

iBoat-8 (Survey Vessel)

► Navigate with Insight, Survey with Precision

The iBoat8 unmanned vessel platform is capable of meeting 99% of industry demands in aquatic operations. Its multifunctional design supports a wide range of applications, including underwater full-terrain topographic surveying, hydrological flow measurement, subsurface stratum monitoring, water quality sampling, environmental monitoring, water surface spectral surveys, and integrated air-land-water mobile environmental monitoring. This platform achieves "multi-purpose with a single vessel," featuring high automation, strong disturbance resistance, and extensive hull expandability, significantly enhancing the efficiency and precision of unmanned aquatic operations. It provides a highly reliable and efficient solution for intelligent water-based operations.



Hull	Hull dimensions	1280*580*430mm
	Draft	12cm
	Deadweight	15kg
	Maximum load capacity	50kg
	Central Moon Pool Diameter	30cm
	Wind/wave resistance rating	Wind scale 4, Wave scale 3
	Material	High-molecular polyester carbon fiber, Kevlar fabric
	Hull type	Full-curved M-type monohull
	Water/dust proof	IP67
	GNSS	Built-in GNSS dual-antenna positioning and heading system, No need for external RTK
	Indicator lights	Bicolor indicator lights (remote control signal + GNSS status)
	Video	360° night vision camera
	Power supply	External charging port on the hull, one key start button for the hull power supply
	Safety	Automatic shallow-water track-reversing, lost-connection track-return, radar active obstacle avoidance with video monitoring, and intelligent hull temperature/humidity detection.
Power	Obstacle avoidance distance	0.2-40m
	Protective measures	Full-wrap anti-collision bumper, reinforced bow + hull impact strips, bow bottom parallel to propeller design, and double-layer hull construction for anti-sinking protection.
	Battery specifications	33.6V 30Ah*2 rechargeable ternary lithium battery, 21700 cell
	Power supply mode	Supports single-battery independent power supply or dual-battery balanced power supply
	Battery replacement	Hot-swappable replacement supported
	Endurance time	4hrs@2m/s, 5hrs@1.5m/s (optional: 8hrs@2m/s, 10hrs@1.5m/s)
	Propulsion type	Electric
	Motor type	Brushless motor
	Steering type	Differential steering without rudder (reverse supported)
	Motor power	Single motor max power: 1200W
	Motor speed	Max rotation speed: 7000 RPM
	Maximum speed	6m/s
	Motor mounting method	Plug-and-play design (no exposed wiring), easy replacement
	Aquatic weed protection	Semi-embedded ducted design, streamlined anti-weed cover, anti-jamming structure, anti-foreign object brushing
Remote Control	Dimensions	7-inch
	Display screen	Industrial touch screen + Sunlight-readable display
	Resolution	1920*1200
	Brightness	Max 1200nit
	Memory	RAM ≥4GB, Storage ≥64GB
	Communication range	Data transmission range 3km, 4G range unlimited
	Battery capacity	20000mAh
	Operational endurance	8 hours
	Underwater Topographic & Geomorphic Survey	Electric
	Hydrological Discharge Measurement	Brushless motor
TASK	Water Quality Sampling	Differential steering without rudder (reverse supported)
	Water Quality Monitoring	Single motor max power 1200W
	Watercourse/River Patrol Inspection	Max rotation speed 7000 RPM
	Water Surface Spectral Measurement	6m/s
	Subsurface Stratum Detection	Plug-and-play design (no exposed wiring), easy replacement

Control	Operating System	Linux
	Data Communication	4G&2.4G
	Video Transmission	4G&2.4G
	SIM Card Slot	Nano SIM slot
	Interface	2*RJ45 Ethernet ports, 2*RS232 serial ports, 2*RS485 serial ports, 2*CAN, 3*USB3.0
	MB RAM	8GB
	Storage	128GB(Widenable to 256GB)
	Main Controller Water/Dust Proof (IP Rating)	IP67
	Control Mode	Manual & Automatic
	Satellite System	BDS, GPS, GLONASS, Galileo, QZSS, SBAS
Position	Number of Channels	1408 channels
	Cold Start	<30s
	Initialization Time	<5s(D<10km)
	Single-point	Horizontal ≤3m, Vertical ≤1.5m
	DGNSS	Horizontal: 40cm+1ppm, Vertical: 80cm+1ppm
	RTK	Horizontal: ±8mm+1ppm, Vertical: ±15mm+1ppm
	CORS	Supports network CORS
	Radio Differential	Supports TT450 protocol/transparent transmission protocol, etc.
	Heading Accuracy	Accuracy: 0.1°(1m baseline)
	INS Accuracy	6°/h, 20S accuracy attenuation 1m, supports continuous autonomous navigation and measurement under bridges
Measured Depth	IMU Update Rate	200Hz
	Frequency	200KHz
	Beam Angle	5°±1°
	Range	0.15-300m(configurable)
	Resolution	1cm
	Stability Rate	±2cm(CEP.95@10m)
	Accuracy	±1cm+0.1%D(D=water depth)
	Maximum Sampling Rate	30Hz
	Power Supply Voltage	9V-18V
	Sound Velocity Range	0m/s~1700m/s
Software	Power Consumption	10W
	Dust/Water Protection	IP67
	Software System	Android, HarmonyOS
	Hull Control	Supports multiple route planning modes, breakpoint continuation, real-time USV trajectory display, automatic obstacle avoidance, remaining range reminderSupports triple-view independent video, 360° gimbal camera control, physical & virtual joystick
	Data Acquisition	Supports coordinate conversion, real-time depth display, real-time echo data display, real-time water quality data display, real-time side-scan sonar data display, measurement record control, bathymetric parameter control
	Data Processing	Engineering parameter calculation, depth waveform overlay processing, attitude correction, arbitrary feature point extraction, manual point modification/insertion, tide file detection, multi-format data export, PPK post-processing, AI object recognition
	Safety Features	Automatic return on signal loss, shallow water warning & reverse, low battery warning & auto-return, one-key return
Upgrade	Upgrade	Supports OTA firmware/software updates

01

Water Quality underway Monitoring

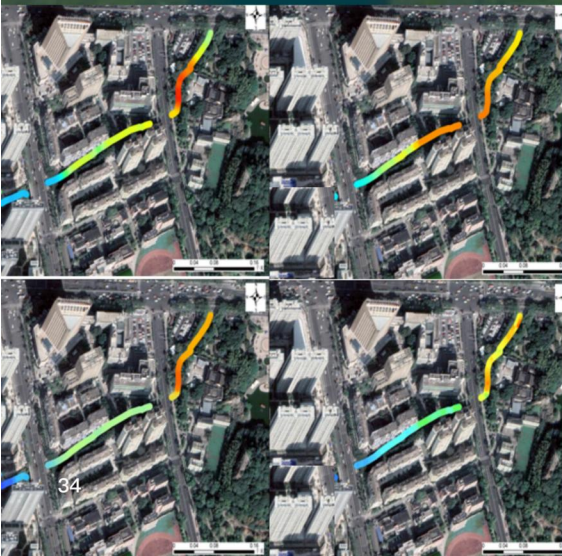
Equipped with advanced water quality sensors, our unmanned surface vessels (USVs) efficiently and accurately conduct autonomous water sampling along predefined routes. The system measures key parameters including dissolved oxygen, ammonia nitrogen, total phosphorus, total nitrogen, and pH levels. Through intelligent interpolation processing, it detects pollution trends and identifies risk areas in real time, achieving 85% monitoring accuracy – surpassing traditional manual methods.



02

Water Sampling with USVs

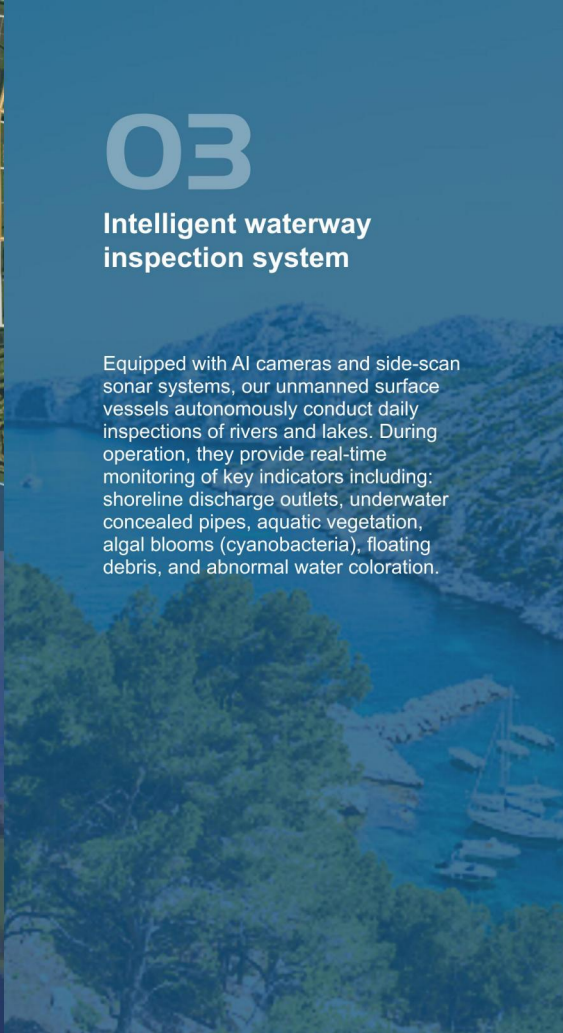
Our unmanned surface vessels (USVs) are equipped with precision water samplers, capable of performing timed, positioned, and quantitative water collection for both routine monitoring and emergency response scenarios.



03

Intelligent waterway inspection system

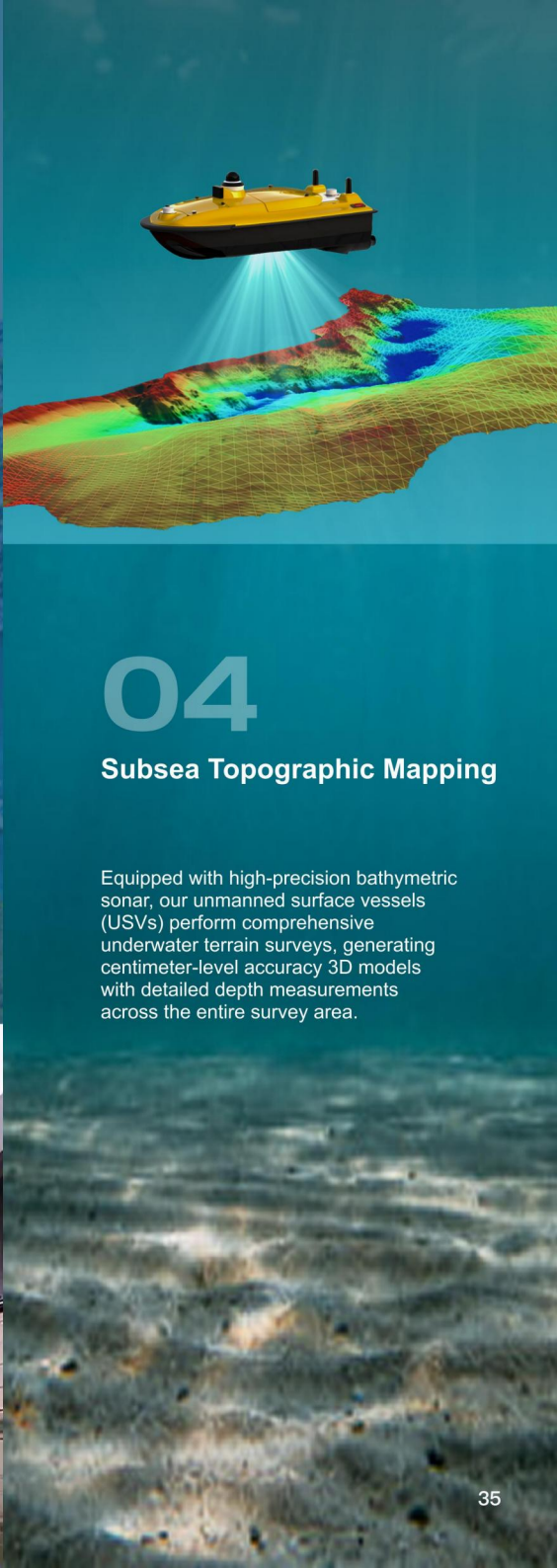
Equipped with AI cameras and side-scan sonar systems, our unmanned surface vessels autonomously conduct daily inspections of rivers and lakes. During operation, they provide real-time monitoring of key indicators including: shoreline discharge outlets, underwater concealed pipes, aquatic vegetation, algal blooms (cyanobacteria), floating debris, and abnormal water coloration.



04

Subsea Topographic Mapping

Equipped with high-precision bathymetric sonar, our unmanned surface vessels (USVs) perform comprehensive underwater terrain surveys, generating centimeter-level accuracy 3D models with detailed depth measurements across the entire survey area.



05

Autonomous Surface Cleaning

Integrated with advanced AI recognition algorithms, our unmanned surface vessels (USVs) accurately identify various floating pollutants including debris, algal blooms (cyanobacteria), water hyacinths, and plastic bottles. Through intelligent control systems, the cleaning vessels autonomously execute collection and removal operations, establishing a complete smart workflow from detection to remediation.



06

Emergency Rescue Solution

Our unmanned surface vessels (USVs) provide a safe and effective alternative to manual water rescues, addressing the limitations of traditional lifebuoy throwing methods.

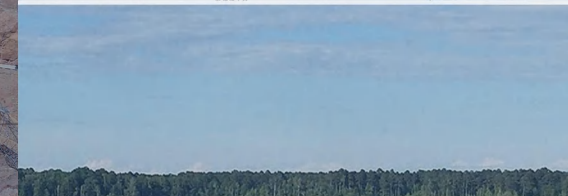
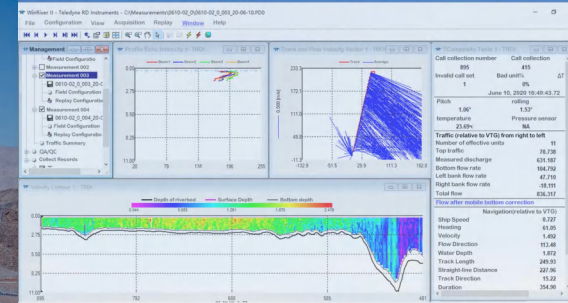
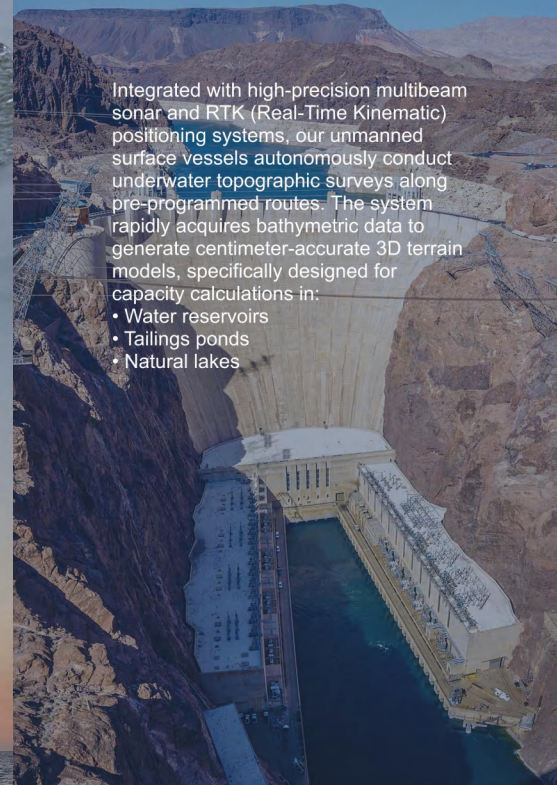


07

Reservoir Capacity Survey

Integrated with high-precision multibeam sonar and RTK (Real-Time Kinematic) positioning systems, our unmanned surface vessels autonomously conduct underwater topographic surveys along pre-programmed routes. The system rapidly acquires bathymetric data to generate centimeter-accurate 3D terrain models, specifically designed for capacity calculations in:

- Water reservoirs
- Tailings ponds
- Natural lakes



08

Hydrological Flow Measurement

Equipped with Acoustic Doppler Current Profilers (ADCP), our unmanned surface vessels measure 3D water velocity through acoustic wave reflection. Integrated with high-precision positioning and attitude compensation algorithms, the system converts raw data into earth-referenced velocity vector fields. The accompanying software processes massive datasets in real time to generate:

- Flow velocity distribution maps
- Discharge statistics
- Dynamic hydrographs

