Performance Specification

Physical	
Hull dimension (L × W × H)	1180mm×620mm×345mm
Hull material	Kevlar + Carbon fibre material
Hull weight	15kg
Standard displacement	25kg
Maximum displacement	30kg
Anti-wave &wind	5th wind level and 3rd wave level
Boat shape	M-type trimaran
Navigation lights	A pair of two-color navigation lights
Camera	360° full view camera
Available Instrumentation	Single-beam echo sounder Side scan sonar ADCP Online water quality monitoring system Water sampling System
Electrical	
Battery life	6 hours (1.5 - 2 m/s)
Cruising speed	1.5 - 2 m/s
Maximum speed	6 m/s
Motor	Brushless DC motor (BLDCM)
Propeller	Ducted propeller
Navigation and Commander System	
Navigation model	Manual mode Automatic mode Cruise mode
Positioning system (Optional)	GPS/BeiBou RTK Specified GNSS device
Obstacle avoidance	Ultrasonic radar
Direction control	Differential steering
Communication loss protection	Automatically return to base when the communication is lost
Communication	
Communication mode	Wireless point-to-point telecommunications Network communication
Communication distance	network bridge: 3km Network: unlimited
Hardware configuration	Laptop/tablet computer/ ground stations(optional)
Software platform	Windows 10 or above
Software function	USV management Route management Status display Data management Log function
Remote control unit	Waterproof, dust proof and dropproof Digital high-defifinition image transmission Ultra-long link Impressive battery edurance
Sounding Performance	
Frequency	200 kHz
Beam angle	5°
Sounding range	0.4 -100 m
Sounding accuracy	±1 cm ±0.1% D (D:depth of water)
Resolution	0.01 m
Data output	RS-232 (Depth data format can be customized)
Pressure depth	≥50m

α-GEO

Alpha ARK

Make underwater survey possible

USV

Product Introduction

Alpha ARK is made of Kevlar & carbon fiber composites with a M-type trimaran boat shape which has strong resistance to impact. Its closed-cell foam filling and fully enclosed compartments are anti-sinking and waterproof design. The modular design is easily assemble and disassemble all parts for maintenance. Alpha ARK equip with different sensors to perform a variety of tasks according to demand and easily cope with a variety of complex operating conditions with multiple security protection mechanisms !

▪Great ability against wind and waves & excellent seaworthiness

Alpha ARK experience a trapezoidal-shaped trimaran with great seaworthiness and stable sailing ability. The high-speed air flow enters the channel from the horn and form an air cushion to generate additional lift that reduce the forward resistance to make it easy to accelerate when sailing.

▪Strong resistance to impact & high corrosion resistance

The hull is made of Kevlar & carbon fiber composite material in acid, alkali and corrosion resistance, which is lighter in weight, strong in impact resistance, good in sealing. Its remarkable hull design is convenient for transmission and reliable placement.

▪Powerful battery & long endurance

Its intelligent lithium battery supports for fast charging and discharging, the system is equipped with self-protection function including battery explosion-proof bag and specially waterproof dealing. The powerful battery and low consumption supports 6 hours of endurance under economic condition.

▪Two modes of communication & celerity and accuracy in data control

Standard bridge and network communication modes meet the needs of a variety of working conditions, and get rid of transmission distance restrictions. The multi-link ensure stable data transmission to keep accurate data at hand.

▪Multiple safety protection mechanisms & safe navigation

Alpha ARK monitor the operational status of the USV in real-time by the 360 ° full view camera, no longer need to worry about obstacles encountered during navigation for the ultrasonic obstacles avoidance module can help timely and effectively avoid obstacles, and no longer need to worry about communication loss due to the multiple low-voltage and safe return mechanisms to ensure navigation safety.

Available Instrumentation

Single-beam echo sounder

Side scan sonar

ADCP

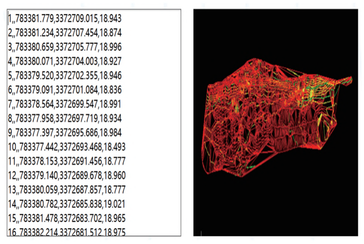
Online water quality monitoring system

Water sampling System

APPLICATIONS

Mapping of underwater topography and geomorphology

Tangxunhu Park is located in Wuhan Economic and Technological Development Zone, our measuring area is 207meter long and 58meter wide. The condition is complex due to a large number of collapsed branches and some protrusion reefs on the lake surface. We gather the data and send the relevant instructions from a safe area through shore-based software by taking underwater measurements with Alpha ARK unmanned ship. comparing with the traditional manual measurement method, it take the maximum Limited protection of personnel safety and improve operational mobility and efficiency.



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9,,783377.397,3372695.686,18.984
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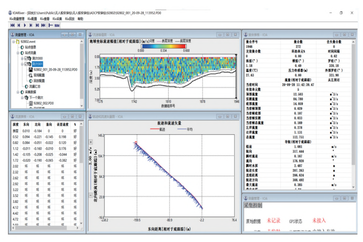
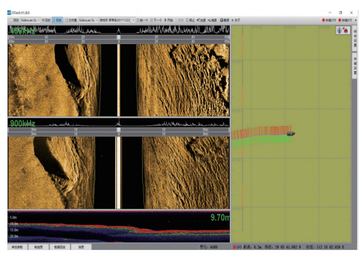
16,,783382.214,3372681.512,18.975

Hidden pipe detection

Alpha ARK unmanned ship is equipped with side-scan sonar to imagine the underwater target. Combined with sonar image analysis and judgment,we help law enforcement find out the sewage pip and target polluters and provide strong data support to find out the water pollution source and the pollution area distribution.



ADCP section velocity measurement

Alpha ARK with the navigable ADCP can transmit data in real time and generate flow rate chart by mobile navigable vertical velocity, measurement of flow rate and section flow rate. It is more safe and efficient than manual measurement, at the same time, it avoid human errors and ensure the accuracy of data.