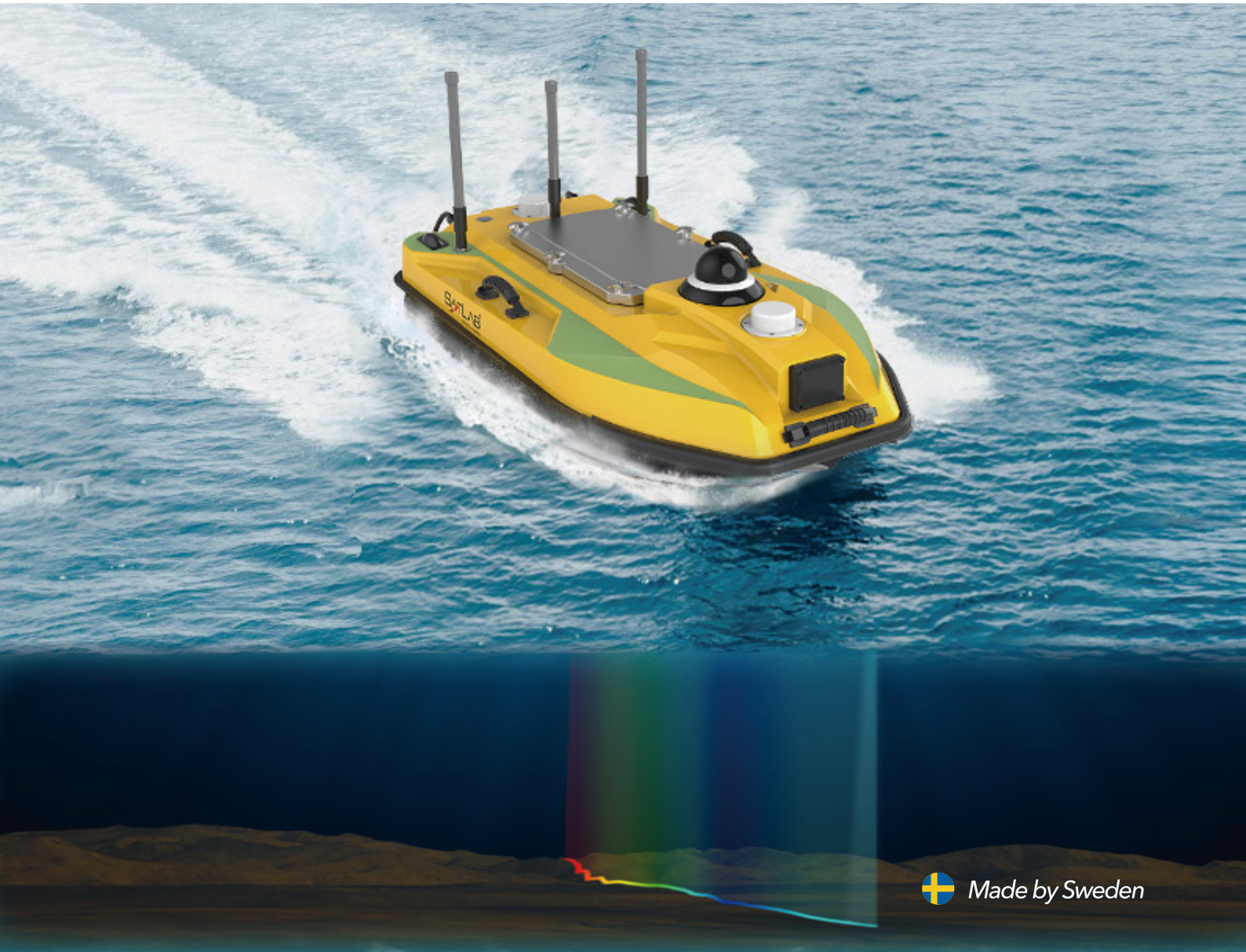
SATLAB GEOSOLUTIONS

HydroBoat 990

An Android-powered USV System for Bathymetric Surveys



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USVs (Unmanned Surface Vehicles) are widely used in hydrographic surveys, environmental monitoring, and water search and rescue. Among them, hydrographic surveying is the most used and developed field. When a hydrological survey is facing many unknown waters, it usually takes a long time navigation and requires high accuracy, which poses great challenges to the safety and health of surveyors.

The hydrographic survey USV combines various complex systems to offer users the simple and efficient operation mode. With double hull design, HydroBoat 990 USV integrates the GNSS system, bathymetry system, communication system and autonomous navigation system, which ensures both efficient surveying and safe navigation.

Top 3 Challenges about USV

1

Usability

It is complicated and a waste of time repeating the unnecessary operational processes in many instances.

2

Functionality

It is applicable to various environments with abundant functions which makes the surveying more convenient.

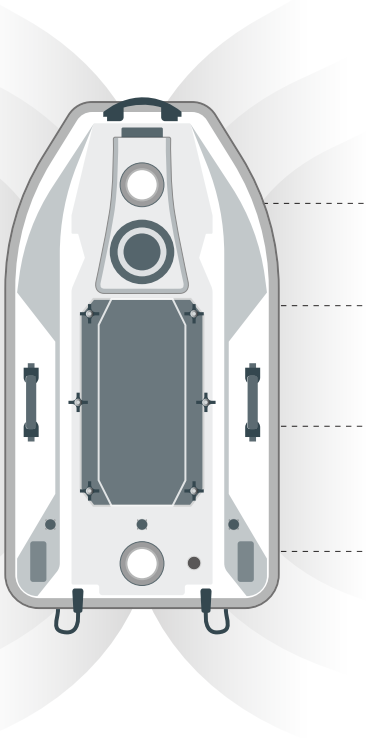
3

Reliability

It is important to avoid USV from sinking and wrecking. Besides, every part should be maintained in good quality for such a complex system.

HydroBoat 990 bathymetric USV system

System of efficiency and reliability



1. Supported by auto and manual mode in the pilot system, safeguarded by radar's obstacle avoidance and hovering system.
2. Stable hull design for standing waves, IP67 waterproof, and rugged body with collision protection.
3. One-click connection with a powerful controller makes the USV a direct-to-go system, operating at ranges of 2km.
4. The pioneering Android app for hydrography and pilot control, makes surveying easier and faster with one intelligent controller.

Usability

- Operate in One Versatile app
- Time-saving Turn on and Survey
- Network without Base Station
- Integration with GNSS and SBES
- Connection with Indicator Lights

Functionality

- Stable Hovering Function
- Avoid Collision with Obstacles
- Real-time Video Patrol
- 4G Remote Control
- Auto-reverse in the Shallows

Reliability

- IP67 Double Hull
- Anti-Collision & Wear-Resisting
- IHO Standard & CE Certification
- Automotive Grade INS Integration
- Onboard Water Depth Logging

Specification

Vehicle Specifications	
Hull dimension (L × W × H)	1035mm*560mm*345mm
Weight	20kg(without Battery), with integrated GPS and radio module
Material	Carbon fiber, rubber bumper
Anti-wave & Wind	3rd wind level & 2nd wave level
Waterproof	IP67
Indicator light	Two-color light
Camera	360° omnidirectional video
Anticollision sensor	Detection distance 10-30 meters
Propeller	2*Brushless Propeller
Direction control	Veering without steering engine
Maximum speed	6m/s
Motor power	1000 W
Battery	Total 2 removable batteries (each 5h @1.5m/s)
UHF frequency	410-470 MHz
Controller	
System	Android System
Software	SLHydro USV
Control range	1.3km on 2.4GHz; Unlimited on 4G
GNSS Performance	
Satellite system	GPS, BDS, GLONASS, Galieo
RTK Positioning accuracy	H: ±8mm + 1 ppm RMS V: ±15mm + 1 ppm RMS
Heading accuracy	0.2° @1 m baseline
INS accuracy	2.1°/h, <1m/20s
Refresh Rate	200Hz
Built-in Single Beam Echo Sounder	
Depth range	0.15m - 200m
Accuracy	±0.01m + 0.1% x D (D is the depth of water)
Frequency	200 kHz
Beam angle	5±0.5°
Software	
SLHydro USV (Android controller)	Mission planning
	Vessel Monitoring
	Coordinate conversion
	Bathymetric data acquisition
	Bathymetric data download
SLHydro Sounder (Windows system)	Bathymetric data processing
	Bathymetric data correction
	Bathymetric data export

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