Arts & Leisure Case Study

Witley Court Fountain - Worcestershire

You can literally set your watch by the newly restored Perseus and Andromeda fountain at Witley Court in Worcestershire. At pre-determined times it is brought to life by a Trend control package comprising an IQ intelligent controller, ten NX variable speed drives and a TimeMaster unit that synchronises the IQ to an atomic clock time signal, which is accurate to a second in one million years. The system was designed and installed by Ser-Tec Systems Ltd, working to a specification created by consultants Engineering Services Design Practice.

Installation of the Trend equipment was part of a £1million project that has seen the spectacular monumental fountain extensively repaired and returned to full working order. Built in the mid-19th century, it is the centrepiece of magnificent landscaped gardens that surround the ruins of Witley Court, a vast Italianate mansion. Comprising a 20t block sculpture at the centre of a 54m diameter pool, the fountain is among the largest of its type in Europe. Its restoration was made possible by a £727,500 grant from the Heritage Lottery Fund, the remaining funding coming from English Heritage, who are responsible for the site.

The visiting public can now see the fountain much as it was 70 years ago, which was when it last operated. Back then, it was powered by natural means, its water supply being gravity fed from a nearby lake and the flow regulated using a hand-operated valve.

Today, ten pumps re-circulate water from the fountain's pool, their operation controlled by the Trend system.

A main jet produces a central plume reaching heights up to 30m. Around this, water arches from a further 28 jets arranged in four groups – each associated with a particular feature of the fountain. Each set is served by a pair of pumps, as is the main jet. Four modes of operation have been programmed into the Trend IQ controller. These determine which jets are used, the order they fire in, how long they operate for and the time taken to bring them up to and down from full flow, which is controlled via the NX variable speed drives. Depending on the programme, a display lasts from 15 to 20 minutes.

The IQ activates a particular programme according to the time of day and the date. During spring and summer there is at least one display per day, with there always being three at weekends and on Bank Holidays – at 11.00am, 2.00pm and 4.00pm. English Heritage was understandably insistent that each programme should begin at precisely the time advertised. The Trend TimeMaster offered a simple means of satisfying this requirement. Incorporating a radio-controlled clock, it receives time code

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binary signals from the National Physical Laboratory's atomic clock in Rugby. At regular intervals it sets the real time clock in the IQ, correcting any drift that may have occurred.

The IQ also connects to a Trend wind meter. The pumps supplying the main jet are shut off if the wind speed is greater than 6m/sec, thereby ensuring that spectators are not sprayed with water. Other variables monitored by the IQ are the pool water level and temperature, the return water pressure and the air temperature. If any of these were to fall below a pre-set limit, operation of the fountain would be prevented.

A hand-held radio signal control device has been provided to allow remote monitoring and manual override of the control system, which is located in an extension to the tunnel through which water for the fountain was once piped.
It can be used to select and run a particular programme, to cancel a display or to stop one after it has started. Pressing a particular button on the device will generate an audible warning if any faults have occurred – such as the failure of a pump.

Ser-tec Systems were awarded the controls contract because of their ability to supply and engineer all elements of the package. They chose Trend equipment because it offered the most flexible and cost-effective solution.

Henry Morgan (Chester) Ltd was the contractor for the electrical services and controls wiring.

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