

Advice on Buying and Using GPSs

Buying

1. Even basic models do more than most users will ever need. So, I recommend a basic model like the yellow Garmin eTrex 10 for under £100. The only drawback of this model is that the text is a bit small, but it is possible to adjust the readout to use twice the normal font size - see the [eTrex 10 manual](#). Cheapest on-line (Amazon) but Argos and outdoor activities shops all stock them.
2. Buying GPSs which can display maps: These can display position on a map, but the size of the screen and the scale of the maps reduce usefulness. Also, the GPSs are quite expensive (£150+) and the maps usually have to be bought separately and are also expensive.
3. The Garmin Foretrex is a lightweight, wrist-mounted GPS with built-in rechargeables and most of the features of larger models. The Foretrex 401 costs just over £125 and is more expensive than an eTrex 10, but it is very good for keeping hands free and being readily viewable.
4. Smartphones can give very accurate Grid References and many use the Russian Satellite network as well as the American GPS network, to improve accuracy. However, you must always wait a few moments before taking a reading to allow your phone to reach full accuracy because, unlike Garmin GPSs, they will give a reading straight away even when the given accuracy is over +/- 1km! "[OS Maps](#)", "[Memory Map](#)" and other apps will very helpfully display your position on a detailed map. You can even text, email or tweet your location with a message using "[OS Maps](#)" or the "[GB](#) or [Irish](#) Grid Ref Compass" app - handy if you are caught short without a notepad and pen! The main problem with using phones as GPSs is that it tends to flatten their batteries rather quickly.

Using

1. Make sure that your GPS is set-up correctly! Check that the Position Format is set to 'British Grid'. Or Set-up > Position Format 'Irish Grid' and set the Map Datum to 'Ireland 1965'.
2. All new Garmin GPSs use the Russian Satellite GLONASS network, as well as the American GPS network. Using both enhances time to lock up and improves accuracy. But you must enable it. In the Garmin eTrex 10 go to Setup>System>Satellite System and select "GPS+GLONASS".
3. WAAS (Wide Area Augmentation System) - Nearly all new GPSs have WAAS which improves the positioning accuracy. *But it must be switched on.* To do this on Garmin eTrex 10 go to Setup > System > WAAS/EGNOS and select Yes. If a GPS is receiving the WAAS correction signals a small 'D' will appear on the satellite strength bars on the Satellite page. It sometimes takes the GPS some time to lock-up to these additional signals and often only after being stationary for several minutes.
4. Always check the accuracy before you take a reading – wait until it reaches +/-3m if possible. Given this accuracy it is not worth quoting grid references to 10 figures, which implies a resolution of 1 metre. Also, the long string of digits may only increase the chance of a transcription error. I prefer 8 digits but if you use 8, take care to avoid errors when doing the conversion.

5. Leave GPSs on all day for improved accuracy, especially using them intensively. There is also no delay while the GPS locks-on. Keep the GPS at the very top of rucksacks or attached to rucksack shoulder straps or waist belts so that it can readily pick up satellite signals.
6. If the Trip Computer Page is reset at the outset and the machine is left on, at the end of the day the GPS will accurately indicate the total distance travelled.
7. Use Rechargeable Batteries. Nearly all GPSs will work for two full field days with a new set of alkaline batteries. But this is expensive and not very environmentally friendly – a much better idea is to use high capacity re-chargeable batteries. If the GPS uses AA type batteries get 2,500mAh ones as a minimum (2,700 and 2,850mAh are also available but are more expensive).
8. Make sure you tell your eTrex 10 which type of battery you are using. Setup>System>Battery Type.
9. Always take a spare set of batteries – regardless of type. They always go flat when needed most!
10. Buy a padded bag to protect the GPS in case of drops and scratches. Some GPS screens score quite easily – and usually exactly where you want to read the grid reference.
11. Do not obstruct the GPS by crowding it or holding your hand over the antenna – usually in the upper part of the device. Satellite signals do not go through heads or hands very well! The GPS's satellite view page gives accuracy – wait until it gets down to 3 or 4 metres.
12. GPS Altitude readings are never as accurate as their horizontal positions. Typically, they are 1.5 x to 2 x less accurate. But this is still pretty good. If altitude is important then some models like the Geko 301 include a barometric altimeter – but these need regular re-calibration every time you pass a known spot height (e.g. a trig point). Alternatively, precisely plot position on a detailed map and interpolate between contours.
13. Learn to use the GOTO function! This is extremely useful when trying to refind population sites with reasonably detailed grid references. The GPS will give the bearing and distance to the target. Check on a map that your destination is not on the other side of an abyss, or some other navigational obstacle, before following the GPS's instructions!
14. Locate Photographs. Mark Waypoints when taking photographs and that will give the precise time and place which can be matched with the time in the photograph's properties.
15. Using GPSs with digital maps: All GPSs can be connected to PCs but this requires the correct interface cable. It is then possible to download tracks along with any waypoints into software such as Memory-Map, which will display it superimposed on an OS map background. This is useful as it shows precisely the route taken, with timings. (This is another way to match up with photographs.) Tracks can also be imported to display on Google Earth.