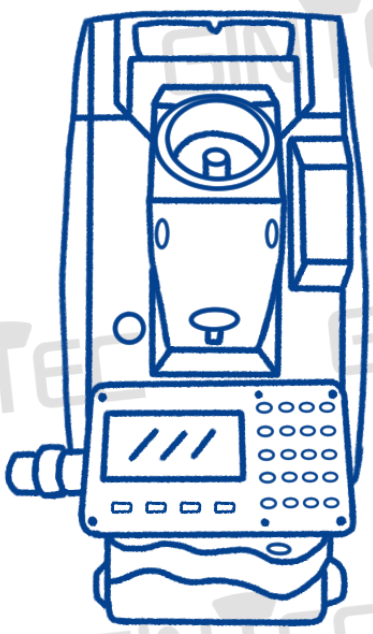
Surpad-M8 User Manual



MENU

Chapter I Technical parameters of M8 Total Station 3

§1.1 Introduction 3

§1.2 Technical parameters 3

Chapter 2 Connection and Basic Settings 5

§2.1 Connection by BT 5

§2.2 Basic Settings 6

2.2.1 Reflector Settings 6

2.2.2 Parameter Settings 6

§2.3 Orientation setup 7

2.3.1 Coordinate Type 7

2.3.2 Azimuth Type 8

2.3.3 Resection (Free Station) 9

Chapter 3 Survey and Stakeout 11

§3.1 Point Survey 11

3.1.1 Page Common functions 11

3.1.2 Information bar setting 13

3.1.3 Shortcut button setting 13

§3.2 Stakeout 14

3.2.1 Page Common functions 14

Appendix : Packing List 16

Chapter I Technical parameters of M8 Total Station

§1.1 Introduction

Welcome to use M8 Total Station products of GINTEC team (Guangzhou **G**eosurv **In**formation **Tec**hnology Co.,Ltd). Our team has been committed to popularize the advanced surveying and mapping technology and products to the hands of measurement users. If you want to know more about us, please visit the official website: http: //www.gintec.cn/.

This manual shows the operations of Surpad when connect with M8 total station, including how to connect with Bluetooth, the basic setting, how to setup an orientation by angle, coordinate or resection, how to survey and stakeout, etc. Even if you have used other products of our company, it is recommended that you read this instruction carefully before using the instrument for better use.

§1.2 Technical parameters

Model		M8
Angle Measurement		
Measurement Method		Absolute Encoding
Circle Diameter		79mm
Minimum Readout		0.1″/1″/5″/10″
Accuracy[*1]		2″
Telescope		
Magnification		30X
Image		Erect
Tube Length		154mm
Effective Aperture		45mm (EDM:50MM)
Field of View		1°30′
Minimum Focus Distance		1.4m
Resolving Power		3′
Dual-axis Compensator		
Working Range		±3′
Accuracy		1″
Distance Measurement (Good Conditions)[*]		
Measurement Range	Single Prism	5000m
	Reflective Sheet	800m
	Reflectorless[*3]	800m
Accuracy	Single Prism	2mm+2ppm
	Reflective Sheet	2mm+2ppm

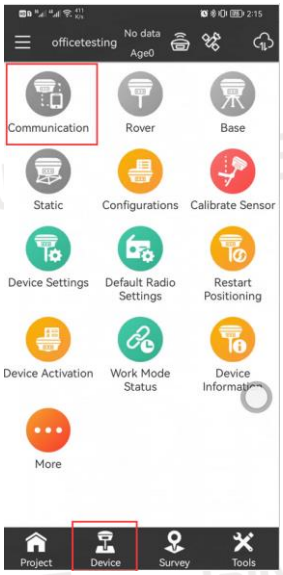
	Reflectorless*3	Fine(< 200m): 3mm+2ppm Fine(> 200m): 5mm+2ppm Tracking: 10mm+2ppm
Measuring Time	Single Prism	< 0.3s
	Reflective Sheet	< 0.3s
	Reflectorless*3	Typ. 0.3-3s max.10s
Communication		
Internal Data Memory		Approx. 120000Points/SD Card(max.8G)
Serial I/F port		USB Port/Bluetooth/SD Card
Plummet		
Laser plummet*4		±1.5mm at 1.5m
Optical Plummet (Optional)		Erect Image
Magnification		3X
Focusing Range		0.5m~∞
Field of View		5°
Power		
Battery Type		Rechargeable Lithium battery
Voltage/Capacity		7.4V(DC)/ 3100mAh
Operating Time		8 Hours*5 : fully charged / : able to continue to measure : needed to finish the operations and replace the battery or charge it
Others		
Waterproof/Dustproof		IP65(IEC60529 Standard)
Display		Dual side, LCD 6 Lines
Keyboard		Dual sides Alphanumeric Keyboard
Operating Temperature		-20℃~+50℃
Weight (including battery)		5.2kg
Dimensions (W*D*H)		160*150*330mm

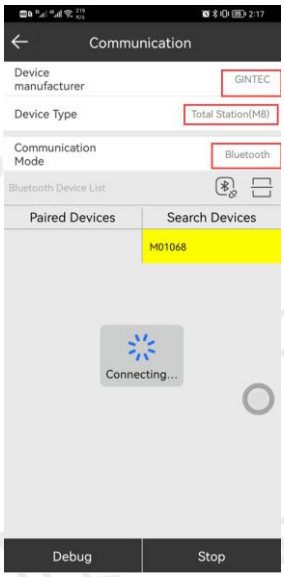
Chapter 2 Connection and Basic Settings

This chapter introduces the connection and the basic setting before surveying and stakingout.

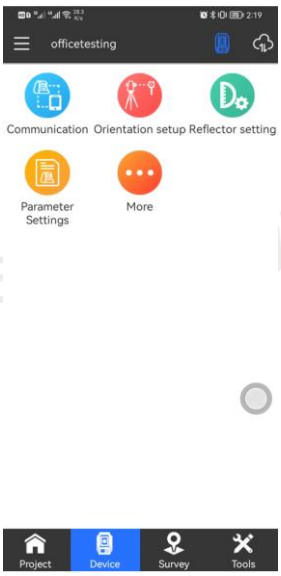
§2.1 Connection by BT

Step 1: Please center and level the M8 correctly firstly, then turn on the BT of M8, the BT name of M8 is the same as its SN (like M01068). Turn to the “Device-Communication” page of Surpad. All the icons will be grey before connection.





Step 2: Choose “Gintec” as “Device Manufacturer” and “Total Station (M8)” as “Device Type”, search M8’s BT and connect to it. The pairing password is 1234. If it has been connected before, directly choose it from the “Paired Devices” list and connect to it.



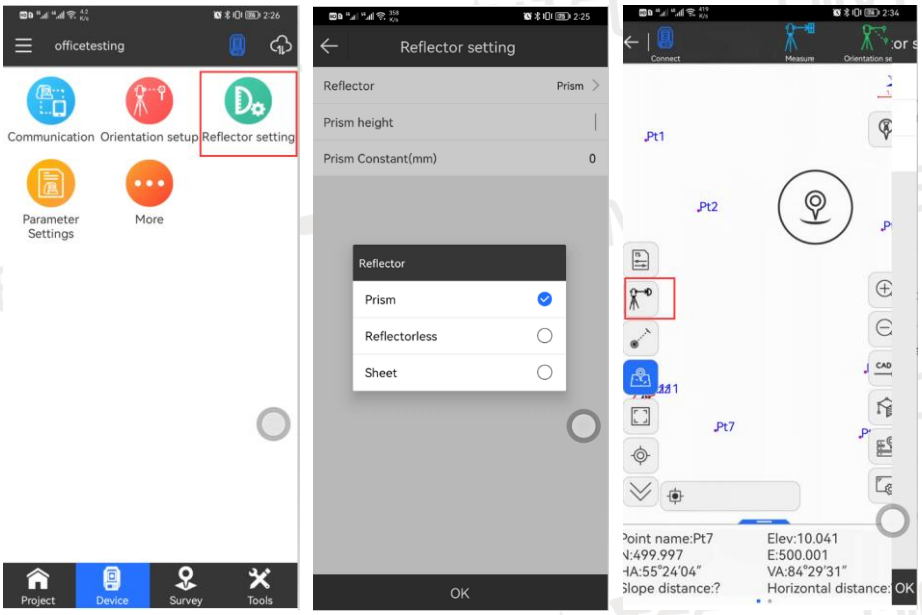
Step 3: After a successful connection, the icon on the device interface will change to colorful.

Note: Every time when there is a command sending by Surpad to M8, the M8 should be at the surveying pages (Angle/Distance/Coordinate), or the M8 will not receive and executive the command.

§2.2 Basic Settings

2.2.1 Reflector Settings

This page is to set the reflector types, target height and prism constant. You can also enter this interface through shortcut button on the “Point Survey” page.

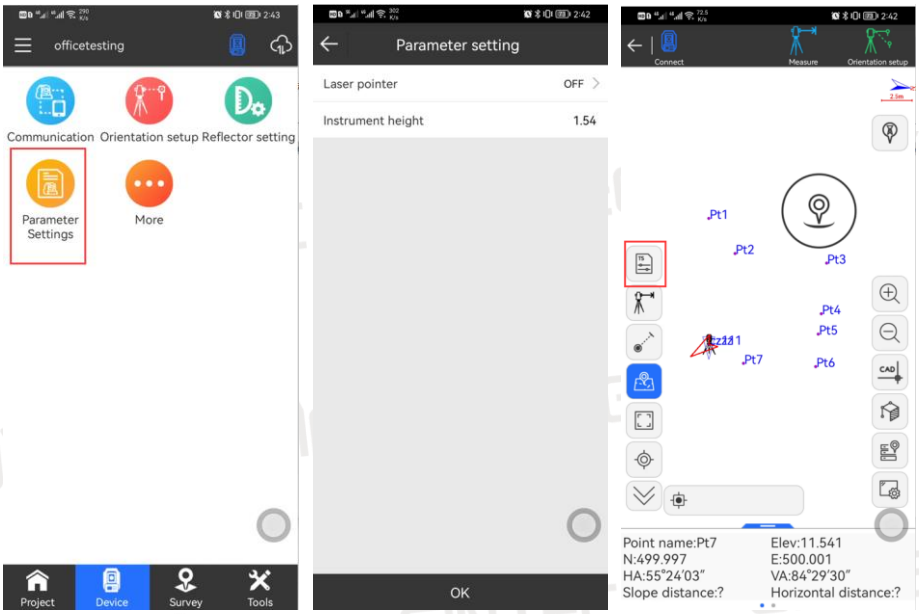


The target height is 0 by fault, and prism constant is not allowed to input when choose reflectorless or sheet.

Note: Please be careful to always check that the reflector type is set correctly. An incorrect type setting may cause the distance measurement to be unable to be performed.

2.2.2 Parameter Settings

This page is to set the instrument height and to switch the laser pointer. You can also enter this interface through shortcut button on the “Point Survey” page.



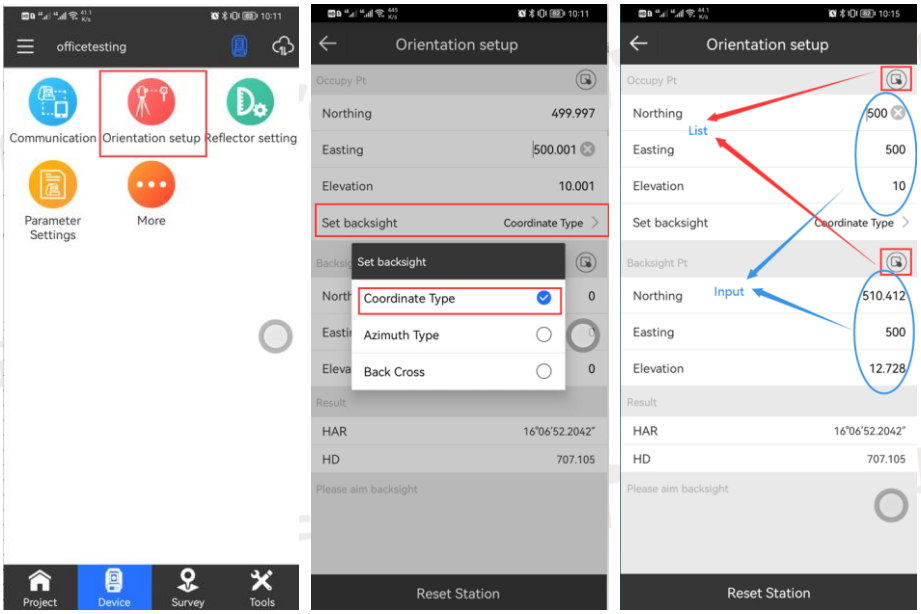
§2.3 Orientation setup

There are usually three ways to set up survey station and orientation: Angle/ Coordinate/ Resection.

2.3.1 Coordinate Type

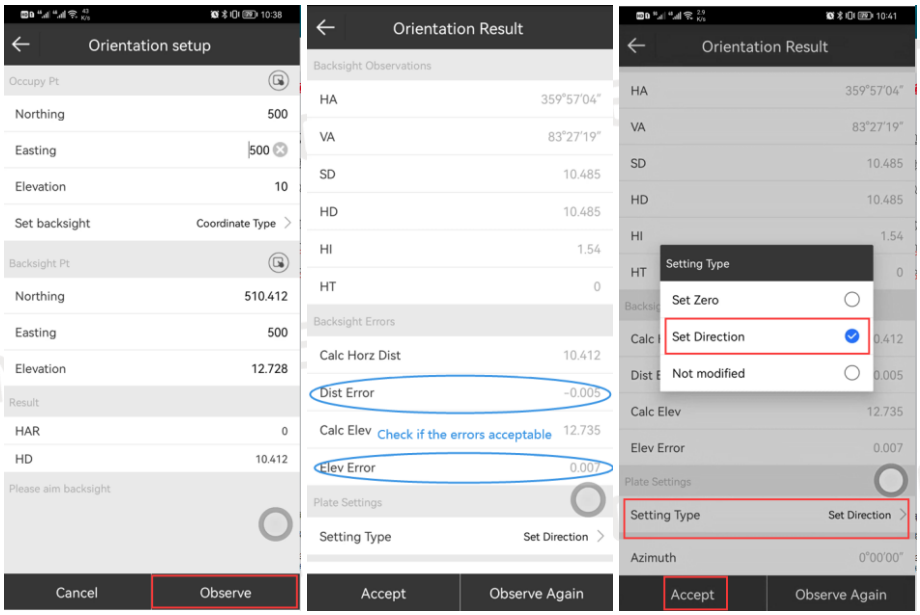
Step 1: Aim the M8 at the back sight point firstly, then operate choose “Coordinate Type” on the “Orientation Setup” function.

Step 2: Input or call the coordinates of station point and back sight point from known points list.



Step 3: Clip “Observe”, then it will show the result. Check if the distant and elevation errors

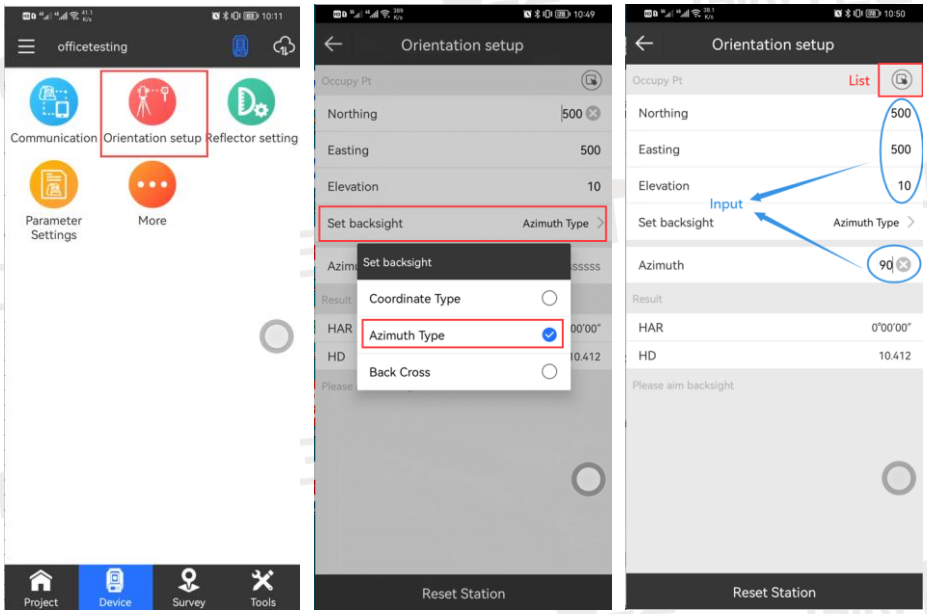
are acceptable and decide whether to aim and observe it again or accept the result. Remember to set the direction before clip “Accept”.



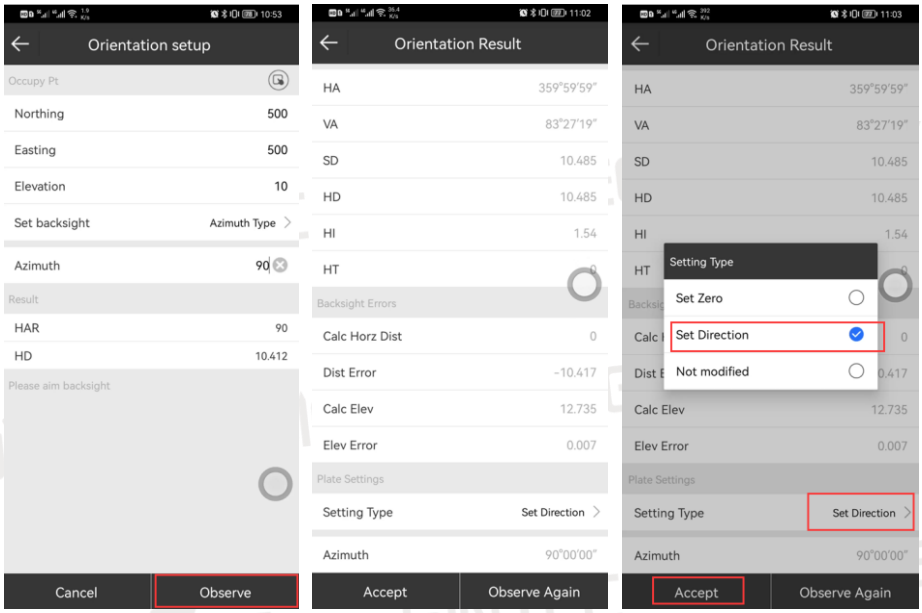
2.3.2 Azimuth Type

Step 1: Aim the M8 at the back sight point firstly, then operate choose “Azimuth Type” on the “Orientation Setup” function.

Step 2: Input or call the coordinates of station point from known points list, then input the Angle between the station and the known direction.



Step 3: Clip “Observe”, then it will show the result. Remember to set the direction before clip “Accept”.



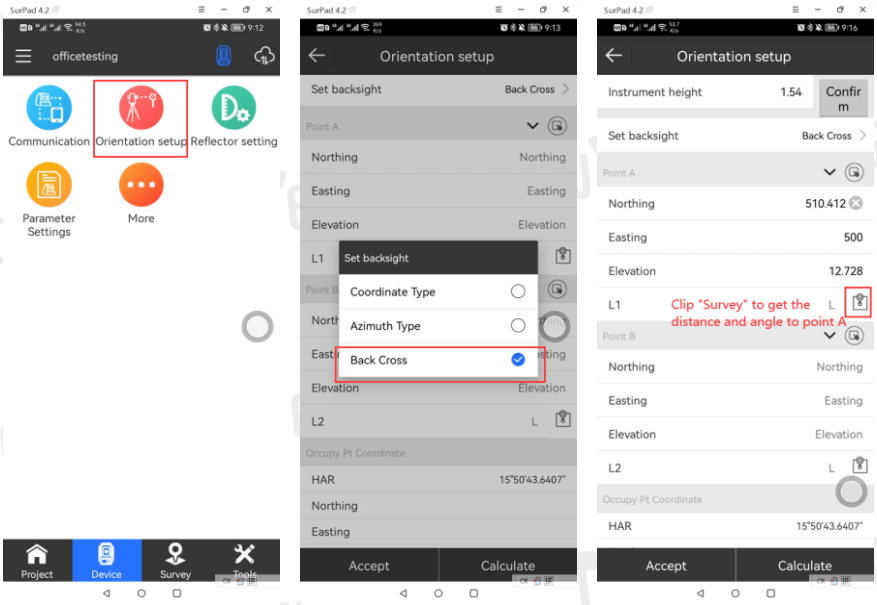
2.3.3 Resection (Free Station)

This function always used when you have more than 2 known points but don't know the coordinate of your station.

Step 1: Aim the M8 at the first know point A, then operate choose "Back Cross" on the "Orientation Setup" function.

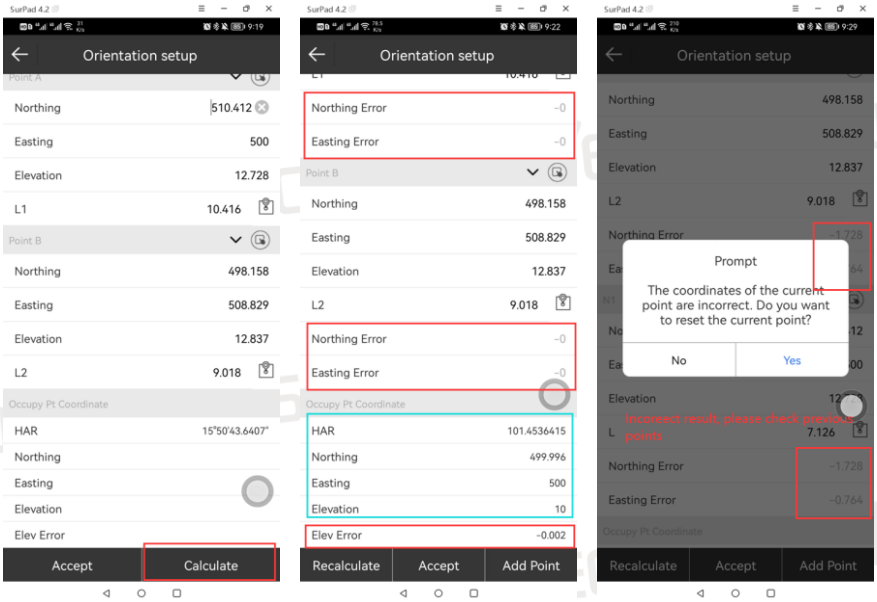
Step 2: Input or call the coordinates of point A from known points list, then clip "Survey" button.

Step 3: Now repeat steps 1 and 2 for the second known point B.



Step 4: After you have survey two known points, you can get a result of station point P by clip "Calculate". Check the error and see if you can accept it. If you can, clip "Accept" then the P will be saved, and station will be set. If not, you can add more known points and repeat step 3

until it gets an acceptable result.



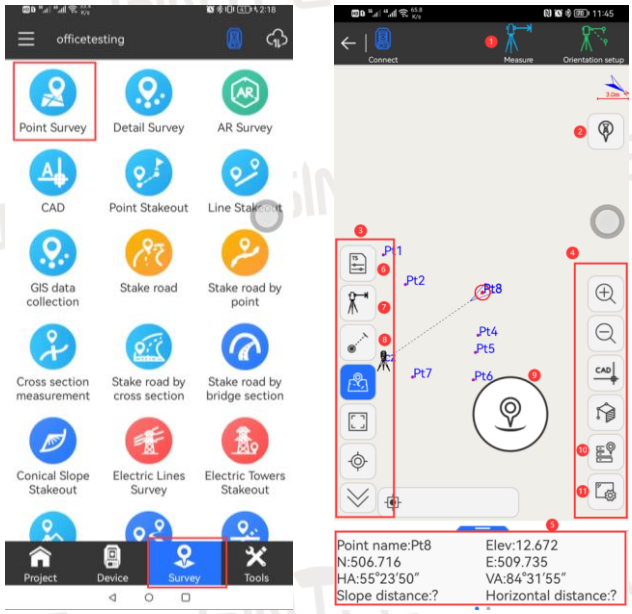
Note: When you see the "Prompt" like the last picture, that means the error is too big, you may aim at a wrong point or some of the known coordinates are not correct. Please check and try it again after checking.

Chapter 3 Survey and Stakeout

This chapter is to show how to use M8 survey and stakeout with Surpad.

§3.1 Point Survey

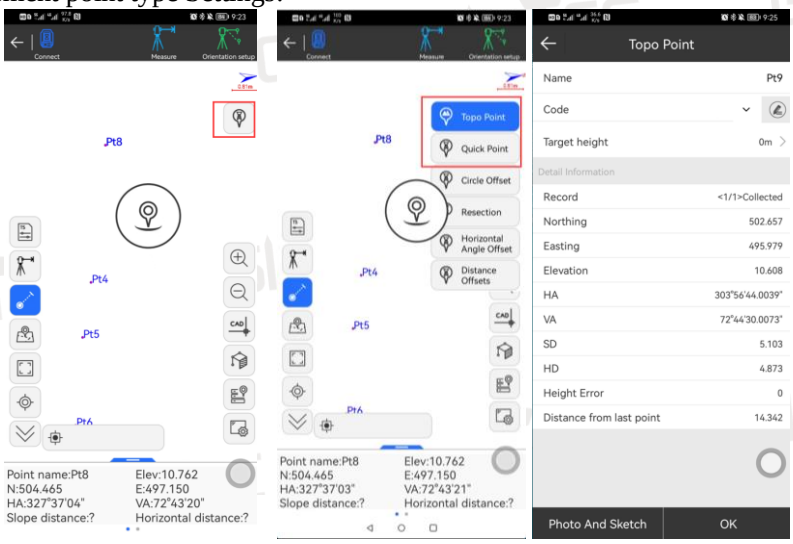
3.1.1 Page Common functions



As the picture shows, there are many functions in the point survey page, here we introduce some functions used more often:

(1)Tracking measurement mode: M8 will collect data every two seconds, and real-time coordinate changes will be displayed below, but not saved.

(2) Measurement point type Settings:



Topo Point: This is the surveying method by fault, you can always us this page to do the

survey job. When you clip the survey button, it will turn to the survey result page, and the point will be saved after you clip “OK”.

Quick Point: This is a surveying method that measure and save points, no need to jump to the measurement results interface.

⑶ Tool Bar.

⑷ Software Setup Bar.

⑸ Information Bar and Last Point Information.

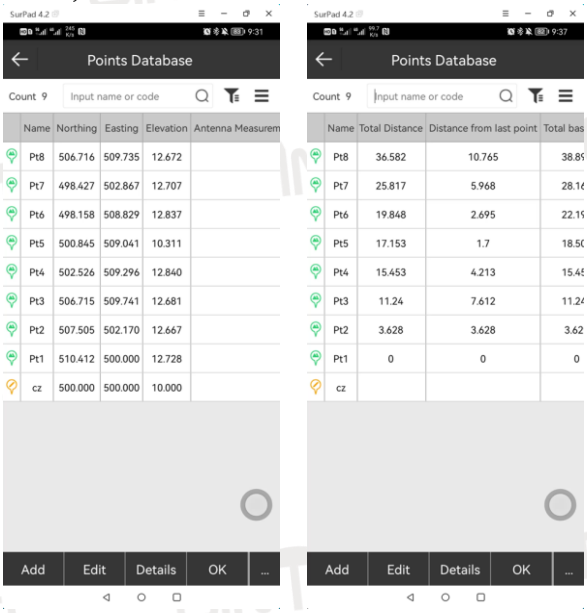
⑹ Parameter Setting: Quick button of it, see Section 2.2.2 for details.

⑺ Reflector Setting: Quick button of it, see Section 2.2.1 for details.

⑻ Laser Point: To switch the laser point.

⑼ Survey Button: To perform the measurement and save the results.

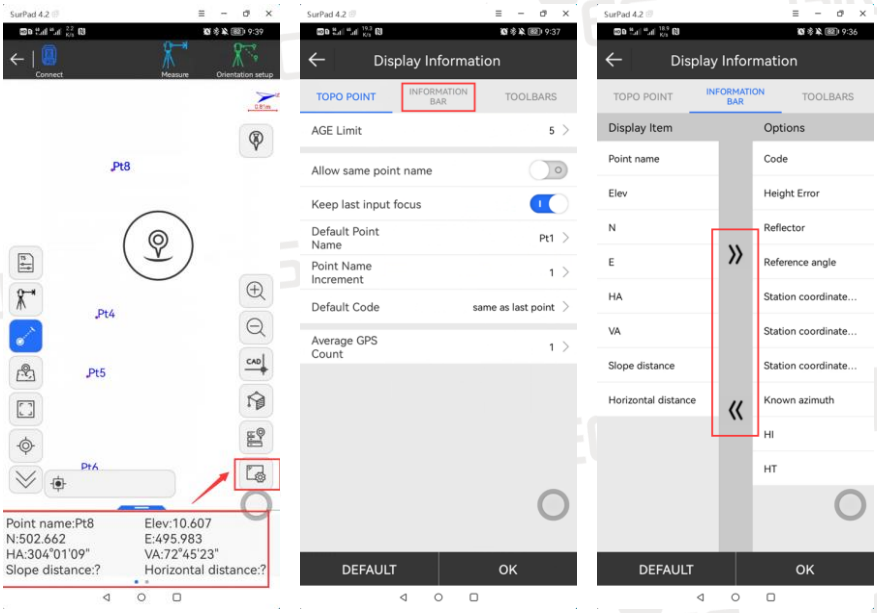
⑽ Point Database: To check the saved points details, including coordinates, station information, angle, and distance, etc.



⑾ Display Information setting: see Section 3.1.2 &3.1.3for details.

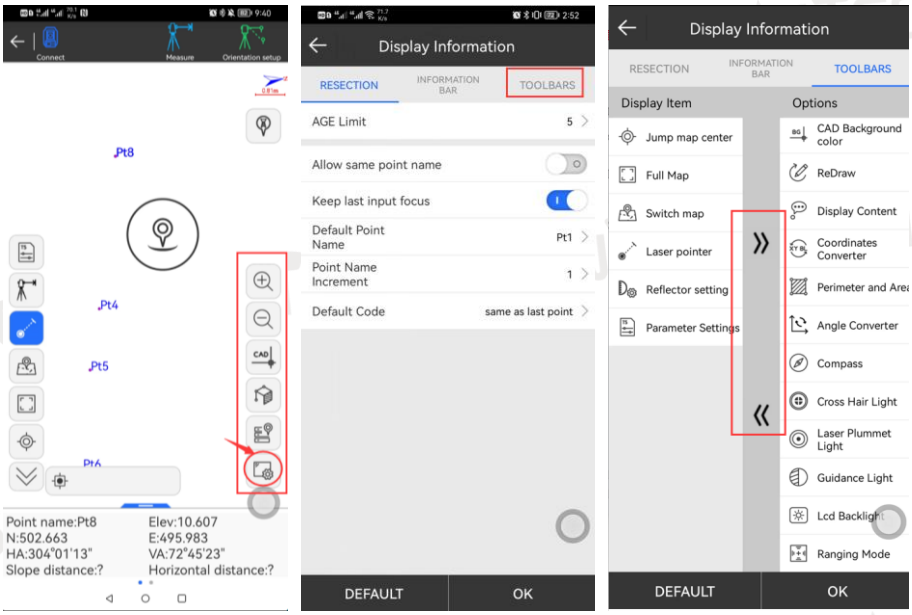
3.1.2 Information bar setting

The Information bar can be set through: “Display Information-Information bar”, as the following pictures shows:



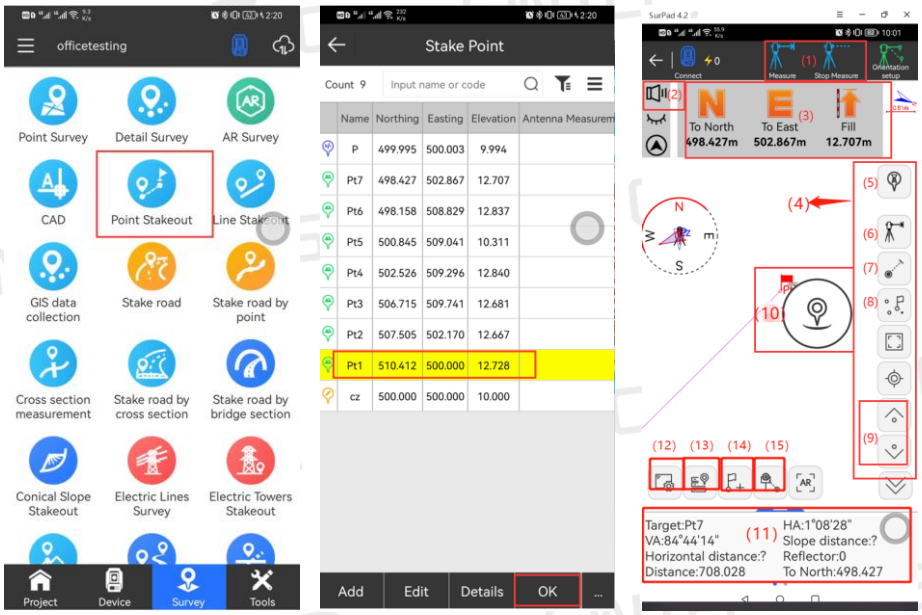
3.1.3 Shortcut button setting

The shortcut button can be set through: “Display Information-Toolbars”, as the following pictures show:



§3.2 Stakeout

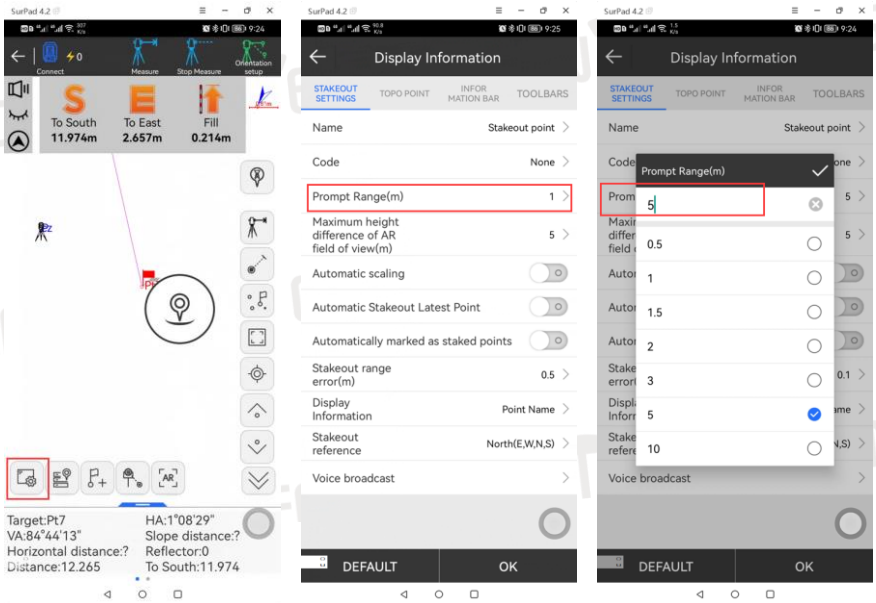
3.2.1 Page Common functions



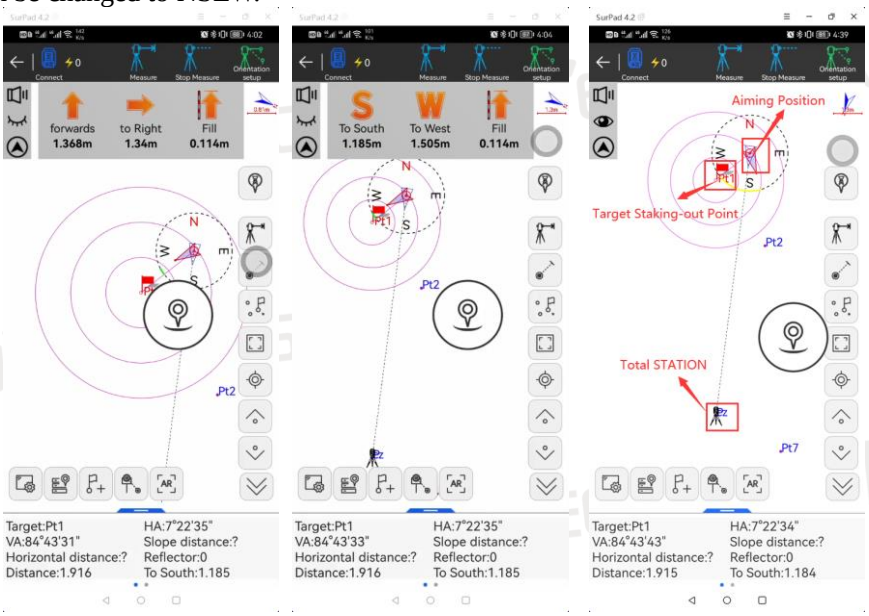
Once you have access to the "Point Stakeout" function, select the first point to be staked out and then click "OK" to enter the stakeout page. You can see many icons in this page, now let's introduce the main parts:

(1) **"Measure" and "Stop Measure":** Unlike RTK's staking out, deviation tips for total station staking-out can only be updated after each ranging. Click "Measure" key to carry out uninterrupted ranging to get real-time staking-out guidance, click "Stop Measure" key to stop measurement.

(2) Prompt Tone Switch: It's used to turn on and off staking-out prompt tone. When the prism is close to the coordinates of the lofting point, the beeping tone will prompt. The prompt range can be set by user.



(3) Azimuth and Distance Indication: The default mode is Forwards/Backwards and Left/Right. **The direction of the prism facing the total station is defined as the front.** This direction display can be changed to NSEW.



(4) Tool bar.

(5) Measurement Point Type Settings: See Section 3.1.1 for details.

(6) Reflector Setting: See Section 3.1.1 for details.

(7) Laser Point: To switch the laser point.

(8) Latest Point: Jump to the first to-be-staked-out point.

(9) The Last/Next Point to be Staked Out.

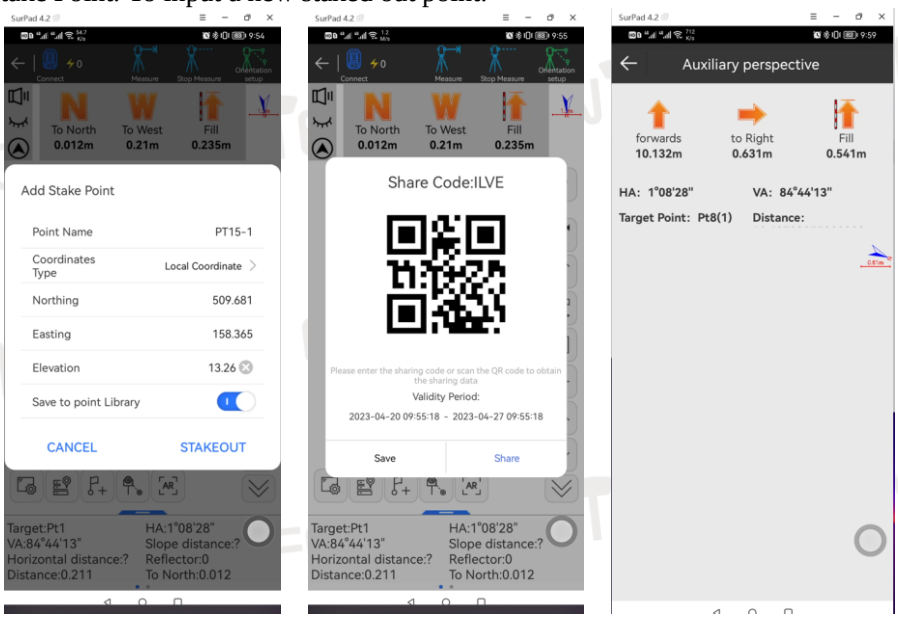
(10) Survey Button: To perform the measurement and save the results.

(11) Information Bar and Last Point Information.

(12) Display Information Setting.

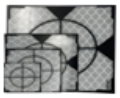
(13) Point Database: To check the saved points details, including coordinates, station information, angle, and distance, etc.

(14) Add Stake Point: To input a new staked out point.



(15)**Stake Out Sharing Function**: To generate a shared code for the prism officer to view the current lofting interface after scanning or inputing the code.

Appendix : Packing List

M8 Total Station						
1.Main body						
Name	Type	Description	Picture	Size（L*W*H）	Weight	QTY
Total station	M8	2", 2+2ppm 800m Reflectorless EDM		160*150*330mm	5.2KG	1
2.Accessories						
Name	Type	Description	Picture			QTY
Carrying Case	/	/				1
Battery	LB-01	7.4V 3100mAh				2
Charger and Cable	LC-10	Charger Adapter 8.4V-1.2A&Charging cable				1
Tool Pack	/	Tool Pack,Wipe Cloth, Wrench*2, Hex Wrenches *2, Screwdriver, Blush				1
Desiccant	/	Silica-Gel Drier				1
USB Drive	/	16GB				1
Reflective sheet	RP60, RP40, RP30, RP20	/				1
Plumb Bob	/	/				1
Lens Cap	/	/				1
Dust Cover	/	/				1

NOTE:

These designs, figures and specifications are subject to change without notice.

We shall not be held liable for damages resulting from errors in this instruction manual.