

Topcon's Elite Show at Olympic Park



GW recently saw how Topcon's Elite software suite integrated with the company's latest hardware. The venue was next to the structural steel eyesore, or elegant sculpture, depending on your point of view, known by the snappy title of the AcelorMittal Orbit. Reaching it involves a hard trek from Stratford Station through the temptations of the Westfield shopping centre, paying close attention to easily missed signs.

In the September/October issue of GW we reported on Topcon's new suite of integrated hardware and software aimed at survey professionals. Last November we had the opportunity of hearing in more detail what this suite can do from Topcon's Peter Roberts and Mark Billingsley, senior trainer for the company's geospatial and construction division.

In an era when clients expect to give surveyors the CAD design drawing so that they can take it to site for setting out, Roberts has a vision of elevating the site surveyor from peg basher to site data manager through software. So let's see how Topcon's solution can help that process along.

As previously reported, Elite relies on Topcon's MAGNET enterprise software, now in version 4.0. The current hardware line-up for Elite includes the new GT series of total stations, a six model range with ultrasonic motors, bright colour touch displays and integrated cellular modems; the Hybrid GNSS, a 452-channel receiver that weighs just 1kg and can be used as a network rover or base station; and the FC5000 controller, a rugged tablet running Windows 10 with a 4g SIM card. Topcon has also introduced a tilt function for their detail pole (up to 15° out of vertical will be corrected).

MAGNET, described as a cloud solution for the enterprise, is the way that Topcon connects the field with the office environment. With a cellular link and Wi-fi between the field elements, transferring data should be a breeze. Mark Billingsley regards the system in the same way as an iPhone: you take a photo and instantly it goes to the iCloud, enabling anyone with permission to view it in their browser. "It's a three-way communication – field, cloud, office. It gives simultaneous access to a data file to anyone working anywhere in the world with an internet connection."

Demonstrating the system, Billingsley showed how a user's access is defined by a specific email address. Uploading is simple and follows similar principles to Dropbox. Files are set up for each project: clicking on a project immediately syncs the user with that project, enabling data to be transferred. The survey itself can be viewed, checked and overlaid on background imagery or mapping. Once uploaded, the system can send an SMS message to others in the project loop. It is also possible for users to see who else is currently online. A "chat" message appears on the controller, rather than a personal mobile, which may be switched off.

Like most solutions these days MAGNET Office is very much icon driven through a series of apps. Billingsley regards it as "the glue that brings the hardware and software together". Core apps are the Data Manager and Map, which georeferences the survey. "What MAGNET gives you", he says, "is reporting and visualisation of the survey." Data is viewed in a spreadsheet environment. The reporting functionality also includes productivity, enabling managers to see how productive the survey crew were by identifying points over time, distance and the sequence in which they were captured. You are being watched!

Once in the cloud, the raw data can be processed and checked for integrity before going into a CAD file (Bentley or Autodesk). Observations are identified by whether they came from GNSS or optical readings.

The Roads app which Billingsley demoed, is a comprehensive design tool that includes plan, profile and cross-section views plus intersections, sub-grades, cut & fill volume comparisons and even 3D fly-through simulations. From there the survey can be smoothed, kerbs added, cross-sections created at defined intervals. Once finished, the file can be sent to a client, back to the field for setting out or to a machine control system.

Topcon uses their own unique file format across all the company's platforms. Known as TP3, it enables data as diverse as localisation, GPS calibration, a road, points indeed any entity which goes in a design file, to be incorporated within one file. It is used across Topcon's portfolio of apps – topo, mass data collection, UAVs, static scanning, drainage, railway design, BIM visualisation and more.

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