

GPS VS TOTAL STATION

Customers frequently ask us the differences between using a GPS Rover and a Total Station (TS), whether the latter is a 1-man robotic or 2-man system. The following is a brief comparison of the various issues that arise using the different instruments in the [Geomax](#) range using [FieldGenius Premium Software](#)



COMPARISON OF GPS ROVERS & 1/2-MAN TOTAL STATIONS

	<u>See Notes Below</u>	<u>Zenith20 GPS Network Rover</u>	<u>Zoom80 5" 1- man Robotic TS</u>	<u>Zipp 20 Pro 5" 2-man TS</u>
COST (excl. VAT)	1	€8995	€19995	€6995
1-man/2-man system		1	1	2
Accuracy		+/-10mm horiz. +/-20mm vert.	5" angular 1mm distance	5" 2mm distance
Requires stationing /setup/backsight	2	N	Y	Y
ITM or Irish Grid co-ords	3	Y Y	Y/N Y/N	Y/N Y/N
Output: Excel file Autocad .dxf		Y Y	Y Y	Y Y
Input/Output to USB memory stick		Y	Y	Y
Survey close to buildings/trees	4	Y	Y	Y
Survey under trees, in forest/woodland	5	N	Y	Y
Survey eaves/building heights	6	Y	Y	Y
Areas/Volumes/Contours in the field	7	Y	Y	Y
Input: Excel file Autocad .dxf		Y Y	Y Y	Y Y
Setting out direct from Autocad .dxf	8	Y	Y	Y
Setting out holding down bolts		N	Y	Y
Setting out houses	9	Y/N	Y	Y

Notes:

- 1 Cost of instruments vary from brand to brand, the above prices are for the complete kit for the instruments mentioned. The GPS Rover also requires an annual Network Subscription Service to supply corrections.
- 2 Setting up a Total Station on a station point or free-stationing is one of the biggest time-consuming drawbacks of using a total station (15-30 minutes)

- each time). The GPS Rover is an out-of-the-box instrument, take it out, turn it on, start surveying
- 3 A GPS Rover gives immediate ITM or Irish Grid Co-ordinates. You can only get the same when using a total station if you station on and backsight to points with know ITM or Irish Grid co-ordinates
 - 4 With the GPS Rover, when you move beside buildings or near trees you immediately block part of the sky and hence the satellites. However, you can still survey close to trees or buildings by using offset. [Geomax FieldGenius Premium](#) on-board software gives easy access to line offsets and trilateration for accurate position of trees.
 - 5 If you are in a forest or woodland the GPS Rover will not be able to see sufficient satellites to get a fixed position
 - 6 With a reflectorless total station you can easily survey the eaves and building heights to get a streetscape. On a GPS Rover you can do the same with the optional addition of a Disto D510 with integral zoom camera, which can give heights and positions of buildings using trilateration.
 - 7 With [Geomax FieldGenius Premium](#) on-board software the GPS Rover datalogger will give areas, volumes and contours in the field. Other software brands may have these as optional extras.
 - 8 Loading a drawing direct from Autocad and proceeding directly to set out lines, features, buildings is one of the most time-saving features of a GPS Rover.
 - 9 On using the GPS Rover for setting out houses, opinions are divided. Some of our customers have been using them setting out houses for years. Others say that the positioning accuracy is not good enough.
One of the off-putting features of setting out for the latter users is that while holding the GPS Rover on a point the position keeps varying up to 10mm, on a second-by-second basis. This is unlike a Total Station where repeated measurements will generally be within 1-2mm. However, the GPS Rover user can get good quality control by automatically recording the setout point and see immediately that it is accurate enough for positioning.

If you would like more information on using GPS Rovers see our previous emails about them:

- 1 [How Surveying GPS Works](#)
- 2 [Using Surveying GPS near buildings and trees](#)
- 3 [NEVER learn to use a total station again](#)

To hire an instrument or get a quotation give us a call **01-2572323** or email:

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