SingularXYZ

Y1 GNSS Receiver
User Manual

V1.3, modified on 2023.2.3

Corporate Office

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Trademark notice

FCC Notice

SingularXYZ® Y1 GNSS receivers comply with the limits for a Class B digital device, pursuant to the Part 15 of the FCC rules when it is used in the Portable Mode.
Operation is subject to the following two conditions:
(1) This device may not cause harmful interference;
(2) It must accept any interference received, including interference that may cause undesired operation.

Copyright Notice

Technical Assistant

If you have any question and can't find the answer in this manual, please contact your local dealer from which you purchased the Y1 receiver. Alternatively, request technical support from SingularXYZ .
Technical support email: *support@singularxyz.com.* Your feedback about this Guide will help us to improve it with future revisions.

Safety Information

Before using the receiver, please make sure that you have read and understood this User Guide, as well as the safety requirements.

- Connect your devices strictly based on this User Guide
- Install the GNSS receiver in a location that minimizes vibration and moisture
- Avoid falling to ground, or colliding with other items

- Do not rotate 7-pin Lemo port
- Do not cover the radio, keep a sound ventilation environment
- To reduce radiation, please keep above 2 meters away from the radiostation
- Take lighting protection measures when installing antennas
- Change the cable if damaged

Related Regulations

The receiver contains integral Bluetooth wireless technology and UHF. Regulations regarding the use of the datalink vary greatly from country to country. In some countries, the unit can be used without obtaining an end-user license. But in some countries the administrative permissions are required. For license information, please consult your localdealer.

Use and Care

The receiver can withstand the rough treatment that typically occurs in the field. However,the receiver is high-precision electronic equipment and should be treated with reasonable care.

Warning and Caution

An absence of specific alerts does not mean that there are no safety risks involved. A Warning or Caution information is intended to minimize the risk of personal injury and/or damage tothe equipment.

WARNING- A Warning alerts you to a potential risk of serious injury to your person and/or damage to the equipment, because of improper operations or wrong settings of the equipment.
CAUTION- A Caution alerts you to a possible risk of damage to the equipment and/or data loss.

Warranty Notice

SingularXYZ does not warranty devices damage because of force majeure (lighting, high voltage or collision).
SingularXYZ does not warranty the disassembled devices.

Contents

Chapter 1 Introduction

The SingularXYZ Y1 GNSS Receiver User Guide is aimed to help you get familiar with the Y1 receiver and start your project effectively. We highly recommend you to read this manual before surveying, even you have used other GNSS RTK receivers before.

1.1 About the receiver

With high precision GNSS module inside, Y1 GNSS receiver can be applied in RTK mode with all GNSS constellations. Y1 receiver has ultra-small size and strong anti-interference ability to make it possible to work even in harsh environments. It is the ideal RTK/GNSS product for surveyors.

1.2 Receiver features

The SingularXYZ Y1 GNSS Receiver key features:

- Ultra small and super light
- Size (W × H): 12.3 × 12.3 × 7.0cm
- Weight: 834 g (including 2 batteries)
- 1598 channels of simultaneously tracked satellite signals
- Hot swap battery design
- Cable-free Bluetooth wireless technology
- LCD Display with easy configure functions
- IP67 waterproof
- Full base/rover interoperability
- Integrated Rx&Tx radio with 12.5KHz frequency interval
- Integrated IMU sensor
- Long distance range radio module
- Integrated 4G module, support Ntrip and Point to Point/Points protocols

1.3 Y1 Receiver Packing List

This section provides overall Y1 receiver parts list, including basic supplies and customized kits based on your requirements.

1.3.1 *Basic Supply kit*

Standard

① Y1 GNSS Receiver ×1
② Transport Case(Large/Small Size) ×1
③ Batteries ×2
④ Battery Charger ×1
⑤ Whip Antenna ×1
⑥ USB Cable ×1
⑦ Serial Cable ×1*
⑧ Tape ×1*
⑨ External power cable ×1*
⑩ GNSS Connector ×1

1. Items with * are only available for Base package
2. The large transport case is only available for base package with external datalink.

1.3.2 *Optional kit for base*

Options For Base

External Datalink ×1

Datalink Cable ×1

Datalink Antenna ×1

Aluminum Disc ×1

30cm Extension Bar ×1

Datalink Extension Bar ×1

External Power Cable ×1

1.3.3 *Optional kit for rover*

Options For Rover

Data Collector ×1

Collector Battery ×1

Type-C Cable ×1

Collector Charger ×1

Collector Bracket ×1

Centering Pole & Bag ×1

Chapter 2 Setup the Y1 Receiver

This chapter provides general information on environmental requirements, setup, power supply and connection of the Y1 receiver.

2.1 Environmental requirements

To keep the receiver with a reliable performance, it is better to use the receiver in safe environmental conditions:

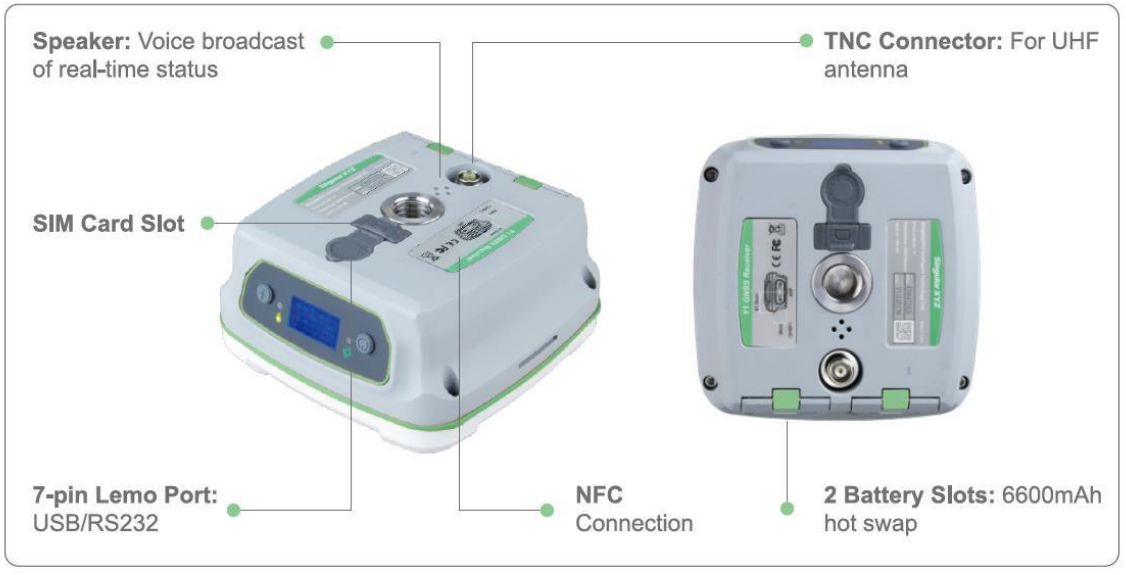
- Operating temperature: -40°C to +65°C
- Storage temperature: -40°C to +85°C
- Out of corrosive fluids and gases
- With a clear view of sky

2.2 Front panel

Receiver front panel contains 2 indicator LEDs, Power button and Record button, one LCD Display.

2.3 Lower housing

Receiver lower housing contains a serial port, UHF radio antenna connector, one sim card slot and two removable batteries.



2.4 Power supply

Y1 GNSS receiver supports internal batteries and external power input.

2.4.1 *Internal batteries*

The receiver is equipped with two rechargeable Lithium-ion batteries, which can be removed for charging. The Y1 receiver adopts the hot swap battery design that provides you an effective survey workflow. The internal batteries typically provide about 13-hour operating time as a rover, about 6-hour operating time if operated as a base station with internal UHF Tx (transmit at 1-2 watts). However, this operating time varies based on environmental conditions.

- Battery Safety

Charge and use the battery only in strict accordance with the instructions below:

- Do not use or charge the battery if it appears to be damaged. Signs of damage include, but are not limited to, discoloration, warping, and leaking battery fluid.
- Do not expose the battery to fire, high temperature, or direct sunlight.
- Do not immerse the battery in water.
- Do not use or store the battery inside a vehicle during hot weather.
- Do not drop or puncture the battery.
- Do not open the battery or short-circuit its contacts.

- Charging the Lithium-ion Battery

Although a dual battery charge is provided, the lithium-ion battery is supplied partially charged. To charge the battery, first remove the battery from the receiver, and then place it in the battery charger, which is connected to AC power. Please obey the following instructions when charging your batteries:

- Charge the battery completely before using it for the first time.
- Fully charge takes approximately 6 hours per battery at room temperature.
- If the battery has been stored for a long time, charge it before your fieldwork.
- Re-charge the battery at least every three months if it is to be stored for long time.

- Storage of the Lithium-ion Battery

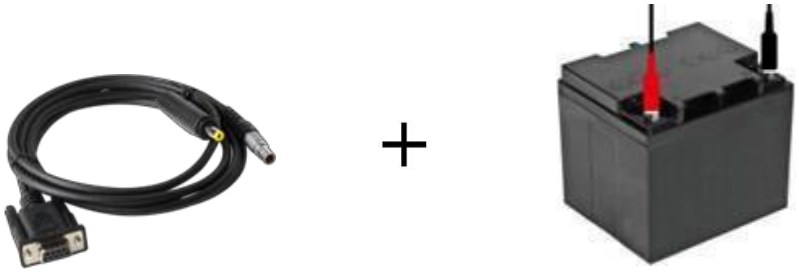
- Do not keep batteries inside the receiver if the receiver not used for long time.
- Keep batteries in dry conditions.
- Take out the batteries from receiver for shipment.

- Dispose of the Lithium-ion Battery
  - Discharge a Lithium-ion battery before dispose of it.
  - Dispose of batteries is an environmentally sensitive manner, and adhere to any local and national regulations concerning battery disposing or recycling.

WARNING – Do not damage the rechargeable Lithium-ion battery. A damaged battery can cause an explosion or fire, and can result in personal injury and/or property damage.

2.4.2 *External Power Supply*

- The receiver is connected to an external power supply through a lemo to RS232 cable, and make sure that the red alligator clip is connected to the positive of external power supply, black one to negative. Over-voltage function cannot protect your Y1 receiver if reverse connection.



- *Tip: The power consumption will be increasing if the base station transmits correction data through internal UHF in the RTK mode; therefore, we strongly suggest using external power (7-28 volt DC) for the base station.*

Chapter 3 Static Survey

This chapter describes static survey through Y1 receiver and CRU software. For static survey, you cannot change settings through front panel, you can configure it via Compass Receiver Utility (CRU): 1) Receiver configuration; 2) check receiver settings and status; 3) convert data to Rinex format.

3.1 Receiver Configuration

The default sample interval value of Y1 static measurement is 1s. If other settings are required, please set the value before static measurement.

3.2 Static Data Collection

Static survey is mainly used for the control survey. To reach millimeter accuracy, follow as below:

- At least 3 GNSS receivers are required to form a stable triangulation network.
- It is better to set Data Log Session as manual on the known point.
- Power off the receiver before moving to other observation site.
- To quickly post-process static observation raw data, write down the station name, receiver SN, antenna height, start and end time for each observation site.

Tip: You can start recording static data in the front panel, it's convenient for you.

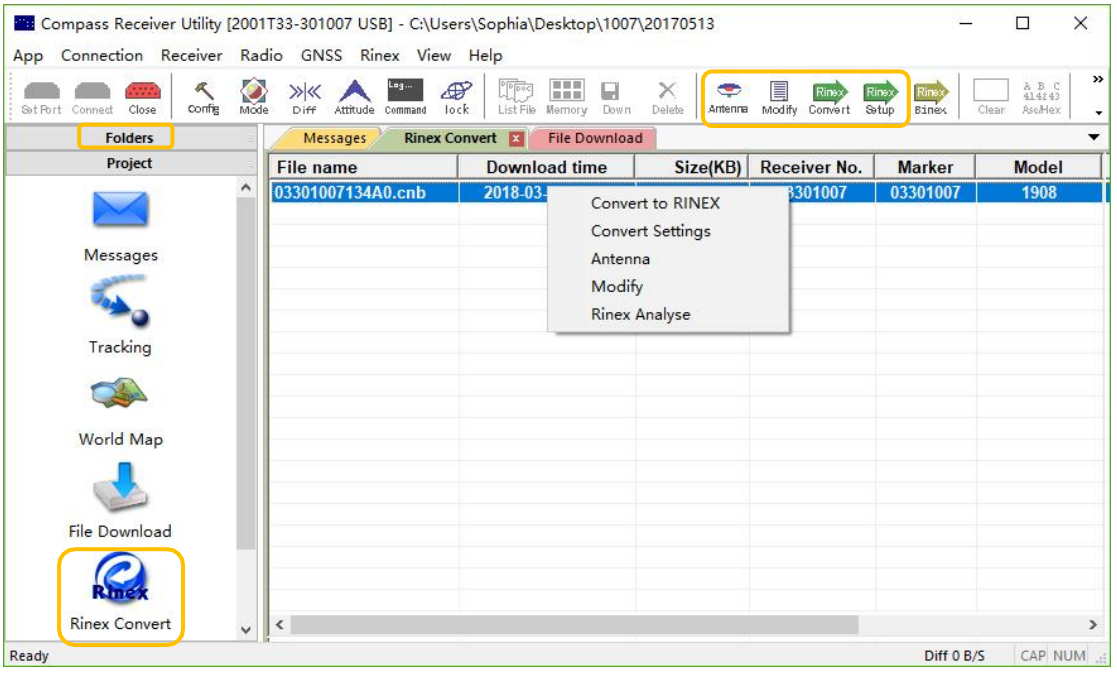
3.3 Static Data Download

The raw observation data is saved in internal memory of Y1 receiver, when connected with PC via USB cable, the Y1 receiver can work as a USB Flash Disk – **SingularXYZ_DISK**, which means you can copy or cut static data to PC directly.

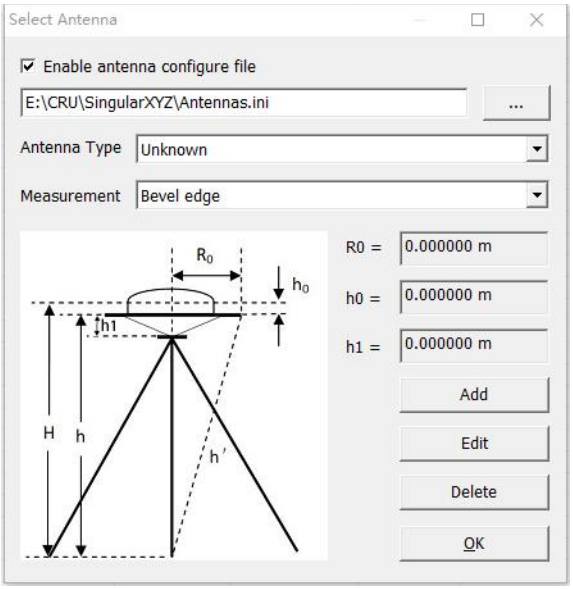
3.4 RINEX Convert

After copy raw observation data to PC, you can convert the data from SingularXYZ binary format (*.cnb) to RINEX in CRU software.

1. Start CRU software;
2. Click ***Folders*** and select the path of your CNB data;
3. Click ***Rinex Convert*** to check all raw data on main window. Right click on the file to modify antenna, Convert Settings and Convert to RENIX, or use fast icon in standard bar.



- Click Antenna to select the ***Antenna Type*** and ***Measurement***. If you cannot find Y1 antenna, 1) input the value of R0 (horizontal offset from measurement mark to phase center), h0 (vertical offset from measurement mark to phase center) and h1 (vertical offset from measurement mark to receiver bottom). R0 is 0.0615m, h0 is 0.0235m and h1 is 0.038m respectively for Y1 receiver; 2) or check **Enable antenna configure file** to select **Antennas.ini** file to select Antenna type again. You can also add, edit and delete antenna types based on your requirement.



Chapter 4 RTK Survey

This chapter introduces how to conduct RTK Survey with SingularSurv Software, including software installation, start a new project, receiver connection and RTK working modes (Radio, CORS and GPRS).

4.1 Installation of SingularSurv

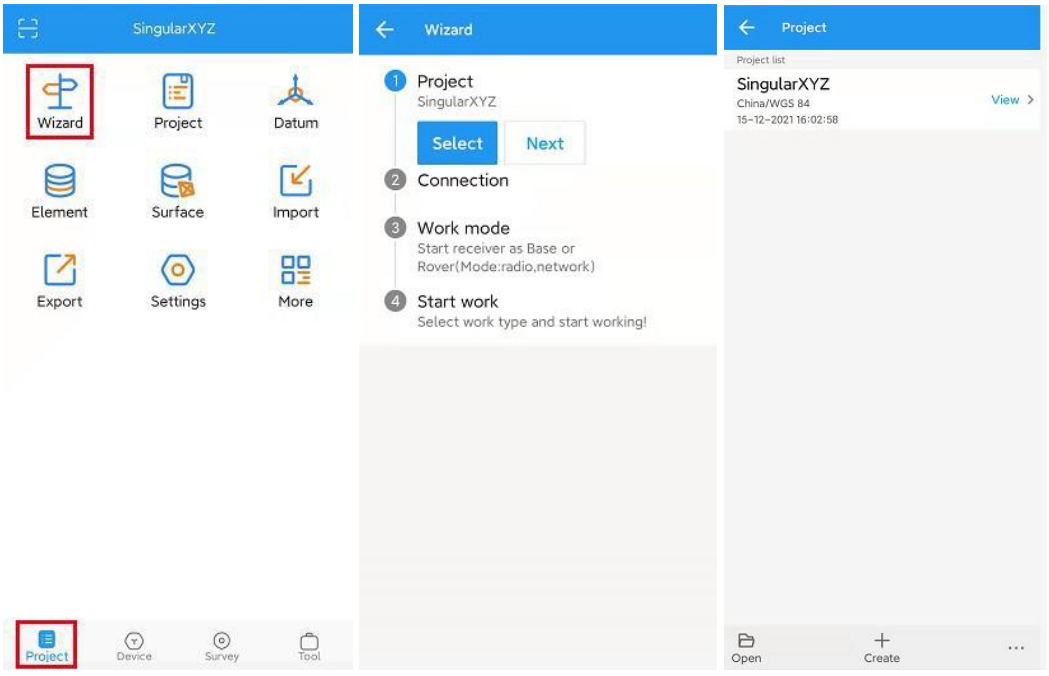
SingularSurv software is available on our official website, you can download for free and install the software to SingularXYZ controller SC100.

4.2 Wizard function in SingularSurv

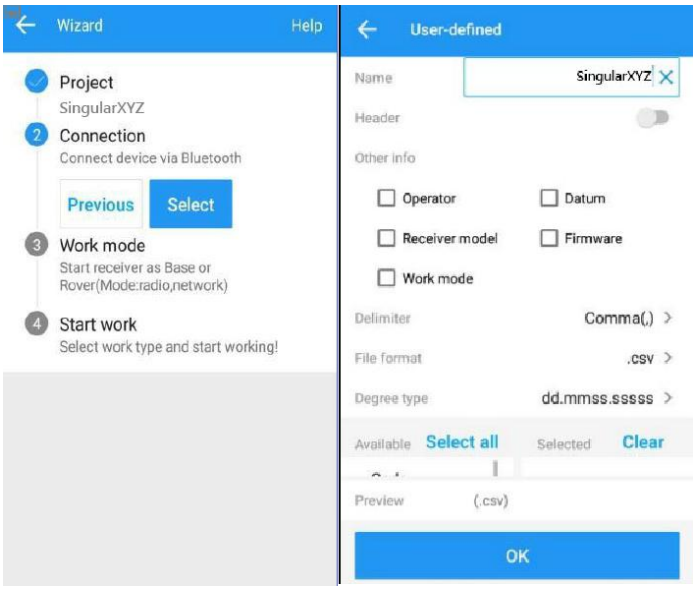
Follow the Wizard, you can quickly learn the general workflow of SingularSurv, also you can quick start your survey by this function no matter you are experienced one or new user.

In Project menu, tap Wizard.

1. ***Project***: Click ***Select*** to go into Project interface to create or select a project.

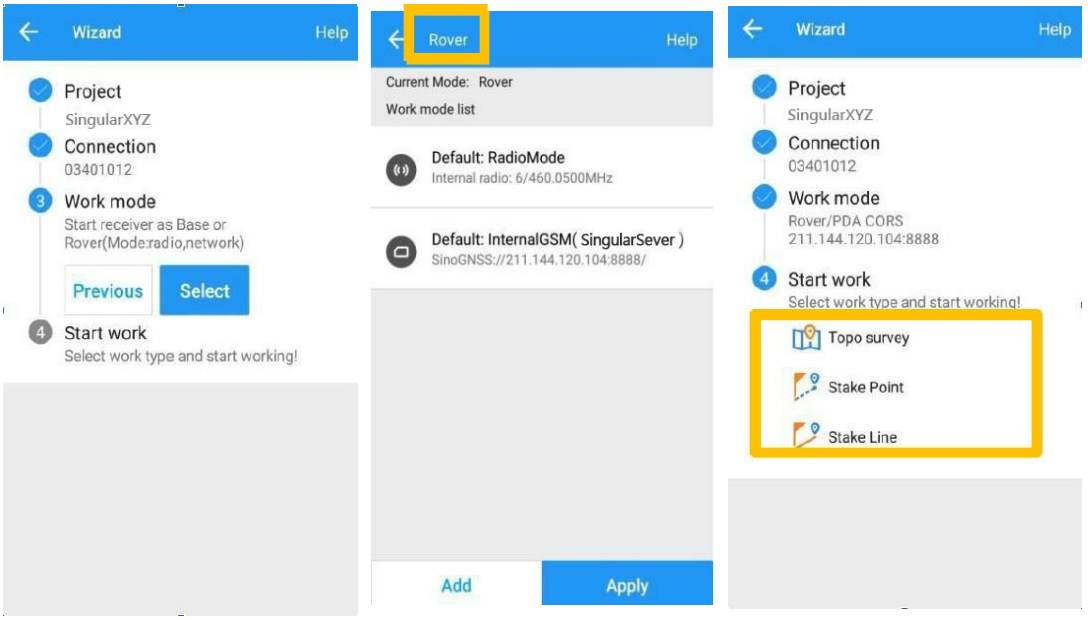


2. ***Connection***: Click ***Select*** to go into Bluetooth connection interface.

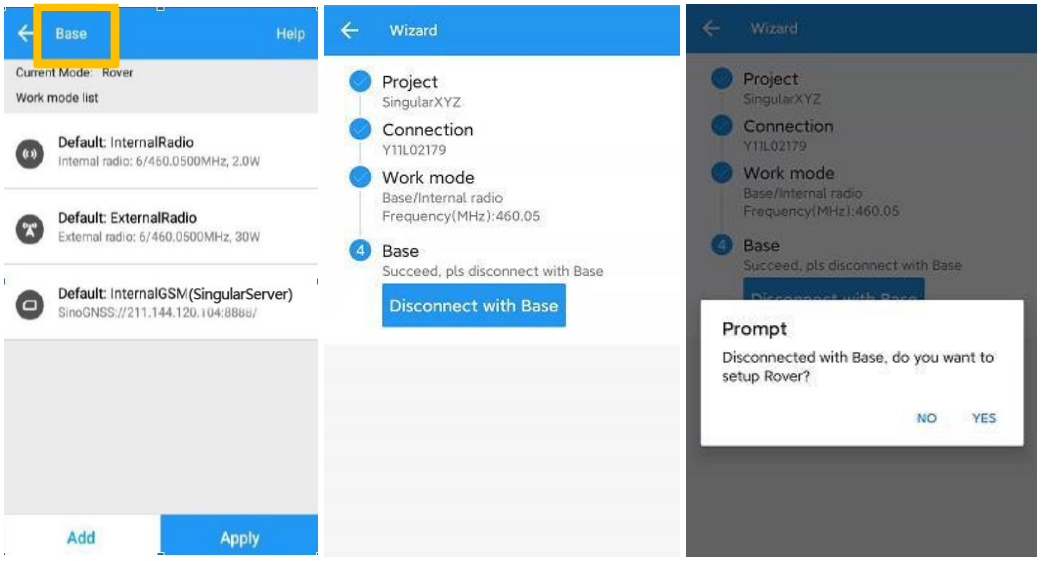


3. ***Work mode***: Click ***Select*** to go into QuickSetup interface to start your receiver as Base/Rover.

If you start your receiver as Rover, then you can start work directly of topo survey or stakeout.

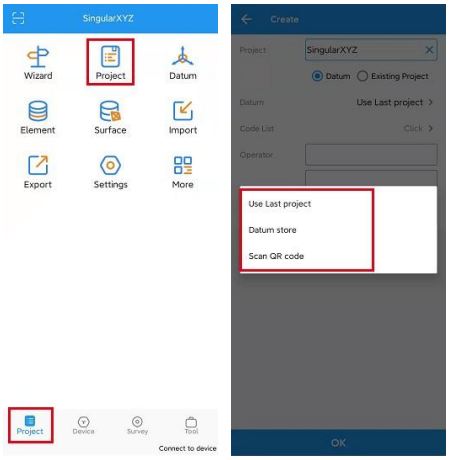


If you start your receiver as Base, after Disconnect with Base, there will be a Prompt. YES: will guide you to start Rover in Wizard interface;
NO: will disconnect the base and exit Wizard.

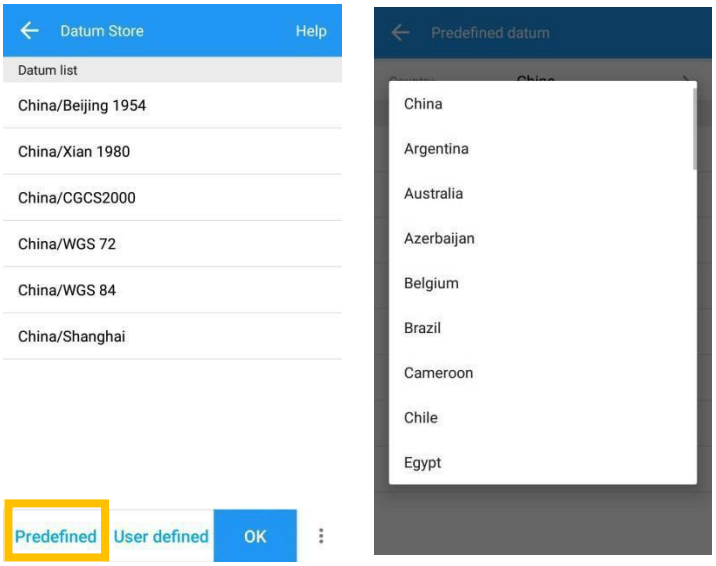


4.3 Start a New Project

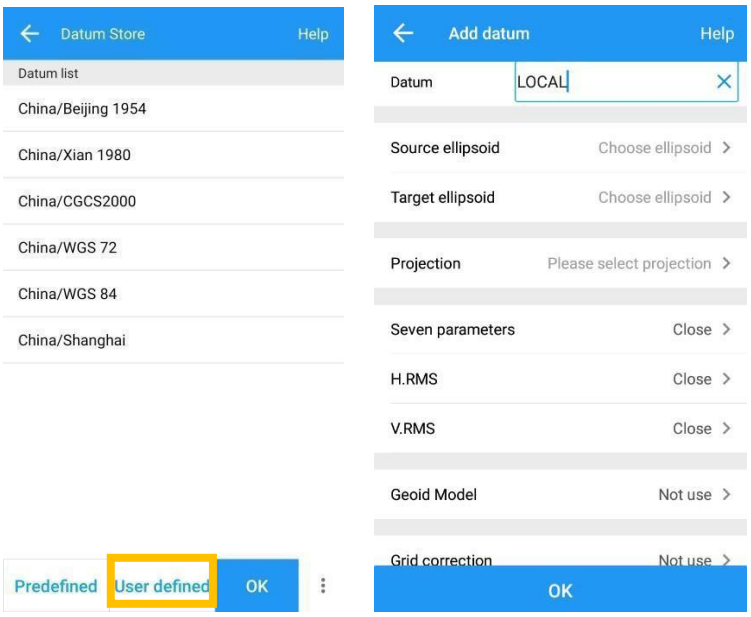
Click ***Project***, you can use the same Datum with last project, choose a datum in store and scan QR code from other controller to add Datum, even sharing project with cloud.



- Select a Predefined datum: You can select datum directly from the list. SingularSurv currently has 49 countries datum and will add more afterwards.



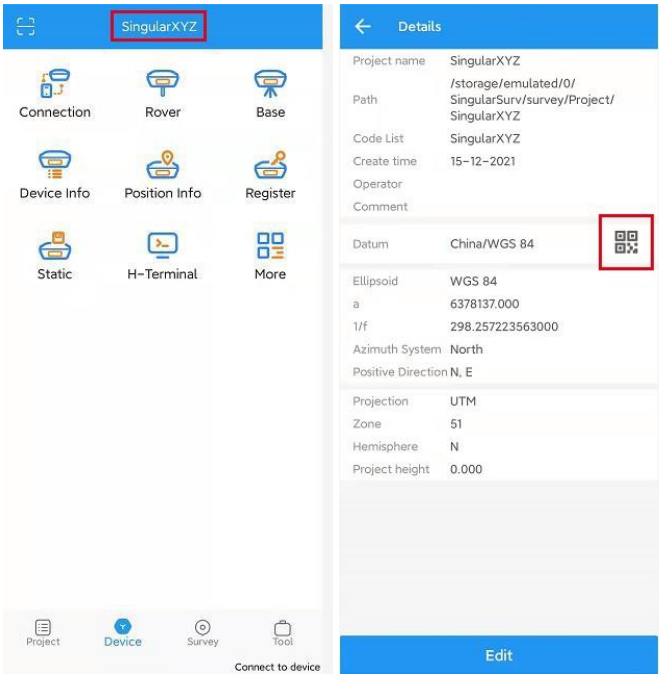
- Create a User defined datum: If you cannot find datum you want in the list, follow instructions below to add one: select Ellipsoid, Projection for your datum, and even seven parameters, geoid model based on your request.



Tip1: if asked username and password for seven parameters, enter ***admin admin***

Tip2: For H.RMS and V.RMS, it will show if do ***Site Calibration****.*

- Share Datum via QR code.
- After you build a project, press the project name, it will generate a QRcode. Users can use the Scan function in the main interface to access thecoordinate system.



4.4 Device connection

4.4.1 NFC connection

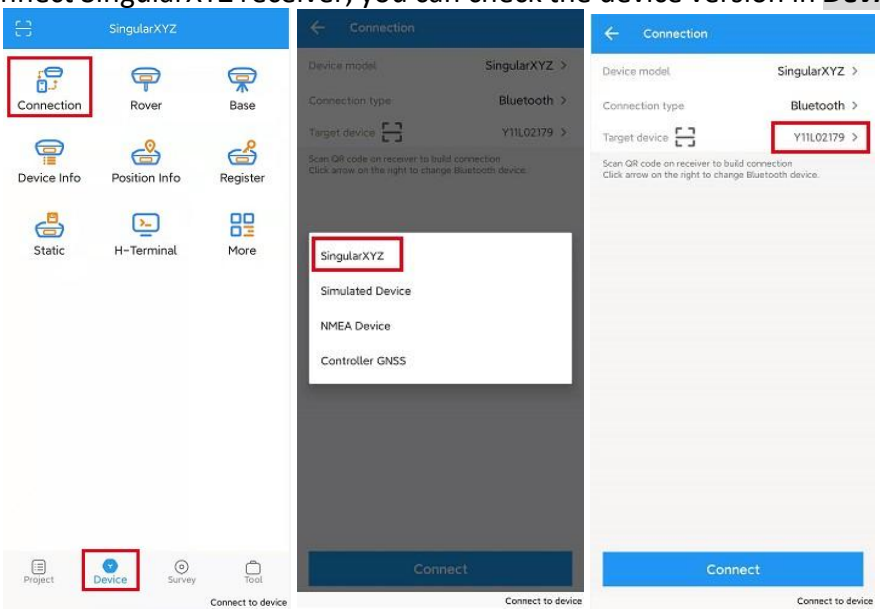
Equipped with an NFC chip, users can easily connect the Y1 receiver and the data collector with just one touch, as shown in the figure below.

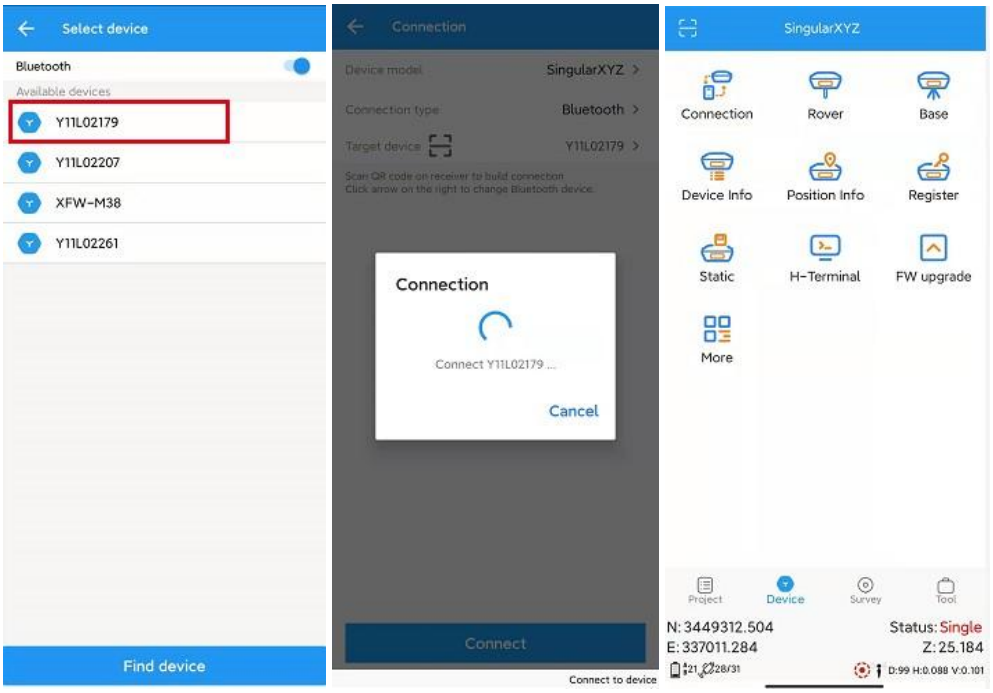
4.4.2 Bluetooth connection

To connect SingularSurv with Y1, switch to ***Device*** interface, tap ***Connection*** togo into Bluetooth connection interface.

- Make sure device Bluetooth turned on;
- Click ***Find device***—select SN of your Y1 receiver—allow pair

After connect SingularXYZ receiver, you can check the device version in ***Device Info***.





After connected successfully, the bottom will show the positioning status.

Tip: If you are failed to connect with receiver through SingularSurv, you can just follow prompt info to go into the device Bluetooth setting interface to make sure Bluetooth paired successfully. Sometimes you need restart the receiver or SingularSurv Software.

4.5 Internal Radio Mode

Y1 GNSS receiver supports transmit & receive the correction data in internal radio mode.

4.5.1 *Start Base Station by SingularSurv*

Firstly, build Bluetooth connection between the Y1 receiver and your controller as shown in Chapter 5.4.

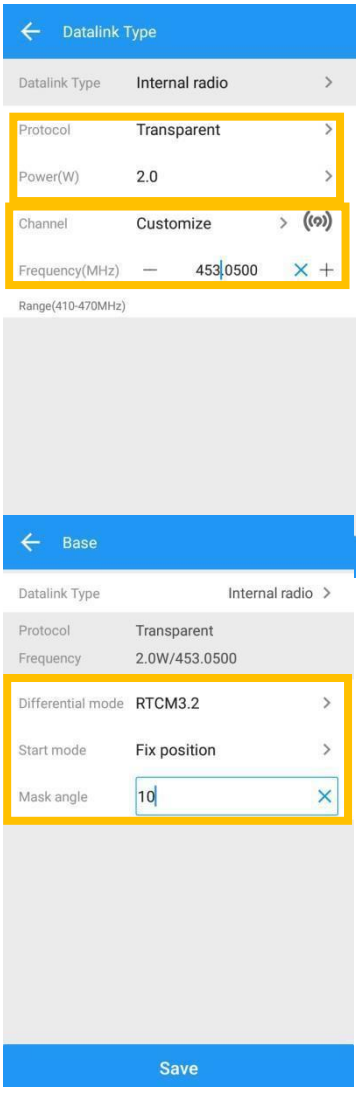
Secondly, modify parameters including correction format, antenna type and communication protocols:

- Click *Device*-> *Base* ->*Add*, select *Internal radio*.

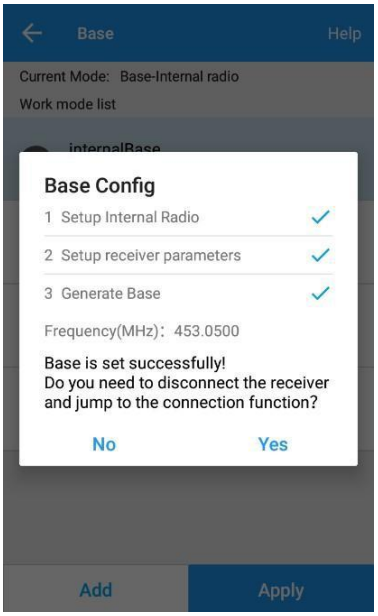
- Library choose: Choose a known point from Element;
- Receive: Receive a point from GNSS;

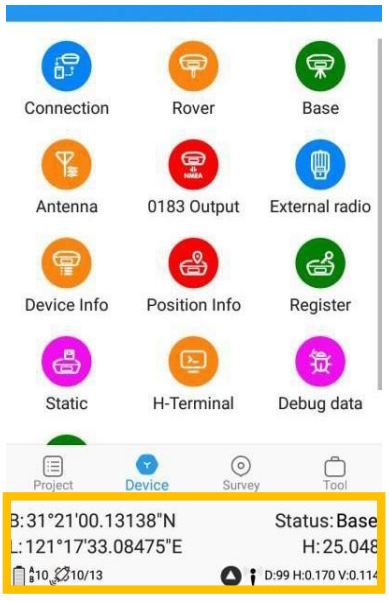
- Start mode: Fix position means you have a known coordinate for base, or get a point from GNSS;
- Differential mode: Support RTCM32, RTCM32(MSM5), RTD, CMR, CMR+(GPS only)

- Protocol and channel: Set protocol and frequency for the base;



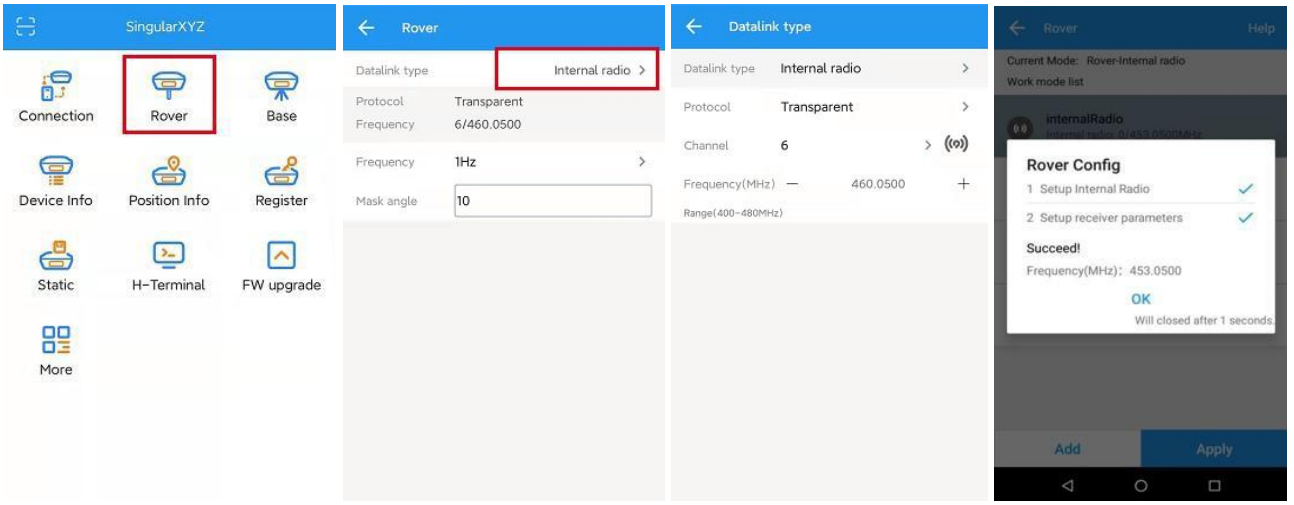
When start Base succeed, it will show as below in SingularSurv.





4.5.2 *Start Rover Station by SingularSurv*

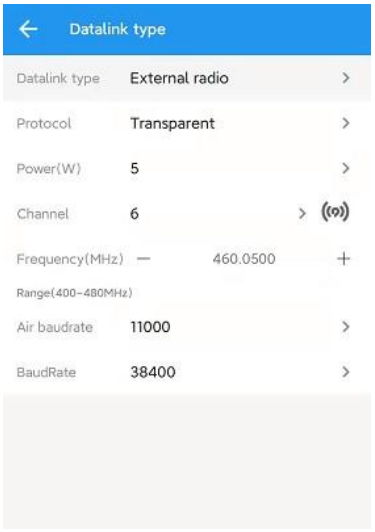
- Connect SingularSurv with Y1 receiver via Bluetooth based on Chapter 4.4.
- Click Rover > Add > Datalink Type > Internal Radio
- Set same protocol and frequency with Base receiver.
- The current status on the bottom will change from Single to Fixed.



4.6 External radio mode

The external radio mode can extend RTK working distance, which is ideal for areas with high constructions or strong signal interference.

- Click *Device*-> *Base* ->*Add*, select *External radio*.



- When start succeed, set up the frequency channel, and Rover frequency should be same.
- Be sure to set the samebaud rate as your SDL1 (default value is 38400, you also can changein ***Param tab*** based on yourSDL1).

4.7 PDA CORS Mode

Without setting up your own base stations, the Y1 GNSS receiver can receive correction data transmitted from continuously operating reference station via PDA's GPRS.

Configure the Rover as below:

- Make sure your controller can access to internet via SIM card or Wi-Fi, then run SingularSurv Software.
- Build Bluetooth connection as shown in chapter 4.4, Click ***Device*** -> ***Rover*** -> PDA CORS.

- Enter CORS ***DNS/IP address*** and ***port***-> Click ***Source List*** and select the proper source -> enter ***User*** and ***password***.
- After ***Confirm*** succeed, the diff LED (yellow) on receiver will flash, and software can get a fixed result.
- It also provides TCP protocol.

4.8 Internal GPRS Mode

For Internal GPRS mode, Y1 receiver supports Ntrip client mode. To acquire the APN (access point number) from the mobile service provider, you need to insert a SIM card into the Y1 receiver.

For Ntrip client mode, Rover acquires correction data from Ntrip(CORS) server.

- Enter proper ***APN, DNS/IP Address and Port***.
- Click ***Source List***, select the proper source-> enter User and Password

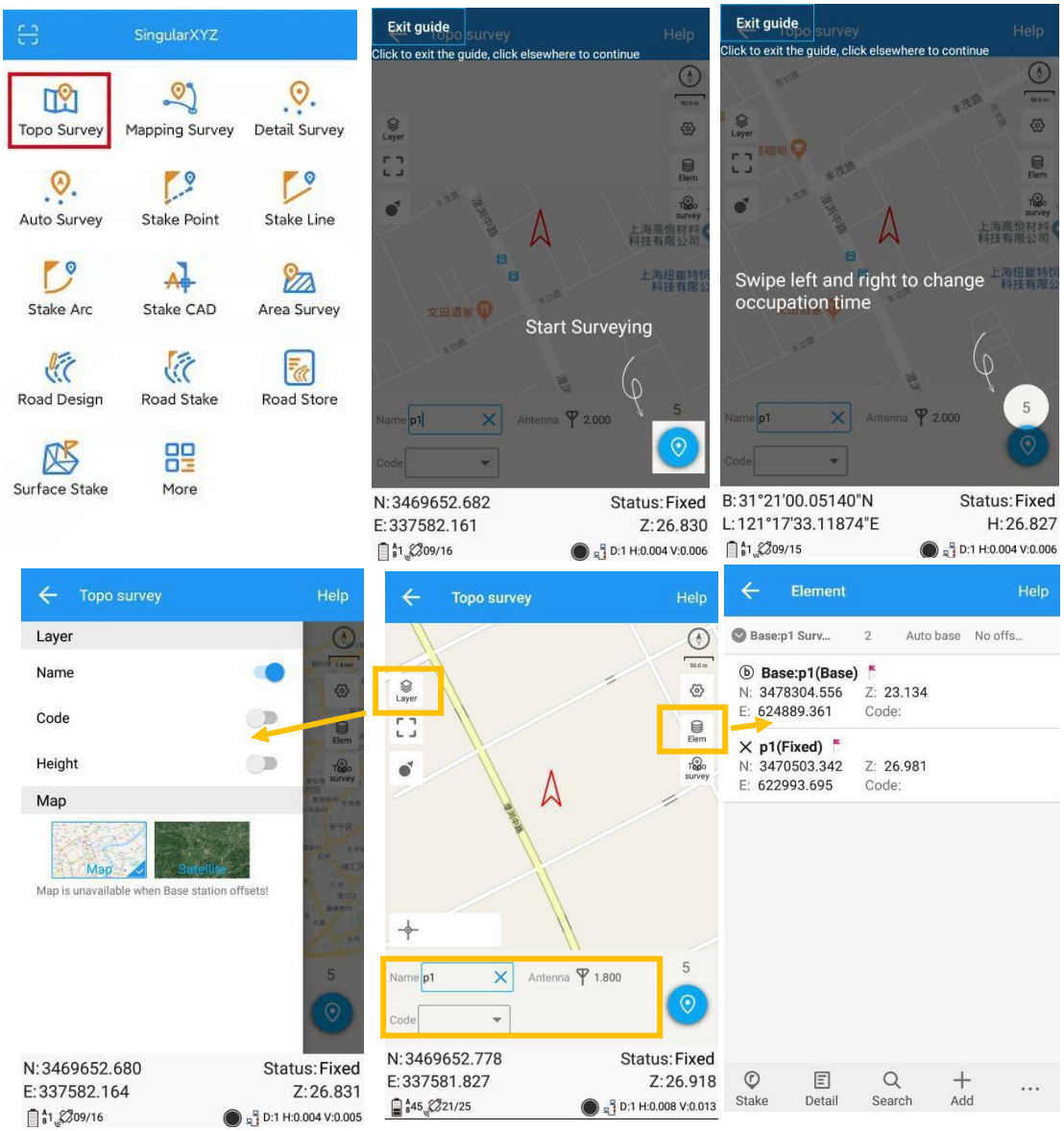
Chapter 5 RTK Survey

This section describes the basic survey functions of SingularSurv, including point measurement, Topo survey, Auto survey, Area survey, Static, PPK, staking, site calibration, import and export measuredpoints.

5.1 Topo survey

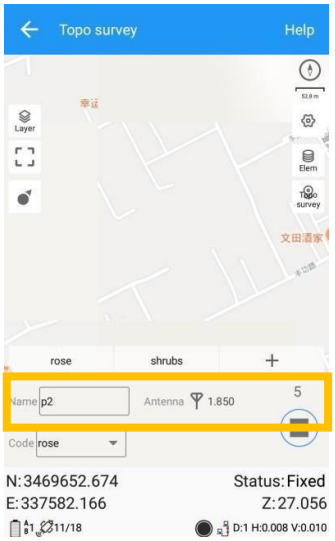
Click **Survey** -> **Topo Survey**-> enter point name, ->click to start or stop collecting data.

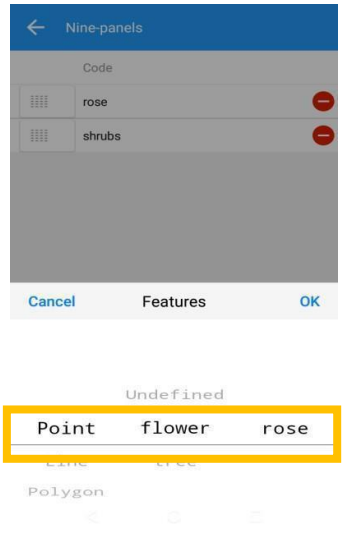
- You can quickly change antenna height in the survey interface.
- Tap ***Elem*** to check point coordinates.
- Tap ***Layer*** to show the layers you want display on map.

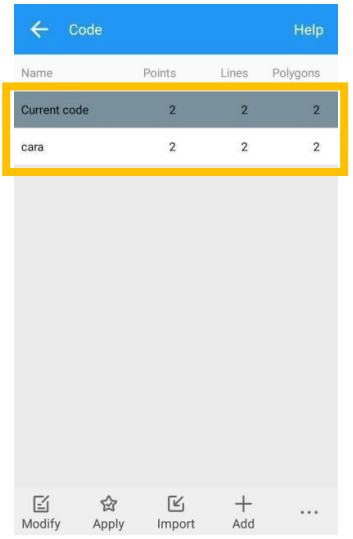


- Fast survey by pressing Code: Tap the code in nine panels, will survey the point directly.

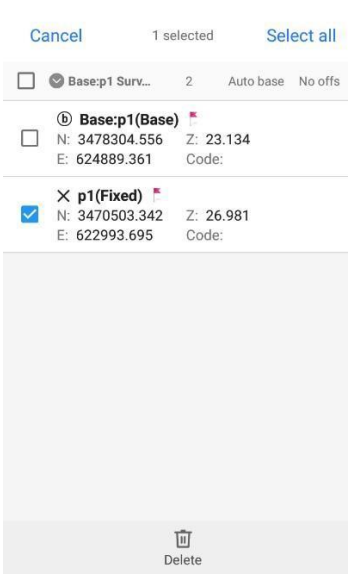
Go into code management interface to modify code list, then you can choose code to use in nine panels.

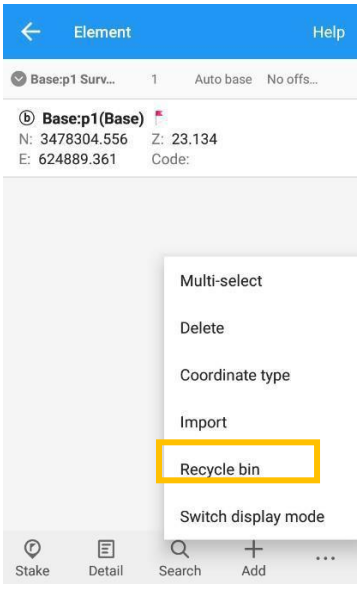


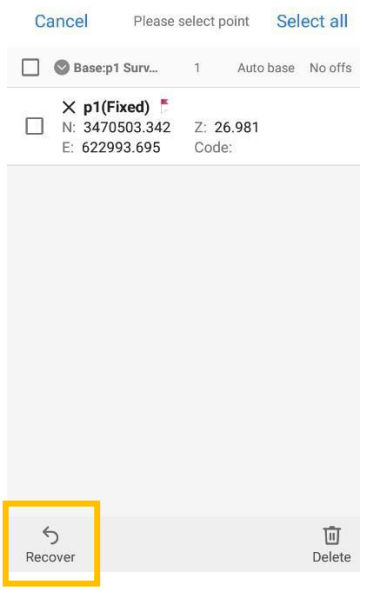




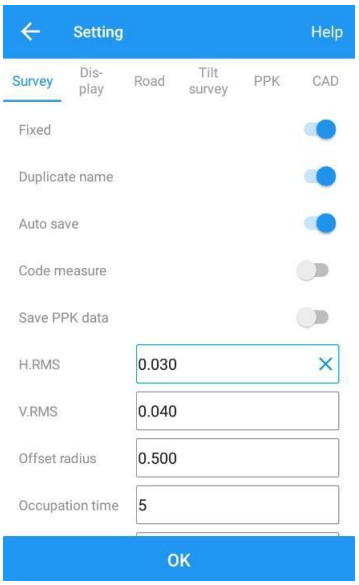
- Recover deleted points in Recycle Bin.



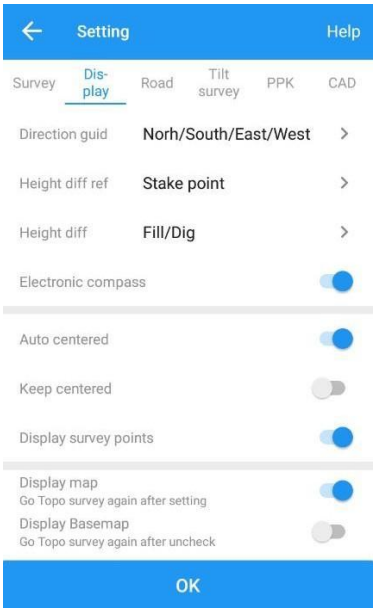




5.1.1 *Survey settings*



- Fixed: only fixed result can be saved;
- Duplicate name: allow point name same;
- RMS: point accuracy need higher than the value;
- Offset radius: point cannot offset bigger than the value during measure;
- Occupation time: measure times for one point;
- Point stepsize: for point name;
- Stake range: show circle when close to target point;



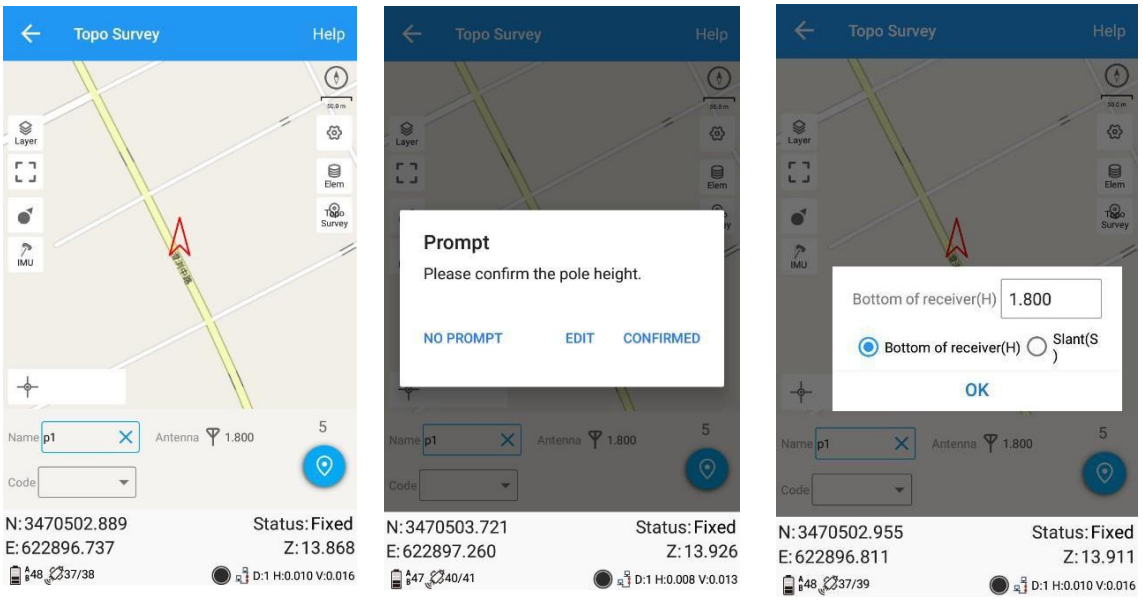
- Direction guide: 3 methods showing guide for stake out;
- Electronic compass: Use controller compass during stake out;
- Auto centered: Map will go to current location after 5 seconds;
- Keep centered: Map will go to current location after 1 second;
- Display survey points: will show all survey points on map;
- Display Basemap: for showing DXF/SHP file on map

5.1.2 *Tilt survey*

Tilt survey option will appear when receiver supports for tilt survey, it is available for SingularXYZ Y1 GNSS receiver, use IMUsensor.

According to the IMU sensor, can not only meets the requirement of high precision measurement, but also relieves the users from continually checking whether the pole is plumb. When the pole tilts within 60° , the built-in sensor based IMU precisely calculates the actual offset, which accuracy can up to 2.5cm

1. Open IMU: Go into Topo survey—click the button to open.



After you click IMU button, it will give you one prompt to check the antenna information.

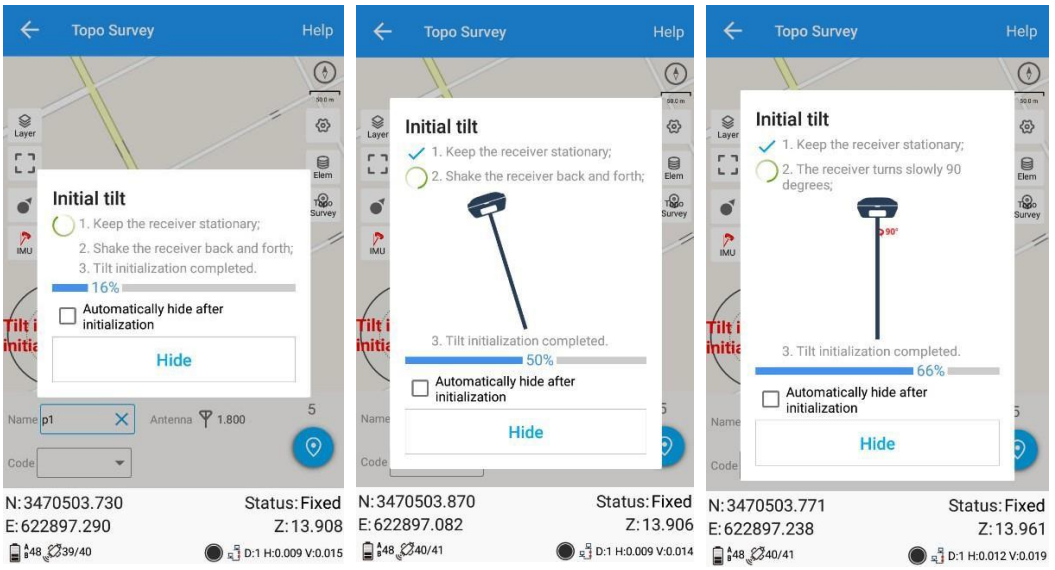
Edit: Change the antenna information.

Confirmed: You have been confirmed the antenna information, and it is correct.

NO PROMPT: will not give this prompt next time when you do IMU calibration.

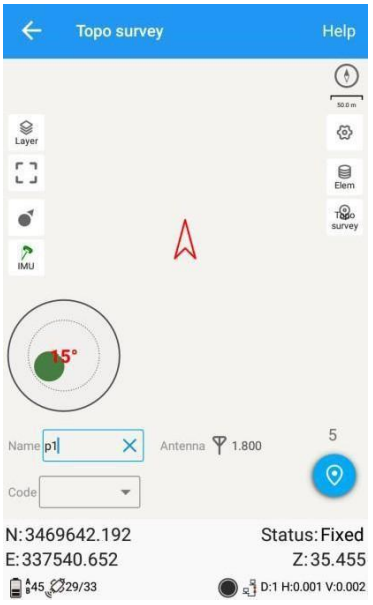
2. Initialization

If you power off the receiver or freset it, need to initialize again. After open IMU button, you can follow the guidance in interface to complete it. During operation, make receiver can search the satellites and get a fixed solution.



Keep the receiver stationary *shake the receiver* *rotating the receiver*

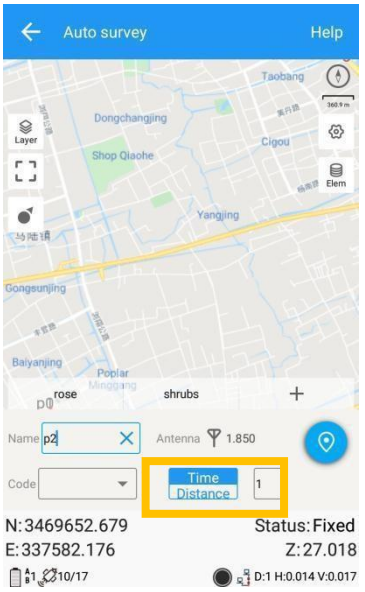
In survey interface, you can find the bubble and angle value shows the pole youtilt. For more accuracy, angle less than 60° will be better.



Tip: Do not shake or rotate the receiver violently, otherwise you need to re-initialize.

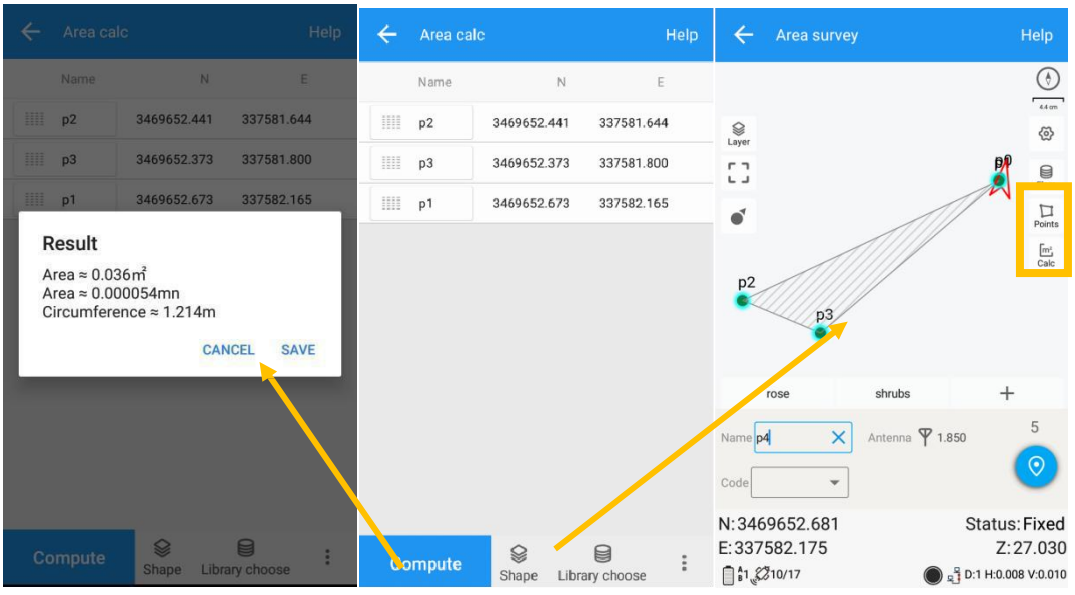
5.2 Auto survey/Area survey

For Auto survey, it supports automatic and continuous survey according to Time or Distance.



For Area survey, it can compute area directly after gettingpoints.

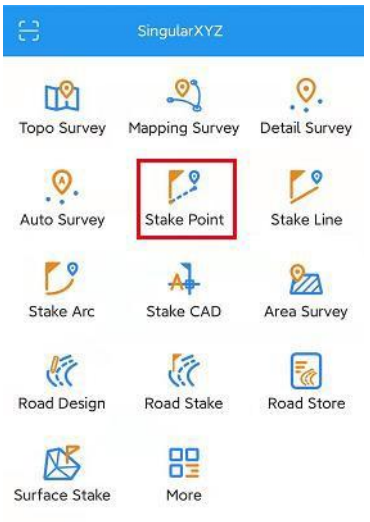
Press , it will show the coordinate information, press , it will show the area result, press , it will show the shape on map.

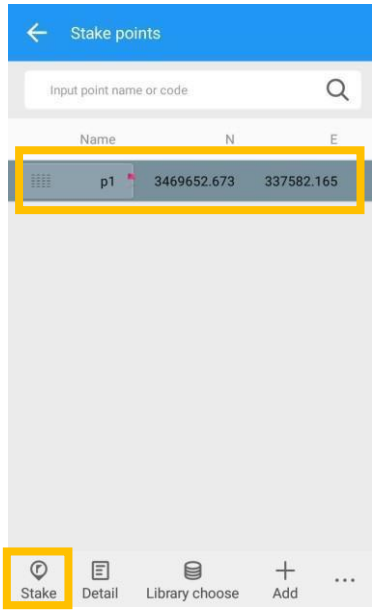


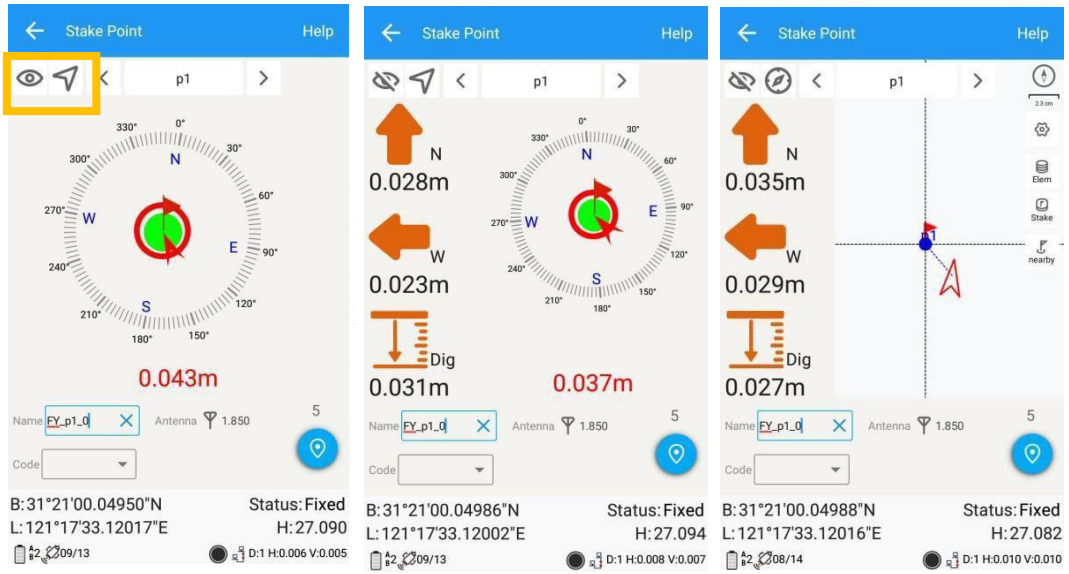
5.3 Stake points/lines

Go into ***Stake point*** interface, click to choose a point and tap ***Stake***. SingularSurv provides a navigation map when staking points/lines. If you are close to the target point enough, it will alarm you based on the alarm range youset.

Enter the point name and code based on your requirements, then click 

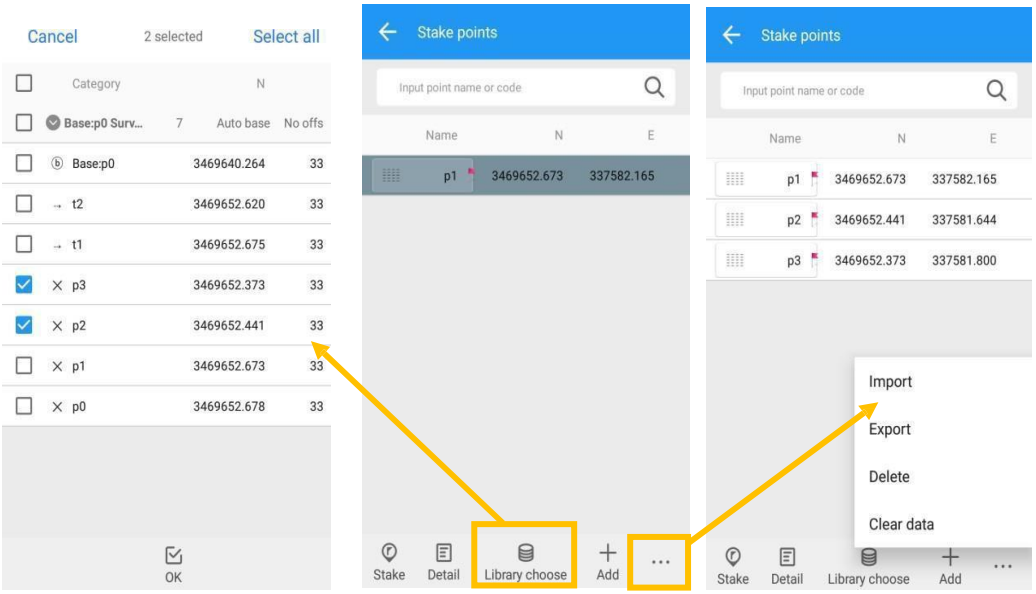






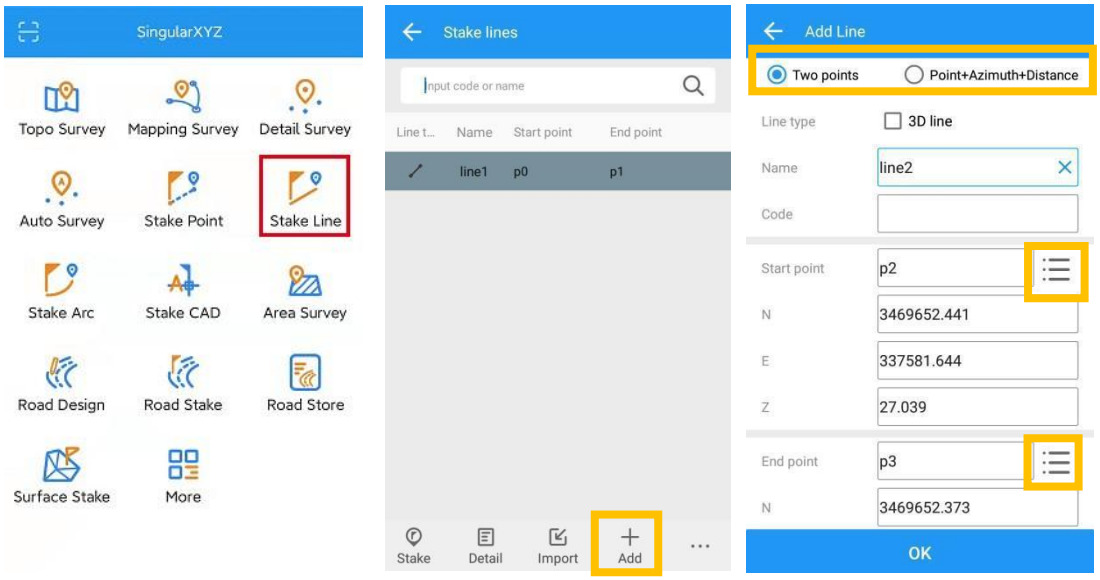
Various navigation info choices

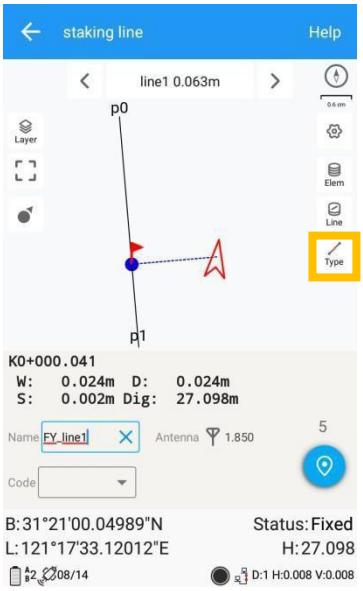
You can also ***Import*** points for staking, or add from ***Librarychoose.***

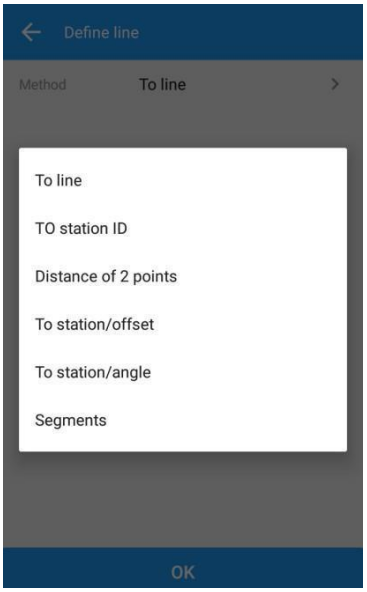


Tip: keep your receiver vertical to the ground.

For staking lines, click -> add line (Two points or Point + Azimuth + Distance) -> click OK -> Choose one line and click Stake. The default method to stake is “To line”, press method to choose a method you want.







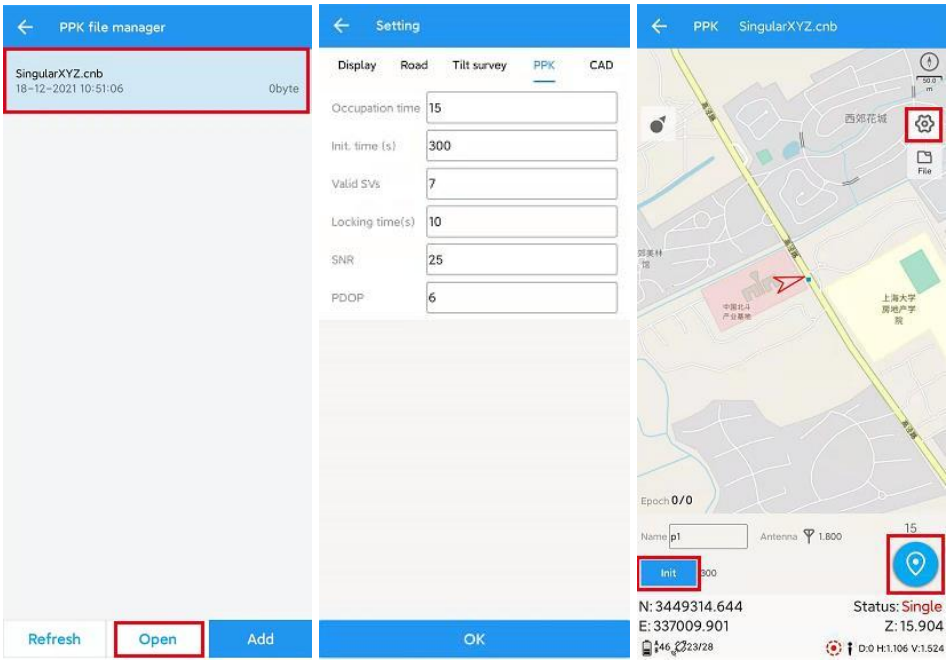
- To line: show shortest way to find a point on line;
- To station ID: stake points on line by defined interval;
- Distance of 2 points: show distance of current location to the line's start point and end point;
- Segment: Stake on line by defined segment value.

5.4 PPK

PPK (post processing kinetic) is the unique function of SingularSurv, which is used for post-processing dynamic measurements.

It also needs two receivers to work together, one work as Base to record static data, and another one work as Rover as shown below.

1. Click PPK in survey interface -> choose or create a PPK file.
2. Go to settings, configure PPK settings based on your requirements.
3. To get stable epoch, click Init to initialize -> to start PPK survey.

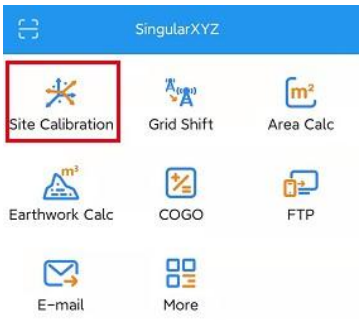

PPK file manager
SingularXYZ.cnb
18-12-2021 10:51:06
0byte
Refresh
Open
Add
Setting
Display
Road
Tilt survey
PPK
CAD
Occupation time
15
Init. time (s)
300
Valid SVs
7
Locking time(s)
10
SNR
25
PDOP
6
OK
PPK
SingularXYZ.cnb
西郊花城
File
Epoch 0/0
Name p1
Antenna 1.800
Init
N: 3449314.644
E: 337009.901
Status: Single
Z: 15.904
D:0 H:1.106 V:1.524

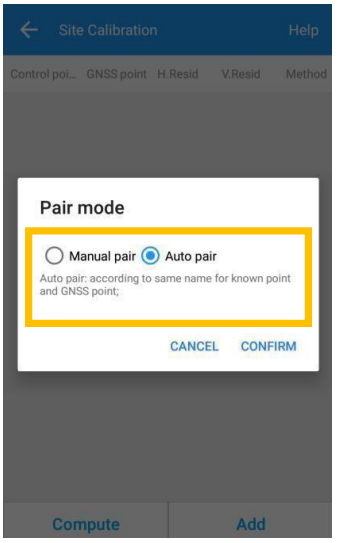
5.5 Site calibration/Grid Shift

5.5.1 *Site calibration*

Site calibration is commonly needed once in one project, and all the points willbe collected based on calibrated datumsystem.

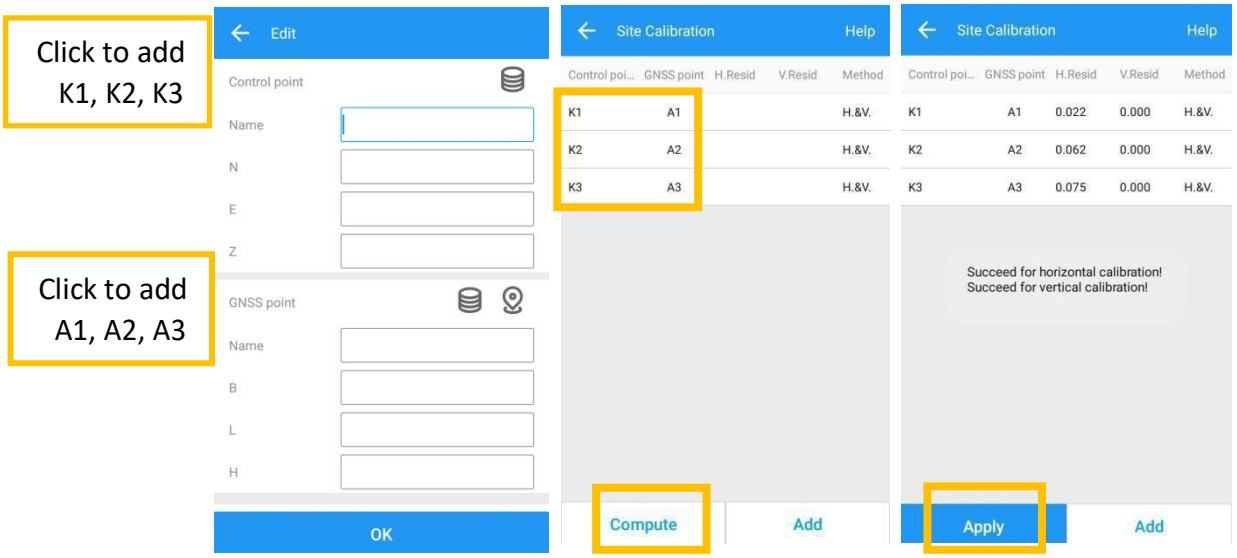
1. Choose manual pair or auto pair.



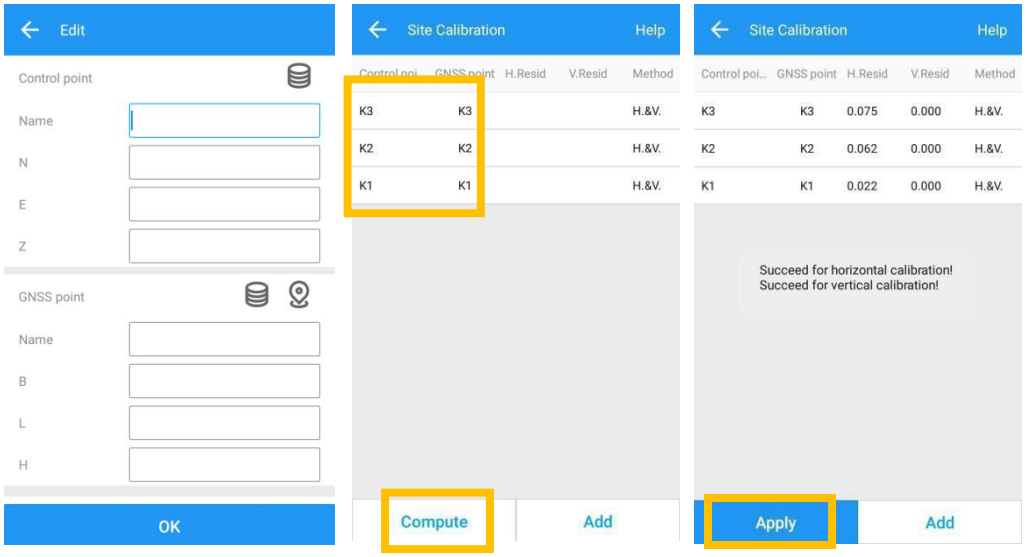


2. If you choose manual pair, you can directly enter at least three groups' point to compute. (for example, take K1,K2,K3 as known points, take A1,A2,A3 as measured points) After click ***Compute*** to calculate, the software will calibrate

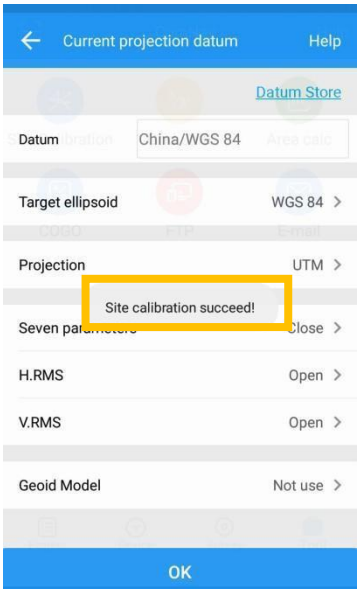
automatically.



3. If you choose auto pair, it will auto compute according to the same name for known point and measured point. After click ***Compute*** to calculate, the software will calibrate automatically.



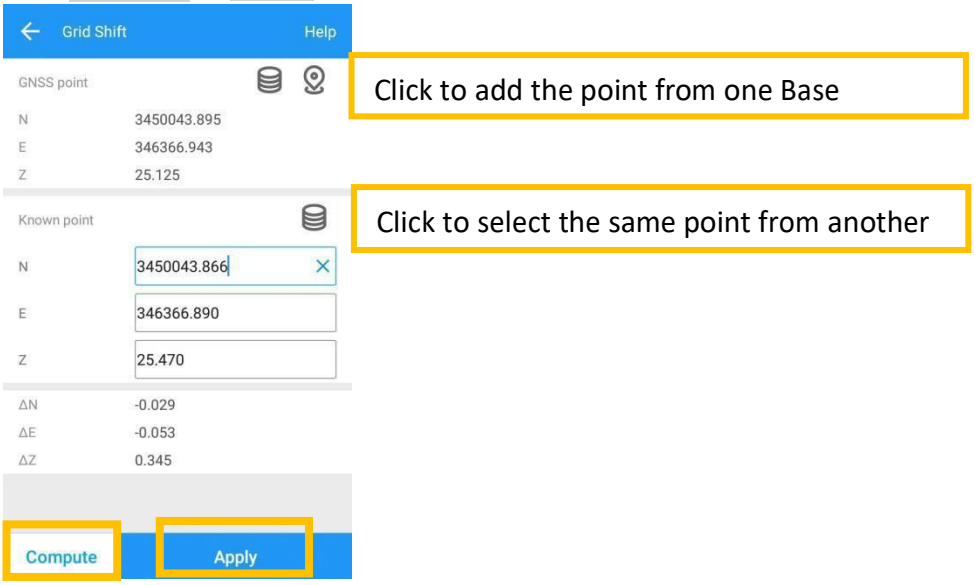
4. Click ***Apply*** to confirm to replace datum. The value of H.Resid and V.Resid should meet the requirement (H.Resid $\leqslant$ 0.015m, and V.Resid $\leqslant$ 0.02m).



5.5.2 *Grid Shift*

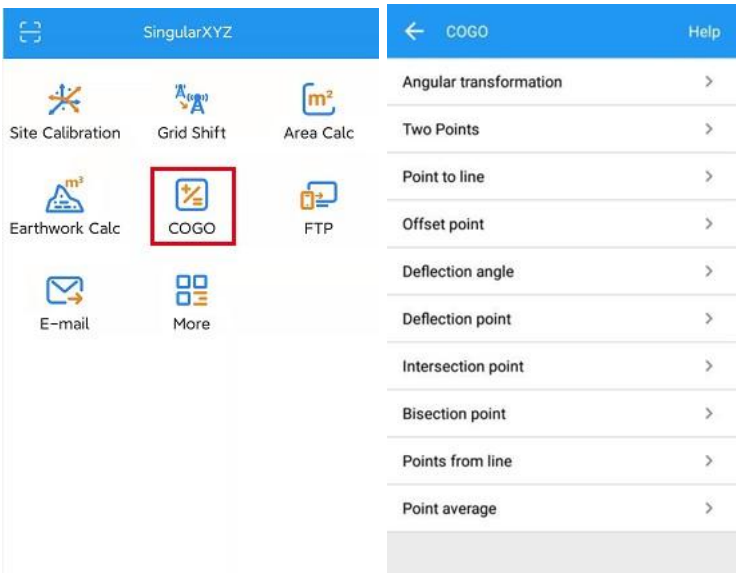
Grid reset function is applied when you need to change the position of Base station in the same project.

Click ***Grid Shift*** in Survey interface -> add current Base point and target Base point -> Click ***Compute*** -> ***Apply*** to complete grid shift.



5.6 COGO

With COGO function, you can calculate points/lines/angle directly on field.



- Angular transformation: Angular type transform;
- Two points: Calculate two points distance;
- Point to line: Distance from point to one line;
- Offset point: Calculate point with azimuth and distance;
- Deflection angle: Calculate angle of two lines;
- Deflection point: Calculate point with angle and distance;
- Intersection point: Calculate intersection points from two lines;
- Bisection point: Calculate point from angle bisector;
- Points from line: Calculate points on line by distance or segment;
- Point average: Calculate average from points;

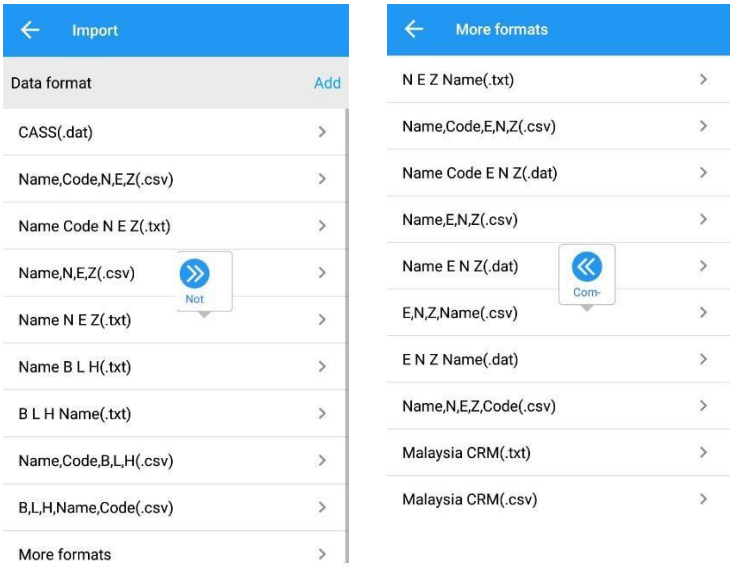
Chapter 6 Data Import/Export

SingularSurv supports to import/export data including grid coordinate, Lat/Lon coordinate with various data format, support import DXF/DWG file and export result of DXF/KML, etc.

6.1 Import

Tap ***Import*** in project interface, there are some predefined data formats, click ***More formats*** to get more predefined formats. Besides, you can click ***Add*** to create a User-defined type.

Long press the predefined data format that you don't use often, you can move this format to the More formats page; also, you can move the data format of More formats page to the previous page where stored the formats you usually use.



- Name: Enter the name for the format
- Delimiter: support Comma(,), Space( ), Semicolon(;)
- File format: support *.csv, *.dat, *.txt format

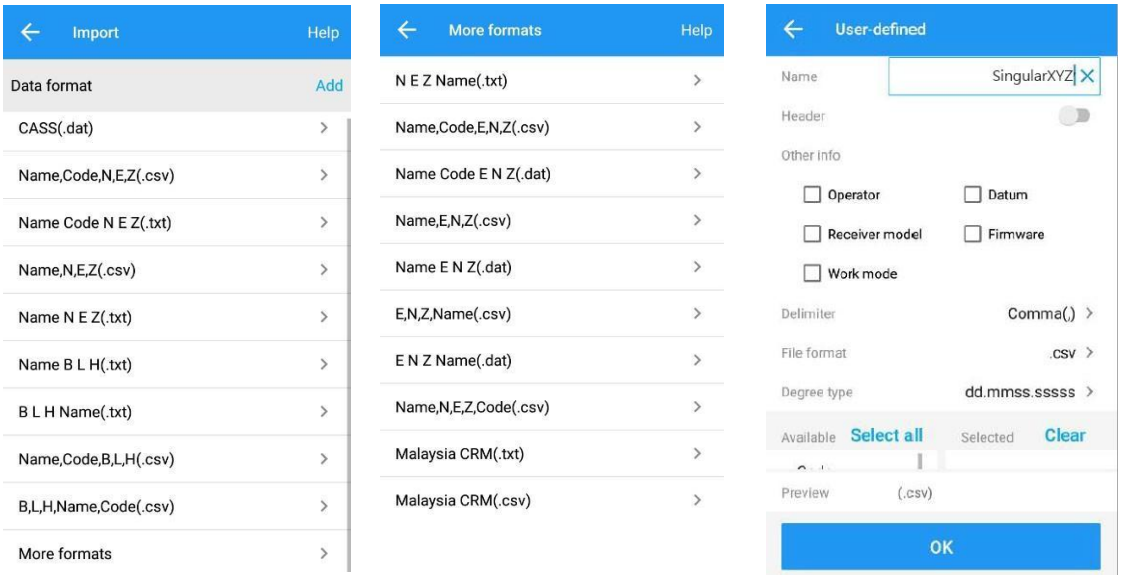
Click ***Select all*** to choose all elements, Click ***Clear*** to eliminate all elementsselected.

The elements include: code, name, N, E, Z, B, L, H, X RMS, Y RMS, V.RMS, status, start time, occupation time, diff age, base ID, total AntHgt, Antenna height, measure type, antenna name, ending time, comment, RMS, PDOP, HDOP, VDOP, TDOP, GDOP, total SV, used SV, elevation, tilt offset, tilt angle, tilt distance

Tip: The format you defined will also be saved to Export interface.

Choose one format to import data.

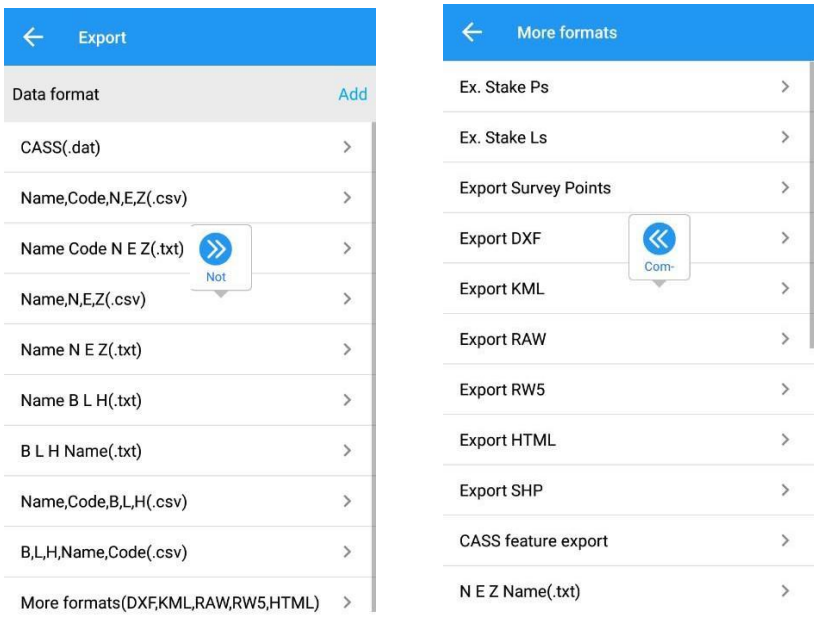
- The default export path is …*/SingularXYZ/survey/data*, you can also click ***Upper folder*** to change to any other path where the file is.
- Point type: support Input point, Control point, Stake point



6.2 Export

Tap ***Export*** in Project interface to export simple data of survey points. Also, click ***More formats*** to export the survey points with detailed information or other formats like stake points/lines, DXF, SHP, KML, RAW, RW5, HTML, CASS feature result.

Same with Import result, long press the predefined data format to select the interface you want to place.

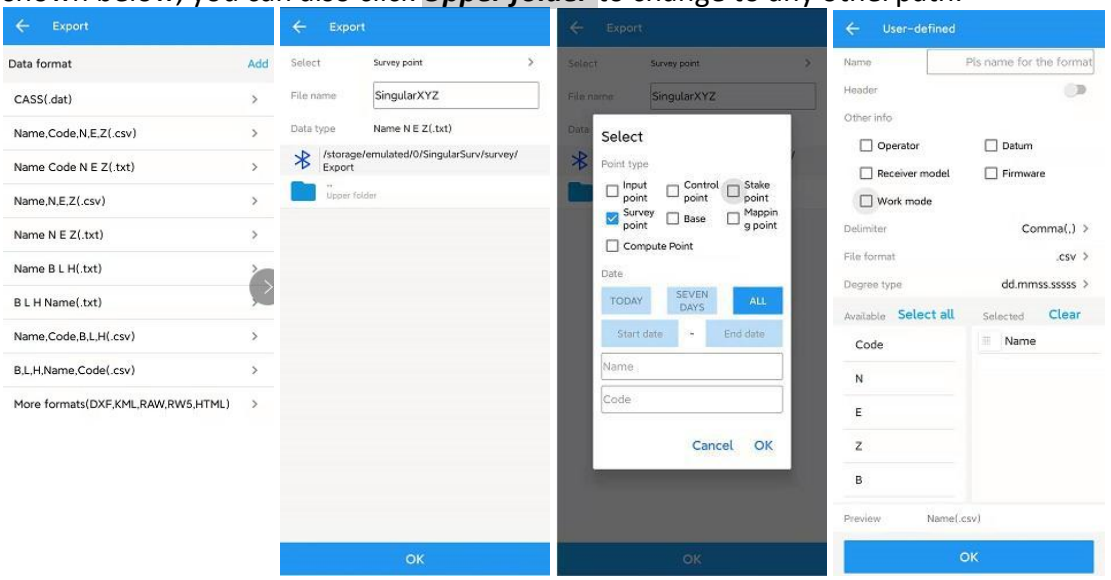


- File format: support *.csv, *.dat, *.txtformat

Choose one format to export data.

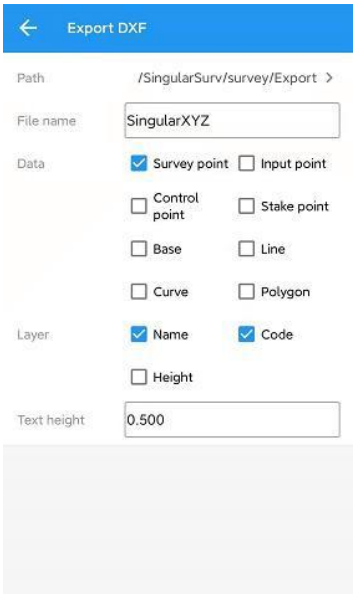
- Select: support Survey point, Control point, Input point, Stake point, Base, also, you can set the date, name, code of data to specific export

The default export path is …*/SingularXYZ/survey/export*, and the previous saved file will be shown below, you can also click ***Upper folder*** to change to any other path.



For the points, lines and polygons you surveyed in Topo survey and Feature survey, you can click ***Export DXF*** to export dxf file, then you can edit them in third party CAD software, or import to ***Basemap*** to check, or import to ***Stake CAD*** to stake.

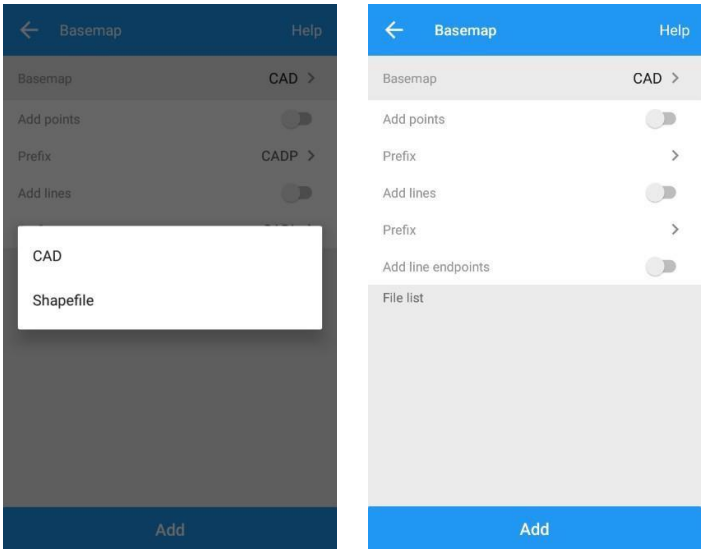
Choose the data that you want to export including survey point, input point, control point, stake point, base, line and polygon, and the layer properties includes name, code and height, the default text height is 0.5.



6.3 Import Basemap

Tap ***Project*** > ***Basemap*** to import DXF/DWG/SHP file into SingularSurv.

- Add points: Save points from the dxf/dwg/shp file to element.
- Add lines: Save lines from the dxf/dwg/shp file to element.
- Prefix: Support add prefix name for points/lines saved to Elements.
- Add line endpoints: add line endpoints to point element.



Remember go survey settings to check on display basemap, click zoom button to auto show basemap.