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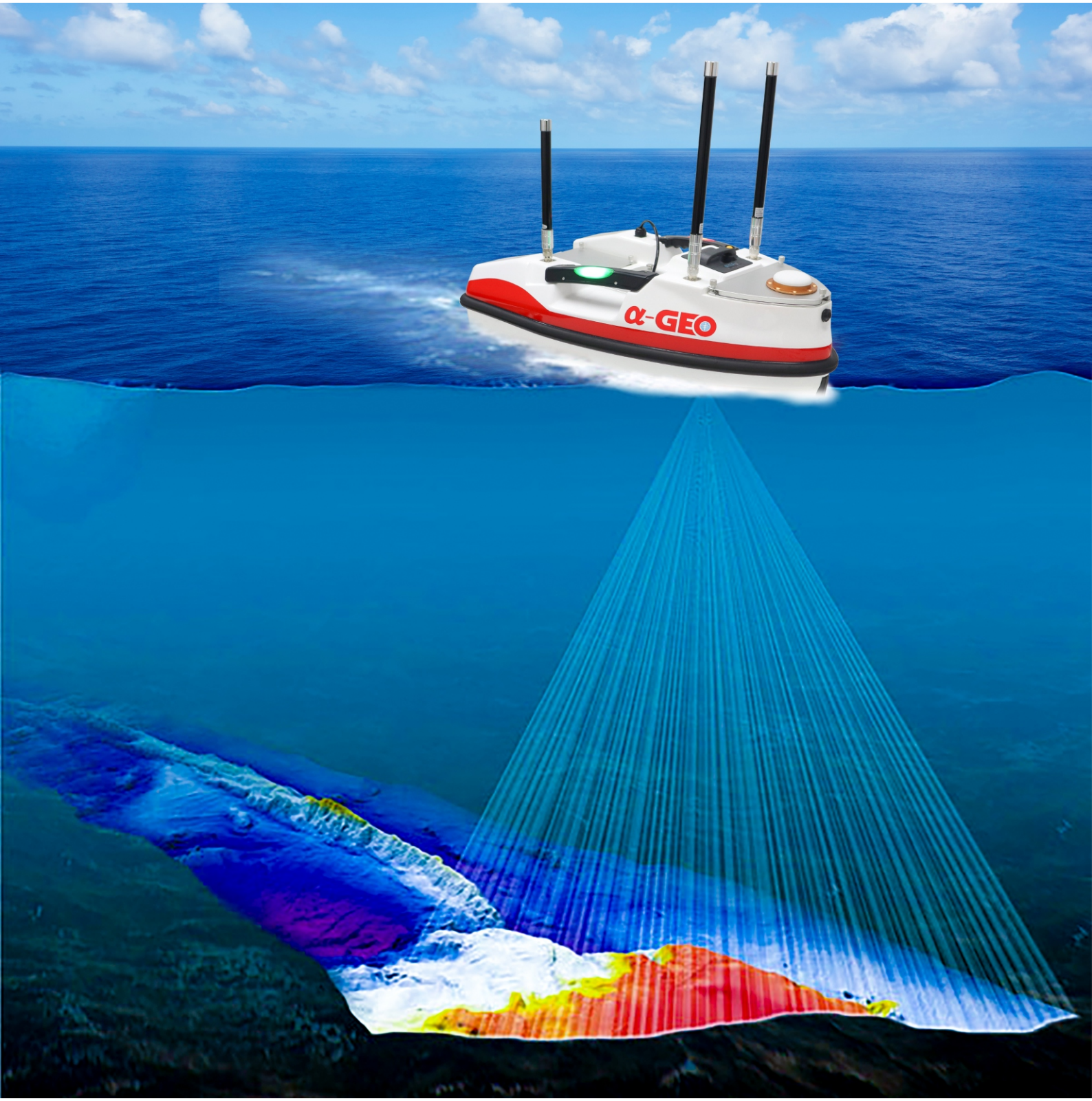
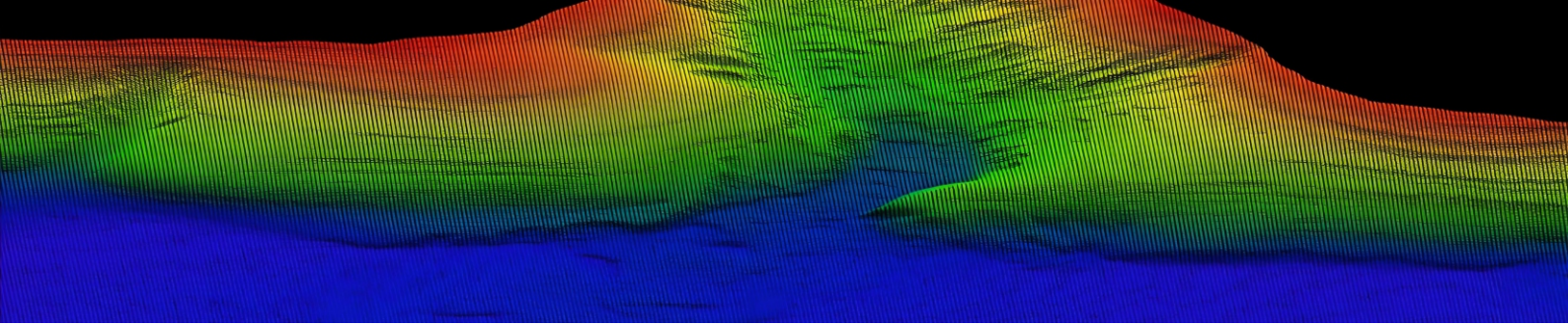
Alpha ARK-S

Small-size USV system



https://alphageo-info.com



A compact Unmanned Surface Vehicle for one-man collecting operation

Alpha ARK-S is a compact V-shaped trimaran boat which is made of high-strength Kevlar & carbon fiber composites material, making the boat lightweight, shockproof and highly tough. Alpha ARK-S is able to carry different sensors to perform a variety of tasks according to demand and easily cope with a variety of complex operating conditions.

Strong resistance to impact & high correction resistance

Alpha ARK-S is made of Kevlar & carbon fiber composites material in acid, alkali and correction resistance, which is lighter in weight, strong in impact resistance, good in sealing. Its remarkable hull design is convenient for transmission and reliable placement.

Safety protection mechanism

Worry-free protection of automatically return after completing the preset missions or lost communication, or the battery is in low voltage, which comprehensive ensure navigation and equipment safety.

Inbuilt high-precision GNSS module

Alpha ARK-S navigates with a built-in GNSS module which can provide high-precision position, making underwater measurements more accurate without carrying additional GNSS equipment, easy of one-man operation.

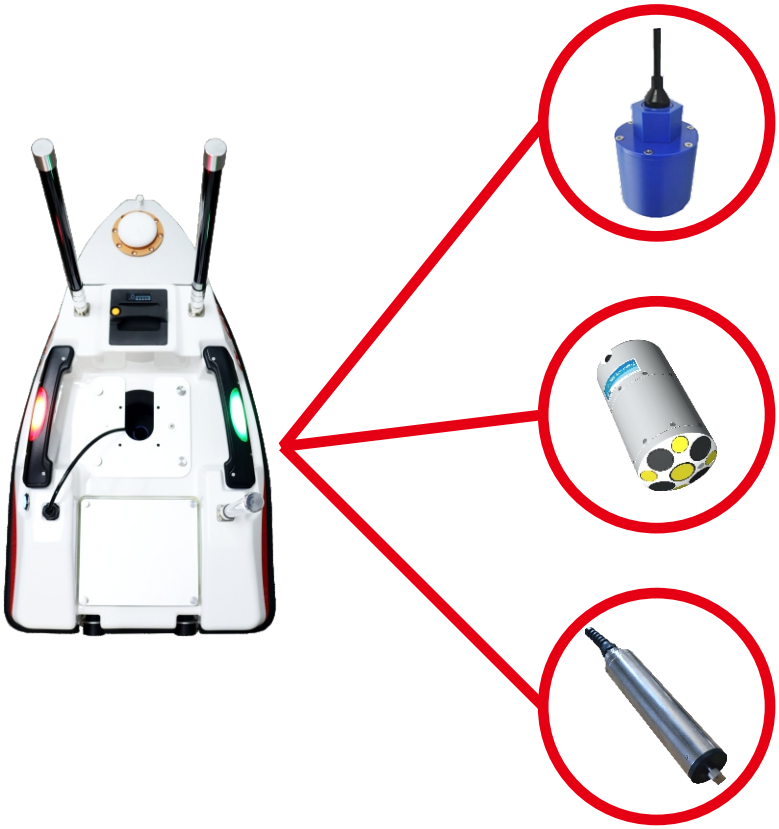
Accessible communications

Real-time RF point-to-point communication, barrier-free data transmission, meeting various operating environments.

Smart control system

Autonomously performing collection missions according to the planned route, and real-time adjustment of navigation attitude with the help of water flow adaptive adjustment system. Multiple control modes can be switched with one button to easily cope with various operating conditions.

Available Instrumentation »»



Single-beam echo sounder

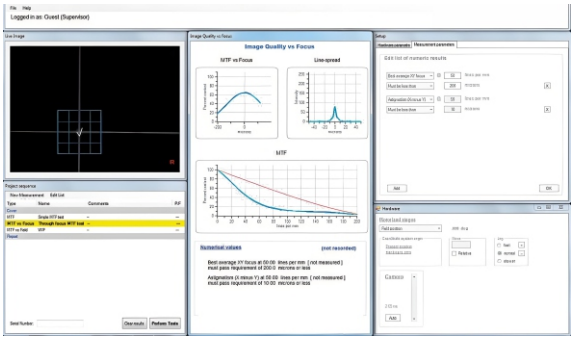
ADCP

Online water quality monitoring system

Applications »»

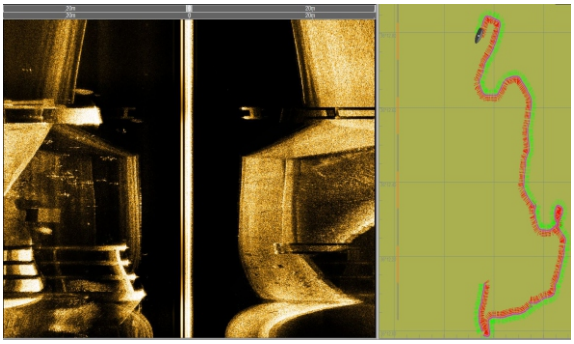
ADCP section velocity measurement

Traditional cross-section measurement requires the use of bridges to measure fixed cross-sections, or renting manned boats to measure on river cross-sections. However, the use of unmanned boats equipped with corresponding ADCP device for fully automatic measurement, which does not require being limited to fixed locations or manual measurement. With the help of high-precision navigation system, a straighter cross-section measurement line can be achieved than manual measurement, ensuring that each measurement is on the same cross-section measurement line, greatly improving data accuracy;



Mapping of underwater topography and geomorphology

The unmanned boat equipped with a small-size and lightweight single-beam echo sounder, which has strong maneuverability. You can start the deployment operation as soon as you arrive at the site. Planning the route and set it automatically pilot according to the terrain mapping scale, and detect real-time water depth data and bottom elevation. Using the USV can effectively solve the pain points of traditional manual boat rental, installation, debugging, and measurement affected by terrain conditions.



SPECIFICATIONS

Physical	
Dimensions	750mm(L)×410mm(W)×230mm(H)
Materials	Kevlar + Carbon fiber materials
Weight	5kg
Maximum load	8kg
Anti-wave & wind	Level 2 wave, level 3 wind
Boat shape	V-shaped
Navigation lights	A pair of 2-color navigation lights
Camera	Real-time HD video transmission
Available instrumentation	Single-beam echo-sounder (Standard) Side scanning sonar (Optional) ADCP (Optional) Online water quality monitoring system (Optional) Water sampling system (Optional)
Electrical	
Battery life	4 hours (2 m/s)
Cruising speed	1.5 m/s ~ 2 m/s
Maximum speed	5 m/s
Motor	Brushless DC motor (BLDCM)
Propeller	Ducted propeller
Navigation and commander system	
Navigation model	Manual/Automatic/Cruise
Positioning system	Assigned GNSS device, supports GPS/BDS
Obstacle avoidance	Ultrasonic radar
Direction control	Supports servo-free steering and “reverse” function
Communication loss protection	Automatically return when lose the communication
Communication	
Communication mode	Real-time RF point-to-point communication
Communication distance	2 km
Hardware configuration	Laptop/tablet/ground station(optional)
Software platform	Windows/Android
Software function	USV management/Route management/ Status display/Data management/Log function
Remote control unit	Waterproof, dust proof and drop-resistant Digital HD image transmission, Ultra-long link Impressive battery endurance
Sounding performance	
Frequency	200 kHz
Beam angle	5°
Sounding angle	0.4 ~ 100 m
Sounding accuracy	±1cm ±0.1%D (D: depth of water)
Resolution	0.01 m
Data output	RS-232 (Depth data format can be customized)
Pressure depth	≥50 m

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