

CHCNAV

APACHE 6

**MULTIBEAM
MARINE DRONE**



**MARINE SURVEY
& CONSTRUCTION**

ADVANCED USV WITH NORBIT MULTIBEAM ECHOSOUNDER

The APACHE6 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 echosounder 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 APACHE6 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.

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.

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.

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...).

 **HIGH
PERFORMANCE
MARINE DRONE**



**FOR HIGH RESOLUTION
BATHYNETRIC PROJECT**

SPECIFICATIONS

Physical	
Size (L x W x H)	1.8 m x 0.55 m x 0.25 m
Weight (no instrument)	15 kg
Weight (Typical instrument)	40 kg
Hull Material	Carbon Fiber
Hardware	Anodized Aluminum, Stainless Steel
Typical Survey Speed	2-2.5 m/s
Maximum Speed	3.5 m/s
Draft	0.18 m
Payload (typical)	60 kg

Communications	
Communication Way	UHF and network bridge
Network bridge Frequency	900 MHz / 5.0 GHz
Communication Distance	1.5 km / 0.8 km
Communication Port	RS232 / Internet access
R/C Control	Hitec with Vessel Telemetry
R/C Antenna	Omini Directional
R/C Range	Up to 1 km
R/C Frequency	2.4 GHz


iLiDAR Laser Sensor (Integration Option)	
Frame Rate	5-20 Hz (10 Hz default)
Wave Length Peak	905 nm
Output	Up to 300,000 Points Per Sec
Accuracy	2 cm
Field Of View	30° vertical, 360° horizontal
Range	100 m
Power	8 W

Electrical	
Power	4 x 18 V, 40Ah battery Lipo / 2 x 18 V, 15Ah battery Lipo
Motor	2 x Brushless Thruster
Navigation Mode	Automatic / Manual
Battery Endurance	2-3 h (operating time can be extended with additional batteries)

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

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NORBIT MBES Specifications

Type	Norbit IWBMSe	Norbit IWBM S (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°@700 kHz. 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: ±(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) 2.4 kg (WATER)	APPROX 9.5kg (AIR) LESS THAN 6kg (WATER)	APPROX 11 kg (AIR) LESS THAN 6.5kg (WATER)
Interface	ETHERNET		
Power Consumption	60 W		70 W
Operating Temp	-20°C to + 60°C		

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