

HydroBoat 1500

USV with integrated multibeam echo sounder for high-resolution bathymetric surveys



The HydroBoat 1500 is an unmanned surface vehicle (USV) with an integrated multibeam echo sounder, designed for high-resolution bathymetric surveys in lakes, rivers, and reservoirs. Its carbon-fiber trimaran hull with rubber bumper and IP67 protection can withstand wind force 4 and wave level 3, adapting effortlessly to complex aquatic environments.

Equipped with a high-precision GNSS receiver and a 200 Hz IMU, the HydroBoat 1500 ensures sub-meter positioning accuracy even when satellite signals are temporarily blocked. Four lateral brushless thrusters deliver exceptional maneuverability without a mechanical rudder. With a 60 kg payload capacity and through-hull design, it also supports additional payloads: singlebeam (SBES), side scan sonar, ADCP, Norbit iWBMS, and Ping DSP.



Front view



Top view

0123 4567 8910



Rear view

Applications

- Riverbed and lake basin morphology surveys

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- Bridge foundation and slope scour inspection
- Dam and bank deformation monitoring
- Navigation channel and port topography surveys
- Environmental assessment and sediment monitoring
- Port safety and underwater obstacle detection

Advantages

Up to 60 kg payload	Through-hull design accommodates all major hydrographic payloads.
Sub-meter positioning	High-precision GNSS + 200 Hz IMU: accuracy guaranteed even under partial sky coverage.
Uncompromising safety	360° omnidirectional camera, millimeter-wave radar (10–30 m), double-layer anti-sink hull.
Unlimited control range	4G + 2.4 GHz dual-channel: no operational distance limits; real-time data collection.
Superior maneuverability	Four lateral brushless thrusters: precise heading control without a mechanical rudder.
Extended endurance	6 batteries included: up to 4.5 h per pair — prolonged operation for intensive survey days.

Technical Specifications

Hull dimensions – Trimaran (L×W×H)	1528 × 1034 × 494 mm
Hull dimensions – Monohull (L×W×H)	1528 × 694 × 494 mm
Weight (without battery)	40 kg
Max payload	60 kg
Material	Carbon fiber, rubber bumper
Environmental resistance	Wind force 4, wave level 3
IP rating	IP67
Camera	360° omnidirectional video
Anticollision sensor	Millimeter-wave radar – detection range 10–30 m
Propulsion	4× lateral brushless thrusters
Direction control	Veering without steering engine

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Maximum speed	5.7 m/s
Battery endurance	2 batteries: 4.5 h at 1.5 m/s – 6 batteries total included
Controller OS	Android – SLHydro USV software
Control range	1.3 km on 2.4 GHz / Unlimited on 4G
GNSS satellite systems	GPS, BDS, GLONASS, Galileo
RTK accuracy	H: ± 8 mm + 1 ppm RMS V: ± 15 mm + 1 ppm RMS
Heading accuracy	0.2° at 1 m baseline
INS accuracy	2.1°/h, <1 m/20 s
IMU refresh rate	200 Hz

Expandable sensors

- Multi-beam echo sounder (MBES) – HydroBeam M4
- Single-beam echo sounder (SBES)
- Norbit iWBMS
- Ping DSP
- Side scan sonar
- ADCP

SLHydro USV software (Android controller)

- Mission planning and vessel monitoring
- Coordinate conversion
- Bathymetric data acquisition
- Bathymetric data download

Accessories

HydroBoat 1500	1× – Built-in Mini-PC, GNSS antenna ×2, camera, mm-wave radar, integrated SBES
Flank propellers	2× – 1× left + 1× right
2.4G antenna	1× – RC-NJ-2425-417 mm
4G antenna	1× – LTE-NJ-0827-320 mm
UHF antenna	1× – UHF-460-TNC-300 mm

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Battery charger	3× – Input 100–240 V, European plug
Batteries	6× – 28.8 V / 34.3 Ah (typical)
Battery transport case	6× – YFZ-2023-3819
Controller box	1× – Android controller + Type-C charger + strap
Toolkit	4× – Tweezers, pliers, screws, hex keys
Propeller protection grids	4× – Metal anti-weed grid
Multibeam seals	1× – Ø 20 cm
Anti-knock cross ties	2× – Shock protection
SLHydro USV software	1× – Pre-installed on controller
USV transport case	1× – 1805 × 825 × 955 mm

Novatest Engineering S.r.l. distributes and supports HydroBoat 1500 across Italy. For quotations, field demonstrations or technical information please contact: survey@novatestengineering.it | +39 071 28 50 500 | novatest.it

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