

APACHE 6

Marine Construction



Make your work more efficient

Introduction

APACHE 6

Turnkey USV Solution With Multibeam For High Resolution Bathymetry The APACHE 6 USV is a full-integrated innovative solution for 3D bathymetric survey, underwater object positioning, offshore construction, underwater archaeology and wrecked rescue.

Built around a triple hulled vessel design and optimized for the Norbit[™] multibeam echosounder series, the APACHE 6 provides a fully-autonomous survey mode powered by the field proven CHCNAV absolute straight-line technology to follow pre-determined course even in adverse current conditions.

The APACHE 6 is powered with high-performance dual propeller system ensuring a stable constant automatic cruise speed of up to 2.5m/s (7.6 fps). The survey projects can also be completed in manual mode using the APACHE 6 remote control panel over 2 km distance.

The CHCNAV Auto Planner[®] software is used to set up optimal navigation route planning and monitor the survey operation parameters in real time. The echosounder parameters are set via an intuitive web interface and the final multibeam data acquired during the survey processed by QINSy[®] software to generate high resolution accurate 3D maps.

The APACHE 6 multibeam USV reduces survey time, improves work efficiency and outputs high resolution data to always match the most demanding marine survey project requirements.



Unmanned Surface Vessel



Lightweight design

APACHE 6 is made of macromolecule polyester carbon fiber and Kevlar fiber-glass (weighting 15 kg without sensors). It allows two operators to cope with most of remote deployment conditions.



Absolute linear technology

APACHE 6 integrates high precision positioning and heading technology to maintain a perfect straight sailing course even in complex current conditions.



Triple-hulled vessel design

With a detachable triple-hulled vessel design, the APACHE 6 is a versatile USV solution allowing safe deployment in various mission environment. Its dual floating bodies keep the hull balanced even in the rapid current situation. Meanwhile, removing the floating bodies allows operation in shoals, channels and shallow rivers without run aground.



iLiDAR Laser Sensor (optional)

In addition to its multibeam echosounder, the APACHE 6 can be fitted with the Lidar sensor to collect terrestrial 3D point cloud. With 300 000 points per second at a 30x360 degree coverage, the iLiDAR provides an accurate 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, ...).

Applications



Underwater object recognition



Harbour and Offshore Construction



River-route above and underwater 3D scanning



Bridge Pier Deformation Monitoring

Specifications

R/C Antenna

R/C Frequency

R/C Range

	Physical	
Size (L × W × H)	1.8m*0.55m*0.25m	
Weight (no instrument)	15Kg	
Weight (Typical instrument)	40Kg	
Hull Material	Carbon Fiber	
Hardware	Anodized Aluminum, Stainless Steel	
Typical Survey Speed	2-2.5m/s	
Maximum Speed	3.5 m/s	
Draft	0.18 m	
Payload (typical)	60 kg	
Communications		
Communication Way	UHF, network bridge	
Network bridge Frequency	900MHz/ 5.0 GHz	
Communication Distance	1.5 km/ 0.8 km	
Communication Port	RS232/Internet access	
R/C Control	Hitec with Vessel Telemetry	

Omini Directional

Up to 1km

2.4GHz

Electrical			
Power	4 x 18.5v 40Ah battery Lipo /		
	2 x 18.5v 15Ah battery Lipo		
Motor	2 x Brushless Thruster		
Navigation Mode	Auto/Manual		
Battery Endurance ⁽¹⁾	2-3 h (operating time can be		
	lengthened by adding baterries)		
iLiDAR Laser Sensor (Integration Option)			
Frame Rate	5-20Hz (10Hz Default)		
Wave Length Peak	905nm		
Output	Up To 300.000 Points Per Sec		
Accuracy	2cm		
Field Of View	30° VER., 360° HOR		
Range	100m		
Power	8W		
Auto Planner Software			

CHC Auto Planner software is designed for set up navigate course, USV calibration, real-time USV tracking and checking the status of USV operation.

	NORBIT MBES specifications			
	NORBIT IWBMSe	NORBIT IWBMS (Standard)	NORBIT IWBMSh-STX	
Туре				
Swath Coverage	5-210°	7-210°	5-210°	
Range Resolution	<10mm			
Number Of Beams	256-512			
Operating Frequency	400KHz			
Depth Range	0.2 - 275m			
Ping Rate	Up to 60Hz, Adaptive			
Resolution:	0.9° x 1.9°@400kHz And 0.5° x 1.0°@700kHz.		0.9° X 0.9°@400kHz or	
Standard	Narrow Option 0.9° x 0.9°@400kHz And 0.5° x 0.5 °@700kHz. 0.5°X 0.5°@700kHz			
Position	HOR: ±(8mm +1ppm X DISTANCE FROM RTK STATION)			
	VER: ±(15mm +1ppm X DISTANCE FROM RTK STATION			
Heading Accuracy	0.08°	0.03°	0.02°	
Pitch/Roll Accuracy	0.03°	0.02°	0.01°	
Heave Accuracy	5cm			
Weight	6.5kg (AIR)	APPROX. 9.5kg (AIR)	APPROX. 11kg (AIR)	
	2.4kg (WATER)	LESS THAN 6kg (WATER)	LESS THAN 6.5kg (WATER)	
Interface	ETHERNET			
Power Consumption	60W		70W	
Operating Temp	-20°C to +60°C			

*Specifications are subject to change without notice.

(1) Operating time varies based on temperature. Specifications are subject to change without notice.

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