

CHCNAV

APACHE 3 PRO

COMPACT HYDROGRAPHIC DRONE



**MARINE SURVEY
& CONSTRUCTION**

ADVANCED USV FOR BATHYMETRIC SURVEY

APACHE 3 Pro is a compact professional USV for autonomous bathymetric surveys in shallow waters. Its double-layered, all-carbon fiber hull is impact resistant and unsinkable. The APACHE3 Pro's IP67 dust and waterproofing secures onboard instrumentation throughout survey and mapping projects, regardless of operating conditions. By combining a semi-recessed propeller and a hull with optimized hydrodynamic performance, the vessel's speed of up to 7m/s allows for accurate measurements even in rivers with strong currents.

Professional grade GNSS RTK + inertial navigation provides high accuracy measurements even when GNSS signals are temporarily interrupted, for example under a bridge. The built-in CHCNAV D270 echo sounder always provides the most reliable and accurate depth measurements thanks to the real-time correction of water sound velocity in function of water temperature.

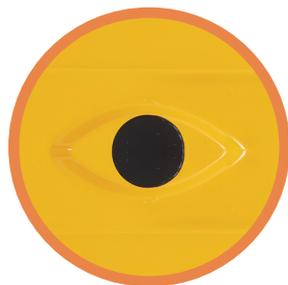
The 4G network modem enables data transmission anytime, anywhere. The GNSS PPK post-processing backup capability ensures accurate positioning in areas where 4G network is not available. The APACHE 3 Pro smart power management maintains a regular battery discharge and supports battery hot swapping for continuous measurements around the clock.



**COMPACT
TURNKEY
USV SYSTEM**



Motor



Transducer



360° Camera



Millimeter wave radar

SPECIFICATIONS

Physical	
Hull dimension (L × W × H)	1.05 m x 0.55 m x 0.39 m
Material	Macromolecule polyester carbon fiber
Weight (w/o instrument and battery)	10 kg
Maximum payload	30 kg
Anti-wave & Wind	3 rd wind level and 2 nd wave level
Hull design	Triple-hull vessel
Waterproof	IP67
Draft	9 cm
Indicator light	Two-color light (Display positioning signal)
Video	360° omnidirectional video
Auto-return	Auto-return while low battery or signal loss
Obstacle avoidance	Millimeter wave automatic obstacle avoidance

Power	
Type	Electric
Propeller type	Brushless DC
Direction control	Veering without steering engine
Maximum motor power	800 W
Maximum motor speed	7,200 rpm/min
Motor installation	Pluggable
Li-ion battery capacity	24,500 mAh, 36 V x 4 15,000 mAh, 18 V x 1
Power supply	Support single battery independent power supply or dual battery balanced power supply
Battery replacement	Support hot swap
Battery endurance	2 x 3 h@2 m/s (running on 2 battery sets)
Maximum speed	7 m/s

Communication	
Data communication	Network bridge: 1 km and 4G: unlimited
R/C communication	2.4 GHz
Remote control range	1 km
SIM Card slot	Nano SIM
Interface	2 x RJ45 network port 2 x RS232 serial port 1 x RS485 serial port 1 x PPS
Navigation mode	Manual or Auto-Pilot
Waterproof of master control	IP67
Data storage	Local storage (multi-channel storage) & Remote storage

Positioning	
Satellite system	BDS B1/B2, GPS L1/L2, GLONASS L1/L2, Galileo E1/E5, QZSS
Channel	432
Single point position (RMS)	Horizontal: 1.5 m Vertical: 2.5 m
SBAS positioning accuracy	Horizontal: 0.5 m Vertical: 0.85 m
DGNSS positioning accuracy	Horizontal: 0.4 m + 1 ppm Vertical: 0.85 m + 1 ppm
RTK positioning accuracy	Horizontal: ±8 mm + 1 ppm Vertical: ±15 mm + 1 ppm
Heading accuracy	0.2 ° @1 m baseline
Inertial navigation stability	6 % / h (Accuracy attenuation 1 m after 20 s)
IMU update rate	200 Hz

D270 Single Beam Echo Sounder	
Data type	CHCGD ⁽¹⁾ , NMEA SDDPT/SDDBT, original waveform
Weight	0.84 kg
Sounding range	0.15 m to 200 m
Sounding accuracy	±0.01 m + 0.1% x D (D is the depth of water)
Resolution	0.01 m
Frequency	200 kHz
Beam angle	6.5° ± 1°
Supply voltage	10-36 V DC / 100-240 V AC
Waterproof	IP67



* Specifications are subject to change without notice.
(1) CHCGD is CHCNAV format.

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WWW.CHCNAV.COM | MARKETING@CHCNAV.COM

CHC Navigation Headquarter
Shanghai Huace Navigation Technology Ltd.
577 Songying Road, Qingpu,
201703 Shanghai, China
+86 21 54260273

CHC Navigation Europe
Infopark Building, Sétány 1,
1117 Budapest, Hungary
+36 20 421 6430
Europe_office@chcnav.com

CHC Navigation USA LLC
6380 S. Valley View Blvd, Suite 246,
Las Vegas, NV 89118, USA
+1 702 405 6578

CHC Navigation India
409 Trade Center, Khokhra Circle,
Maninagar East, Ahmedabad,
Gujarat, India
+91 90 99 98 08 02