

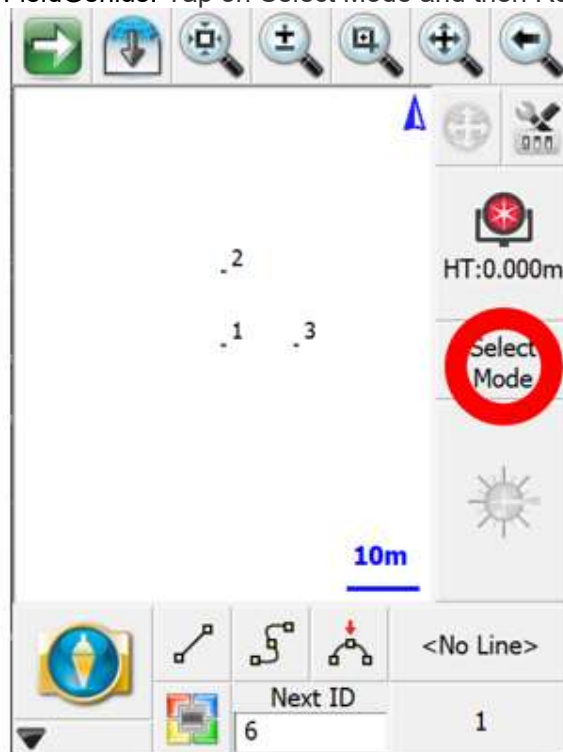
## Freestationing / Resection with FieldGenius

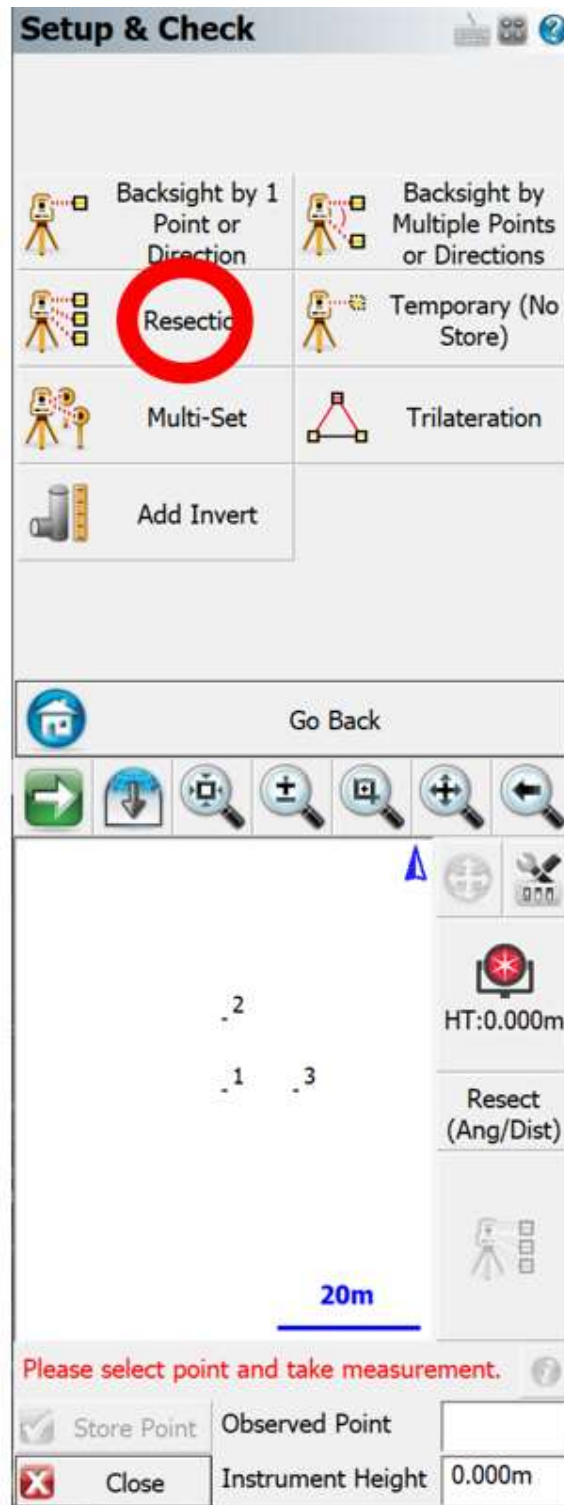
Created: 20221219\_DL

This manual has been prepared using FieldGenius Version 11.3.0.383. In general, there is not much difference between the various FieldGenius versions in Resection application.

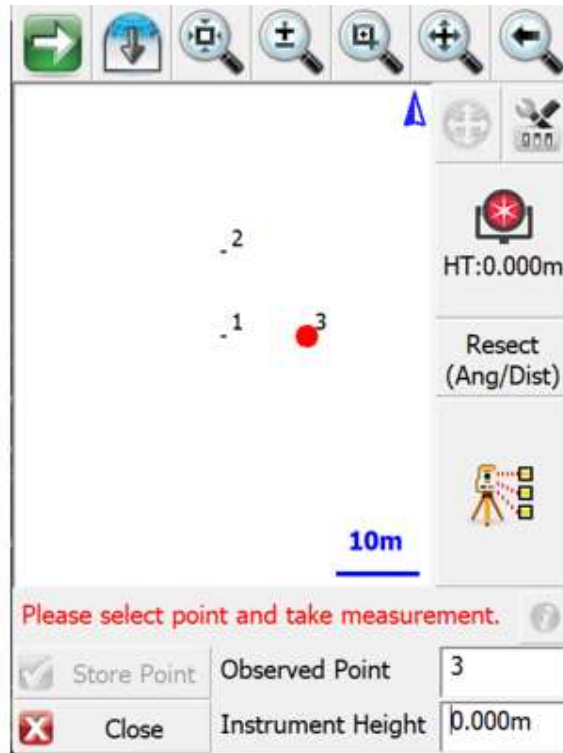
For calculating the resection, you need at least two points with known coordinates which you can see from your station position.

Start your FieldGenius software and open your job (or create new one and then import data). Go to the map view in FieldGenius. Tap on Select Mode and then Resection

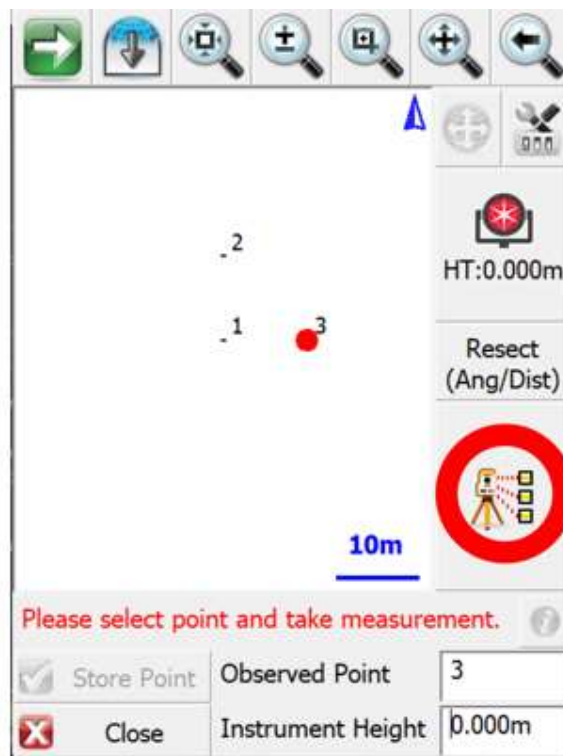




As you're going to calculate free station and you're not setting up the instrument over a specific point you don't need to input the height of the instrument. However, it is important to input the target type and height. Tapping on the target will take you to the target editor. Once you have that set up follow the on-screen instructions. Tap on the first backsight point you want to measure to. You'll see it highlighted red.

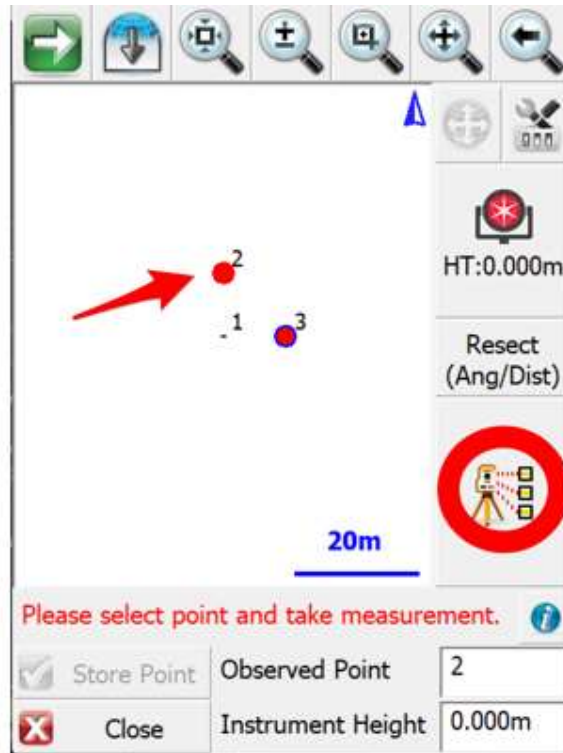


Be sure that the prism type and height is adjusted and hit measure button (the total station with three targets button).

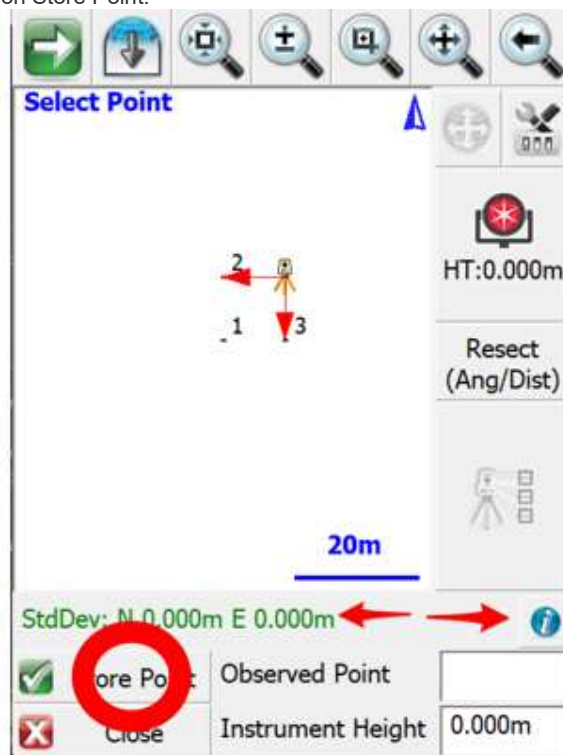


FieldGenius will show the progress bar of measuring the distance to the selected point and then will automatically go to the next point selection. At this stage there is no total station icon on the map as the software cannot calculate its position yet.

Select the second backsight point from the map by tapping on it (it will become marked red), aim on the point in the field with telescope. Ensure that you have a proper target type and its height and then tap measure button (total station with three targets).



FieldGenius will measure the distance with total station, and it will go back to the point selection mode. At that stage you will be able to see the position of the total station which will give you a quick indication of the position. You will also see accuracy of calculated position. To get more details tap in the "i" icon where you can review your points and see the results. You can add another point if you want to make the resection with more than two points. Simply tap on the next point and follow the steps like for the previous points. If you would like to finish the calculation at this point tap on Store Point.



This will take you to the screen where you will be able to change the description of calculated point. Put the description STN in the Description field to recognize the station in the future and hit Store Point again.

**Store Point**

Point ID: 6

Description: STN

Northing: 110.000m

Easting: 110.000m

Elevation: 100.000m

Store As: User Point

Buttons: Review Measurement, Advanced, GIS Attributes, Enter Note, Store Point, Cancel

Check the results of your resection. Pay special attention to the Backsight errors. If the resection is done properly, they shouldn't be higher than 2mm. Note this highly depends on the quality of control (backsight) coordinates. You can accept the results here or repeat the measurements.

**Orientation Result**

**Backsight Observations**  
HA 0°00'00" VA 90°00'00"  
SD 10.000m HD 10.000m  
HI 0.000m HT 0.000m

**Backsight Errors**  
Calc Horz Dist 10.000m  
Dist Error 0.000m  
Calc Elev 100.000m  
Elev Error 0.000m  
 Reciprocate Traverse

**Plate Setting**  
Do Not Modify 0°00'00"

Buttons: Accept, Observe Again, Cancel

Accepting the results of your stationing will orientate the total station in the field. The FieldGenius will take you automatically to the staking out application. If you want to survey points instead of setting them out, simply hit close and that will take you to the map view and sideshot surveying.