SDE-19 Echo Sounder

User Manual

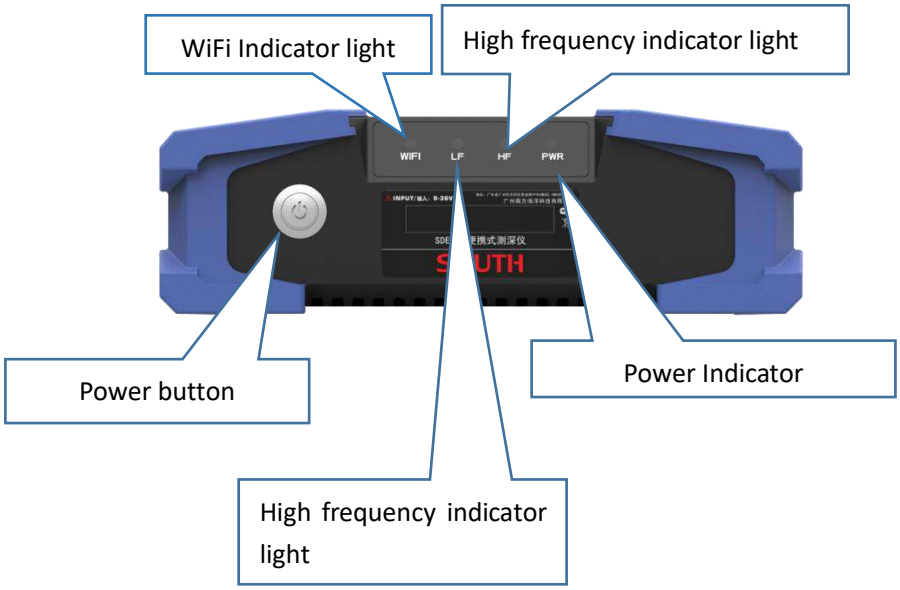
Content

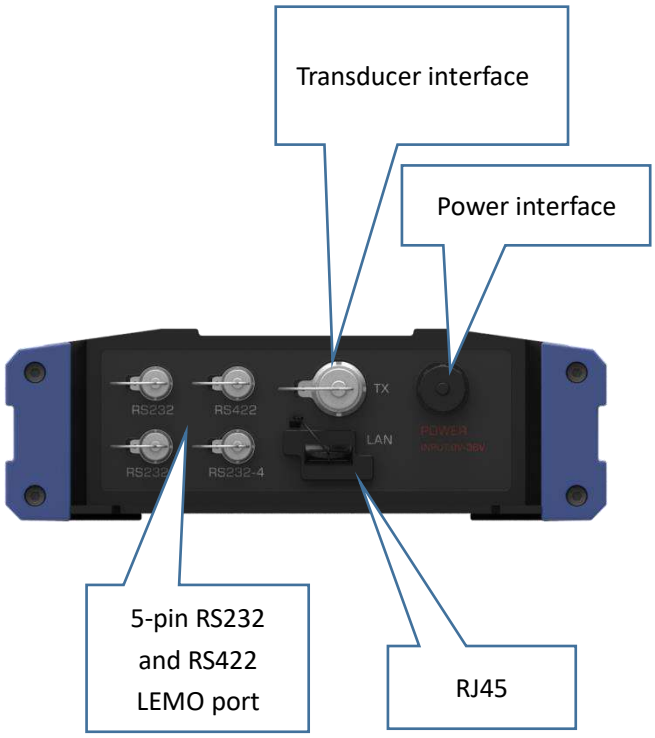
Chapter 1: SDE-19 introduction

1.1 Overview

SOUTH SDE-19 series echo sounder is a rugged, portable, professional and easy-to-use. SOUTH SDE-19 support WIFI, bluetooth or RS232 cable communication for data transmission, it can not only be used as portable type(Wireless connection), but also as professional type(RS232 connection). SDE-19 can work with SOUTH Android echo sounder software which installed in the Android tablet, it is a new and great experience for hydrographic surveyors.

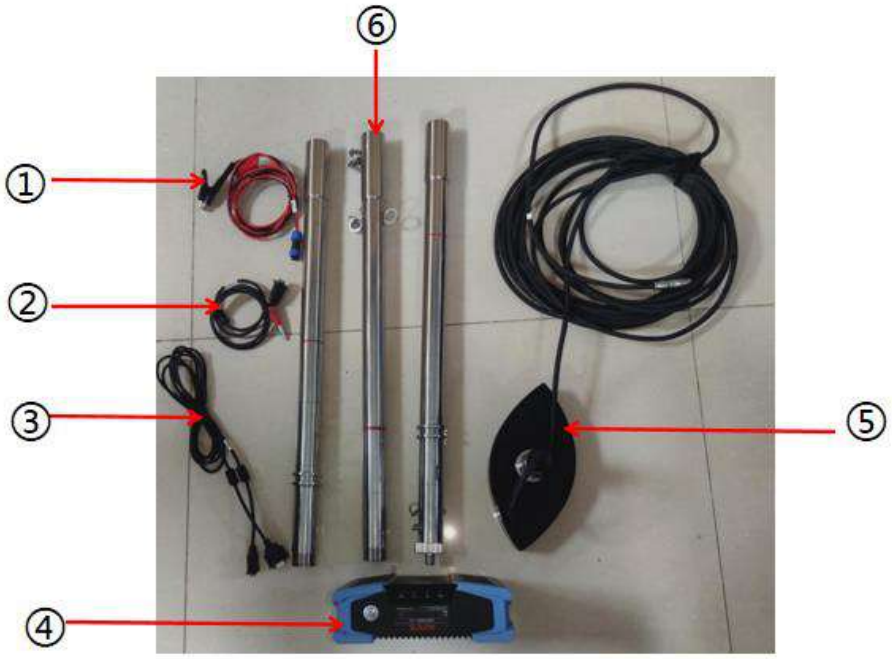
1.2 SDE-19 interface


WiFi Indicator light
High frequency indicator light
WIFI
LF
HF
PWR
Power button
Power Indicator
High frequency indicator light


Transducer interface
Power interface
RS232
RS422
TX
LAN
RS232-4
5-pin RS232 and RS422 LEMO port
RJ45

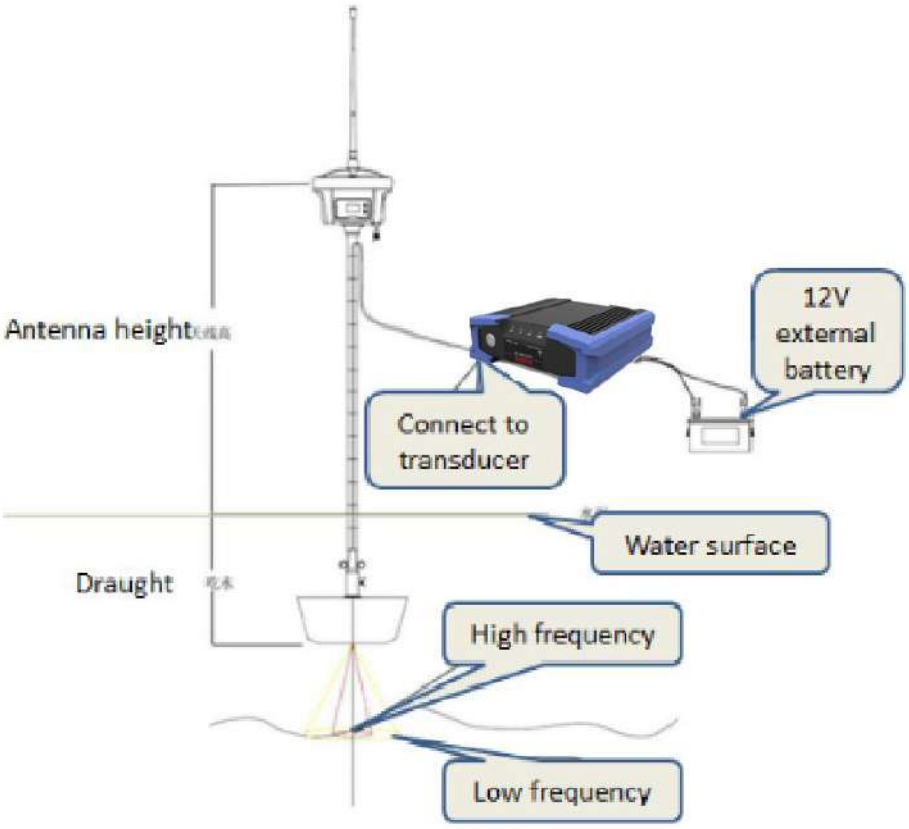
Power button	Power on and off the SDE-19, when normally power on, the light will be blue
WiFi indicator	Show WiFi data link status, blinking blue is normal
Low frequency indicator	
High frequency indicator	
Power Indicator	Blue means power
Transducer interface	Connect the transducer
Power connector	External power supply, DC 12V
Five needles	Used as a serial output interface, you can view the output data of the host and debug the host through the serial software
Cable interface	External network cable

1.3 SDE-19 accessories

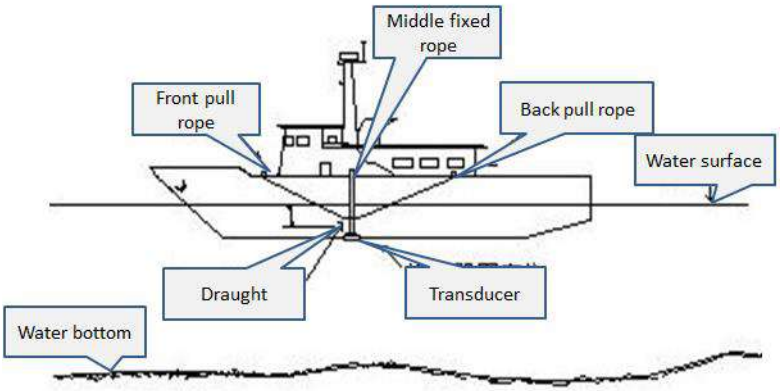


①： 12V DC power supply cable ②: RS232 data communicated cable
③: RS232 extended cable ④: SDE-19 echo sounder ⑤: transducer ⑥: survey pole

1.4 SDE-19 installation



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

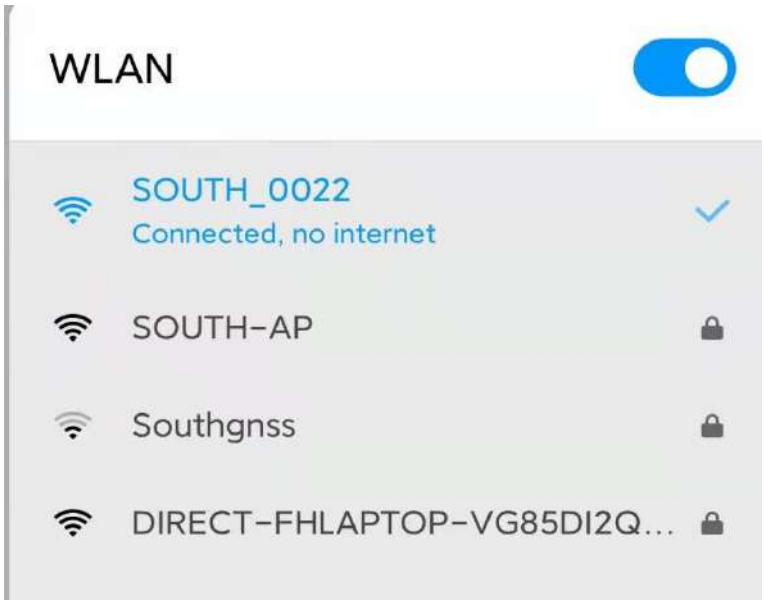
During the whole depth measurement, the transducer rod shall be kept vertical at all times. When you find the rod is not vertical, you need to check the data. So, it is important to fixed the rod before you go to survey.

Chapter 2: SDE-19 Web UI

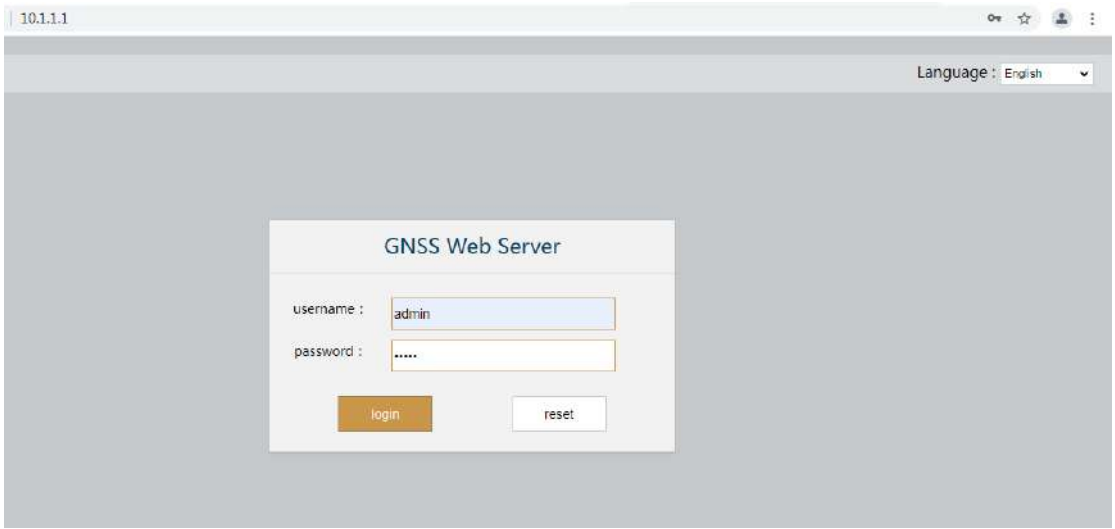
2.1 WIFI connection and login the web UI.

(1) Search the WIFI hot spot, the hot spot name is “SOUTH_”+”the last 4 digital SN of SDE-19”.

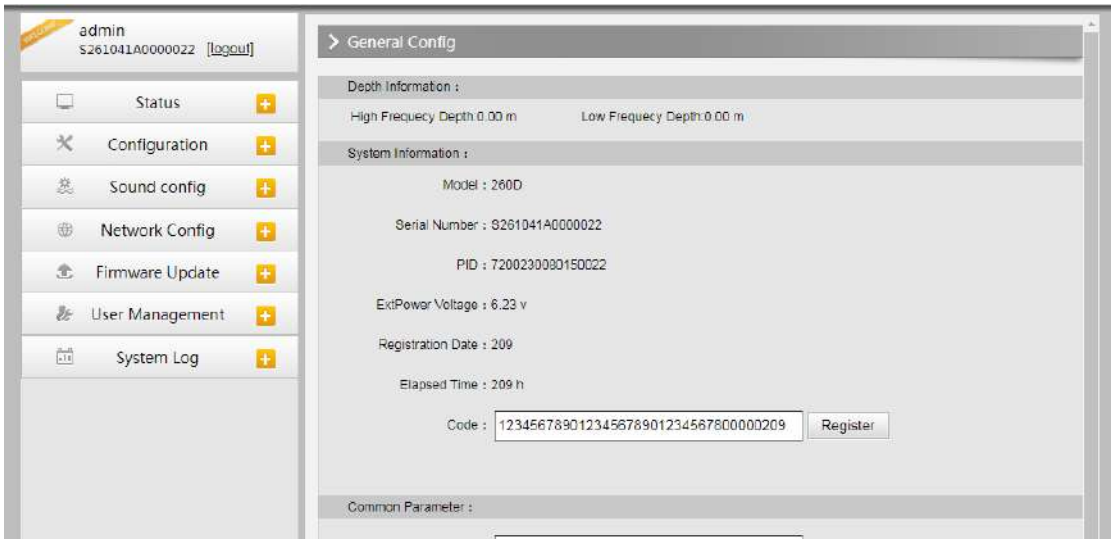
Take “S26104A0000022” as the SDE-19 SN as example, we can search the WIFI hot spot is ”SOUTH_0022”. Click to connected with this hot spot without password requirement.



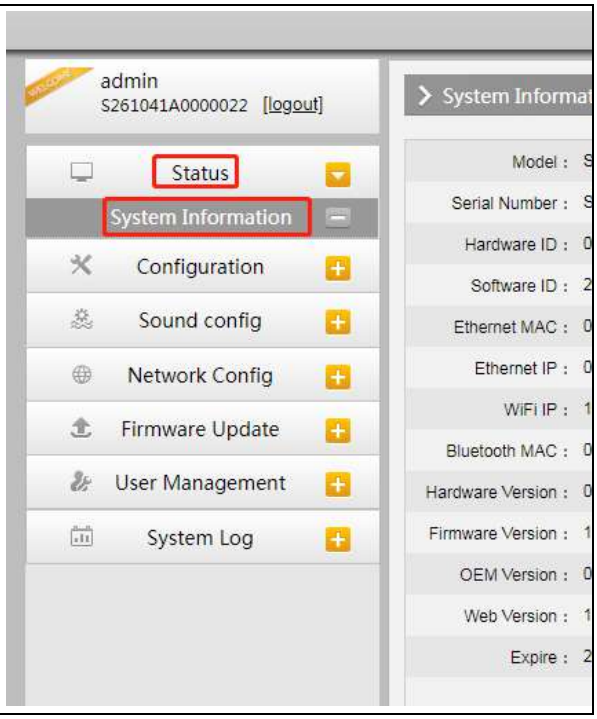
(2) After connecting with the hot spot, then run the browser and input IP ”10.1.1.1” to login the web UI as below picture:



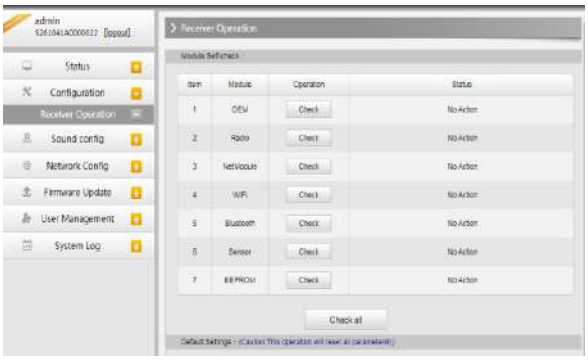
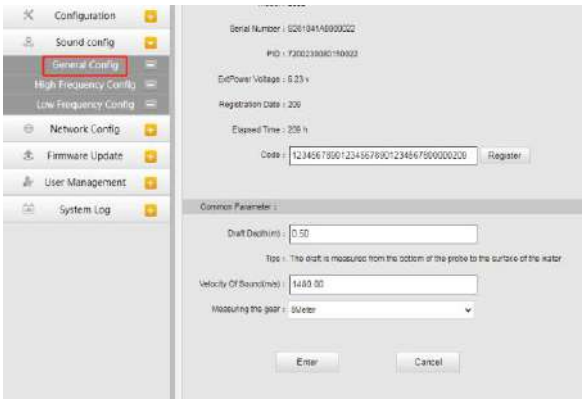
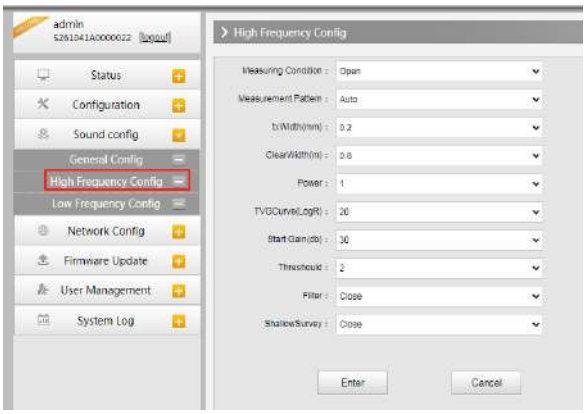
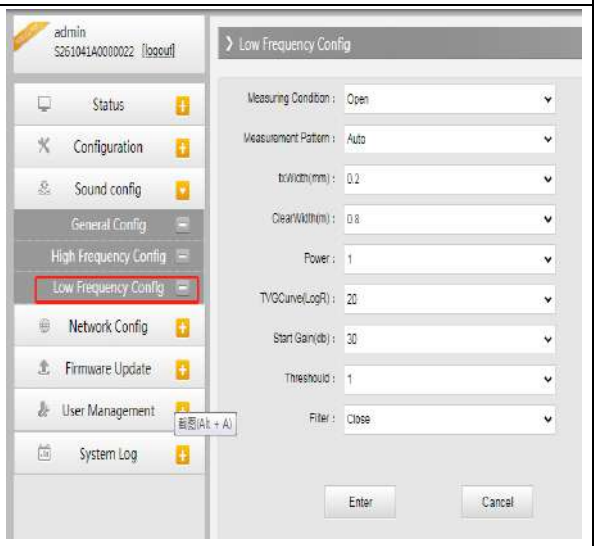
(3) Type the username and password **both** “admin”, then click login to see the web UI configuration as below picture:

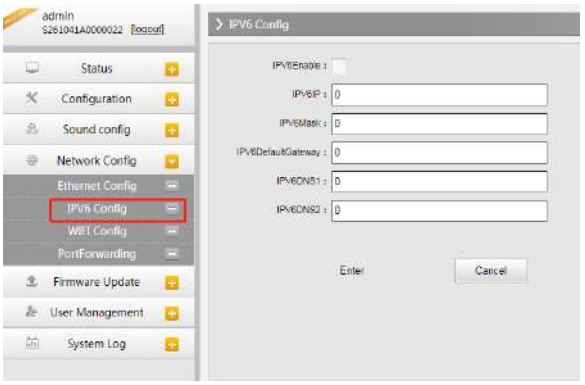
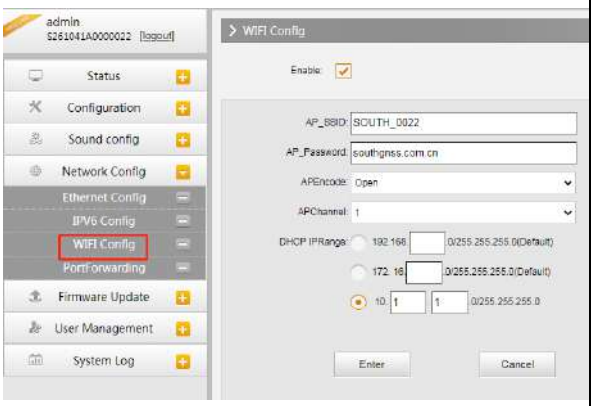
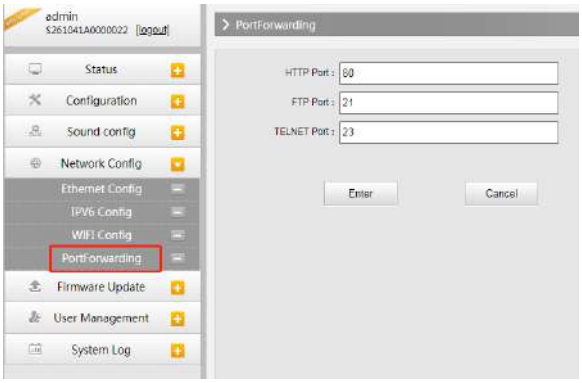


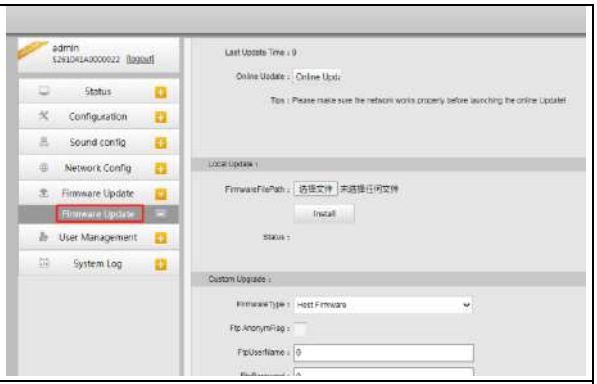
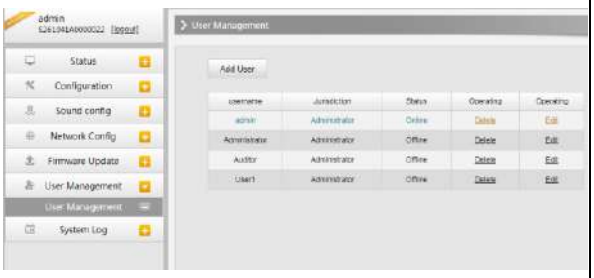
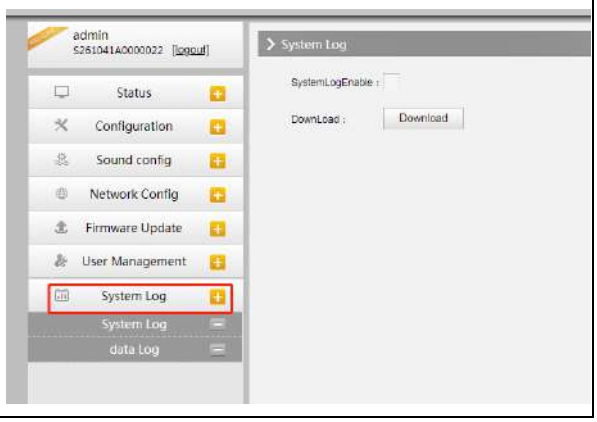
2.2 Web UI introduction

Status: To show system information, such as receiver serial number, firmware version.	

<table>
<tr><td colspan="2">Configuration:

This is similar with SOUTH RTK wenUI, in this operation option, we can do some operation like : self-check, power off, reboot and so on.</td><td>  </td></tr>
<tr><td rowspan="3">Sound Config.</td><td>General Config.:
Code: Register the echo sounder receiver.
Draft: The depth of transducer.
Sound velocity</td><td>  </td></tr>
<tr><td>High frequency config.:
Measuring condition: Open or close, for enable/disable the high frequency function.
Measurement pattern: Auto and manual. Auto mode is auto adjust sounding parameters, and manual mode can let client adjust the sounding parameters.</td><td>  </td></tr>
<tr><td>Low frequency config.:
Measuring condition: Open or close, for enable/disable the high frequency function.
Measurement pattern: Auto and manual. Auto mode is auto adjust sounding parameters, and manual mode can let client adjust the sounding parameters.</td><td>  </td></tr>
</table>

Network Config.	Ethernet: Configure the WIFI mode of echo sounder, and SOUTH users need to operate under SOUTH engineer guide.	
	IPv6 config.: Configure the IPv6 parameters.	
	WIFI config.: Configure the WIFI parameters of echo sounder. SOUTH users need to operate under SOUTH engineer guide.	
	Port forwarding: Some default port value of network. SOUTH users need to operate under SOUTH engineer guide.	

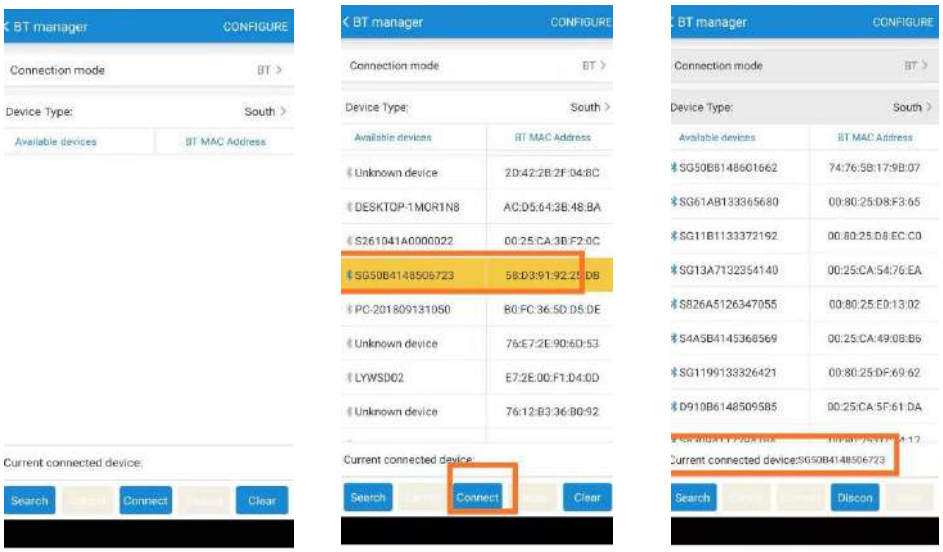
Firmware update: For updating firmware. SOUTH users need to operate under SOUTH engineer guide.	
User management: For webUI user management. SOUTH users need to operate under SOUTH engineer guide.	
System log. For receiver test. SOUTH users need to operate under SOUTH engineer guide.	

Chapter 3： Quick guide for SDE-19 with Seastar software

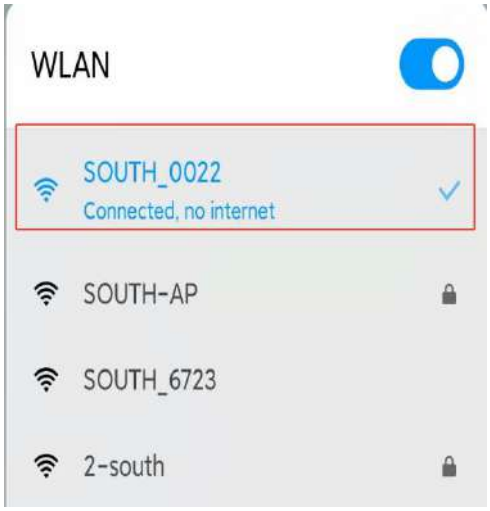
3.1 Seastar connect with SDE-19 and GNSS receiver.

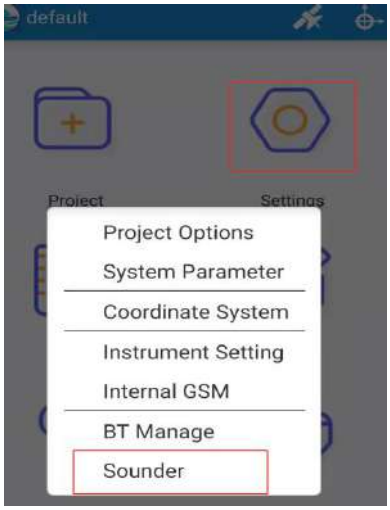
Install and power on SDE-19, also prepare the GNSS receiver and power on.

A. Run the Seastar software in N80 and search the GNSS receiver bluetooth in the “settings - BT manage”, then click “search” to search the receiver SN, then select the SN and click connect, see as below pictures:



B. Enable the N80 WIFI and connect with the echo sounder WIFI hot spot, then back to Seastar and click “Setting - Sounder - South Sounder ”, turn on the “Sounder network connect” , see as below pictures:

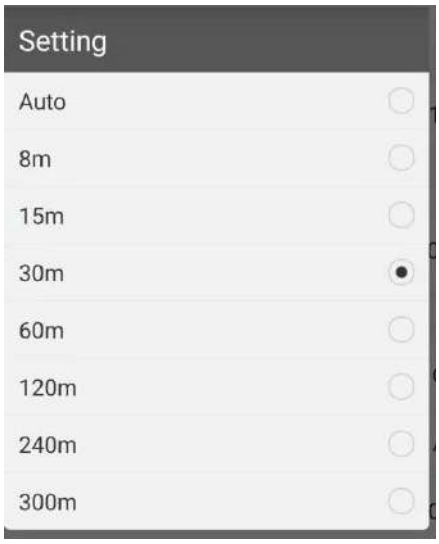




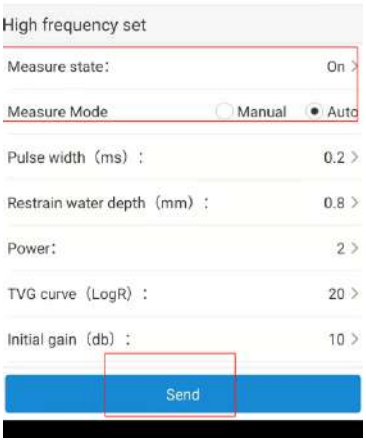
C. Input the value of sound speed(velocity) and draught. The sound velocity depends on the water environment, normally we can use sound velocity sensor to get the value of sound velocity, or we can use bar check to calculate the sound velocity, even sometimes, we manual edit the velocity to match the depth which echo sounder display with the real depth.

The draught is the depth of transducer. Normally we put transducer into water at 0.5 meters depth, and our survey pole also have the red mark to show 0.5m line.

About the measurement gear, it is the maximum depth value. It is very important for auto adjust parameter survey mode(“measure mode - Auto” in “High frequency setting”). So if you already know in this area, it will not deeper than a value, please select the pear as below picture, if you don’t know the value, select the “Auto”.

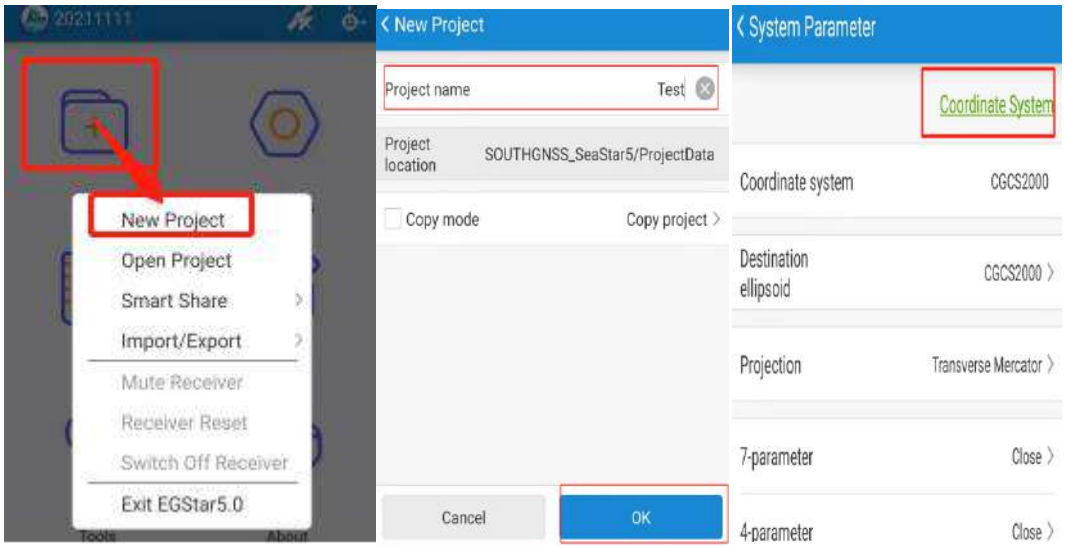


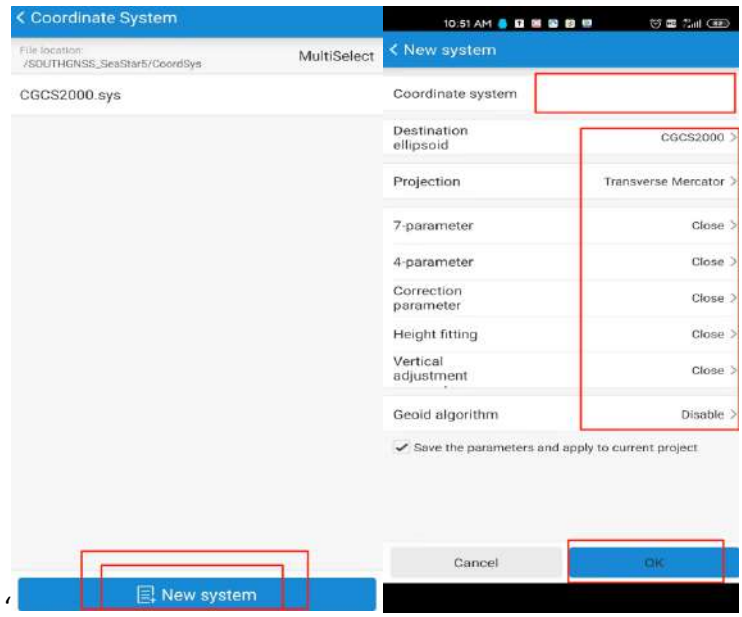
D. Select the measure state “On”, then select the measure mode “Auto”, then click “Send”, see as below screen shot. If configure done, you can see a feedback message “Sounder parameters sent successfully”, then we can back to the main interface of Seastar.



3.2 Create a new project, input the coordinate system parameters and localization.

A. Click “project - New project”, then input the project name, then click “OK”, then we can click the “coordinate system”, then click “new system”, then type a coordinate system name in the “coordinate system”, then select and input your local coordinate system parameters. Then click “OK” and apply to current project.

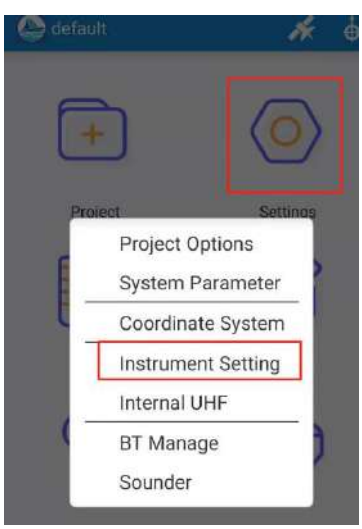


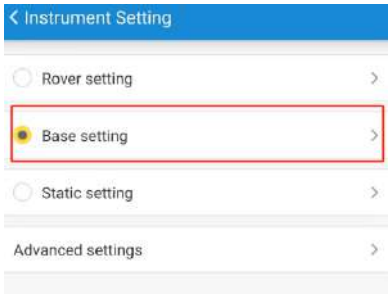


B. Localization:

B-1. UHF RTK mode.

B-1-1. Set base at know point. After connecting with base station, then click “setting - instrument setting - Base setting” Then input the base parameters and base coordinate as below pictures:



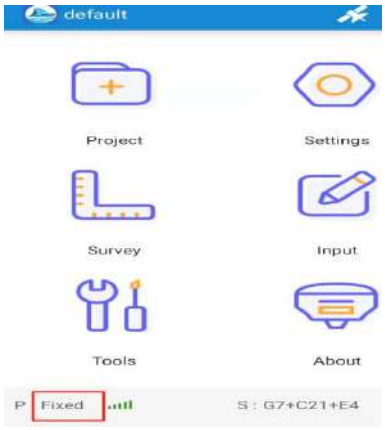


Normally, we use RTCM32 as message format, Emission frequency as 1 second. Then we can select the “Base position” as Manual start base, and input the coordinate.

We also need input the antenna height and select the data link(Internal radio or external radio), for internal radio we can select the radio data source to configure the radio parameters.

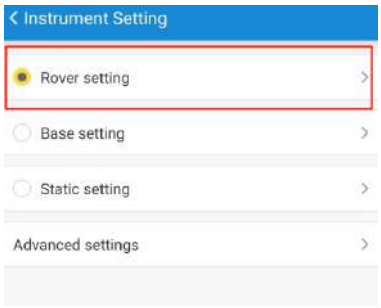
After setting above, we can click “start base”, if the GNSS satellites PDOP is less than 3.5, the base will start transmit correction data via UHF radio.

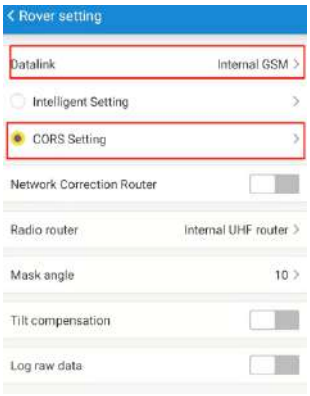
B-1-2. Then we can use Seastar connect with rover, and set the same radio parameters to get fixed.



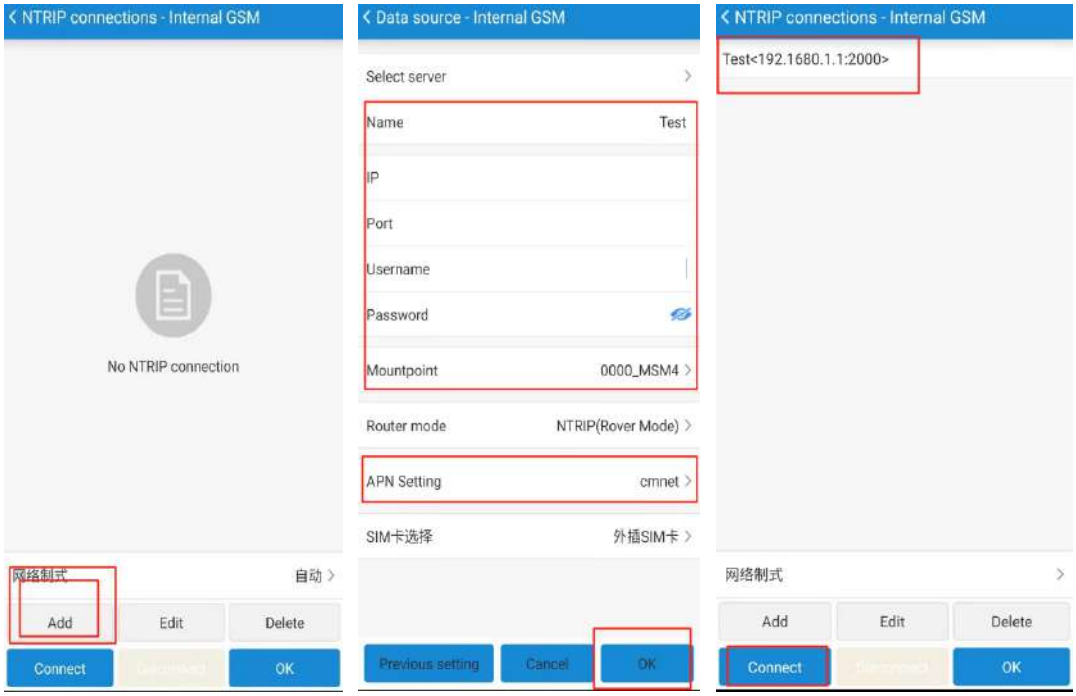
B-2. CORS mode. If connect with CORS, we don't need to do the localization step.

B-2-1. We need insert the SIM card in the GNSS receiver(we need configure the APN information in the GNSS receiver) and then set GNSS receiver as "Internal GSM" mode, then click into the CORS setting





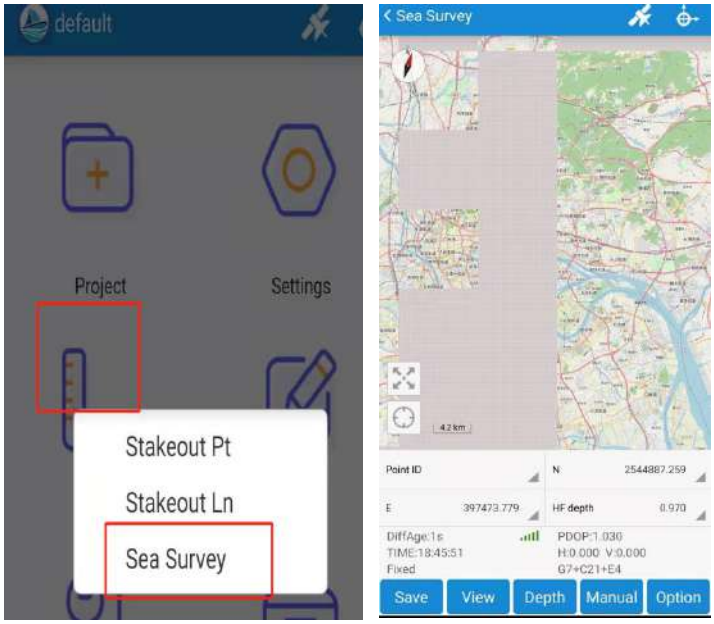
B-2-2. Then we can add the CORS network parameters as below pictures: "Add" and input the CORS connection name, then input the CORS parameters, set the APN, then click "Mount point" and click "Refresh access point", then select the correct access point, and click OK. Then you can select your CORS connection just added, and click "connect". If all connect successfully, it will show a tick with "logon server"



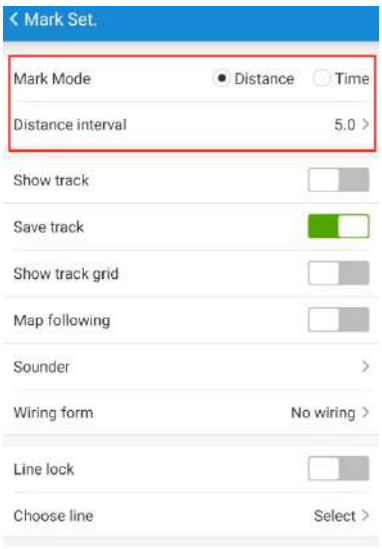
3.3 Sea survey/hydrographic survey/bathymetry.

After we finish the devices connection, devices parameters setting and coordinate system setting. Then we can start the hydrographic survey.

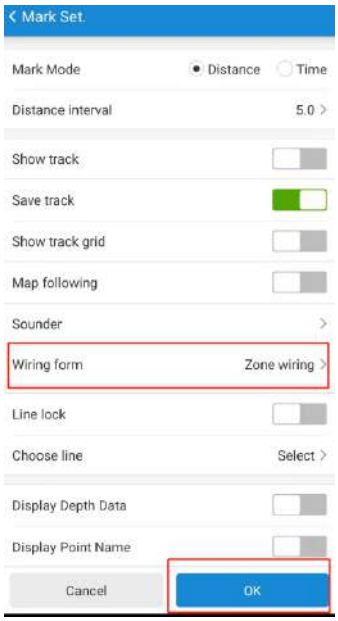
3.3.1 Click into the hydrographic survey function, click “survey - sea survey”.

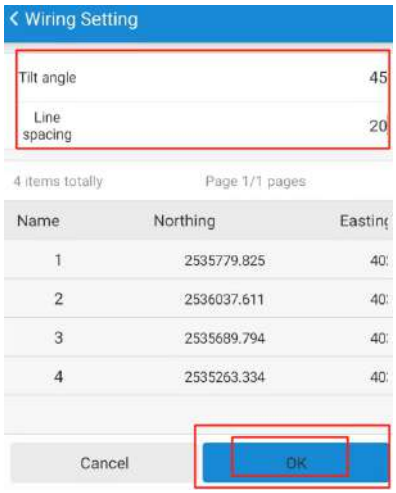


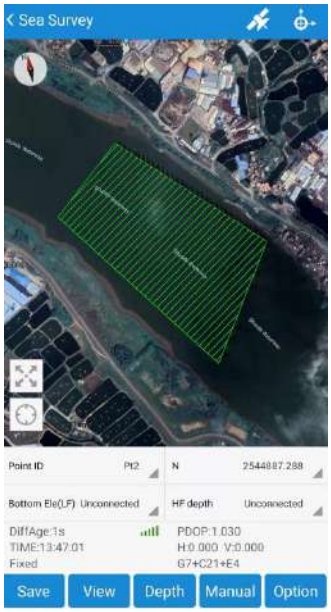
3.3.2 Click “Option” into the collection setting(Mark set.), then select the mark mode(by distance or by time)



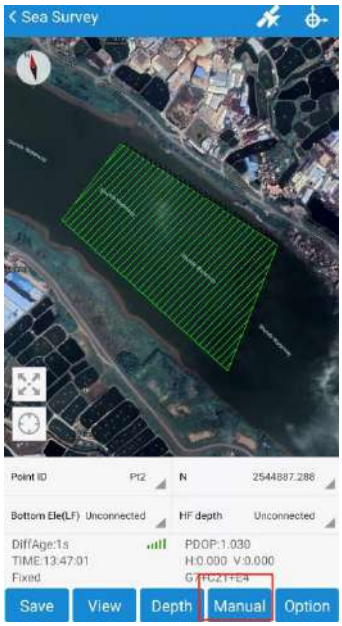
3.3.3 Select the Wiring form as “zone wiring”, then click “OK”, then you can click the screen to add the points as the boundary of survey area, then click “complete” icon. You will see the “wiring setting” parameters interface, then input the Tilt angle and line spacing, and click “OK”, then you can see the plan lines in the survey area. See as below pictures:

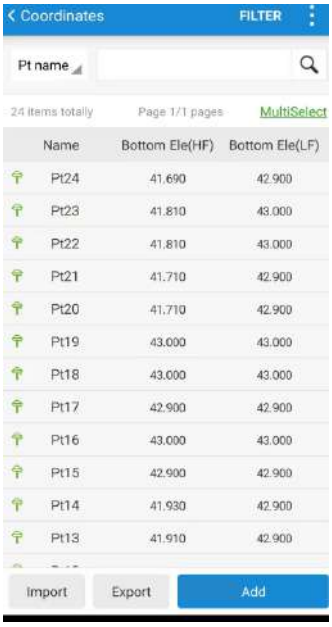




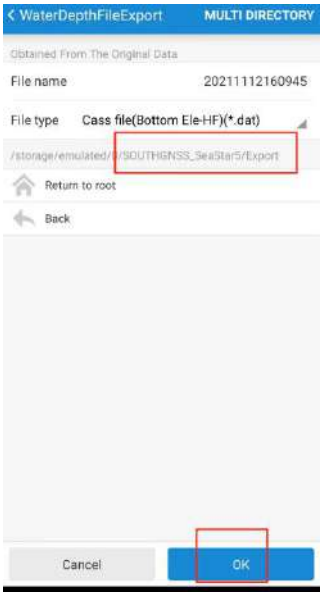


3.3.4 Auto survey function(by time or by distance). Click “Manual and Auto” to switch the collecting mode(the icon show “Auto” means now it is auto survey mode). Then click “Measure” and input the point name and antenna height,then Seastar will collect points automatically. We can click “View” to check the data.





3.3.5 Data export. Back to main interface of Seastar click “Projec - Import/Export - WaterDepthFile”, then input the exported file name and file type(data format), then click “OK”. After export successfully, we can copy out the .dat file and open it as CSV file(rename the extension “.dat” as “.CSV”).



	A	B	C	D	E	F	G
1	Pt1	2544886.944	397473.9	41.93			
2	Pt2	2544887.027	397473.6132	41.94			
3	Pt3	2544886.939	397473.9361	41.94			
4	Pt4	2544886.945	397473.958	41.91			
5	Pt5	2544887.326	397473.6716	42.04			
6	Pt6	2544887.035	397473.5791	41.94			
7	Pt7	2544887.016	397473.6442	41.94			
8	Pt8	2544887.248	397473.8744	41.9			
9	Pt9	2544887.034	397473.5699	42.01			
10	Pt10	2544887.437	397473.7281	42.01			
11	Pt11	2544887.122	397473.5904	41.91			
12	Pt12	2544887.097	397473.9827	42.01			
13	Pt13	2544887.249	397473.7502	41.91			
14	Pt14	2544887.415	397473.718	41.93			

Point name

North

Easting

Water bottom elevatin