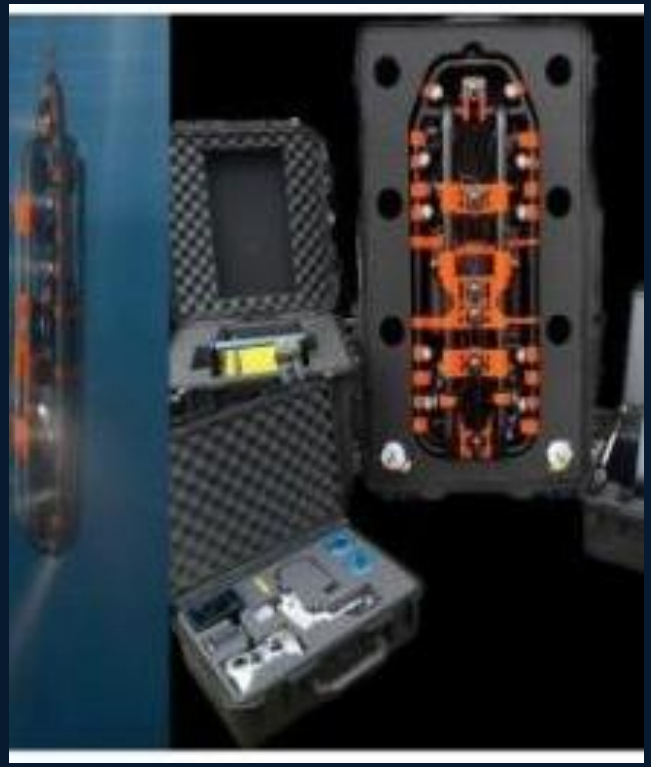
The Sentinus® is a next-generation self-operating underwater inspection robot developed by Blue Atlas Robotics. Unlike conventional ROVs that require continuous manual piloting, it combines computer vision, intelligent navigation and automated survey capability to perform consistent, repeatable inspections with minimal operator input — designed for rapid visual inspection, photogrammetry and 3D digital documentation of submerged structures.

100 m
Operating depth

16 kg
Weight in air

3,000 m²/h
Inspection coverage

8 + 14
Cameras + LED lights



Key Features

SENTINUS® · CAPABILITY OVERVIEW

Self-operating inspection

Intelligent navigation with manual override at any time.

AI computer vision

Automated survey planning and consistent, repeatable runs.

Eight synchronised cameras

Full visual coverage of the structure in a single pass.

14 × 1,500-lumen LEDs

High-output illumination for turbid, low-light water.

Autonomous distance keeping

Surface-following at a constant standoff for even imagery.

Full 6-DOF manoeuvrability

Precise station keeping around complex geometry.

Photogrammetry-ready output

Imagery suitable for 3D models and digital twins.

One-person deployment

Lightweight, portable, fibre-optic tethered.

Technical Specifications

SENTINUS® · DATASHEET

PARAMETER	SPECIFICATION
Maximum operating depth	100 m
Weight in air	16 kg
Dimensions (W × H × L)	227 × 375 × 985 mm
Thrusters	8 × 390 W
Cameras	8 onboard HD cameras
Lighting	14 × 1,500-lumen LED lights
Battery endurance	Approximately 60 minutes
Data storage	2 TB onboard SSD
Tether	Detachable fibre optic, up to 500 m
Operation mode	Self-operating with manual override
Degrees of freedom	Full 6-DOF
Deployment	One-person, case-based system

SYSTEM PACKAGE

- Sentinus vehicle
- Spool with 100 m tether
- Handheld & wireless controller
- Sentinus battery
- Special Sentinus toolbox
- Spare propellers and domes
- Annual service inspection
- Software updates & support

Typical Applications

SENTINUS® · DEPLOYMENT SCENARIOS

Ship hull inspections	MARINE
Ports & harbour infrastructure	MARINE
Offshore platforms and FPSOs	ENERGY
Quay walls and jetties	CIVIL
Pipelines and subsea structures	ENERGY
Water tanks and reservoirs	UTILITIES
Dams and hydroelectric facilities	UTILITIES
Bridge foundations	CIVIL
Aquaculture infrastructure	AQUACULTURE
Asset condition assessment	INTEGRITY

Operational Benefits

SENTINUS® · VALUE CASE

PERFORMANCE

- Up to 3,000 m^2 of inspection coverage per hour, depending on application
- Faster, safer and more repeatable inspections
- High-quality imagery for engineering analysis
- Data ready for digital twin and 3D modelling workflows

COMMERCIAL IMPACT

- Reduces reliance on commercial divers
- Minimises vessel downtime and inspection cost
- Supports predictive maintenance and digital asset management
- Enables informed asset-integrity decisions from consistent data

PRODUCT 02

Acrylic ROV — Modular Open-Frame System

Portable 300 m submarine ROV · Vectored thrust · Fully expandable component architecture

Deep-Water Portable Submarine ROV

ACRYLIC ROV · BROCHURE

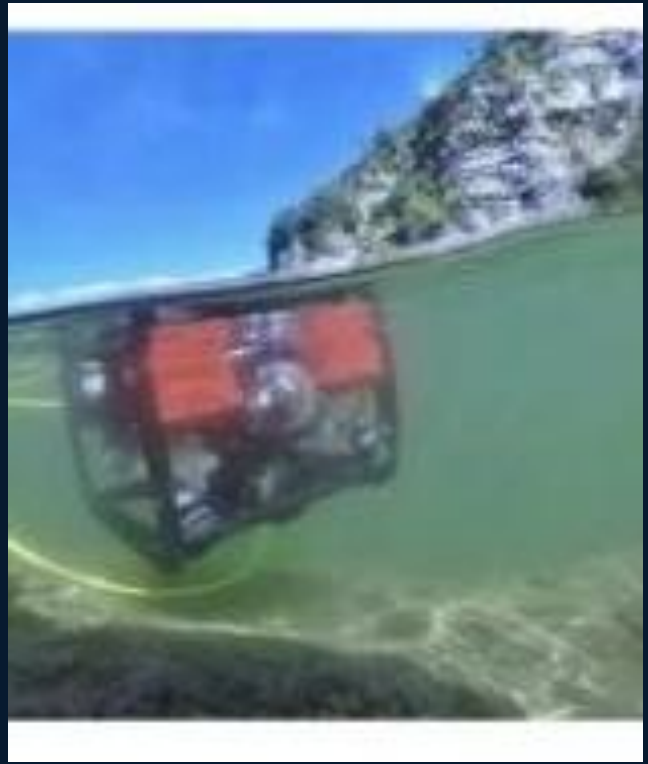
A compact and versatile underwater robot supplied as a complete kit for deep-water exploration and operations. Built like a working-class or research-class vehicle, the open-frame structure houses electronics and battery enclosures, thrusters, buoyancy foam and ballast weights. The system is user-friendly, assembled with the included manual, and supports secondary development for customisation and expansion.

300 m
Depth rating

6 → 8
Vectored thrusters

1080p / 30 fps
Tilting HD camera

6,000 lm
Dimmable lighting



Vehicle Specifications

ACRYLIC ROV · DATASHEET

PARAMETER	SPECIFICATION
Depth rating	300 m (4″ acrylic enclosure crush depth with margin)
Frame	Modular open-frame, expandable with payload skid
Thrusters — standard	6 × patented 2216 vectored thrusters
Thrusters — heavy config.	8 with retrofit kit, full 6-DOF control
Thrust control	Adjustable gain levels for low-speed and high-current work
Camera	1080p / 30 fps wide-angle low-light, tilt mechanism
Camera optics	2.9 mm focal length, 100° lens angle, 90° yaw
Lighting	2 or 4 dimmable Lumen lights, up to 6,000 lumens
Control software	ArduSub with Pixhawk (PIX) master controller
Onboard computer	Raspberry Pi 3, 1.2 GHz, Wi-Fi and Bluetooth
Tether communication	~100 Mbps Ethernet over twisted pair, >500 m
Expandability	Gripper, scanning sonar, extra enclosures, custom frames

Component Datasheet — Power & Propulsion

ACRYLIC ROV · SUBSYSTEM SPECIFICATIONS

HSTL-301 Lumen Subsea Light

- Power: 20 W
- Voltage: DC 20–28 V
- Depth: 300 m maximum
- PWM range: 1100–1900

Brushless ROV Thruster

- Self-developed open motor, high efficiency
- Polymer sliding bearings — self-lubricating
- CFD-optimised duct, variable-pitch propeller
- ABS+PC body: high strength, low weight

6S Lithium Battery

- Cylindrical 6S high-rate cell pack
- Capacity: 10,400 mAh, 40 A discharge
- Over-charge/discharge, over-current protection
- Fits Ø90 mm × 200 mm sealed chamber

Thruster ESC 20 A – 45 A

- Bidirectional brushless, 4S–6S systems
- F390 control chip, imported MOSFETs
- Damped Light braking, active current recycling
- Oneshot125, refresh rate to 500 Hz

Component Datasheet — Control & Sensing

ACRYLIC ROV · SUBSYSTEM SPECIFICATIONS

TETHER INTERFACE BOARD

PARAMETER	SPECIFICATION
Supply voltage	DC 12 V / 200 mA (10–13 V)
Tether length	> 500 m twisted pair
Practical bandwidth	80 Mbps (200 Mbps PHY)
Working frequency	2 – 30 MHz
Power wire gauge	16 – 26 AWG
Tether wire gauge	12 – 30 AWG
Main board size	38 × 38 × 15 mm, 20 g
Operating temp.	0 °C to +70 °C

Pixhawk Flight Controller

Official ArduSub-compatible master controller; 32-bit chip and integrated sensor suite for fast, low-load processing.

MS5837-30BA Depth Sensor

I^2C pressure sensor, 2 mm depth resolution, 24-bit ADC with factory calibration; digital pressure and temperature output.

Underwater Electronic Enclosure

318 mm length, 110 mm diameter, 146 mm max width, 24 V input; acrylic dome lens and sealed cabin variant 250 mm × Ø110 mm.

Component Datasheet — Mechanical & Support

ACRYLIC ROV · SUBSYSTEM SPECIFICATIONS

Waterproof Reel

IP65–IP67, 10 A rated, 6061/HDPE, −40 °C to 80 °C, 6.35 kg, 370 m max winding, 2500 V/min dielectric.

M10 Cable Penetrator

Hollow bolt CNC-machined from aluminium alloy with black oxide finish; 316 stainless variant. Epoxy AB sealed, wrench slots.

Aluminium End Cap

Ø90 mm (2 holes) or Ø110 mm (9 holes, one reserved for watertight connector); black oxide surface treatment.

Sealing Flange

CNC aluminium, hardened black oxide; two base and one top O-ring groove for fluororubber seals, six threaded holes per end.

Fixed Collar & O-Ring Set

Semi-circular aluminium fixing ring for Ø110/Ø90 mm tubes; replacement seal set to be used with waterproof grease.

Decompression Chamber PSU

Input 200–400 VDC, max 6.3 A; output 24 VDC, 31.3 A max, 900 W max; weight 1.3 kg.

Modularity & Expandability

ACRYLIC ROV · INTEGRATION

The open-frame design is built for modification. A payload skid extends the frame for larger payloads, and users have integrated scientific instruments, pressure-washer attachments and additional battery enclosures. Replacing the standard frame with a custom frame allows virtually any underwater robot configuration.

Attachments

Gripper, scanning sonar, sensors and instrument payloads.

Power expansion

Additional battery enclosures for extended endurance.

Custom frames

Replace the standard frame for bespoke vehicle builds.

Secondary development

Open ArduSub software stack for custom control logic.

Two Systems, One Mission

COMBINED DEPLOYMENT · SENTINUS® + ACRYLIC ROV

The two vehicles are complementary rather than competing. Sentinus® delivers wide-area, repeatable, survey-grade data capture; the Acrylic ROV provides the agile, payload-configurable platform for close-in intervention and follow-up work. Deployed together on the same project, they cover a full inspection-to-action cycle from a single spread.

01 · SURVEY

Sentinus®

Autonomous wide-area scan at constant standoff — 8 cameras, 14 LEDs, up to 3,000 m^2/h.

02 · ANALYSE

Shared data

Photogrammetry and 3D models pinpoint defects and set targets for close-in work.

03 · INTERVENE

Acrylic ROV

Vectored 6-DOF platform with gripper, sonar or custom payload on the flagged targets.

04 · VERIFY

Both systems

Re-scan to confirm the repair and log a consistent, comparable as-built record.

Shared tether, power and topside practice — one crew, one mobilisation, two complementary vehicles.

Engineered for Reliability

WHY THESE SYSTEMS ARE DEPENDABLE ON SITE

Proven subsea build

Pressure-rated enclosures, fluororubber seals, black-oxide aluminium and 316 stainless hardware built for continuous marine exposure.

Corrosion-tolerant drivetrain

Self-lubricating polymer bearings and CFD-optimised ducts cut wear and maintenance versus metal-bearing thrusters.

Protected power

6S packs with over-charge, over-discharge, over-current and short-circuit protection; defined charge, storage and transport limits.

Stable communications

Qualcomm PLC tether link holding ~80 Mbps over 500 m of twisted pair for uninterrupted video and control.

Redundant control

32-bit Pixhawk/ArduSub stack with 2 mm-resolution depth sensing and full 6-DOF stability feedback.

Serviceable by design

Modular parts, spare seal sets, replaceable propellers and annual service inspection keep downtime short.

Subsea Sales and Engineering Pte. Ltd. — Integrated Land, Air & Sea Technology Solutions

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