## SOUTH







# User Guide v1.0.0

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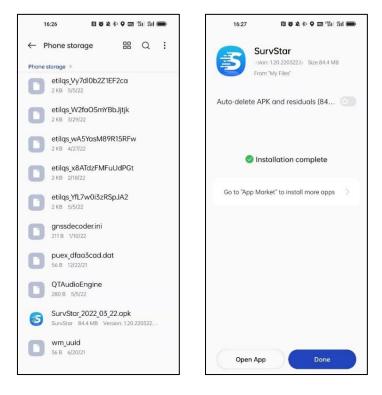
### **Chapter 1 Installation & Uninstall**

#### **1-1 Installation**

1. Copy the APK installation file into android device.

脑〉One	ePlus 9 Pro > 内部共享存储空间		~ U )
	etilqs_lusrsshPziiYxFy	etilqs_LWyMSVU94wSQbAq	etilqs_MsCHTGYKdcbdiUa
	etilqs_nBprno3wNo39Axa	etilqs_NFspk1tsJ7ZT6bR	etilqs_OcbEZViJ0qkTufX
	etilqs_OGqefAMWfnI3fVx	etilqs_PFuE4y05WeC8L6W	etilqs_rtlyYAL9V9tT46H
	etilqs_RxoQEiVA5ZbFRgw	etilqs_ul1nQiFPiwyPyMD	etilqs_unXD0dikwV6ld4Y
	etilqs_uV5aYXEXuZc9yu7	etilqs_Vy7dl0b2Z1EF2ca	etilqs_W2faOSmYBbJjtjk
	etilqs_wA5YasM89R15RFw	etilqs_x8ATdzFMFuUdPGt	etilqs_YfL7w0i3zRSpJA2
-	gnssdecoder.ini 配置设置 211 字节	<b>puex_dfaa3cad.dat</b> DAT 文件 56 字节	QTAudioEngine
	SurvStar_2022_03_22.apk APK 文件 84.3 MB	wm_uuid	

2. Find the APK installation file in android device and click it to install SurvStar.



#### 1-2 Uninstall

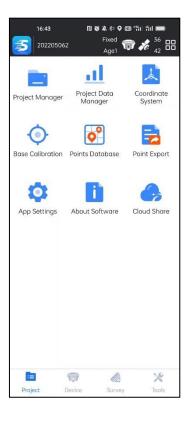
Find the SurvStar icon in android device, and long press it, and then click Uninstall, the system will uninstall it.



### **Chapter 2 Main Interface**

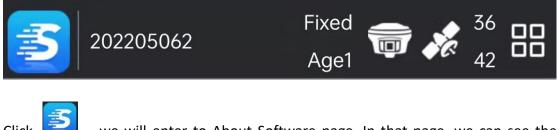
#### 2-1 Introduction

Below is the main interface of SurvStar, it includes: general information at the top, function modules at the bottom and detailed function buttons in the middle.



#### **2-2 General Information**

Below is the general information bar, where we can see the current project's name, current solution status and satellites.



Click *we will enter to About Software page. In that page, we can see the current version of SurvStar, register the SurvStar and check new version.* 

	16:49	n 🌣 🖈 🕈 🚥 배	៉ាំរៅ 💼
<		About Software	?
	S	94475tar 1.31.220428.beta	
	Software	Register	>
企	Check N	ew Version	>
	SOU	Copyright (C) 2015 TH GNSS NAVIGATION CO., LTI	۵.

This is the name of current project.



Solution status: includes Single, Float, DGPS and Fixed.

Age1: current differential delay is 1.

e.g., Single, 0, current solution is single, and differential delay is 0.

Fixed, 1: current solution is fixed, and differential delay is 1.

36/42: Used satellites and detected satellites.

Click , we will enter to Communication page. In that page, we can search the device and pair with it.

17:03	N 🏽 🎗 🕸 🕈 🖓 🚥 'Sh Sh 📟
< Comr	nunication
Model	RTK >
Manufacturer	SOUTH >
Communication Mode	e Bluetooth >
Bluetooth Device List	Show all
Q911C3148626533	E8:97:9A:F8:B4:CF
AG30BB14801822	B 00:25:CA:5F:18:F2
SG70C2133379997	00:25:CA:5E:CD:24
SG70C2133380007	00:25:CA:5E:CD:46
\$ SG70C2133379988	00:25:CA:5E:CD:02
* AG30BB14801822	5 00:25:CA:5F:27:0E
\$910C2148619394	00:25:CA:5E:B9:88
Debug	Disconnect

Click , we will enter to SAT Information page. In that page, we can check the

position information, accuracy, base position, SAT skylot, SNR and SAT list.

	N & & & 9 🚥 🖮 📶 🛲 formation 🛛	17:0	os ∎∢ SAT Infor	ه ه ع ه mation	11 11 <b>-</b> ?
Detail SAT Skyle	ot SNR SAT List	Detail	SAT Skylot	SNR	SAT List
Position Information		Fixed(G7-	+R3+C18+E5/40	)	
Solution:Fixed	Time(s):17:03:38				
Lat:N23°10'53.5992"	Northing: 2564763.543		•		
Lon:E113°25'01.0204"	Easting: 440303.774				
Height:45.8221	Height: 45.822				
Direction: 202°19'28.6707"	Speed: 0.007	s c25			s .
Accuracy				<b>XII</b> (59 <sup>0)</sup>	
PDOP:1.075	HRMS:0.025				
VDOP:0.859	VRMS:0.017		- Cin		
HDOP:0.534					
Base Position		GPS		GLONASS	
Lat:N23°06'43.2482"	Northing: 2557053.762	V BD		GALILEO	

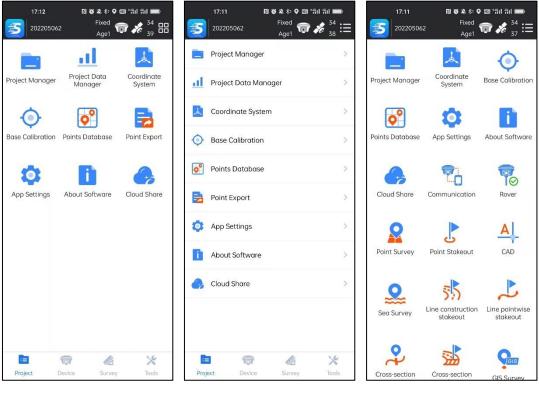
17:03 🛛 🖻 🎗 🕸 ়় 🗢 আল জিলা 🛲 < SAT Information (?)	<	17:03 SAT Ir	∎ <b>® &amp;</b> * nformati	<b>9 መ "ከ</b> ። on	111 <b></b>
Detail SAT Skylot SNR SAT List	Deta	il SAT Sky	ot SN	IR S	AT List
60	SAT No.	SNR	Elevation Angle	Azimuth	Status
	G02	29.0/0.0/0.0	38.0	314.0	Locked
50	G05	39.0/40.0/0.0	25.0	227.0	Locked
	G06	39.0/41.0/29.0	45.0	17.0	Locked
	G09	31.0/36.0/0.0	27.0	73.0	Locked
40	G12	36.0/37.0/0.0	33.0	300.0	Locked
	G17	42.0/41.0/0.0	46.0	108.0	Locked
50	G19	39.0/22.0/0.0	60.0	84.0	Locked
	G20	44.0/24.0/0.0	54.0	246.0	Locked
	R01	0.0/31.0/0.0	15.0	31.0	Visible
20	R02	38.0/42.0/0.0	62.0	83.0	Locked
	R15	33.0/37.0/0.0	23.0	254.0	Locked
10	R17	32.0/40.0/0.0	39.0	8.0	Locked
	R24	0.0/29.0/0.0	26.0	71.0	Visible
	C01	36.0/39.0/27.0	46.0	122.0	Locked
0 G02 G12 R01 R24 C04 C10 C22 C38 C57 E03 L1/B1 L2/B2 L5/B3	C02	35.0/42.0/29.0	47.0	235.0	Locked

Click

, we will enter to Main Interface Style page. In that page, we can define

main interface style and decide which function modules to be displayed.

17:08 🛯 🌀 🔌 용: 우 📼 "위비	#il 📟		8: ♥ ᡂ °ậi ¦ ậil 📟
K Main Interface Style		K Main Interface	Style
Main Interface Style	Grid >	Main Interface Style	Grid >
Project		Project	
Project Manager		Project Manager	
Project Data Manager		Project Data Manager	
Coordinate System		Coordinate System	
Base Calibration		Base Calibration	
Points Database		Points Database	
Point Export		Point Export	
App Settings		App Settings	
About Software		About Software	
Cloud Share		Cloud Share	
Device		Device	
ОК		ОК	



Grid

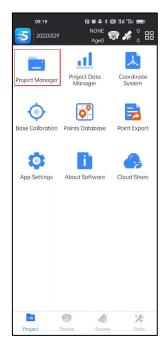
List

Simple

### **Chapter 3 Project**

#### 3-1 Project Manager

Click this icon to enter this function.



Projects we created are saved in the default directory of controller: Internal storage/SurvStar/ProjectData.

14:09	◎ ● ▲ 参 國 幣日約1 100
< Pro	ject Manager 🛛 🧿
Project Path	Internal storage/SurvStar/ ProjectData
Disk Free space	217.56 GB/237.60 GB
Project List	
Search	Enter to search ${\sf Q}$
20220321	2022-03-21 14:07:44
🖿 default	2021-11-30 16:17:10
20211221	2021-12-21 14:15:47
20220117	2022-01-17 09:03:24
202201172	2022-01-17 17:15:53
202201173	2022-01-17 17:21:17
20220118	2022-01-18 11:29:17
202201182	2022-01-18 11:29:26
20220302	2022-03-02 14:00:46
New	oort Export Details

#### Search Project:

In Project Manager-Project List, we can search projects we created before.

16:06	0 6 4 * 13 11 11 💭 •
< Pro	ject Manager 🛛 🕐
Project Path	Internal storage/SurvStar/ ProjectData
Disk Free space	218.23 GB/257.60 GB
Project List	
Search	202203 × Q
20220302	2022-03-02 14:00:46
20220307	2022-03-07 10:11:18
20220321	2022-03-21 14:07:44
New	ort Export Open

#### **Open Project:**

Choose the project, Click Open, then the project selected will be opened.

	oject Manager 🛛 🤅
Project Path	Internal storoge/SurvStar/ ProjectData
Disk Free space	218.35 GB/237.60 GE
Project List	
Search	Enter to search C
👕 default	2021-11-3( 16:17:10
20211221	2021 12-2 14:15:4
20220117	2022-01-1 09:03:24
202201172	2022-01-1 17;15:53
202201173	2022-01-1 17:21:1
20220118	2022-01-18 11:29:13
202201182	2022-01-18 11:29:27
20220302	2022-03-03 14:00:46
20220307	2022-03-03 10:11:18

#### Delete project:

Long press for 1 second, the toolbar below will display delete button, click Delete, and this project will be deleted.

16:26	0 8 4 8 9 0 11 11 <b>-</b> )+
< Pro	ject Manager 🛛 🧿
Project Path	Internal storoge/SurvStar/ ProjectData
Disk Free space	218.35 GB/237.60 GB
Project List	
Search	Enter to search $\mathbf{Q}$
20211221	2021-12-21 14:15:47
20220117	2022-01-17 09:03:24
202201172	2022-01-17 17:15:53
202201173	2022-01-17 17:21:17
20220118	2022-01-18 11:29:17
202201182	2022-01-18 11:29:26
20220302	2022-03-02 14:00:46
20220307	2022-03-07 10:11:18
20220321	2022-05-21 14:07:44
Cancel	Delete

#### Create new project:

When we run SurvStar, we need to create a project and define basic information such as project name, operator and coordinate system type.

<sup>14:09</sup>	n) or sk ≉r nor "Hir Hill n⊡ Dject Manager ??
Project Path	Internal storoge/SurvStar/ ProjectData
Disk Free space	217.56 GB/237.60 GB
Project List	
Search	Enter to search C
20220321	2022-03-21 14:07:44
🖿 default	2021-11-30 16:17:10
20211221	202112-21 14:15:47
20220117	2022-01-17 09:03:24
202201172	2022-01-17 17;15:53
202201173	2022-01-17 17:21:17
20220118	2022-01-18 11:29:17
202201182	2022-01-18 11:29:26
20220302	2022-03-02 14:00:46
New	port Export Details

#### New Project:

1.Click New to create a new project.

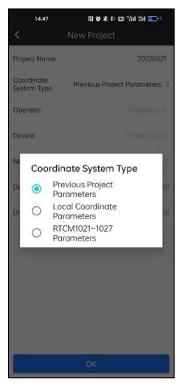
14:09	D 🛛 🕸 🎗 🎋 🖾 ''''II 🖽 🕞
<	New Project
Project Name	20220321
Coordinate System Type	Previous Project Parameters >
Operator	
Device	
Notes	
Date	2022-03-21 14:09:05
Disk Free space	217.56 GB/257.60 GB
	ОК

2. Input the Project Name. If we input nothing, it will show the tip.

14:43	៧ថុន៖ ាា ងា ដា ⊐>៖ New Project
Project Name	Please Input
Coordinate System Type	Previous Project Parameters >
Operator	Please Input
Device	Please Input
Notes	Please Input.
Date Project no	2022-03-21 14:09:05 ame cannot be set empty
Disk Free space	217.56 GB(257.60 GB
	ОК

3. Choose coordinate system type. There are three types we can choose: Previous

Project Parameters, Local Coordinate Parameters and RTCM1021~1027 Parameters.



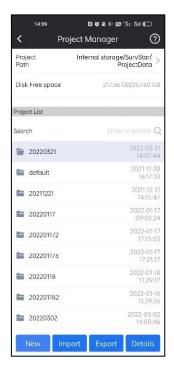
4.Complete other information of the project.

14:49 <b>&lt;</b>	ଅଷ≱∻ छ 'ଥା ଥା — New Project
Project Name	xxxx project
Coordinate System Type	Previous Project Parameters >
Operator	Mr.Kun
Device	SOUTH G7
Notes	some notes 🛞
Date	2022-03-21 14:47:33
Disk Free space	217.78 GB/257.60 GB
	ОК

#### **Import Project:**

If projects from other controllers are copied into survStar/ProjectData, we can open them directly; if they are copied into other directory, we can import them by loading their project file (\*.configure).

1.Click Import in Project Manager.



2.Find the target project folder, choose the project file (\*.configure) saved before, and click OK. Then the project will be opened.

16:05 ₪ <b>&lt;</b> Impor	ଷ ୫.୫ ୦୦୦ ନିମା ନିମା 💷				
File Type	.configure 🔻				
Internal Storage/2022	20321				
Back to Root Director	у				
Back to App Storage	Back to App Storage Directory				
1 Back to Previous Dire	ctory				
E Config	Config				
ControlResult	ControlResult				
🖿 Data	Data				
image	Image				
🖿 Log					
Survey					
Project.configure					
Cancel	ОК				

#### Export Project:

1.Click Export in Project Manager.

14:09 <b>C</b> Pro	∎os≱≉oos*anante⊃ ject Manager ???
Project Path	Internal storoge/SurvStar/ ProjectData
Disk Free space	217.56 GB/237.60 GB
Project List	
Search	Enter to search ${\sf Q}$
20220321	2022-03-21 14:07:44
🖿 default	2021 11 30 16:17:10
20211221	2021-12-21 14:15:47
20220117	2022-01-17 09:03:24
202201172	2022-01-17 17:15:53
202201173	2022-01-17 17:21:17
20220118	2022-01-18 11:29:17
202201182	2022-01-18 11:29:26
20220302	2022-03-02 14:00:46
New	port Export Details

2. Choose the directory we want to save the project. Click OK. Then the project will be saved.

	16:19 🛛 🗗 🎗 🛠 🛠 🖾 위비 위비 💳 🐐			
<	File Diretory			
	Internal Starage			
Ť	Back to App Storoge Directory			
	.7934039o			
	Android			
-	.DataStorage			
	FileManagerRecycler			
	.OAIDSystemConfig			
	.UTSystemConfig			
-	.000			
	.andorid			
	.android_e21c40ada1eb475bb627			
	ddd.			
	Concel OK			

#### Project Details:

1. Choose the target project, and Click Details.

14:09	D 🗸 🛠 🚥 🕮 🖽 🕞
< Pro	oject Manager 🛛 🧿
Project Path	Internal storoge/SurvStar/ ProjectData
Disk Free space	217.56 GB/237.60 GB
Project List	
Search	Enter to search $Q$
20220321	2022-03-21 14:07:44
📄 default	2021 11 30 16:17:10
20211221	2021-12-21 14:15:47
20220117	2022-01-17 09:03:24
202201172	2022-01-17 17:15:53
202201173	2022-01-17 17:21:17
20220118	2022-01-18 11:29:17
202201182	2022-01-18 11:29:26
20220302	2022-03-02 14:00:46
New	port Export Details

2.We can find relevant project information, such as Project Name, Coordinate System type and so on.

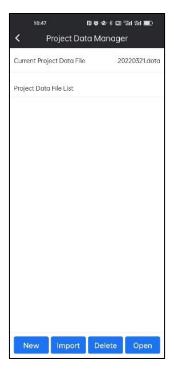
16:49	0 0 A & 0 121 51 💼	
< I	Project Details	
Project Name	default	
Coordinate System Type	Local Coordinate Parameters $ ightarrow$	
Operator	defoult	
Device	defoult	
Notes		
Date	2021-11-30 16:17:10	
Disk Free space	218.47 GB/257.60 GB	
ОК	SHARE	

### 3-2 Project Data Manager

With that function we can manage the surveyed data. We can create, import, delete and change the surveyed data.

#### New Project Data:

1.Click New.



2.Input the name of the new project data and click OK.

10:54	10:54 전 형 48 후 623 Ril Kil 🛲 Project Data Manager			
Current Project Dota		20220321.dota		
Project Data File List				
_				
Create new	project da	ta file		
default123				
Concel	C	к		
New	rt Delete	Open		

3. The new project data created successfully.

د المعنى الم المعنى المعنى			
Current Proje	ct Data File	d	efault123.dota
Project Data	File List		
20220321.dat	la		
New	Import	Delete	Open

#### Import Project Data:

We can import the project data from the file (\*. data).

1.Click Import.

10:47 N Project Data	ଷ ରୁ ୫ 💷 "ଆ ଆ 💷 Manager
Current Project Data File	20220321.dota
Project Data File List	
New Import	Delete Open

2. Find the correct location of the project data file and choose that file we wanted.

Click OK.

11:06 [U 66 42·유·우 03 '위비위리 MED
K Import File
ile Type .data 🔻
🖥 Internal Storage
Back to App Storage Directory
<b>7934039</b> 0
Android
.DataStorage
FileMonagerRecycler
.OAIDSystemConfig
.UTSystemConfig
.oaa
andorid
.ondroid_e21c40ada1eb475bb627
Cancel OK

#### Delete Project Data:

1. Choose the project data we wanted to delete. Then click Delete.

11:15 ₪ 🛛 🔊 🕸 🗸 Project Data M	© ♥ @ %i %i ₩⊃ anager
Current Project Data File	20220321.dota
Project Data File List	
default123.data	
New Import De	elete Open

2.Click  $\overline{OK}$ . The project data file will be deleted.

11:15 <b>&lt;</b> Pro		a Manage	
Current Project	Data File	20	220321.dota
Project Data Fil	e List		
default123 data			
5	Pron	npt	
Delet	e file [defo	ault123.dataj	]?
Cor	el	ок	
New	mport	Delete	Open

#### Open Project Data:

1. Choose the project data we wanted to open. Then click Open.

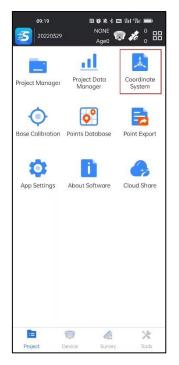
11:15 🛛 🖬	। ॐ % ♥ ख ाध था का का a Manager
Current Project Data File	20220321.dota
Project Data File List	
default123 data	
New Import	Delete Open

2.Then the chosen project data is opened.

11:21 <b>&lt;</b>	∎ Project Data	ø & ≉ œ % Manager	
Current Pro	ject Data File	defa	ult123.dota
Project Dat	a File List		
20220321.d	ata		
	Succeeded to	o open file	
New	Import	Delete	Open

#### 3-3 Coordinate System

Click this icon to enter this function.

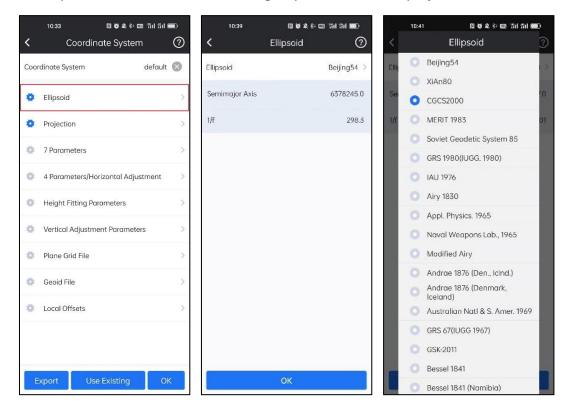


In coordinate system, we can create new coordinate system by defining the name, ellipsoid, projection, 7 parameters, 4 parameters, height fitting parameters, vertical adjustment parameters, plane grid file, geoid file and local offsets.

<	10:33 RJ 🕫 . Coordinate Sy	¥ #: @ 111 111 ■ /stem ?
Coo	dinate System	default 🛞
•	Ellipsoid	>
•	Projection	>
ø	7 Parameters	>
٥	4 Parameters/Horizontal	Adjustment >
0	Height Fitting Parameter	s >
0	Vertical Adjustment Parc	ameters
0	Plane Grid File	>
0	Geoid File	>
0	Local Offsets	5
E	xport Use Existi	ng OK

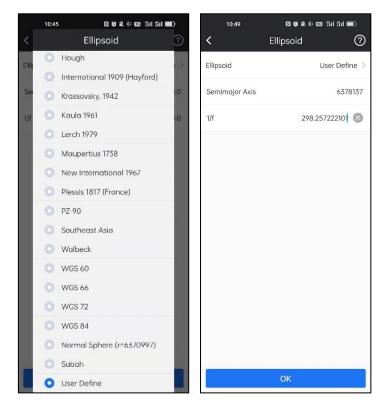
#### Ellipsoid:

1. In Ellipsoid, we can define the existing Ellipsoid for current project.



2. Also in User Define, we can define the ellipsoid by inputting Semimajor Axis and

1/f parameters.



#### **Projection:**

In Projection, we can define relevant projection parameters such as Projection Mode, Central Meridian, Latitude of Origin and so on.

	13:35 関 🕅 🕷 🕸 👘 I	ຳຄິເ 🗊	10:54	Ri 🛛 🎗 🕸 💷 "Sil Sil 🏛	) (	10:59	N 16 2 8 103 30 30 80 9	D
<	Coordinate System	?	<	Projection	? <		Projection Mode	3
Coo	rdinate System	default	Projection Mode	Tronsverse Mercato	rr⊃ Prc	0	Mercator Cylindrical with Scale Reducal	
			93(			0	Mercator Oblique	
•	Ellipsoid	>	Central Meridian	E114°00'00.0000"	♀ Ce	0	Romania	Ŷ
	Projection	>	Latitude of Origin	N0°00'00.000	00" La	0	Oblique Stereographic	0'
						0	Dual Stereographic	
\$	7 Parameters	>	False Northing	0.000	m Fa	0	Lambert Conic Conformal (1SP)	m
	4 Parameters/Horizontal Adjustm	ent >	False Easting	500000.000	im Fa	0	Lambert Conic Conformal (2SP)	m
	Height Fitting Parameters	5	Scale		1.0 Scr	0	Mercator tilt angle two-point projection	.0
	roight hang raidhiotoio	÷	0000			0	Cassini Soldner	
0	Vertical Adjustment Parameters	>	Projection Height		0.0 Ρα	0	Mercator (Malaysia)	0.0
0	Plane Grid File	>				0	Transverse Mercator	ł
						0	Romania Stereographic 1970	
0	Geoid File	>				0	Romania Stereographic 1930	R
0	Local Offsets	>				0	Czech Republic	
						0	Hotine Oblique Mercator	
						0	Krovak Oblique Conic Conformal	
			6			0	Transverse Mercator (southern hemisphere)	
E	Export Use Existing	ОК		ОК		0	UTM (southern hemisphere)	

Note: We can acquire Central Meridian of current position by clicking

#### **Coordinate Parameters:**

Also we can define 7 Parameters, 4 Parameters, Height Fitting Parameters, Vertical Adjustment Parameters and Local Offsets.

<	13:35 الا الا کې 13:35 Coordinate System	a e	11:30 <b>&lt;</b>	ا# # # # @ ## # <b>ا #</b> 7 Parameters ?	< <sup>11:41</sup> <b>4</b> Paramete	N S & * ₪ %   %   m ers/Horizontal ?
	dinate System	default	Use		Use Adju	stment
•	Ellipsoid	>	Model	Bursa Wolf >	Translate Northing	5000000 m
•	Projection	>	∆X	16.492 m	Translate Easting	<b>830000</b> m
4	7 Parameters	>	ΔY	-156.41 m	Rotation	0°00'00.0000'
	4 Parameters/Horizontal Adjustme	nt >	ΛZ	-80.118 m	Scale	1.0
0	Height Fitting Parameters	>	∆α (s)	0	Original Northing	0 m
4	Vertical Adjustment Parameters	>	$ riangle \beta$ (s)	0	Original Easting	0 🔕 m
0	Plane Grid File	>	$ riangle \gamma$ (s)	0		
0	Geoid File	>	Scale (ppm)	1 🛛		
0	Local Offsets	>				
_						
E	xport Use Existing	ОК		ОК		ОК
	15:37 🛛 🐼 🕸 🏦 🏦	id 📼 🖈 👌	09:19	R) 🏟 ጳ 📼 🖁 🕯 👘 💼 🗩	09:01	n o * 🚥 n n n 🗩
<	Height Fitting Parameters	; ?	<	Local Offsets (?)	< Vertical / Para	Adjustment ⑦
Use			Use		Use	
A0	679	9866.796	Easting Offset	<b>568646.969</b> m	Туре	Slope >
A1	64090	)646.799	Northing Offse	t 586660.669 m	Adjustment Constant	2
A2		845.465	Elevation Offs	et 50 😣 m	North Slope (ppm)	5.68
A3		69.369			East Slope (ppm)	3.21
A4		5.786			Original Northing	0 m
A5		0.468			Original Easting	500000 🚫 m
X0	80	00000 m				
Y0		d 🔕 m				
	ОК			ОК		ок

If the function is enabled, the icon  $\overset{\ref{eq:alpha}}{=}$  in front of it will turn to  $\overset{\ref{eq:alpha}}{=}$  .

#### Plane Grid File:

In Plane Grid File, we can add \*.GSB format file to adjust plane coordinates.

	13:35 関 🚳 🎗 📾 ଶିଣ ଂଶ		09:09	N 🛛 🕯 🕫 🕯	ն ես 💼	09:13	N 😻 🕸 🐃 👘 👘
<	Coordinate System	?	<	Plane Grid File	?	<	Import File
Coor	dinate System	default	Use			File Type	*.GSB
•	Ellipsoid	>	Geoid file		>	hterno	l Storage/SurvStar/CoordSys
•	Projection	>				Back to	Root Directory
•	7 Parameters	>				Back to	App Storage Directory
•	4 Parameters/Horizontal Adjustmen	t >				1 Back to	Previous Directory
•	Height Fitting Parameters	>					
•	Vertical Adjustment Parameters	>					
	Plane Grid File	>					
•	Geoid File	>					
0	Local Offsets	>					
E	xport Use Existing	ОК		ОК		Ca	ncel OK

#### Geoid File:

In Geoid File, we can add \*.SGF or \*.GGF format file to adjust elevation coordinates.

	13:35 🛛 🎯 🎗 🕯 📼 Hil 🕈	ຳໄ 🗊	14:11	N 🌣 🎗 🕯 📾 Sul Sul 🗩		14:11	N O A 8 🚥 11 11 🗩
<	Coordinate System	?	<	Geoid File	?	< 9	Select File
Coor	dinate System	default	Use		C	File Type	*.SGF 🔻
•	Ellipsoid	>	Geoid method	Bilinear	>	Internal Storag 20220707/Coor	
•	Projection	>	Geoid file		>	Back to Root D	*.GGF
•	7 Parameters	>				Back to App St	orage Directory
0	4 Parameters/Horizontal Adjustme	nt >				1 Back to Previou	us Directory
0	Height Fitting Parameters	>					
•	Vertical Adjustment Parameters	>					
•	Plane Grid File	>					
٠	Geoid File	>					
•	Local Offsets	>					
E	xport Use Existing	ОК		ОК		Cancel	ОК

#### Use Existing File:

We can click Use Existing to select and apply the existing predefined coordinate

system or use the coordinate system file (*.xr
--

<	16:54 🛛 🗑 🎗 🍀 🗣 📾 កំរៅ តិរ Coordinate System	•∎• ?
Cool	rdinate System	default
•	Ellipsoid	>
•	Projection	>
•	7 Parameters	>
•	4 Parameters/Horizontal Adjustme	nt >
•	Height Fitting Parameters	>
0	Vertical Adjustment Parameters	>
•	Plane Grid File	>
0	Geoid File	>
•	Local Offsets	>
E	xport Use Existing	ОК

Click Local Storage, find the coordinate system file (\*.xml) and click it, the coordinate

	16:54 🛛 🖸 🎗 🕸 🗘 🚥 តំ1 តំព	<b>••</b> 4		16:58	R 10 & *: • 10 fil "	តីរៅ 💷 4
<	Coordinate System	?	<		Select File	
Coor	dinate System	default	File	Туре	*.xml	*
	Ellipsoid	>		Internal S 20220508	torage/SurvStar/ProjectDe 2/Export	ata/
	Projection	>	Ť	Back to Re	oot Directory	
0	7 Parameters	>	Ť	Back to A	pp Storage Directory	
a	4 Parameters/Horizontal Adjustmer	nt >	t	Back to Pi	revious Directory	
	Use Existing		8	default.xn	nl	
	Local Storage					
	O Predefined	>				
	Plane Grid File	>				
•	Geoid File	>				
0	Local Offsets	>				
E	xport Use Existing	ок				

system will be applied.

Click Predefined, then click Country and select the country or region (Alphabetical)

where the needed coordinate system is located.

16:54 🖪 🕲 🕸 🕸 🕫	) ©3 \$1  \$1  <b>■</b> ) <del>4</del>	17:03	R & & & :	9 🚥 Sil Sil 📼 4		17:0	8 DIOLA * O DE SI SI E	D4
Coordinate Sys	stem ⑦	<	Predefined	H (	? <		Country	1
Coordinate System	default	Country		All	> Co	0	All	
		Search			Se	0	ANGOLA	
Ellipsoid	>					0	ARGENTINA	
Projection	>	ID (	Coordinate System	Ellipsoid	ID.	0	AUSTRALIA	
7 Parameters		0 NA	D83/Alabama (East)	GRS 1980	o	0	AUSTRIA	
7 Parameters		1 NA	D83/Alabama (West)	GRS 1980	1	0	BELGIUM	
4 Parameters/Horizontal /	Adjustment	1 104	BostAlabama (West)	0101700		0	BOSNIA	
Use Existing		2 NA	D83/Alaska (Zone 1)	GRS 1980	2	0	BRAZIL	
Local Storage		3 NA	D83/Alaska (Zone 2)	GRS 1980	z	0	CABO VERDE	
Predefined	>	5 10		0101700		0	CANADA	
Plane Grid File	. *:	4 NA	D83/Alaska (Zone 3)	GRS 1980	4	0	CHINA	
Geoid File		5 NA	D83/Alaska (Zone 4)	GRS 1980	5	0	CHINA/HONG KONG	
Geold File			2007/100/0 (2010 4)	0101700		0	CHINA/Macao	
Local Offsets	>	6 NA	D83/Alaska (Zone 5)	GRS 1980	6	0	COLOMBIA	
		7 NA	D83/Alaska (Zone 6)	GRS 1980	7	0	COSTA RICA	
						0	CROATIA	
		8 NA	D83/Alaska (Zone 7)	GRS 1980	8	0	CYPRUS	
Export Use Existin	g OK	C	ж	Details		0	CZECH	

Then select the needed coordinate system and click  $\overline{OK}$  to apply it, we can click

Details to check its information.

<	Predefine	d	< De	tails (
Coun	try	CHINA >	Title	Contents
Searc	h		Country	CHINA
ID	Coordinate System	Ellipsoid	Describe	BEIJING 1954/3-degre Gauss-Kruger CM 084
0	BEIJING 1954/3-degree Gauss-Kruger CM 075E	Krassowsky 1940	Ellipsoid Name	Krassowsky 1940
1	BEIJING 1954/3-degree Gauss-Kruger CM 078E	Krassowsky 1940	Semimajor Axis	6378245
2	BEIJING 1954/3-degree Gauss-Kruger CM 081E	Krassowsky 1940	1/f	298.3
3	BEIJING 1954/3-degree Gauss-Kruger CM 084E	Krassowsky 1940	Projection Parameters	Transverse Mercator
4	BEIJING 1954/3-degree Gauss-Kruger CM 087E	Krassowsky 1940	Central Meridian	E84°00'00.0000"
5	BEIJING 1954/3-degree Gauss-Kruger CM 090E	Krassowsky 1940	Latitude of Origin	N0°00'00.0000"
6	BEIJING 1954/3-degree Gauss-Kruger CM 093E	Krassowsky 1940	False Northing	0.0
7	BEIJING 1954/3-degree Gauss-Kruger CM 096E	Krassowsky 1940	False Easting	500000.0
8	BEIJING 1954/3-degree	Krassowsky 1940	Scale	1.0
	ОК	Details	Projection Height	0.0

We can also search coordinate system with keywords in Search bar.

<	Predefined	(1
Cour	ntry	All
Seai	ch	cg 🔇
D	Coordinate System	Ellipsoid
56	16	CGCS2000
57	CGCS2000/Gauss-Kruger zone 17	CGCS2000
58	CGCS2000/Gauss-Kruger zone 18	CGCS2000
59	CGCS2000/Gauss-Kruger zone 19	CGCS2000
60	CGCS2000/Gauss-Kruger zone 20	CGCS2000
61	CGCS2000/Gauss-Kruger zone 21	CGCS2000
62	CGCS2000/Gauss-Kruger zone 22	CGCS2000
63	CGCS2000/Gauss-Kruger zone 23	CGCS2000
64	CGRS93/LTM	WGS 84

#### Export:

If we need to save the coordinate system in file, we can click Export, input File Name,

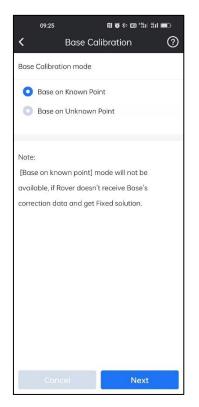
select the path to save it and click OK, the coordinate system file will be exported.

16:54	₽	17:22 🕅 🐼 🏻	\$ \$: ♥ 108 #il #il III - +
< Coordinate System	?	< File Exp	port
Coordinate System d	lefault	File Name	default
😫 Ellipsoid	>	File Type .xml	
Projection	>	Internal Storage/SurvS 202205082/Export	tar/ProjectData/
7 Parameters	>	Back to Root Directory	
4 Parameters/Horizontal Adjustment	>	Back to App Storage D	irectory
Height Fitting Parameters	>	1 Back to Previous Direct	tory
Vertical Adjustment Parameters	>	📮 default.xml	
Plane Grid File	>		
🔹 Geoid File	>		
Local Offsets	>		
Export Use Existing C	ОК	Cancel	ОК

#### **3-4 Base Calibration**

We can calibrate the base coordinate using this function.

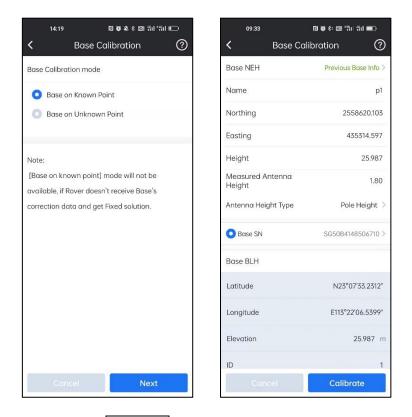
There are two ways to calibrate: one is Base on Known Point Calibration, set up base on a known point, and when rover gets fixed solution, input known point coordinates to calibrate; the other is Base on Unknown Point Calibration, set up base on an unknown point, when rover gets fixed solution, put rover on a known point and known point coordinates to calibrate.



#### Base on Known Point:

Set up base on a known point, after rover gets fixed solution, we can start do the calibration.

1.Choose Base on Known Point, and click Next.



2.In this page, we can click Base NEH to find the historical base station information.

09:33	N 6 * 00 'nı n	il 💷	0	9:33	<b>0</b> [1]	i ≉: @0 °%i	ងា 📼
< Base Cal	ibration	?	<	Histori	cal base s	station	
Base NEH	Previous Ba	se Info >	Total 28	Pag	je 1/1		
Name		p1	id	Longitude	Latitude	Elevation	Nort
Northing	2550	520.103	0	E113°11'56.750 8"	E23°18'45.532 4'	10.019	257938
Northing	23360	520.105	1	E113°22'06.539 9'	E23°07'33.2312	25.987	255862
Easting	4353	514.597	1	E113°22'06.539 9*	E23°07'33.2312	25.987	255862
Height		25.987	1	E113°22'06.539 9'	E23°07'33.2312	25.987	255862
Measured Antenna Height		1.80	0	E113°22'06.539 9"	E23°07'33.2312	25.987	255862
	Dele II		1	E113°22'06.539 9*	E23°07'33.2312	25.987	255862
Antenna Height Type	Pole H	eight >	1	E112°59'58.20	E22°59'58.200 0"	30.500	254483
O Base SN	SG50B41485	06710 >	1	E112°59'58.20 00"	E22°59'58.200 0"	30.500	254483
Base BLH			1	E112°59'58.20 00'	E22°59'58.200 0"	30.500	254483
buse ben			i i	E112°59'58.20	E22°59'58.200 0"	30.500	254483
Latitude	N23°07'3	3.2312"	1	E113°22'06.539 9'	E23°07'33.2312	25.987	255862
Longitude	E113°22'06	6.5399"	0	E113°22'06.539 9'	E23°07'33.2312	25.987	255862
		007	1	E113°22'06.539 9'	E23°07'33.2312	25.987	255862
Elevation	25	.987 m	0	E113°25'00.35 93*	E23°10'52.994 3'	46.576	256474
D		1	1	1256	E22°59'58.200	30 500	2544R7
Cancel	Calibrat	e	BA	ск	С	hoose	

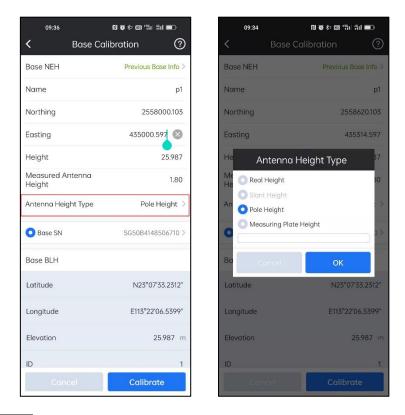
3. Find the right historical base station, and click Choose, then the relevant coordinates information will be applied.

09:33	R 🗸 *: 🚥 'iii fii 💼				
< Base Ca	libration ⑦				
Base NEH	Previous Base Info >				
Name	p1				
Northing	564766.380				
Easting	40312.183				
Height	56.950				
Measured Antenna Height	1.80				
Antenna Height Type	Pole Height >				
O Base SN	SG50B4148506710 >				
Base BLH					
Latitude	N23°07'33.2312*				
Longitude	E113°22'06.5399"				
Elevation	<b>25.987</b> m				
ID	1				
Cancel	Calibrate				

4. Also we can input base information manually.

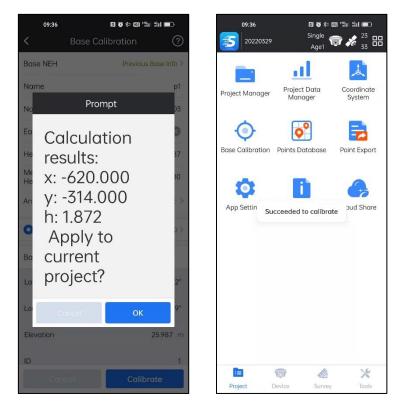
09:36	N 🕏 🕸 🐃 👘 💼
< Base Co	alibration
Base NEH	Previous Base Info >
Name	p1
Northing	2558000.103
Easting	435000.597
Height	25.987
Measured Antenna Height	1.80
Antenna Height Type	Pole Height >
O Base SN	SG50B4148506710 >
Base BLH	
Latitude	N23°07'33.2312"
Longitude	E113°22'06.5399"
Elevation	<b>25.987</b> m
ID	1
Cancel	Calibrate

5. Then we can select right antenna type and input relevant antenna height.



6.Click Calibrate and then there will be a popup to show the calculation results. Click

OK then the results will be applied.



7. And then in SurvStar, we can go to SAT Information, find the base position has been changed.

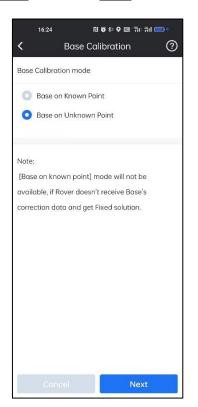
14:19 20220707	N 6 & * 四 19 Fixed Age1		09:37	© اnformation (؟
	<u>l</u>	L.	Detail SAT Sk	kylot SNR SAT Lis
Project Manager P	roject Data C Manager	Coordinate System	Height:48.8623	Height: 50.734
Ó	<b>o</b> °		Direction: 137°59'27.	.7551" Speed: 0.126
Base Calibration Poir	nts Database Po	oint Export	Accuracy	
-			PDOP:1.239	HRMS:5.902
App Settings Ab	out Software Cl	loud Share	VDOP:1.058	VRMS:2.024
			HDOP:0.700	
			Base Position The old	d base station coordinate
			Lat:N23°07'33.2312"	Northing: 2558620.103
			Lon:E113°22'06.5399	9" Easting: 435314.597
			Height:25.9866	Height: 27.858
			Horizontal Distance	7911.148
Project Device	۱ <b>۱ (۵)</b> ۶۰ (۱۵)	222	ID:1 09:35	៧ថុ៖⊠"ដោ∎⊃ e Calibration (វ
Project Device	e Survey اکا که انتها ۲۵ Information	Tools	09:35 < Base	e Calibration 🤇
Project Device 09:37 C SAT I Detail SAT Sky	e Survey N € * ∞ ** Information ylot SNR	Tools	09:35	
Project Device 09:37 SAT I Detail SAT Sky keight:49.4189	e Survey الا کی کہ حص ۲۵ Information ylot SNR Height: 51.291	Tools Tools	09:35 Base Northing	e Calibration
Project Device 09:37 SAT 1 Detail SAT Sky Height:49.4189 Direction: 14°22'04.4568*	e Survey N € * ∞ ** Information ylot SNR	Tools Tools	09:35 C Base Northing Easting	e Calibration 2558620.10. 435314.59 25.98
Project Device 09:37 SAT I Detail SAT Sky Height:49:4189 Direction: 14°22'04.4568*	e Survey الا کی کہ حص ۲۵ Information ylot SNR Height: 51.291	Tools Tools	09:35 C Base Northing Easting Height Measured Antenne	e Calibration 2558620.10. 435314.59 25.98 a 1.80
Project Device 09:37 SAT I Detail SAT Sky leight:49:4189 irrection: 14*22:04:4568* ccuracy DOP:1.241	e Survey R & * ه ۲۲ Information ylot SNR Height: 51.291 Speed: 0.080	Tools Tools	09:35 C Base Northing Easting Height Measured Antenne Height	e Calibration 2558620.10. 435314.59 25.98 α 1.80
Project Device 09:37 SAT I Detail SAT Sky Height:49.4189 Direction: 14°22'04.4568* Cccuracy PDOP:1.241	e Survey	Tools Tools	09:35 Base Northing Easting Height Measured Antenne Height Antenna Height Typ	e Calibration 2558620.10. 435314.59 25.98 α 1.80 pe Pole Height
Project Device 09:37 SAT I Detail SAT Sky Height:49:4189 Direction: 114°22'04.4568° Couracy PDOP:1.241 HDOP:1.054 HDOP:0.674	e Survey	Tools Tools SAT List	09:35        Base       Northing       Easting       Height       Measured Antennu       Height       Antenna Height Type       Image: Base SN	e Calibration 2558620.10. 435314.59 25.98 α 1.80 pe Pole Height
Project     Device       09:37     SAT I       Detail     SAT Sky       Height:49.4189     SAT Sky       Direction:     SAT Sky       Virection:     SAT Sky       SAT Sky     SAT Sky	e Survey	Tools Tools SAT List	09:35 Sase SN Base BLH	e Calibration 2558620.10. 435314.59 a 1.80 be Pole Height SG50B4148506710
Project Device 09:37 C SAT I Detail SAT Sky Height:49.4189 Direction: 14°22'04.4568° Couracy DOP:1.054 DOP:1.054 dDOP:0.674	e Survey	Tools Tools SAT List	09:35 C Base Northing Easting Height Measured Antenne Height Antenna Height Typ Base SN Base BLH Latitude	e Calibration 2558620.10 435314.59 25,98 a 1.80 De Pole Height SG50B4148506710
Project Device 09:37 SAT I Detail SAT Sky iteight:49.4189 Direction: 14°22'04.4568° Couracy DOP:1.054 DOP:1.054 DOP:1.054 dDOP:0.674 ase Position The new at:N23°07'33.2312°	e Survey	Tools Tools SAT List SAT List Boordinate B000.103 100.597	09:35       Constraint       Northing       Easting       Height       Measured Antenna       Height       Antenna Height Type       Image: Base SN       Base BLH       Latitude       Longitude	e Calibration 2558620.00 2558620.00 435314.59 25,98 a 1.80 pe Pole Height SG50B4148506710 N23°07'33.2312 E113°22'06.5399
Project Device 09:37 SAT I Detail SAT Sky leight:49.4189 irrection: 14°22'04.4568" ccuracy DOP:1.241 DOP:1.054 iDOP:0.674 iDOP:0.674 iDOP:0.674 internet internet int	survey       survey       Information       ylot     SNR       Height: 51.291       Speed: 0.080       HRMS:7.276       VRMS:2.154       vbase station corr       Northing: 255       Easting: 4350       Height: 27.858	Tools Tools SAT List SAT List Boordinate B000.103 100.597	09:35         Northing         Easting         Height         Measured Antenna         Height         Antenna Height Type         ● Base SN         Base BLH         Latitude         Longitude         Elevation	e Calibration 2558620.00 2558620.00 435314.59 0 1.80 0e Pole Height SG50B4148506710 N23°07'33.2312 E113°22'06.5399 25987

### Base on Unknown Point:

Set up base on a unknown point, after rover gets fixed solution, we move rover on a

known point and then start calibration.

Choose Base on Unknown Point. And Click Next.



2. We can input the known points coordinates by selecting it from data base (if it is in

the Point Data base).

16:25 № 🗑 K Base on Unkno	* • • 📾 🛍 🛍 🔲 * own Point 🛛 ?	<		5:28 Doin	r∎ oo ts Datab		:#il #il 🗩	16:28 N a	s रू o 📾 'भा भा 🗩 own Point 🛛 (?)
Rover Known NEH			't nan		se Input	Juse	Search	Rover Known NEH	Swirpoint ()
Name	p1	То	tal 4	Ρας	ge 1/1			Name	Pt3
North	2558620.103 m	۱ ج	lame Pt4	Northing 2564791.523	Easting 440370.345	Height 18.093	Latitude N23°10'54.5173"	North	2564809.012 m
East	435314.597 🚫 m	Ŷ	Pt3	2564809.012	440373.224	18.409	N23°10'55.0862	East	440373.224 🛞 m
Height	<b>25.987</b> m	우 우	Pt2 Pt1	2564809.985		18.239	N23°10'55.1173" N23°10'54.7303	Height	18.409 m
Measured Antenna Height	1.800 m	Т	Pti	2564798.089	440366.658	18.096		Measured Antenna Height	1.800 m
Antenna Height Type	Pole Height >							Antenna Height Type	Pole Height 🚿
Input BLH	¢							Input BLH	¢
Latitude	N23°10'55.0862*							Latitude	N23°10'55.0862"
Longitude	E113°25'03.4558"							Longitude	E113°25'03.4558"
Elevation	<b>18.409</b> m							Elevation	<b>18.409</b> m
								Fixed H: 0.012 V: 0.020	
Cancel	Calibrate		Add	Edit	Detai	ls	ок	Cancel	Calibrate

Or we can input NEH information manually.

16:25 🖪 🕲	i 🕸 🗘 💷 "fill fill 🥅 🐈
Sase on Unkn	own Point 🛛 🕐
Rover Known NEH	o
Name	p1
North	2558620.103 m
East	435314.597 🛞 m
Height	25.987 m
Measured Antenna Height	<b>1.800</b> m
Antenna Height Type	Pole Height >
Input BLH	Q°
Latitude	N23°10'55.0862*
Longitude	E113°25'03.4558"
Elevation	<b>18.409</b> m
Cancel	Calibrate

3. Then we can select right antenna type and input relevant antenna height.

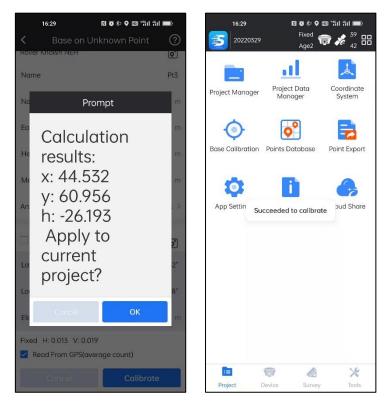
16:29	8 * 9 📾 "Hil Hil 💼)
Base on Unkr	Ŭ,
Name	Pt3
North	2564809.012 m
East	440373.224 🔘 m
Height	18.409 m
Measured Antenna Height	1.800 m
Antenna Height Type	Pole Height >
Input BLH	Q°
Latitude	N23º10'55.0862"
Longitude	E113°25'03.4558"
Elevation	18.409 m
Fixed H: 0.014 V: 0.021	
Read From GPS(averag	e count)
Cancel	Calibrate

Then click Calibration to calculate the calibration parameters.

Note: we can acquire current position's BLH automatically here. if ReadFrom GPS(average count) is enabled, then SurvStar will collect current position's BLH for 5 times and take the average value.

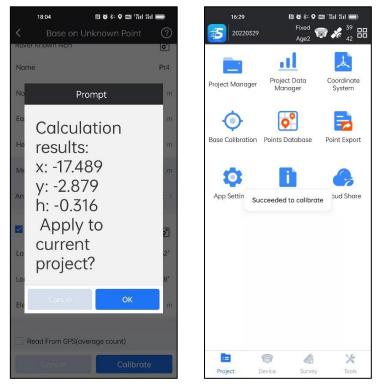
16:29	N 🛇 🕸 🗣 🚥 "hil fiil 📖)
C Base on Unk	known Point 🧿
Name	Pt3
North	2564809.012 m
East	440373.224 🔕 m
Height	<b>18.409</b> m
Measured Antenna Heigl	nt 1.800 m
Antenna Height Type	Pole Height >
Input BLH	Ô
Latitude	N23°10'55.0862*
Longitude	E113°25'03.4558"
Elevation	18.409 m
Fixed H: 0.014 V: 0.021	
Read From GPS(avera	ige count)
Cancel	Calibrate

It will show the calculation results, and click OK To apply the result.



Note: if we enable Input BLH here, we can input current BLH manually or get it from Point Database directly.

16:28 🕅 🔞	\$: ♥ @ "ñil fiil <b>=</b> )	16:28 🕅 🕅	\$* 🗣 💷 "fiil fiil 💼)	16:28 🕅 i	ð 8: 🕈 📾 "fil fil 🗩
C Base on Unkno	wn Point 🕜	C Base on Unkno	wn Point   ⑦ ©	C Base on Unkne	own Point 🛛 🧿
Name	Pt3	Name	Pt3	Name	Pt3
North	2564809.012 m	North	2564809.012 m	North	2564809.012 m
East	440373.224 m	East	440373.224 m	East	440373.224 m
Height	<b>18.409</b> m	Height	<b>18.409</b> m	Height	<b>18.409</b> m
Measured Antenna Height	<b>1.800</b> m	Measured Antenna Height	<b>1.800</b> m	Measured Antenna Height	<b>1.800</b> m
Antenna Height Type	Pole Height >	Antenna Height Type	Pole Height >	Antenna Height Type	Pole Height >
Input BLH	Q°	Input BLH	Ø	Input BLH	Q°
Latitude	23.10550862 🔘	Latitude	23.10550862 🛞	Latitude	23.10550862 🔘
Longitude	E113°25'03.4558"	Longitude	E113°25'03.4558"	Longitude	E113°25'03.4558*
Elevation	18.409 m	Elevation	18.409 m	Elevation	18.409 m
Fixed H: 0.012 V: 0.019	count)	Fixed H: 0.012 V: 0.019	count)	Fixed H: 0.012 V: 0.019	e count)
Cancel	Calibrate	Cancel	Calibrate	Cancel	Calibrate



And then in SurvStar, we can go to SAT Information, find the base position has been changed.

14:19	Fixed	ॼ %॥ °%॥ ा⊃ बिर्ह्स <sup>18</sup> ==	09:37	№ ® ៖  部 ॥ ■ formation ?	09:37	ា ត ៖ 📾 🖫 💷 🗩 formation 🤅
	Age1		Detail SAT Skyle		Detail SAT Skyl	
Project Manager	Project Data Manager	Coordinate System	Height:48.8623	Height: 50.734	Height:49.4189	Height: 51.291
Ó	<b>O</b> <sup>o</sup>		Direction: 137°59'27.75!	51" Speed: 0.126	Direction: 214°22'04.4568"	Speed: 0.080
Base Calibration	Points Database	Point Export	Accuracy		Accuracy	
-			PDOP:1.239	HRMS:5.902	PDOP:1.241	HRMS:7.276
App Settings	About Software	Cloud Share	VDOP:1.058	VRMS:2.024	VDOP:1.054	VRMS:2.154
			HDOP:0.700		HDOP:0.674	
			Base Position The old b	ase station coordinate	Base Position The new	base station coordinate
			Lat:N23°07'33.2312"	Northing: 2558620.103	Lat:N23°07'33.2312"	Northing: 2558000.103
			Lon:E113°22'06.5399"	Easting: 435314.597	Lon:E113°22'06.5399"	Easting: 435000.597
			Height:25.9866	Height: 27.858	Height:25.9866	Height: 27.858
			Horizontal Distance79	11.148	Horizontal Distance79	11.716
Froject	Device Survey	X	ID:1		ID:1	

# **3-5 Points Database**

In Points Database, we can manage points by Add, Edit, Check Details, Import and other operations.

Pi4         2564791.525         440370.345         18.093         N25 <sup>+</sup> 10 <sup>-</sup> 55.0862           Pi13         2564809.912         440375.224         18.409         N25 <sup>+</sup> 10 <sup>-</sup> 55.0862           Pi12         2564809.985         440369.583         18.239         N25 <sup>+</sup> 10 <sup>-</sup> 55.1173 <sup>+</sup>	T- 4		le ·		se Input		Search
Pt6         84649.000         75649.000         64.000         N0*4550.3798*           Pt5         23147.000         54697.000         45.000         N0*1232.3265*           Pt7         Pt4         2564791.525         440370.345         18.093         N23*10*55.0862           Pt3         2564809.012         440375.322         18.409         N23*10*55.173*           Pt3         2564809.912         440369.583         18.29         N23*10*55.1173*			North			Height	Latitude
Pi4         2564791.525         440370.345         18.093         N25 <sup>+</sup> 10 <sup>-</sup> 55.0862           Pi13         2564809.912         440375.224         18.409         N25 <sup>+</sup> 10 <sup>-</sup> 55.0862           Pi12         2564809.985         440369.583         18.239         N25 <sup>+</sup> 10 <sup>-</sup> 55.1173 <sup>+</sup>							
PH3         2564809.012         440373.224         18.409         №25*10*55.0862           PH2         2564809.985         440369.583         18.239         №25*10*55.0173*		Pt5	23147.	000	54697.000	45.000	N0°12'32.3265"
P12         2564809,985         440369,583         18,239         N23°10'5,1173'           P12         2564809,985         440369,583         18,239         N23°10'5,1173'	Ŧ	Pt4	256479	1.523	440370.345	18.093	N23°10'54.5173"
	Ŷ	Pt3	256480	9.012	440373.224	18.409	N23°10'55.0862
Pt1 2564798.089 440366.658 18.096 N25 <sup>-10</sup> 547303	Ŧ	Pt2	256480	9.985	440369.583	18.239	N23°10'55.1173"
	f	Pt1	256479	3.089	440366.658	18.096	N23°10'54.7303

Add:

Click Add, we can input points coordinates manually here and add it to the Database.

Firstly, we need to define the Point Name.

<		6:03 Poir	n e a nts Datak		iıl *#il 🗩 🕈	09:34	🛚 🏟 🌣 🚥 👘 👘 🗩 Add	09:41 <b>&lt;</b>	₪ <b>않 *: ᡂ %il %il ))</b> Add
F	't nan	ne v Plea			Search	Name	Pt7	Name	S1 🛞
То	tal 4	Pa	ge 1/1			Code	[ <u>6</u> ]	Code	C O d e
٢	lame	Northing	Easting	Height	Latitude	Coordinate Type	NEH >	Coordinate Type	NEH >
Ŧ	Pt4	5713107.739	9964109.413	752.033	N23°10'54.9827 "		101 <u>-1</u> 0		1997 <u>-</u> 191-10
Ŧ	Pt3	5713107.694	9964109.375	752.044	N23°10'54.9831"	Northing	m	Northing	m
Ŧ	Pt2	5713107.646	9964109.392	752.028	N25°10'54.9827 "	Easting	m	Easting	m
Ŷ	Pt1	5713107.692	9964109.385	752.041	N23°10'54.9831"	Height	m	Height	m
						Point Type	Input Point >	Point Type	Input Point 🖒
	Add	Edit	Detai	ls Im	port	Cancel	ОК	Cancel	ОК

Then the Code:

If we don't need Code property, we can leave it blank.

If we plan to attach Code property to the point, we can input code directly.

16:07	[1] 🏶 🎗 🕸 씁대 "배비 💷 🐐 Add	09:52 <b>&lt;</b>	៧ ៥ ៖ 🚥 ដា ដា 🕯
Name	Pt5	Name	
Code	Ce de	Code	load 🛞
Coordinate Type	NEH >	Coordinate Type	NE
Northing	24656869.468 m	Northing	
Easting	4682986.648 m	Easting	
Height	56.36 <mark>5</mark> 🛞 m	Height	
Point Type	Input Point >	Point Type	Input Poir
Cancel	ок	Cancel	ОК

There are predefined codes in the data base, by searching and selecting, we can try

to find the code we need.

09:52 配會能問題		10:01	D & * 回 "計I 計I ==)
K Add		<	Add
Name	Pt7	Name	S1
Code bui	C O d e	Code	BLDG 🛞 👪
BUILDING CORNER(BLDC)	EH >	Coordinate Type	NEH >
Northing	m	Northing	m
Easting	m	Easting	m
Height	m	Height	m
Point Type Input Po	int >	Point Type	Input Point 🚿
Cancel		Cancel	ОК

If we want to check the predefined code data base, we can click the icon to access.

10:06	N 🚳 🕸 📾 "ñil fiil 💷)	10:	07	N 🚳 🕸 📾 🛍 🛍 💼	10:07	N 🛪 🕸 👯 🚥 🖬 👘 🔲
< ,	٩dd	<	Cod	de	<	Add
Name	S1	Search		Enter to search ${\sf Q}$	Name	S1
Code		Total 149	Page 1/2		Code	BLDG 🛞 👪
		No	Attr. nome	Code		
Coordinate Type	NEH >	10	CURB	BCB	BUILDING(BLDG) Coordinate type	NEH >
		11	BRIDGE DECK	BDK		
Northing	m	12	BORE HOLE	вн	Northing	m
Easting	m	13	BASELINE	BL	Easting	m
Height	m	14	BUILDING CORNER	BLDC	Height	m
		15	BUILDING	BLDG		
Point Type	Input Point >	16	BENCHMARK	BM	Point Type	Input Point 🗦
		17	BARRIER POST	BP		
		18	BRIDGE PIER	BPR		
		19	BRIDGE RAILING	BRR		
		20	SHRUB	BRSH		
		21	BUSH	BSH		
		22	BROADLEAF TREE	BT		
		23	BARBWIRE FENCE	BWF		
	ОК	Bad	k Man	age OK	Cancel	ОК

In Manage. We can manage the code database. It includes Add, Edit, Delete, Choose

and Import. Click Add to add a code library. We can create the code we need.

Code Library Manager       Code Library       Edit         Total 1       Page 1/1       Database nome       Attr. name       Code         Presett0       System Preset       Total 0       Page 0/0       Total 0       Attr. name       Code         No       Attr. name       Code       Code       Code       Code       Code	11:03 🛛 🕄 🗑 🗱 ក៏អា ក៏អា 💷	11:08 🖪 🐼 🍀 🗣	ໝ ลีเปลีเป∎⊡่ 11:09	R 6 ≉: •  *\$11 \$11 ■
Dotabase     Full path       Preset01     System Preset         Dotabase name     Code   Code Code	<ul> <li>Code Library Manager</li> </ul>	Code Library	<	Edit
Preset01     System Preset         No     Attr. name     Code         Code	Total 1 Page 1/1	Database name	Attr. name	
Preset01     System Preset     Code	Database Full path	Total 0 Page 0/0		
No data on current page	Preset01 System Preset	27		I
Add Edit Delete Choose Add Edit Delete OK Cancel OK				

Then we need to choose the Coordinate Type. There are two types: NEH and BLH.

10:13     10 \$ \$ \$ at \$ \$ \$ \$
me S1 Name de BLDG S S Code rdinate Type NEH > Coordinate Type Northing m
bde     BLDG     EB       ordinate Type     NEH >       orthing     m
Northing         Neth >         Coordinate Type
Northing m Northing
-
asting m Easting
Height m He Coordinate Type
toint Type Input Point > Point
BLH

Then we can input the coordinate of the point.

10:16	N 🛇 🕸 📾 🗂 🗂 🗩
<	Add
Name	S1
Code	BLDG de
Coordinate Type	NEH >
Northing	<b>2564489.649</b> m
Easting	<b>658469.796</b> m
Height	25.649 🛞 m
Point Type	Input Point >
Cancel	ОК

Then choose the point Type. There are three types: Input Point, Survey Point and Stakeout Point.

Add me S1 de BLDG  Control Con
de BLDG 55 ordinate Type NEH > rthing 2564489.649 m
rthing 2564489.649 m
rthing 2564489.649 m
658469.796 m
ight 25.649 🛞 m
nt Type Input Point >

Click OK. The new point is created in point database.

de .7701"
.7701"
.3798"
3265"
.5173"
5.0862
5.1173"
1.7303

## Edit:

Select the point we want to edit and click Edit. We can edit the coordinate, code and name of the selected point.

<	1	D:39 Poir	∎ o nts Datab		ሻብ ଶብ 🗩	<	10:39	രൂടം ം മാ ബി ബി ല Edit
P	nan	ne ~ Plea	ase Input		Search	Nam	е	
Tot	al 7	Pa	ge 1/1			Code		
N	ame	Northing	Easting	Height	Latitude	Coord	linate Type	NE
1	S1	2564489.649	658469.796	25.649	N23°10'21.7701"	COOR	andte Type	142
	Pt6	84649.000	75649.000	64.000	N0°45'50.3798"	North	ı	84649.000
8	Pt5	23147.000	54697.000	45.000	N0°12'32.3265"	East		75649.000
P	Pt4	2564791.523	440370.345	18.093	N23°10'54.5173"			
ŕ	Pt3	2564809.012	440373.224	18.409	N23°10'55.0862	Heigh	nt	64.000
A	Pt2	2564809.985	440369.583	18.239	N23°10'55.1173"	Point	Туре	Input Poir
7	Pt1	2564798.089	440366.658	18.096	N23°10'54.7303			
	Add	Edit	Detai	ls Im	nport			ОК

Note: for Survey Points and Stakeout Points, we can only edit Point Name and Code.

#### Details:

Select the point we want to check and click Details. We can check the details of the selected point.

	09:	:34	RI (	<b>\$</b> *: @	Sul Sul 🗩	10:45	N 🎯 🕸 Q 💷 Sil Sil 💷	10:45	凡 ⑥ 卷 ♀ ᡂ "皆山 省山 ■□
<		Poir	its Datak	base		<	Detail	< (	Detail
P	t nam	ne 👻 Pleo			Search	Name	S1	Local Time	2022-04-25 10:25:59
Tot	al 6	Pag	ge 1/1			Code	BLDG	SD to Base	7967.407 m
N	ame	Northing	Easting	Height	Latitude	Northing	2564489.649 m	HD to Base	7967.320 m
	Pt6 Pt5	84649.000 23147.000	75649.000		N0°45'50.3798"	Easting	658469.796 m	HD to Last	2547408.433 m
Ê	Pt4	2564791.523			N23°10'54.5173"	Height	25.649 m	SD to Last	2547408.433 m
Ŧ	Pt3	2564809.012	440373.224	18.409	N23°10'55.0862	Latitude	N23º10'21.7701"	PDOP	0.000
Ŧ	Pt2	2564809.985	440369.583	18.239	N23°10'55.1173"	Lutitude	1123 1021.7701	PDOP	0.000
Ŧ	Pt1	2564798.089	440366.658	18.096	N23°10'54.7303	Longitude	E115°32'51.2893"	HRMS	0.000
						Altitude	25.965	VRMS	0.000
						Solution	NONE	Antenna Height	0.000 m
						Coordinate Type	BLH	Antenna Height Type	Slant Height
						Local Time	2022-04-25 10:25:59	Record Mode	Input Point
						SD to Base	7967.407 m	Age	1
	Add	Edit	Detai	ls Im	port	HD to Base	7967.320 m	Locked SAT	0

#### Import:

We can import points to Points Database Directly. When we import file, in Format Manager, we need to select the Import File Format, Point Type and Files Directory, then we can find the target file and load those points to Point Database.

	09	:34	ស ស	* 💷	նվ երի 💼	10:56	₽166**•9	🚥 "iil fiil 💷		10	):56	F1 (0) :	\$* <b>9</b> @3	՝՝՝՝i 💼	
<		Poir	nts Datab	ase		<	Import File		Points Database						
Ρ	t nam	ne v Plec			Search	File Type	*.csv-Customs	-	P	't nam	ne 🛩 Plec			Search	
Tot	al 6	Pag	ge 1/1			Point Type		Input Point 🚿	To	tal 9	Pag	ge 1/1			
N	ame	Northing	Easting	Height	Latitude	Angle Format		Des Miscae	h	lame	Northing	Easting	Height	Latitude	
	Pt6	84649.000	75649.000	64.000	N0°45'50.3798"	Angle Format		Deg.MinSec >		Pt4	2564791.523	440370.345	18.093	N23°10'54.5173"	
	Pt5	23147.000	54697.000	45.000	N0°12'32.3265"	Internal St 20220329	torage/SurvStar/Proj /Export	ectData/	1	Pt3	2564809.012	440373.224	18.409	N23°10'55.0862	
Ŧ	Pt4	2564791.523	440370.345	18.093	N23°10'54.5173"	Back to Re	oot Directory			S1	2564489.649	658469.796	25.649	N23º10'21.7701"	
Ŷ	Pt3	2564809.012	440373.224	18.409	N23°10'55.0862					Pt6	84649.000	75649.000	64.000	N0°45'50.3798"	
Ŧ	Pt2	2564809.985	440369.583	18.239	N23°10'55.1173"	T Back to A	op Storage Directory	·		Pt5	23	eeded to ir	nnort	N0°12'32.3265"	
Ŷ	Pt1	2564798.089	440366.658	18.096	N23°10'54.7303	1 Back to Pr	evious Directory		Ŷ	Pt4				N23°10'54.5173"	
						20220329	COV		Ŧ	Pt3	2564809.012	440373.224	18.409	N23°10'55.0862	
						20220327	cov.		Ŷ	Pt2	2564809.985	440369.583	18.239	N23°10'55.1173"	
									Ŧ	Pt1	2564798.089	440366.658	18.096	N23°10'54.7303	
	Add	Edit	Detail	sIm	port		Format Manage			Add	Edit	Detai	ls Im	nport	

In Format Manager, we can define the imported file's format and contents. Then when we import files to SurvStar, we just need to get the relevant format file, and import it directly.

11:00 <b>K</b> Us	ে ে হা ছে থ er-define Forr	ໝະສິຟສິຟ 📼 nat	11:23 <b>&lt;</b> Ed	№ 6 *: 9 國 新山 新山 画 lit Format
No	Format Name	Extension Name	Custom Format Desc	ription
1	Customs	CSV	[Point Name],[Lat],[L	on],[Ellipsoid Height]
			Format Name	Code
			define	North
			Separator	East
			.r	> Height
			Extension Name	>
			ddi	×
New	Edit Impo	rt Delete	Add	Delete OK

	11:26	[]@** <b>9</b>	- 💷 "All #il 💷		11:26	Rì (\$i \$: ♥ @3 "#il #il @)
<		User-define Form	nat	<	Im	port File
	No	Format Name	Extension Name	File	Туре	*.dat-Pn,x,y,h,Pc 🔻
	1	Customs	CSV	Poir	nt Type	*.dat(South EGStar3.0)
	2	define	dat		Internal Storage	*.RTK(South EGStar3.0)
				Ť	Back to App Stor	*.txt-Pn,x,y,h,Pc
					.7934039a	*.txt-Pn,B,L,H,Pc(ddd.mmsssss )
					.Android	*.txt-Pn,B,L,H,Pc(ddd.dddddd d)
					.DNUUID	*.xyh-
					.DataStorage	*.NCN-Pn.y.x.h
					.FileManagerRec	*.dat-Android Format
					.OAIDSystemCon	*.rw5(SurvCE RW5)
					.UTSystemConfig	*.raw
					.aaa	*.csv-Customs
N	ew	Edit Impor	rt Delete		Form	*.dat-define

## **Options:**

Besides basic, Add, Edit, Details and Import functions, by Clicking ... in the right of the tool bar. Then we can use the other function as Delete, Filter, Recover, Share, Export and Refresh.

Pt4 25	Pleas	ts Datab se Input e 1/1 Easting	Height	Search	Y Pt r	name ~ 9	Hier	ts Datab	ase	Search			
Name N Pt4 25	Pag Northing	ie 1/1	Height	Search			Pag	se incel		Search			
Name N Pt4 25	Northing		Height		Total	9	Pac						
Pt4 25		Easting	Height				rug		Page 1/1				
	64791.523			Latitude	Nam	ne No	orthing	Easting	Height	Latitude			
Pt3 25		440370.345	18.093	N23°10'54.5173'	. P	Pt4 2564	4791.523	440370.345	18.093	N23°10'54.517			
	64809.012	440373.224	18.409	N23°10'55.0862	/ -			Options		101810/15-08			
S1 256	54489.649	658469.796	25.649	N23°10'21.7701"	1	0 0	Delete	puons		-			
Pt6 84	4649.000	75649.000	64.000	N0°45'50.3798"	1					9			
Pt5 23	3147.000	54697.000	45.000	N0°12'32.3265"			Filter			\$			
Pt4 25	64791.523	440370.345	18.093	N23°10'54.5173"	Ŷ		Recove						
Pt3 25	64809.012	440373.224	18.409	N23°10'55.0862	Ŧ		Share						
Pt2 256	54809.985	440369.583	18.239	N23°10'55.1173"	÷		Export						
Pt1 256	54798.089	440366.658	18.096	N23°10'54.7303	ę ,	O F	Refresh	440300.000	10.070				

#### Delete:

We can delete the points selected.

	1:36			"Sil #il 🗊		11	1:37			՝՝՝՝ 🔟 💷		1	11:37 🛛 🏷 🖗 📼 🏦 🏭 🗩				
<	Po	oints Datab	base		<			its Datab			<		Poir	nts Datak	base		
Pt nan	ne v P			Search	Pt	nan	ne 🛩 illian			Search	F	't nan	ne v Pleo			Search	
Sele	ct All	2 Selec	cted			Sele	st All	2 Selec	ted			Total 7		Page 1/1			
Name	Northin	g Easting	Height	Latitude	No	me	Northing	Eosting	Height	Latitude	P	lame	Northing	Easting	Height	Latitude	
Pt4	2564791.5	23 440370.345	18.093	N23°10'54.5173'		Pt4	2564791.523	440370.345	18.093	N23°10'54.5173'		S1	2564489.649	658469.796	25.649	N23°10'21.7701"	
🗹 🤌 Pt3	2564809.0	112 440373.224	18.409	N23°10'55.0862		Pt3	2564809.012	440373.224	18.409	N23°10'55.0862		Pt6	84649.000	75649.000	64.000	N0°45'50.3798"	
/ S1	2564489.6	49 658469.796	25.649	N23°10'21.7701"		SI			25.649	N23°10'21.7701"	Ħ	Pt5	23147.000	54697.000	45.000	N0°12'32.3265"	
Pt6	84649.00	0 75649.000	64.000	N0°45'50.3798"				Prompt		98"	Ŷ	Pt4	2564791.523	440370.345	18.093	N23°10'54.5173'	
Pt5	23147.00	0 54697.000	45.000	N0°12'32.3265"		D	o you want	to delete data?	the se	lected 55"	Ŧ	Pt3	2564809.012	440373.224	18.409	N23°10'55.0862	
Pt4	2564791.5	23 440370.345	18.093	N23°10'54.5173'						73'	P	Pt2	2564809.985	440369.583	18.239	N23°10'55.1173"	
T Pt3	2564809.0	12 440373.224	18.409	N23°10'55.0862					ОК	362	Ŷ	Pt1	2564798.089	440366.658	18.096	N23°10'54.7303	
Pt2	2564809.9	85 440369.583	18.239	N23°10'55.1173"		Pt2	2564809.985	440369.583	18.239	N23°10'55,1173"							
Pt1	2564798.0	89 440366.658	18.096	N23°10'54.7303	<b>_</b> 17	Pt1	2564798.089	440366.658	18.096	N23°10'54.7303							
	Cancel		De	lete			Cancel		De	lete		Add	Edit	Detai	ls Im	port	

## Filter:

We can let Point Database filter and display the points (Survey Point  $\bigcirc$ , Input Point  $\checkmark$  or Stake Point ) we need automatically.

11:39	민 🏽 🛊 🕈 👁 🕮 "배네 해비 📼 Filter
Survey Point	
Input Point	
Stake Point	
	ОК

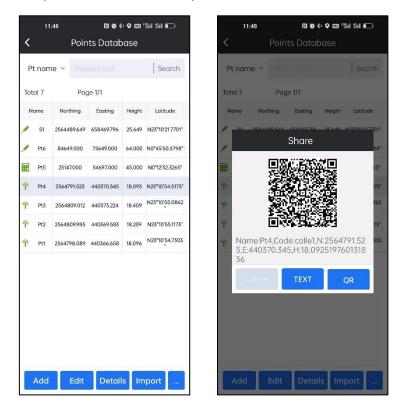
#### **Recover:**

If we delete some points by mistake, we can recover them here.



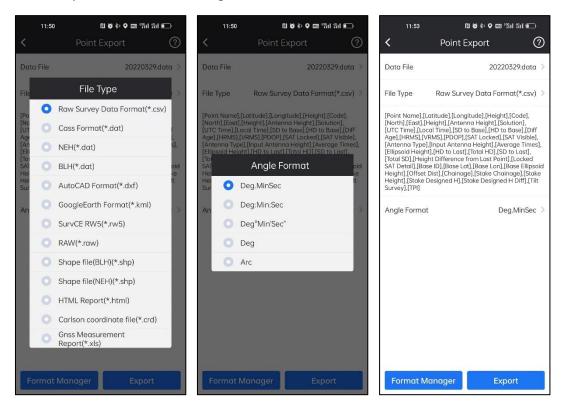
#### Share:

We can share the points to other users by QR code or Text format.



#### Export:

We can export data file in existing formats or self-define formats.



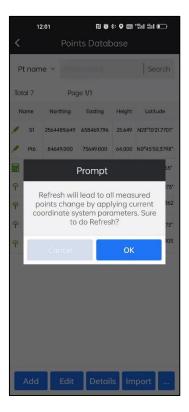
Select the export file path and click Export.

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File	Diretory	<	Point Export	
ternal Storage/S 220329/Export	SurvStar/ProjectData/	Data File	202	2032
ack to Root Dire	ctory	File Type	Raw Survey Data For	mat
ack to App Store	ige Directory	[North].[East].	[Latitude],[Longitude],[Heigh [Height],[Antenna Height],[S scal Time],[SD to Base],[HD 1	oluti
Back to Previous I	Directory	Age],[HRMS],[ [Antenna Type [Ellipsoid Heig	VRMS],[PDOP],[SAT Locked], ],[Input Antenna Height],[A ht],[HD to Last],[Total HD],[S ght Difference from Last Poi	[SAT rerag D to
0220329.crd		SAT Detail],[Bo Height],[Offse Height],[Stake	gnt Difference from Last Poi ose ID],[Base Lat],[Base Lon] t Dist],[Chainage],[Stake Cha Designed H],[Stake Designe	[Bas
0220329.csv		Survey],[TPI]	8	
0220329.xls		Angle Formo	at L	eg.N
Name	20220329			
Type Rav	v Survey Data Format(*.csv)			
				-

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Vser-define Format No Format Name Extension	12284	Custom Format E	Descripti titude],[		
			Format Name		Code
		define	8	North	
		Separator	>	East	
			/	Height	
			Extension Name dat Write Head Yes	>	Solution
					UTC Time
				>	Local Time
					SD to Base
					HD to Base
					Diff Age
New	Edit Impo	ort Delete	Add	Del	HRMS

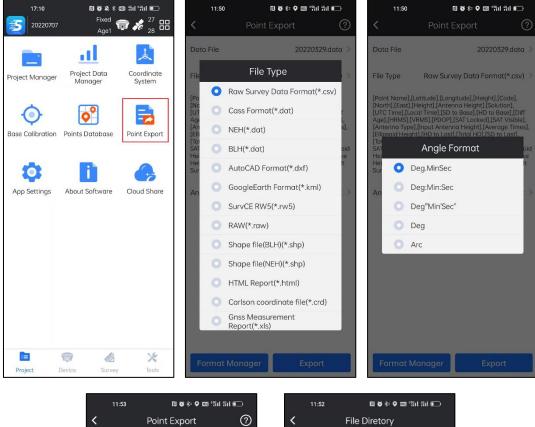
#### **Refresh:**

Click Refresh, we can apply the new Coordinate system parameters to the points in database.



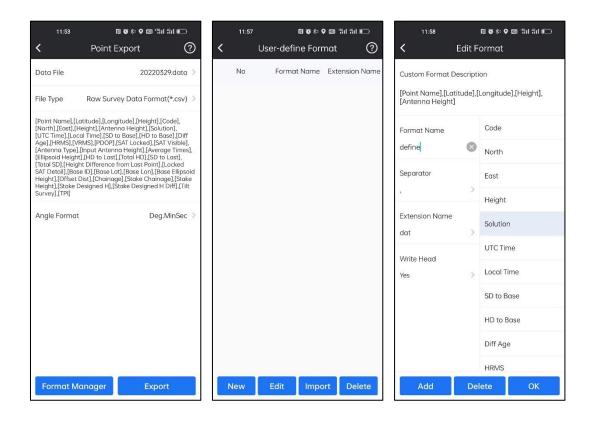
## **3-6 Point Export**

It is the same config as Point Export in Points Database.



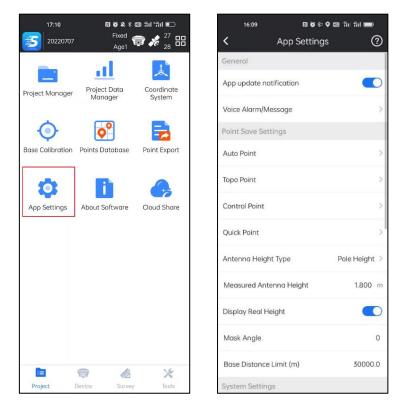
Data File	20220329.data >
File Type R	aw Survey Data Format(*.csv) 🚿
[North],[East],[Heigi [UTC Time],[Local Ti Age],[HRMS],[VRMS [Antenna Type],[Inp [Ellipsoid Height],[H [Total SD],[Height D SAT Detail],[Base ID Height],[Offset Dist]	ide],[Longitude],[Height],[Code], nt],[Antenna Height],[Solution], ime],[Sto 16 ase],[Ho 16 asea],[Diff ],[PDOP],[SAT Locked],[SAT Visible], ut Antenna Height],[Average Time], b to Lost],[Totel HD],[SD to Lost], ifference from Last Point],[Locked ],[Base Lot],[Base Lon],[Base Elipsoid [,[Chainage],[Stake Chainage],[Stake pined H),[Stake Designed H Diff],[Tilt
Angle Format	Deg.MinSec ≥

<ul> <li>Internal Storage/SurvStar/ProjectData/ 20220329/Export</li> <li>Back to Root Directory</li> <li>Back to App Storage Directory</li> <li>Back to Previous Directory</li> </ul>
Back to App Storage Directory
1 Back to Previous Directory
20220329.crd
20220329.csv
20220329.xls
File Name 20220329
File Type Raw Survey Data Format(*.csv)
Export



## **3-7 APP Settings**

In APP Settings, we can do basic configurations (such as General config, Point Save Settings, System Settings and Display Settings) for SurvStar.



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App Setting	s ⑦	Voice Alarm/Me	essage <	Voice Alarm/Me	ssage
General		Voice Alarm	Voice	Alarm	
App update notification		Stakeout limit	Stake	out limit	
Voice Alarm/Message	>	Point Survey limit	Point	Survey limit	
Point Save Settings		Volume	Volum	ne	
Auto Point	>	Voice message	Voice	message	
Topo Point	>			ettings	讯飞语音引擎
Control Point	>		Volum		NY VILLE 11+
Quick Point	>		Option		
Antenna Height Type	Pole Height >		Work		0
Measured Antenna Height	1.800 m		Datali	ink Status	0
Display Real Height			Solutio	on	0
Mask Angle	0		IMU S	itatus	0
Base Distance Limit (m)	30000.0		Stake	Out	0
System Settings					

In General Config, we can set App update notification and App Voice Alarm.

In Point Save Settings, we can set Point collection limits and parameters, Antenna Height, mask angle and so on.

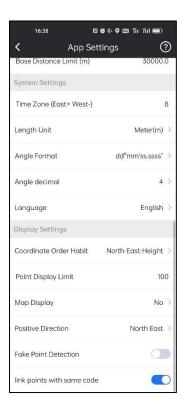
16:20 🖪 🕉 🕸	🚥 "îil fil 🗩	16:22	N 🏵 *: 🕈 📼 🖫 (fil 💷)	16:22	[]60/\$:(	) 💷 🖏 Hil 💼
< App Settings	?	< Auto I	Point ⑦	<	Topo Point	?
Voice Alarm/Message	>	Solution Limit	Fixed >	Solution Lim	nit	Fixed >
Point Save Settings		HRMS Limit	0.030 >	HRMS Limit		0.030 >
Auto Point	>	VRMS Limit	0.060 >	VRMS Limit		0.060 >
Topo Point	>	PDOP Limit	4.000 >	PDOP Limit		4.000 >
Control Point	>	Age limit (s)	2 >	Age limit (s)		2 >
Quick Point	>	Same Point Name Allowed	a 🔵	Same Point	Name Allowed	
Antenna Height Type	Pole Height >	Default Point Name	Pt1 >	Default Poir	nt Name	Pt1 >
Measured Antenna Height	1.800 m	Point Name Increment	1 >	Point Name	Increment	1 >
Display Real Height		Default Code	Same As Last Point >	Default Cod	le Same	As Last Point 🗦
Mask Angle	0			Average GP	S Reading Count	1 >
Base Distance Limit (m)	30000.0	Auto Collect Mode	Time >	, no ago en	e novem g et en t	
System Settings		Step Length(seconds/met	ers) 1 >			
Time Zone (East+ West-)	8	Rest default	ОК	Rest	default	ОК

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Control Point	?	< Quick Poin	nt (
Solution Limit	Fixed >	Solution Limit	Fixed
HRMS Limit	0.030 >	HRMS Limit	0.030
VRMS Limit	0.060 >	VRMS Limit	0.060
PDOP Limit	4.000 >	PDOP Limit	4.000
Age limit (s)	2 >	Age limit (s)	2
Horizontal Limit	0.020 >	Same Point Name Allowed	0
Vertical Limit	0.020 >	Default Point Name	Pť
Same Point Name Allowed		Point Name Increment	
Default Point Name	Pt1 >	Default Code Sa	me As Last Poin
Point Name Increment	1 >	Average GPS Reading Count	
Default Code Same	As Last Point >		
Average GDS Reading Count	1 5		
Rest default	ОК	Rest default	ОК

In System Settings, we can set the Time Zone, Length Unit, Angle Format, Angle decimal and Language.

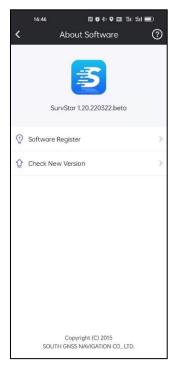
16:36 📢	8 * 9 📾 "fil fil 📼
< App Set	tings
Display Real Height	
Mask Angle	0
Base Distance Limit (m)	30000.0
System Settings	
Time Zone (East+ West-)	8
Length Unit	Meter(m) >
Angle Format	dd°mm'ss.ssss" >
Angle decimal	4 >
Language	English >
Display Settings	
Coordinate Order Habit	North-East-Height >
Point Display Limit	100
Map Display	No >
Positive Direction	North East >

In Display Settings, we can set the Coordinate Order Habit, Point Display Limit, Map Display, Positive Direction. And set Fake Point Detection and link points with same code on/off.



# 3-8 About Software

By clicking this, we can check the version of SurvStar, register the SurvStar and check new version manually.



#### Software Register:

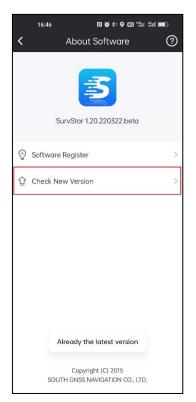
When we get the register code, we can click Software Register, input the code in the bar, and click Activate.



We can also check the information about the Register ID, Controller SN and Expiry Date.



We can click Check New Version to see if there is update or not.



# **Chapter 4 Device**

# **4-1** Communication

It is used to connect and communicate with receiver.

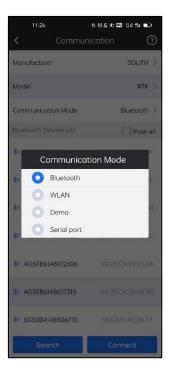
Click Device->Communication or tap the icon in the top to enter this interface.

17:16		\$ 💷 til 'til 💷	09:38	K (0 & # 🖾 Sil Sil 🖬 📼
20220707	Fixed Age1	🕽 🚀 👬 🔠	< Comm	nunication
		<b></b>	Manufacturer	SOUTH )
ommunication	Rover	Base	Model	RTK
		<b>1</b>	Communication Mode	Bluetooth
Static	Device Info	Device Register	Bluetooth Device List	Show all
-			DFSK012AD	C0:00:92:E5:E4:0F
Valvanced Setting		AG30BB148018225	00:25:CA:5F:27:0E	
			AG30B6148012323	00:25:CA:59:95:5C
			AG30B6148012306	00:25:CA:59:C3:06
			AG30B6148012315	00:25:CA:59:9B:90
			\$650B4148506710	58:D3:91:92:2B:77
			AB10AB135563155	00:25:CA:47:0E:B6
la i		*	Search	Connect

Set the correct Manufacturer.

11:25	K 10 & # 120 "Sil "Sil "Sil 100
< Commur	nication
Manufacturer	SOUTH >
Model	RTK
Communication Mode	Bluetooth >
Bluetooth Device List	Show all
* Manufa	cturer
SOUTH	
Nolida	E
RUIDE	.8
SANDING	
NMEA	C
AG30B6148012306	
AG30B6148012315	
\$65084148506710	
Search	Connect

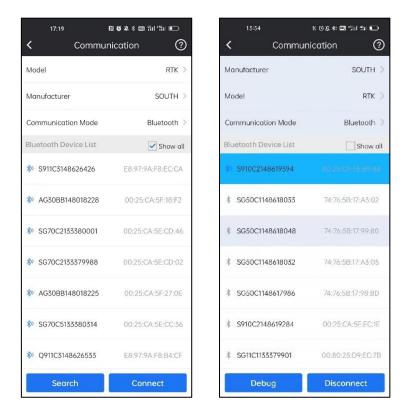
Select the Communication Mode. There are four kinds of Communication Mode: **Bluetooth**: connect receiver by Bluetooth. It is the most common used way to connect the receiver.



1.Click Search to detect the Bluetooth devices around us



2. Select the receiver's serial number, and click Connect to connect receiver. The chosen device will highlight with blue.



3. In Debug, we can monitor the data stream from the connected receiver.

17:21 I	uosation (?)	14:07 । ୪୦.ରୁ ୬୦ ପ୍ରେକ ପ୍ରେକଳା ଲୋଲେ ଲେ । ≮ Serial Debug
Commun		Sendi Debug
Model	RTK >	Send Command
Manufacturer	South >	Command List
Communication Mode	Bluetooth >	Receive Data Sove Only Show
Bluetooth Device List	Show all	4,E,1,16,1.0,55,8966,M,0.000,M,0002*56
* S911C3148626426	E8:97:9A/F8/EC/CA	\$PSIC.BSI.060732.00.2306.7208041,N,11326.211607 4,E,16.7787,0,0,0002*6F
AG30BB148018228	00:25:CA:5F:18:F2	@SIC, GET, DEVICE POWER_FREE, OK, 90*6E @SIC, GET, DEVICE POWER_BATTERY2, OK, 0 .0010*2C
SG70C2133380001	00:25:CA:5E:CD:46	\$PSIC,PST,20220228,060733.00,2310.90131873,N,11 325.00058921,E1112,2.31,1112,05.0.0000,0.0000,0.
SG70C2133379988	00:25:CA:5E:CD:02	0000.0.0000.55.4481,0.00001.00.0002*7A \$GPGGA,060733.00,2310.9013187,N,11325.000589 2.E,115,11,55.4481,M,0.000,M,0002*55
AG30BB148018225	00:25:CA:5F:27:0E	\$PSIC,BSI.060733.00,2506.7208041,N,11326.211607 4,E,16.7787,0,0,0002*6E
SG70C5133380314	00:25:CA:5E:CC:36	\$PSIC,PST,20220228,060734.00,2310.90131839,N,11 325.00058362,E:11,11,216,1.00.1.88,0.0000,0.0000,0 .0000.0.0000.55,2659.0.0000,1.00.0002*7F
Q911C3148626533	E8:97:9A:F8:B4:CF	\$GPGGA,060734.00,2310,9013184,N,1325.000583 6,E1,16,1.0,55.2659,M,0.000,M,0002*5C
Debug	Disconnect	Stop Send Clear

Start\Stop: Start\Stop data stream from the receiver;

Send: send commands to communicate with receiver;

Clear: Clear contents of the page;

## Below are some commonly used commands' list.

	17:22 🛛 🗑 🔌 🕸 영대 🏦 💽
Serial Debug	Serial Debug
Send Command	Send Command
Command List >	Command List
Receive Data Save Only Show Command	Receive Data Save Only Show Command
\$PSIC.PST_20220808,092231.00,2310.89158388.N.1 1325.01524375,E,43,34,0,97,0,53,0.80,0.0080,0.00 34,0.0034,0.0065,49,7382,0.0000,1.00,0002*70	0,31,36*54 \$PSIC,GSI,98,36,C57,00,000,00,39,00,34,C59,50,12 ,06,40,00 .36,C60,44,239,06,39,00,35,E03,32,041,06,32,36,29
\$PSIC,BSI,092231.00,2306.7198218,N,11326.2119225 ,E,21.2455,4,0,0002*60	59 \$PSIC,GSI,9,9,36,E07,22,273,06,30,35,31,E08,53,331, 06,36,39,35,E13,50,294,06,35,40,34,E15,53,196,06,3 6,41,36*55
\$PSIC,PST,20220808,092232.00,2310.89158360,N,1 1325.01524592,E.43,34,0.970.53,0.80,0.0077.0.003 3,0.0033,0.0061,49,7334,0.0000,1.00,0002*7B \$PSIC,DAL,BLUETOOTH*16	\$PSIC,BSI,092230.00,2306.7198218,N,11326.211922 5,E,21.2455,4,0,0002*61
\$PSIC,BSI,092232.00,2306.7198218,N,11326.211922 5,E,21.2455,4,0,0002*63	\$PSIC.PST.20220808.092231.00,2310.89158388,N: 1325.01524375,E,43,34,0,97,0,53,0.80,0.0080,0.00 34,0.0034,0.0065,49,7382,0.0000,1.00,0002*70
@SIC,,GET,DEVICE.POWER_FREE,OK,55*67 @SIC,,GET,DEVICE.POWER_BATTERY2,OK,0 .00]0*2C	\$PSIC,BSI,092231.00,2306.7198218,N,11326.211922 ,E,21.2455,4,0,0002*60
\$PSIC,PST,20220808,092233.00,2310.89158401,N,1 1325.01524418,E,43,34,0,97,0.53,0.80,0.0081,0.003 4,0.0034,0.0065,49.7417,0.0000,1.00,0002*72	\$PSIC,PST,20220808,092232,00,2310.89158360,N, 1325.01524592,E,43,34,0.97,0.53,0.80,0.0077,0.003 3,0.0033,0.0061,49,7334,0.0000,1.00,0002*7B \$PSIC,DAL,BLUETOOTH*16
Start Send Clear	Stop Send Clear
17:22 🛛 🗑 🖏 孝 🚥 省山 18日 💽	14:19 N 🛇 Sp 🕸 🖽 🖬 🖬 💷 🕴
Serial Debug	Serial Debug
<ul> <li>Serial Debug</li> <li>Send Command</li> </ul>	<ul> <li>Serial Debug</li> <li>Send Command #sic, set, device, poweroff (8)</li> </ul>
Send Command	Send Command #sic,,set,device.poweroff (8)
Send Command           Command List           Receive Data         Save           Only Show           Command           0.31,36*54           PPSIC,651,9.8.36,C57,00,000,00,39,00,34,C59,50,127	Send Command #sic,,set,device.poweroff
Send Command           Command List           Receive Data         Save           Only Show           Command           0,31,36*54           \$PSIC,GSI,98,36,657,00,000,00,39,00,34,659,50,127           ,06,40,00           ,36,6660,44,239,06,39,00,35,E03,32,041,06,32,36,29*	Send Command #sic_set.device.poweroff (S) Command List #sic_set.device.poweroff Receive Data Save Only Show Command
Send Command           Command List           Receive Data         Save           Only Show           Command           0.31.36*54           \$PSIC.CSI.9.8.36.C57,00,000,00,39,00,34,C59,50,127           .06,40,00           .36,C60,44,239,06,39,00,35,E03,32,041,06,32,36,29*           \$PSIC.CSI.9,9,36,E07,22,273,06,30,35,31,E08,53,331,           .06,36,39,55,E13,50,294,06,35,40,34,E15,55,196,06,3	Send Command #sic,,set,device.poweroff  Command List #sic,,set,device.poweroff Receive Data Save Only Shaw Command List  #sic,,set,device.poweroff #sic,,set,device.voice_enable, aff
Send Command Command List O31,36*54 Seceive Data Save Only Show Command O31,36*54 SPSIC,651,98,336,C57,00,000,00,39,00,34,C59,50,127 ,06,40,00 ,36,C60,44,239,06,39,00,35,E03,32,041,06,32,36,29* 59 SPSIC,6S1,9,9,36,E07,22,273,06,30,35,31,E08,53,331,	Send Cammand #sic,,set,device poweroff  Command List #sic,,set,device.poweroff Receive Data Save Only Show Command List  #sic,,set,device.poweroff #sic,,set,device.voice_enable, off #sic,,set,device.voice_enable, off #sic,,set,gnss.rawdata,off
Send Command           Command List           Receive Data         Save           Only Show           Command           0.31.36*54           \$PSIC.CSI.9.8.36.C57,00,000,00,39,00,34,C59,50,127           .06,40,00           .36,C60,44,239,06,39,00,35,E03,32,041,06,32,36,29*           \$PSIC.CSI.9,9,36,E07,22,273,06,30,35,31,E08,53,331,           .06,36,39,55,E13,50,294,06,35,40,34,E15,55,196,06,3	Send Cammand #sic,,set,device.poweroff Command List #sic,,set,device.poweroff Receive Data Save Only Show Command Command List #sic,,set,device.poweroff #sic,,set,device.poweroff #sic,,set,device.voice_enable, aff #sic,,set,device.power_free
Send Command           Command List           Receive Data         Save           Only Show Command           0,31,36*54           *PSIC,CSI,9,8,36,C57,00,000,00,39,00,34,C59,50,127           ,06,40,00           .36,C60,44,239,06,39,00,35,E03,32,041,06,32,36,29*           *9           SG           >6,36,39,515,15,50,294,06,35,40,34,E15,53,196,06,3           6,41,36*55           *PSIC,BSI,092230,00,2306,7198218,N,11326,211922           5,E,21,2455,4,0,0002*61	Send Command #sic,,set,device.poweroff Command List #sic,,set,device.poweroff Command List Command List #sic,,set,device.poweroff #sic,,set,device.voice_enable, off #sic,,set,device.power,free #sic,,set,device.power,free \$sic,,set,device.sic_version,sic_ 2.0
Send Command           Command List           Receive Data         Save           Only Show           Command           031,36*54           PSIC,GSI,98,36,C57,00,000,00,39,00,34,C59,50,127           ,06,40,00           .35,C60,44,239,06,39,00,35,E03,32,041,06,32,36,29*           59           SPSIC,GSI,9,9,36,E07,22,273,06,30,35,31,E08,53,331,           06,36,39,35,E13,50,294,06,35,40,34,E15,53,196,06,3           6,41,36*55           \$PSIC,GSI,092230,00,2306,7198218,N,11326,211922	Send Cammand #sic,,set,device.poweroff Command List #sic,,set,device.poweroff Receive Data Save Only Show Command List      #sic,,set,device.poweroff     #sic,,set,device.poweroff     #sic,,set,device.voice_enable,     #sic,,set,device.power_free     #sic,,set,device.sic_version,sic_     2.0     #sic,,set,device.voice_enable,     off
Send Command           Command List           Receive Data         Save           Only Show           OS,13,6*54           PSIC,6SI,9,8,36,C57,00,000,00,39,00,34,C59,50,127           ,0,6,40,00           ,35,6C60,44,239,06,39,00,35,E03,32,041,06,32,36,29*           PSIC,CSI,9,9,36,E07,22,273,06,30,35,31,E08,53,331,           ,0,6,36,39,35,E13,50,294,06,35,40,34,E15,53,196,06,3           ,41,36*55           \$PSIC,CSI,092230,00,2306,7198218,N,11326,211922           5,E,21,2455,4,0,0002*61	Send Cammand #sic,,set,device.poweroff  Command List #sic,,set,device.poweroff Receive Data Save Only Show Command List      #sic,,set,device.poweroff     #sic,,set,device.poweroff     #sic,,set,device.voice_enable,     aff     #sic,,set,device.power_free     #sic,,set,device.sic_version,sic_     2.0     #sic,,set,device.voice_enable,
Send Command           Command List           Receive Data         Save           Only Show Command           03.136*54           \$PSIC,651,98.36,C57,00,000,00,39,00,34,C59,50,127           ,06,40,00           ,36,C60,44,239,06,39,00,35,E03,32,041,06,32,36,29*           \$PSIC,6S1,9,9,36,E07,22,273,06,30,35,31,E08,53,331, 06,36,39,35,E13,50,294,06,35,40,34,E15,53,196,06,3           6,41,36*55           \$PSIC,6SI,092230,00,2306,7198218,N,11326,211922           5,E,21,2455,4,0,0002*61           \$PSIC,PST,20220808,092231,00,2310,89158388,N,1           1325 01524375,E,43,34,0,970,53,0.80,0080,0.00           34,0.0034,0.0065,49,7382,0.0000,1.00,0002*70           \$PSIC,BSI,092231,00,2310,2310,81158328,N,1	Send Cammand #sic,,set,device.poweroff Command List #sic,,set,device.poweroff Receive Data Save Only Show Command List      #sic,,set,device.poweroff     #sic,,set,device.poweroff     #sic,,set,device.voice_enable,     #sic,,set,device.power_free     #sic,,set,device.sic_version,sic_     2.0     #sic,,set,device.voice_enable,     off

4. If we want to break communication with receiver, we can click Disconnect.



**WLAN**: Connect receiver by WIFI (It only supports the receiver with WIFI and WEB UI; and while connecting the receiver by WIFI, the android controller won't have access to the internet.)

14:28	N (3) Sh 📾 🖽 👘 💼 🕴
< Commu	nication 🧿
Manufacturer	SOUTH >
Model	RTK 📏
Communication Mode	wlan >
Device list	>
Search	Connect

1.Click the Device list bar to enter this page.

09:32 🖪 🗑 🔉 🕏 🖬	20 Sil Sil 🗩	14:35	N Q Q * <b>D</b> "	il %i 💷 🕯
< Communication	?	<	Device info	G
Model	RTK >			
Manufacturer	SOUTH >			
Communication Mode	WLAN >			
Device list	SOUTH-AP >			
Connect		Se	arch Add	0

2.Click the settings icon to connect the WLAN of the receiver.

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		ę	SOUTH_9394 Connected	0
		WH	I NETWORKS	Refresh
		(t:	SOUTH_8040	Ū
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		ę	SOUTH_8006	Ū
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		ę	SOUTH_9297	()
r		(6	waimao	Ū
		(î;	SOUTH_3708	Ū
Search	Add 🔯	(îr.	SOUTH_8000	0

3.Click Add to input the IP:10.1.1.1 and port: 65432.

<	14:40	<b>৯ ত</b> Device i	& ≉: 🖘 📼 nfo	an an 🖘 () (?	)
ľ	IP			10.1.1.1	
I	Port			65432	
l			ОК		
	Sec	rch	Add	*	

4. Click this IP information and click Connect. It will connect the receiver.

**Demo**: It is a mode used monitoring position to use SurvStar (usually for tuition and test purpose) without connecting real receiver. In this mode, we can define the starting point's coordinates, receiver moving direction and speed.

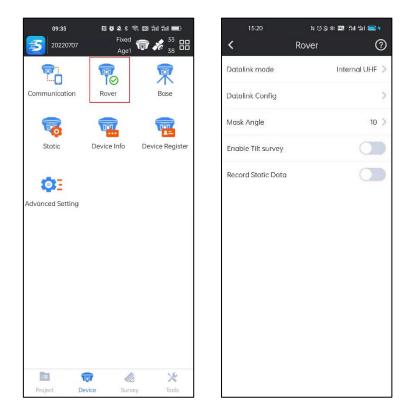
14:59	N Q Q X 🔯 SH SH 📰
< Comm	unication
Manufacturer	SOUTH >
Model	RTK >
Communication Mode	Demo 🗦
Start Paint Coordinate	ø
Input Type	O BLH O NEH
Lat	N23°00'00.0000'
Lon	E115°00'00.0000'
Height	<b>45.000</b> m
Direction	0.000
Speed	0.000
S	tort

Serial port: Connect the receiver by cable (Not used so often)

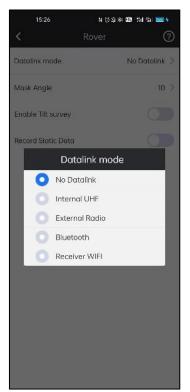
## 4-2 Rover Mode

In Rover Mode, we can set receiver to rover mode and do some configurations

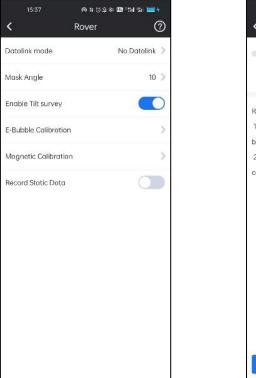
Click Device->Rover to enter the interface of Rover Mode.

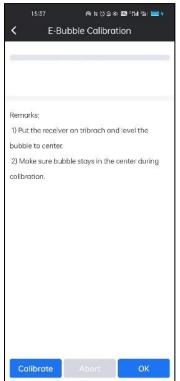


Datalink Mode: set datalink for rover.



Enable Tilt Survey: by enabling it, we can do E-Bubble calibration for IMU sensor.





Record Static Data: Enable receiver to record raw data automatically (usually used in PPK mode).

@ N (3 Q & 100 1311 131) 🚃 🐐
Rover ⑦
No Datalink 🗦
10 >

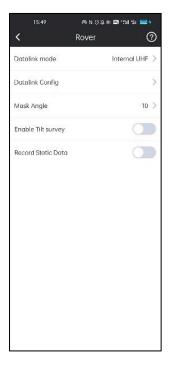
## 4-2-1 Rover-No Datalink

In No Datalink mode, rover's data link is empty, and cannot receive corrections from base.



## 4-2-2 Rover-Internal UHF

In UHF mode, rover is able to receive corrections from base by internal radio.



In UHF data link, we can set Channel, Frequency, Power, Baud Rate and Radio Protocol for rover.

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< Internal U	HF ⑦	<	Radio Channel	
Radio Channel	7 >	Ray	1	
Frequency	456.000 >	Fre	2	
riequency	430.000	(	3	
Power	Low >	Pos C	4	
Baud Rate	9600 >	Ba	5	
Dudia autoral	FARLINK >	Ray	6	
Radio protocol	FARLINK	KC)	7	
Radio Relay		Ro	8	
		9	9	
Radio chonnel group	>	Rai	0 10	
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lase ID	1111 >	Ba	13	
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			18	

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Internal UHF	?		Internal UHF	?	<		Internal UHF	?
Radio Channel	7 >	Radio Channel		7 >	Radio	Channel		7 >
Frequency 4	56.000 >	Frequency		456.000 >	Freque	ency		456.000 >
Power	Low >	Power		Low >	Power			Low >
Baud Rate	9600 >	Baud Rate		9600 >	Ba	1	Radio protocol	>
Ra		Radio protocol		FARLINK >	Ra	О т	RIMTALK	×
Frequency			Baud Rate			S	OUTH	
Ro	D	Ro/ 0 96	ALCONOMIC ACCOUNTS	- 2	Ro	О н	IUACE	
Ra	2	Rai 0 192		2	Rai	S.	ATEL	2
Cancel OK		0 172	.00	100		О н	II-TARGET	
Base Locked		Base Locked			Bœ	О Б	ARLINK	
Base ID	1111 >	Base ID		1111 >	Ba	Ок	OLIDA	5

After those parameters above are set the same as base, rover can receive corrections from base and get base information.

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< SAT Inf	ormation
Detail SAT Skylo	t SNR SAT List
Height:54.8308	Height: 54.831
Direction: 0°00'00.0000	" Speed: -0.000
Accuracy	
PDOP:1.460	HRMS:0.772
VDOP:1.200	VRMS:2.116
HDOP:0.660	
Base Position	
Lat:N23°06'43.2482"	Northing: 2557053.762
Lon:E113°26'12.6964"	Easting: 442312.574
Height:16.7787	Height: 16.779
Horizontal Distance799	1.159
ID:0	

## 4-2-3 Rover-External Radio

In External Radio datalink, Rover can use external radio to receive radio signal from base.

- 1. Connect the receiver to external radio.
- 2. Click the Datalink mode bar, set the receiver to Rover- External mode.



3. Config the external radio the same as base UHF.

note: Configurations on external radio must be done on external radio itself.

#### 4-2-4 Rover-Bluetooth Data Link

In Bluetooth datalink, we can use controller's internet to access CORS server and download corrections. (Note: the controller must have access to the internet).1.Click the Datalink mode bar, set the receiver to Bluetooth mode.

	। <b>७</b> ३१३ ≋ छ ॥ ॥ <b>■</b> ) over ??
Datalink mode	Bluetooth >
Smart Connect Cor	nfig >
Datalink Config	>
Radio Router	>
Mask Angle	10 >
Enable Tilt survey	
E-Bubble Calibration	>
Magnetic Calibration	>
Record Static Data	

2.Click the Datalink Config bar to enter the Ntrip(Eagle) Connection-Bluetooth page.

09:42 🛯 🗑 🔌 🕸 🍣:	📾 fil fil 💼	16:47
K Rover	0	<ul> <li>Ntrip(Eagle) Connection - Bluetooth</li> </ul>
Datalink mode	Bluetooth >	local<219.135.151.189.2018>
Smart Connect Config	>	
Datalink Config	>	
Radio Router	>	
Mask Angle	10 >	
Enable Tilt survey		
E-Bubble Calibration	>	
Magnetic Calibration	>	
Record Static Data		
		Add Edit Delete
		Connect Disconnect OK

3.Click Add. In this interface, we can define a network config by inputting IP, Port,

Username and mountpoint.

1647	16:55 തെരളം ലയാലം പംലം く Datalink Config - Bluetooth
local<219135.151.189:2018>	Select Server >
	Name Network
	IP net.southgnss.com
	Port 2010
	Username User
	Password Please Input 💋
	Select Mountpoint >
	Mode NTRIP(Rover) >
Add Edit Delete	Auto Connect
Connect Disconnect OK	Cancel OK

4. In Select Mountpoint, by Refreshing Mountpoints, we can get all the mountpoints available, select the one needed to finish Network config.

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< Selec	ct Mountpoint	< Datalink C	Config - Bluetooth
Sel	Input Mountpoint	Select Server	>
NO Refr	resh Mountpoints	Name	Network
[RTCM30]	0,	IP	net.southgnss.com
[RTCM3X-MSM	a 🔿		
[sCMRx]		Part	2010
<sup>s</sup> lumbir	er	Username	User
13106050980	O 🕫	Password	Please Input 🛛 💋
S48157117094	264		
HNZR	0 >	Select Mountpoint	[RTCM30] >
S163A4216338	435	Mode	NTRIP(Rover) >
CG30B414800	7092	Auto Connect	
WHLQ_MSM4	0		
WHLQ_CMR	0		
o1b2c	$\bigcirc$		
Concel	ок	Cancel	ОК

4. Click Connect, and differential corrections from base will be downloaded from the server.

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local<219135.151.189:2018>	local<219135.151.189:2018>
Succeeded to login	
RXD-1007	Rif: 1002
Add Edit Delete	Add Edit Delete
Connect Disconnect OK	Connect Disconnect OK

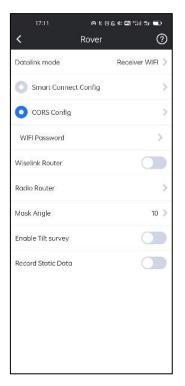
## 4-2-5 Rover-Receiver Network

In Receiver Network mode, we must ensure receiver itself has access to the internet,

usually there are 2 ways: by receiver's WIFI or by receiver's network module.

#### By WIFI:

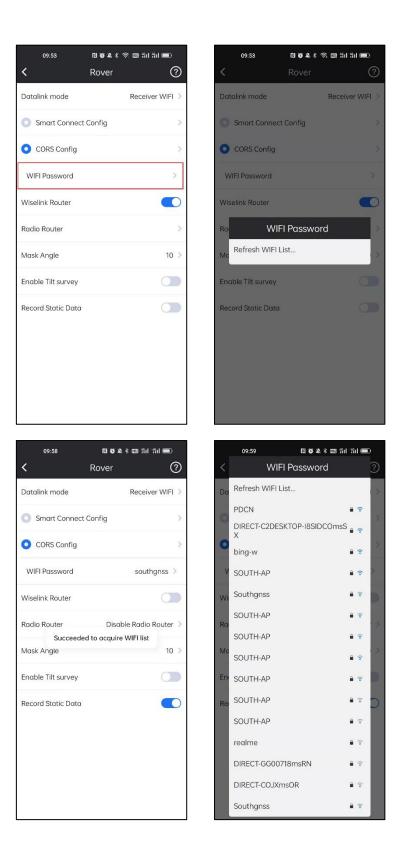
1.Click the Datalink mode bar, set the receiver to the Receiver WIFI mode.



2. Receiver must be able to switch to WIFI client mode and connect to a WIFI hot spot.

Click WIFI Password bar, and click Refresh WIFI List... to search for WIFI nearby. Then

click WIFI Password bar again to connect WIFI network.



3.Click the CORS Config bar to enter the Ntrip(Eagle) Connection-Receiver WIFI page.

09:53	N © ३ १ ବ ໝ ଖା ଖା ■ Rover (*
Datalink mode	Receiver WIFI
Smart Connect	Config
O CORS Config	
WIFI Password	0
Wiselink Router	
Radio Router	
Mask Angle	10
Enable Tilt survey	0
Record Static Data	0

3. Build Network Config and connect (Operation is the same as we do when config Rover-Bluetooth data link).

#### By Network:

Receiver must have the network module and make sure the SIM card has been inserted into the device correctly.

1.Click the Datalink mode bar, set the receiver to the Receiver WIFI mode.

17:11	≋ লেও হ ≉ আই "লা শা ∎⊃ Rover ?
Datalink mode	Receiver WIFI 🚿
Smart Connect (	Config >
O CORS Config	>
WIFI Password	>
Wiselink Router	
Radio Router	>
Mask Angle	10 >
Enable Tilt survey	
Record Static Data	

2.Click the CORS Config bar to enter the Ntrip(Eagle) Connection-Receiver WIFI page.

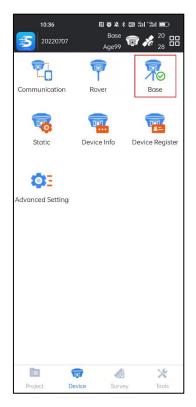
09:53 ₪®&** K Rover	r 🖾 111 11 🗩
Datalink mode	Receiver WIFI >
Smart Connect Config	>
OCRS Config	>
WIFI Password	>
Wiselink Router	
Radio Router	>
Mask Angle	10 >
Enable Tilt survey	
Record Static Data	

3. Build Network Config and connect (Operation is the same as we do when config Rover-Bluetooth data link).

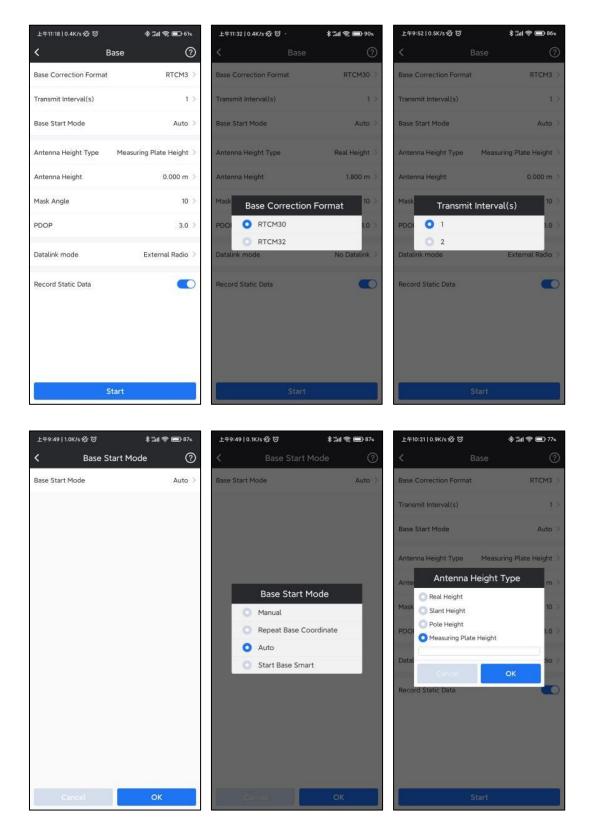
10:16 যি <b>ট ২</b> ২ আ রা। রি। ক্রা	10:28 원 8 3 8 8 3 1 '3il 📼 < Connect	10:30 Dise & ≷ Call in it in in
local<219.135.151.189:6600>	✓ Connect	local<219.135.151.189:6600>
123<47:107.86.207:6070>	✓ SIM Check	123<47:107.86.207:6070>
	✓ Network Register	
	Network Connect	
	<ul> <li>Log on Server</li> </ul>	
	Succeeded to Login	
Add Edit Delete		Add Edit Delete
Connect Disconnect OK	OK Cancel	Connect Disconnect OK

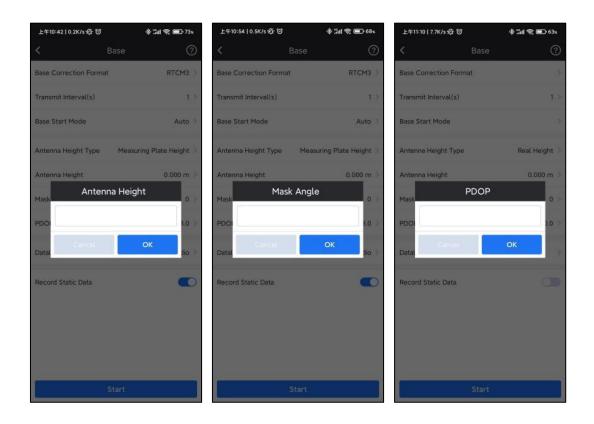
## 4-3 Base Mode

Base Mode is used to start base and transmit differential corrections in UHF, Network, and External Radio.



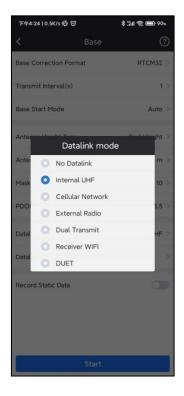
In Base Parameter config, we can set Base Correction Format, Transmit Interval, different Base Start Mode, Antenna Type and Height, Mask Angle, PDOP limit and transmit Data Link.



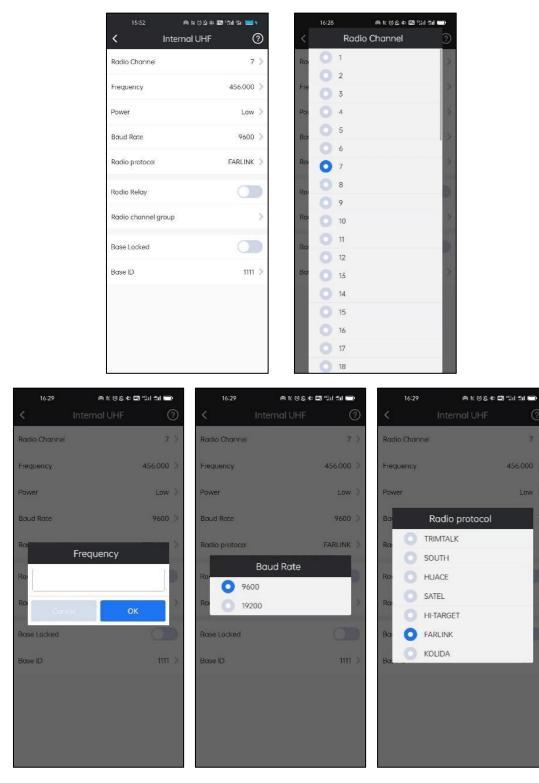


## 4-3-1 Base-Internal UHF

In this mode, Base is using its Internal UHF module to transmit differential corrections.

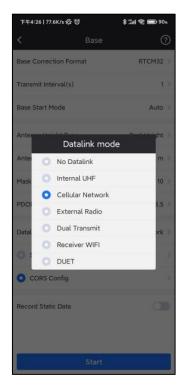


In UHF data link, we can set Channel, Frequency, Power, Baud Rate and Radio Protocol for base.



### 4-3-2 Base-Cellular Network

In this mode, Base is uploading its differential corrections to CORS server by Network. Then rover can download the corrections and get fixed solution.



2.Click the Datalink Config bar to enter the Ntrip(Eagle) Connection-Cellular Network

page.

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<b>K</b> Bas	e 🤇	?	<		Eagle) Conne Cellular Netwo	
Base Correction Format	RTCM32	>	Netwo	ork<219.135	151.189:2018>	
Fransmit Interval(s)	1	>				
Base Start Mode	Manual	>				
ntenna Height Type	Pole Height	>				
ntenna Height	1.800 m	>				
lask Angle	10	>				
PDOP	3.5	>				
atalink mode	Cellular Network	>				
Smart Connect Config		>				
ORS Config		>				
Record Static Data	0					
				Add	Edit	De
Star	t		C	onnect	Disconnect	(

3. Click Add. In this interface, we can define a network config by inputting IP, Port,

Username and Password. If set before, we can click Read from Module to get

<ul> <li>10:50</li> <li>Ntrip(Ea Cell</li> </ul>	ា ៥ & ៖ ឆា ងា ដោះងា gle) Connection - ular Network	•		เข¢≱≉ ฒ แ็เ แ็เ ≡⊃ Config - Cellular Network
local<219.135.151.18		Select	t Server	>
123<47.107.86.207:6	070>	Name	e	Network
		IP		net.southgnss.com
		Port		2010
		Userr	name	User
		Passv	vord	Please Input 🛛 💋
		Select	t Mountpoint	555test >
		Mode	1	NTRIP(Rover)
		APN		CMNET
		Select	t SIM card	Internal SIM
them.	Edit Delet Disconnect OK		lead from Module	Cancel OK
	Datalink C       Datalink C       Name       IP       Port       Username       Password       Select Mountpoint       Mode       APN       Select SIM card	Eagle mod	r Network 35.151.189 6600 0262 Ø 555test >	
	Read from Module	Cancel	ОК	

4.Click Select Mountpoint bar to set the uploading differential corrections' access

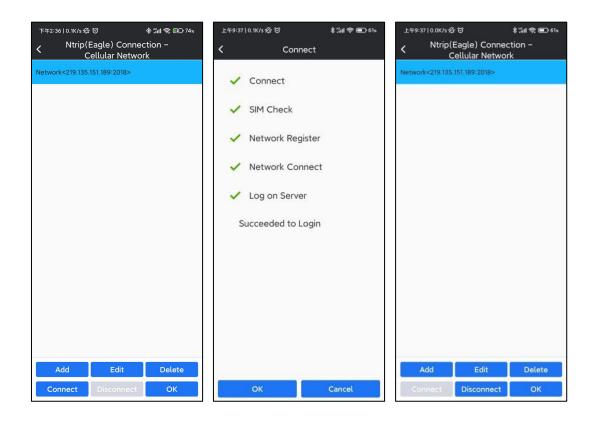
points, which cannot be set already exist in CORS.

C Datalink Con Netv	N ซิ 🎗 ៖ 💷 ที่ป ที่ป 💷 hfig - Cellular vork	11:28 < Datali	ា ៥ 🔌 ៖ 💷 ជា "ដា 📼 nk Config - Cellular Network
Select Server	>	Select Server	
Name	Network	Name	Network
IP	net.southgnss.com	IP	219.135.151.189
Port	2010	Port	6600
Username	User	<sup>Us</sup> Sele	ect Mountpoint
Password	Please Input 💋	Pa: test1	© 🖉
Select Mountpoint	555test >	Sel	al OK t>
Mode	NTRIP(Rover) >	Mode	Eagle mode(Base)
APN	CMNET >	APN	CMNET >
Select SIM card	Internal SIM >	Select SIM card	Internal SIM >
Read from Module	Cancel OK	Read from Module	Cancel OK

5.Set the Mode as Eagle mode (Base), and set the APN settings.

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Select Server	>	Select Server		Select Server	>
Name	Network	Name	Network	Name	Network
IP	net.southgnss.com	IP	219.135.151.189	IP	219.135.151.189
Port	2010	Port	6600	Port	6600
Username	User	Us	Mode 62	Username	0262
Password	Please Input 🛛 💋	Pa: O NTRIP(	Rover) 💋	Password	💋
Select Mountpoint	555test >	Sel TCP/IP	node(Base)	Select Mountpoint	test1 >
Mode	NTRIP(Rover) >	Mode	Eagle mode(Base) >	Mode	Eagle mode(Base) >
APN	CMNET >	APN	CMNET >	APN	CMNET >
Select SIM card	Internal SIM >	Select SIM card	Internal SIM 🗦	Select SIM card	Internal SIM >
Read from Module	Cancel OK	Read from Module	Cancel OK	Read from Module	Cancel OK

5. Click Connect bar to connect CORS server.

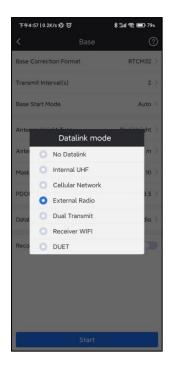


6. Once set, click Start to upload differential corrections.

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< Base	Ċ	?	<	Base
Base Correction Format	RTCM32	>	Base Correction Fo	rmat RTCM:
ransmit Interval(s)	1	>	Transmit Interval(s	)
ase Start Mode	Manual	>	Base Start Mode	Manu
ntenna Height Type	Pole Height	>	Antenna Height Ty	pe Pole Heig
ntenna Height	1.800 m	>	Antenna Height	1.800
ask Angle	10	>	Mask Angle	
DOP	3.5	>	PDOP	3
atalink mode	Cellular Network	>	Datalink mode	Cellular Netwo
Smart Connect Config		>	Smart Connec	t Config
CORS Config		>	O CORS Config	
ecord Static Data	0		Record Static Data	
Start				Stop

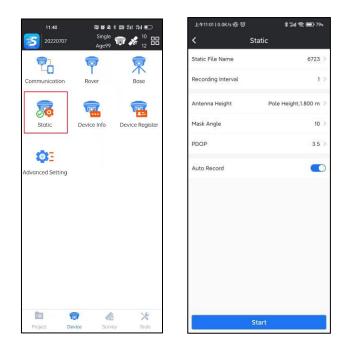
## 4-3-3 Base-External Radio

In this mode, Base is using External Radio to transmit differential corrections.

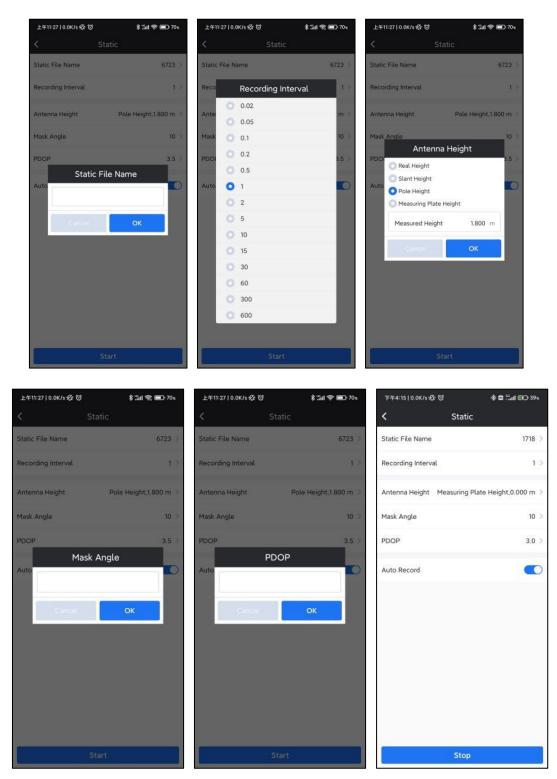


## 4-4 Static Mode

When we need to use receiver to do static work, we can go to SurvStar-Device, set receiver into Static Mode.

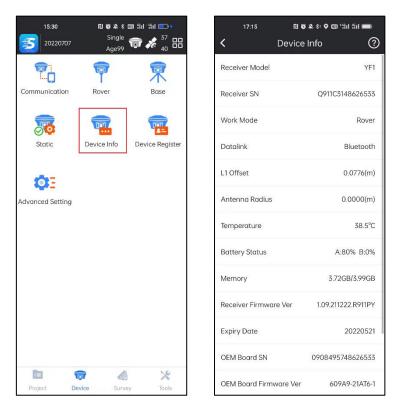


In Static Mode, we need config Static File Name, Recording Interval, Antenna Height and Type, Mask Angle, PDOP limit and Auto\Manual Record.



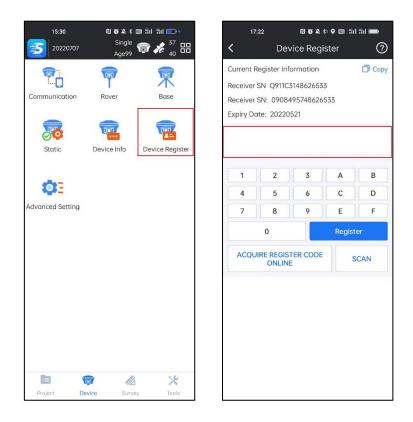
## 4-5 Device Info

In this sector, we can check the information of the device. It includes Receiver Model, Receiver SN, Work Mode, Datalink, L1 Offset, Antenna Radius, Temperature of the device, Battery Status, Memory, Receiver Firmware Version, Expiry Data, OEM Board SN, OEM Board Firmware Version, UHF Module SN and UHF Module Firmware Version.



## **4-6 Device Register**

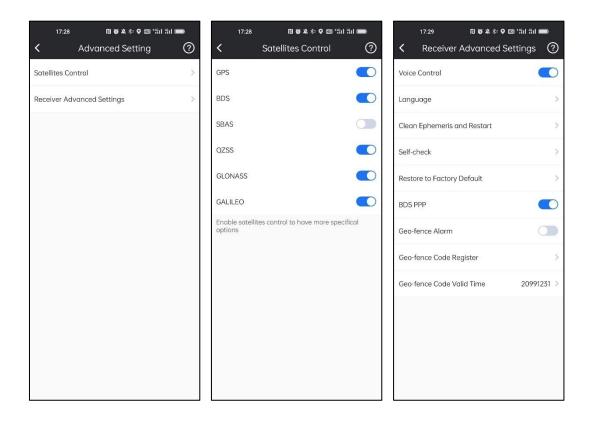
In this page, we can check the device registration information and register device. Click  $\boxed{Copy}$  will copy the receiver SN. Input the registration code in the bar, and click Register, then the device will be registered. We can also click  $\boxed{SCAN}$  to scan the QR code to register.



## 4-7 Advanced Setting

In this page, we can control weather track one satellite system and set the settings of the receiver. We can set the Voice of the device, Language of the device, Clean Ephemeris, Self-check, Restore to Factory Default and so on.





# **Chapter 5 Survey**

## 5-1 Point Survey

By clicking this, we can enter to the point survey page.

It can be divided into 3 parts: the top status bar, the middle acquisition interface (the left can be edited and added, and the right can be different acquisition point schemes, settings and layers), and the bottom coordinate information display.

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Single ⊕ 39 HB 20220707 Age99 ⊕ 36 42	<	< Fixed H:0.006 & 23 1 Age1 11 V:0.007 & 29 1 (2)
Point Survey Detail Survey Point Stakeout	20 km	- Û005m @
Line Stakeout CAD stakeout PPK Survey		
Elevation Control Sea Survey	A	•
Line pointwise stakeout		
GIS Survey Total Station		
Image: Survey         Tools	Pt name: North:2564766.623 m East:440311.922 m Height:45.360 m	Pt name: North:2564763.458 m East:440303.479 m Height:45.888 m
In this page, is the F	Point Collect icon; when IMU	is enabled, it will turn to
, and after IMU initial	zation and it will turn to	
is the Point Type icon,	which decides the points col	lected will be which type

(Topo Point, Control Point, Quick Point and Auto Point).

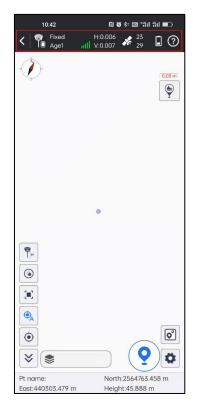
is coordinate point database. Points collected by SurvStar are stored in coordinate point database.

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Pt name: East:440303.479 r	North:2564763 m Height:45.888	5 CT 55 CC 2 CT 1 FC		Add	Ed	it Detai	ls Im	port …

is Record and Display Settings, which can set the collection point type, the limit conditions for the collection accuracy of the point position, the replacement of display of the bottom information and the toolbar. There are 3 sections: Point Collect, Information Bar and Tool Bar.

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		HRMS Limit 0.030 >
		VRMS Limit 0.060 >
		PDOP Limit 4.000 >
		Age limit (s) 2 >
		Same Point Name Allowed
		Default Point Name Pt1 >
		Point Name Increment 1 >
( <b>Q</b> <sub>A</sub> )		Default Code Same As Last Point >
© **		Average GPS Reading Count 1 >
Pt name: East:440303.479 m	North:2564763.458 m Height:45.888 m	Cancel Default settings OK

The Top Status Bar



In this page, the top status bar icons describe as follows:



: Close/exit Point Survey page.

Receiver operation mode, pressing to jump to Base/Rover/Static setting page.



Receiver signal.

Receiver positioning information, pressing to jump to satellite positioning information page.

Receiver battery power.

Solution status: includes single, float, differential and fixed.

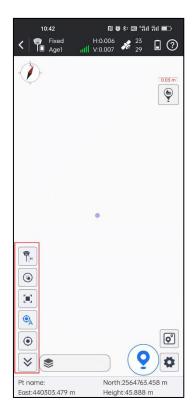
Age1: current differential delay is 1. *e.g., Single, 0: current solution is single, and differential delay is 0. Fixed, 1: current solution is fixed, and differential delay is 1.* 

H: HRMS, the value represents the horizontal accuracy of current point.

V: VRMS, the value represents the vertical accuracy of current point.

35/37: current number of satellites which used to solution, and the total tracked satellites number.

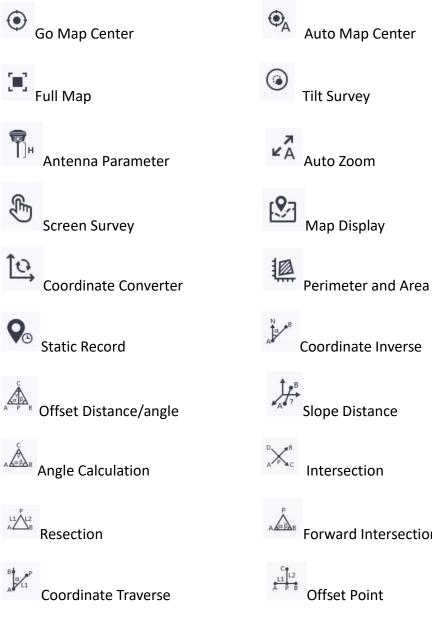
The Left Toolbar



Click to enter to this page. In Tool Bar, we can decide which function quick launch to be displayed in left of main interface.



The icons in left toolbar describe as follows:



Divide Line Equally

Pt, Code, H Display



Offset Point

Compass

The Bottom Information Display

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€ € € € € € € € € € € € € €	North:2564763.458 m Height:45.888 m

Click to enter to this page. In Information Bar, we can config which information to be displayed at the bottom of main interface.

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Pt name		Code	Pt name		Direction
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East		Latitude	East		Time(s)
Height		Elevation	Height		Base Dist
		Antenna Height			PDOP
		Direction			HDOP
		Speed			VDOP
		Time(s)			Record Mode
	<b>4</b>	Base Dist		411	Tilt angle
		PDOP			Projection Azimuth
		HDOP			Realtime Radius
Cancel	efault set	tings OK	Cancel	Default set	tings OK

to enter to this page. In Point Collect, we can set Limit while doing Topo Click Point\Control Point\Quick Point\Auto Point collection.

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Tool Bar

Fixed 0.030 0.060 4.000

2 0.020 0.020

> Pt1 > 1 >

As Last Point 5

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IS Limit	0.060 >	VRM	/IS Limit		C
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limit (s)	2 >	Age	e limit (s)		
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ult Point Name	Pt1 >	Ver	tical Limit		(
int Name Increment	1 >	San	ne Point Nam	ne Allowed	
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Cancel Default settings	ОК		ault Code Cancel	Default se	Same As Last

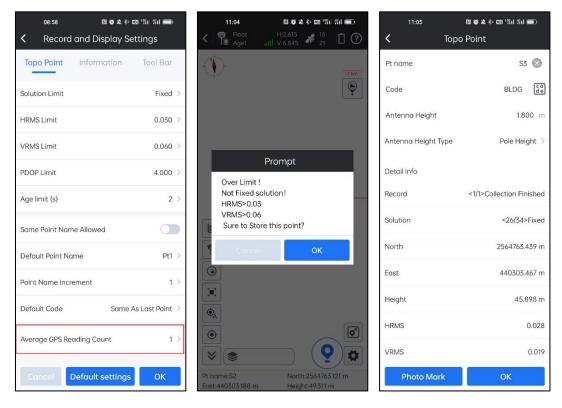
14:35 № C K Record and Dis	🔉 🎨 9 📾 🛍 🛍 🗊 play Settings
Quick Point Informe	ation Tool Bar
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VRMS Limit	0.060
PDOP Limit	4.000
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Default Point Name	Pt1 >
Point Name Increment	1 >
Default Code	Same As Last Point 🔾
Average GPS Reading Cou	nt 1⊃
Cancel Default s	ettings OK

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VRMS Limit	0.060	>
PDOP Limit	4.000	>
Age limit (s)	2	>
Same Point Name Al	lowed	
Default Point Name	Pt1	>
Point Name Increme	nt 1	>
Default Code	Same As Last Point	>
Auto Collect Mode	Time	>
Cancel Defo	oult settings OK	



Topo Point collection: this method is the most used way to collect points, after setting the record limit and average times, SurvStar will collect Topo Point by clicking

the button 😢.





Control Point collection: this method is used to collect Control Points, so the key points are high accuracy collect and control points report. To get high accuracy results, we need to collect one position as many as possible and get the average coordinates. In this config, the total data collected for one control point will be 20 times (1 (Average GPS Recording Count)\*10 (Survey Point Count per Round)\*2 (Survey Round) ), and each data will only be recorded after 20 seconds fixed solution. And after collection, SurvStar will generate a Control Point report in Html format.

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		Collecting
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Vertical Limit	0.020 >	
Same Point Name Allowed		
Default Point Name	Pt1 >	
Point Name Increment	1 >	
Default Code Same ,	As Last Point >	R=7.942cm
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Survey Point Count per Round	10 >	
Survey Round	2 >	
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Cancel Default settings	ок	Stop
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Control Point Report/storage/ 0/SurvStar/ProjectData/202 ControlResult/2022050555	220329/	1         0.00         0.



Quick Point collection: this method is used for quick collect. Just click collect button, and points will be recorded without any tips.

Auto point:



Auto Point collection: sometimes when we need to collect points by time or distance, we can use this method.

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Antenna Height Type	Pole Height >		
Detail Info			
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Solution	<35/38>Fixed	CollectPoin	tCounts:10,CurrentPoint:S25.
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East	440303.464 m	•	
Height	46.139 m		
HRMS	0.023	• <u>A</u>	Q
VRMS	0.012	*	
Photo Mark	ОК	Pt name:S25 East:440303.463 r	North:2564763.572 m n Height:46.142 m

## 5-2 Detail Survey

Detail Survey is a simplified Point Survey mode, which is for rapid and continuous coordinates collection.

When we do Detail Survey, SurvStar will keep in this interface showing detailed collect points information. And by clicking Settings, we can config the limit of recording.

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Point Survey	Detail Survey	Point Stakeout	E:	397473.610 m	L:	E112°59'59.9926"	HRMS Limit	0.030 >
	A	ОРРК	h:	42.900 m	H:	42.900	VRMS Limit	0.060 >
Line Stakeout	CAD stakeout	PPK Survey	Pt n	ame		S33	PDOP Limit	4.000 >
	0	5	Cod	е		BLDG	Age limit (s)	2 >
Elevation Control	Sea Survey	Line construction stakeout	Ante	enna Height		1.800 m	Same Point Name Allowed	
	0		Ante	nna Height Type		Pole Height >	Default Point Name	Pt1 >
Line pointwise	Cross-section	Cross-section	Colle	ect Progress			Point Name Increment	1 >
stakeout	survey	stakeout					Default Code	Same As Last Point >
GIS	P:O						Average GPS Reading Cou	nt 1 >
GIS Survey	Total Station					<b>?</b>		
	<b>a</b>	*						
Project D	levice Surve			Set	tings		Cancel	ОК

## 5-3 Point Stakeout

In Point Stakeout, we can select target point and do the stake out.

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					S20	2564763.575	440303.460	46.138	N23°10'53.6002	0.	071 m	8	രീ 💌		V
Image: Survey     Survey     Tools         Add     Edit     Details     OK     Image: Survey   Ptoject Device Survey Tools				A	dd	Edit	Detail	s	ок	Pt nar	me:S22(1)		North:256		

#### Below are icons' descriptions of Stake out interface:



(م) : Enable\Disable Voice Prompt;

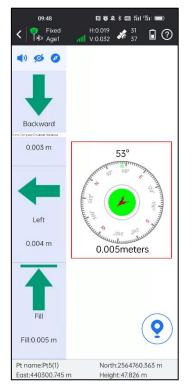


Isplay\Hide Stakeout Direction;





: Show Compass\Distance Stakeout.



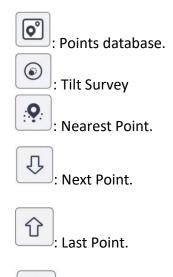


In Compass mode, when receiver is far from target point, receiver position will be displayed as an arrow; when it is near to the target point (2 times of prompt range), receiver position will be displayed as blue dot; when it almost reaches target point (1 time of prompt range), the blue dot will turn to green.



In Distance Mode, icons are as follows:





Point stakeout settings.

Note: In Point Stakeout settings ( ), we can set stakeout settings, including Prompt Distance, Stake Limit, Display Information (Not Display, Point Name, Code), and Reference Direction (Forward, North); settings for Topo Point, Inform and Tool Bar are the same as that of Point Survey. Click Default settings and it can restore the changed settings.

16:32 ₪ <b>K</b> Display Informa	s * ≈ ∞ **+ #+ =>+ ation Settings ?
Stakeout Topo Point	Inform Tool Bar
Store Point by name of	Stake Point 🚿
Code	No Code >
Prompt Distance (meters)	) 1.000 >
Auto Zoom	
Auto Stake to Nearest Poir	ıt 🔵
Auto Mark Staked Point	
Stake Limit (meters)	0.020 >
Display Info	Point Name >
Reference Direction	Forward (Left, right) 🗦
Voice message	>
Cancel Default s	ettings OK

Prompt Distance: If we set Prompt Distance as 1 meter, and then in Stakeout

Interface, SurvStar will draw 3 circles using target point as center, and 1\2\3 meters as radius.

### Point stakeout steps:

1. Select a point to stakeout in the points database, then click OK to enter points stakeout page. Red flag is target stake point. Circle is current position of receiver. Arrow is direction indicator, indicating the direction of current receiver. When the arrow direction is same with the direction to the target point, please move in this direction, then you can reach the target point.

2. According to left status bar, move from the current point to the stakeout point, and excavate or fill the soil according to the height difference of the elevation.

3. When current point is within prompt range, there will be three concentric circles, which indicate it accesses to precise stakeout.

4. After you reach the stakeout point, please stake it.

## 5-4 Line Stakeout

Line stakeout is the stakeout of designed line.

By clicking this, we will enter to Line List.



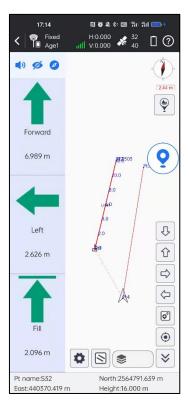
Click Add, we can add the designed line with Line Name, the Start Point, End Point and Start Chainage. We can also import line file(\*.SL).

	7:01	ri 6 & :	8: 📼 *#il *	ful 💼 🕇	17:01 <b>N</b> 1	s 🔉 🕸 📾 "Sil Sil 🧰	17:05	N 🏾 🔺 🕸 📼 "Sul Sul 🧰 🛉
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Line1	2564798.089	440366.658	18.096	2564809.98	Start Chainage	0.000 m	File Type	Line library(.SL) >
					Start Point	<b>?</b>   °	[Line Name], [S Pt N], [End Pt E Name], [End Pc	itart Pt N], [Start Pt E], [H], [End ], [H], [Mileage], [Start Point int Name]
					Start Point Name			
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					Easting	0.000 m		
					Height	0.000 m		
					End Point	<b>9</b>   <b>0</b>		
					End Point Name			
					Northing	0.000 m		
					Easting	<b>0.000</b> m		
					Height	0.000 m		
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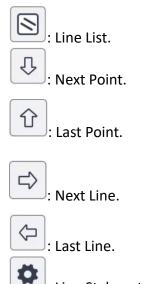
Select target line, and click OK. And then we need to set stake parameters, which includes Chain Pile Stake On/Off, Auto Stake Nearest Point On/Off, Mileage, Range, Calculating Method and Stake interval.

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Chain Pile Stake	
Auto Stake Nearest Point	
Mileage	0.000 m
Range	0.0000~12.2503
Calculating Method	By Integer Stake No >
Stake interval(m)	2 >
o	ĸ

Then we will access to the line stakeout page.



The icons in side toolbar are describe as follows:



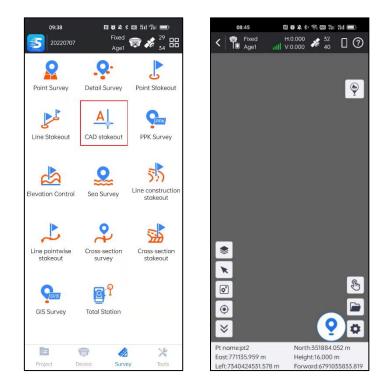
: Line Stakeout Settings.

In Line Stakeout Settings, we can set Prompt Distance, Reference Direction (Forward, North); As for Topo Point, Information and Tool Bar settings, it is the same as Point Survey. If we click Default Settings, and it can restore the changed settings.

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C Display Information Set	tings ⑦
Stakeout Topo Point Inform	Tool Bar
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Display all lines	
Reference Direction Forward (	(Left, right) >
Voice message	>
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## 5-5 CAD

CAD function is mainly used to stake out CAD elements (Points, Line) of imported CAD file.



The icons in side toolbar describe as follows:

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Import CAD file(\*.dxf/\*.dwg).

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andorid .	
Cancel	ОК

E CAD Layer.

We can manage and check the CAD layers by clicking this icon.



: Layer switches, controlling layer display.

: Layer freeze, cannot edit or modify after freezing.

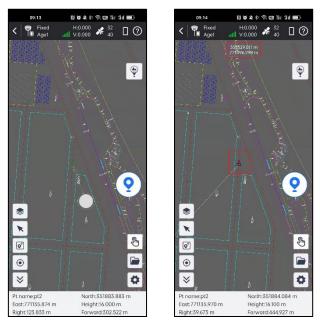
: Layer locking, cannot select after locking.



đ

: Select Point Mode.

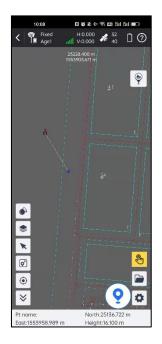
By clicking it, an arrow will come out. With the help of the arrow, we can move to any position on the map, get coordinates, and do Point stakeout.





: Select CAD Element Mode.

By clicking this, We can select Point, Line, Surface elements of loaded CAD file and do a stakeout.



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CAD stakeout settings.

In CAD Stakeout Settings, we can set Prompt Distance; settings for Topo Point, Inform and Tool Bar are the same as that of Point Survey.

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Stakeout Topo Point Inform	Tool Bar
Prompt Distance (meters)	1.000 >
Cancel Default settings	ОК

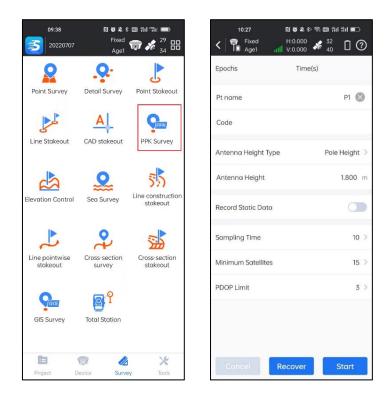
### 5-6 PPK Survey

PPK (Post Processed Kinematic) is a post-processing differential technology to obtain centimeter level positioning accuracy information. Compared to RTK (Real Time Kinematic) positioning, PPK doesn't need direct communication between base station and rover station. It is also called Stop & Go.

1. We need to enable Raw data record in WEB UI for both base and rover.

admin	Code:	Register
[	ExpiredDate:	
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🗙 Configuration 📴	OEMRegisterCode:	Register
General Config 📃		
Base Setup 🗖	Mode Setting:	
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Satellite Tracking 📃	Work Mode:	Rover ~
Receiver Operation 📃	Datalink:	Bluetooth v
System Setup 📃	Radio Router:	None ~
Receiver Security		
🚿 Satellite Information 🛛 🕂	Radio Transfer:	
🛅 Data Record 🕂	RTK Record:	
💂 DataTransfer 🔒	xFillEnable:	
	1PPS:	
Network Config	BDSPPP:	
👔 Radio Config 🔒	WiseLinkRoute:	
🔹 Firmware Update 🛨	EVENT:	
🔟 🛛 Track Manage 🔡	EVENT Polarity:	Negative v
Coordinate System		
🗘 Online Service 🕂		Enter Cancel

2.After connecting rover in SurvStar, go to Survey-Point Survey-PPK, we can access to the PPK collect interface.



3.In PPK collection, we can set the Pt name, Code, Antenna Height Type, Antenna Height, Record Static Data On/Off (make sure Record Static Data choice is on), Sampling Time, Minimum Satellites and PDOP Limit. For the Sampling Time setting, 30 seconds or more is recommended to achieve better accuracy.

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Epochs	Time(s)
Pt name	P1 🛞
Code	
Antenna Height Type	Pole Height >
Antenna Height	1.800 m
Record Static Data	
Sampling Time	10 >
Minimum Satellites	15 >
PDOP Limit	3 >
Cancel Re	ecover Start

4. And then we go to the first target point, click start and SurvStar will collect the point's PPK information. After previous set Sampling Time ends, PPK collection will

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Code					
Antenna Heigh	t Type		Pole	Height >	5
Antenna Heigh	t			1.800 m	
Record Static D	ata				
Sampling Time				10 >	
Minimum Satell	ites			15 🔇	
PDOP Limit				3 >	
Cancel	Red	cover		Stop	

5. After collecting the point, we can click Save to save the point and then go to the next point.

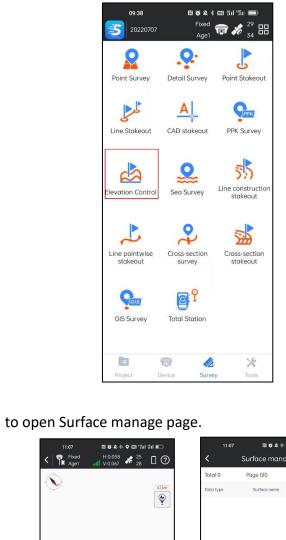
10:40	
Epochs 10 Time(s)	10
Pt name	pt3
Code	
Antenna Height Type F	Pole Height >
Antenna Height	1.800 m
Record Static Data	
Sampling Time	10 >
Minimum Satellites	15 >
PDOP Limit	3 >

5. Repeat these steps until the project done. And then copy relevant files into post processing software to do PPK processing.

stop.

## **5-7 Elevation Control**

Elevation Control is using known points to calculate designed Height surface, or loading designed Height surface directly, and we can compare current position's Height with designed Height surface to do site leveling and earthwork calculation work.



1.Click

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Pt name:pt4 East:440299.461 m Designed H:?

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North:2564740.121 m Height:45.710 m	Add	Edit Delete OK	ĺ
H Difference:?	, ad		J

2.Add/Import Surface.

There are two ways to add/import surface.

### Import:

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Click ... and click Import, select the surface file (\*.es/\*.sjw/\*.xml) and click OK.

### Add:

Click Add, select the Data Type to build elevation plane. We can use three ways to

build it: one point with two slope, two points with one slope and Triangulation.

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urface name		
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Slope(%)		
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Cancel O	к	

One point

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Point B	<b>9</b> S
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East		m
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Point C		<b>9</b> °
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Height		m
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Three points

#### Two points

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		<b>Ε</b> .7934039α	*.xml
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		.OAIDSystemC	Config
		UTSystemCor	nfig
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		andorid	
Cance	і ок	Cancel	ок

## Triangulation file

3. Then we can select the surface and click  $\overline{OK}$  to do the elevation control.

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Total 1	Page	1/1		
Data type	Sur	face name		
Triangulatio		1		
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4. If the device is in the surface, there will be designed height and H difference shown in the below bar. If it is outside, there will be '?'.

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Pt name:pt4 North:2564742.550 m East:440289.829 m Height:45.866 m Designed H:55.055 m H Difference:-9.189 m	Pt name:pt4 North:2544887.340 m East:397473.872 m Height:43.000 m Desianed H:? H Difference:?

We can control the elevation with the designed surface. And know the any point H difference in the range of the surface.

## 5-8 GIS Survey

In GIS survey, we can define GIS template and collect GIS entities.

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Line Stakeout	CAD stokeout	PPK Survey
Elevation Control	Sea Survey	555 Line construction stokeout
Line pointwise stakeout	Cross-section survey	Cross-section stakeout
GIS Survey	Total Station	
	ievice Survi	y Tools

1.For a new project, we need to import predefined GIS template or make GIS entities'

features for current project in SurvStar. Click and enter to feature manager page. We can also click the layer bar to enter to it.

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North:2564763.572 m East:440303.589 m Height:46.653 m Antenna Height:1.878 m Base Dist:7966.968 m Time(s):15.50.51	North:2564763.572 m         East:440303.389 m           Height:46.653 m         Antenna Height:18.78 m           Base Dist:7966.968 m         Time(6):13.50.51	North-2564742.651 m         East:440290125 m           Height:45.900 m         Antenna Height:1.878 m           Base Dist:7755.090 m         Time(s):1112:00

2.In feature manager, we can add, edit, delete, import and export the features.

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Ac	10	Edit	Delete	Template

Add:

Click Add, input the feature name and nick name, choose the feature type (Point/PolyLine/Polygon) and set the feature style, then click OK.

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Then we need to add the attribute of it, click Add. Input the Attributes Name, Nick name, Field Type and click OK. If the input of the attributes finished, click OK.

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Feature Type PolyLin e	Feature Style>	Field Type	text	>	Feature	Type PolyLi	n > F	eature Style	>
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Edit: Select any feature, click Edit, then we can edit it.

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Polygon	2	0	Total 2	Pag	ge 1/1		
			Nome	Attrs. nome	Field Type	Alias	Defaul
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			7	Code	text	Code	
Add	Edit	Delete Template	Add	a Ed	it De	elete	ОК

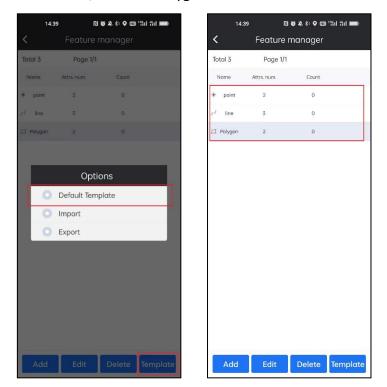
**Delete:** Select any feature, click Delete, then we can delete it.

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### **Default Template:**

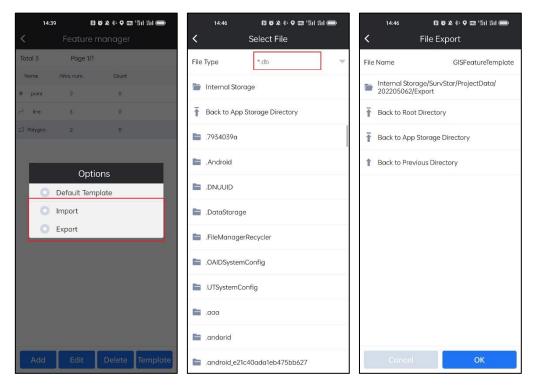
Click Template and click Default Template, there will load the default template to it.

It has three features: Point, Line and Polygon.



### Import/Export Template:

Click Template and click Import/Export, select the template file(\*.db)/select the export path and click OK. The template file will be imported or exported.



3.After the feature manager completed, we can use it by clicking the below layer bar.

Select the feature and then we can start GIS survey.

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() () () () () () () () () () () () () (	Q				]			
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Height:	564763.6 45.964 m st:7967.0		Anter	440303.44 nna Height (s):14:52:37	::1.878 m			

4.For example, select a line feature template. And start to do GIS survey.



Sclick this, it will go back to the previous operation

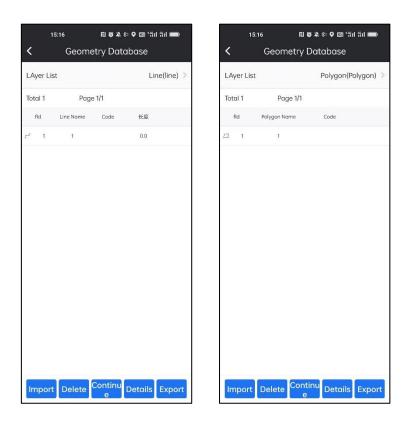
: Click this, we can edit the attributes of current feature.

: Click this, we can finish surveying this feature.

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5.We can check and manage the shape in Geometry Database. Click And enter to Geometry Database. In Geometry Database, it can import/export shape file(\*.shp), delete and continue to survey the feature.

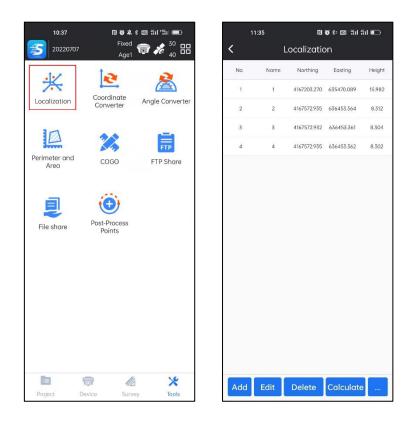


# **Chapter 6 Tools**

## 6-1 Localization

Sometimes we don't know target coordinate system parameters except for a few known points, in this case, we need to do Localization to convert current coordinate system to target coordinate system.

When we go to Localization tool, we can do the Add, Edit, Delete, Calculate, Import, Export and Settings operation.



### Add:

Click Add, we can add Coordinates of the same point under target coordinate system (known point) and current coordinate system. If we have input known points NEH in database before, we can click the icon in the right of the Known(local) coordinates bar. And select it directly.

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		S1	2564489.649	658469.796	25.649	N23°10'21.7701"		
m	."	Pt6	84649.000	75649.000	64.000	N0°45'50.3798"I	Easting	440370.345
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	Ŷ	Pt4	2564791.523	440370.345	18.093	N23°10'54.5173*		
Q @	Ŧ	Pt3	2564809.012	440373.224	18.409	N23°10'55.0862	Geodetic Coordinates	<u>Q</u>
BLH >	Ŧ	Pt2	2564809.985	440369.583	18.239	N23°10'55.1173"	Coordinate Type	BLH
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Or we can input the coordinate directly.

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And then we need to input the same point's Coordinates under current coordinate system. If we collected it before, we can click the icon in the right of the Geodetic Coordinates bar and select it directly.

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Easting	440570.545 m		Pt6 Pt5	84649.000	75649.000		N0°45'50.3798"	Easting	440570.545 m
Height	<b>18.093</b> m	<b>田</b> 令	Pt5	2564791.523			N23°10'54.5173"	Height	<b>18.093</b> m
Geodetic Coordinates	Q 🔊	Ŧ	Pt3	2564809.012	440373.224	18.409	N23°10'55.0862	Geodetic Coordinates	Q @
Coordinate Type	BLH >	Ŧ	Pt2	2564809.985	440369.583	18.239	N23°10'55.1173"	Coordinate Type	BLH >
Lat	d.mmssssss	Ŧ	Pt1	2564798.089	440366.658	18.096	N23°10′54.7303	Lat	N23°10'21.7701"
Lon	E0°00'00.0000"							Lon	E115°32'51.2893"
Ellipsoid Height								Ellipsoid Height	25.965
Option								Option	
Use Horizontal Control								Use Horizontal Control	
ок			Add	Edit	Detai	s	ок	ок	

We can also input BLH directly.

14:55	N 🗑 🕸 📾 📶 🏭 💽 🕯
< Locali	zation
Known(local) coordinate:	s <b>o</b>
Point Name	Pt4
Northing	2564791.523 m
Easting	440370.345 m
Height	<b>18.093</b> m
Geodetic Coordinates	Q @
Coordinate Type	BLH >
Lat	d.mmssssss
Lon	E0°00'00.0000"
Ellipsoid Height	
Option	
Use Horizontal Control	
с	К

We can also put the device on the point and collect coordinates in site. Click the icon in the right of the Geodetic Coordinates bar. And click OK to collect it.

14:55 🛚 🖬 🕷	* ໝ "#il #il <b>=</b> D∳ DN	15:25 <b>&lt;</b> Col	🛯 🏽 🏞 📾 ដោ ដា 🧰 4
Known(local) coordinates	ø	Antenna Height	1.800m,Pole Height
Point Name	Pt4	Pt name	
Northing	2564791.523 m	Record	<1/1>Collection Finish
Easting	440370.345 m	Solution	<21/24>Sing
Height	<b>18.093</b> m	North	2564768.790
Geodetic Coordinates	Q @	East	440302.560
Coordinate Type	BLH >	Height	55.576
at	d.mmssssss	HRMS	0.9
on	E0°00'00.0000"	VRMS	2.5
illipsoid Height		Age	
Option		Distance to Last Poin	t 218167.4
Jse Horizontal Control		Longitude	E113°25'00.97
ОК		Settings	Restart OK

Then we need to select whether to use the point with horizontal control or vertical control. And Click OK. This point will participate in calculation.

15:29	N 🏾 *: 🚥 'fil fil 🥌 +		1	5:35	6) (A	i ≉: 000 %il %i	I 🚍 4
< Local	lization	<		I	ocalizatio	on	
Point Name	Pt4		No.	Name	Northing	Easting	Height
Northing	2564791.523 m		1	1	4167203.270	635470.089	15.982
Easting	440370.345 m		2	2	4167572.935	636453.364	8.312
00.00			3	3	4167572.932	636453.361	8.304
Height	<b>18.093</b> m		4	4	4167572.935	636453.362	8.302
Geodetic Coordinates	<b>♀</b>		5	Pt4	2564791.523	440370.345	18.093
Coordinate Type	BLH >						
Lat	23.10537696 🛞						
Lon	E113°25'00.9770*						
Ellipsoid Height	55.576						
Option							
Use Horizontal Control							
Use Vertical Control							
	ок		۱dd	Edit	Delete	Calculate	÷

Edit:

Select any point and click Edit. We can edit the coordinate of the selected point and select whether to use the point with horizontal control or vertical control.

15	5:37	<b>0</b> (1)	t≉ ໝ "ଶıl "iı	I 🚍 †	15:37	🛯 🏷 彩 🚥 岩山 岩山 🥌 🍎
<	L	ocalizatio.	on		< Local	ization
No.	Name	Northing	Easting	Height	Known(local) coordinate	s o
1	1	4167203.270	635470.089	15.982	Point Name	Pt4
2	2	4167572.935	636453.364	8.312	Point Name	Pt4
3	3	4167572.932	636453.361	8.304	Northing	2564791.523 m
4	4	4167572.935	636453.362	8.302	Easting	440370.345 m
5	Pt4	2564791.523	440370.345	18.093		10.007
					Height	<b>18.093</b> m
					Geodetic Coordinates	Q @
					Coordinate Type	BLH >
					Lat	N23°10'53.7696"
					Lon	13.25009770 🛞
					Ellipsoid Height	55.576
					Option	
					Use Horizontal Control	
Add	Edit	Delete	Calculate	e		Ж

### Delete:

Select any point and click Delete. We can delete the selected point.

	15:37 🛛 👸 🕸 📾 '위대 위대 🥅 🐂		I 🚍 †		15:40 🛛 🕄 🐼 🕸 🏦 🎁			<b>1</b> — †	15	5:40	R 6	\$: 🚥 'fil fil	I 🔲 †	
<	Ĺ	ocalizatio	on		<					<	C Localization			
No.	Name	Northing	Easting	Height	No.	Name	Northing	Easting	Height	No.	Name	Northing	Easting	Height
1	1	4167203.270	635470.089	15.982	٦	1	4167203.270	635470.089	15.982	1	1	4167203.270	635470.089	15.982
2	2	4167572.935	636453.364	8.312	2	2	4167572.935	636453,364	8.312	2	2	4167572.935	636453.364	8.312
3	3	4167572.932	636453.361	8.304	3	3	4167572.932	636453.361	8.304	3	3	4167572.932	636453.361	8.304
4	4	4167572.935	636453.362	8.302	4	4	4167572.935	636453.362	8.302	4	4	4167572.935	636453.362	8.302
5	Pt4	2564791.523	440370.345	18.093	5	Pt4	2564791.523	440370.345	18.093					
	Prompt													
					r	Are you s	ure to delete	this record	1?					
						Cance	el .	ОК						
Add	Edit	Delete	Calculate	a	Add	d Edit	Delete	Calculate		Add	Edit	Delete	Calculate	e

### Calculate:

After finishing inputting localization points' information, we can click Calculate. Then there will show a coordinates System report with converting parameters. We can save the converting parameters by clicking Save. And click Apply, the parameters will apply to the current project.

15:44	N 🛇 8: 🚥 11d 11d 💼						
< Coordinates	System Report						
Ellipsoid	Ellipsoid Parameter						
Ellipsoid Name	CGCS2000						
Semimajor Axis	6378137						
1/f	298.2572220960422						
Projection Parameters							
Projection Mode	Gauss Kruger						
Central Meridian	E114°00'00.0000"						
False Northing	0.000						
False Easting	500000.000						
Scale Factor	1						
Projection Height	0.000						
Latitude of Origin	N0°00'00.0000"						
Save	Apply						

### Import:

Click ... and Click Import. Select the file type: \*.cot(dd.mmssss), \*.cot(dd.dddddd) and \*.loc. Select file path and click the file. Click OK.

1	1:35	រា	<b>0</b> 8: ⊡ 111	ដំរា 💼		09:37	N 0	<b>4 8 ⊡</b> 111 1	fid 💼		09:34	N 6 & * @ % % m 🖿
<	I	ocalizatio	on		<					<	Im	port File
No.	Name	Northing	Easting	Height	No.	Name	Northing	Easting	Height	File	Туре	*.cot(dd.mmssss) 👻
1	1	4167203.270	635470.089	15.982	3	1	4167203.270	635470.089	15.982		Internal Storage	*.cot(dd.mmssss)
2	2	4167572.935	636453.364	8.312	2	2	4167572.935	636453.364	8.312			*.cot(dd.dddddd)
3	3	4167572.932	636453.361	8.304	3	3	4167572.932	636453.361	8.304	Ť	Back to App Stor	*.loc
4	4	4167572.935	636453.362	8.502	4	4	4167572.935	636455.362	8.302		.7934039a	100
											Android	
							Options					
						Impor	t				.DNUUID	
						Expor	t				.DataStorage	
						Settin	gs				.FileManagerRecy	vcler
											.OAIDSystemConf	fig
											UTSystemConfig	
											.000	
											.andorid	
Add	Edit	Delete	Calculate		Add	Edit	Delete	Calculate			Cancel	ОК

### Export:

Click ... and Click Export. Select the file type: \*.cot(dd.mmssss) or \*.loc. Select file

path and click the file. Click Export.

09:	:37 📢	<b>6 &amp;</b> * 📾 '81'	iil 🔳		09:40	n o	🎗 🎶 📖 "îil îil 🔳	D		09:42	[1] 66 ¥2. ≉∘ 003 111 111	
<				<					<		File Export	
No.	Name Northin		Height		Internal SI 20220329	orage/SurvSta /Export	r/ProjectData/			Internal Sta 20220329/	orage/SurvStar/ProjectData Export	l
1		70 635470.089 35 636453.364	15.982 8.312	Ť	Back to Re	oot Directory			Ť	Back to Ro	ot Directory	
3	3 4167572.	32 636453.361	8.304	Ŧ	Back to Ap	op Storage Dire	ectory		Ť	Back to Ap	p Storage Directory	
4	4 4167572.	55 636453.562	8.302	t	Back to Pr	evious Director	ry		t	Back to Pre	evious Directory	
	Optior	19		8	20220329	crd			٩	20220329.0	crd	
	Import	15				Prompt			٢	20220329.0	CSV	
0	Export			8		ordinate File ( ordinate File (			P	20220329.>	ds	
	Settings		l									
				File	Name		20220427094	4019	File	Name	202204270940	19 🚫
				File 1	Гуре			*.cot)	File	Туре	Coordinate File	e (*.cot)
Add	Edit Delete	Calculat				Export					Export	

### Settings:

Click ... and Click Settings. We can set localization method, height fitting method,

horizontal control accuracy limit and vertical control accuracy limit.

09	:37		a 🕸 🖾 "Ni 1	iıl 🔳		09:51	11 6 2 *:	🚥 "តែ តែ 🛙
					<	Loc	alization Settii	ngs
No.	Name	Northing	Easting	Height	L	ocalization Met	hod <sup>Horizontal Co</sup>	ontrol+ Heiç Fitti
1	1	4167203.270	635470.089	15.982		eight Fitting M		Auto Che
2	2	4167572.935	636453.364	8.312		cigit ritting in		nato one
3	3	4167572.932	636453.361	8.304	н	orizontal Contr	ol Accuracy Limit	1
4	4	4167572.935	636453.562	8.302	V	ertical Control	Accuracy Limit	1
	-	Options	-					
0	Impor	10.51						
0	Export	t						
C	Settin	gs						
Add	Edit	Delete	Calculate					

## 6-2 Coordinate Converter

In Coordinate Converter, we can convert coordinate from BLH to NEH or from NEH to

BLH in the current project parameters. We need to select the Conversion Type firstly.

10:37		ະ 💷 ສຳປະຕິປ 📼	10:15	n o x * 🚥 🐩	"iil 💷	10:15	🛙 🍪 🎗 🕸 🖾 🗂 🗂 📰
20220707	Fixed Age1	🐨 💸 🐴 🗄	< Coordinat	e Conversion	?	< Coordinat	e Conversion 🧿
Localization	Coordinate Converter	Angle Converter	Source Coordinates	O BLH	<ul> <li><b>Q</b></li> <li><b>NEH</b></li> </ul>	Source Coordinates Conversion Type	Delh Oneh
	23	FTP	Lot		IMSSSSS	Northing	m
Perimeter and Area	COGO	FTP Share	Lon	E0.00.	00.0000"	Easting	m
			Ellipsoid Height			Height	m
2	Post-Process		Target Coordinates			Target Coordinates	
File share	Points		Northing		m	Lat	0°00'00.0000"
			Easting		m	Lon	0°00'00.0000°
			Height		m	Ellipsoid Height	
	Tevice Surv		Convert	Save		Convert	Save

We can input coordinate directly.

10:24 Coordinate	∎ອ≱ະ⊠ ≌ ຟ ∎ Conversion (?)
	Conversion ⑦
Source Coordinates	Q @
Conversion Type	O BLH 🔘 NEH
Lat	N23°10'21.7701"
Lon	E115°32'51.2893"
Ellipsoid Height	25.965
Target Coordinates	
Northing	m
Easting	m
Height	m
Convert	Save

10:24 Coordinate	N 6 & * 回 111 111 ■ Conversion ②
Source Coordinates	Q @
Conversion Type	O BLH O NEH
Northing	2564489.649 🛞 m
Easting	658469.796 m
Height	25.649 m
Target Coordinates	
Lat	0°00'00.0000"
Lon	0°00'00.0000"
Ellipsoid Height	
Convert	Save

If we have the surveyed point in database, we can click the icon in the right of the Source Coordinates bar. And select a point. Click OK. Then the BLH or NEH will input automatically.

10:15	11 60 24 ≉: 023 111	l Sil 💼
< Coordinate	Conversion	?
Source Coordinates		<b>9</b>
Conversion Type	O BLH	O NEH
Lat		nmssssss
Lon	E0°00	'00.0000"
Ellipsoid Height		
Target Coordinates		
Northing		m
Easting		m
Height		m
Convert	Sav	e

We can also put the device in the point and collect the coordinate in site. Click the icon in the right of the Source Coordinates bar. And click OK to collect it.

10:15 RI 🕷	। Nversion ?	15:25 <b>&lt;</b> Col
Source Coordinates	<u>2</u> 0	Antenna Height
Conversion Type	O BLH O NEH	Pt name
Lat	d.mmssssss	Record
Lon	E0°00'00.0000*	Solution
Ellipsoid Height		North
Target Coordinates		East
Northing	m	Height
Easting	m	HRMS
Height	m	VRMS
		Age
		Distance to Last Point
		Longitude
Convert	Save	Settings F

Click Convert and the target coordinates will be calculated and shown in the below

bars.

10:35 Coordinate	N & & ☆ @ %II %I ■) Conversion ?	10:36 <b>&lt;</b> Coordinat	ष & ≉ व्य क्षेत्र क्षा का 📼 e Conversion ?
Source Coordinates	<b>♀ °</b>	Source Coordinates	Q @
Conversion Type	O BLH O NEH	Conversion Type	💿 BLH ( NEH
Lat	23.10217701	Northing	2564489.649 m
Lon	E115°32'51.2893"	Easting	658469.796 m
Ellipsoid Height	25.965	Height	<b>25.649</b> m
Target Coordinates		Target Coordinates	
Northing	2564507.137 m	Lat	N23°10'21.2028"
Easting	<b>658472.676</b> m	Lon	E115°32'51.1815"
Height	25.965 m	Ellipsoid Height	25.649
Convert	Save	Convert	Save

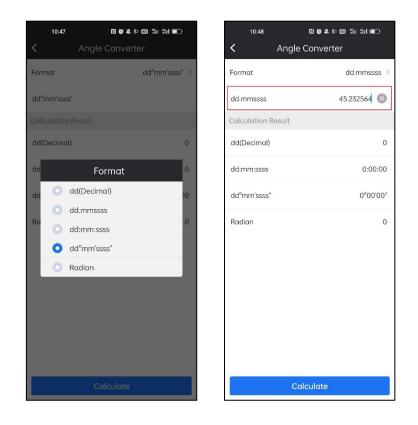
We can click Save to add the calculated coordinate to the point database.

10:40	N O & *: 03 %i %i 🗩
<	Add
Pt name	
Northing	<b>2564507.137</b> m
Easting	658472.676 m
Height	<b>25.965</b> m
Point Type	Input Point 🚿
Code	
Coordinate Type	NEH >
	ОК

## 6-3 Angle Converter

N 🏽 🎗 🕸 🖾 🗂 🖬 💼 N 🚳 🎗 🕏 🖾 Hil 🖽 🗩 Fixed age1 30 40 H 20220707 Angle Converter dd°mm'ssss" Format ¥ 2 Coordinate Converter Localization Angle Converte dd°mm'ssss" I Calculation Result 22 FTP 0 dd(Decimal) Perimeter and Area COGO FTP Share dd.mmssss 0 dd:mm:ssss 0:00:00 Ξ  $( \oplus )$ Post-Process Points Radian 0 File share X Tools T and a Calculate Project

We can convert the angle format in this function. Set the format and input the angle.



Click Calculate. Then the angle value input will be converted to other formats.

10:48	N 🗸 🌾 🔤 🖑 I 🗊 💼
< Angle	Converter
Format	dd.mmssss >
dd.mmssss	45.232564
Calculation Result	
dd(Decimal)	45.39045556
dd:mm:ssss	45:23:25.6400
dd°mm'ssss"	45°23'25.6400"
Radian	0.79221290
Ca	lculate

## 6-4 Perimeter and Area

In Perimeter and Area, we can use the coordinate of the points to calculate the perimeter and area. Click Add. We can input the point directly.

10:37	Five		11:25 <b>&lt;</b> Perime	اا# <b>تە ي</b> ا # ا ₪ #il #il ■ ter and Area ?
.1.	1.2	2	POINT LIST	PREVIEW
Localization	Coordinate Converter	Angle Converter	Name Northing	Easting Height
	Converter			
	24	FTP		
Perimeter and Area	COGO	FTP Share		
_	100			
Į	Post-Process			
File share	Points			
Ē		8 ×		
Project		vey Tools	Add Delete	Edit Calculate
11:25	<b>DI 26 A</b>	b. mm =/0.1 /0.1 (mm)	11:26	N 16 🕸 🕸 🕫 🕬 "All All 💷
		≉ 📾 "ଶା ଶା 💷	11.20	10 V A 🖓 📖 all all 💷 🤇
<	Point coordin			coordinate ?
1999 (1997) 1997	Point coordin			coordinate 🛛
<	Point coordin	ate 🕐	< Point	coordinate 🛛
Point coording	Point coordin	ate 🕐	< Point Point coordinate sett	coordinate 🧿
Point coording	Point coordin	ate 🧭 🖓	< Point Point coordinate sett Point Name	coordinate (?)
Point coording Point Name Northing	Point coordin	ate ?	Point coordinate sett           Point Name           Northing	coordinate ⑦ ing ♀ 0 0 S1 ⊗ 2564489.647 m
Point coordine Point Name Northing Easting	Point coordin	ate ?	<ul> <li>Point coordinate sett</li> <li>Point Name</li> <li>Northing</li> <li>Easting</li> </ul>	coordinate         ⑦           ing         ♀         ♥           S1         ⊗           2564489.647         m           658469.796         m
Point coordine Point Name Northing Easting	Point coordin	ate ?	<ul> <li>Point coordinate sett</li> <li>Point Name</li> <li>Northing</li> <li>Easting</li> </ul>	coordinate         ⑦           ing         ♀         ♥           S1         ⊗           2564489.647         m           658469.796         m
Point coordine Point Name Northing Easting	Point coordin	ate ?	<ul> <li>Point coordinate sett</li> <li>Point Name</li> <li>Northing</li> <li>Easting</li> </ul>	coordinate         ⑦           ing         ♀         ♥           S1         ⊗           2564489.647         m           658469.796         m
Point coordine Point Name Northing Easting	Point coordin	ate ?	<ul> <li>Point coordinate sett</li> <li>Point Name</li> <li>Northing</li> <li>Easting</li> </ul>	coordinate         ⑦           ing         ♀         ♥           S1         ⊗           2564489.647         m           658469.796         m
Point coordine Point Name Northing Easting	Point coordin	ate ?	<ul> <li>Point coordinate sett</li> <li>Point Name</li> <li>Northing</li> <li>Easting</li> </ul>	coordinate         ⑦           ing         ♀         ♥           S1         ⊗           2564489.647         m           658469.796         m
Point coordine Point Name Northing Easting	Point coordin	ate ?	<ul> <li>Point coordinate sett</li> <li>Point Name</li> <li>Northing</li> <li>Easting</li> </ul>	coordinate         ⑦           ing         ♀         ♥           S1         ⊗           2564489.647         m           658469.796         m
Point coordine Point Name Northing Easting	Point coordin	ate ?	<ul> <li>Point coordinate sett</li> <li>Point Name</li> <li>Northing</li> <li>Easting</li> </ul>	coordinate         ⑦           ing         ♀         ♥           S1         ⊗           2564489.647         m           658469.796         m
Point coordine Point Name Northing Easting	Point coordin	ate ?	<ul> <li>Point coordinate sett</li> <li>Point Name</li> <li>Northing</li> <li>Easting</li> </ul>	coordinate         ⑦           ing         ♀         ♥           S1         ⊗           2564489.647         m           658469.796         m
Point coordine Point Name Northing Easting	Point coordin	ate ?	<ul> <li>Point coordinate sett</li> <li>Point Name</li> <li>Northing</li> <li>Easting</li> </ul>	coordinate         ⑦           ing         ♀         ♥           S1         ⊗           2564489.647         m           658469.796         m

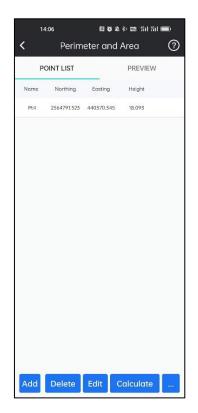
If we have the surveyed point in database, we can click the icon in the right of the Point coordinate setting bar. And select a point. Click OK. Then the NEH will input automatically.

11:25 🔃 🗑 🎗 🕸 "ଶା ଶା 🕅	Ð			1:36	0 17	** 📼	ងា ងា 🗩	11:26	N 16 A 8 103 111 111 ■
Point coordinate	?	<		Poin	its Datak	base		K Poir	nt coordinate 🛛
Point coordinate setting Q	°	Ρ	t nam	ne y Plea	se Input		Search	Point coordinate se	etting Q O
Point Name		Tot	al 7	Pag	ge 1/1			Point Name	S1 🛞
Northing	m	N	ame	Northing	Easting	Height	Latitude	Northing	2564489.649 m
Easting	m	/	S1 Pt6	2564489.649 84649.000	658469.796 75649.000		N23°10'21.7701"	Easting	658469.796 m
Height	m		Pt5	23147.000	54697.000		N0°12'32.3265'	Height	25.649 m
		Ŧ	Pt4	2564791.523	440370.345	18.093	N23°10'54.5173"		
		Ŧ	Pt3	2564809.012	440373.224	18.409	N23°10'55.0862		
		Ŧ	Pt2	2564809.985	440369.583	18.239	N23°10'55.1173'		
		Ŷ	Pt1	2564798.089	440366.658	18.096	N23°10'54.7303		
ОК			Add	Edit	Detai	s	ок		ОК

We can also put the device in the point and collect the coordinate in site. Click the icon in the right of the Point coordinate setting bar. And click OK to collect it.

11:25	N 🚳 🎗 🕸 🕅	ճվ ճվ 💷
<	Point coordinate	?
Point coordin	ate setting	<b>♀ °</b>
Point Name		
Northing		m
Easting		m
Height		m
	ОК	

Click OK. And the point will add to point list.

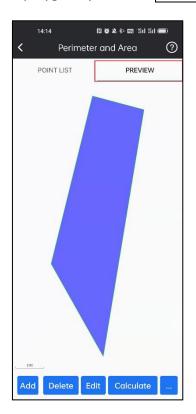


We can delete or edit a point after selecting it and then click Delete or Edit.

When we finish inputting points, then we click <u>Calculate</u> and there will show the result of perimeter and area.



We can check the shape of the polygon by click the PREVIEW.



#### Import:

Click ... and Click Import. Select the file type: NEH Format(\*.csv|dat|txt ) or Cass Format(\*.dat). Click OK. Select file path and click the file. Click OK and then points will be loaded into Point List for calculation.

14:19         10 6 % % ∞ 'iiil fill ●            Perimeter and Area         ?	14:19 کا ک ک ک تا ۱۱ ۱۱ ه ۲۰۱۰ File Import	14:19 ៧ ខ & ៖  ា  ដា តា 📼 K Import File
POINT LIST PREVIEW	File Type NEH Format(.csv dat txt) >	File Type .csv 🔻
Name Narthing Easting Height	[Paint Name], [Northing], [Easting], [Height], [Code]	👕 Internal Storage
		T Back to App Storage Directory
		<b>Ξ</b> .7934039α
Options		🖿 .Android
Import     Export	File Type	DNUUID
O Delete	NEH Format(.csv dat txt)     Cass format(.dat)	🖿 .DataStorage
O Up O Down		FileManagerRecycler
O Down		.OAIDSystemConfig
		UTSystemConfig
		<b>a</b> aa
_		andorid
Add Delete Edit Calculate	ОК	Cancel OK

#### Export:

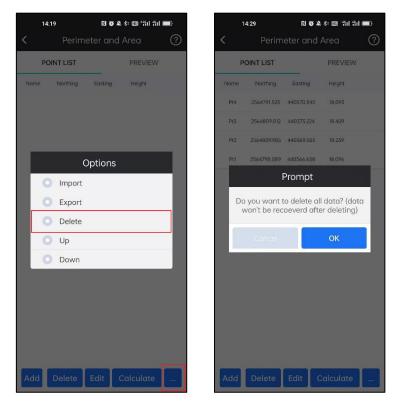
Click ... and Click Export. Select the file type: NEH Format(\*.csv|dat|txt ) or Cass

Format(\*.dat). Click OK. Select file path. Click OK to export points in Point List.

14:19         N to at \$* con thil mil ■           <         Perimeter and Area         ?	14.26 <b>छ छ ३</b> . ३२ छा जैती जैती 📼 <b>८</b> File Import ?	14:26 🛛 86 ३३ १० छा तथा तथा 📼 く File Export
POINT LIST PREVIEW	File Type NEH Format(.csv dat txt) >	File Name 20220427142615
Nome Northing Easting Haight	[Paint Name], [Northing], [Easting], [Height], [Code]	File Type .csv 💌
		👕 Internal Storage
		Back to App Storage Directory
Options		<b>Ξ</b> .7934039α
Import     Export		Android
O Delete		E .DNUUD
O Up		E .DataStorage
Down		FileManagerRecycler
		OAIDSystemConfig
		LUTSystemConfig
		🖿 .aaa
Add Delete Edit Calculate	ОК	Cancel OK

#### Delete all data:

Click ... and Click Delete. Click OK to delete all points in Point List.



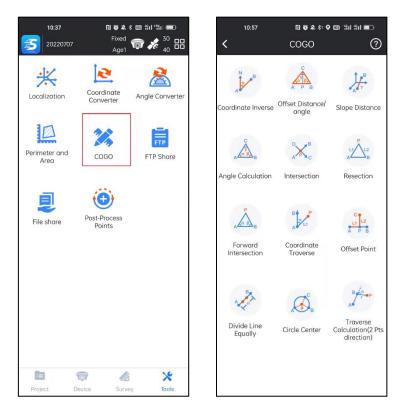
### Up/Down Point:

Select a point, click ... and Click Up/Down. Then the selected point will move up/down.

	14:33	10 G	🞗 🕸 📾 "Bil Bil 💼)	14	:19	A 0 I∏	8: 🖽 "fiil fiil 💼			4:33	RI 66 1	🞗 🕸 🖽 Sul Sul 💼
<	Perim	eter and	Area 🕐	<			Area 🕐	)	<	Perim	eter and	Area 🤅
	POINT LIST		PREVIEW	PC	DINT LIST		PREVIEW		Ρ	OINT LIST		PREVIEW
Name	e Northing	Easting	Height	Name	Northing	Easting	Height		Name	Northing	Eosting	Height
Pt4	2564791.523	440370.345	18.093						Pt4	2564791.523	440370.345	18.093
Pt3	2564809.012	440373.224	18.409						Pt3	2564809.012	440373.224	18.409
Pt2	2564809.985	440369.583	18.239						Pt1	2564798.089	440366.658	18.096
Pt1	2564798.089	440366.658	18.096		(	Options			Pt2	2564809.985	440369.583	18.239
				0	Import							
				C	Export							
				C	Delete							
				C	) Up							
				C	Down							
Arte	Delete	Edit		Add	Delete	-	alculate		Add	Delete	Edit	Calaulata
Add	Delete		Calculate	Add	Delete		alculate		Add	Delete	Eant	Calculate

## 6-5 COGO

In COGO, we can do some calculation to get coordinates, distance, intersection points and so on. And those calculations including Coordinate Inverse, Offset Distance/angle, Slope Distance, Angle Calculation, Intersection, Resection, Forward Intersection, Coordinate Traverse, Offset Point, Divide Line, Circle Center and Traverse Calculation



#### 6-5-1 Coordinate Inverse

Set Start Point A and End Point B, and click Calculate to calculate the Horizontal Distance, Azimuth, H Difference, Slope Ratio and Slope Distance.

15:44 🕅 🕻	í \$ ≉: @ "Sil Sil ■)	15:43 🛍	🎯 🎗 🅸 🖾 "Sil Sil 💷
C Inverse	e	< Inver	se
Note: Known A, B, to azimuth, H difference	calculate distance, e, slope rate of line AB	Easting	440369.583 m
Get Start Point	Q (°	Height	18.239 🛞 m
Northing	m	Set End Point	Q @
Easting	m	Northing	2564809.012 m
Height	m	Easting	440373.224 m
et End Point	<b>Q o</b>	Height	18.409 m
Northing	<u> </u>	Calculation Result	
vortning		Horizontal Distance	<b>3.769</b> m
Easting	m	Azimuth	104:57:423915
Height	m	H Difference	0.170 m
Calculation Result			
Horizontal Distance	m	Slope Ratio	4.511
Azimuth		Slope Distance	3.773 m
Calcula	te	Calcul	ate

### 6-5-2 Offset Distance/Angle

Set Start Point A, End Point B and Offset Point C, and then click Calculate to calculate the Distance(AC), Distance(BC), Distance(AP), Distance(BP), Offset Distance(CP), Offset Angle and Corner Angle.

			N 🛯 🎗 🏶 🚥 🖏 🏭 💽
Contract	ngle	< Offset Diste	ance/ angle 🛛 🤇
$\begin{tabular}{ c c c c } \hline C & \\ \hline A & P & B \end{tabular} \end{tabular} Note: Known A,B,C, to calculate CP, and angle $\alpha,\beta,\gamma$ \end{tabular}$	ulate AC, BC, AP,BF,	Easting	440369.583
Set Start Point	<b>♀ °</b>	Set Offset Point	Q @
Northing	m	Northing	2564809.012
Easting	1 m	Easting	440373.224
	•	Calculation Result	
Set End Point	<b>♀ °</b>	Distance(AC)	12.745 r
Northing	m	Distance(BC)	3.769 r
Easting	m	Distance(AP)	12.175 r
Set Offset Point	Q @	Distonce(BP)	0.075 r
Northing	m	Offset Distance(CP)	3.768 r
Easting	m	Offset Angle	(右)17:11:487658
Calculation Result			
Distance(AC)	m	Corner Angle	(右)91:08:523208
Calculate		Calc	ulate

## 6-5-3 Slope Distance

Set Start Point A and End Point B, and then click  $\boxed{Calculate}$  to calculate the Spatial Distance.

<sup>16:33</sup> ₪ <b>&lt;</b> Spatial Dis	s a क 📾 🛍 🛍 📼 tance 🛛 🕐	16:35 C Spatic	N S & *  %il %il ₪ Il Distance ?
Note: Known point A calculate spatial dist	, B (Lat, Lon, H), to ance of between A and	Note: Known calculate spot B.	coint A, B (Lat, Lon, H), to ial distance of between A and
Set Start Point	♀ .	Set Start Point	₽ .
Lat	d.mmssssss	Lat	23.10547303 🛞
Lon	E0°00'00.0000"	Lon	E113°25'03.2265"
Ellipsoid Height(m)		Ellipsoid Height(m)	18.096
Set End Point	♀ .	Set End Point	Q @
Lot	N0°00'00.0000"	Lat	N23°10'55.1173"
Lon	E0°00'00.0000"	Lon	E113°25'03.3277"
Ellipsoid Height(m)		Ellipsoid Height(m)	18.239
Calculation Result		Calculation Result	
Spatial Distance	m	Spatial Distance	12.249 m
Calcula	te	Co	Iculate

## 6-5-4 Angle Calculation

Set Point A, Point B and Point C, and then click Calculate to calculate the Angle ABC,

BAC and ACB.

16:48 🛯 😻 🕸 🕸 🕫	🚥 ដាវ ដាវ 🥅	16:51	N 🗸 🕸 📾 🖏 🗂 💭
Two Lines Angle	e ?	<	Two Lines Angle
Note: Known point A, B, C, to a, $\beta,\gamma$	o calculate angle	Northing	2564798.089
Point A	<b>?</b> •	Easting	440366.658 🛞
Northing	m	Point B	<b>Q</b> (
Easting	m	Northing	2564809.985
Point B	Q @	Easting	440369.583
Northing	m	Point C	<b>Q</b>
Easting	m	Northing	2564809.012
Point C	Q @	Easting	440373.224
N		Calculation	Result
Northing	m	Angle (a)	17°11'48.7658"(342°48'11.234)
Easting	m	Angle (β)	88°51'07.6792"(271°08'52.3208
Calculation Result		Angle (v)	73°57'03.5550"(286°02'56.4450
Angle (α)		Angle (y)	75 57 05.5550 (286 02 56.445)
Calculate			Calculate

### 6-5-5 Intersection

Set Point A, Point B, Point C and Point D, and then press Calculate to calculate the intersection coordinates and intersect angle.

17:01	N 🛛 🕸 🎗 🕸 🖾 🗂 🗂 🛄 👘	17:00	Ri 🛛 🎗 🕸 📾 "Sil Sil 💼 🔸
< In	tersection (	গ্র 🕹	Intersection
A A C Note: Know	n point A, B, C, D, to colculate point	Northing	2564791.523
Point A	<b>9 •</b>	Easting	440370.345
Northing		m Point C	Q @
asting		m	2564809.985
oint B	<b>Q</b>	Easting	440369.583
Northing	I G	m Point D	Q @
asting		Morthing	2564809.012
oint C	<b>9 •</b>	Easting	440373.224
	¥ U	Calculation F	Result
Northing		Northing	2564813.005 r
Easting		m. Easting	440358.282 r
Point D	Q (	Intersect Ang	gle 45:43:218888
Save	Calculate	Sav	ve Calculate

#### 6-5-6 Resection

Set Line L1, L2, Point A and Point B, and then click Calculate to calculate the resection point coordinates.

17:05 🛯 😻 🎗 🕸 🛍 🛍 🔳	⇒*	17:05	R 🛛 🕸 🎗 🕸 🛍 🗂 🖬 🥅 👘
< Resection	?	<	Resection
$\underset{A \longrightarrow B}{\overset{\mu}{\underset{B}{\overset{\mu}{\underset{B}{\overset{\mu}{\underset{B}{\overset{\mu}{\underset{B}{\overset{\mu}{\underset{B}{\underset{B}{\overset{\mu}{\underset{B}{\underset{B}{\overset{\mu}{\underset{B}{\underset{B}{\overset{\mu}{\underset{B}{\underset{B}{\overset{\mu}{\underset{B}{\underset{B}{\underset{B}{\underset{B}{\underset{B}{\underset{B}{\underset{B}{\underset$	I, L2,	Line L1、L2	
Line L1、L2		L1	12 m
LI	m	L2	12 🚫 m
L2	m	Point A	Q @
Point A Q	¢°	Northing	2564798.089 m
Northing	m	Easting	440366.658 m
Easting	m	Point B	Q @
Point B Q	¢	Northing	2564809.985 m
Northing	m	Easting	440369.583 m
Easting	m	Calculation Re	sult
Calculation Result		Northing	2564806.501 m
Northing	m	Easting	440358.100 m
Save Calculate		Save	Calculate

# 6-5-7 Forward Intersection

Set Angle  $\alpha$ ,  $\beta$ , Point A and Point B, and then click Calculate to calculate the intersection point coordinates.

17:09 🛯 🕅	os 🕸 8: 🚥 "Ail Ail 💷 +	17:09	N 🛛 🕸 🎗 🏶 🚳 "Shi Shi 🥅 💭 🐐
C Forward Inte	ersection ⑦	< Forward	d Intersection 🤅
Note: known A B, Z	A= $\alpha$ , $\angle$ B= $\beta$ , to calculate P.	Angle α, β	
ngleα, β		α	30°00'00.0000"
ı	0°00'00.0000"	β	3d 😣
	d.mmssssss	Point A	₽ @
oint A	Q 0°	Northing	2564798.089 n
lorthing	m	Easting	440366.658 n
asting	m	Point B	<u>Q</u> o
oint B	Q @	Northing	2564809.985 n
lorthing	m	Easting	440369.583 n
asting	m	Calculation Result	
alculation Result		Northing	2564804.881 m
Northing	m	Easting	<b>440364.686</b> m
Save	Calculate	Save	Calculate

### 6-5-8 Coordinate Traverse

Set Line L1, Angle  $\alpha$ , Point A and Point B, and then click Calculate to calculate the traverse point coordinates.

17:14 🛛 🐼 🕸 🕯	፦ छ "የበ የበ 🥅	17:14 🔃 🖸	🛋 🍀 🚥 "Bil Bil 📼
< Traverse	0	< Traver	se
$A = \alpha A^{P}$ Note: known A, $\angle A = \alpha$ , AF	P=L1, calculate P	Ц	100
Line L1, Angle a		α	30
[1	m	Azimuth / 2 Pts Direction	Reference Poir Directio
α	d.mmssssss	Point A	Q
Azimuth / 2 Pts Direction	Reference Point > Direction >	Northing	2564798.089
Point A	Q @	Easting	440366.658
Northing	m	Point B	Q
Easting	m	Northing	2564809.985
Point B	Q 0	Easting	440369.583
Northing	m	Calculation Result	
Easting	m	Northing	2564870.248
Calculation Result		Easting	440435.890
Save	Calculate	Save	Calculate

### 6-5-9 Offset Point

17:21 🛛 🗑 🎗	8: 🚥 "fil fil 💷 🐈	17:21	1 🛛 🕸 🕸 🚥 1 1 1 1 1 📼
C Offset Poi	nt ⑦	< Offset	Point
Note: known point A, B to calculate point C	3 and distance L1, L2,	Set Start Point	Ŷ
Set Start Point	Q 0°	Northing	2564798.08
Northing	m	Easting	440366.65
Easting	<b>m</b>	Set End Point	Ŷ
Set End Point	Q o°	Northing	2564809.98
Northing	m	Easting	440369.58
Easting	m	Set Parameters	
Set Parameters		L1(from A to P)	
L1(from A to P)	m	L2(Offset Distance)	5
L2(Offset Distance)	m	Calculation Result	
Calculation Result		Northing	2564801.75
Northing	m	Easting	440372.70
Save	Calculate	Save	Calculate

Set Start Point A, End Points B, Line L1(from A to P), Line L2(Offset Distance), and then click Calculate to calculate the offset point coordinates.

#### 6-5-10 Divide Line Equally

Set Start Point A, End Point B, and Section Number, and then click Calculation to calculate equally divided points' coordinates.

17:24 🕅 🗑 🎗 🕸 📾	ះពីរៅ ឌីរៅ 💷 🕇	17:24	U 🛛 🕸 🕸 : 🖽 : 111 111 💷 🕈
C Divide Line Equal	y ?	< Divide Li	ne Equally 🤇
Note: known point A, B, to di	uida lina AR into	Set End Point	Q @
many sections equally	vide line Ab into	Northing	2564809.985
Set Start Point	Q o°	Easting	440369.583
Northing	m	Height	18.239
Easting	m	Set Parameters	
Height	m	Section Number	3 🙁
		Calculation Result	
Set End Point	₽ @	Northing 1	2564802.054
Northing	m	Easting 1	440367.633
Easting	m	Height 1	18.144
Height	m	Northing 2	2564806.020
Set Parameters		201	
Section Number		Easting 2	440368.608
Calculation Result		Height 2	18.191
Save Ca	lculate	Save	Calculate

## 6-5-11 Circle Center

Set Point A, Point B, and Point C, and then click Calculation to calculate Coordinates of the circle center.

17:29 🛯 🖉 🔌 🕸 👘 🏦 🏦 🎼	⊃*	17:29	N 10 & 🕸 🖽 🗂 📶 🗌	D+
< Circle Center	0	< (	Circle Center	?
Known point A, point B and point C. Cal center of a circle point P.	culare	Known p center o	point A, point B and point C. Cc f a circle point P.	lculare
Point A     Point B     Point C	;	O Point A	O Point B O Point	2
Coordinate Detail	¢	Coordinate Detail	Q	¢°
North	m	North	2564798.089	🗙 m
East	m	East	440366.6	58 m
Height	m	Height	18.0	<b>196</b> m
Calculation Result		Calculation Results	lt	
Save Calculate		Save	Calculate	

## 6-5-12 Traverse Calculation(2 Pts direction)

Set Point A, Point B, Angle  $\alpha$  and Line r, and then click Calculation to calculate the point coordinates.

17:32 민영옥왕國 1위 위 <b>〈</b> Traverse Calculation(2 Pts direction)	and the second		В @ ೩ क ा क्या भा ा क alculation(2 Pts ection)
Known point A and point B, known BP = r. Calculare point P.	angle a ,	BP = r. Calcula	and point B, known angle a , re point P.
Point A     Point B		O Point A	Point B
Coordinate Detail	Q 0°	Coordinate Detail	♀
North	m	North	2564809.985 m
East	m	East	440369.583 m
Height	m	Height	<b>18.239</b> m
a d.m	mssssss	α	30°00'00.0000"
r	m	<i>x</i>	5 🛞 m
Calculation Result		Calculation Result N:2564813.593 E:440373.045 H:18.239	
Save Calcula	ite	Save	Calculate

## 6-6 FTP Share

In FTP Share, we can share files using FTP. And there are two FTP modes, by Client and by Server.

10:37	Fived	1000	09:44 K FTF	№ 6 & *  11 11 m <b>—</b> ? Share	09:44	N & & * ∞ ™ m m m TP Share
	2	2	FTP Mode Settings	Client >	FTP Mode Settings	
Localization	Coordinate Converter	Angle Converter	IP	Please Input	IP	
10			Port	21	Port	21
	24	FTP	Username	Please Input	Username	
Perimeter and Area	COGO	FTP Share	Password	Please Input	Password	
File share	Post-Process Points		Select File to Share	>	Se FTP M	ode Settings
Project	Device Surv		Cancel	Upload	Cancel	Upload

**Client Mode**: Upload files to FTP server.

We need to have a FTP server, and input IP, Username and Password to access the server.

09:44	õ 🎗 🕸 📾 🛍 🛍 💼 are
FTP Mode Settings	Client >
IP	Please Input
Port	21
Username	
Password	
Select File to Share	> >
Cancel	Upload

And then we can Select File to Share to upload files to the FTP server.

09:44 <b>K</b> FTP	N & & * ⊠ ** # # = Share
FTP Mode Settings	Client >
IP	Please Input
Port	21
Username	Please Input
Password	Please Input
Select File to Share	>
Cancel	Upload

Server Mode: Make android device as FTP server

Another device must be in the same LAN of android device install SurvStar. By activating this mode, we can access to the android phone internal memory by FTP:// android device LAN IP:2121.

09:58 № 6 <b>C</b> FTP Share	& *: @ *îi fii <b>=</b> ) 9	10:02 R (	9 & *: @ % % % <b>=</b> )
FTP Mode Settings	Server >	FTP Mode Settings	Server >
FTP Mode Settings Connected to WIF: Prompt Please make sure devices or LAN, after service activated, FTP software to manage file	<unknown ssid=""> e in the same you can use any</unknown>		IFI: <unknown ssid=""> " Use the link to 44:2121 are in the same d, you can use any</unknown>
Cancel Acti	vate FTP Service	Cancel	Deactivate FTP Service

	et > 172.16.204.194 > SurvStar >					ڻ ~
•	CAD	Command	Config	CoordSys	Export	Input
	installation	Map	ProjectData	Road	Stakeout	Temp
	Project.configure					

# 6-7 File Share

By clicking this, we can share the data file to the other app or the other device. Select the shared file and click OK, then we can share the selected file.

10:37	🖪 🍯 🎗 Fixed Age1	* 🚥 #11 *#1 🗩 🐨 💉	<	10:08	₪ <b>6 ೩</b> ≉ Import File	🚥 👬 i 👘 💷	10:09	n Impor	<b>96</b> ≱⊀∞on tFile	191 fil 💷
Localization	Coordinate Converter	Angle Converter	File Ty	ype nternal Store	age	*	File Type	l Storage		* 💌
Perimeter and Area	COGO	FTP Share	<b>,</b> t	Back to App Suring.dat zxcid.dat	Storage Director	y	<ul> <li>Back to</li> <li>.turing.c</li> <li>.zxcid.d</li> </ul>		Directory	
File shore	Post-Process Points			zzz 20220329.da	it		202			
				A968A4B37 QTAudioEngi	77F25ED0A1FD3C	C67B0CEE31		nare files via "C	nePlus Shara	e".
					DvuZJdceUQb IptMcWhonc		WeChat	WeChat Moments	WeChat Favorites	Weibo
Project D	evice Surv		E, e	etilqs_50exR Cancel	ZzOaBP5N7w	ОК	爱送给好友	Cloud Drive (R ecommended)	Print	Messages

## 6-8 Post-Process Points

In this section, we can make single point calibration for all collected points. If we know offsets in X, Y and H, we can input offset values directly.

10:37	11:03 이 한 와 한 이 의 해내 해내 更 く Post-Process Points
* 🖻 🙈	Marker Point Calibration
Localization Coordinate Angle Converter	dX 🕴 😒
	dY 1
Perimeter and COGO FTP Share	dH 1
File share	
Project Device Survey Tools	Clear Refresh

We can also click Marker Point Calibration to calculate the offset parameters.

11:03 🕅 🛱 🎗 🕏	0 📾 fiil fiil 💷	11:06	1 16 & \$: • 🖬 11 11 💼	11:06	□ 10 24 %: O 回3 "311 311 ■
< Post-Process P	oints	< Post-Pro	cess Points	<	Post-Process Points
Marker Point Calibration	>	Known(local) coordinate	es 🔊	Marker Point	Calibration >
dX	þ 😒	Northing	2564798.089 m	dX	11.894 🛞
dY	τ	Easting	440366.658 m	dY	2.926
dH	1	Height	18.096 m	dH	0.143
		Geodetic Coordinates	<b>9</b> Ø		
		Lat	23.10551173 🛞		
		Lon	E113°25'03.3277"		
		Ellipsoid Height	18.239		
Clear	Refresh	Cal	culate	Cle	ar Refresh

Then click Refresh, select the base to be calibrated, click Refresh. Then select the Starting Time and the Ended Time, then the surveyed point in that period will be calibrated.

K Base Select						
Total 86	Pag	je 1/1				
Base ID	Starting Time	BaseB	BaseL	BoseH		
1	2022-05-29 14:02:34	23:07:332312	113:22:065399	25.987		
0	2022-03-29 14:05:07	23:07:332312	113:22:065399	25.987		
1	2022-03-29 14:05:12	23:07:332312	113:22:065399	25.987		
0	2022-03-29 14:05:42	23:10:529943	113:25:003593	46.576		
0	0002-11-30 10:21:37	23:07:332312	113:22:065399	25.987		
0	0002-11-30 17:16:30	23:10:529943	113:25:003593	46.576		
0	0001-11-30 10:21:43	23:10:529943	113:25:003593	46.576		
0	0001-11-30 15:52:03	23:10:529943	113:25:003593	46.576		
0	0001-11-30 16:54:43	23:10:529943	113:25:003593	46.576		
1	2020-11-03 09:59:20	22:59:582000	112:59:582000	30.500		
1	2020-11-03 11:23:41	22:59:582000	112:59:582000	30.500		
1	2020-11-03 11:24:09	22:59:582000	112:59:582000	30.500		
1	2020-11-03 11:24:25	22:59:582000	112:59:582000	30.500		
1	2020-11-03 14:01:53	22:59:582000	112:59:582000	30.500		
1	2020-11-03	22-59-582000	112-59-582000	30.500		

11:11 இல் ஆல் ் ை விளிய் =⊃ ≮ Post-Process Points					
Refresh Date	2022-3-29 >				
Starting Time	14:05:42 >				
Ended Time	10:21:37 >				
log dx=11.894 dy=2.926 dh=0.143					
Refresh					