SANDING
EVERY POINT MATTERS

FOR MORE EFFICIENT SOLUTION
—

SANDING HYDROGRAPHIC PRODUCTS BROCHURE

SANDING
EVERY POINT MATTERS

SANDING OPTIC-ELECTRICS INSTRUMENT CO., LTD.

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🌐 http://www.sandinginstrument.com

SDE-260D
Dual Frequency Digital Echo Sounder
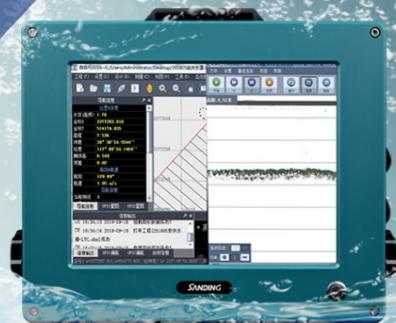
SPECIFICATIONS

Measurements	
Frequency	High: 200 kHz
	Low: 20KHz,24KHz,33KHz(optional)
Beam Angle	7°
Depth Resolution	0.01m
Accuracy	200 kHz：±1cm±0.1%D (D is the depth value)
	33 kHz: ±10cm±0.1%D (D is the depth value)
Ping Rate	14Hz, Maximum 30Hz
Sound Velocity	1300-1700m/s
Depth Range	High: 0.3-300m
	Low: 0.8-2000m
Draft	0-9.9m
Gain Control	AGC and TVG, depth and gain, a double door tracking
Output Data Format	NMEA0183, DESO25, SOUTH, SDH-13D
Physical	
Environmental	-30°-60°non-condensing
Output Power	High:300-400w
	Low: 600-800w
Power Supply	9-18V DC, 110V-260V AC
Dimension	35cm×30cm×15cm
Weight	7.5kg
Hardware Part	
Embedded System Index	CPU frequency 1.6GHz
	RAM 2G
	ROM 16G
Interface	3×USB, 2×RS232, 1×VGA
Operatin System	Embedded windows XP
	12.1-inch color LCD
	Touch screen
	Embedded windows XP OS
	Power ON/OFF
	Interface protection
	Separate Panel Overlay for

Remarks
Measurement accuracy and operation range might vary due to atmospheric conditions, signal multipath, obstructions, observation time, temperature, signal geometry and number of tracked satellites. Specifications subject to change without prior notice.

Echo Sounder   Transducer

Transducer Pole (67cm x 3)
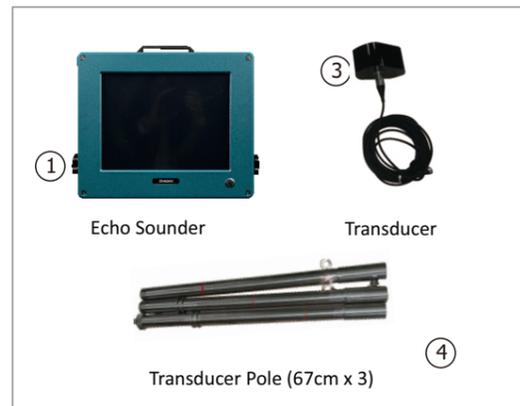
STANDARD CONFIGURATION

1. Echo Sounder SDE-260D	1pc
2. Carrying Case (for echo sounder)	1pc
3.Transducer	1pc
4.Transducer Pole	1pc
5.Carrying Case for Transducer	1pc
6.Double RS-232 Communication Cable	1pc
7.220V External Power Supply Cable	1pc
8.220V External Power Supply Cable Adapter	1pc
9.12V External Power Supply Transfer Cable	1pc
10.Keyboard (USB)	1pc
11.Mouse (USB)	1pc
12.USB DISK	1pc

SDE-28S+
Single Frequency Digital Echo Sounder

KEY FEATURES

- Embedded WindowsXP operating system, user-friendly interface
- Integrated with both computer and echo sounder at industrial level, yet low power consumption
- Full aluminum housing, compact and handy, particularly designed for less-than-ideal circumstances
- High-speed DSP chip processing technology to ensure reliable waveforms and depth values
- Supports NMEA-0183 communication to gain orientation information
- High compatibility, flexible to connect different GPS devices
- Built-in flash memory upgradeable to larger capacity for diverse demands
- 12.1-inch color LCD featuring a wide viewing angle and adjustable brightness
- Automatic storage of depth data up to 24 hours, supports replay

ONBOARD SOFTWARE

ECHOSOUNDER software
ECHOSOUNDER software is use for configure the parameters of the echo sounder, real-time show the depth, save the echo wave data and print it to PDF file, translate the other formats of echo sounder data, and transmit the depth data to hydrographic software
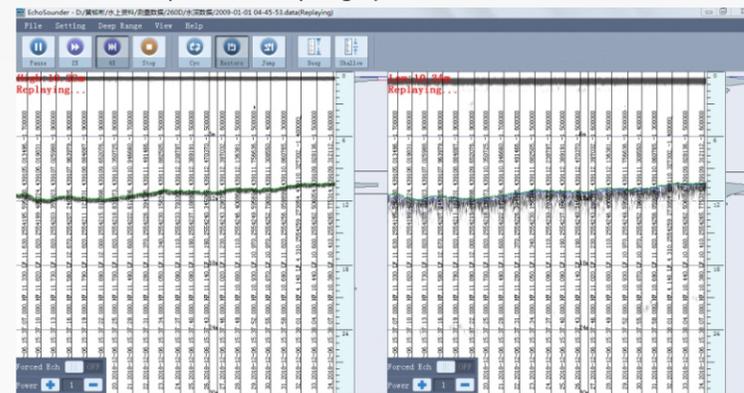
HYSURVEY software
HYSURVEY software can receive the depth data form ECHOSOUNDER via internal com port and receive the GNSS location data.

HYSURVEY also can process the depth data, create or import tide station data, receive IMU data and import the SVP data. Finally, HYSURVEY can output the water bottom coordinate data.

SPECIFICATIONS

Measurements
Frequency
200 kHz
Beam Angle
7
Depth Resolution
0.1ft/0.01m
Accuracy
±1cm±0.1D (0.1% of depth value)
Ping Rate
14Hz, Maximum 30Hz
Sound Velocity
1300-1700m/s, resolution is 1m/s
Depth Range
0.3-300m/900ft
Draft
0-9.9m
Gain Control
AGC and TVG, depth and gain, a double door tracking
Output data format
SANDING, SDH-13D, DES025, INN455, ODOM etc

Physical
Environmental
-30~+60 non-condensing
Output Power
Up to 300 watts
Power Supply
9-15V DC, less than 25w, 110~265V AC (optional),
Dimension
35cm 29cm 14cm

Weight
7.5kg

Hardware part
Embedded system index
CPU frequency 1.6GHz
Internal memory 1G
Memory capacity 4G high-speed CF card (supports extended storage)
I/O interface
2 USB
2 RS232
1 VGA interface
Display Panel Layout
12.1-inch color LCD
Touch screen
Embedded windows XP OS
Power ON/OFF
Interface protection
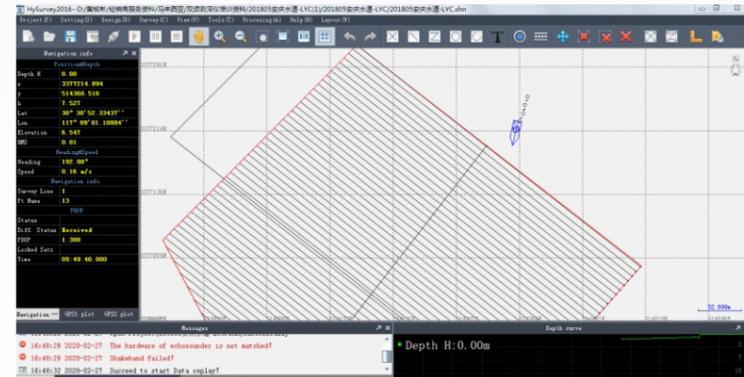Separate Panel Overlay for
    Keyboard
    Mouse

Remarks
Measurement accuracy and operation range might vary due to atmospheric conditions, signal multipath, obstructions, observation time, temperature, signal geometry and number of tracked satellites. Specifications subject to change without prior notice.

SV30
Sound Velocity Sensor

Accurate | Reliable | Corrosion preventive | Anti-interference

18S

Integration design, transducer with echo survey board inside

Sv30 is the light, portable, high performance and simple operated sound velocity sensor. SV30 direct measurement of sound velocity using direct-reading ultrasonic echo-detection techniques for 2Mhz sensing components. With the advanced digital signal processing technology, the accuracy of sound velocity measurement is improved to 0.03 m/s.
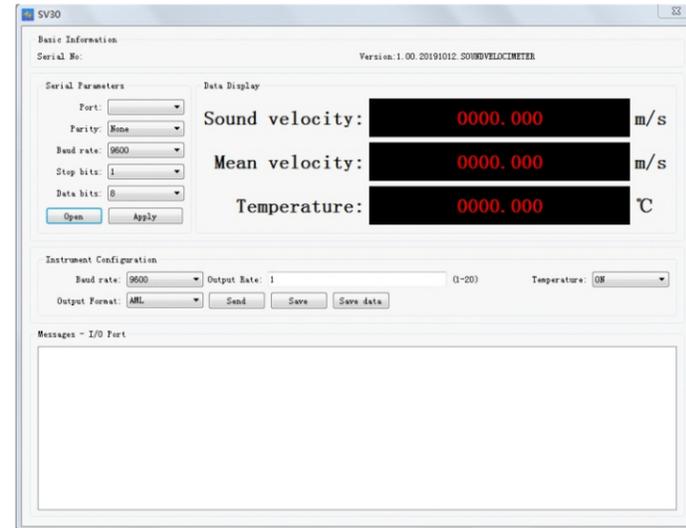
FEATURES

- Advanced digital signal processing technology
- High accurate measurement for sound velocity and temperature
- Corrosion and pressure resistant 316l stainless steel hull
- Simple operation and friendly software
- Support multiple data format export

SPECIFICATIONS

Survey	
Sound velocity range	1400m/s ~ 1900m/s
Sound velocity resolution	0.001m/s
Measurement accuracy	0.03m/s
Acoustic Frequency	2MHz
Temperature sensor	RT1000
Temperature range	0 ~ 50℃
Temperature resolution	0.001℃
Temperature accuracy	0.05℃
Electricity	
Power voltage	9V ~ 36VDC
Communication	RS232
Communicated rate	9600 ~ 115200bps
Physical	
Working depth	50m
Weight	1.5kg
Size	266mm(L) × 40mm(Dia)

Application

Apply in the sea investigation, hydrographic survey, under water navigation and so on.

Professional Software

Simple operation, support multiple format data export
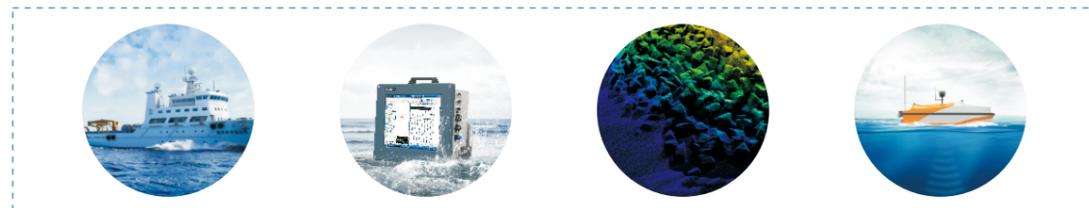
SPECIFICATIONS

- High accuracy marine survey transducer
- Stainless steel case, rugged and durable
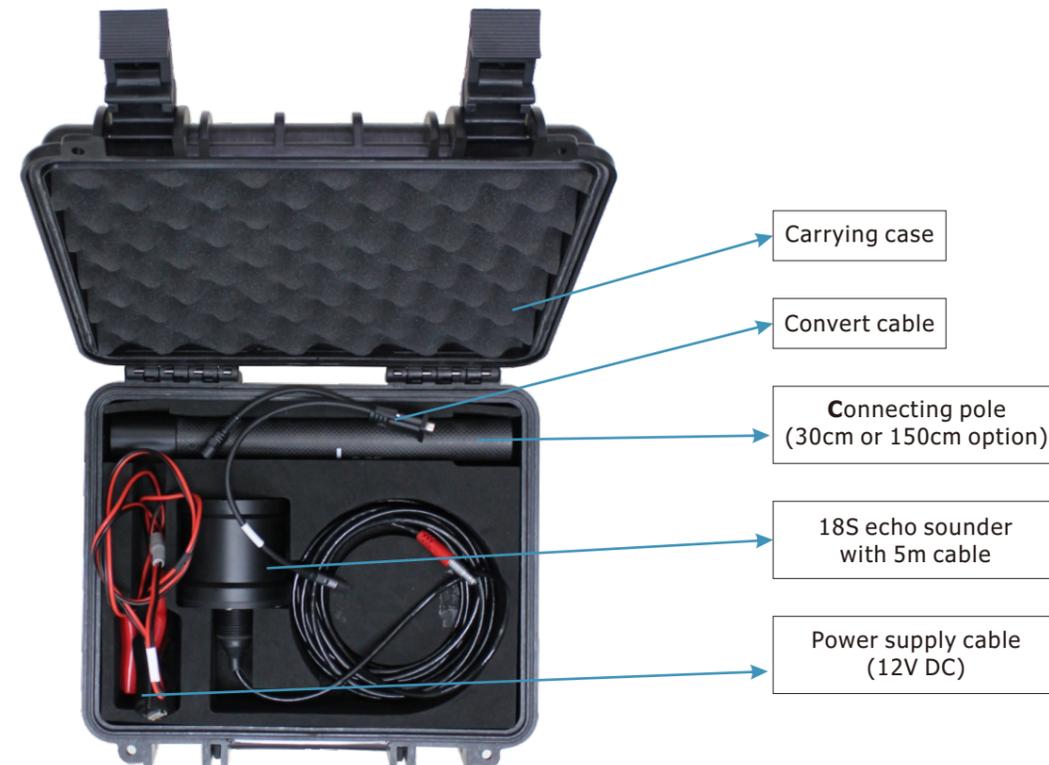- Automatic adjustment for different under water condition

FEATURES

- Sound Frequency: 200K Hz
- Beam Angle:5°
- Depth Range: 0.4-100m
- Accuracy: ±0.01m ± 0.1％D（D takes the instant depth）
- Depth Resolution: 0.01m
- Input Voltage: DC 9V—18V
- Output Data: User-defined via RS-232
- Working Temperature: -30° —60° C
- Weight: 2 KG
- Water Pressure: ≤50m

APPLICATION

Water measurement – coastland , fairway , lake or reservoir.

- Carrying case
- Convert cable
- Connecting pole (30cm or 150cm option)
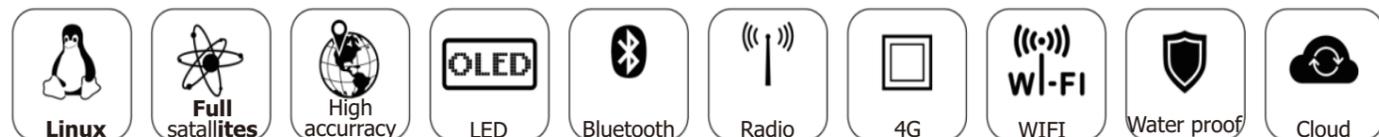- 18S echo sounder with 5m cable
- Power supply cable (12V DC)

SANDING SDE-18S echo sounder is SANDING mini-size echo sounder, it can use with SANDING EchoSounder and Hysurvey software. Totally SDE-18S is only 2 KG weight, rugged and simple design, optional 30cm and 150cm survey pole which is easily tide at the boat. Automatic echo parameters adjustment function is very suitable for hydrographic survey, and also can combine with USV solution.

S83
Modular gnss receiver

Designed for Modular Surveying

Linux | Full satallites | High accurracy | OLED LED | Bluetooth | Radio | 4G | WIFI | Water proof | Cloud

SPECIFICATIONS

Performance		
No. of Channel		22 0
Configuration		GPS, GLONASS, BEIDOU GALILEO & SBAS.
Single Tracked	GPS	L1C/A, L1C, L2C, L2E, L5
	GLONASS	L1C/A,L1P,L2C/A,L2P, L3
	BEIDOU	B1, B2, B3
	SBAS	L1C/A, L5 （only for the satellites supporting L5)
	Galileo	GIOVE-A, GIOVE-B, E1, E5A, E5B
		QZSS, WAAS, MSAS, EGNOS, GAGAN, SBAS
Position Accuracy		
Code Differential	Horizontal	25cm+1ppm RMS
	Vertical	50cm+1ppm RMS
	SBAS	Typically ＜5m 3DRMS
Real-time Kinematic	Horizontal	8.0mm+1.0ppm RMS
	Vertical	15.0mm+1.0ppm RMS
Static	Horizontal	2.5mm+0.5ppm RMS
	Vertical	5.0mm+0.5ppm RMS
Network RTK	Horizontal	8.0mm+ 1.0 ppm RMS
	Vertical	15.0mm+ 1.0 ppm RMS
Communication	I/O	Network antenna socket, External antenna socket
		7-pin LEMO, 5-pin LEMO
		RJ45 Ethernet port, 1 PPS interface
		SIM cars slot
Wireless Modem		Integrated internal radio receiver & transmitter
	Frequency	410 −470MHz
	Protocol	TrimTalk450s, TrimMark3, SANDING
	Output Power	1W/2W/3W
GSM/GPRS Modem		WCDMA 3.5G module, GPRS/EDGE compatible, TDD-LTE/FDD-LTE/TD-SCDMA 4G
Double Module Bluetooth		Bluetooth 4.0 standard, supports connection with Android & iOS
		Bluetooth 2.1 ＋ EDR standard
WiFi		802.11b/g
Data Storage/Transmission		8GB SSD internal memory, external USB disk Cyclic storage program, automatically overwrite old data when disk is full
Data Format	Differential	CMR+, CMRx, RTCM 2.1, RTCM 2.3, RTCM 3.0, RTCM 3.1, RTCM 3.2
	GPS Output	NMEA 0183, PJK plane coordinates, binary code, Trimble GSOF
	Network Model	Fully support NTRIP protocol
User interaction	Operating system	Linux
	Button	Two buttons, PWR+Func key
	WEB SERVER	Online management platform for monitoring and configuring
Physical	Dimension	184mmx148mmx68mm
	Weight	1.24kg
Environmental	Operating Temp	−45°C to 60°C
	Storage Temp.	−55°C to 85°C
	Humidity	Non −condensing
	Proof	IP65 standard
	Shock	Withstands 1.5m pole drop onto cement ground naturally.

Web Server

Familiar Web Server interface provides full receiver status, configuration, data access, as well as a variety of access controls and online

Linux OS

Powered by the new generation of embedded Linux operating system, S83 has a greatly improved RTK performance and efficiency. One unique core processing mechanism is able to response to more than one command at one time.

Satellites Signals

Seamlessly tracks all available constellation signals: GPS, GLONASS, BeiDou, GALILEO, etc.

Network Data Link

Built-in network module HUAWEI ME909S. Supports more telecom standards: WCDMA, CDMA2000. FDD-LTE, TD-LTE, and also GPRS and EDGE.

Radio Data Link

New radio module provides up to 3W output, extending the working area from 3km to maximum 8km. Radio router and repeater functionalities can be realized to serve more receivers in the field.

SV106

High-accuracy Heading and Position Compass

Features

• Industrial (IP**67**) design for the harshest environments

• Full satellite constellations support (GPS, GLONASS, Galileo, COMPASS, SBAS)

• More flexible output data (NMEA 0183 AND 2000) via RS-232 or WIFI

• SBAS and external RTCM are available

• WIFI hot spot for any allowed intellective devices connected

• Track and manage in real time

Application

Marine construction, marine environmental monitoring, marine reclamation, drill and piling, dredging, mining.

Specification

GNSS Sensor Specification

Receiver Type: GPS(L1, L2, L2C); GLONASS(L1, L2); Galileo(E1, E5); BDS(B1, B2); SBAS; QZSS

Channels: 120 channels

GPS Sensitivity: - 142dBm

Update Rate: 20Hz standard

Heading and Position Accuracy

Horizontal:RTK:1cm+1ppm; DGPS:<0.4 m; Single:<2.5 m

Heading: <0.30°

Velocity Accuracy: 0.03m/s RMS

Maximum Speed: 515m/s

Heave: 30cm

Timing(1PPS): 50ns

Rate of Turn: 90°/S

Operating Modes: Manual or Automatic

Communications

Serial Ports: 1 full-duplex RS232, 1 full-duplex RS422 and 1 half-duplex RS-485 (only Tx)

Baud Rates: 4800 - 115200

Correction I/O Protocol: RTCM v2.3 (DGPS), RTCM SC-104, L-Dif

Data I/O Protocol: NMEA0183, NMEA2000, Crescent binary, L-Dif

NMEA Heading: $GPHDT, $GPROT, $PSAT, $GPHDM, $GPHDG

Timing Output: 1PPS CMOS, degressive edge sync, 10Ω, 10pF load

Power

Input Voltage: 10–36 V DC

Current: 300mA@12V DC

Reverse Polarity Protection: Yes

Power Consumption: 3.6W nominal

Operating Temperature: -32℃ to + 74℃ (- 25°F to + 165°F)

Storage Temperature: - 40℃ to + 85℃ (- 40°F to + 185°F)

Temperature Humidity: 99% non-condensing

Dimensions: 66.3 L × 20.9 W × 14.6 H (cm)

Weight: 2.82 kg

IP Rating: Ip67

SANDING SV106 GNSS receivers are innovative and integrate design with high-accuracy heading and position. It's a new platform applied in marine dredging industries, mine tailings and sea reclamation.

MDL
Multiple Data Link

MDL is embedded the Linux system, build-in the WEBUI operating interface. MDL can receive and transmit data via radio, or receive the data via 3G/4G then transit it with radio, it can also work as the external radio, the radio can reach 6KM range.

Features

Multiple Communication Method

MDL can use as a supper transmit router, not only for correction data transmit, also can transmit the monitoring sensor data. MDL has the network model, powerful internal radio model and WIFI model, Ethernet interface. The multiple communication method let our project to be higher effect and more
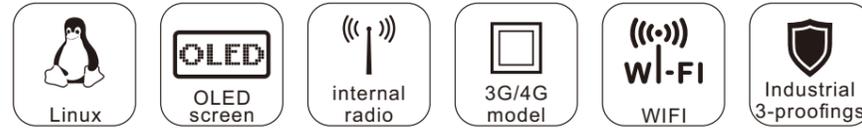
Radio

GPRS

Simple operation

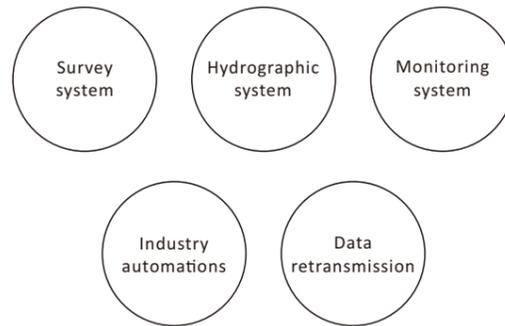WEBUI operated interface, it can configure the parameters via only cellphone WIFI connected.
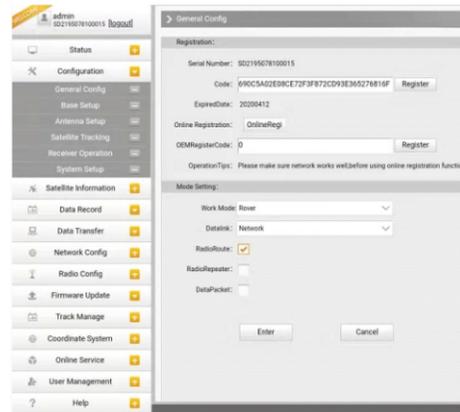
Light and powerful performance

SANDING MDL only 485g weight, radio working rang can reach 6KM distance.

| Linux | OLED screen | internal radio | 3G/4G model | WIFI | Industrial 3-proofings |

Application

- Survey system
- Hydrographic system
- Monitoring system
- Industry automations
- Data retransmission

Specification

GNSS	Track	GPS: L1C/A, GLONASS: L1, BDS: B1
	Channel	72 channels
	Accuracy	2m
Operation interface	Screen	1 inch OLED screen, 128×64
	Operate key	2 press keys
	Indicate key	2 indicate lights
	System	Linux
	UI	WEBUI
Communication	I/O port	2 serial ports and 1 USB/ Ethernet port
	Radio	3W internal radio, 6KM working rang, 410MHz-470MHz, support TrimTalk, SANDING, Huace, Socall protocol
	Network	4G: TDD-LTE, FDD-LTE
		3G: TD-SCDMA, WCDMA
		EDGE/GPRS/GSM
	WIFI	802.11 b/g standard
Hardware performance	Material	Aluminium alloy
	Size	162.5×90×30 (mm)
	Weight	485g
	Temperature	operating: -20°C—60°C, storage : -30°C—70°C
	Waterproof/Dustproof	Ip67
	Shock and vibration	Withstand 1.5 meters drop onto the cement ground naturally
	Power Supply	9-36V, overvoltage protection

SU12
REMOTE CONTROL SURVEY BOAT

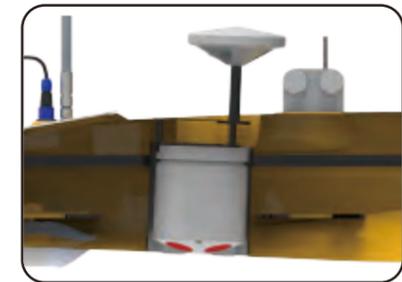ONE MAN OPERATION

Advanced jet propeller

Compact and lightweight, one man hand carry, easy launch and retrieve

105cm length easy in field transportation

more shallow draught, rugged design, water filter inside for jet propeller protection

Moon pool design with diameter up to 190 mm for ADCPor echo sounder

Specification

Physical	Hull Material		Carbon Fiber
	Hull Length		105 cm
	Hull Width		55 cm
	Weight (excl. ADCP)		14 kg
	Payload		10 kg
	Motor		Water jet propeller
	Moon Pool		≤ 190 mm
Communication	Remote Control	UHF	2km
	Auto mode control	WIFI bridge	2km
	4G	LTE	No distance limitation
	TCP	LAN cable	

*2.4G wireless Ethernet as option, telemetry range 2km @ 2Mbps

Performance	Survey Speed	2-5 knots (1-2.5m/s)
	Top Speed	10 knots (5m/s)
	Battery Endurance	4 hours @ 2.5m/s
	Battery Pack	1 x 33V 40Ah
		Quick Battery Replacement

*Higher capacity battery pack as an option

Options	Autonomous control
	Real time video monitoring
	ADCP telemetry module
	SANDING 18s echo sounder

Super portable **hydrographic** survey system

SPECIFICATIONS

| System	Conf.	Index	Details
HY1612 echo sounder	Power	Voltage	10VDC~15VDC nominal 12VDC
		Input power	Rechargeable lithium battery, or external power (12V
		Battery charging	18VDC/1000mA
	Spec.	Frequency	446KHz±1KHz
		Beam angle	5.5°±1°
		Depth rating	0.2~80m
		Operating mode	Manual or automatic
		Pulse width	0.05 0.4ms (automatic control)
		Output power	≥80W four range adjustable automatic control
		Accuracy	1cm±0.1%D D is measured depth
		Communication	wifi
		Ping rate	Up to 20 pings/sec related to the range
		Operating temp.	-10 ~50
		Operating time	> 8h(internal battery)
		Storage temp.	-40 ~55
X80 controller	Spec.	Operating system	Andriod
		RAM	3G RAM(X80) 1G RAM (S550)
		Storage	8G Flash expansive to 32GTF card
		Display	7 inch screen(1024×600 , readable under strong light
		Comunication	Bluetooth/WIFI/SIM card
		Lithium battery	7200mAH 3.7V replaceable
		Operating time	10h (typical)
		Operating temp.	-20~60
		Storage temp.	-55~75
		Shock proof	1.5m free drop endurable
		Water and dust proof	IP65
S660P	Spec.	Communication	Bluetooth
		Operating time	≥8h
		Operating temp.	-20~60 ℃
		Water and dust proof	IP67
	Accuracy	Single positioning	2.5m
		External source	2cm
Total weight			< 4.5kg

Excellent performance and mini-size transducer

Rugged and portable echo sounder Connected with tablet via WIFI

HYSURVEY
SANDING HYDROGRAPHIC SOFTWARE

About HYSURVEY

Hysurvey software is for single beam echo sounder survey software, support Windows system. The simple operation, stable running, professional and multi-function let Hysurvey to be the one of the most widely used hydrographic software. SANDING hysurvey support all types of GNSS receivers, support the multiple sensor correction, like IMU, SVP, tide station and so on, Hysurvey process all the data and export to the coordinate of see bottom.
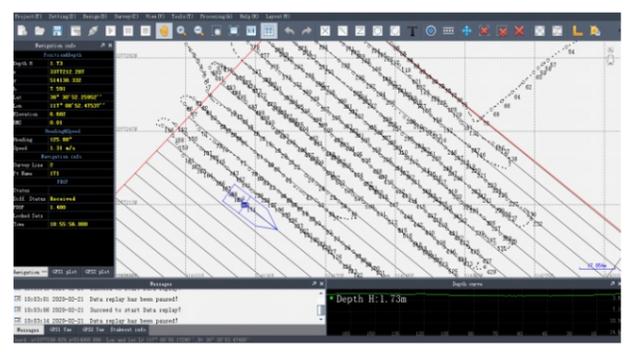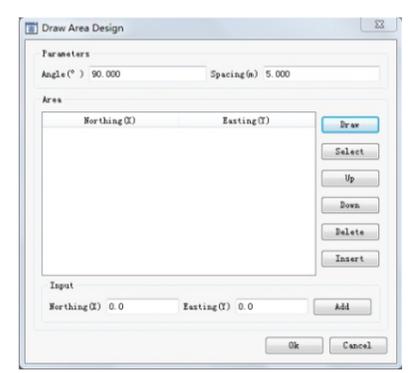
Hysurvey software interface

SOME ADVANTAGES

Efficient and simple operate survey lines design, support DXF file import
Support multiple correction sensors, like IMU, SVP, SV, Tide station data, GNSS receivers so on
Guiding type project set up, make your configuration convenient
Support project replay and post process
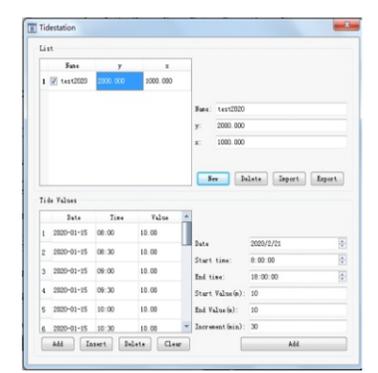Support NMEA0183 GNSS format and HY1600, ODEM, DESO25, NMEA0183-DBT, NMEA0183-DBS echo sounder format

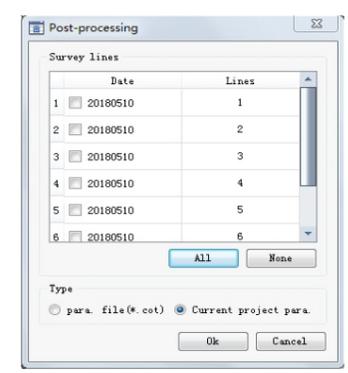### SOME FUNCTION SCREENSHOTS
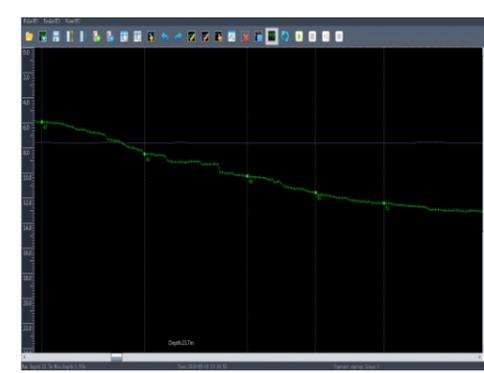
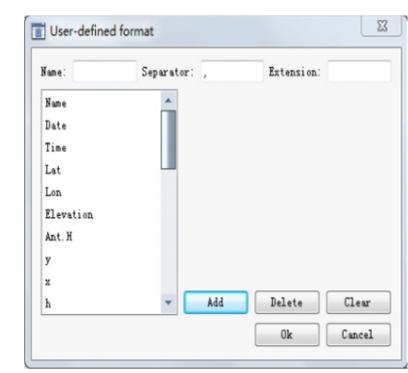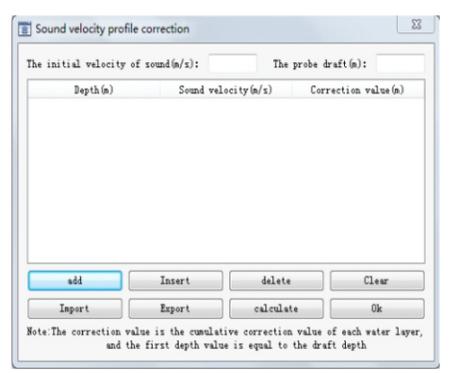Echo sounder depth data process   Survey lines design   Tide station correction

Post process   User-define format export   SVP correction