



TAC Supplies the UK's First "Super Hospital" With LONWORKS® Open System

Intelligent building systems specialist, TAC, is currently implementing a new LONWORKS based system that will transform the old Manchester Royal Infirmary (MRI) into a modern, integrated hospital facility. Due for completion in 2009, this is the largest project of its kind in the UK, involving the redevelopment of a cluster of five out-of-date teaching hospitals. By housing patients and specialists under one roof, MRI hopes to reduce costs and minimise the number of cancelled operations.

The new building management system was designed by TAC to control, monitor and interact with every aspect of the building, providing a safe, secure and comfortable environment for staff, patients and visitors. This is no mean feat, given the sheer physical size of the site which includes a brand new, 155,000 square metres hospital building with space for 1600- plus patients and a six-storey centre of medical excellence containing over 30 operating theatres.

The Value of Integration

Project manager Rob McIntyre describes the installation as a huge jigsaw puzzle, into which the pieces must be fitted one at a time. He explains how TAC is meeting the challenges involved in installing a system on this scale: "A single mode nine micron dual redundant fibre backbone reaches around the entire site, making it possible to retrieve information and distribute it via web servers to the individual work stations. Multi-channel Loytec switches connect to the system's 'backbone' and allow for good control over our internal networks."

To extend the puzzle analogy, TAC is working with the finished picture continually in view – a picture that the company was also instrumental in creating. Richard Strode, Sales and Marketing Director at TAC UK explains, "We were involved in the project from the very beginning, which is always a big advantage. In this case it meant we could steer the design in favour of the future proof technology that we believe will make it possible to meet the project's criteria throughout the building's lifecycle."



Optimal Safety and Efficiency

The project's two key criteria are to keep energy usage below a defined bench-line level and to ensure the availability of operating theatres. If for some reason, the hospital's energy usage rises above that level, or the operating theatres are not available when needed, a penalty will be charged. Being involved at the design stage, TAC was able to propose the technical solution that would be most effective in achieving these goals.

The LONWORKS solution consists of an 11,000 point Building Management System based on TAC Vista™ using industry awarded TAC Xenta® LONMARK certified controllers which control passive elements such as temperature and automatically check all major plant items including lifts, chillers and boilers to ensure they're performing at optimum levels and not wasting energy. If an unexpected rise in energy consumption occurs in any given area of the hospital, this is automatically communicated via Smart Meters and can be investigated. Whether the rise is due to a so-called "misuse" (such as the addition of electrical equipment that was not planned for when defining the energy usage bench-line) or to a technical fault that needs repairing, LONWORKS technology makes it possible for the operators to receive an early warning and react fast, often before a real problem has even occurred.



TAC is also providing fire alarms, security systems, access control and medical staff paging systems to MRI, all integrated thanks to the LONWORKS technology. One particularly interesting aspect of the security system is 'baby tagging' – a response to the distressingly common problem of baby snatching from inner city hospitals. An electronic tag is attached to the baby's ankle or wrist. If the baby is removed from the area where it is supposed to be, this triggers an alarm. At the same time, a CCTV camera automatically starts transmitting images from the trouble spot to the hospital's control room, thus making it easy to identify and catch the culprit.

Similarly, staff and patient panic alarms are included in the security system, so that anyone who feels vulnerable can relax, safe in the knowledge that they will get immediate assistance if that should ever prove necessary. Being hooked up to the CCTV cameras, any problem is not only registered, but seen by security staff who can then prepare themselves to react in the most appropriate way.

Long-Term Benefits

It's easy to see how the LONWORKS based systems TAC is providing MRI deliver immediate benefits to staff and patients in the form of safety and comfort. At the same time, they will be of long term benefit to those who manage the buildings. By designing for easy monitoring and maintenance, staff are in the best possible position to react to future changes. Richard Strode explains, "This technology enables 'condition- based' maintenance. In other words, we can continually monitor the condition of a piece of equipment and observe how it is performing. Monitoring is done remotely and often, so is the diagnosis. This means a technician can be sent to the site with the exact tools and spare parts needed to fix the problem. Sometimes, the diagnosis will reveal that a physical visit is not even necessary, which helps to save both time and money."

Summary

Modernizing the MRI with a LONWORKS BMS ensures a comfortable, safe and environmentally friendly atmosphere for both staff and the thousands of patients who will be treated here in the years to come. In addition, the flexible, future-proof technology protects the initial financial investment.

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