

Precision Geomatics

RESECTION FUNCTION ON SET510/610

Set up and level the instrument over ground mark in the normal way, switch on and initialise the circles.

Or set up and roughly centre, switch on, initialise, then centre and level using the electronic bubble.

In Measure Mode, FUNC, TILT, bring bubble to centre of circle or use bring X,Y tilt values to zero.

1. Go to the RESEC function if on screen, or to MENU and scroll to 2nd page for Resection, enter to select.
2. This displays Pt.1 and a set of co-ordinates. Enter the co-ordinates of the first point to be observed, either by hand using the EDIT function, (these can be REC if required), or READ from the memory.

* Resection requires a minimum of 2 control points to be observed, and must be in a clockwise direction.
3. Right arrow key to Pt.2, enter co-ordinates as above. Enter a 3rd or more points as required.
4. Once co-ordinates of the control points have been entered press MEAS. The display shows the co-ordinates for Pt.1, check and then aim total station at the target and press DIST.
5. The observations are displayed, and the target height entered if required by using the EDIT key, then accept by pressing YES.

6. Pt.2 co-ordinates are displayed, check and then aim at the target and press DIST. Enter target height if required.
7. Press YES if more points to be observed, or CALC. This then calculates the co-ordinates of the total station set up point, and shows the residual error if 3 or more points are observed.
OK allows you to accept the co-ordinates and then set the horizontal angle.
REC allows you to save the co-ordinate and give it a point number.
ADD means you can observe more points before re-calculating.
RE-OBS allows for re-observing the same points.
8. It is always, best if using a two point resection, to co-ordinate a known point once the resection calculation has been completed to check everything is correct. If the points were not observed in a clockwise direction then the calculated point will be the wrong side of the baseline between the control points.

Sources of Error:

In a 2 point resection if the set-up point is on or near the baseline between the two control points then the resection calculation is not possible.

In a 3 or more point resection the above should be avoided as is a set-up point that falls on the circle through the control points.