

Total Stations with Auto Scan Help to Build China's Expressway Network



Spectra Precision FOCUS 35 robotic total stations are hard at work helping to build the world's largest expressway network in China. In one notable example, the FOCUS 35, with its time-saving automatic scan template, is checking the cross-section quality of the twin Nan Kunshan tunnels for the new six-lane Shazhan S14 regional highway.

Excavation under Nankun Mountain for the twin tunnels, each 4.1km long and capable of carrying three lanes of vehicular traffic, began in September 2016. In the current second phase of construction, the FOCUS 35 is being used to gather data that will be used to compare the as-built tunnels to the design specifications to determine what adjustments to the tunnel surfaces may need to be made.

Total station workflow

The FOCUS 35 was selected for the scanning work because it offers a particularly streamlined and efficient workflow that yields significant time-savings. The workflow of a conventional total station requires time-consuming manual scanning followed by export to a separate post processing function after which a DXF file is generated. The FOCUS 35, with its Trimble Access Tunnel software, saves significant time because it automatically scans and directly generates DXF reports for submission to the contractor to check over-break and under-break values.

When completed, the new six-lane, 800 km Shazhan highway will connect Shantou and Zhanjiang, two important coastal cities in southern Guangdong province. The contractor for the Nan Kunshan tunnels is ChangDa Highway Engineering Co. Ltd.

The Spectra Precision FOCUS 35 is a motorised total station providing high speed, accuracy and precise measurement. The speed of observation and precise positioning of the FOCUS 35 Robotic Total Station is provided by patented StepDrive motion technology, which controls the horizontal and vertical motion of the motors, eliminating the need for traditional motion locks. The FOCUS 35 includes a tracking sensor that uses LockNGo FastTrack tracking technology, enabling the instrument to constantly lock onto the prism.