

Case Study

Customer:
Sumo Services

Project:

Monitoring a fire devastated hotel

Solution:

Trimble S9 Robotic Total Station and Trimble T4D monitoring software



to the site and provide web portal access to the monitoring data and any generated charts, reports etc. This information would be accessible by both the client and Sumo Services.

Communication hub is key

KOREC suggested that the system's low maintenance and proven reliability would be further enhanced through the use of a Settop M1 Communications hub. This hub

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Paul Williams
Sumo Services

can be plugged into a power source (in this case a 120v power supply) and the Trimble S9. The M1 can also be used to set up measurement regimes, power the S9, reset the total station if necessary and buffer data on board if there is any interruption to the connection, allowing for information to be passed to T4D when the connection becomes live again. This “watchdog” solution that the M1 offers, combined with its communication

ability allows for robust and trouble-free operation of the system.

For Paul, the major advantages of using the M1 were that it could be used to power his S9 which was only accessible via crane and that it would also bring an added layer of reliability to a round the clock remote operation.



▲ Showing the Trimble S9 in position

Plug and Play Monitoring

Simple, robust and reliable, the compact M1 communications hub connected to a Trimble Robotic Total Station is the key to a safe, straight forward and reliable monitoring system for a fire devastated hotel.

The Royal Clarence Hotel in Exeter, described as England's oldest hotel, is set to be returned to its former glory following a major fire in 2016. The project will see every effort being made to preserve as many surviving features of historic and architectural importance as possible and a new façade will be designed to replicate the old one as far as possible. Whilst work has begun to stabilise the building and save as much as possible of what remains, it is vital that these retained areas are monitored twenty-four hours a day to ensure the safety of those on site.

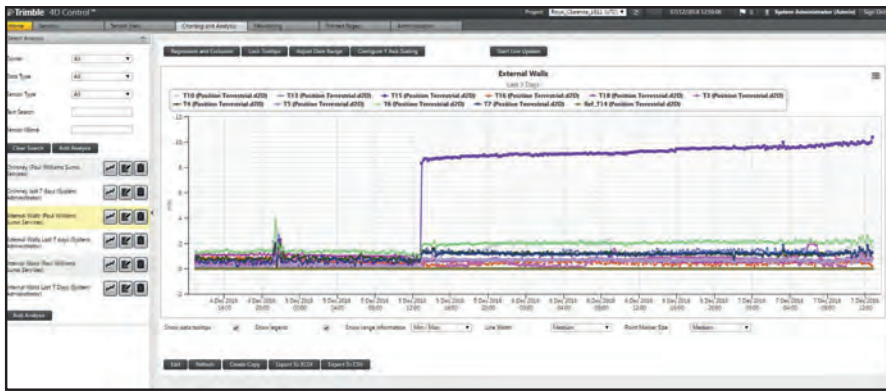
Reliable and low-maintenance remote monitoring system required

Contracted to establish a monitoring system on this project is fast growing survey company, Sumo Services. As a long term KOREC and Trimble customer, Sumo Services Director Paul Williams therefore consulted KOREC's monitoring specialists for advice on a simple yet reliable system that would deliver accurate,

live information to both Sumo Services and the construction company undertaking the works.

Following an analysis of the site, a Trimble high-accuracy S9 Robotic Total Station was selected for the project based on its mag-drive servo reliability, low maintenance requirements and robust build quality enabling it to withstand the weather in an elevated position open to the elements. The S9 provides great accuracy through its FineLock technology which concentrates the analysis beam when looking for targets (<1 mm at 300m) ensuring that it detects each prism correctly, without interference from surrounding targets. FineLock also dictates that the S9 averages 670 aimings per measurement which provides the very precise horizontal and vertical angles that monitoring demands making it an ideal choice for this application.

The S9 would be used in conjunction with Trimble's 4D Control Monitoring Software (T4D) which would run on a lap top remote



▲ Graph showing movement detected by prism T15, circled in red

Up and running

Once on site, a crane and basket were used to ensure that Paul could safely drill and bolt the S9's frame high up on a chimney where the instrument would have a clear line of site to the twenty prisms screwed into the walls. Additionally, Paul opted to use three tilt sensors to supplement the prisms. The Settop M1 and tilt sensor data gateway were both placed in a weather proof box up the chimney with just the one power supply required.

With support from KOREC, the tilt sensor gateway was configured, the T4D software was set up to accept data from the S9 and tilt sensors and the system was up and running.

With the system recording rounds every five minutes, Paul uses the T4D software to set the alarm thresholds for any movement and also to generate graphs of change over time. The reports are split to group the targets, for example, external walls, internal walls and chimney, and show graphs over a seven day window and seven hour window.

Alarms triggered

Paul reports that the system has already proved itself several times providing vital information for the construction company using the data.

- The project includes excavation works down into the cellar next to a damaged

chimney stack which was causing concern. On one occasion, scaffolding was being loaded near the chimney, triggering an alarm. The construction company was able to act immediately and prevent any further overloading of the scaffolding which moved back into position shortly afterwards.

- During December, a wall was being shored up with new scaffolding pushing one target nearly 10mm over from its original position. An alarm was triggered as a result of readings to Target T15 which indicated a huge jump in position at around 1.00pm. Despite this occurring during the heavily reported O2 outage that affected users across the country, the settop M1 kept all the data, sending it to T4D once the phone signal was restored, showing that this trend continued.

Paul concludes that the system is providing exactly what Sumo's client required and that he found it extremely easy to install and use. "All the boxes arrived and I just put them in the car and drove to the hotel site, had an induction and got down to drilling and bolting the frame to the chimney, attached the instrument and plugged everything in - if I'm making it sound easy, that's because it was!"

Thank you to Paul Williams of Sumo Services for supplying the information and images. www.sumoservices.com



▲ Paul Williams preparing to fix the Trimble S9 to the wall



▲ Plug and play - settop M1



Contact us:

Please do get in touch for further information on any of the products or services mentioned in this case study, a demonstration, support or just a chat about your requirements.

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