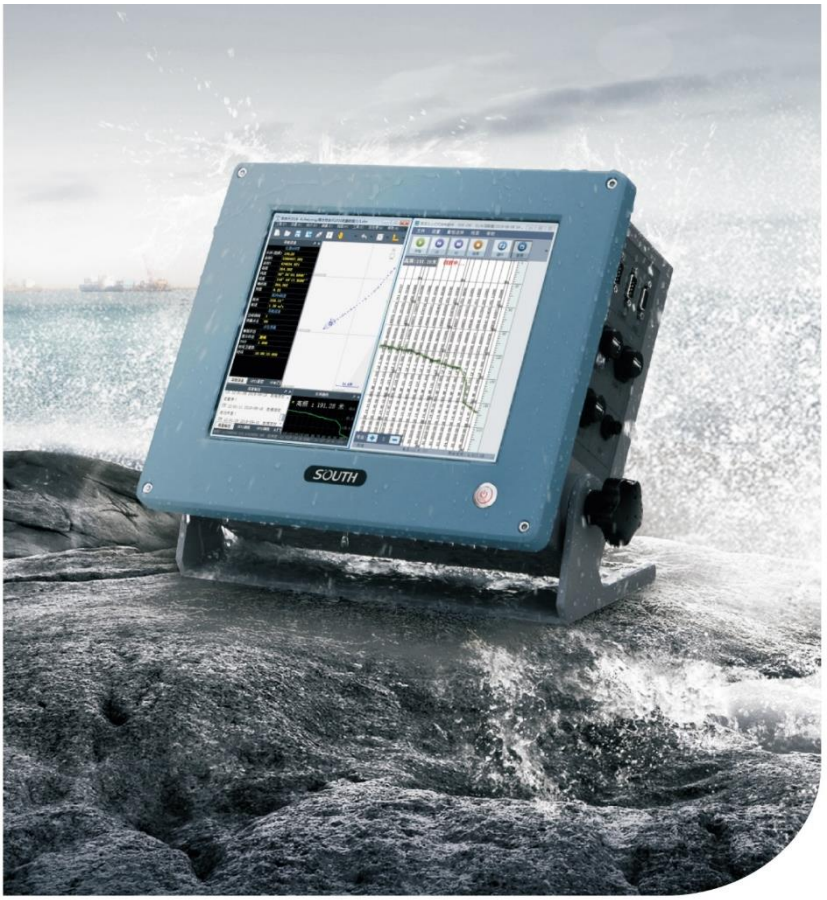


KOLIDA ECHO SOUNDER USER MANUAL

Content

Chapter 1 KOLIDA echo sounder introduce

1.1. KOLIDA echo sounder models introduce

SDE-28S+ single beam and digital echo sounder

KOLIDA SDE-28S+ echo sounder is a new designed echo sounder base on SDE-28S. 28S+ optimized circuit design, improved hardware stability and bathymetric effect, industrial computer platform and windows XP operating system, internal integration of bathymetry, software graphics navigation and other functions of high-end digital single-frequency sounder software. Instrument real-time recording of underwater curve and water depth data, playback and printing at any time, external GNSS receiver, the results of the operation.

Basic feature

Language	English
Frequency	200KHz
Depth range	0.3-600m
Accuracy	0.01m±0.1%D
Software	Hysurvey
Power	DC：10-36V AC：110V-260V
Rom	8G
Display	12.1 inch LCD
Resolution	1024×768
Size	340mm×280mm×130mm
Weight	6kg

Performance

① High Speed DSP Chip processing Technology to ensure reliable Waveform and Water depth

② The software automatically controls the pulse width, the gain, the power and the gear, the interface and the operation is simple.

③ All aluminum alloy shell, compact structure, good earthquake resistance, suitable for high strength work on water

④ Good performance in shallow Water tracking

SDE-230 single beam and digital echo sounder

SDE-230 is a new generation of high precision digital sounder in the KOLIDA, all metal shell design, waterproof and shock proof, with new, high speed industrial control motherboard and simplified custom windows XP system to form a stable operating platform. Sde-230 can connect most of GNSS receiver to get stable performance, it integrate intelligent, professional navigation and bathymetric software.

Basic Feature

Language	English
Frequency	200KHz
Depth range	0.3-600m
Accuracy	0.01m±0.1%D
Software	Hysurvey
Power	DC:10-36V AC:110V-260V
ROM	16G
Display	12.1 inch LCD
Resolution	1024×768
Size	340mm×280mm×130mm
Weight	6.7kg

Performance

① All-metal shell, integrated molding, multi-sided heat dissipation, stable and reliable

② Highlight LCD screen and five-wire resistance touch screen, highlight, accurate touch, outdoor operation is more convenient and simple

③ High speed and low power industrial control platform, stable windows system, perfect system protection and system reduction measures

④ Time and space double filtering and unique bubble filtering method adapt to complex waters, get stable and continuous echo recognition performance. Also this method has strong anti-interference ability.

SDE-260D Dual frequency echo sounder

KOLIDA SDE-260D is full digital dual frequency echo sounder, follows the style of the KOLIDA echo sounder products, has very good performance product with advanced echo and digital processing technology. The standard configuration of the sde-260d dual-frequency sounder is 200 kHz and 20 kHz. high-frequency precision, good low-frequency penetration and strong anti-interference performance, can not only ensure the precision of the water depth measurement, but also effectively eliminate the influence of the muddy water, the quicksand layer, the weeds, the hull noise and the water vortex on the water depth measurement, and more effectively reduce the interference of the false water depth, The measurement of the silting and floating mud in the dredging construction is also very effective.

Basic Feature

Language	English
Frequency	H:200KHz;L:20KHz
Depth range	H:0.3-600m L:0.8-1200m
Accuracy	H: 0.01m±0.1%D L: 0.1m±0.1%D
Software	Hysurvey
Power	DC：11-36V AC：220V
Rome	16G
Display	12.1 inch LCD
Resolution	1024×768
Size	340mm×300mm×150mm
Weight	6kg

Performance

① All-metal shell, integrated molding, multi-sided heat dissipation, stable and reliable

② Highlight LCD screen and five-wire resistance touch screen, highlight, accurate touch, outdoor operation is more convenient and simple

③ High speed and low power industrial control platform, stable windows system, perfect system protection and system reduction measures

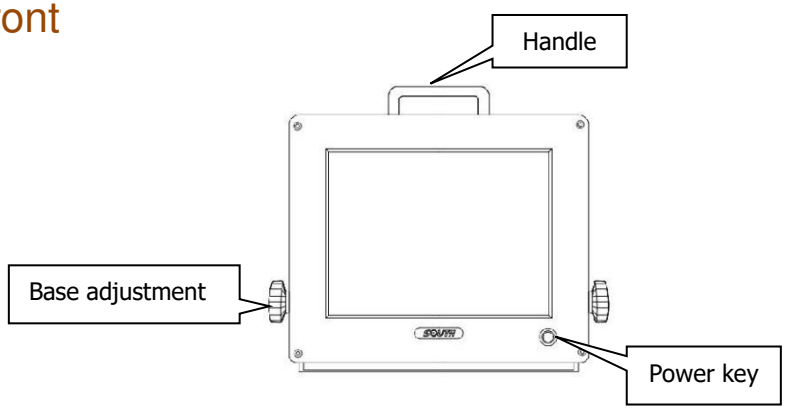
④ Time and space double filtering and unique bubble filtering method adapt to complex waters, get stable and continuous echo recognition performance. Also this method has strong anti-interference ability.

⑤ Dual frequency, 200Khz and 20Khz

1.2. Echo sounder interface introduce

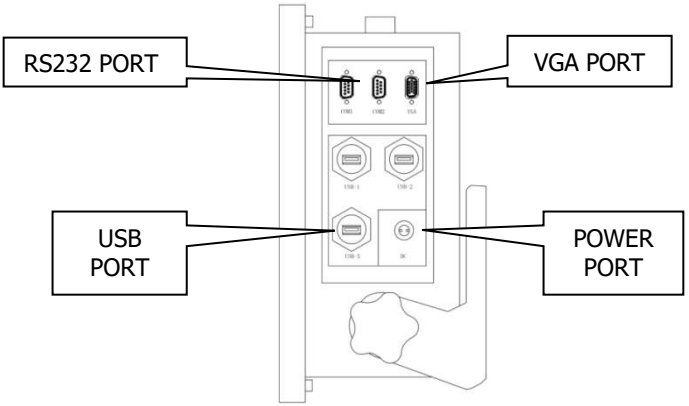
The main differences of KOLIDA SDE series are the hardware and software, but the main interfaces are similar.

Front



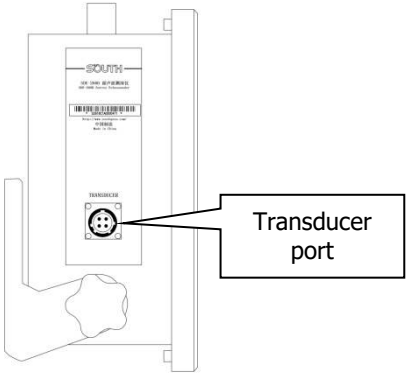
*Different model SDE echo sounder have different interface, but they are similar.

Right side



RS232 PORT	Connect with GPS receiver
VGA PORT	Connect with external dispaly
USB port	Connect with USB device
Power port	Connect with AC or DC power, use the power supply cable

Left side

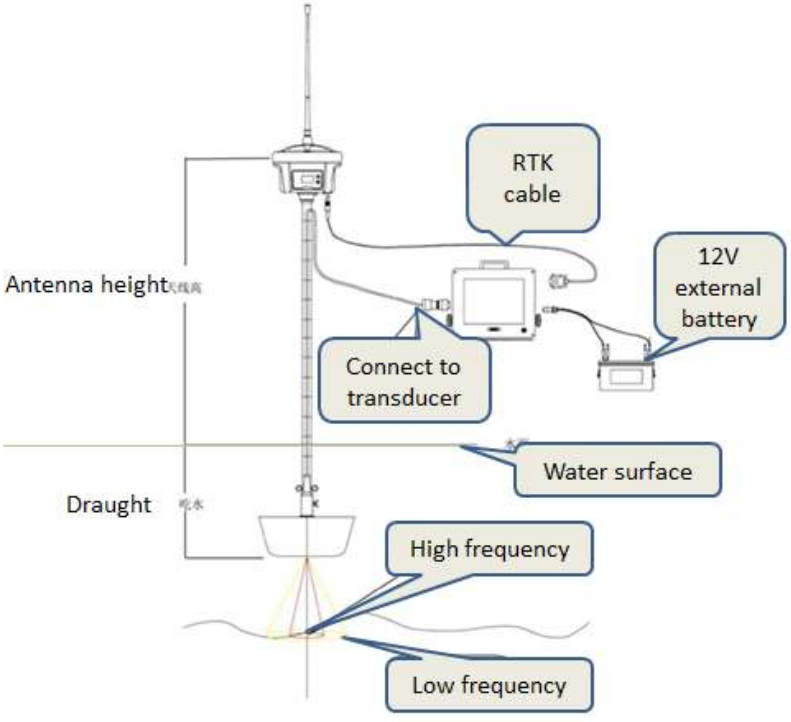


Transducer port	Connect with transducer

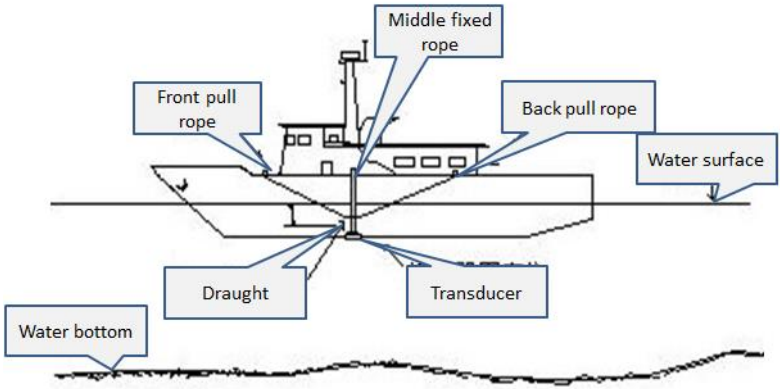
Chapter 2 Echo sounder installation

2.1 Hardware connection

See as below picture：



2.2 Classical fix the transducer beside the boat



The position of the fixed transducer is best selected next to the middle side of the hull, avoiding the noise interference of the hull as far as possible, and then fixing it by pulling the rope at the front, rear and bottom.

Notice

During the whole depth measurement, the transducer rod shall be kept vertical at all times. When you find the rod is not vertical, you need to check the data. So, it is important to fixed the rod before you go to survey.

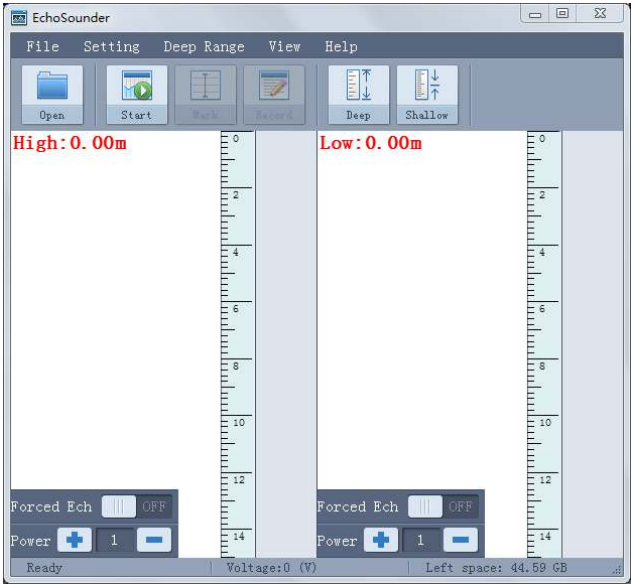
Chapter 3 Software Introduction

KOLIDA echo sounder needs two software to do the marine survey job.

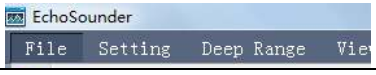
One is EchoSounder software, another is Hysurvey software.

3.1 EchoSounder software.

EchoSounder software is main use for configure the transducer sounding parameters, collect the echo wave raw data, transmit the data depth data to the Hysurvey software. See below picture is the main interface of this software:

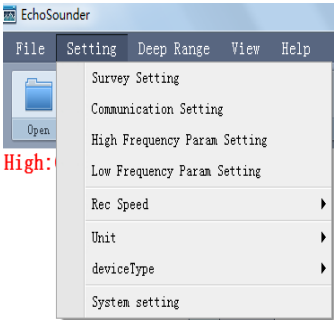


File

	New	Create a new

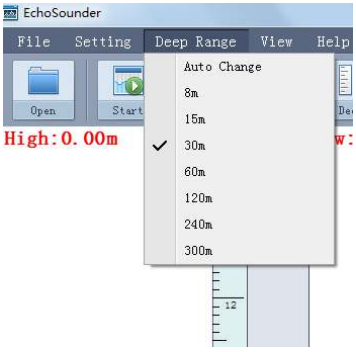
		data file
	Recently opened file	Open the previous data file
	Page setup	Print page settings
	Print preview	Preview the echo wave print
	Print to PDF	Print as PDF format
	Exit	Exit the software

Setting

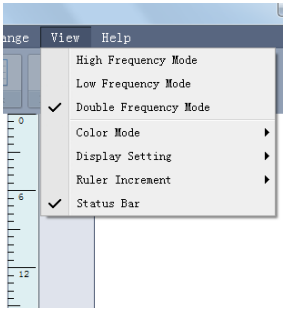


Survey setting	Input the draught, velocity, and alert settings
Communication setting	Setting the depth transmit, tide gauge and mark
High frequency parameter setting	Set the high frequency sounding parameters
Low frequency parameter setting	Set the low frequency sounding parameters
Record speed	Set the echo wave record speed
Unit	Set the unit: Metric or British
Device type	Select the echo sounder model
System setting	Set the font size and color

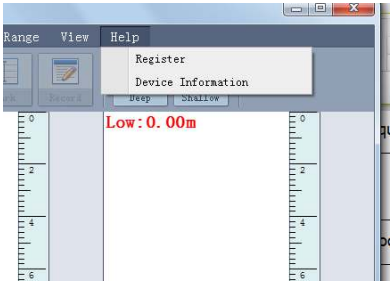
Depth range

	Depth range is important for auto survey mode, and you need to select the correct range to let KOLIDA echo sounder adjust the sounding parameters automatically. If the real depth is out of setting range, the depth will show 0.00 m

View

	High frequency mode	Only use high frequency mode
	Low frequency mode	Only use low frequency mode
	Double frequency mode	Use dual frequency mode
	Color mode	Set the color
	Display setting	Set the display parameters
	Ruler increment	Set ruler increment
	Status bar	Display status bar or not

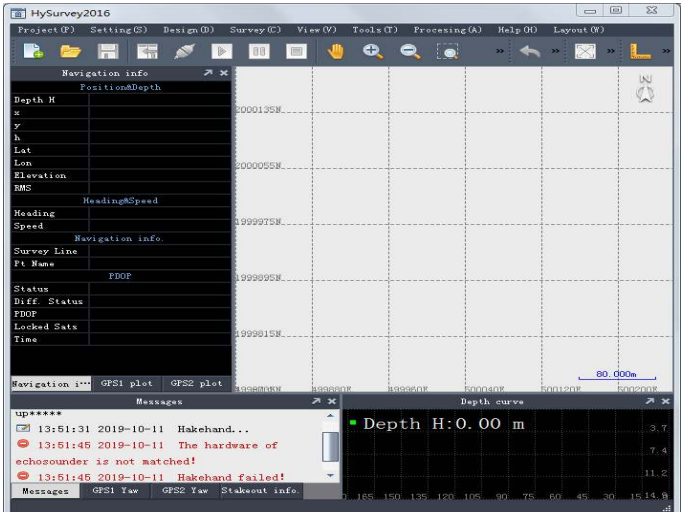
Help

	Register	Check the left using time and register the echo sounder Normally KOLIDA echo sounder will have around 30 hours for demo using.
	Device information	Check the device information

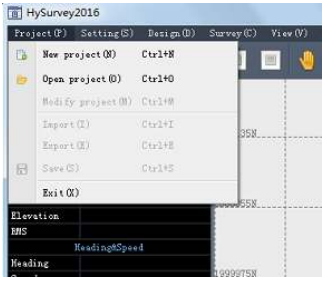
3.2 Hysurvey software

Hysurvey software is main used for setting up project parameters, survey navigation, collecting the depth and position data, echo data process and result data output.

Below is the main interface and the function introduce of the Hysurvey:



Project

	New project	Create a new project
	Open project	Open the existing project
	Modify project	Modify the project information
	Import	Import the DXF file
	Export	Export the DXF file
	Save	Save the project
	Exit	Exit the project

Setting

Coordinate system	Modify the current coordinate system
Survey Device	Configure the device connecting settings
Data collection	Set the data collection parameters
Store setting	Set the store parameters
Data transmit	Configure the data transmutation
EchoSounder path	Set the echo sounder path
Correction wizard	Set the correction parameters
Offsets	Set the GPS1 and GPS2 antenna offsets
Beacon	Set the beacon signal parameter
Antenna	Set the antenna height
Shallow alarm	Set the shallow alert

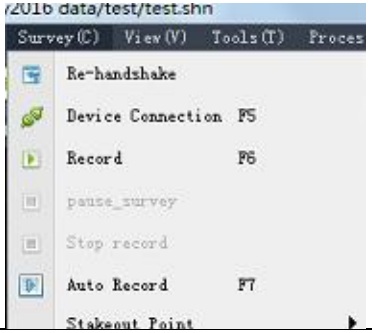
	Device latency	Set the device signal delay
	Orientation mode	Set the display orientation mode
	Navigation info	Select which content of navigation to be display
	Plotting mode	Mapping mode by coordinate or mouse
	View properties	Check the properties
	Object snap	Object capture
	Object snap modes	Object capture mode
	Speed unit	Set the speed unit
	Display mode	Set the display mode, day and night mode
	Night node setting	Set the night mode brightness
	System setting	Set the display parameters
	Work space switching	Switch the software main interface

Design

<table>
<tr>
<td rowspan="11"> 
</td>
<td>Undo</td>
<td>Undo the last draw action</td>
</tr>
<tr>
<td>Redo</td>
<td>Redo the last draw action</td>
</tr>
<tr>
<td>Draw point</td>
<td>Draw a point on the back ground</td>
</tr>
<tr>
<td>Draw line</td>
<td>Draw a line on the back ground</td>
</tr>
<tr>
<td>Draw polyline</td>
<td>Draw polyline on the back ground</td>
</tr>
<tr>
<td>Draw circle</td>
<td>Draw a circle on the back ground</td>
</tr>
<tr>
<td>Annotation</td>
<td>Write some text on the back ground</td>
</tr>
<tr>
<td>Point symbol</td>
<td>Draw a point as symbol</td>
</tr>
<tr>
<td>Align feature</td>
<td>Draw a line as symbol</td>
</tr>
<tr>
<td>Move</td>
<td>Move the display</td>
</tr>
<tr>
<td>Delete by</td>
<td>Delete the targets by</td>
</tr>
</table>

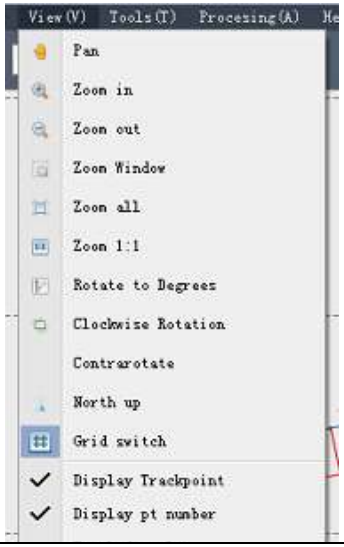
	area	area
	Delete all	Delete all
	Channel runlines	Design the channel survey plan lines
	Area runlines	Design the area survey plan lines
	Parallel runlines	Design the parallel survey plan lines
	Sector runlines	Design the fan-shape survey plan lines
	Vessel design	Design the survey vessel shape

Survey

	Re-handshake	Connect the devices again
	Device connection	Connect the device
	Record	Record the data

	Pause survey	Pause record the data
	Stop record	Stop record data
	Auto record	Auto record by time or distance
	Stakeout point	Stakeout point
	Heading	You can select the
	Compass	Display the compass
	Replay	Replay the project

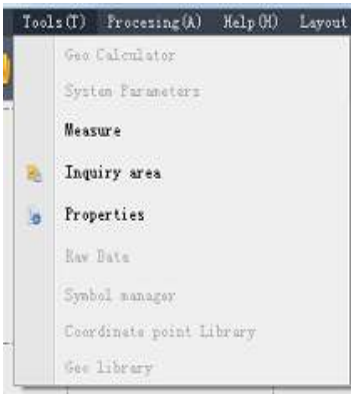
View

	Pan	Move the display area
	Zoom in	Zoom in
	Zoom out	Zoom out
	Zoom Window	Zoom window
	Zoom all	Zoom all
	Zoom 1:1	Zoom 1:!
	Rotate to	Input the rotate angle, the

	Degrees	display will rotate as the angle
	Clockwise rotation	Click one time, the display will rotate clockwise 10 degree
	Contra rotate	Click one time, the display will rotate anticlockwise 10 degree
	North up	Let the display back to north up
	Grid switch	Hide and display the grid lines
	Display track point	Display or hide trace point
	Display point number	Display or hide the point number
	Track display	You can select the survey line which you want to display in the back ground
	Track lines	It will let the trace line connect one by one

	Color bar	Show the color bar in the back ground
	Scale text	Set the text scale

Tool

	Geo calculator	Coordinate calculate tool
	System parameters	View coordinate system
	Measure	Measure the direction and distance on the back ground
	Inquiry area	Area calculation
	Properties	Check the target properties
	Raw data	Check the raw data
	Symbol manager	Symbol edit, you can draw the symbol as customization
	Coordinate point library	NEH Coordinate point library, you can view,

		add and modify the point coordinate
	Geo library	BLH Coordinate point library, you can view, add and modify the point coordinate

Processing

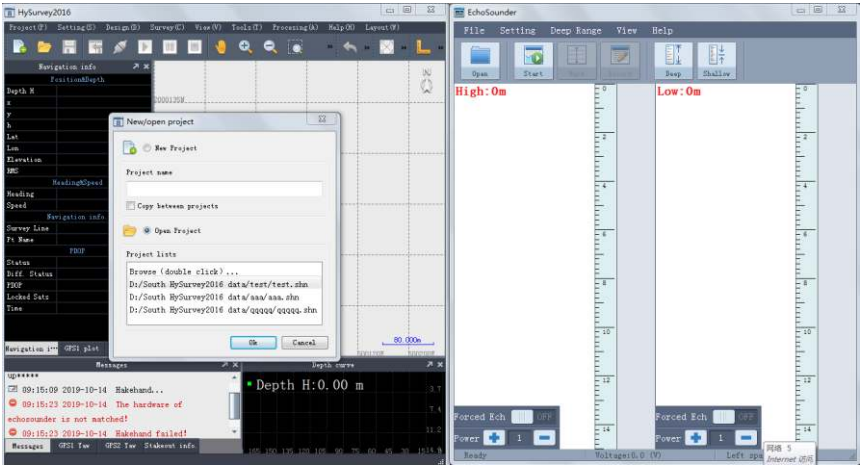
	Single beam editor	Check the echo wave, and if have some incorrect data, you can edit it
	Post-processing	Use for when you input the incorrect coordinate system, this function can let you translate to the correct one
	File export	Result export, you can customize the result data format and ou tput it
	Tide station	Setup the tide station

		and input the tide data
	Track export	Export the trace file as DXF2000 format

Chapter 4 Quick guide

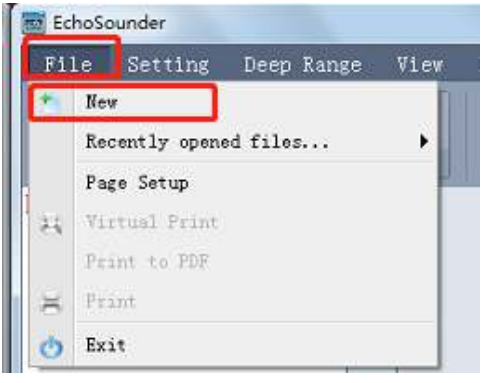
4.1 Install the echo sounder and RTK, fixed the transducer on the boat. Check the chapter 2 hardware installation.

4.2 Power on the echo sounder and open the EchoSounder and Hysurvey software. See as below picture after open the software.

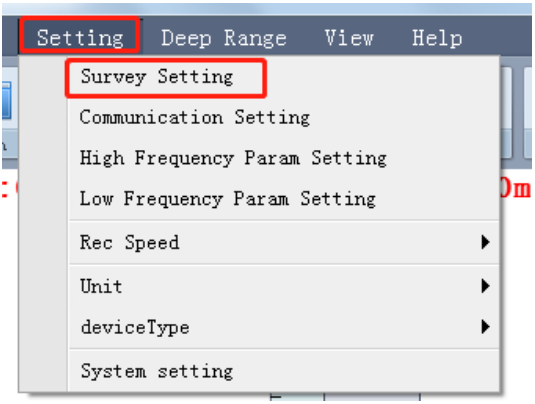


4.3 First configure the EchoSounder software.

4.3.1 Create a new data file and input a new file name.



4.3.2 Configure the survey setting

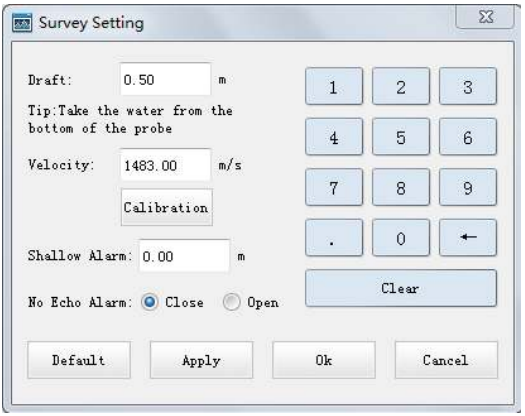


Input the draft, sound velocity, and shallow alarm.

The Draft is the depth value of the transducer.

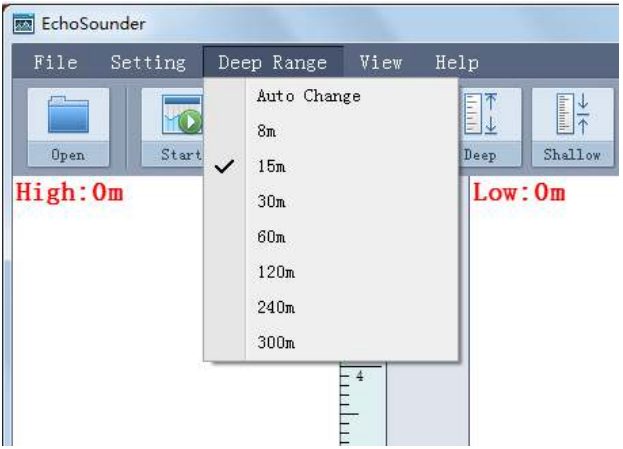
The velocity is the sound velocity, you can compare the real depth with the echo sounder display, then change the value.

E.g.: the depth you test is 5m, but the echo sounder is 4.95m, you can input a bigger velocity let echo sounder display 5m.

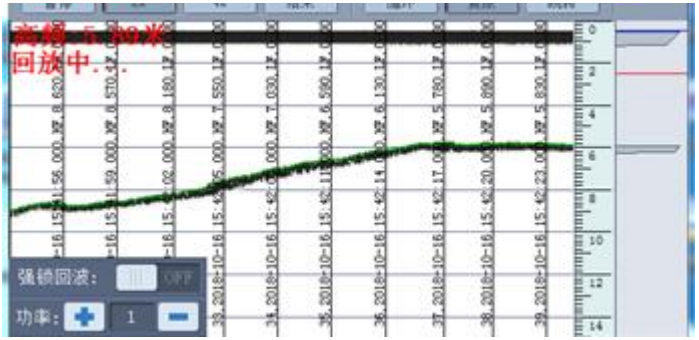


4.3.3 Select a deep range.

The deep range is use for auto survey mode, it is important when use the auto survey mode. Make sure the range is correct, if the depth is over the range, the echo sounder will show 0 m. But we can't select the range more bigger, the range is a key value for the auto survey algorithm.

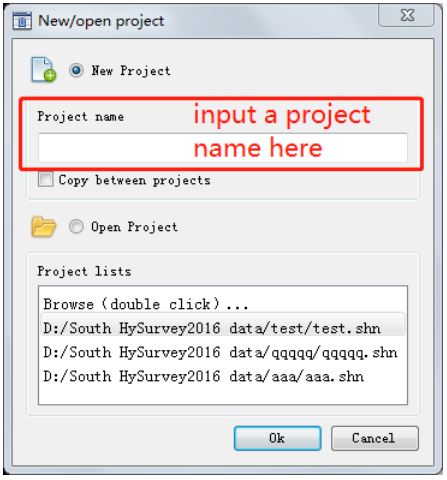


Click "Start" icon, when you can see the depth and echo wave stable, the EchoSounder is normal.

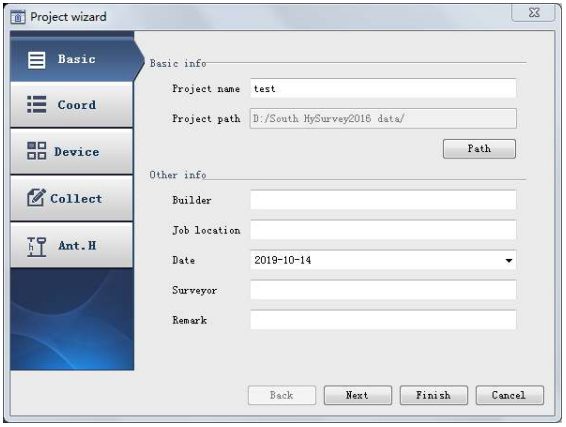


4.4 Then you can minimize the EchoSounder and go to configure the Hysurvey software.

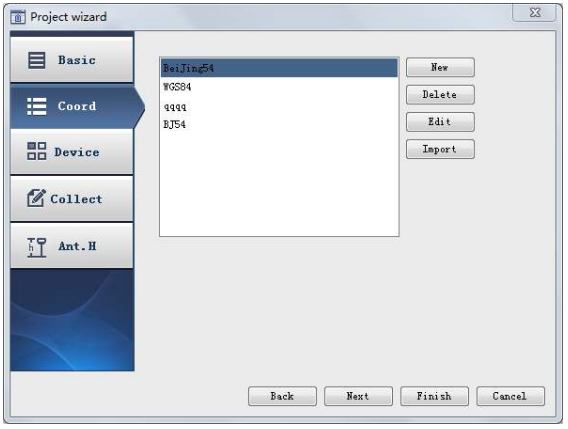
4.4.1 Create a new project by click “Project – new project”, click “OK”, see as below picture:



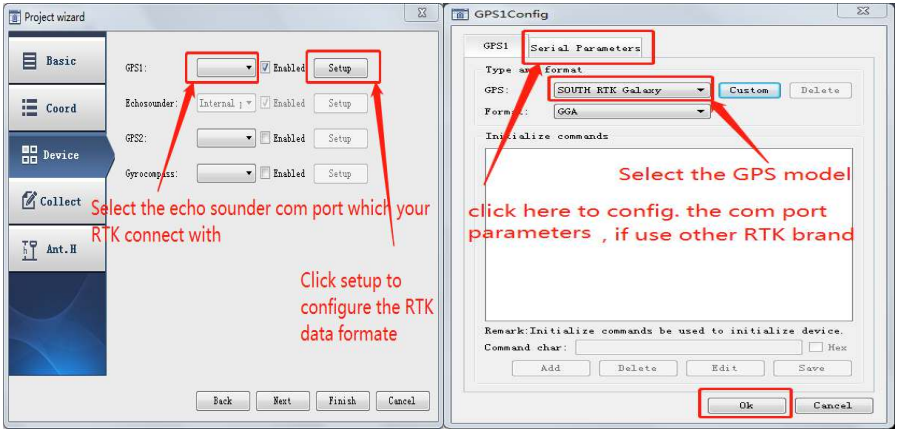
4.4.2 You will see the wizard, and you can input the project parameters step by step, See as below pictures:



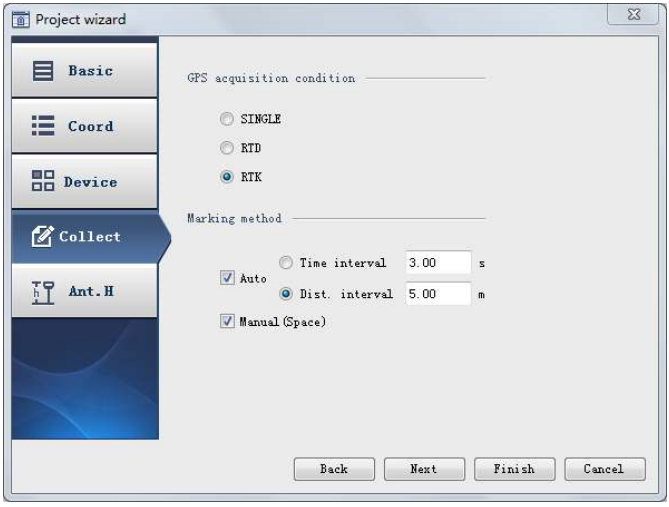
Above picture, you can input the project information



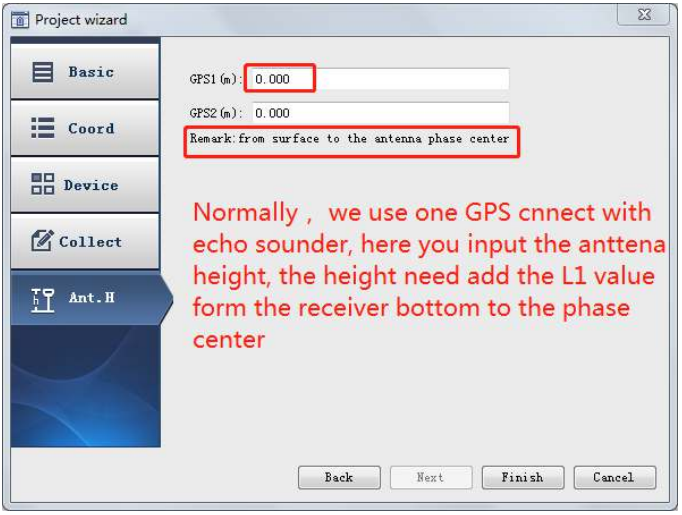
Above picture, you can create your local coordinate system by click the “new” button



Above picture is configure the device sample, and the Echo sounder pleas select the “Internal port” and tick “Enable”

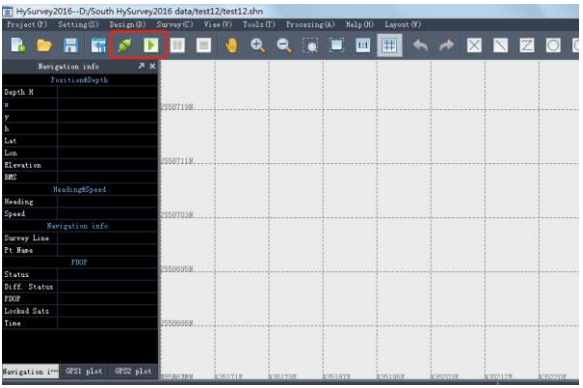


Above picture is the collect data setting.



Above picture need user input the antenna height, after input the height, click “Finish” icon.

4.4.3 After click “Finish” the software will back to main interface. Click the connect icon and record icon, if connect successfully, you can see the coordinate and depth display in the “Navigation info”



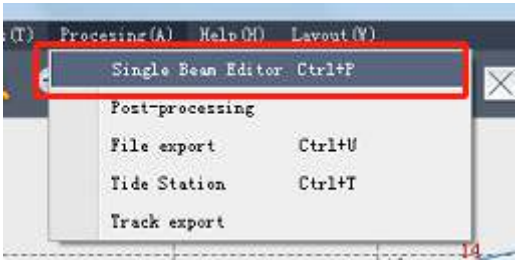
If there is no information come, please check the configuration in “setting – survey devices” again, and check the EchoSounder and Hysurvey software is not expired in “Register”.

4.5 For the survey plan line, you can Import the DXF2000 format file in “Project - Import”, or draw it in the “Design” function.

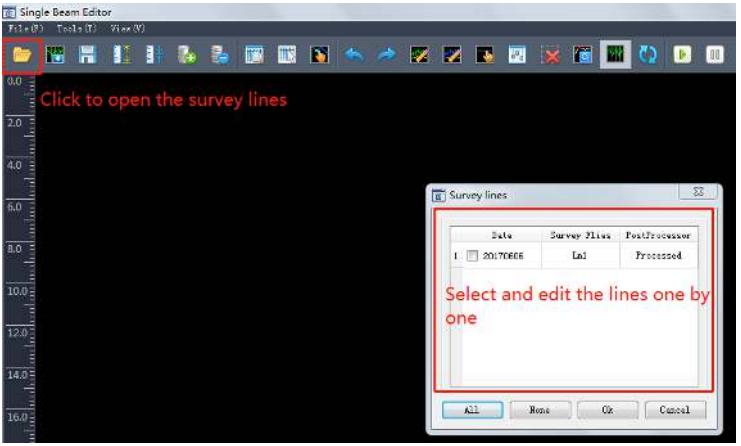
After your back ground have the survey plane lines, you can click “Record” and drive the boat fellow the lines, echo sounder will automatically record the data as your project collecting setting.

4.6 After collecting the data, the final step is data processing.

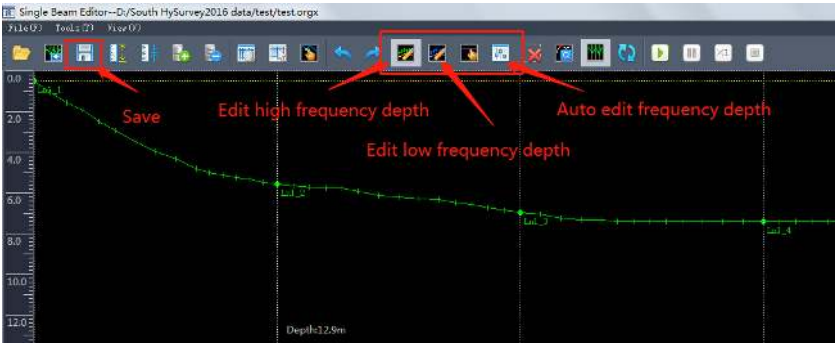
4.6.1 Check the echo wave data, Click “processing – single beam editor”, then you can open the single beam editor



In the editor, you can open the line files and check the echo wave.

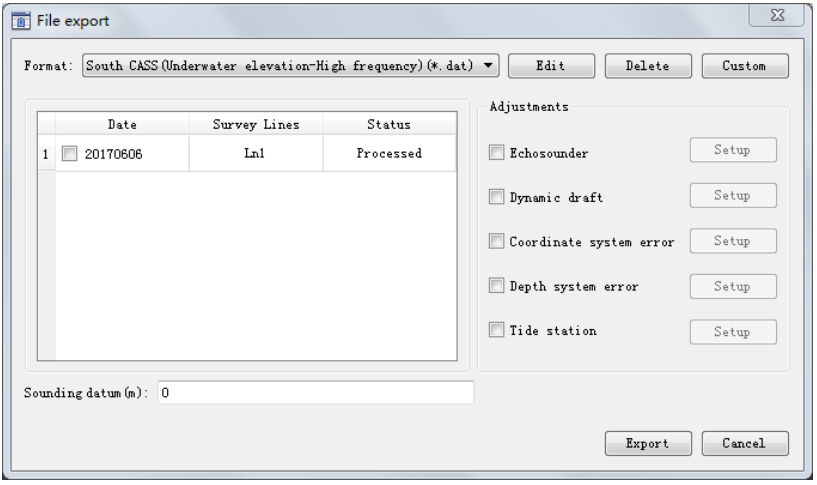


Opened the line file and check the data, if find some false data, you can use the edit tool bar to edit the data.



After you open the line file, you can click the “Auto” process first, then you can check by manual. If you find some echo wave error, use the edit high or low depth to edit it back to normal. After finishing edit 1 line, click “Save” to save the data, and open another line to process.

4.6.2 After finish all the survey lines process, close the single beam editor, and click “Process – file export”.



You can customize the output format as you want in “custom” function.

Normally, when you use RTK for marine survey, you only need to select the output format and select all the survey lines, then click “Export”.