

# APACHE 3 PRO

COMPACT BATHYMETRIC SURVEY USV



## ► Highlight

The APACHE 3 Pro is a compact, professional unmanned surface vehicle (USV) engineered for autonomous bathymetric surveys in shallow water environments. Ideal for a wide range of applications, including channel mapping, river dredging, dam and hydropower inspections, and underwater infrastructure surveys. Constructed with a high-strength carbon fiber hull, the APACHE 3 Pro offers superior impact resistance and unsinkability. Its high-thrust motor supports speeds up to 7 m/s, enhancing survey efficiency. Equipped with a tightly integrated GNSS/INS receiver, it maintains positioning accuracy even during temporary GNSS outages, such as when operating under bridges. The integrated single-beam echosounder ensures continuous, precise depth measurements.



## ► Key feature



New materials,  
lighter & stronger



High-speed motor,  
higher efficiency



Anti-tangle,  
safer navigation



Precise sounding,  
reliable results

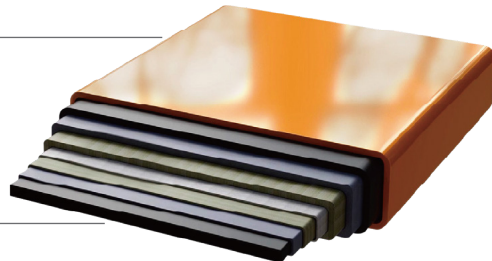
## ► Rugged And Lightweight Hull

30% ↘

Hull weight reduced by 30%

60% ↗

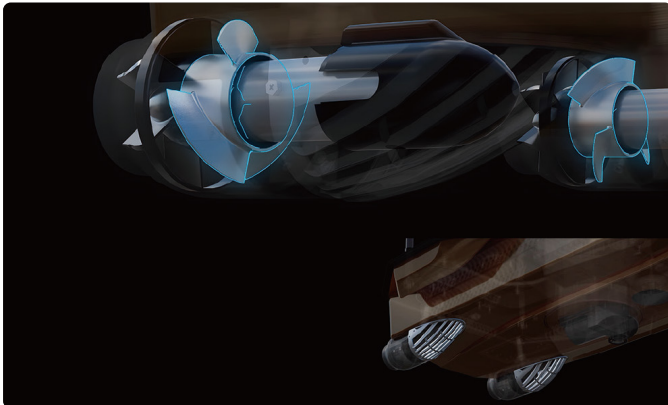
10 MPa Strength:  
60% better impact resistance



### High-strength

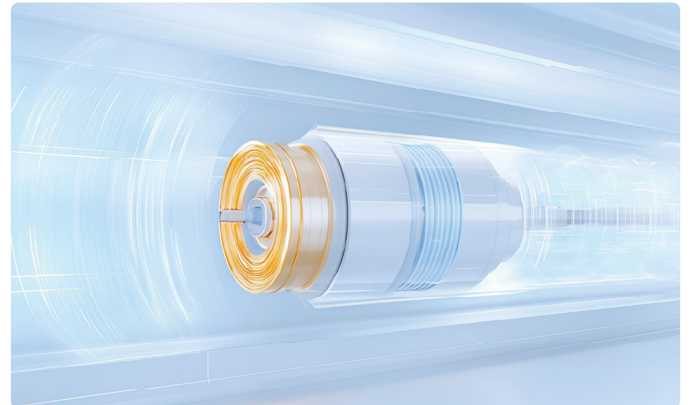
High-strength, high-modulus materials  
One-piece molded hull construction  
High-density, small-aperture mesh cover

## ► Anti-Entanglement Design



Titanium alloy mesh guard and hybrid water pressure conversion greatly reduce weed entanglement. Real-time self-diagnosis alerts operators to obstructions, protecting the motor.

## ► Semi-Embedded High-Speed Motor



Max motor speed up to 7200 RPM, supporting a top vessel speed of 7 m/s. Single battery set provides up to 10 hours of endurance at 1.5 m/s.

## ► Precision Depth Sounding Transducer

High-sensitivity anti-interference transducer with residual vibration elimination



**3 mm** ranging resolution



**10 cm** blind zone



**+6 dB** ranging resolution

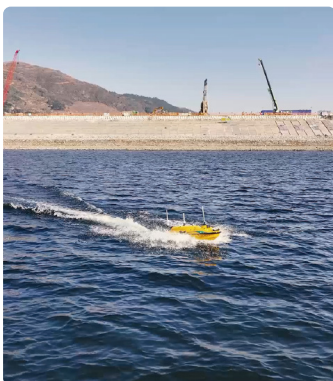


## ► EasySail All-in-One Android Software

- Integrates display, control and acquisition in one unit, no PC needed, saving labor and boosting efficiency in field work.
- Remote controller supports 4G communication and data radio, with real-time video and data transmission.



## ► Use Cases



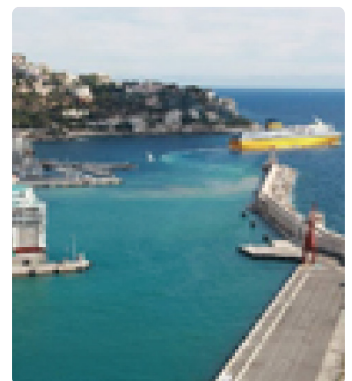
Reservoir Volume Estimation



Emergency Rescue



Channel Dredging



River Section Measurement

# SPECIFICATIONS

## ► Physical

<b>Hull Dimension (L x W x H)</b>	1050 mm x 550 mm x 390 mm
<b>Material</b>	High strength, high modulus carbon fiber
<b>Process</b>	HPT one-piece molding
<b>Weight</b> (w/o instrument and battery)	6 kg
<b>Maximum Payload</b>	35 kg
<b>Anti-Wave &amp; Wind</b>	3 <sup>rd</sup> wind level and 2 <sup>nd</sup> wave level
<b>Hull Design</b>	Triple-hull vessel
<b>GNSS</b>	Internal GNSS dual antenna
<b>Waterproof</b>	IP67
<b>Static Draft</b>	10 cm
<b>Indicator Light</b>	Two-color (positioning and differential signal)
<b>Camera</b>	360° omnidirectional video
<b>Obstacle Avoidance Distance &amp; Range</b>	0.2–40 m (H: 112°, V: 14°)

## ► Propulsion

<b>Propeller Type</b>	Brushless DC
<b>Direction Control</b>	Veering without steering engine
<b>Rated Motor Power</b>	800 W
<b>Maximum Motor Speed</b>	7200 ± 5% RPM
<b>Motor Installation</b>	Pluggable
<b>Li-ion Battery Capacity</b>	32.4 V, 23.1 Ah
<b>Battery Endurance</b>	10 h @1.5 m/s (1 battery set, expandable)
<b>Power Supply</b>	Single/dual balanced battery support
<b>Battery Replacement</b>	Hot swap supported
<b>Charging Time</b>	3 h
<b>Maximum Speed</b>	7 m/s

## ► Remote Control

<b>Dimension (L x W x H)</b>	346 mm x 196.5 mm x 89.4 mm
<b>Display Screen</b>	10-inch
<b>Resolution Ratio</b>	1920 x 1200
<b>Internal Storage</b>	RAM: 4 GB, Storage: 64 GB
<b>Battery Endurance</b>	5 h
<b>Communication Frequency</b>	2.4 GHz
<b>Peripheral Interface</b>	USB, Nano SIM, TF card (up to 128 GB), Type-C

## ► Communications

<b>Data Communication</b>	Standard 4G and Remote control
<b>Remote Control Range</b>	1 km (Remote); Unlimited (4G)
<b>SIM Card Slot</b>	Nano SIM
<b>Reserved Interface</b>	2 × RS232 serial ports
<b>Navigation Mode</b>	Manual or Auto-Pilot
<b>Data Storage</b>	Local (multi-channel) & Remote

## ► Software

<b>EasySail</b>	Route planning and autonomous navigation. Total mileage statistics, remaining mileage reminder, multi-angle video and online map display. Hull parameter control, physical & virtual joysticks, system self-check at power-on. Data collection and post-processing. Waveform overlay and attitude correction. Coordinate conversion, trajectory, water depth, waveform and hull parameter real-time display. Online software/firmware updates. Export via USB/Type-C.
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## ► Positioning

<b>Satellite System</b>	BDS B1I/B2I /B3I, GPS L1C/A/L2P(Y)/L2C/L5, Galileo E1/E5a/E5b, GLONASS L1/L2, QZSS L1/L2/L5
<b>Single Point Position (RMS)</b>	Horizontal: 1.5 m Vertical: 2.5 m
<b>DGNSS Positioning Accuracy</b>	Horizontal: 0.4 m + 1 ppm Vertical: 0.8 m + 1 ppm
<b>RTK Positioning Accuracy</b>	Horizontal: ±8 mm + 1 ppm Vertical: ±15 mm + 1 ppm
<b>Radio Protocols</b>	Satel 3AS, CHC <sup>(1)</sup> , TT450, Transparent
<b>Heading Accuracy</b>	0.1 ° @ 1 m baseline
<b>Inertial Navigation Stability</b>	6 <sup>0</sup> /h (accuracy attenuation 1 m after 20 s)
<b>IMU Update Rate</b>	200 Hz

## ► D270 Single Beam Echo Sounder

<b>Data Type</b>	CHCGD <sup>(1)</sup> , NMEA SDDPT/SDDBT, original waveform
<b>Sounding Range</b>	0.1 m to 200 m
<b>Sounding Accuracy</b>	±0.01 m + 0.1% x D (D is the depth of water)
<b>Resolution</b>	3 mm
<b>Maximum Sampling Rate</b>	30 Hz
<b>Frequency</b>	200 kHz
<b>Beam Angle</b>	6.2° ± 1°
<b>Sound Velocity Adjustment Range</b>	1400–1700 m/s
<b>Integrated Water Temperature Sensor</b>	-55°C~+100°C, real-time correction of the sound speed

\*Specifications are subject to change without notice.

(1) CHCGD & CHC protocol is CHCNAV format.

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