CHCNAV

APACHE 6

MULTIBEAM MARINE DRONE

MARINE SURVEY & CONSTRUCTION

ADVANCED USV WITH NORBIT MULTIBEAM ECHOSOUNDER

The APACHE 6 USV is an innovative, fully integrated solution for 3D bathymetric surveys, positioning of underwater objects, offshore construction, underwater archaeology and wreck salvage. Built around a triple-hull vessel and optimized for the Norbit™ multibeam echo sounder series, the APACHE 6 offers a fully autonomous survey mode, powered by field-proven CHCNAV absolute straight line technology, to follow a predetermined path even in adverse current conditions.

The APACHE 6 multibeam echosounder USV reduces survey time, improves work efficiency and produces high-resolution data to always meet the requirements of the most demanding marine survey projects.

OPTIMIZED FOR NORBIT MULTIBEAM ECHOSOUNDERS

High-end turnkey multibeam USV solution for high resolution bathymetry

APACHE 6 design is optimized for the NORBIT iWBMSe, iWBMS and iWBMSh-STX series offering with high end performances to match the most demanding hydrographic survey requirements.

HIGH PERFORMANCE TRIPLE-HULLED VESSEL DESIGN

Versatile USV solution for offshore, coastal and inland water and lakes surveys

Its dual detachable floating bodies keep the hull balanced even in the rapid current situation. Removing the floating bodies allows operation in shoals, channels and shallow rivers without run aground.

LIGHTWEIGHT FOR EASY DEPLOYMENT

Allow two operators to cope with most of remote deployment conditions

Made of macromolecule polyester carbon fiber and Kevlar fiber-glass weighting 15 kg without sensors.

OPTIONAL TERRESTRIAL MAPPING LASER SENSOR

Collect up to 300,000 points per second at a 30 x 360-degree coverage

The optional NORBIT iLiDAR mapping sensor provides high accuracy combined marine and terrestrial 3D survey in a single pass, saving significant processing time when performing harbor and river surveys with height clearance evaluation (transmission lines, bridges…).

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HIGH
PERFORMANCE
MARINE DRONE

FOR HIGH RESOLUTION BATHYMETRIC PROJECTS

SPECIFICATIONS

Physical	
Size (L × W × H)	1.8 m x 0.55 m x 0.25 m
Material	Macromolecule polyester carbon fiber
Weight (no instrument)	15 kg
Weight (Typical instrument)	40 kg
Hull material	Carbon fiber
Hardware	Anodized Aluminum, Stainless Steel
Water proof	IP65
Draft	0.18 m
Payload(typical)	60 kg

Power	
Type	Electric
Propeller type	Brushless DC
Direction control	Veering without steering engine
Maximum motor power	700 W
Maximum motor speed	7,000 rpm
Maximum speed	5 m/s
LiPo battery capacity	9 x 24,500 mAh, 32.6 V 1 x 15,000 mAh, 18 V
Battery endurance	2 x 2 hours @ 2 m/s (running on 2 battery sets)

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
UHF radio	Standard Internal Rx: 410 - 470 MHz Transmit power: 0.5 W Protocol: CHC,Transparent, TT450, 3AS Satel Link rate: 9,600 bps to 19,200 bps
Data formats	RTCM2.x, RTCM3.x, CMR input HCN, HRC, RINEX2.11, 3.02 NMEA 0183 output NTRIP Client, NTRIP Caster
Integrated 4G modem	LTE FDD: B1/B3/B5/B8 LTE TDD: B38/B39/B40/B41 WCDMA: B1/B8 TD-SCDMA: B34/B39 CDMA: BC0 GSM: 900/1,800 MHz

NORBIT MBES Specifications

Type	Norbit IWBMSe	Norbit IWBMS (Standard)	NORBIT IWBMSh-STX
Swath coverage	5 - 210°	7 - 210°	5 - 210°
Range resolution	<10 mm		
Number of beams	256 - 512		
Operating frequency	400 KHz		
Depth range	0.2 - 275 m		
Ping rate	Up to 60 Hz, Adaptive		
Resolution standard	0.9° x 1.9° @400 kHz And 0.5° x 1.0° @700kHz . Narrow Option 0.9° x 0.9° @400kHz And 0.5° x 0.5°@700kHz		0.9° x 0.9° @400 kHz or 0.5° x 0.5° @700 kHz
Position	HOR: ±(8 mm + 1 ppm X DISTANCE FROM RTK STATION) VER: ±(15 mm + 1 ppm X DISTANCE FROM RTK STATION)		
Heading accuracy	0.08°	0.03°	0.02°
Pitch/Roll accuracy	0.03°	0.02°	0.01°
Heave accuracy	5 cm		
Weight	6.5 kg (AIR) 2.4 kg (WATER)	Approx. 9.5 kg (AIR) Less than 6 kg (WATER)	Approx. 11 kg (AIR) Less than 6.5 kg (WATER)
Interface	ETHERNET		
Power consumption	60 W		
Operating temperature	-20°C to +60°C		

* Specifications are subject to change without notice.

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WWW.CHCNAV.COM | MARKETING@CHCNAV.COM

CHC Navigation Headquarter
Shanghai Huace Navigation Technology Ltd.
599 Gaojing Road, Building D,
Shanghai, 201702, China
+86 21 54260273

CHC Navigation Europe
Infopark Building , Sétány 1, 1117
Budapest, Hungary
+36 20 235 8248
+36 20 5999 369
info@chcnav.eu

CHC Navigation USA LLC
6380 S.Valley View Blvd Suite 246
Las Vegas, NV 89118 USA
+1 480 399 9533

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