

HQ-400

INTEGRATED MULTIBEAM ECHOSOUNDER



► Integrated Multibeam Echosounder

The CHCNAV HQ-400 multibeam echosounder is a powerful, highly integrated and compact system designed to provide exceptional performance for bathymetric and hydrographic surveys. The echosounder integrates sonar, temperature sensor, attitude sensor and positioning sensor all in a lightweight and portable form factor. Ideal for applications such as river and lake topography, reservoir volume measurements, and hydrometrics, the HQ-400 offers exceptional performance and versatility.



► Key feature



Compact And
Portable



High Integration,
Fast Deployment



GNSS PPK
Support



Full-Featured
Software Ecosystem

► Designed Specifically For USV

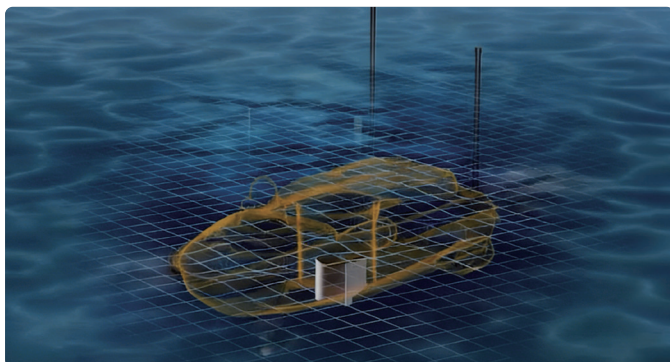
Ultra-Compact & Lightweight

12.5 cm cubic shape

Only 2.7 kg

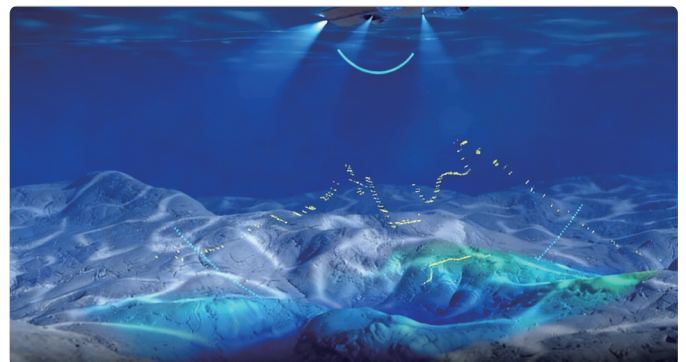


► High Integration



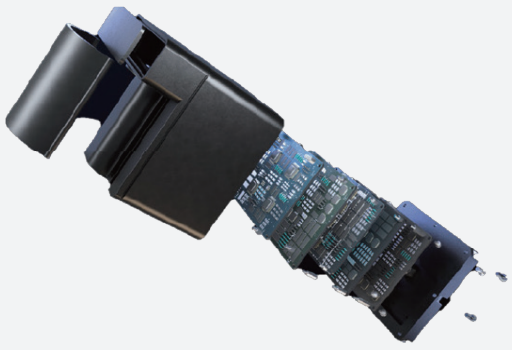
All-in-one hardware package, no complex wiring, ready to use out of the case

► Fast Deployment



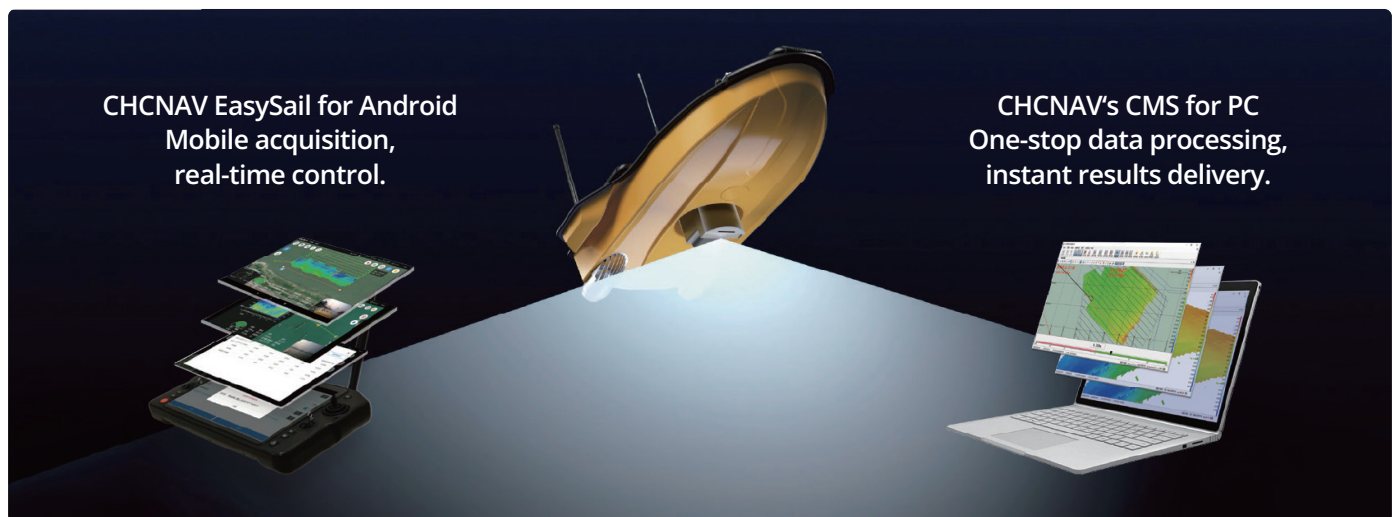
Built-in calibration-free IMU, ready to measure on power-up, saving 50% preparation time. Seamlessly compatible with APACHE 4 Series USV, modular quick installation for faster on-site deployment.

► High-Precision Positioning System

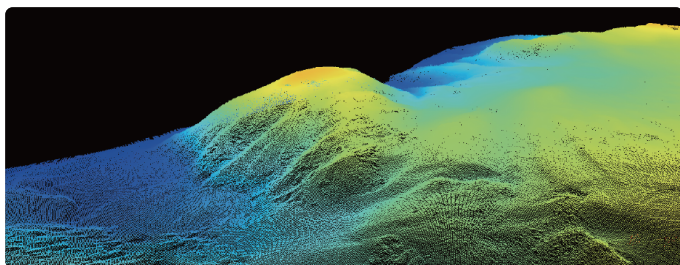


- Built-in high-performance IMU with GNSS PPK supported.
- Stable even with poor satellites or wave turbulence.
- Reliable data output in complex waters.

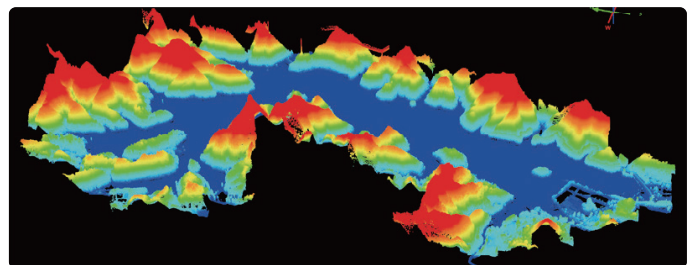
► Full-Featured Software Ecosystem



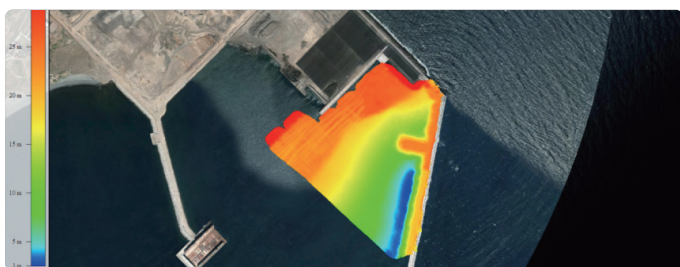
► Use Cases



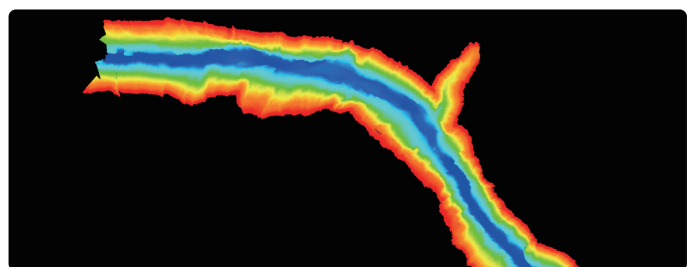
River and Lake Topography



Tailings Pond Survey



Port Terminal Survey



Channel Dredging

SPECIFICATIONS

► Sonar

Depth Range	0.2 ~ 150 m ⁽¹⁾
Depth Resolution	10 mm
Swath Coverage	140°
Number of Beams	512 (Maximum 1024)
Survey Mode	Equal Angle and Distance
Resolution (Across x Along)	1.6° x 1.8°
Maximum Ping Rate	60 Hz
Operating Frequency	400 kHz ± 20kHz
Signal Type	CW
Feature	Real Time Roll Stabilization
Depth Rating	50 m
Pluse Length	20 μs - 2 ms

► Positioning System

IMU Mounting Method	Built-in Sonar
Position Method	RTK, PPP ⁽²⁾ , PPK ⁽³⁾
Heading Accuracy	0.1°@ 2 m baseline
Roll / Pitch Accuracy	0.05° (Real Time) 0.03° (Post-processing)
Position Accuracy	0.8 cm + 1 ppm (RTK) 0.6 m (SBAS) 1.2 m (Single)
Heave Accuracy	5 cm or 5%
IMU Frequency	200 Hz (Maximum 1000 Hz)

► Surface Sound Velocity

Sound Velocity Range	1375 m/s - 1900 m/s
Sound Velocity Accuracy	±0.02 m/s
Sound Velocity Resolution	0.001 m/s

► Electrical Parameter

DC Power Supply	18 V - 36 V (24 V typical)
AC Power Supply	100 V - 240 V, 50/60 Hz
Average Power Consumption	25 W
Data / Control Interface	Gigabit Ethernet

► Physical

Sonar Size	125 mm * 125 mm * 130 mm
Sonar Weight	2.7 kg
Deck Unit Size	125 mm * 125 mm * 42 mm
Deck Unit Weight	0.5 kg
Working Temperature	-10°C ~ +60°C
Storage Temperature	-20°C ~ +70°C

***Specifications are subject to change without notice.**
(1) Measured in a water environment at 25°C and 0‰ salinity, for reference only. If in seawater, it is recommended to use it in an environment with a water depth of 0.2-100 m and waves less than 0.5 m.
*Depth range may vary to varying degrees in different water environments, please refer to actual experience.
(2) PPP service is only available within the BDS PPP-B2b signal coverage (China and surrounding areas).
(3) Qinertia PPK software requires additional payment.

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