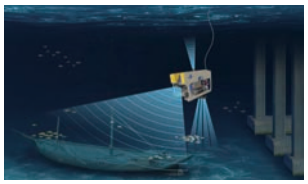
海鹰海洋电子
Haiying Marine

Product Brochure


2024

无锡市海鹰加科海洋技术有限责任公司
Wuxi Haiying-Cal Tec Marine Technology Co., Ltd.

Crafting Quality Marine Equipment

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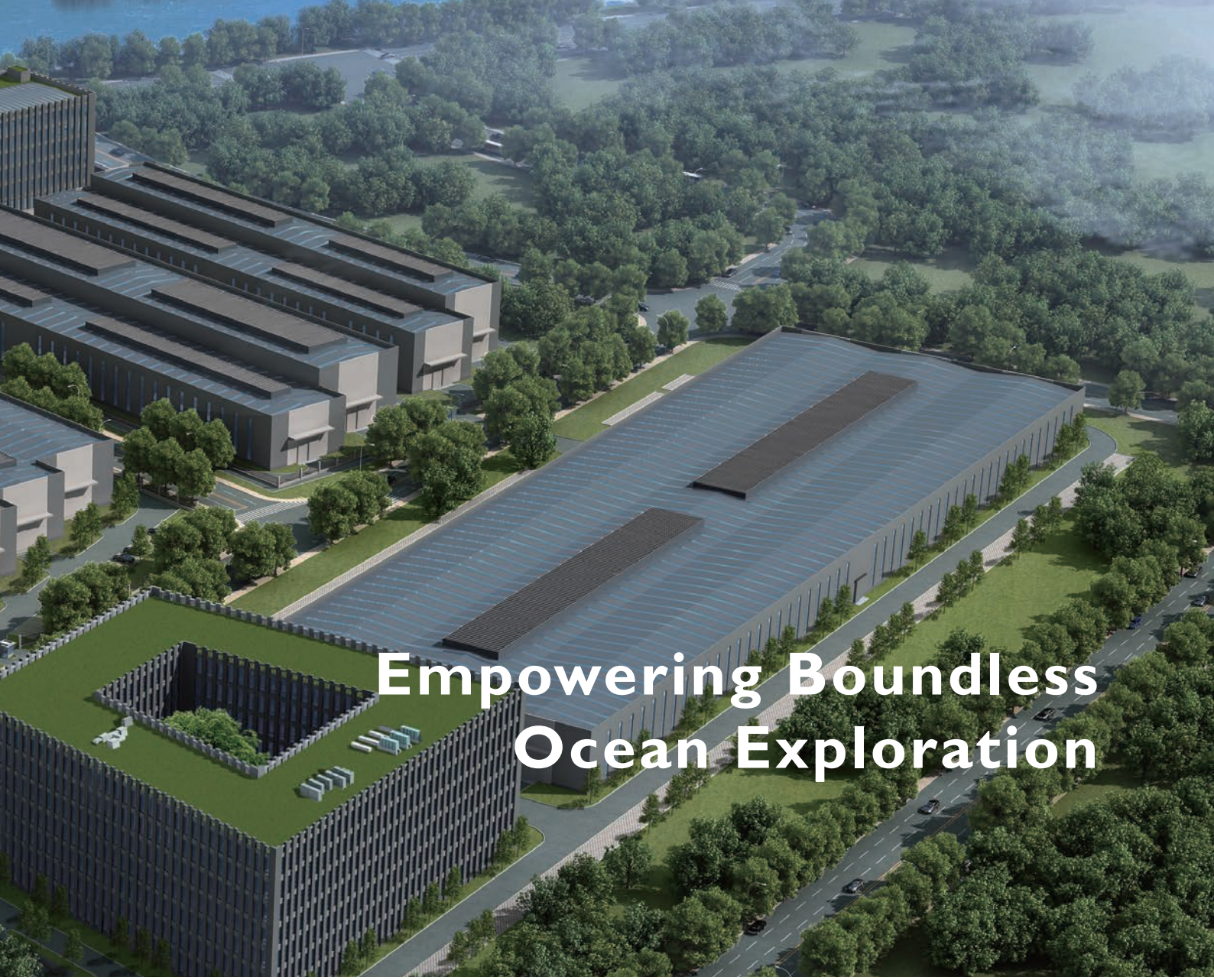

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Company Profile

Haiying Marine
The Pioneer in Perceiving the Ocean

Haiying-Cal Tec Marine Technology Co., Ltd. (Haiying Marine), located in Wuxi, China, is a world-leading supplier of underwater acoustic products. Since its establishment in 1994, Haiying Marine has been dedicated to research and development, manufacturing, and agency services for oceanographic electronic instruments, including echo sounders, hydrophones, sound velocity profilers, acoustic Doppler current profilers (ADCPs), tide gauges, altimeters and sub-bottom profilers.

Hydrographic Survey

Echosounder , gyro , GPS ,
USV , laser scanning , software , etc.

Hydrology and Environmental Monitoring

SVP , CTD ,ADCP , current meter , tide gauge ,
wave gauge , water sampler , etc.

Fishery Detection

Fish finder sonar , etc.

Global Cooperation

With a team of experienced marketing and technical professionals, our company is highly proficient in handling import and export agency businesses related to hydrographic survey, marine geophysical survey, hydrology and environmental monitoring, subsea engineering and security, among others. We take pride in our ability to foster strong collaborations with clients and partners worldwide, making us an ideal choice for global cooperation.

Marine Geophysical Survey

Side scan sonar , sub-bottom profiler , seismometer , magnetometer , gravimeter , geologic sampler , etc.

Subsea Engineering and Security

ROV、AUV、DVL , camera , image sonar, USBL , SBL , etc.

Special Marine Equipments

Winches , LARS , onboard navigation system , INS system , etc.

Company Certificates

中国船级社质量认证公司
CHINA CLASSIFICATION SOCIETY CERTIFICATION COMPANY

质量管理体系认证证书
QUALITY MANAGEMENT SYSTEM CERTIFICATE

编号：No.00521Q3957R1M

兹证明

无锡市海鹰加科海洋技术有限责任公司
（注册运营地址：江苏省无锡市新吴区运河西路3000号 邮编：214135；
统一社会信用代码：91320214764183169 6）

This is to certify that the Quality Management System (QMS) of

WUXI HAIYING-CAL TEC MARINE TECHNOLOGY CO., LTD.
(Registered/Operation Add: No.3000, YUNHE WEST ROAD, XINWU DISTRICT, WUXI CITY, JIANGSU PROVINCE, 214135, P.R.CHINA; Uniform Code of Social Credit: 91320214764183169 6)

建立的质量管理体系符合标准：GB/T19001-2016/ISO9001:2015。
has been found to conform to standard: GB/T19001-2016/ISO9001:2015.

本证书对下述范围的质量管理体系有效：*水深测深仪的设计开发、生产和服务*。
This certificate is valid to the following scope for QMS: *DESIGN, DEVELOPMENT, PRODUCTION AND SERVICES OF ECHOSOUNDERS*.

本证书有效期至：2024年9月26日。
This certificate is valid until: 26 September 2024.

发证日期：2021年9月23日
Issued on: 23 September 2021.

签 发：
Issued by: Huang Shiyuan

Quality Management System Certificate

国家科学技术进步奖
证 书

为表彰国家科学技术进步奖获得者，特颁发此证书。

项目名称：海洋窄带环境复杂目标探测识别技术与装备

奖励等级：二等

获 奖 者：无锡市海鹰加科海洋技术有限责任公司

2021年9月23日

证书号：2020-J-220-2-02-D03

National Science and Technology Progress Award certificate

Invention Patent Certificates and Utility Model Patent Certificates

HY1600A Precise Echosounder

The HY1600A is a portable precise single beam echosounder that adopts new acoustic signal processing technology and circuit design to obtain more accurate sounding data. The system integrates traditional analog recording with advanced digital signal processing technology and underwater tracking gate technology. Even in harsh environments, it performs excellent covering hydrographic applications for shallow waters.

Features

- Adjustable pulse width, power, sensitivity and TVG
- Optional integrated DGPS, PCs and heave compensators and other peripheral devices
- Automatic marking: annotation of number, time, GPS coordinates and heave value
- Self-checking and power off memory
- Manual and automatic scale change
- Thermal recording and LCD display

HY1600A

Specifications

Frequency	208 kHz
Beam width	≤8°
Depth range	0.3~300m
Accuracy	0.01m ± 0.1%
Resolution	1cm
Output power	100W
Input power	220V AC±20% ; 11VDC-31.2VDC
Consumption	50W
Interface	3 x RS232
Recorder	8.5"/216mm Thermal printer and LCD display
Phasing	Manual/Auto scale change

Chart speed	Auto 1-20cm/min adjustable
Environmental	Operating temperature: 0°~50°C, 5~90% relative humidity, non-condensing
Dimension	400mm×330mm×165mm(recorder), Φ80mm×26mm(transducer), 15m(cable length, customizable), 3×0.7m(Mounting pole)
Weight	9.8kg(recorder), 1.5kg(transducer), 5kg(Mounting pole)

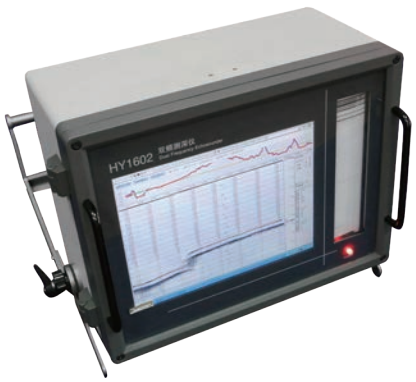
HY1602 PC Dual Frequency Echosounder

The HY1602 is an all-in-one dual frequency echosounder that outputs both echogram and thermal paper results simultaneously. It employs digital signal processing and imaging technologies, embedded industrial control system and data acquisition software.

The survey software features automatic sounding control, intelligent dynamic signal detection, identification, locked tracking and real-time monitoring, ensuring high reliability and precision. The HY1602 is an advanced and reliable SBE which is extensively used for survey in the river, lake, ocean and other complex conditions.

Features

- 24kHz/208 kHz dual frequency, double channels
- Dual output of echogram and chart paper
- Dynamic gain adjustment, reinforced anti-interference ability
- Low noise reception, space and time filter adjustment, locked tracking
- High speed USB interface, huge storage capacity
- Integrated GPS and motion sensors interfaces
- Compatible with mainstream acquisition and post-processing software
- Compact and robust design, portable for transportation



HY1602

Specifications

Frequency	208 kHz/24kHz
Beam width	≤8°@208kHz, ≤22°@24kHz
Depth range	0.5~300m@208kHz, 1~2000m@24kHz
Accuracy	0.01m±0.1%@208 kHz , 0.10m±0.1%@24 kHz
Output power	180W @ 208 kHz, 290W @ 24 kHz
Consumption	100W
Interface	2xRS232 , 4xUSB2.0 , 1xVGA , 1xLAN
Recording	Echogram and thermal chart paper
Dispaly	12-inch LCD screen with resolution of 1024×768, Windows XP embedded

Input power	22~31V DC or 180~260V AC
Environmental	Operating temperature: 0°~50°C, 5~90% relative humidity , non-condensing
Dimension	400mm×200mm×310mm(recorder), 400mm×190mm×110mm(transducer), 15m(cable length, customizable), 3×1.5m(Mounting pole)
Weight	17.5kg(recorder), 20kg(transducer), 13kg(Mounting pole)

HY1603 All-in-one Portable Echosounder

The HY1603 is a portable intelligent echosounder designed as an all-in-one structure. The system integrates computer, DSP and imaging technology to realize the perfect combination of echo sounder and computer platform. Housed in a rugged and compact carry-on case，the HY1603 can be easily deployed on small survey vessels and opportunistic platforms，and widely used for bathymetric surveys in rivers, ports, coastal areas or other complex conditions.

The embedded Haiying Star acquisition and post-processing software can automatically monitor and control the survey process, delivering reliable and accurate sounding data. A PPS interface is integrated into the system for synchronizing depth and GPS data.

Features

- Portable and durable: overall weight 13kg, IP67 rated.
- Large and high-quality display: 17" large LCD screen with ultra-high pixel design.
- Dual power supply: equipped with rechargeable lithium battery and external power supply , convenient for field operation.
- Accurate and reliable measurements.
- Easy-to-use software: compatible with various GPS, attitude sensors, and heave for comprehensive data solution.

HY1603

Specifications

Frequency	208kHz±1kHz
Beam width	8°±1°
Depth range	0.15m~300m
Accuracy	1cm±0.1%depth
Pulse width	0.1~0.5ms
Ping rate	Max.20Hz
Phasing	Automatic change
Gain	Manual/Automatic change, 0~40dB
Sound Velocity range	1400m/s~1600m/s
Output power	4 channels adjustable
Input power	12VDC or 220VAC
Battery	12V rechargeable battery, continuous working hours≥8 h
Interface	1×LAN , 2×USB , 2×RS422 , 1×BNC , transducer com , power com

Hard disk	240GB SSD (expandable)
Display	17inch large-sized LCD
Environmental	Operating temperature: 0°~50°C, 5~90% relative humidity, non-condensing
Software	Haiying Star acquisition and post-processing software (optional)
Dimension	502mmm(L)×400mm(W)×188mm(D) (recorder), Φ80 mm×26 mm (transducer), 10m (cable length, customizable), 3×0.7m (Mounting pole)
Weight	13kg (recorder), 2kg (transducer), 5kg (Mounting pole)

HY1616 Unmanned Platforms Echosounder/Altimeter

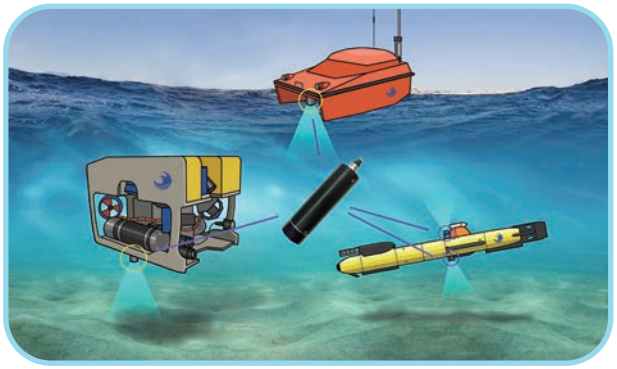
The HY1616 is a miniature echosounder specially designed for unmanned vehicles. Its 446kHz operation frequency can be used for survey in 0.3m ultra-shallow waters. Besides, it's also convenient to deploy on unmanned platforms such as underwater ROV, AUV, glider, fixed platform, etc., to measure the height of the platform to the bottom of the water to protect flying equipment.

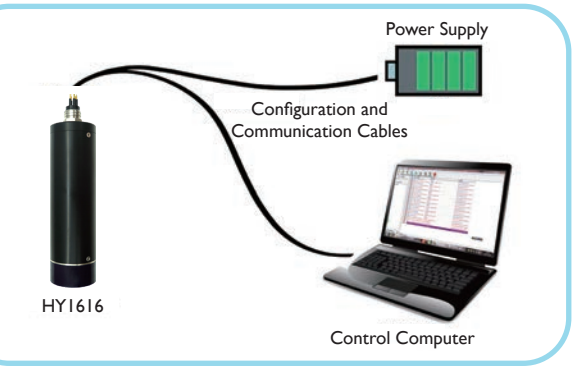
The structure is more compact and it's easy to deploy. The HY1616 supports DC power supply, wide voltage and low power consumption. The new digital signal processing technology and optimized automatic gain make the survey more accurate and reliable. The frequency and depth rated can be customized according to customer requirements.

Features

- Compact and robust structure, designed specially for unmanned platforms.
- Suitable for ultra-shallow waters and complicated field operations.
- Intelligent and automatic depth measurement for accurate and reliable data.

HY1616





Specifications

Frequency	446kHz±5kHz (customizable)
Depth range	0.3m~50m
Accuracy	1cm±0.1%depth
Pulse width	0.05~0.4ms(auto)
Housing	POM (customizable)
Depth rated	300m
Input power	10~32VDC
Consumption	6W

Interface	RS232
Environmental	Operating temperature: 0°~40°C, 5~85% relative humidity, non-condensing
Dimension	175mm (Length) x52mm (Dia.) (excel. connector)
Weight	0.6kg in air

HY1690 Deep-sea Echosounder

The HY1690 is a digital echosounder ideally suitable for offshore survey in full ocean depth. It is composed of a sonar processor and two transducers of 10.5 kHz and 25 kHz frequencies. The HY1690 realizes the intelligentized operation and control by adopting the technology of digital signal processing (DSP) and computer graphics display.

HY1690 adopts digital signal processing technology and computer graphics display technology to realize the intelligent operation and control of the depth sounder. All operations of the depth sounder are performed without adjustment knobs. The depth sounder takes DSP as the core to realize the control of transmission and reception, TVG and AGC control, digitization and processing of echo signals, bottom echo search and tracking.

Features

- High-power transmission beam for a depth range of up to 10,000 meters.
- Reliable, stable, accurate and real-time bathymetric surveys.
- High-gain receiver circuitry with anti-interference design.
- Technologies of spatial and time filtering and dynamic tracking gate.
- High-speed industrial computer with large capacity HDD.
- Acquisition and storage of full range depth data.

HY1690

Specifications

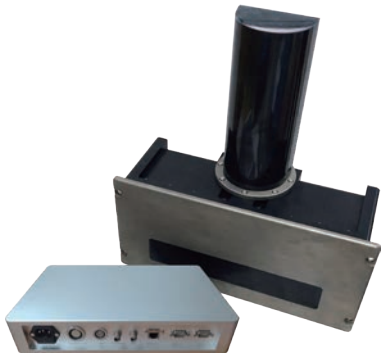
Operation frequency	25 kHz	10.5 kHz
Beam width	20±1.5°	Along-track 11±1°; Across-track 20±1.5°
Ping rate	Up to10 Pings/s	Up to 5 Pings/s
Depth range	1~1200 m	10~10000 m
Output power	700 W	5000 W
Power supply	220 V (-15% to +10%)	220 V (-15% to +10%)
Dimension (transducer)	Φ310 mm × 250 mm	875 mm × 555 mm × 430 mm
Weight (transducer)	14 kg (ex. cable)	220 kg (ex. cable)
Installation	60 m watertight cable, hull-mounted	
Resolution	Range: ≤100 m, 1200 m, 5000 m, 10000 m Resolution: 0.01 m, 0.15m, 0.5m, 1m	
Navigability	Roll: ±10°, Pitch: ±5°; Depth range at speed of 7kn : Up to 10000m	
Dimension (Sonar Processor)	HY1690 (typical): 1000mm (L)×650 mm (W)×1350 mm (H); HY1690 (Portable): 500 mm (L)×424 mm (W)×174 mm (H), rack-mounted or placed on a platform	
Weight (Sonar Processor)	170kg (typical) ; 35kg (portable)	

HY1621 Multibeam Echosounder

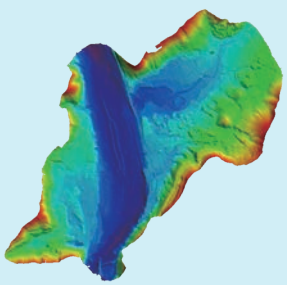
The HY1621 is a brand new high resolution multibeam echosounder product series with full proprietary intellectual property of Haiying Marine. The ideally selected 210kHz frequency provides excellent data quality and ease of use over depths from 1m to 500m. Equi-Distant and Equi-Angle modes can be selected from operation software. With comparable performance to that of similar advanced MBEs in the world, the HY1621 is perfectly used in channel dredging, geological survey, coastal and estuary survey, shipwreck salvage and other applications.

Features

- Splendid industrial design with ruggedized composite materials.
- Highly integrated for any vessel portable mobilization.
- Leading bottom detection algorithm, combined amplitude-phase detection, allowing for improved swath performance either in both central and edge of baseline, ensuring efficiency of survey and post-processing.
- Fully automatic operation for less workforce.
- Real-time roll stabilization, allowing for accurate data in full depth range.
- Windows®-based GUI user interface, compatible with all major post-processing software.
- Multiple universal interfaces for positioning and attitude data input.



HY1621



Data example of HY1621 multibeam echosounder, surveyed in Xin'an River, China

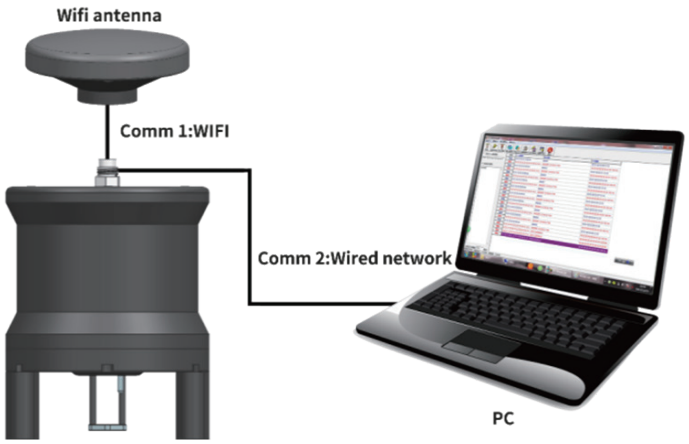
Specifications

Frequency	210kHz
Source level	220dB
Pulse length	50us ~ 500us, adjustable
Depth range	1 ~ 500m (slant range)
Resolution	1cm
Accuracy	Comply with IHO S44 standard
Swath coverage	100°~140°
Number of beams	320
Beam width	1.5°×1.5°
Ping rate	Up to 40 Pings/s
Roll stabilization	±10°
Beam distribution mode	Equi-Distant or Equi-Angle
Input voltage	110~240VAC 50/60Hz
Average power	100W
IP grade	IP67
Cable length	25m (standard), Optional: 15m, 50m or 100m
Operation temp.	-10°C ~ +40°C
Storage temp.	-40°C ~ +70°C

Dimension of receiver	456mm (L)×215mm (W)×145mm (H)
Dimension of projector	275mm (L)×115mm (W)×83mm (H)
Weight of sonarhead	13.9kg in air
Dimension of topside processor	315mm (L)×215mm (W)×105 mm (H)
Weight of topside processor	2.95kg
Depth rating (sonar head)	50m
Warranty	1 year
Composition	T type sonar head, topside processor, 25m watertight cable, mounting bracket, fairing

Customized Echosounders

The HY-Smart echosounder is perfectly designed for collecting draft, depth, sound velocity, temperature and other parameters simultaneously, which increases overall work productivity. Collected data and bathygrams are transmitted to computer terminals via WiFi or Ethernet communication. The system is fully integrated and suitably installed on unmanned vehicles and other platforms.

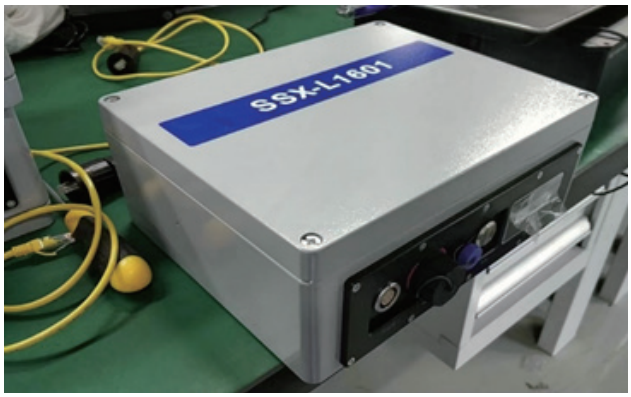


The HY-Smart echosounder

The ship draft detection system is designed for measuring the ship's draft depth, mainly consisting of single-beam echosounders, pressure sensors, inclination sensors, SVP and other measuring instruments. When the ship passes above the detection structure frame, the single-beam sensor array will measure the distance from the bottom surface of the ship to the frame, and thereby calculate the ship draft.

The cableway echosounder is composed of the transducer (installed on the lead fish of the hydrological cableway), the host (suspended on the lifting rope of the hydrological cableway), high-power WiFi and software, suitable for hydrological cableway Sounding.

The ship draft detection system



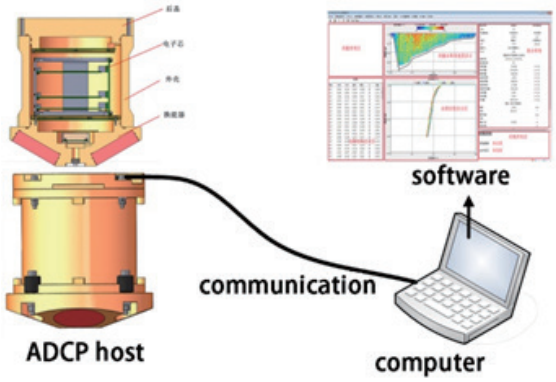
The cableway echosounder

RIV Series Acoustic Doppler Current Profiler

With our advanced IOA broadband technology, the RIV series ADCP is ideally used for collecting highly accurate and reliable flow velocity even in harsh river environments. Its adaptable design allows for a wide range of applications in 300kHz, 600kHz and 1200kHz frequencies.

Our ADCP offers seamless integration with existing popular devices such as Gyro, GPS, radio station. The survey vessels and triple-hulled vessels for moving measurements are also available on demand. With our ADCPs, you can spend less time on manual tasks and more time on valuable analysis.

RIV Series



Features

- IOA broadband technology brings accurate profiling flow data;
- 300kHz, 600kHz and 1200kHz frequencies are available;
- Easy maintenance with robust and reliable internal framework;
- Measurement results can be uploaded to the specified Web server.

Yunying 2 and Yunying 3 Unmanned Surface Vehicles provided

Yunying 2

HY-USV01

Specifications

Model	RIV-1200	RIV-600	RIV-300
Frequency	1200KHz	600KHz	300KHz
Transducer type	Piston		
Operation mode	Broadband and adaptive selection mode		
Configuration	4 beams, JANUS		
Velocity range	± 20 m/s		
Resolution	1 mm/s		
Number of layers	1-260		
Update rate	1~10 Hz		
Profiling range	0.1~40m	0.4~80m	1~120m
Accuracy	0.25%±2mm/s	0.25%±2mm/s	0.5%±5mm/s
Layer size	0.02~2m	0.2~4m	1~8m
Bottom range	0.1~55m	0.8~120m	2~200m
Depth rated	100m/500m/2000m/4000m/6000m		
Internal sensors(range/accuracy/resolution)			
Temperature	-10°~ 85°C ; ±0.5°C ; 0.01°		
Heading	0~360° ; ±0.5°(calibrated) ; 0. 1°		
Motion	±50°; ±0.2°; 0.01°		
Depth(optional)	0~200m ; 0.5%FS ; 0.01m		
Power supply and communications			
Input voltage	10.5V~36V		
Consumption	0.5W~3.5W		
Protocol	RS422、RS232 、10M Ethernet or IoT		
Baud rate	2400~115200		
Software	IOA river current measurement software with acquisition and navigation modules		
Storage	2G standard , 8G、16G、32G optional		
House material	POM (standard), titanium, aluminum optional (depends on the depth rating required)		
Dimension	242mm (H) ×225mm(Dia.)		
Weight	7.5kg in air , 5kg in water (standard)		
Operation temp.	-5°C~45°C		
Storage temp.	-25°C~65°C		
Functions	Support one-click export of hydroacoustic large sections; Customized hydrological multi-factor table generation; Software comes with navigation module and fixed point measurement module; Path multi-point vertical flow results table; Data collected by ADCP is uploaded to the server; Raw data protocol disclosure; Open source data.		

RIV H Series Horizontal Acoustic Doppler Current Profiler

The RIV H series is our horizontal ADCP for current monitoring, available in 300 kHz, 600 kHz, and 1200 kHz frequencies. The HADCP applys the most advanced broadband signal processing technology and acquire profiling data according to acoustic doppler principle. Inheriting from high stability and reliability of RIV series, the brand-new RIV H series accurately outputs data like velocity, flow, water level and temperature online in real time, ideally used for flood warning system, water diversion project, water environment monitoring, smart agriculture and water affairs.

Features

- High temporal and vertical spatial resolution benefiting from broadband signal processing technology.
- Compact design and portable deployment on river banks, canals, wharfs, bridge piers, etc.
- Available in 300kHz, 600kHz and 1200kHz models used for different situation.
- Standard configuration with ultrasonic water level gauge, temperature sensor, attitude sensor (roll, pitch), 2GB memory.
- Standard 256 measurement units.

RIV H Series

Installation site

Specifications

Model	RIV H-300K	RIV H-600K	RIV H-1200K
Technology	Broadband	Broadband	Broadband
Horizontal transducers	2	2	2
Horz. beam width	2°	1.1°	1.1°
Vertical transducers	1	1	1
Vert. beam width	5°	5°	5°
Profiling range	1~350 m	1~120 m	0.5~35 m
Accuracy	±[0.5% * measured value±2mm/s]	±[0.5% * measured value±2mm/s]	±[0.5% * measured value±2mm/s]
Velocity range	±5m/s (default) ; ±20m/s (maximum)	±5m/s (default) ; ±20m/s (maximum)	±5m/s (default) ; ±20m/s (maximum)
Resolution	1mm/s	1mm/s	1mm/s
Layers	1~256	1~256	1~256
Layer size	1~ 8 m	0.5~4m	0.25~4m
Water level			
Range	0.1~20m	0.1~20m	0.1~20m
Accuracy	±0.1%±3mm	±0.1%±3mm	±0.1%±3mm
Built-in sensors			
Temperature	Range: -10°C ~+85°C ;	Accuracy: ±0.1°C ;	Resolution: 0.001°C
Motion	Range: 0~50°;	Accuracy: 0.2°;	Resolution: 0.01°;
Gyro	Range: 0°~360°;	Accuracy:±0.5°;	Resolution: 0. 01°
Memory	2G(extendable)		
Communication			
Standard protocol	RS-232 or RS-422;		
Software	IOARiver		
Modbus interface module	Modbus		
Physical			
Power supply	10.5v~36v		
Average power consumption	＜ 10W		
House material	POM (standard) / Aluminum alloy, titanium alloy (optional)		
Depth rating	50m(standard), 2000m/6000m(optional)		
Operation temp.	-5°C ~ 55°C		
Storage temp.	-20°C ~ 65°C		
Dimension	270.5mmx328mmx202mm		
Weight	12.3Kg ; 11Kg ; 8.35Kg		

RIV F5 Series Five-beam Acoustic Doppler Current Profiler

The RIV-F5 series is a newly launched five-beam ADCP, technically backed by the Institute of Acoustics of the Chinese Academy of Sciences. The system can provide accurate and reliable data like current velocity, flow, water level, and temperature in real time, effectively used for flood warning systems, water transfer projects, water environment monitoring, smart agriculture, and smart water services. The system is equipped with a five-beam transducer. The additional central sounding beam strengthens bottom tracking ability for special environments such as waters with high sediment content and gets more accurate and stable data.

Based on the superb technology and proven performance of the RIV series, the RIV-F5 is innovated to be the latest generation of five-beam ADCP products. Even in complex environment with high turbidity and large flow velocity, RIV-F5 is ready to get stable data. It is a cost-effective choice with comparable performance.

Features

- IOA broadband technology brings accurate profiling flow data;
- Five-beam transducer with central sounding beam, especially used for waters with high sediment content;
- 300kHz, 600kHz and 1200kHz frequencies are available;
- Easy maintenance with robust and reliable internal framework;
- Measurement results can be uploaded to the specified Web server.

RIV-F5 series

Yunying 2 and Yunying 3 Unmanned Surface Vehicles provided

Yunying 2

HY-USV01

Specifications

Model	RIV F5-1200	RIV F5-600	RIV F5-300
Edge beam frequency	1200KHz	600KHz	300KHz
Vertical beam frequency	300KHz~600KHz, customized according to sediment content		
Transducer type	Piston		
Operation mode	Broadband and adaptive selection mode		
Configuration	5 beams, JANUS		
Velocity range	± 20 m/s		
Resolution	1 mm/s		
Number of layers	1-260		
Update rate	1~10 Hz		
Vertical beam depth range	0.2~200m		
Profiling range	0.1~40m	0.4~80m	1~120m
Accuracy	0.25%±2mm/s	0.25%±2mm/s	0.5%±5mm/s
Layer size	0.02~2m	0.2~4m	1~8m
Bottom range	0.1~55m	0.8~120m	2~200m
Depth rated	100m/500m/2000m/4000m/6000m		
Internal sensors(range/accuracy/resolution)			
Temperature	-10°~ 85°C ; ±0.5°C ; 0.01°		
Heading	0~360° ; ±0.5°(calibrated) ; 0. 1°		
Motion	±50°; ±0.2°; 0.01°		
Depth(optional)	0~200m ; 0.5%FS ; 0.01m		
Power supply and communications			
Input voltage	10.5V~36V		
Consumption	0.5W~3.5W		
Protocol	RS422、RS232 、10M Ethernet or IoT		
Baud rate	2400~115200		
Software	IOA river current measurement software with acquisition and navigation modules		
Storage	2G standard , 8G、16G、32G optional		
House material	POM (standard), titanium, aluminum optional (depends on the depth rating required)		
Dimension	242mm (H) ×225mm(Dia.)		
Weight	7.5kg in air , 5kg in water (standard)		
Operation temp.	-5°C~45°C		
Storage temp.	-25°C~65°C		
Functions	Support one-click export of hydroacoustic large sections; Customized hydrological multi-factor table generation; Software comes with navigation module and fixed point measurement module; Path multi-point vertical flow results table; Data collected by ADCP is uploaded to the server; Raw data protocol disclosure; Open source data.		

Smart Gaging GPS Flow Meter

The Smart Gaging is an intelligent flow meter that measures with the Doppler value obtained from Carrier phase Differential GPS. The system consists of a high-strength floating ball, a built-in high-precision GPS module and an integrated software system. It can accurately measure the surface velocity and flow direction by drifting in water.

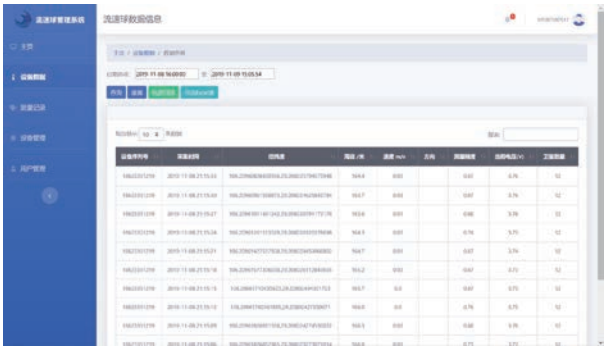
The software uses a built-in 4G (upgradeable to 5G) real-time communication module to collect and display data such as the trajectory, time, position, velocity and flow direction of the floating ball. These data can be uploaded to the server in real time, and exported to major format without any concern of data safety. After measurement, the track line can be replayed on map to help retrieve the floating ball.

Features

- Reliable DGPS differential technology and wireless network technology, allowing for sub-meter level tracking accuracy and accurate flow velocity and direction with no artificial and objective error accumulation.
- Simultaneous measurement, storage and real-time communication, ensuring safe and complete data storage.
- Strong environmental adaptability, not affected by low-visibility, heavy weather, restricted voyage, etc.
- Safe, easy and flexible to deploy and operate without any restrictions of carrier platforms such as trimaran, unmanned surface vehicle, unmanned aircraft, survey boat, etc. The float is not necessary to keep in sight, improving manpower safety.
- The powerful software can monitor and collect various data in real time, reducing labor force and improving efficiency.
- Cost-effective integrated system with lower cost compared with other traditional system ranging from tens of thousands to hundreds of thousands.
- Easy maintenance, only float replacement is required.

Smart Gaging GPS

Drift trajectory



Software data

Specifications

System	
Processor	48MHz Cortex-M0, 32-bit CPU
ROM	64K Flash
RAM	8K
G P S	
Update rate	Min. 100ms
Velocity accuracy	0.05m/s
Direction accuracy	0.03°
Position accuracy	<1m(GPS)
Position system	GPS, GLONASS, BeiDou
Gain of antenna	3.5dBi
Communication	
Frequency band	FDD:B1/B3/B5/B8 ;TDD:B38/B39/B40/B41 ;WCDMA:B1/B8
	TD-SCDMA:B34/B39 ; CDMA:BC0 ; GSM:900/1800MHz
Networks operator	Mobile/Unicom/Telecom
SIM	Micro Sim
Function	
Uploaded data	Longitude, latitude, velocity, altitude, time, direction, estimation accuracy
Storage	1000 data
Upload feature	Data can be stored in flash memory temporally when signal is interrupted, and continue to be uploaded when signal resumes.
Upload rate	Remote configurable
External interface	
Charging interface	5pin Micro USB
On-off	Push-Push
Power supply	
Operating voltage	3.6V~4.3V
Battery	5000mAH
Charging voltage	5V / 1A DC
Working time	48 hours(upload per second)
Indicator	Power/GPS/4G communication
Environment	
Temperature	-40°C ~ 80°C
Humidity	10% ~ 90%

HY-SC I Marine Acoustic Doppler Current Profiler

The SC I series ADCP, developed in collaboration with the Institute of Acoustics of the Chinese Academy of Sciences, showcases advanced technology. With optional frequencies of 75kHz and 150kHz, this reliable self-capacitive ADCP offers a maximum bottom tracking distance of 1000m and a maximum profiling range of 600m. Equipped with a built-in ultra-large-capacity battery, it operates independently without external power supply. The 75kHz model works in typical working mode (16m layer size, 40 layers, 30ping/hour) can work continuously for 330 days, and the 150kHz model can work continuously for 290 days under typical operating modes (8m layer size, 35 layers, 30ping/hour).

The SC II series is an ideal choice for various scenarios such as bottom sitting, anchoring, buoys, and offshore engineering platforms, which can be applied to marine exploration, marine ecological research, marine environment monitoring, and marine engineering endeavors.

Features

- Excellent data and high reliability proven through rigorous environmental tests and successful use in harsh climate conditions.
- Compact structure minimizes the space required in vehicles.
- Versatile bandwidth options: broadband for high-resolution and low-noise measurements, and narrowband for expanded range measurement.
- Built-in large capacity lithium battery allows for independent and long-term operation.
- Multiple communication interfaces including RS232, RS422, RS485, and Ethernet.

  Multiple data output formats and data export on demand, including flow rate, correlation coefficient, echo intensity, bottom measurement results, sensor data, etc.
- Multiple wake-up methods including real-time wake-up, Break wake-up, and synchronous wake-up.

  Real-time control of ADCP and real-time data return.
- Multiple data display methods including single frame display, pseudo color display, and original AD number waveform display.

  Power consumption and data space estimation provided by the display control software.
- Customizable to user needs.

HY-SC I series

Specifications

Model	SC I-75			SC I-150		
Frequency	75kHz			150kHz		
Mode and profiling range						
Boardband	600m			260m		
Narrow band	690m			332m		
Communication and Storage						
Interface	RS422、RS232、RS485 optional , 10M Ethernet					
Synchronous input/output	TTL/RS485			TTL/RS485		
Storage	Standard 2GB			Standard 2GB		
Profiling velocity						
Accuracy	±1%±5mm/s			±1%±5mm/s		
Resolution	1mm/s			1mm/s		
Range	±10m/s			±10m/s		
Layer size	4m~32m			2m~24m		
Layer number	1~128			1~128		
Ping rate	0.5Hz			1Hz		
Bottom velocity						
Range	1000m			500m		
Accuracy	±0.5%±5mm/s			±0.5%±5mm/s		
Resolution	1mm/s			1mm/s		
Physical structure						
Housing material	Aluminium			Aluminium		
Depth rating	1500m	3000m	6000m	1500m	3000m	6000m
Diameter	178mm	202mm		178mm	202mm	
Total length	1070mm			765mm		
Transducer	575mm			500mm		
Beam inclination	20°			20°		
Configuration	4 beams			4 beams		
Weight in air	90kg	105kg	109kg	60kg	71kg	74kg
Weight in water	48kg	58kg	61kg	34kg	41kg	42kg
Sensor						
Pressure	Range: 4000m and 6000m; Accuracy: ±0.25%FS					
Temperature	Range: -55℃ ~+125℃ ; Accuracy: ±0.5℃					
Attitude	Range: pitch±90°, roll±180° ; Tilt accuracy : 0.2° ; Course accuracy: 0.5°					
Environment						
Operation Temp.	-5°~ +50°C			-5°~ +50°C		
Storage Temp.	-40°~ +60°C			-40°~ +60°C		
Power supply						
External voltage	30~45VDC			30~45VDC		
Battery voltage	42VDC			42VDC		
Battery capacity	4 groups of batteries, each group 550Wh, a total of 2200Wh			2 groups of batteries, each group 550Wh, a total of 1100Wh		
Typical power consumption	9.23W (45V power supply, 16m layer size, and Ping rate of 0.5Hz)			12W(45V power supply, 16m layer size, and Ping rate of 1Hz)		
Continuous working time	330 days (Typical mode)			290 days (Typical mode)		
Software	Windows operating system with MSCADCP display and control software installed					

HY-SC II Marine Acoustic Doppler Current Profiler

The SC II series ADCP is developed in collaboration with the Institute of Acoustics of the Chinese Academy of Sciences. It represents a new generation of self-contained high-precision ADCP, carrying forward the outstanding performance of its predecessor. With optional frequencies of 300kHz, 600kHz, and 1200kHz, the SC II series offers remarkable versatility. Equipped with a built-in ultra-large-capacity battery, it operates independently without external power supply. The depth rating is up to 11000m.

The SC II series is an ideal choice for various scenarios such as bottom sitting, anchoring, buoys, and offshore engineering platforms, which can be applied to marine exploration, marine ecological research, marine environment monitoring, and marine engineering endeavors.

HY-SC II series

Features

- Excellent data and high reliability proven through rigorous environmental tests and successful use in harsh climate conditions.
- Compact structure minimizes the space required in vehicles.
- Two installation available: waist tile installation and tail screw installation.
- Versatile bandwidth options: broadband for high-resolution and low-noise measurements, and narrowband for expanded range measurement.
- Built-in large capacity lithium battery allows for independent and long-term operation.
- Multiple communication interfaces including RS232, RS422, RS485, and Ethernet.
- Multiple data output formats and data export on demand, including flow rate, correlation coefficient, echo intensity, bottom measurement results, sensor data, etc.
- Multiple wake-up methods including real-time wake-up, Break wake-up, and synchronous wake-up.
- Real-time control of ADCP and real-time data return.
- Multiple data display methods including single frame display, pseudo color display, and original AD number waveform display.
- Power consumption and data space estimation provided by the display control software.
- Customizable to user needs.

Specifications

Model	SC II-75			SC II-600			SC II-1200		
Frequency	300kHz			600kHz			1200kHz		
Mode and profiling range									
Boardband	104m			60m			20m		
Narrow band	150m			68m			25m		
Communication and Storage									
Interface	RS422、RS232、RS485 optional , 10M Ethernet								
Synchronous input/output	TTL/RS485			TTL/RS485			TTL/RS485		
Storage	Standard 2GB			Standard 2GB			Standard 2GB		
Profiling velocity									
Accuracy	±0.5%±5mm/s			±0.3%±3mm/s			±0.3%±3mm/s		
Resolution	1mm/s			1mm/s			1mm/s		
Range	±10m/s			±10m/s			±10m/s		
Layer size	1m~8m			0.5m~4m			0.25~2m		
Layer number	1~128			1~128			1~128		
Ping rate	2Hz			2Hz			2Hz		
Bottom velocity									
Range	270m			120m			40m		
Accuracy	±0.4%±5mm/s			±0.3%±3mm/s			±0.3%±3mm/s		
Resolution	1mm/s			1mm/s			1mm/s		
Physical structure									
Housing material	Aluminium	Titanium	POM	Aluminium	Titanium	POM	Aluminium	Titanium	POM
Depth rating	1500m	6000m	200m	1500m	6000m	200m	1500m	6000m	200m
Diameter	178mm	187mm	178mm	178mm	187mm	178mm	178mm	187mm	178mm
Total length	441mm	439mm	427mm	424mm	431mm	420mm	426mm	431mm	426mm
Transducer	230mm			225mm			220mm		
Beam inclination	20°			20°			20°		
Configuration	4 beams			4 beams			4 beams		
Weight in air	23kg	32kg	15kg	22kg	31kg	14kg	22kg	31kg	14kg
Weight in water	14kg	23kg	7kg	13.5kg	22.5kg	6.5kg	13.5kg	22.5kg	6.5kg
Sensor									
Pressure	Range: 4000m、6000m、400m ; Accuracy: ±0.25%FS								
Temperature	Range: -55°C ~ +125°C ; Accuracy: ±0.5°C								
Attitude	Range: pitch±90°, roll±180°; Tilt accuracy: 0.2°; Course accuracy: 0.5°								
Environment									
Operation Temp.	-5°C~ +50°C			-5°C~ +50°C			-5°~ +50°C		
Storage Temp.	-40°C~ +60°C			-40°C~ +60°C			-40°~ +60°C		
Power supply									
External voltage	30~45VDC			30~45VDC			30~45VDC		
Battery voltage	42VDC			42VDC			42VDC		
Battery capacity	550Wh			550Wh			550Wh		
Typical power consumption	10.2W (45V power supply, 4m layer size, and Ping rate of 1Hz)			10.2W (45V power supply, 4m layer size, and Ping rate of 1Hz)			10.2W (45V power supply, 2m layer size, and Ping rate of 1Hz)		
Continuous working time	240 days (Typical mode)			93 days (Typical mode)			92 days (Typical mode)		
Software	Windows operating system with MSCADCP display and control software installed								

HY-USV01 Multifunctional Unmanned Surface Vessel

The HY-USV01 is a new generation of intelligent unmanned vessel specially designed for carrying ADCP, echosounder, water quality monitoring and other sensors. The HY-USV01 features its flat bottom, fast sailing speed, stable attitude and long battery life.

The hull is made of carbon fiber plus Kevlar bulletproof cloth, and the bottom is equipped with wear-resistant structural parts. It is light in weight and high in strength, which is convenient for transportation and deployment. Greatly reduce the number of field personnel, improve work efficiency, and meet the requirements of various harsh environments.

Features

- Lightweight and easy to transport
- Thicker bottom, three times wear-resistant
- Simultaneous measurement of current and depth
- 4G transmission regardless of distance
- Data saved automatically to prevent loss and omission
- High-definition video transmitted in real time
- One-button start camera to take pictures

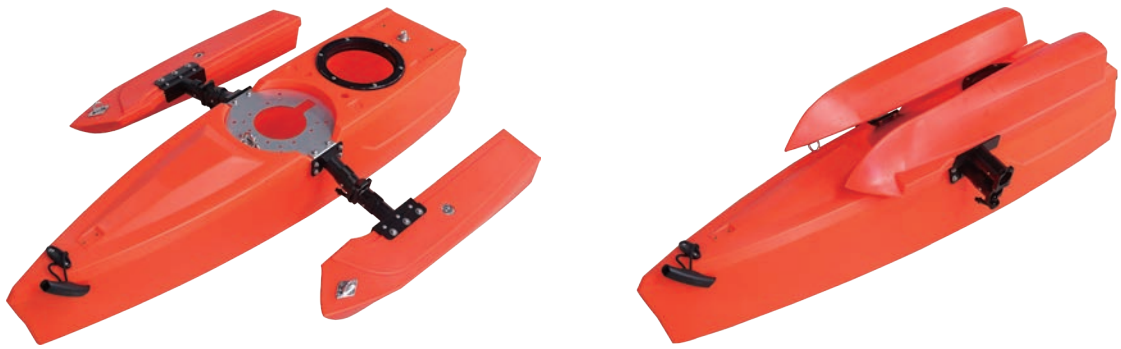
HY-USV01

Specifications

Model		HY-USV01
Vehicle body	Dimension	1100mm*580mm*320mm
	Design	M-type trimaran design
	Weight	14KG
	Material	Carbon fiber, Kevlar blended composite material
	Wave/wind resistance	Gentle breeze
Dynamic system	Endurance	6 hours (1.5m/s), battery removable
	Speed	7m/s (max)
	Power unit	Electric propulsion
	Propeller	Two plug-in ducted thrusters
	Steering Control	Differential steering and reversing functions without steering gear
Safety system	Avoidance	Video obstacle avoidance, automatic obstacle avoidance (optional)
	Video	High definition
	Automatic return	Automatic return to home when low battery or lost connection
Shore-base system	Operation system	Windows/Android
	Communication	4G or radio
	Transmission distance	4G: Infinite distance Radio: Omnidirectional 3km
	Navigation mode	Manual/Automatic
Remote control system	Communication	Real-time RF point-to-point transmission
	Operating range	2km
	Display	7 "HD display
	IP rating	IP67
	Function	Real-time switching of working modes , control of ship speed , steering and other functions ; Equipped with Android APP , Real-time display of water depth and positioning status.
ADCP module	Hole size	235mm diameter
	ADCP type	Moving vessel ADCP
Echosounder module	Depth range	0.15~300m
	Depth accuracy	1 cm ± 0.1% *depth
	Data storage	16G
	Display	LCD , resolution 128 x 64

Aboat Foldable Unpowered Trimaran

The Aboat unpowered trimaran is a universal carrier designed for carrying ADCP. The super large through hole can accommodate most of the moving vessel ADCPs on the market.



Aboat Foldable Unpowered Trimaran

Features

- Lightweight, stable, and easy to fold.
- Constructed with durable high-strength PE material that resists aging.
- Can be equipped with a dedicated data transmission station with a communication distance of up to 3KM.
- Can be equipped with a 4G Internet of Things radio station for communication using 4G signal coverage.
- Reserved installation base for GPS and positioning and orientation instruments.

Specifications

Structure	Foldable trimaran
Material	High strength polyethylene
Unfold size（mm）	1150*850*250
Folded size（mm）	1150*550*280
Weight	6kg
Applicable waters	5m/s

HY1202 Surface Velocity Profiler

The HY1202 series is a full-sea surface velocity profiler for real-time sound velocity measurement in sea (river, lake) water. The standard depth rated is 50 meters and the maximum can reach 11000m. It is often used for fixed installation on ships to perform depth correction of single beam depth sounder, beam width correction of multi-beam echosounder and correction of sound ray bending. It can also be integrated into autonomous navigation platforms such as submarines, AUVs and ROVs to meet special task requirements.

Features

- Accurate and reliable sound velocity measurement using "Time of Flight" technology;
- Compact 316 stainless steel housing that is corrosion and pressure resistant;
- Easy-to-clean, streamlined, and flexible integration structure design;
- Direct path ultrasonic echosounding with a 2MHz transducer element.

Shallow water type　　Deep water type

HY1202

Specifications

Data storage	Up to 100 files , 1 million sets of data		
I/O Interfaces	Connector: MCBH6M (316 stainless steel) Output: RS232 serial port Baud: 9600~115200 Output Formats: Universal programmable ASCII, Valeport, AML, NMEA and others		
Power	12 VDC（7VDC~20VDC）,0.5W typical, 1W maximum		
Cable length	1.5m (standard)		
Depth rated	50 meter (standard), 3000~10000 meter (customized)		
Dimension/weight	190 mm (L) × 39 mm (D)， 450g in air（W/O cable）		
Probe	Range	Resolution	Accuracy
SV (m/sec.)	1400~1700	0.001	0.05m/s@50m ； 0.2m/s@3000~11000m

HY1203 Sound Velocity Profiler

The HY1203 is a self-recording SVP for measuring underwater sound velocity, depth and surrounding temperature, which helps calibrate echosounders, sonar systems and other acoustic instruments. It adopts "Time of Flight" technology and improves the accuracy to 0.05 m/s, which reaches to world-leading level. It is extensively used in the field of hydrography, geophysical exploration, defense and security, scientific research, etc. The HY1203 is a more accurate SVP with faster data transmission rate and larger capacity of storage.

Features

- Accurate and reliable sound velocity measurement using "Time of Flight" technology
- Precise and reliable depth and temperature measurement
- Cable-free data transfer via Bluetooth
- Convenient magnetic switch for one-touch opening
- Depth triggering for data recording
- Display of sound velocity and temperature profile curves
- Direct calibration using average sound velocity curve
- Factory availability for regular calibration and checks

HY1203

Specifications

Data storage	Up to 100 files, 1 million sets of data		
I/O Interfaces	Connector: MCBH6M (316 stainless steel) Output: RS232 serial port Baud rate: 115200		
Power	Large capacity rechargeable lithium battery, power less than 0.7W, continuous working time greater than 16 hours		
Cable length	1.5m (standard)		
Dimension/weight	380mm×ϕ53mm，1.65kg in air（W/O cable）		
Probe	Range	Resolution	Accuracy
SV (m/sec.)	1400~1700	0.001	0.05
Depth (m)	0~200	0.01	0.2
Temp. (°C)	0~40	0.001	0.02

HY1672 Imaging sonar

The HY1672 is a new advanced underwater multi-beam imaging sonar launched by Haiying, capable of long-distance detection of 120 meters within a 120° sector. It can accurately deliver high-quality images even in turbid or dark waters.

The HY1672 Underwater imaging sonar is compact and can be integrated with ROV/AUV and USV to safely and efficiently realize underwater pipeline detection, underwater search, infrastructure inspection and other applications.

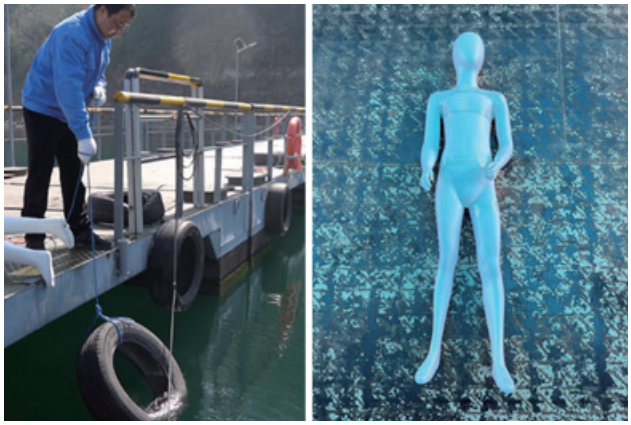
HY1672

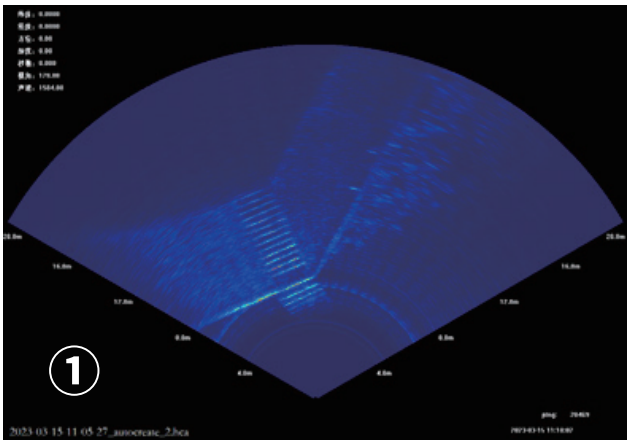
Features

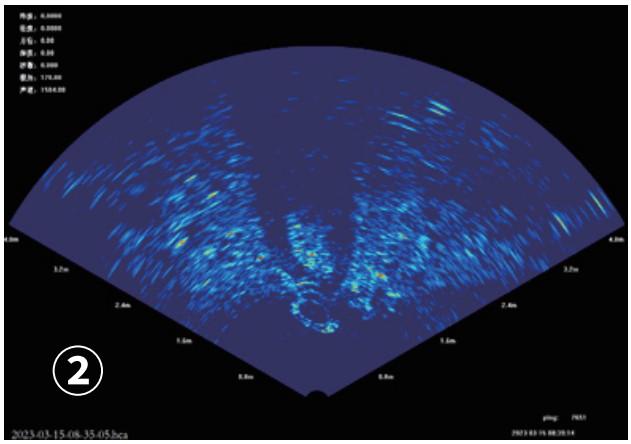
- Suitable for shallow water, low visibility environments and low power applications
- Open nose cone design for superior image quality and coverage
- Compact and lightweight, suitable for small ROV/AUV and for platforms with limited space or weight

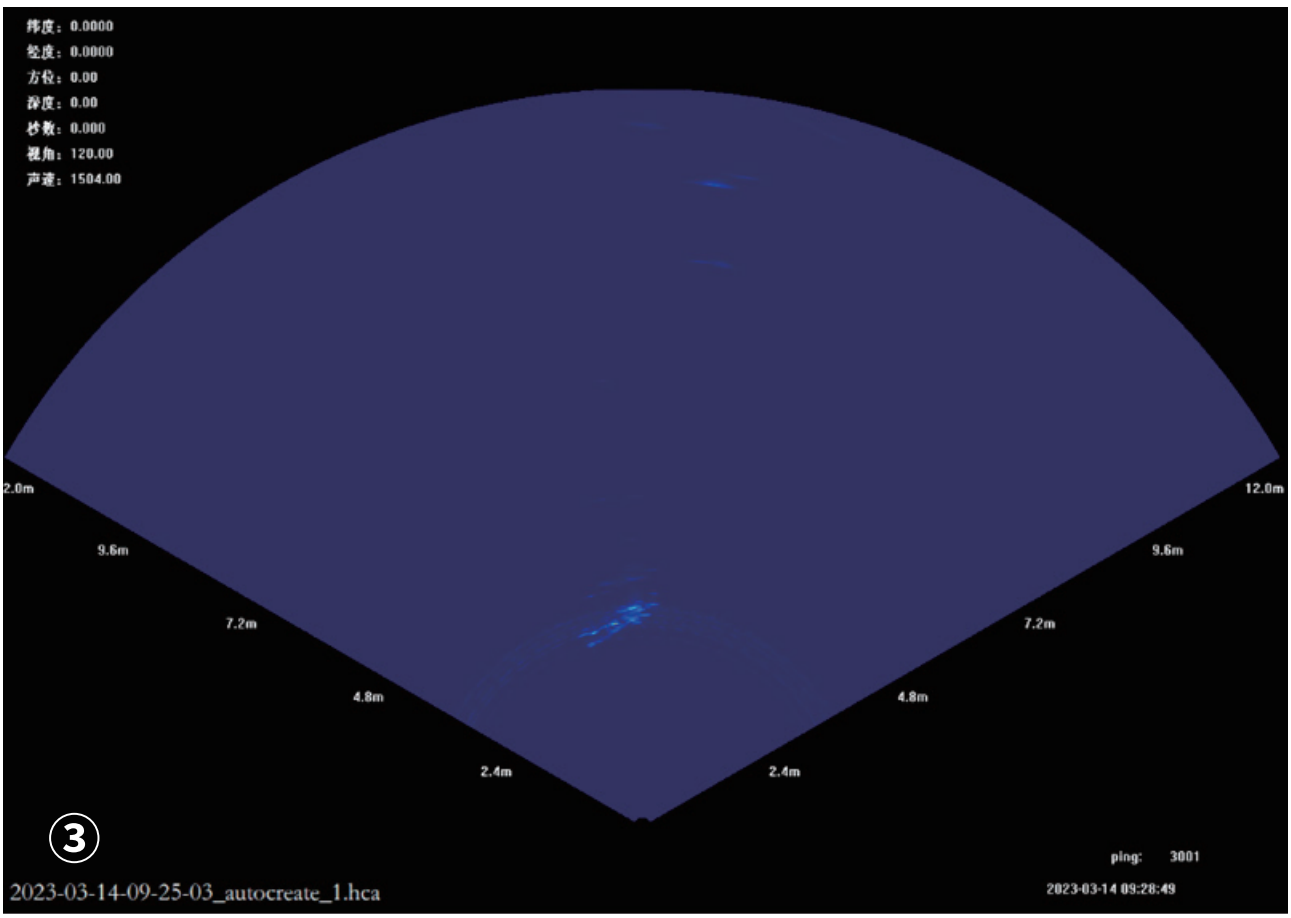
Specifications

Frequency	720KHz
Angle of view (Horizontal x Vertical)	120°×20°
Range	120m
Beam width (Horizontal x Vertical)	1°×20°
Beam numbers	512
Beam space	0.23°
Range resolution	8mm
Operation mode	LFM/CW
Output format	MP4 / BMP / JPEG / PNG / HCA
Communication	TCP/IP
Power consumption	25W
Dimension	175mm×140mm×65mm
Weight	1.75kg in air, 0.6kg in water
Depth rated	100m









① tyre ② body (1.5m) ③ stairs

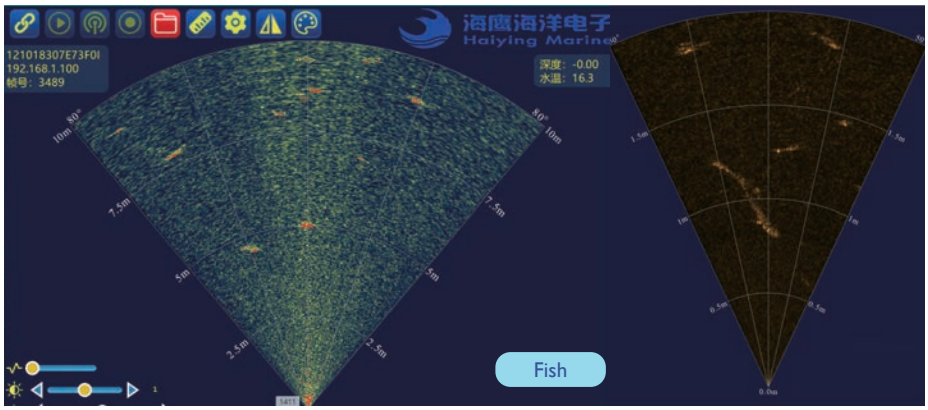
HY1627 High-resolution Dual-frequency Imaging Sonar

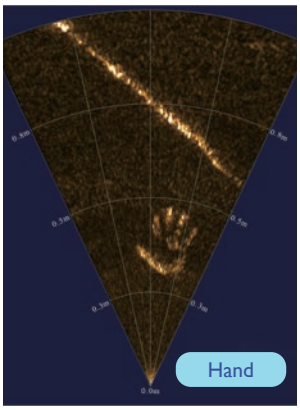
The HY1627 is the flagship model in our product line, boasting its dual frequencies of 1.8MHz and 3MHz. The 1.8MHz frequency is optimized for high-resolution, long-distance navigation, target detection, and obstacle avoidance. On the other hand, the 3MHz frequency excels in providing ultra-high-resolution sonar images for close-range applications, even surpassing the capabilities of optical imaging in turbid water environments. The HY1627 image sonar is designed to be compact and lightweight, allowing for easy integration and deployment on various underwater platforms such as ROV/AUV and USV. By utilizing this advanced technology, operators can safely and efficiently conduct underwater pipeline inspections, underwater search operations, and underwater infrastructure inspections. Additionally, we offer sonar systems with customized frequencies and operating depths to cater to specific project requirements.

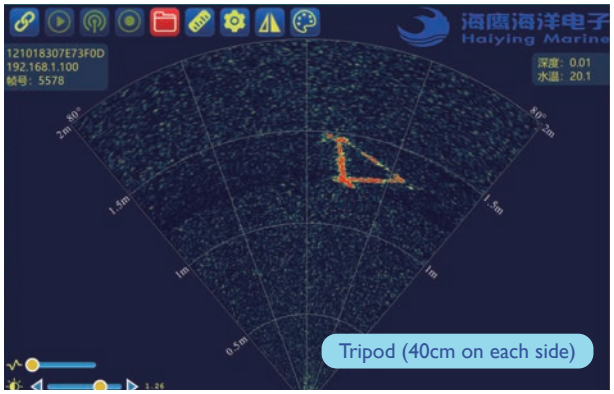
Features

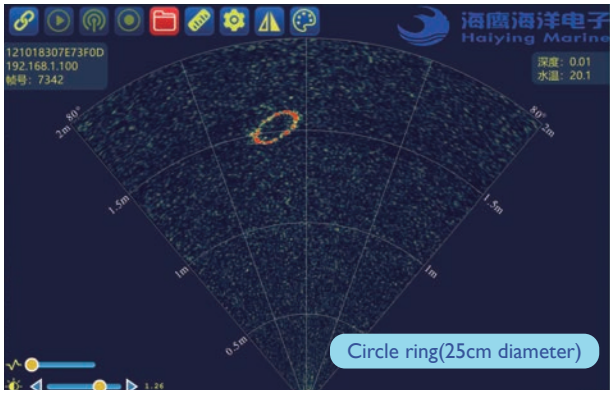
- 1.8MHz and 3MHz dual-frequency design, more flexibility;
- Suitable for shallow water, low visibility environments and low power consumption applications;
- Open nose cone design brings more excellent image quality and coverage;
- Compact and lightweight, suitable for small ROV/AUV and platforms with limited space or weight.

HY1627









Specifications

Central frequency	1.8MHz	3MHz
Horizontal beam width	0.6°	0.35°
Horizontal angle of view	80°	50°
Vertical angle of view	20°	15°
Detection range	25m	8m
Range resolution	2.5mm	
Ping rate(related to range)	>10Hz	
Beam numbers	256	
Operation mode	CW or CHIRP, automatic or manual selection	
Depth rated	300m(4000m optional)	
Sailing speed	≤6kn , exceeding this speed has no impact on use, but may reduce the detection range	
Blanking area	≤0.1m	
Image quality	Strength of object and artifact greater than 30dB (design index)	
Input voltage	18 ~ 40VDC	
Consumption	10W(average power), ≤30W(peak power)	
Built-in pressure sensor	Output current pressure; Pressure range: 0~3MPa; Accuracy: 5%+10kPa;	
Built-in temp. sensor	Measure the internal temperature of the equipment; Measure the ambient water temperature; Temp. Range : 0~85°C ; Accuracy : +/-2°C ;	
Housing material	Aluminum alloy	
Dimension	120mmx 110mmx 34mm	
Weight in air/in water	660g/220g	

DVL Series Doppler Velocity Log

With our advanced IOA broadband technology, the DVL Series Doppler Velocity Log is a newly launched acoustic velocity measurement sonar. It can measure the high-precision movement speed of the equipment relative to the seabed. And it can be combined with compass or inertial navigation to form an autonomous navigation system, which is used for the control and high-precision navigation of surface vessels, underwater towing bodies, AUVs, UUVs, etc. In addition, it also provides information of current profiling, and support moving vessels and fixed-point installation.

Features

- Advanced acoustic technology with military-grade quality assurance.
- Stable and reliable performance tested in various fields and recognized by the industry.
- Accurate velocity measurement and navigation with an accuracy better than 5%.
- Accurate current profiling measurement for various carriers.

DVL Series

Specifications

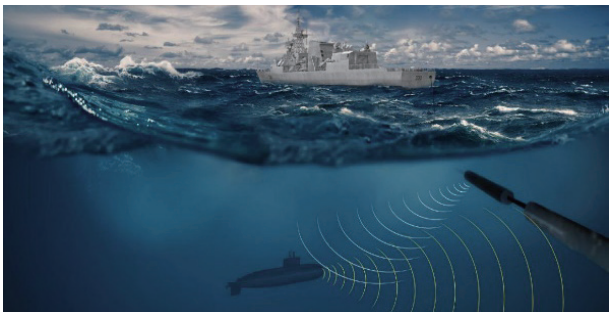
Type	DVL-300	DVL-600	DVL-1200
Current profiling	Current profiling	Current profiling	Current profiling
Frequency	300kHz	600kHz	1200kHz
Profiling range	100m	70m	15m，20m，25m，30m
Velocity range	±5m/s (default)	±5m/s (default)	±5m/s (default)
Accuracy	±0.5%±5mm/s	±0.3%±3mm/s	± 0.3% ± 3mm/s
Resolution	1mm/s	1mm/s	1mm/s
Layer size	1~8m	0.5~4m	0.25m，0.5m，1m，2m
Number of layers	1~128	1~128	1~128
Data output rate (typical)	1Hz	1Hz	1Hz

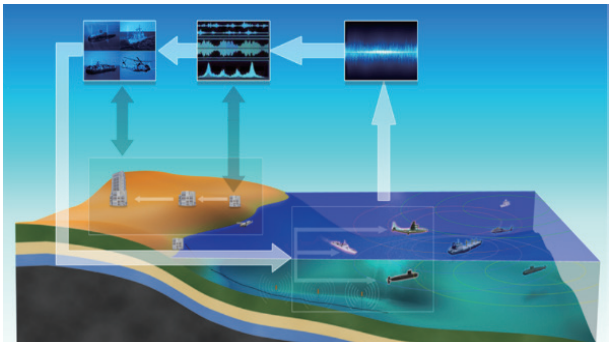
Type	DVL-300	DVL-600	DVL-1200
Bottom tracking			
Frequency	300kHz	600kHz	1200kHz
Depth range	2~200m	1~120m	0.7~30m
Accuracy	±0.4%±5mm/s	±0.3%±3mm/s	± 0.3% ± 3mm/s
Velocity range	±10 m/s	±10m/s	±10m/s
Data output rate (typical)	1Hz	1Hz	1Hz
Transducer and hardware			
Beam angle	30 °	30°	30°
Beam width	4°	2°	2°
Configuration	4 beams, convex	4 beams, convex	4beams, convex
Storage	2 Gbyte	2 Gbyte	2 Gbyte
Communications	RS422、RS232 or 10M Ethernet		
House material	POM (standard), titanium, aluminum optional (depends on the depth rating required)		
Sensors			
Temperature	Range: -10°~ 85°C;	Accuracy: ±0.5°C;	Resolution: 0.01°
Motion	Range: ±50°;	Accuracy: ±0.2°;	Resolution: 0.01°
Heading	Accuracy: ±0.5°(calibrated);		Resolution: 0. 1°
Depth (option)	Range: 6000m;	Accuracy: ± 0.25%FS;	Resolution: 0.1°
Power requirement			
Transmit power	1kW		
DC input	20 ~ 50VDC		
Dimension and weight			
Dimension	DVL1-300k:433mm (H)×252mm (Dia)	DVL1-600k:423mm (H)×225mm (Dia)	248mm (H)×225mm (Dia)
(Height × Diameter)	DVL2-300k: 258mm (H)×230mm (Dia)	DVL2-600k:248mm (H)×225mm (Dia)	
Weight	DVL1-300k:28kg (in air), 16 kg (in water)	DVL1-600k:23k g (in air), 13 kg (in water)	19kg (in air), 12kg (in water)
	DVL2-300k:22kg (in air), 15kg (in water)	DVL2-600k:19kg (in air), 12kg (in water)	
Environment			
Maximum depth	6000m		
Operation temperature	-5°C~ 45°C, relative humidity≤93%		
Storage temperature	-30°C ~ 50°C, relative humidity≤93%		
Software	The ADCP Panel software based on WindowsXP/Win7 system for parameters configuration, real-time data display and replay		

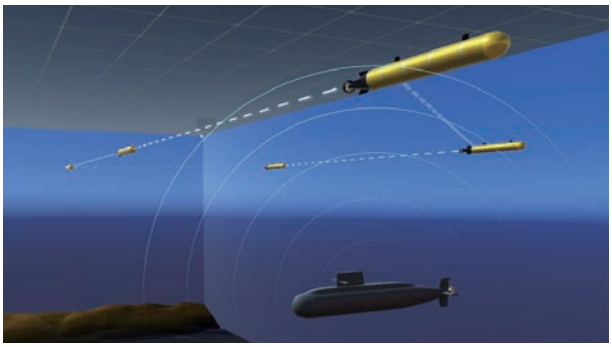
HY-AS007 Digital Hydrophone

The HY-AS007 digital hydrophone is a multifunctional underwater acoustic signal acquisition unit. The digital hydrophone is convenient to quickly form a large-scale synchronous underwater acoustic measurement or observation processing system through cascading arrays, and has high-precision synchronous transmission capability of hundreds of nanoseconds. Only one cable is used between the hydrophones to realize the functions of communication, synchronization and power supply, and the multiplexing link technology greatly reduces the number of cables on the basis of the traditional solution.

HY-AS007







Features

- Multi-function: Combines traditional analog hydrophone, amplification and conditioning circuit, acquisition, storage, and Ethernet transparent exchange functions.
- Fast cascading array: Two 100/1000Mbps self-adaptive Ethernet interfaces make it easy to quickly form a large-scale synchronous underwater acoustic measurement or observation processing system through cascading arrays.
- High synchronization accuracy: uses PTP (IEEE1588) protocol for synchronous data collection and transmission between hydrophones via Ethernet, with automatic and fast synchronization after power-on, and accuracy within hundreds of nanoseconds.
- Low self-noise, large dynamic range, and high versatility.
- Customizable working frequency band with fixed and adjustable gain range.

Specifications

Synchronous protocol	PTP
Back-to-back synchronization accuracy	±50ns
40-hop cascade synchronization accuracy	±150ns
Sample rate	Maximum 256ksps (configurable)
Sample depth	24bit
Fixed gain	20dB
Variable gain	＞80dB
Signal frequency band	10Hz~100KHz（customized）
Equivalent input noise	≤ 1uVrms（@5KHz）
Noise spectrum level	≤45dB@100Hz-100kHz
Input impedance	＞10MΩ
Maximum undistorted input signal	±250mVpp
Data storage	32GB（extensible）
Circuit dimension	小于 115mm*30mm（length x width）
Overall dimension	390mm*45mm（length x diameter）（W/O connector）
Weight	2kg（stainless steel）
Harmonic distortion	≤-75dB@1kHz（when the gain is 1）
Data transfer protocol	TCP/IP
Power consumption	≤5W
Depth rated	500m（stainless steel），1000m（thickened stainless steel）；6000m（titanium）

HY-BAS007 Self-contained Hydrophone

The HY-BAS007 is a self-contained hydrophone that offers independent recording and storage capabilities for hydroacoustic information. It combines the functionalities of a traditional analog hydrophone, amplification and conditioning circuits, data acquisition, storage, and data transmission. Designed for flexible assembly and deployment, it excels in unattended marine environments, operating reliably for extended periods.

This hydrophone's convenient and efficient features make it suitable for a wide range of applications, such as marine environmental noise research, ocean acoustic layer analysis, geoacoustic parameter inversion, underwater acoustic channel characteristics research, and target radiated noise measurement. Its versatility and reliability have established it as an indispensable tool in these fields.

Features

- Portable and easy to deploy in any marine environment. 1TB storage for extensive data collection and storage.
- Long-lasting operation for over two weeks with rechargeable batteries and low power consumption.
- Flexible sampling rate range (2kSps to 256kSps) to meet different research requirements.
- Precise signal amplification and adjustment with a programmable gain range of -30dB to 50dB.

HY-BAS007

- High acquisition accuracy of up to 24 bits for detailed hydroacoustic data.
- Customizable features such as working frequency band, gain options, and integration with a control computer.

Specifications

Synchronous punctuality accuracy	Better than 4ms/day@tcxo
Number of channels	1
Connection	Integrated into the hull
Sample rate	Maximum 256ksps (configurable)
Sample depth	24bit
Fixed gain	Default 26dB(can be customized)
Total gain	-30dB~+50dB
Signal frequency band	Default 10Hz~50KHz(can be customized)
System spectrum level	37dB@1kHz
Data storage capacity	1TB TF card
Harmonic distortion	≤-75dB@1kHz(When the gain is 1)
Maximum undistorted input signal	±250mVpp
Digital interface	USB
Consumption	≤0.4W
Continuous working time	Works continuously for 7 days at the maximum (256k) sampling rate, and can standby for 60 days in sleep mode
Working mode	Configurable, not less than 16 time periods.
	Different sampling g tasks can be configured with different gain, sampling rate and other parameters.
Data	Acquisition time, sampling rate, and preamplifier gain information
Data output	Exported to the computer by segment, with a rate of not less than 10MB/s
Host computer	Create collection tasks and set parameters
Acquisition data browsing software	The collection time domain data, noise spectrum level, collection time, parameter settings, etc. can be dragged to display.
Depth rated	500 meters (full water depth optional)
Dimension(excel. end cap)	420mm×ϕ68mm

HY1300 Digital Tide Gauge

The HY1300 is a type of self-recording tide gauge in small size. It can measure the temperature and tide changes accurately in spite of sea surface winds and waves. This product is characterized by high precision, 24-bit ADC and small size, which can be easily installed in most objects, such as the seabed, bridgepier and wharf. HY1300 is widely applied in marine research as well as port and dam monitoring.

HY1300

Specifications

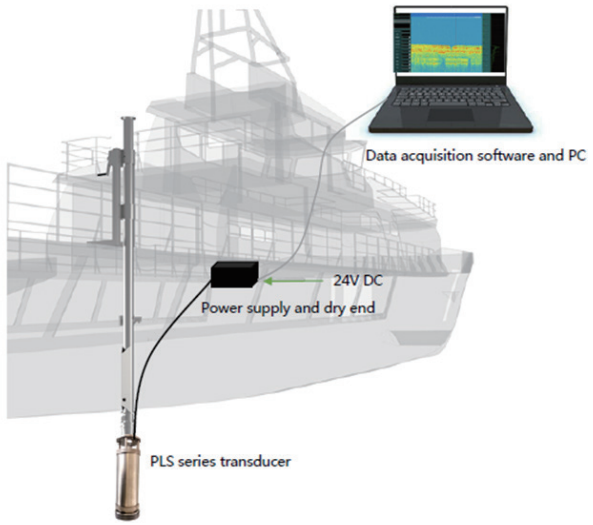
Depth range	20m, 50 m
Accuracy	0.5% of full range
Resolution	0.01 m
Temperature range	0°C~40°C
Temperature accuracy	±0.1°C
Temperature resolution	0.01°C
Memory	8M flash memory
Communication	RS-232
Sampling rate	4 Hz
Sampling interval	1 min-3 min
Dimension	230 mm (L)× 42 mm (D)
Weight	350 g in air, 300 g in water
Power supply	2×3V CR123A lithium battery

PLS Series Parametric Sub-Bottom Profiler

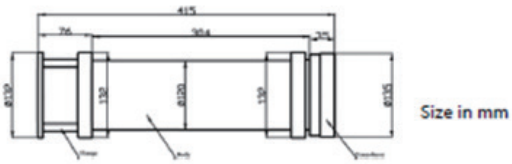
The PLS product is a family of portable parametric sub-bottom profilers, which uses single-beam parametric technology for sub-bottom profiling exploration and accurate water depth survey.

The PLS provides optional primary frequencies including 100kHz, 200kHz, and 300kHz. The range of secondary frequencies is wide, and real-time data for bathymetry and sub-bottom profiling can be both acquired. The standard hulls are 2000m and 6000m depth rated, it also can be customized, small form factor, and portable, which is suitable for integration into ROV and AUV.

PLS system connection



PLS Series



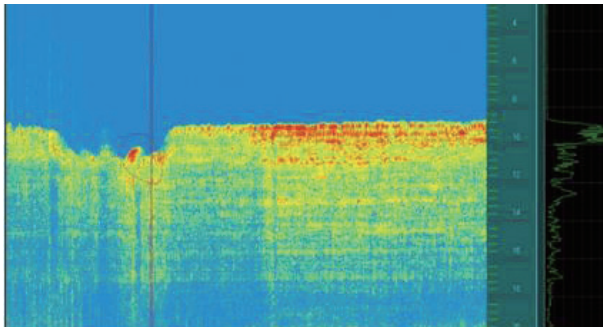
Size in mm

Features

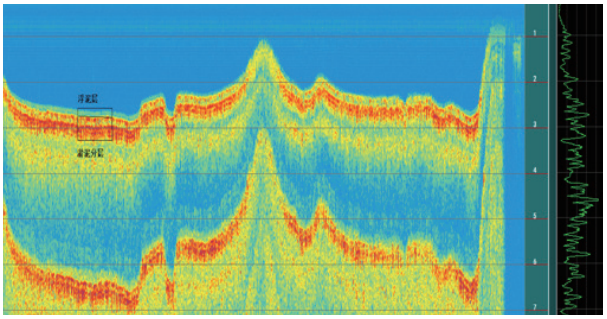
- Small form factor and portable
- Mature technology
- Wide frequency range
- Easy installation
- Titanium / stainless steel hull optional
- Accurate surveying and high-resolution profile detection

Applications

- Geological and geophysical surveys
- Sediment investigation and analysis
- Pipeline routing survey and submarine cable laying project
- Mineral resources searching
- Water depth survey for Shallow water, ports, reservoirs and shore-based areas and silt analysis
- Shipwreck, pipeline, submarine cable, underwater obstacles and boulders searching
- Archaeological operations such as relics and geological subsidence
- Water body and gas seepage monitoring



Raw date replay of oil pipe detection



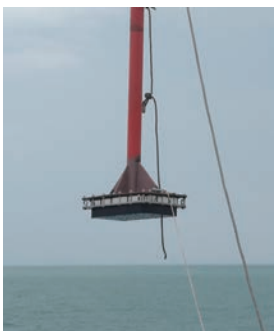
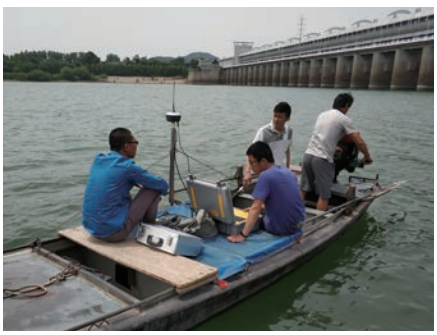
2~3m water depth of waterway in Zhejiang

Specifications

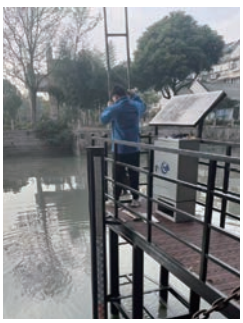
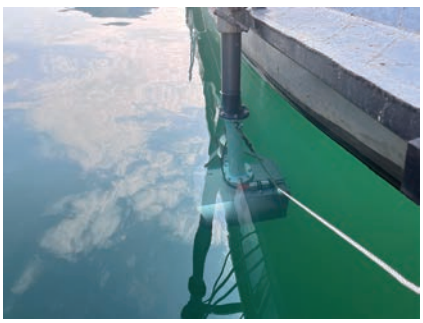
Specifications	PLS-100	PLS-200	PLS-300
Primary Frequency	85 ~ 115 kHz	180 ~ 220 kHz	270 ~ 330 kHz
Secondary Frequency	5~ 25 kHz	10 ~ 35 kHz	10 ~ 35 kHz
Pulse Lengths	0.05 ~ 1ms	0.05 ~ 1ms	0.05 ~ 1ms
Pulse Type	CW,CHIRP optional	CW,CHIRP optional	CW,CHIRP optional
Ping Rate	Up to 10 pings/s	Up to 10 pings/s	Up to 10 pings/s
Output Power	＞3 kW	＞3 kW	＞3 kW
Output Power	~ 5 deg	~ 3.8 deg	~ 3.6 deg
Beamwidth-secondary	5 ~ 6 deg	4 ~ 5 deg	3 ~ 4 deg
Primary Frequency Source Level	>240 dB/uPa @ 1m 100Khz	>240 dB/uPa @ 1m 200Khz	>240 dB/uPa @ 1m 300Khz
Difference Frequency Source Level	>196 dB/uPa@1m 20Khz	>196 dB/uPa@1m 20Khz	>196 dB/uPa@1m 30Khz
Dynamic Range	>110 dB	>110 dB	>110 dB
Range Resolution	<0.04 m	<0.04 m	<0.04 m
Penetration Capability	<40m (depends on the sediment and noise)	<20m (depends on the sediment and noise)	<15m (depends on the sediment and noise)
Effective Range	<150 m	<100 m	<50 m
Attitude Compensation	Heave correction and compensation	Heave correction and compensation	Heave correction and compensation
Power Supply	24VDC / 220V AC to 24VDC	24VDC / 220V AC to 24VDC	24VDC / 220V AC to 24VDC
Power Consumption	Less than 35W	Less than 35W	Less than 35W
PC Connector	Network port , RS485 to USB	Network port , RS485 to USB	Network port , RS485 to USB
External Interface	GPS, Attitude sensors	GPS, Attitude sensors	GPS, Attitude sensors
Transducer Weight	Titanium, 12 kg in air, 6 kg in water	Titanium, 9 kg in air, 5 kg in water	Titanium, 8 kg in air, 4 kg in water
Transducer Dimension	415mm (Length) 160mm (Diameter)	415mm (Length) 160mm (Diameter)	415mm (Length) 160mm (Diameter)
Material	stainless steel /titanium, optional	stainless steel /titanium, optional	stainless steel /titanium, optional
Temperature	0°C~40°C	0°C~40°C	0°C~40°C
Software	Standard PLS-2016 data acquisition software，customized data format to third-party post processing software，such as SonarWiz etc.	Standard PLS-2016 data acquisition software，customized data format to third-party post processing software，such as SonarWiz etc.	Standard PLS-2016 data acquisition software，customized data format to third-party post processing software，such as SonarWiz etc.
Control System	Laptop	Laptop	Laptop

Engineering Cases



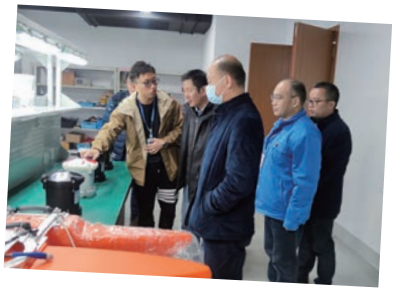



Technical Exchange

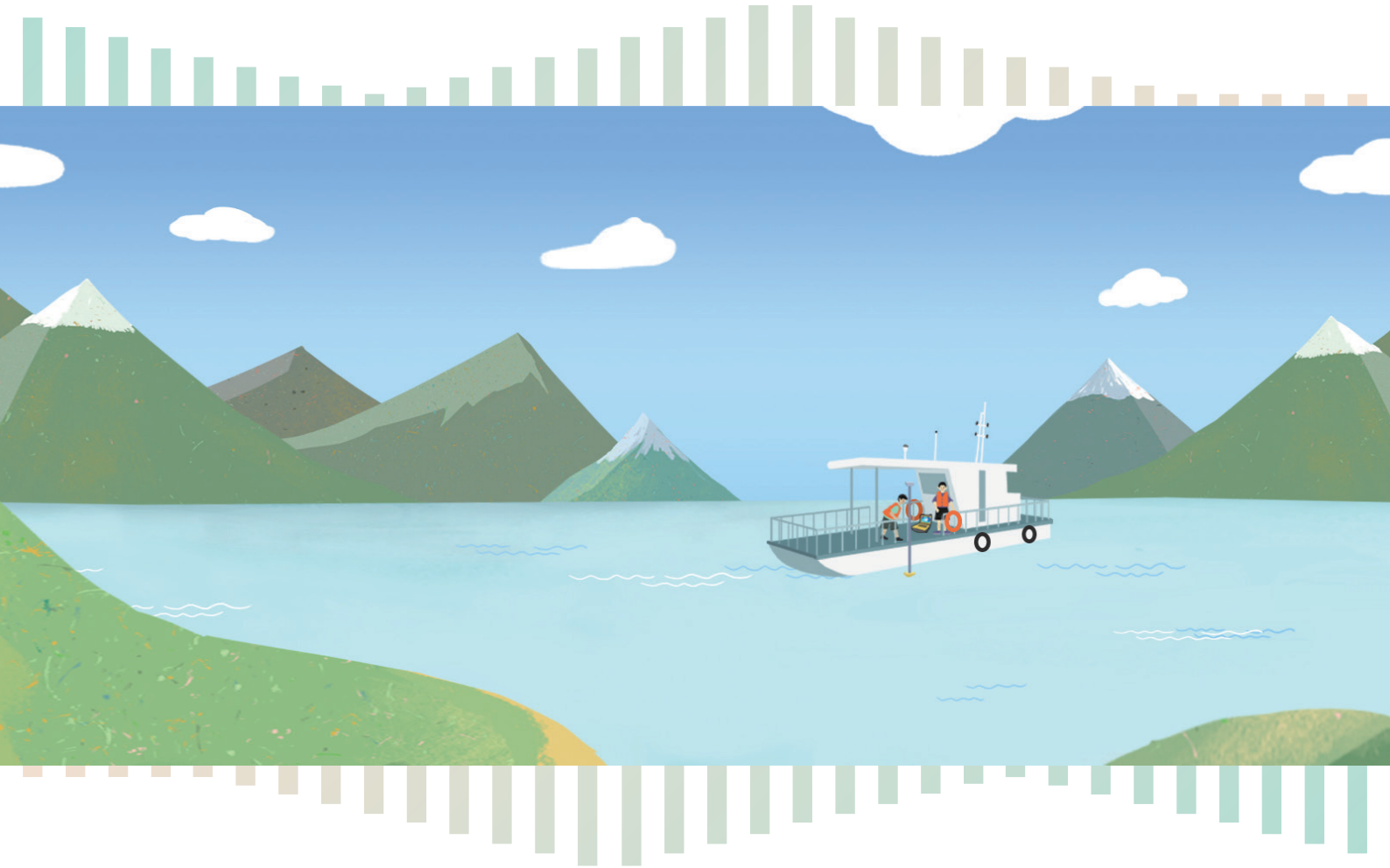










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