



Product Datasheet

ecoSUBm-Power+ v2 AUV

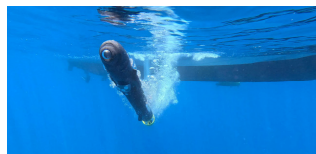
ecoSUBm5/10/25-Power+ v2 AUV

The ecoSUBm-Power+ v2 is a next generation, one-person portable AUV weighing only 16kg. It can be configured with a range of payloads, including Side Scan Sonar, Multi-aperture Side Scan Sonar, Multi-beam Echo Sounder, Magnetometer and 4k video/still camera, with high accuracy navigation payloads for geo-referencing data, including FOG INS, DVL & USBL, but also to carry a comprehensive array of science sensors to collect useful oceanographic data. As a low-cost platform with edge computing capability, it is well suited to mass deployment for rapid data collection.

Technical Data

ecoSUBm-Power+ AUVs feature the Power+ module, extending power and internal payload capacity from a standard ecoSUBm5/m25. ecoSUBm-Power+ AUVs are capable of carrying a wide range of payloads suitable for both Science and Survey applications, including:

Endurance:	50 hours, no payload, water temp 15° C. Typical mission: 15 hours
Depth rating:	m5-Power+: 500 m m10-Power+: 1,000 m m25-Power+: 2,500 m
Speed range:	0.5 – 1.75 ms (1 – 3.5 knots)
Dimensions:	Length 1,300 mm (dependent on payloads), diameter 152 mm
Weight in air:	16kg (with 32 x Li-ION 21700 batteries, ballasted with no payload)
Surface location:	GNSS, Infrared & LED beacon
Communications:	Iridium SBD, Wi-Fi, Acoustics



Key features

- Fully autonomous platform – no human in the loop during mission – no need to write code, behaviours or mission scripts
- Remote operation – missions can be operated/monitored from any global location
- Vehicles transmit system status and position information every 5 mins when on the surface to confirm okay for re-tasking or easy recovery. Underwater acoustic status messages can be broadcast every 20s
- Iridium satellite coms for full global coverage, Wi-Fi for high bandwidth data transfer
- Limited infrastructure requirements – AUV, Hermes (or router) and Laptop is all that is needed to run missions
- Easy to use Windows based software for interfacing with vehicles. Point and click mission planning with detailed parameter controls, vehicle recovery module, data transfer, data plotting and more
- Front seat / Back seat architecture for integrating users own hardware, code, algorithms or third-party control systems
- Edge computing with Jetson Orin NX, Khadas Edge2 or an SBC of your choice
- Ideal for swarm/squad/shoal applications
- Open source ecoSUB CSMA underwater network protocol embedded in every vehicle

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Localisation & Navigation

The ecoSUBm-Power+ v2 can be deployed with a class leading navigation suite for exceptional capability. A dedicated helical antenna for GNSS providing a multi-constellation, fast acquisition and cm accuracy with RTK/RTX can enable precise surface position at the start and end of missions. To aid navigation when underwater, a tightly coupled DVL and fibre optic gyro (FOG) INS system can provide exceptional accuracy for localisation and can fuse position information from USBL or LBL aids. Combined, the navigation tools on board the vehicle enable capability levels far exceeding the vehicles size or budget.

Payload

ecoSUBm-Power+ AUVs feature the Power+ module, extending power and internal payload capacity from a standard ecoSUBm5/m25. ecoSUBm-Power+ AUVs are capable of carrying a wide range of payloads suitable for both Science and Survey applications, including:

Wavefront Solstice MAS – Multi-Aperture Side Scan Sonar	Marine Sonic Technologies Scout ARC Mk II Single Channel Side Scan Sonar (900, 1200, 1800 kHz)	Marine Sonic Technologies Scout ARC Mk II Dual Channel Side Scan Sonar (900/1800 kHz)
Imagenex Delta T 837XBt MBES	Geometrics MFAM Magnetometer	NBOSI Model 501 CTD
ecoCAM 4k camera with Jetson Orin NX for real-time encoding	Sonardyne AvTrak 6 Nano acoustic modem for ACOMS and USBL/LBL	Range of sensors to measure: Chlorophyll, FDOM, Backscatter, Turbidity, pH, Algae, Dissolved oxygen, PAR

Payload Configurations

Users have flexibility in the payload configurations on their vehicles, examples of typical configurations include:

Wide area survey: - GNSS antenna - Sonardyne SPRINT-Nav U FOG INS & DVL - Sonardyne AvTrak 6 Nano - Wavefront Solstice MAS - NBOSI 501 CTD System depth rating to 600m available	MBES: - GNSS antenna - Sonardyne SPRINT-Nav U FOG INS & DVL - Sonardyne AvTrak 6 Nano - Imagenex Delta T 837XBt MBES - NBOSI 501 CTD System depth rating to 1,000m available
UXO detection: - GNSS antenna - Sonardyne SPRINT-Nav U FOG INS & DVL - Sonardyne AvTrak 6 Nano - Geometrics MFAM Magnetometer - Marine Sonic Technologies Scout ARC Mk II Side Scan Sonar 1800 kHz - NBOSI 501 CTD System depth rating to 1,000m available	Science: - DVL - Sonardyne AvTrak 6 Nano - NBOSI 501 CTD - Seabird Scientific ECO Puck (Chl/FDOM/BB) - Aanderaa Dissolved Oxygen - ANB Oci-1250 pH - Seabird Scientific PAR System depth rating to 1,000m available (2,000m without pH)
Camera and Side Scan Sonar: - GNSS antenna - Sonardyne SPRINT-Nav U FOG INS & DVL - Sonardyne AvTrak 6 Nano - ecoCAM 4K camera with Jetson Orin NX - NBOSI 501 CTD	Custom integrations: Subject to Size, Weight and Power constraints, the ecoSUB engineering team are happy to provide integration packages for any required payload