

CHCNAV

APACHE 6

MULTIBEAM BATHYMETRIC
SURVEY USV



MARINE
SURVEYING

ADVANCED USV WITH NORBIT MULTIBEAM ECHOSOUNDER

The APACHE 6 is an integrated USV for 3D bathymetric surveys, underwater object positioning, offshore construction, underwater archaeology, and wreck salvage. Its triple-hull design, optimized for the NORBIT™ multibeam echo sounder series, delivers stable, accurate performance in challenging marine environments. The fully autonomous survey mode, powered by CHCNAV's straight-line navigation technology, maintains precise path tracking, even in strong currents. By minimizing survey time and producing high-resolution data, the APACHE 6 meets the demands of complex marine survey operations.

OPTIMIZED FOR NORBIT MULTIBEAM ECHOSOUNDERS

Turnkey multibeam USV for high-resolution bathymetry

The APACHE 6 is engineered for seamless integration with the NORBIT iWBMS and WINGHEAD series, delivering consistent performance for demanding hydrographic survey applications.

LIGHTWEIGHT FOR EASY DEPLOYMENT

Efficient to transport and quick to set up

Constructed from high-strength, high-modulus carbon fiber, the APACHE 6 weighs only 15 kg (excluding sensors). Its lightweight and durable design simplifies handling by two operators, supports versatile transport, and enables fast deployment in various survey environments.

INTELLIGENT ANDROID REMOTE CONTROLLER

Portable, reliable, and easy to operate

The APACHE 6 Android-based remote controller provides real-time monitoring of vessel status and survey data without requiring a computer. Its user-friendly interface supports efficient survey execution, while multi-link communication ensures long-range control and data transmission.

HIGH-PERFORMANCE TRIPLE-HULLED VESSEL DESIGN

Stable and adaptable for varied water conditions

The APACHE 6 features dual detachable floats that provide enhanced stability in strong currents. When removed, the vessel operates safely in shallow waters, channels, and rivers, minimizing the risk of running aground.

OPTIONAL TERRESTRIAL MAPPING LASER SENSOR

Integrated 3D survey for marine and terrestrial features

The optional NORBIT iLiDAR sensor captures up to 300,000 points per second with 30×360° coverage. It enables precise 3D mapping of both marine and terrestrial environments in a single survey pass, supporting height clearance assessments for bridges, power lines, and other overhead structures.



**HIGH
PERFORMANCE
MARINE DRONE**



Android remote control



multibeam echosounder



360° Camera

SPECIFICATIONS

| Physical | |
|-------------------------------------|---|
| Hull Dimension (L x W x H) | 1800 mm x 500 mm x 250 mm |
| Material | High strength, high modulus carbon fiber |
| Weight (w/o instrument and battery) | 15 kg |
| Maximum Payload | 60 kg |
| Hull Design | Detachable triple-hull vessel |
| GNSS | Internal GNSS dual antenna |
| Waterproof | IP65 |
| Draft | 8.6 cm (unladen) |
| Indicator Light | Two-color (positioning and differential signal) |
| Camera | 360° omnidirectional video |
| Obstacle Avoidance Distance & Range | 0.2–40 m (H: 112°, V: 14°) |

| Propulsion | |
|-------------------------|---|
| Propeller Type | Brushless DC |
| Direction Control | Veering without steering engine |
| Rated Motor Power | 800 W |
| Maximum Motor Speed | 7200 ± 5% RPM |
| Motor Installation | Pluggable |
| Li-ion Battery Capacity | 32.4 V, 23.1 Ah |
| Battery Endurance | 6 h @2 m/s (2 battery sets, expandable) |
| Power Supply | Single/dual balanced battery support |
| Battery Replacement | Hot swap supported |
| Charging Time | 3 h |
| Maximum Speed | 5 m/s |

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

| Communications | |
|----------------------|--------------------------------|
| Data Communication | Standard 4G and Remote control |
| Remote Control Range | 1 km (Remote); Unlimited (4G) |
| SIM Card Slot | Nano SIM |
| Navigation Mode | Manual or Auto-Pilot |
| Data Storage | Local (multi-channel) & Remote |

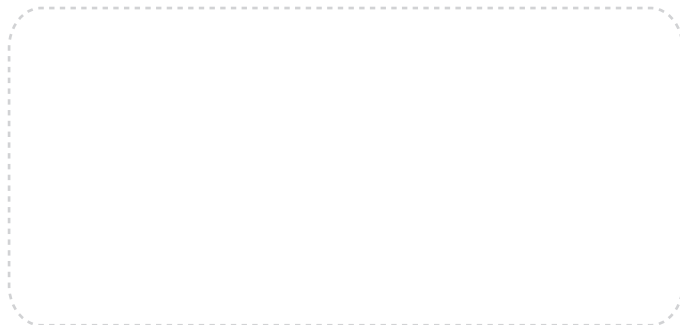
| Software | |
|----------|---|
| Easysail | Route planning and autonomous navigation. Total mileage statistics, remaining mileage reminder, multi-angle video and online map display. |
| | Hull parameter control, physical & virtual joysticks, system self-check at power-on. Data collection and post-processing. 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. |

| Positioning | |
|-------------------------------|---|
| Satellite System | BDS B1I/B2I /B3I、GPS L1C/A/L2P(Y)/L2C/L5、Galileo E1/E5a/E5b、GLONASS L1/L2、QZSS L1/L2/L5 |
| Single Point Position (RMS) | Horizontal: 1.5 m Vertical: 2.5 m |
| DGNSS Positioning Accuracy | Horizontal: 0.4 m + 1 ppm Vertical: 0.8 m + 1 ppm |
| RTK Positioning Accuracy | Horizontal: ±8 mm + 1 ppm Vertical: ±15 mm + 1 ppm |
| Radio Protocols | Satel 3AS, CHC ⁽¹⁾ , TT450, Transparent |
| Heading Accuracy | 0.1 ° @ 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 |
| Sounding Range | 0.1 m to 200 m |
| Sounding Accuracy | ±0.01 m + 0.1% x D (D is the depth of water) |
| Resolution | 0.01 m |
| Maximum Sampling Rate | 30 Hz |
| Frequency | 200 kHz |
| Beam Angle | 6.2° ± 1° |
| Sound Velocity Adjustment Range | 1400–1700 m/s |
| Integrated Water Temperature Sensor | -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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